THE SYNOPTIC CLIMATOLOGY OF THE RED RIVER REGION

by

Danny Ernest Blair

A thesis
presented to the University of Manitoba
in partial fulfillment of the
requirements for the degree of
Doctor in Philosophy
in
The Department of Geography
University of Manitoba

Winnipeg, Manitoba

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ABSTRACT

This thesis develops a synoptic climatology for the Red River Region (RRR) of southern Manitoba, North Dakota, South Dakota, and Minnesota. The Sums-of-Squares technique is used to objectively classify each of the days of 1946-84 according to the type of pressure pattern observed 1) at the 500 mb level over much of North America west of the Great Lakes, 2) at the 500 mb level over a smaller area of west-central North America, and 3) at mean-sea level (MSL) over the same small area. Eighteen large-area 500 mb, 20 small-area 500 mb, and 29 MSL patterns are used to represent the most common synoptic situations. The characteristics of these representative patterns are described, and their average monthly frequencies used to determine natural 500 mb and MSL pressure pattern seasons. Four 500 mb and four MSL seasons are identified. Winter and summer 500 mb regimes are found to be most dissimilar, with winter dominated by many large troughs pulling northern air into the central part of North America, including the RRR, and summer dominated by zonal and ridge-associated patterns. The winter MSL regime shows more highs north of the RRR than does the summer, and fall exhibits more lows toward the north. Spring and fall are transitional months at both

pressure levels. Results are discussed in relation to the seasonal migration of the polar front.

The average weather characteristics associated with the synoptic types at Winnipeg, Manitoba, and Fargo, North Dakota, are calculated and compared. Temperature conditions are assessed by calculating mean departures from mean daily temperatures and precipitation characteristics are evaluated by calculating precipitation efficiencies, or amounts of total precipitation produced relative to frequency of occurrence. Temperatures in the RRR are found to be strongly correlated to wind direction, and precipitation potential related to apparent vertical motions in the atmosphere.

Finally, discriminant analysis and the MSL classification is used to identify the surface pressure patterns whose frequencies in the six months immediately preceding April are significantly different in years with low and high Red River flows, in April, at Emerson, Manitoba. The weather normally produced by the patterns selected as good predictor variables is discussed in relation to the hydrometeorological conditions known to be conducive to extreme Red River flows.

ACKNOWLEDGEMENTS

First and foremost I wish to acknowledge the skilled guidance and enthusiastic encouragement of my supervisor, Alan Catchpole. A finer mentor you will not find. I also send special thanks to Alec Paul for getting me interested in climatology, to Derek Milton for directing me toward synoptic climatology, and to Steve LaDochy for his advice and comments.

Thanks, too, to those in the Department of Geography at the University of Manitoba who have made, and continue to make, my time at the University of Manitoba so enjoyable and stimulating. In particular, I thank Victor Lytwyn, Gary Doige, Irene Hanuta, John Teillet, Don Wyllie, Marcia Faurer, Mike Pidwirny, Norm Haywood, and Wayne Moodie.

Cartographic assistance from Weldon Hiebert and Marj Halmarson is gratefully acknowledged, as is the financial assistance of the University of Manitoba and the Natural Sciences and Engineering Research Council of Canada.

Finally, I thank my family and friends for being so patient with me throughout my many years of schooling, both at the University of Regina and the University of Manitoba. May I never again neglect you as I have for too long.

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1. INTRODUCTION

There is little doubt that the continental interior of North America has one of the world's most diverse climates, wherein an incredibly varied array of weather is experienced from year-to-year, season-to-season, and day-to-day. Included within its expected set of weather conditions are temperatures lower than -40°C, temperatures greater than +40°C, blizzards, tornadoes, flooding rains, droughts, hail storms, dust storms, ice storms, wind storms, and, thankfully, many shades of fair weather. Especially renowned for its varied climate is a small portion of the northern Great Plains straddling the international border between Canada and the United States. The climate of this area, hereafter called the Red River Region (RRR), is the subject of this dissertation.

Located within the RRR is Winnipeg, the capital of the province of Manitoba. Its climate has often been cited in physical geography and climatology textbooks as one of the world's best examples of a continental regime, producing a very large range of temperatures between winter and summer (e.g. Crowe, 1971; Barry and Chorley, 1976; Critchfield, 1983; Briggs and Smithson, 1985; McIntyre, 1985). Given its latitude, intra-annual variation in temperatures at Winnipeg

is expected, of course, but other important kinds of climate and weather variability are observed too. For example, corresponding months of different years can produce drastically different thermal conditions. The mean temperature at Winnipeg in January, 1987, was -11.8°C, but in 1966 the mean temperature in January was -26.7°C, a difference of 14.9°C. Large day-to-day and diurnal temperature variations are also observed. On February 20, 1965, the maximum temperature was 3.9°C; one day later the temperature rose to only -20.6°C. On January 26, 1962, the maximum temperature was -1.1°C and the minimum was -27.2°C, a diurnal range of 26.1°C. Of course, temperature is not the only weather parameter which varies over time. Precipitation is well known for its temporal variability, especially over short periods of time, but substantial levels of variability are observed between annual and monthly periods as well. Only 321.7 mm of precipitation fell on Winnipeg in 1961, but one year later the city received 724.6 mm. In June, 1984, a total of 227.9 mm of precipitation fell on the city, but in June of 1961 only 3.4 mm were recorded. Clearly, Winnipeg's climate exhibits important amounts and kinds of variability at many temporal scales.

Unquestionably, most of the observed inter-seasonal differences in temperatures in the RRR are attributable to strong seasonality in the intensity of solar radiation

available to the surface and to the atmosphere, but the causes of variations between years and within seasons must be sought elsewhere. If one assumes that the radiation climate is uniform on annual and seasonal time scales, and that meteorological observations are not being affected by changes in microclimatic or observational conditions, including those induced by urbanization and station migration, one is left to conclude that inter-annual and intra-seasonal climate and weather variability is a reflection of natural, dynamic processes. One very important manner in which the dynamic nature of the atmosphere reveals itself, at many scales, both spatially and temporally, is in the form of pressure patterns.

Pressure patterns, at the surface and in the upper atmosphere, have very profound influences on weather. Indeed, the prediction of their development, movement, and decay is one of the most important tasks of weather-forecasting, especially in the mid-latitudes, where day-to-day weather is very changeable. The mid-latitude zone, including the RRR, is subject to an endless series of surface cyclones and anticyclones of various forms and intensities, and numerous wind and jet-stream configurations aloft. It is this pressure-pattern activity which makes the climate and weather of the RRR so variable over time. When pressure patterns and the air masses associated with them change very rapidly, the weather tends to change rapidly

too; when pressure patterns persist, particular weather situations tend to persist as well.

Despite its notoriety, the climate of the RRR, perhaps surprisingly, has never been the subject of a detailed pressure-pattern analysis. This is true in the sense that no study has explicitly and comprehensively identified the forms and temporal characteristics of pressure patterns that affect the region on a daily basis and then related these patterns to the weather which they produce within the region. A few studies have examined the climatology of particular kinds of storms which affect the RRR (Black, 1971; LaDochy, 1985; Lawson, 1987), but all have been very specific. The present study attempts to construct a comprehensive synoptic climatology for the RRR.

1.1 RESEARCH OBJECTIVES

The primary objective of this dissertation is to contribute to the understanding of the synoptic, or pressure-pattern, climatology of the RRR of Manitoba, North Dakota, South Dakota, and Minnesota. Daily pressure patterns which frequently affect the region at the mean sea-level and 500 millibar levels are identified using a computer-assisted classification scheme. These primary

patterns are described and their intra-annual temporal characteristics are used to identify the RRR's pressure-pattern seasons. Following this, the temperature and precipitation conditions normally produced by the daily pressure-pattern types are assessed and summarized.

Weather within the RRR is represented by data from two locations: Winnipeg, Manitoba, and Fargo, North Dakota. Winnipeg was chosen to be representative of points in the northern part of the RRR, and Fargo to be representative of points in the south. In essence, then, two synoptic climatologies are derived, one for Winnipeg and one for Fargo. This approach is taken because it adds a spatial dimension to the synoptic climatology. Winnipeg and Fargo are only about 350 km apart, but it is often apparent that the two cities receive quite different kinds of weather from the same synoptic situation. For example, Colorado Lows passing across the RRR often bring heavy snowfalls to Fargo, but not to Winnipeg.

An understanding of the dynamics of a regional climate is intrinsically of interest to climatic geographers, but especially so when the knowledge acquired can be applied in the elucidation of aspects of the region's physical and human environment. Hence, a secondary goal of this research is to use the RRR's synoptic climatology to identify the synoptic conditions conducive to spring-season Red River floods. The RRR has a long history of suffering severe

economic loss and human suffering wrought by flooding. Millions of dollars have been spent to mitigate these losses, but the hazard remains and will undoubtedly cause serious damage in the future. To forecast these floods accurately, and to plan for their occurrences responsibly, hydrologists, engineers, and planners must have a thorough understanding of the environmental conditions which result in floods, and knowledge of their frequencies of occurrence. The environmental conditions responsible for floods are largely climatic (i.e. hydrometeorological), thus, a better understanding of the weather which contributes to Red River floods should surely be of use in preparing for the hazard.

1.2 ORGANIZATION OF THE THESIS

Chapter 1 has briefly described some of the noteworthy characteristics of the climate of the RRR, and provided a rationalization for the present study. The research objectives were stated, as were some of the more important methodological approaches.

The study region is defined and described in Chapter 2, which also gives background information about the region's climate.

The synoptic climatological approach is reviewed in Chapter 3, as are the techniques available for the classification of pressure patterns. The data and methods used to classify pressure patterns affecting the RRR are described in detail, and the results of the classification are summarized and discussed.

The salient morphological and temporal characteristics of each of the pressure patterns identified in Chapter 3 are presented in Chapter 4. Pressure-pattern seasons are identified, and the inter-diurnal persistence and transitional characteristics of the daily patterns are assessed.

Chapter 5 relates the RRR pressure patterns to the temperature and precipitation conditions which they produce at Winnipeg and Fargo. Differences in conditions produced at the two stations are noted and evaluated.

In Chapter 6, the results of Chapters 4 and 5 are compiled and presented as the synoptic climatology of the RRR. The pressure-pattern signatures of the standard seasons are described, and significant differences are highlighted.

Chapter 7 reviews the hydrometeorological conditions

which have caused spring-season Red River floods, and then investigates the nature of the relationship between these floods and the synoptic patterns identified and discussed in the previous chapters.

The findings of the study are summarized in Chapter 8, and recommendations made regarding further research.

2. THE RED RIVER REGION

This chapter provides background information on the Red River Region (RRR). Its extent is defined, and its location and physical setting within the North American continent is described. Following this, the atmospheric-circulation patterns and weather disturbances which normally affect the RRR are reviewed, as are the baseline climatic statistics for Winnipeg and Fargo.

2.1 DEFINITION AND PHYSICAL SETTING

The RRR as defined in this thesis is the primary drainage basin of the Red River (also called the Red River of the North) within Manitoba, North Dakota, South Dakota, and Minnesota (Fig. 2.1). This definition of the RRR excludes from it the watershed of its largest tributary, the Assiniboine River, which joins the Red at Winnipeg. These decisions regarding the area of study were largely based on pragmatic considerations regarding the availability of data and the extent of spring flooding. The RRR so defined is not a distinct, homogenous climatological entity.

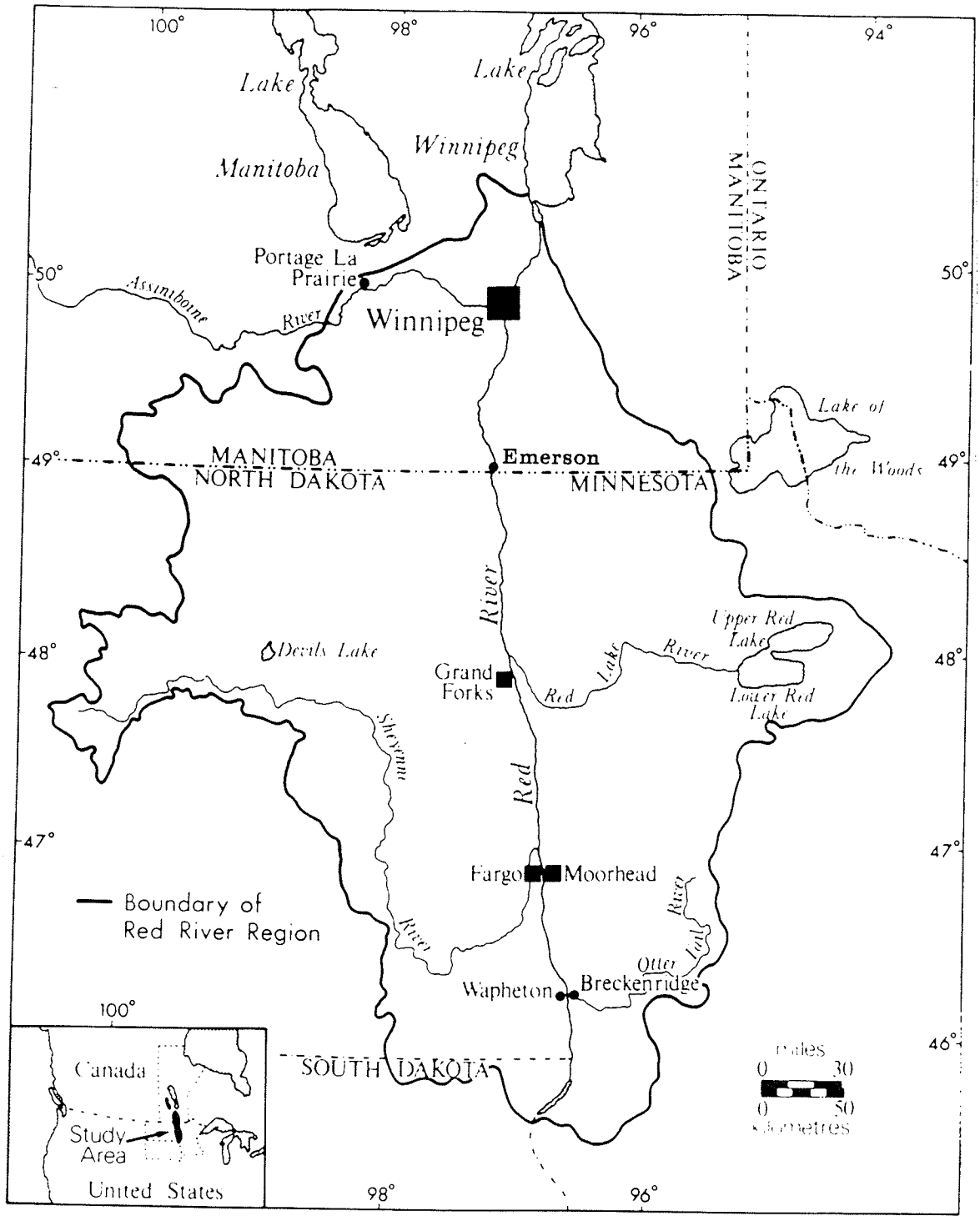


Figure 2.1 The Red River Region.

The Red River rises near Wahpeton, North Dakota, where the Otter Tail River from Minnesota joins the Bois des Sioux River from South Dakota. From Wahpeton it flows almost directly toward the north, although along a very meandering course, through North Dakota and Minnesota, defining their common boundary, and finally into southern Manitoba, where it drains into Lake Winnipeg. The city of Winnipeg (49°53'56"N,97°08'20"W) is about 70 km south-southwest of the river's point of entry into Lake Winnipeg, and Fargo (46°52'30"N,96°47'18"W) is about 350 km south of Winnipeg. The area of the Red's drainage basin, excluding the Assiniboine Basin, is about 125,000 square kilometres, more than 80% of which is located in the United States.

Much of the RRR is very flat, and the basin is set in the interior of eastern North America where there are no topographical features sufficiently high or extensive to significantly impede the movement of weather disturbances. This physiography has profound climatological consequences, for one of the reasons why the weather is so variable in the interior plains is that the meridional movement of air masses is unopposed by topographical barriers. As a result, Arctic air can travel great distances toward the south, and warm tropical air from the southern United States can move northward into Canada. Low-level air of Pacific origin, on the other hand, is denied easy access into central North America by the Western Cordillera. A most important

consequence of this impedance is that the Great Plains are effectively placed in a huge rainshadow, able to experience significant precipitation only when low-level moisture is imported from the south. The general circulation over the RRR and most of North America, however, is dominated by flows propelled by the upper westerlies. The mean seasonal configurations of these flows, and the surface-weather disturbances associated with them, are discussed in the following sections.

2.2 MEAN UPPER-LEVEL FLOWS

The RRR is embedded in the westerlies of the Northern Hemisphere. At all times of the year the atmospheric flows over the region almost always originate from the west, but this is not to say that the flows are always zonal. Indeed, waves in the westerly current over central North America are always present, though varying in origin, amplitude, wavelength, and velocity. The discussion in this section is restricted to the relatively large upper-level waves which define mean seasonal configurations. The smaller, more variable waves associated with day-to-day disturbances are discussed in Section 2.3. All discussions are limited to the 500 mb and MSL pressure fields since these are the

levels analyzed in later chapters. The discussions are also restricted to the January and July conditions. This allows comparisons to be made between the seasonal extremes without indulging in the great volume of description that would result from a study of all months.

The mean 500 mb height pattern for January portrays a three-wave configuration over the Northern Hemisphere (Fig. 2.2). Ridging is evident along the west coast of North America, and a deep trough is established over the eastern part of the continent (Hare, 1960; Wallace, 1983). The location of this standing wave is apparently due to topographic forcing imposed by the Western Cordillera (Bolin, 1959; Manabe and Terpstra, 1974), reinforced by differential heating (Smagorinsky, 1953). The trough normally affects areas north of about 35°N, and its longitudinal axis is found at about 80°W (Chang, 1972; Bryson and Hare, 1974). Hence, most areas west of the Great Lakes and east of the Rockies are largely under the influence of cold and relatively dry northwesterly flows during the winter.

As winter ends and summer approaches, the westerlies become substantially weaker and they retreat toward the north. At the same time, the amplitude of the North American trough diminishes and it drifts toward the east (Bryson and Hare, 1974). In July the trough axis is located near 70°W, about 10° longitude east of its January position

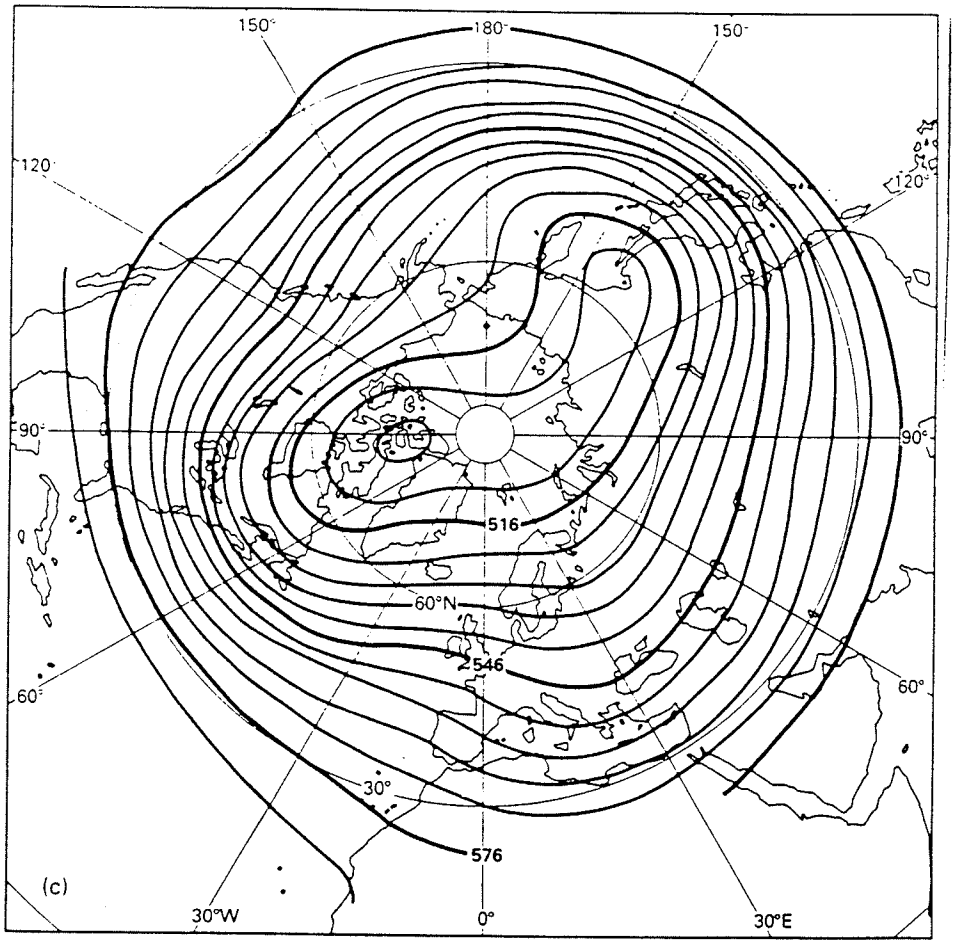


Figure 2.2 Mean height (geopotential decametres) of the 500 mb pressure surface in January, 1951-66 (from Lockwood, 1985).

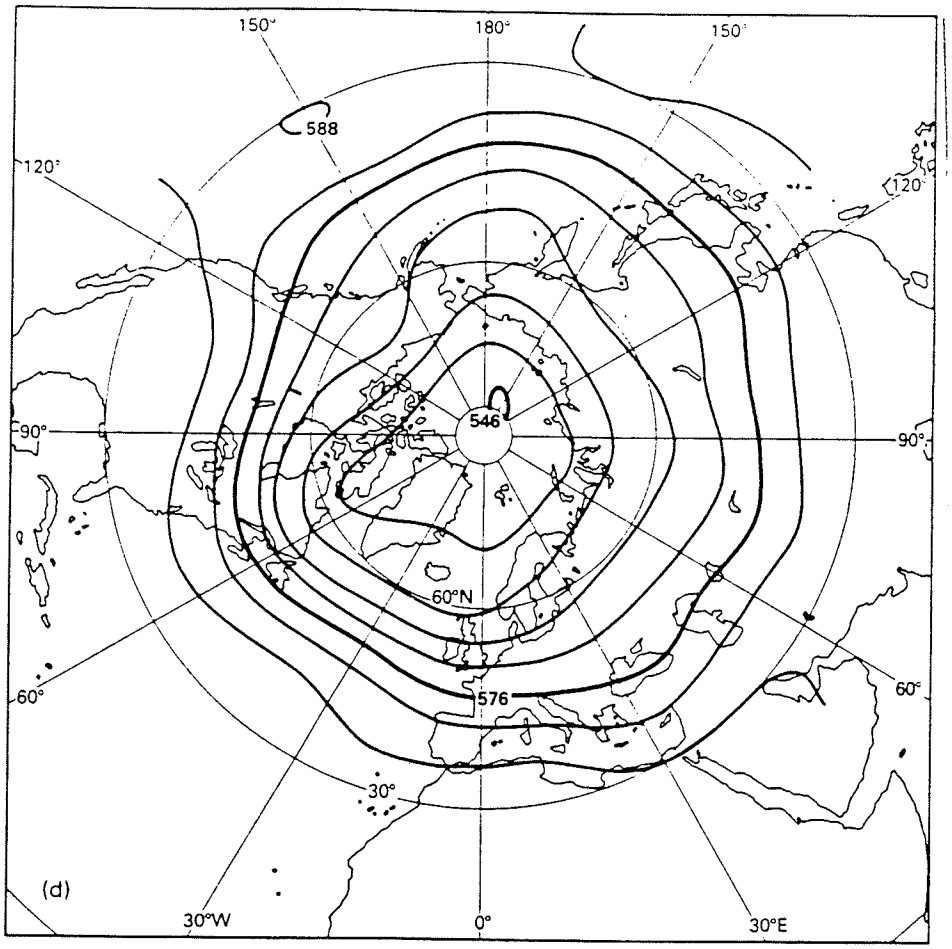


Figure 2.3 Mean height (geopotential decametres) of the 500 mb pressure surface in July, 1951-66 (from Lockwood, 1985).

(Fig. 2.3). As the warm season progresses the western ridge also migrates toward the east. By July it is normally found near 110°W. Clearly, this implies that air from the south and west is advected over the Great Plains during the summer, allowing relatively warm and dry conditions to prevail. That air masses from the south and west normally dominate the plains in the summer was substantiated by Bryson's (1966) analysis of July air-mass frequencies.

It is important to note that the transition from the winter regime to the summer regime is often quite rapid, as is that from summer to winter. In fact, Chang (1972) has stated that there are essentially just two Northern Hemisphere seasons according to the base characteristics of the upper-level circulation. However, most studies of natural seasons have identified two transitional seasons in addition to the main winter and summer seasons. The definitions of these seasons vary from study to study and from region to region (Namias, 1950; Namias and Mordy, 1952; Bryson and Lahey, 1958; Yeh et al., 1959; Bradka, 1966; Barry and Perry, 1973), but some generalizations can be made. The winter regime usually collapses sometime during late March or early April, and the summer regime is established in May or June. Hence, the spring circulation season is only about two months long. The summer regime commonly begins to break down in late August or early September, and the winter pattern typically makes its return

in October or November. Consequently, fall and summer are also rather short seasons.

During spring, the strong winter westerlies start to diminish, often allowing cold, low-level air from the arctic to move deep into eastern and central North America during late March, April, and early May (Bryson and Hare, 1974). It is at this time of the year that the westerlies make their deepest southward penetration into North America (Palmen and Newton, 1969). Consequently, the central part of the continent often experiences disturbed weather during the spring. In the fall, the westerlies begin to strengthen and they tend to be more zonal than at any other time of the year (Bryson and Hare, 1974). Winter effectively arrives when the zonal configuration gives way to the meridional circulation which rejuvenates the North American trough.

It should go without saying, but is nevertheless worth emphasizing, that the form and timing of the seasonal circulations which affect North America are different every year. The seasonal configurations reported above, therefore, are gross averages which mask a large amount of short-period variation. The vast topic of anomalous circulations will not be covered here, for it would require, and is deserving, of more attention than it could be given. The reader is directed to the many fine publications of Namias for examples of research into anomalous North American circulation patterns associated with short-period

climate fluctuations (see Namias, 1975; 1983).

2.3 SYNOPTIC-SCALE DISTURBANCES

Seasonal or monthly means of upper-level flows are very useful in the explanation of regional, time-averaged temperature and precipitation conditions at the surface, but they cannot be used to explain day-to-day weather conditions. To explain meteorological phenomena and the origins of temporal variability associated with them one must engage processes and systems that operate at the same scale. Hence, to describe and explain daily weather variability in the RRR it is necessary to utilize information which depicts the primary weather producers of the region, synoptic-scale disturbances, aloft and at the surface. The systems are constantly forming, decaying, and migrating within and across the RRR window, resulting in a wide variety of weather conditions. The various types of disturbances which frequently affect the RRR are described below, as are some of their more important physical and temporal attributes.

The two major weather producers for the RRR are the travelling wave-cyclones (lows) and anticyclones (highs) commonly depicted on synoptic weather maps of MSL

conditions. These surface systems occur in association with waves in the westerlies having wavelengths ranging from about 70^{o} to 30^{o} longitude (Hare and Thomas, 1979). As a result, these waves are referred to as shortwaves, in contrast to the longwaves which define the seasonal configurations discussed earlier.

Wave cyclones tend to form on the eastern sides of travelling, upper-level shortwave troughs. Upper-level divergence is characteristically found at this position in a trough, and this divergence promotes the formation of uplift and convergence at the surface (Bjerknes and Holmboe, 1944). However, not all shortwave troughs produce wave cyclones. Divergence aloft must be quite intense to produce strong uplift, and this intensity is largely controlled by the amplitude of the wave in question and the speed of the upper-level winds (Charney, 1947; Eady, 1949). In particular, divergence is intense when the upper-level winds are curved and fast, as in a meandering jet stream. These are conditions usually associated with a strongly baroclinic atmosphere.

A baroclinic atmosphere also produces fronts. The importance of fronts in the formation of wave cyclones was expounded by Bergeron and his fellow researchers in the so-called Bergen School of meteorology in the early part of this century (see Namias, 1981). Their model of cyclogenesis, now one of the foundations of meteorology,

shows that boundaries between air masses are areas favourable for the formation of cyclones, especially where the temperature, moisture, and density discontinuities are large. This is often the case along the polar front, where tropical air adjoins polar air (Penner, 1955; McIntyre, 1959). If these discontinuities extend far into the upper atmosphere, a jet stream is created which may further enhance cyclogenesis.

Anticyclones usually follow travelling cyclones, where the cold air behind the cold front is found. Hence, these highs are cold-core highs, largely influenced by cooling near the surface (Wexler, 1951). These kinds of systems weaken with height, but most of these highs are also associated to some degree with ridging aloft and subsidence produced by upper-level convergence (Hare and Hay, 1974). Warm-core highs are also observed, when subsidence from ridging aloft is very strong (Barry and Chorley, 1976). Subtropical highs are the best example of this kind of high. They intensify with height, although they too eventually become ridges in the upper-atmosphere. The crest of an upper-level ridge is usually found west of the centre of its corresponding high at the surface, as is the trough line of a surface low.

The mean frequencies of occurrence of migratory cyclones and anticyclones in North America vary by season and location. In addition, long-term records show that

cyclones and anticyclones tend to follow preferred tracks in their movement across the continent. Klein's (1957) work is the most oft cited in this regard. He studied the mean cyclone and anticyclone tracks of the Northern Hemisphere for the period 1899-1939. Reitan (1974) updated Klein's work by studying the period 1951-70. Whittaker and Horn (1982) examined the geographical and monthly distribution of cyclogenesis over North America during the period 1958-77, and Zishka and Smith (1980) looked at the climatology of January and July North American cyclones and anticyclones during 1950-77. Harman (1987) investigated mean monthly North American anticyclone frequencies for 1950-79. Some studies have considered cyclones and anticyclones over particular parts of the continent (Bowie and Weightman, 1914; Hosler and Gamage, 1956; Brennan and Smith, 1978; Colucci, 1976; Hurley, 1954), but none have been directed at the area in and around the RRR.

Maps of the mean January and July North American cyclone and anticyclone frequencies identified by Zishka and Smith (1980) are shown in Figures 2.4 through 2.7. The frequencies indicated on these maps are unadjusted totals for the 28-year period of 1950-77, accumulated within 2^{o} latitude/longitude quadrangles. No attempt is made to determine mean monthly frequencies of cyclones and anticyclones from the data reported in Zishka and Smith (1980), or any other study, because there is no agreement in

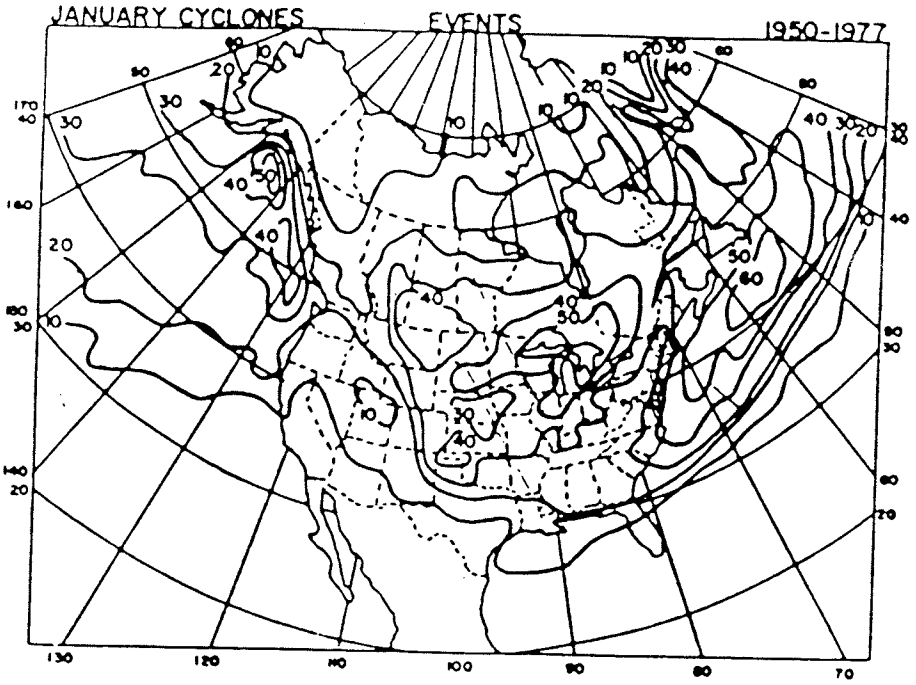


Figure 2.4 Total number of cyclones in January within 2° latitude/longitude rectangles over North America, 1950-77 (from Zishka and Smith, 1980).

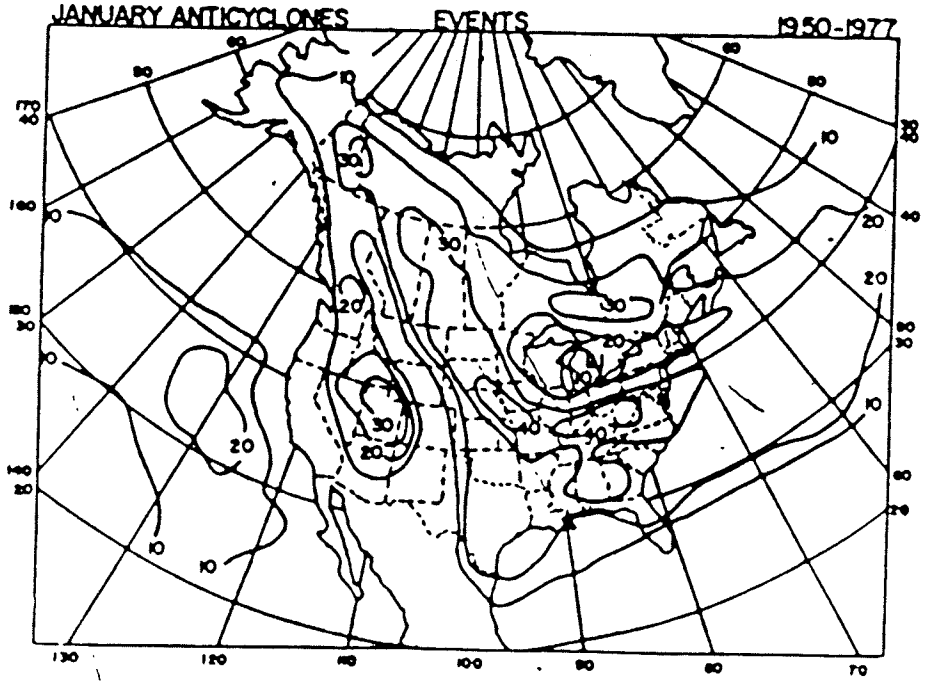


Figure 2.5 As in Figure 2.4, but January anticyclones.

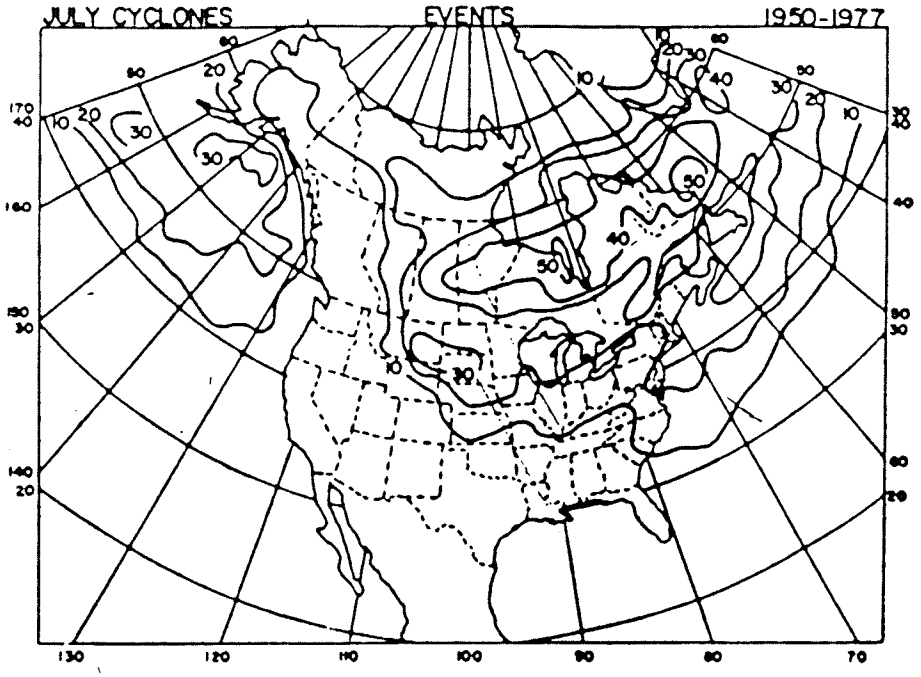


Figure 2.6 As in Figure 2.4, but July cyclones.

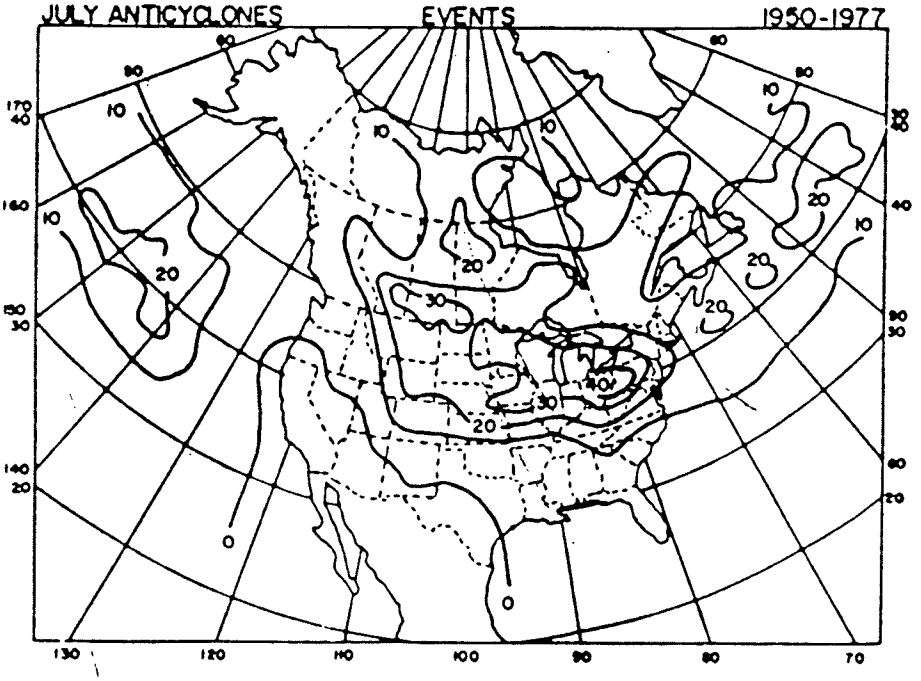


Figure 2.7 As in Figure 2.4, but July anticyclones.

climatology on how to define and count these kinds of systems (Hayden, 1981; Taylor, 1986). The principal tracks of cyclones and anticyclones determined by Klein (1957) are presented in Figures 2.8 through 2.11.

As a whole it can be seen that cyclones outnumber anticyclones, and that both systems are more prevalent during the winter. The winter maximum is related to the strength of the baroclinicity of the atmosphere at this time of the year, creating relatively intense jet streams and fronts which promote the formation of waves in the westerlies (Charney, 1947; Eady, 1949; Klein, 1958). Note, too, that the areal distribution of cyclone and anticyclone activity shifts northward from winter to summer, primarily in response to the warm-season retreat of the westerlies and the polar and arctic fronts (Villimow, 1956; Bryson, 1966; Barry, 1967; Bryson and Hare, 1974).

In January, the RRR is located in a broad zone of maximum cyclonic activity which extends from southern Saskatchewan and eastern Montana east across the Great Lakes (Fig. 2.4). This corresponds to the primary track of lows originating from Alberta (Fig. 2.8), where most central North American wave cyclones are generated (Chang, 1972). Orography plays a critical role in the formation of these Alberta Lows and their southern counterpart, the Colorado Low (McClain, 1960; Chung et al., 1976). Both of these kinds of lows contribute to the belt of maximum cyclonic

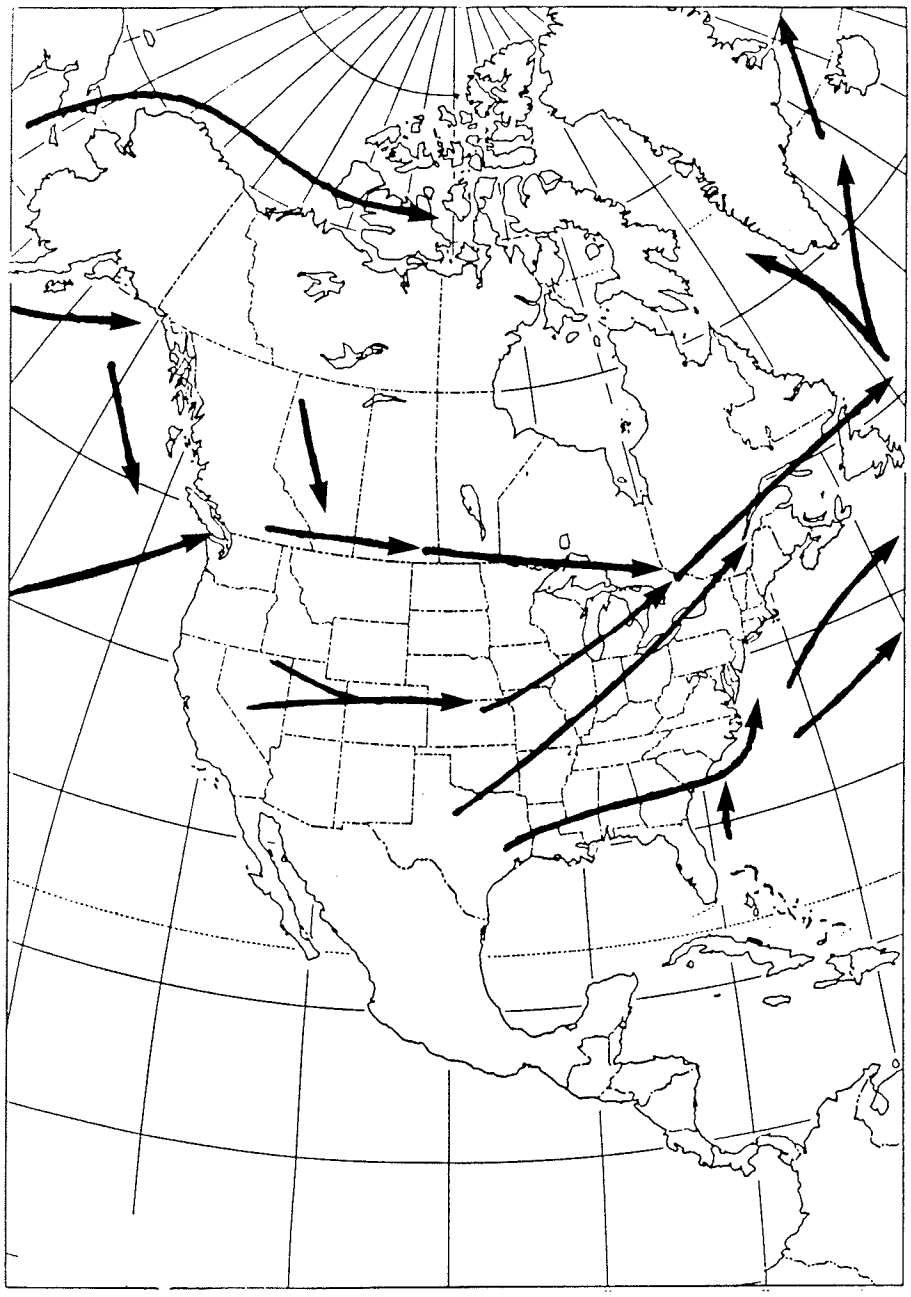


Figure 2.8 Principal cyclone tracks over North America in January (after Klein, 1957).

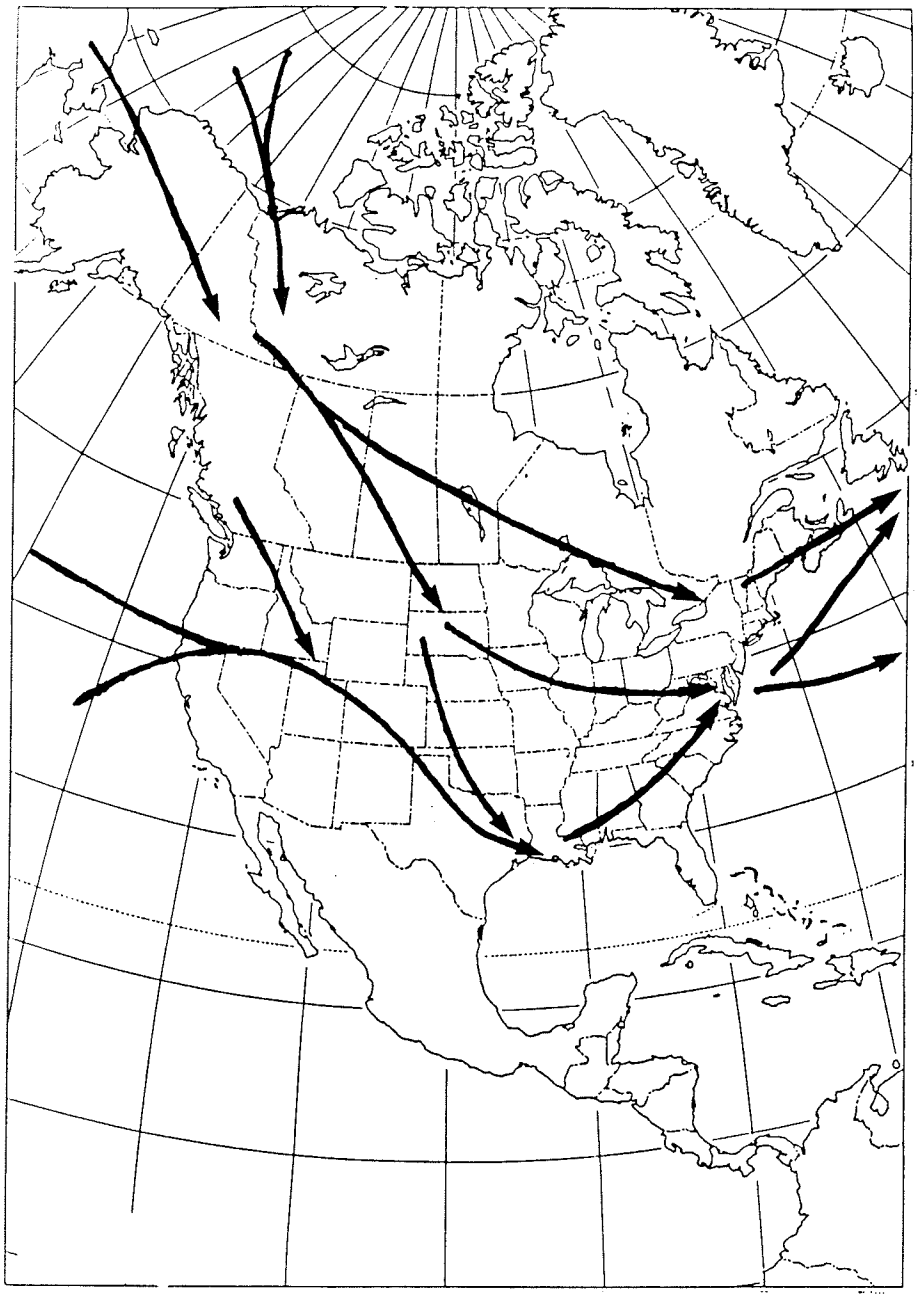


Figure 2.9 As in Figure 2.8, but January anticyclones.

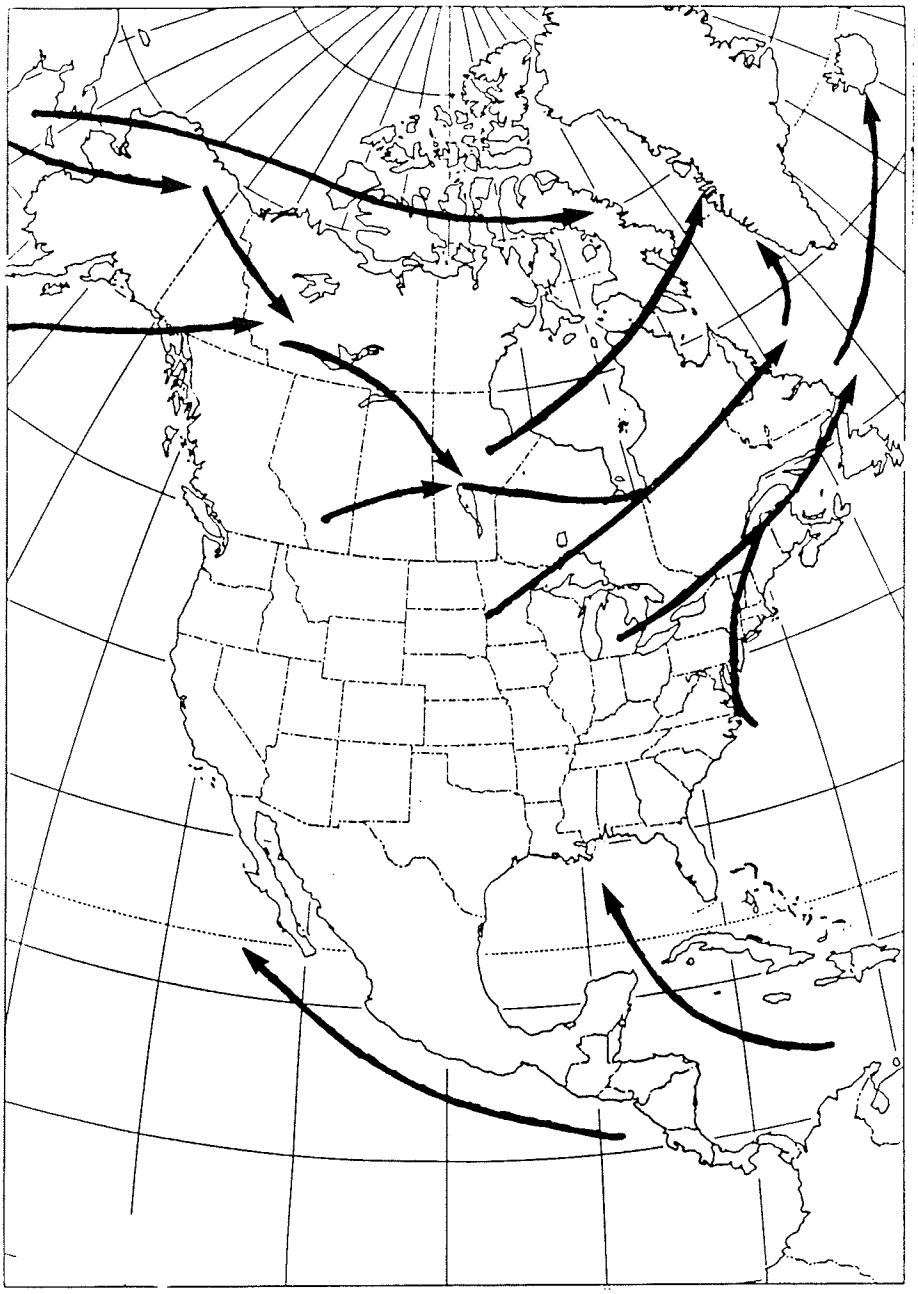


Figure 2.10 As in Figure 2.8, but July cyclones.

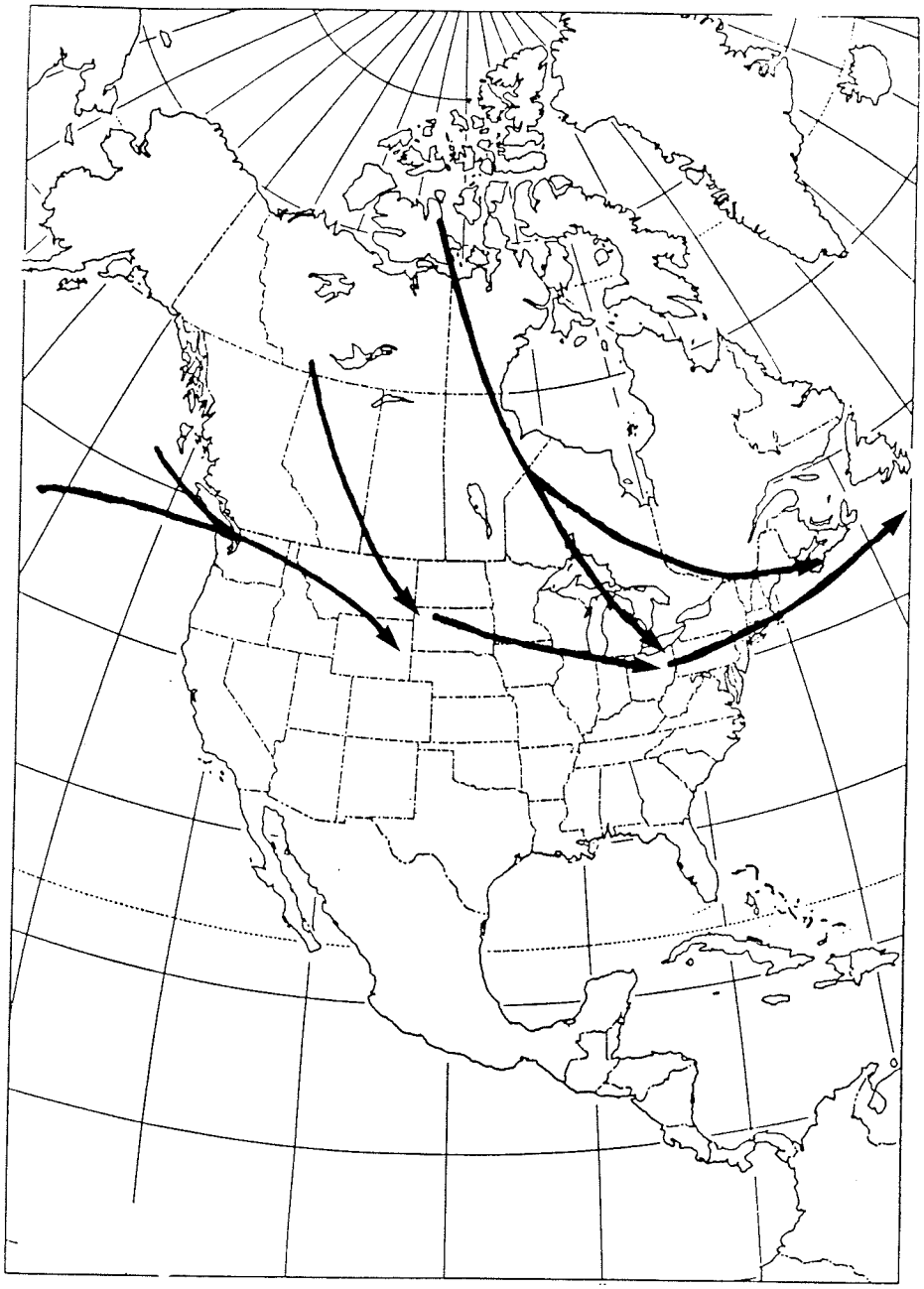


Figure 2.11 As in Figure 2.8, but July anticyclones.

activity recorded in January, but Colorado Lows do not often affect the RRR at this time of the year.

January anticyclones also have a preferred track which affects the RRR (Figs. 2.5 and 2.9). In July, most of these anticyclones form in the cold air of the Canadian north and then track southeast through Saskatchewan toward the American midwest. A secondary track is indicated over central Manitoba.

As noted earlier, July cyclones are less numerous than January cyclones (Fig. 2.6), and the zones of peak activity migrate toward the north. This migration is evident in the July cyclone tracks shown in Figure 2.10. Most cyclogenesis in Alberta occurs farther north than in the winter, and the lows move toward the east through north-central Saskatchewan and Manitoba. Two secondary tracks which affect the RRR can be seen as well, one from southern Alberta eastward through south-central Manitoba, and another from South Dakota northeastward across the Great Lakes. Hence, most lows which pass near the RRR in the summer do so toward the north. Most travelling anticyclones, however, generally pass just south of or directly over the RRR, according to the data compiled by Zishka and Smith (1980) (Fig. 2.7) and Klein (1957) (Fig. 2.11).

Maps of cyclones and anticyclones in months other than January and July are not presented, but a few observations about activity in these months will be made. Reitan's

(1974) data indicate that cyclones are least common over the RRR in the spring (April). This is when the region most affected by Colorado Lows seems to be located farthest to the south. Slightly higher cyclone frequencies are recorded in the RRR in June, followed by lower frequencies again in July. This suggests that the primary zone of baroclinicity passes over the RRR in June, during its migration toward the north. Klein's (1957) tracks support this idea. Whittaker and Horn's (1981) data indicate that cyclone activity near the RRR is especially low at the end of the summer, in August, when cyclone development in the arctic is growing toward its October-November maximum. October apparently produces cyclone frequencies in the RRR similar to those recorded in January, but the region of maximum activity remains north of the January maximum.

Harman's (1987) study of anticyclones shows that the disturbances are least frequent in the RRR in the months of March, April, November, and December. January, February, July, and August are months when highs seem to be most common. The overall pattern of activity strongly suggests that cold core highs affect the RRR in the dead of winter, while warm core highs prevail in the summer, as one would expect. Nevertheless, cold core highs affect the region in the summer as well as in the winter.

One of the reasons why it is so difficult to produce meaningful maps of the frequencies of the kinds of systems

being discussed is that they are very large. Wave cyclones are roughly circular and about 1500-2000 km in diameter, although they can be much smaller under very perturbed flows (Barry and Chorley, 1976). They usually last about four to seven days and travel at about 30 kmh during the summer and about 50 kmh during the winter (Ahrens, 1988). Anticyclones tend to be larger, more elongated, and slower than cyclones.

Of course, it is well known that cyclones and anticyclones typically produce very different kinds of weather. Uplift in cyclones enhances the formation of clouds and, therefore, precipitation, while subsidence in anticyclones inhibits the formation of same. Every cyclone is different, but precipitation is usually most pronounced in the vicinity of the cold and warm fronts, and near the centre of the system after it has occluded. In addition, the pattern of surface temperature varies from cyclone to cyclone, but temperatures are usually warmest in the warm sector of the southeast quadrant and coolest in the northwest quadrant behind the cold front (Palmen and Newton, 1969). Because of the air masses that produce them, cold core anticyclones generally bring cold temperatures, while warm core anticyclones produce warm weather. One can also generalize that the cloud cover of cyclones results in relatively cool weather when they occur in the summer, but relatively warm weather in the winter, and that the clear skies of anticyclones produce cold weather in the winter,

but warm relatively weather in the summer.

Although cyclones and anticyclones dominate the RRR's weather, they are not the only systems which have to be recognized. Many weather systems do not develop into full-fledged cyclones and anticyclones with closed isobars on surface-weather maps. In general, these troughs and ridges produce the same kind of weather as do their more mature counterparts, although less intensely so.

2.4 MEAN SURFACE CONDITIONS

The 1951-80 mean monthly temperature statistics for Winnipeg and Fargo describe classic examples of a continental climate (Tables 2.1 and 2.2) (Fig. 2.12). The warmest month at both locations is July, and January is the coolest. Variation about the monthly means is largest during the winter and smallest during the summer (Tables 2.3 and 2.4) (Fig. 2.13). On average, temperatures at Winnipeg are about 2.5^{o}C lower than those recorded at Fargo, but there is some seasonality to these differences. The largest differences are observed during the winter and the smallest during the spring and fall (Fig. 2.12).

Five months (November-March) have mean temperatures below 0^{o}C and three months (June-August) have means above

Table 2.1 Mean annual and monthly climatic data for Winnipeg, 1951-80.

Month	Temperature (°C) Max.	Min.	Mean	Precip. (mm)
Jan.	-14.3	-24.2	-19.2	21.4
Feb.	-10.1	-21.0	-15.6	17.5
Mar.	-2.8	-13.5	-8.2	22.8
Apr.	8.9	-2.2	3.4	38.6
May	18.0	4.5	11.3	65.8
Jun.	23.1	10.5	16.8	80.2
Jul.	25.9	13.3	19.6	76.0
Aug.	24.7	11.8	18.3	75.2
Sep.	18.4	6.3	12.4	53.3
Oct.	11.5	0.7	6.1	30.9
Nov.	-0.3	-8.8	-4.5	25.2
Dec.	-9.4	-18.6	-14.0	19.5
Annual	7.9	-3.3	2.3	526.4

Table 2.2 Mean annual and monthly climatic data for Fargo, 1951-80.

Month	Temperature (°C) Max.	Min.	Mean	Precip. (mm)
Jan.	-10.2	-20.6	-15.4	13.9
Feb.	-6.3	-16.8	-11.6	10.6
Mar.	0.7	-9.5	-4.4	21.0
Apr.	11.4	-0.1	5.7	48.3
May	20.0	6.2	13.1	56.8
Jun.	25.0	12.1	18.5	77.6
Jul.	28.2	14.8	21.5	84.8
Aug.	27.3	13.7	20.5	67.9
Sep.	21.0	7.8	14.4	47.4
Oct.	14.2	1.7	8.0	32.8
Nov.	2.7	-6.9	-2.1	20.2
Dec.	-6.0	-15.3	-10.6	16.1
Annual	10.8	-1.0	4.9	497.4

Table 2.3 Standard deviations of mean annual and monthly climatic data for Winnipeg, 1951-80.

Month	Temperature (°C) Max.	Min.	Mean	Precip. (mm)
Jan.	3.1	3.3	3.2	14.3
Feb.	3.1	3.6	3.3	10.4
Mar.	3.2	3.9	3.5	11.8
Apr.	3.6	2.0	2.6	23.7
May	2.9	2.1	2.4	46.7
Jun.	1.8	1.7	1.6	41.9
Jul.	1.7	1.5	1.5	44.8
Aug.	2.1	1.6	1.7	42.7
Sep.	2.1	1.5	1.6	34.9
Oct.	2.8	2.0	2.3	18.7
Nov.	2.6	2.8	2.6	21.7
Dec.	3.3	4.0	3.6	11.1
Annual	0.9	1.0	0.9	109.1

Table 2.4 Standard deviations of mean annual and monthly climatic data for Fargo, 1951-80.

Month	Temperature (°C) Max.	Min.	Mean	Precip. (mm)
Jan.	3.3	3.3	3.2	10.6
Feb.	3.2	3.6	3.4	9.7
Mar.	3.6	3.6	3.5	13.7
Apr.	3.2	1.7	2.3	31.0
May	2.5	2.1	2.1	38.3
Jun.	1.8	1.6	1.6	45.0
Jul.	1.5	1.6	1.4	52.7
Aug.	2.0	1.4	1.6	39.1
Sep.	2.2	1.4	1.7	40.3
Oct.	2.8	2.0	2.2	24.7
Nov.	2.6	2.5	2.4	21.8
Dec.	3.2	3.3	3.2	12.1
Annual	1.0	0.8	0.8	118.3

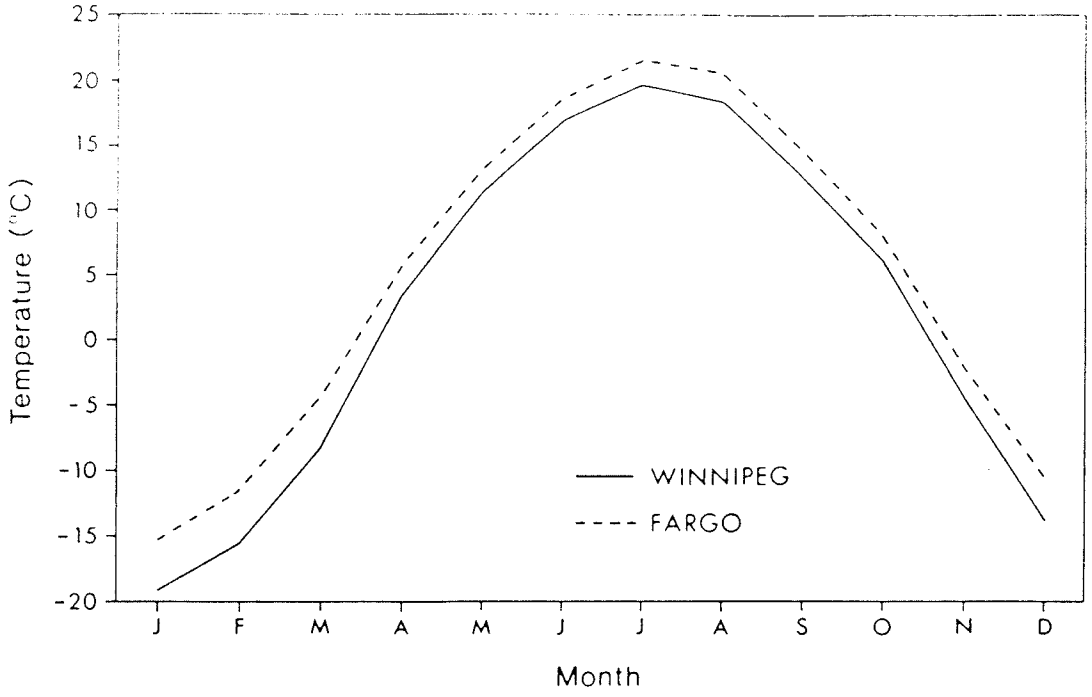


Figure 2.12 Mean monthly temperatures at Winnipeg and Fargo, 1951-80.

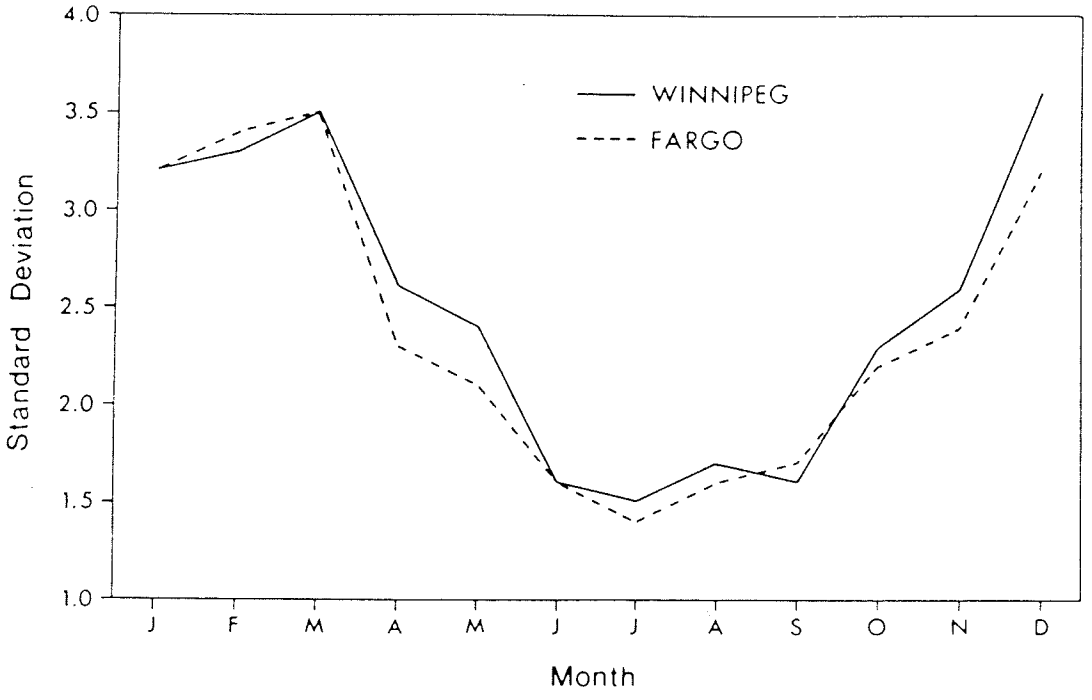


Figure 2.13 Standard deviations of mean monthly temperatures at Winnipeg and Fargo, 1951-80.

15°C. The mid-summer and mid-winter monthly means exhibit the least amount of trend, while the spring and fall means change most rapidly. For example, the January and February means differ by only 3.6°C at Winnipeg and and 3.8°C at Fargo. The July and August means differ by only 1.3°C at Winnipeg and 1.0°C at Fargo, but the March and April means differ by 11.6°C and 10.1°C, and the October and November means differ by 10.6°C and 10.1°C.

An impressive annual range of temperatures is observed in the RRR. The mean July and January temperatures differ by about 35°C at both Winnipeg and Fargo. The absolute maximum temperature observed at Winnipeg during 1951-80 was 37.0°C and the absolute minimum was -45.0°C, giving an extreme range of 82.0°C. The extremes at Fargo were 41.1°C and -37.8°C, producing a range of 78.9°C. Very few places on the globe's surface experience such ranges.

The mean monthly precipitation values for the RRR are also typical of a continental climate (Tables 2.1 and 2.2) (Fig. 2.14). Most of the region's precipitation falls during the warm season, and the winter months are quite dry. Winnipeg and Fargo usually receive about 45% of their annual precipitation during June, July, and August, much of it from convective activity, and only about 10% during December, January, and February. Note that variance about the means is quite large at all times of the year, indicating that the region is prone to large fluctuations in monthly and

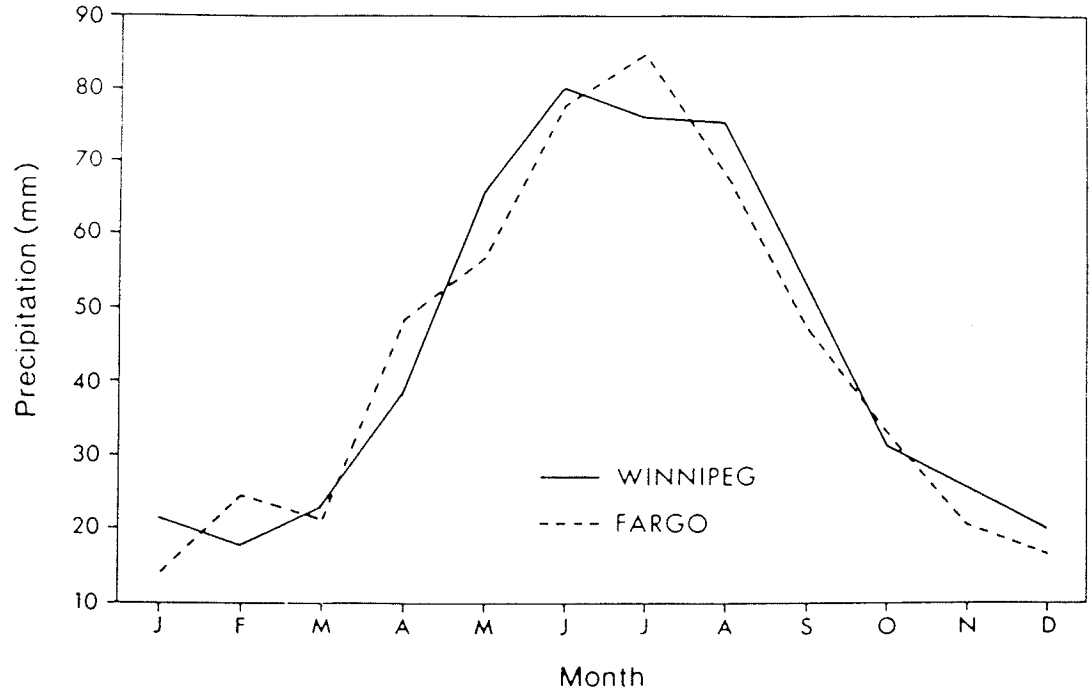


Figure 2.14 Mean monthly precipitation totals at Winnipeg and Fargo, 1951-80.

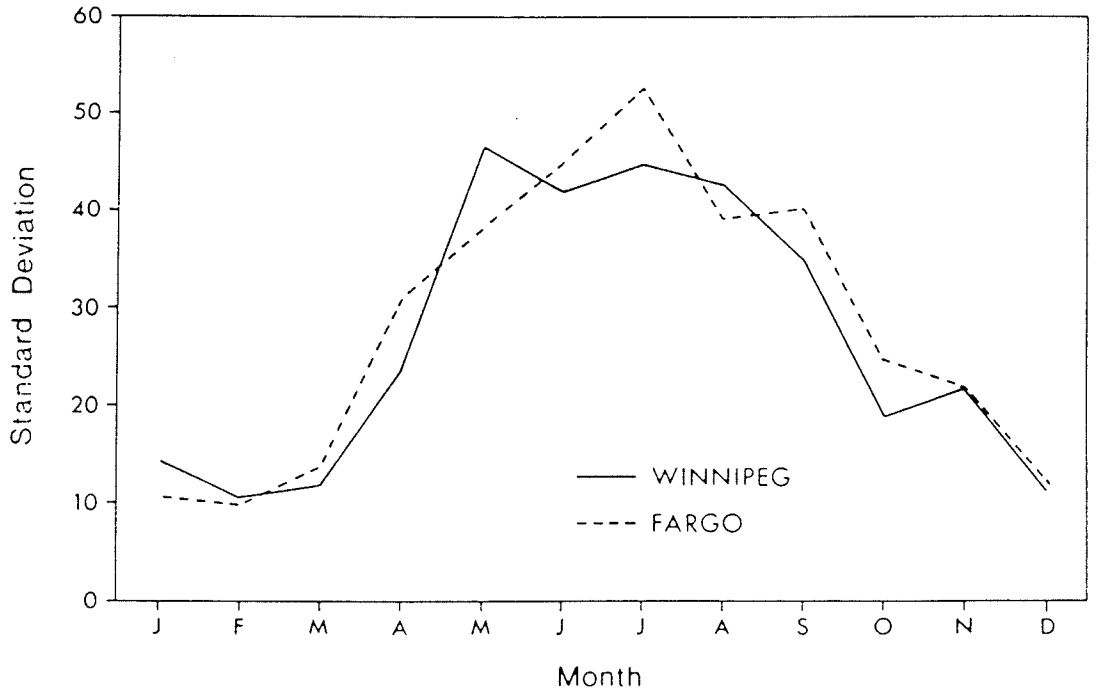


Figure 2.15 Standard deviations of mean monthly precipitation totals at Winnipeg and Fargo, 1951-80.

seasonal precipitation totals (Table 2.1 and 2.2) (Fig. 2.15).

The mean annual precipitation at Winnipeg (526.4 mm) is slightly greater than that at Fargo (497.4 mm). The reason for this is unclear, but one could suggest that Winnipeg's proximity to the large water bodies of central Manitoba may explain the difference. However, an examination of the monthly precipitation statistics reveals that Winnipeg receives more precipitation than Fargo in nine of the twelve months, including the winter months when the lakes are frozen. Hence, something other than access to low-level moisture must be involved. One possibility is that cyclonic activity associated with the polar front may affect the northern part of the RRR more often than it does the southern part. In other words, the primary cyclone tracks discussed in the previous section may put frontal activity over Winnipeg more often than Fargo. It is interesting to note, too, that two of the months in which precipitation is normally higher in Fargo than it is in Winnipeg (April and October) are months when the preferred track of Colorado Lows could be expected to give North Dakota a better chance of receiving precipitation than southern Manitoba. These topics are investigated later in the thesis, when the precipitation characteristics of individual pressure patterns are evaluated. Before this can be done, however, the pressure patterns which affect the RRR must be

classified. This is done in the following chapter.

3. PRESSURE PATTERN CLASSIFICATION

The first step in the development of a regional synoptic climatology is the identification of those atmospheric flows which typically affect the region in question (Barry and Perry, 1973). This chapter describes the data and methods used to identify the daily pressure patterns which commonly affect the RRR, and summarizes the results of the classification of all daily patterns for 1946-84.

3.1 INTRODUCTION

Synoptic climatology derives its name from its frequent use of weather maps presenting an instantaneous view of the meteorological properties of the atmosphere over a given region of the Earth's surface. Meteorologists refer to such maps as synoptic maps (Court, 1957). These maps are most often used to depict the atmospheric circulation, and it is this which synoptic climatology studies. More precisely, synoptic climatology attempts to identify and assess the relationship between the weather which is experienced within

a region and the atmospheric circulation patterns which affect that region (Barry and Perry, 1973); that is, synoptic climatology seeks to identify the patterns which produce specific kinds of weather.

Atmospheric flows can be represented by many different meteorological variables, but synoptic climatologists most often use those which depict the horizontal distribution of atmospheric pressure. Local weather is to some degree affected by topography and surface characteristics, but the regional, synoptic-scale, patterns of pressure at the surface and in the upper atmosphere exert a great deal of influence on the character of the weather at points beneath these patterns. Indeed, modern weather forecasting, with all of its computational sophistication, still very much relies on the singular task of predicting the pressure patterns which will occur in a specific region at a specific time. It is beyond the scope of this work to review the present state of knowledge in synoptic climatology, for it is exceptionally varied and often quite site-specific, but the reader is directed to Barry and Perry (1973), Perry (1983), Smithson (1987),and Yarnal et al. (1987) for excellent reviews and examples of synoptic climatological research. Specific relationships between patterns and weather will be discussed as the relationships are revealed in later chapters.

The variables which are most often used to construct

pressure pattern maps are mean sea-level (MSL) pressure and height of the 500 millibar (mb) surface. MSL pressure is the pressure which would be recorded if the elevation of observation was the mean value of sea-level, derived by 'correcting' the observed surface pressure for elevation, latitude, and temperature. This thermodynamic adjustment may exaggerate the amplitude of pressure variations over montane regions, but it must be done to make pressures recorded at different elevations comparable (Berry, Bollay and Beers, 1945). One of the reasons why MSL pressure is frequently used is that it depicts atmospheric circulations at the surface, including the influence of topography. On the other hand, the 500 mb pressure surface is widely used because it is at that level in the atmosphere where topographic influences are small (about 5.5 km above sea-level in the middle latitudes), and where the geostrophic winds tend to be non-convergent (Barry and Perry, 1973). The height of the 500 mb pressure surface is expressed in geopotential (i.e. adjusted for the local acceleration of gravity) rather than in geometric units (metres), but, for most purposes, the difference between these units is too small to be of any significance. In addition, MSL and 500 mb data are frequently used because they are readily available as meteorological data sets.

3.2 REVIEW OF CLASSIFICATION TECHNIQUES

The techniques used to classify pressure patterns have traditionally been described as being of two basic types: subjective and objective. Subjective techniques are those which rely on human judgement to determine whether two patterns are similar, while objective techniques minimize human involvement and rely more on mathematical indices of similarity. Subjective techniques have been used by many researchers (e.g. Lamb, 1950, 1972; Barry, Bradley and Jacobs, 1975; Alt, 1979; Stenning, Banfield and Young, 1981; Muller and Willis, 1983), but the procedures can be somewhat unreliable, since patterns are compared and grouped intuitively. This is a major weakness, because it is very unlikely that different people classifying the same large set of maps will group patterns identically, thus, a unique classification is difficult to obtain. Notwithstanding this weakness, synoptic climatologies based on subjective classifications have yielded valuable knowledge when applied by people who are deeply familiar with the atmospheric circulation in the region under investigation. Worthy of note is Lamb's (1972) classification of daily weather patterns which occurred over the British Isles during the period 1861 to 1971. This has been used extensively in climatological analyses (e.g. Jones and Kelly, 1982) and stands as a very important source of information about the

weather affecting the British Isles.

Objective techniques do not involve intuitive comparisons to classify patterns and are, therefore, capable of being much more consistent and reproducible than subjective techniques. Subjectivity is not completely eliminated, however, since the user must define the mathematical thresholds for pattern similarity. Consequently, Yarnal and White (1987) have suggested that objective techniques should be described as automated, computer-based, or computer-assisted. The term computer-assisted is adopted throughout the remainder of this thesis.

If thresholds are chosen carefully, either by experimentation or practice, computer-assisted classifications can be extremely reliable. However, reliable classifications are not necessarily valid (Janis, 1965), so they must be analyzed and applied with care. A classification technique which is reliable is one which produces the same output when given the same input, whereas a valid technique is one which produces output which accurately represents the input.

Computer-assisted techniques also have the advantage of allowing the researcher to spend more time on interpretation and less time on the tedious job of pattern classification.

Three types of computer-assisted techniques are described in the climatological literature: variable-reducing procedures, the correlation method, and the

Kirchhofer or Sums-Of-Squares (SOS) technique. Variable-reducing procedures are those which apply one of the varieties of factor analysis to matrices of pressure data. These techniques have most often been used to identify anomalous pressure patterns or mean seasonal configurations (e.g. Christiansen and Bryson, 1966; Kutzbach, 1967, 1970; Dixon et al., 1972; Blasing, 1975; Rogers, 1979; Ladd and Driscoll, 1980; Richman, 1981). Since the procedures tend to be computationally difficult, conceptually problematic, and not necessarily interpretable meteorologically, they have been applied to only a limited extent in the development of regional synoptic climatologies.

The correlation method and the SOS technique were at first thought to be different but it is now recognized that they are essentially the same. The correlation method, first described by Lund (1963), and often described as the 'Lund' method, calculates correlation coefficients between pairs of patterns. It has been used extensively (e.g. Fogarasi, 1972; Paegle and Kierluff, 1974; Suckling and Hay, 1978; Singh, Mooley and Kripalani, 1978; Robinson and Boyle, 1979; Blasing and Lofgren, 1980; Overland and Hiester, 1980; Blasing, 1981). Since most users of this technique demanded rather high correlation coefficients between two maps before they would judge the maps as similar, the technique tended to leave a high proportion of the maps unclassified. This was seen as a serious drawback to the procedure, for

classifiers, including synoptic climatologists, do not like to deal with 'outliers'. Petzold's (1982) modifications to the procedure increased the percentage of maps which are classified successfully, but many synoptic climatologists turned to the SOS technique because it successfully classifies a higher percentage of maps.

The SOS technique was first described by Kirchhofer (1973) and has been used in numerous studies, including those by Barry and Keen (1978), Moritz (1979), Bradley and England (1979), Keen (1980), Barry, Kiladis and Bradley (1981), Yarnal (1984a), and Hoard and Lee (1986). Prior to 1986 it was not recognized that the SOS technique is actually the same as the correlation method, but with lower thresholds of similarity (Willmott, 1987). The similarity score calculated by the SOS technique is mathematically the same as a Pearson's product-moment correlation coefficient, but it is calculated and presented in an unfamiliar way. Hence, the similarity score was not treated and interpreted as a correlation coefficient. Since the procedure permitted the classification of a relatively high proportion of maps it became widely accepted.

Primarily for this reason, the SOS technique was chosen for use in this dissertation. This decision was made before Willmott revealed its affinity with the correlation method. In addition, it was chosen for pragmatic reasons. Although the procedure requires a relatively large amount of computer

memory, it is relatively easy to program on a computer, and a listing of the FORTRAN code for the procedure was published by Yarnal (1984b). Also, the SOS technique produces a catalogue, or calendar, of circulation types, with each pattern coded as one, and only one, type. Some other techniques, and especially those which calculate eigenvector weights or polynomial coefficients, produce several parameters for each pattern, thereby greatly complicating the interpretation of results (Barry and Perry, 1973; Blasing, 1975). Another advantage to the SOS method is that it produces output which identifies actual pressure patterns. These can be interpreted in terms of meteorological parameters such as wind direction and stability. In contrast, the variable-reducing techniques may yield output which does not portray actual, or even plausible, circulation patterns (Moritz, 1979).

There are disadvantages to the SOS technique. As already noted, its use of similarity scores instead of correlation coefficients has caused its ability to separate patterns into highly different groups to be overestimated; this topic is discussed in more detail in section 3.3.2. Since it is a relatively simple procedure, it can only handle one scalar variable at a time, thus eliminating other potentially useful data. As with any classification procedure, the use of thresholds to separate patterns into groups is problematic. Thresholds set very high may result

in groups which have too few members to allow meaningful generalizations of their internal characteristics, and groups may not necessarily be mutually exclusive if the thresholds are set too low.

3.3 DATA AND METHODS

3.3.1 Pressure Pattern Data

Each of the 14,245 days within the 39-year period 1946-84 is coded according to the type of pressure pattern observed over and around the RRR at, or near, 1200 Greenwich Mean Time (GMT). Patterns at two levels within the atmosphere are studied: those at MSL and those at the 500 mb level.

The data needed to reconstruct these daily patterns were purchased from the National Center for Atmospheric Research (NCAR) in Boulder, Colorado. MSL pressure data were not available for the years 1983 and 1984, and 1200 GMT 500 mb data were not available for the period of April 1955-May 1957, but are closely approximated by 1500 GMT observations. The data are recorded on two magnetic tapes, and are coded to represent the MSL pressure (mb) and 500 mb height (geopotential metres) at each of the 1,977 points of

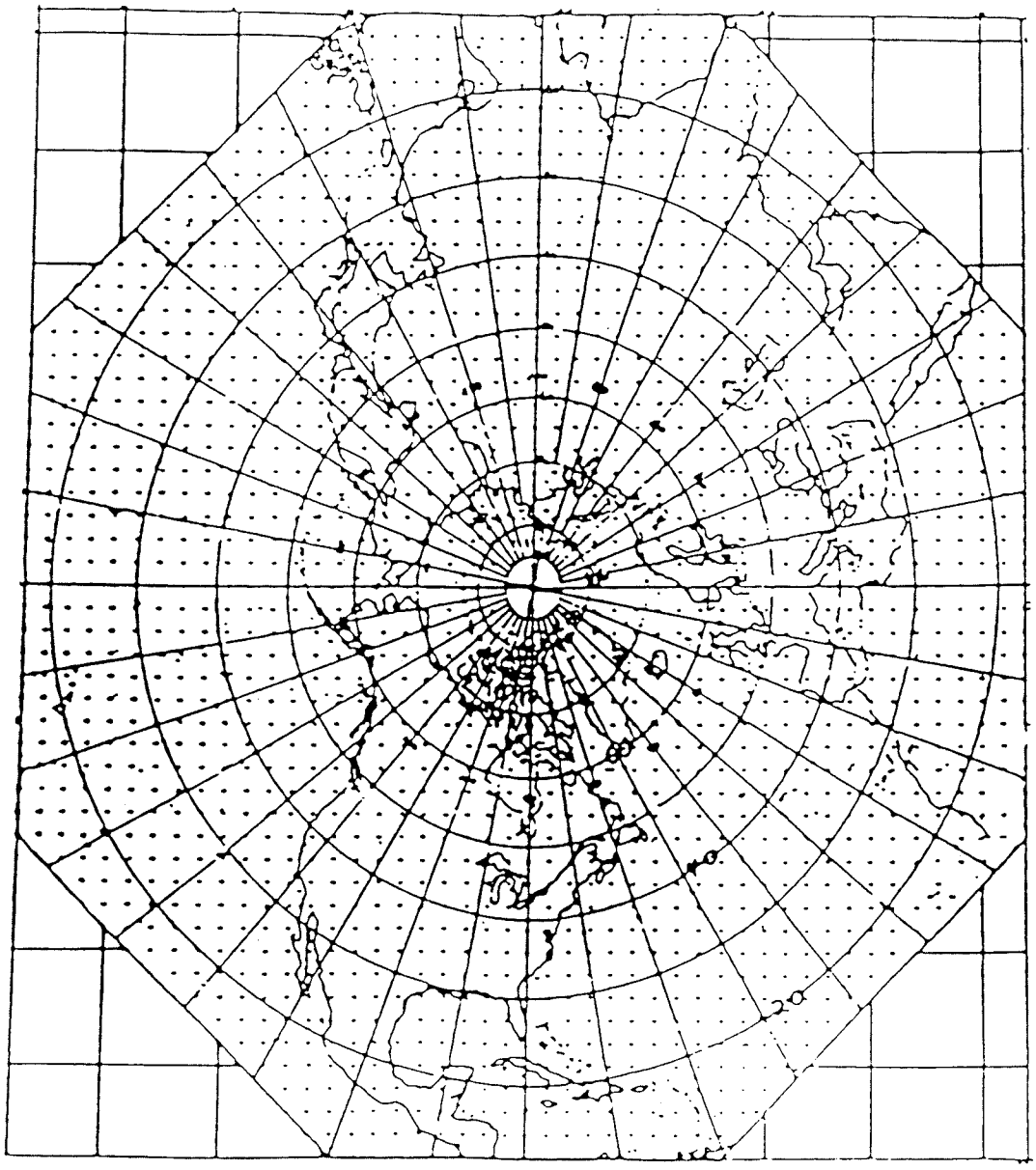


Figure 3.1 The NMC octagonal grid (from Jenne, 1970).

the National Meteorological Center (NMC) octagonal grid of the Northern Hemisphere (Fig. 3.1). The grid-point values were derived from interpolations of standard synoptic charts (Jenne, 1975). The grid-point spacing in the octagonal grid is defined by an equidistant, rectangular array of points, with the axes of symmetry along 10°E and 100°E longitude, laid out on a polar stereographic grid. In this projection the distance between parallels of latitude increases radially from the poles. Thus, the ground distance between adjacent grid points decreases as latitude decreases (Jenne, 1970). The most northerly grid point used in this study is from approximately 70°N, where the grid-point spacing is about 396 km, and the most southerly point is from about 30°N, where the spacing is close to 306 km. The most westerly and easterly points are from about 150°W and 90°W, respectively. The latitudinal variation of grid-point spacing does not affect the classification of pressure patterns derived from these points, but should be taken into account when comparing contoured pressure surfaces drawn without adjustment for the polar stereographic distortion.

Each of the daily MSL and 500 mb pressure patterns is derived from only 36 of the 1,977 points of the NMC grid. However, two different sets of 36 points are extracted. One set reconstructs patterns over a large area of western and central North America, the other covers a smaller area in the more immediate vicinity of the RRR (Figures 3.2 and

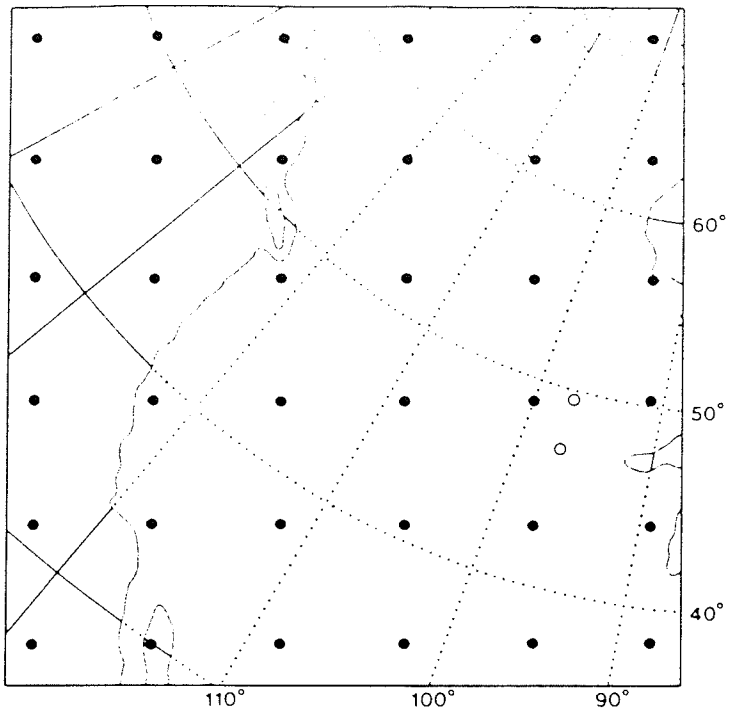


Figure 3.2 The BIG map data-point distribution.

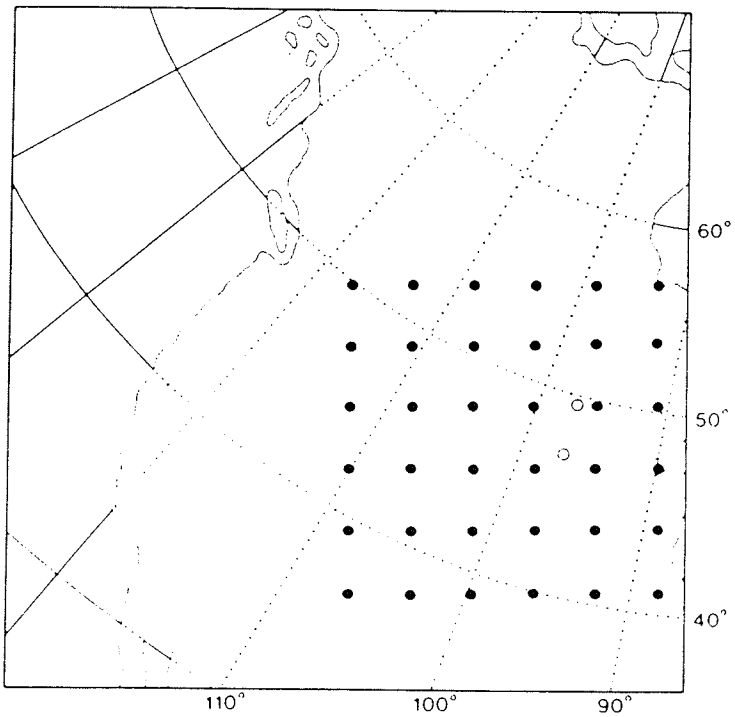


Figure 3.3 The SMALL map data-point distribution.

3.3). This method of utilizing two scales was suggested by Yarnal (1984c), who found that the analysis of only one scale can result in loss of information about the relationships between weather and atmospheric circulations at scales different form that chosen. For example, small-scale, high wave-number circulation systems important to a local climate might be overlooked in a study of large-scale patterns, while important continental-scale systems might be excluded in a study limited to small-scale patterns.

Both 'windows' on the atmosphere place the RRR in the eastern part of the frame (Figures 3.2 and 3.3). As noted in Chapter 2, the region in question is located in a latitudinal zone dominated by the westerlies, where almost all of the weather systems which affect the region approach from a westerly direction. Thus, by viewing the atmospheric circulation with the RRR in the east-central part of the viewing frame, those patterns which are moving into the region will be identified rather than those which are moving out. This presents opportunities for forecasting, or modelling, the movement of synoptic systems into the region, and also eliminates systems in eastern North America which are of lesser importance to the RRR. Square grid-point patterns were selected to facilitate computer-assisted contouring. These particular square grids were chosen to keep the RRR in the eastern part of the frame while maximizing coverage of systems towards the northwest and

southwest. The small-area grid has more southwest coverage than northwest coverage to ensure the capture of Colorado Lows.

The large-area (BIG) patterns are constructed by extracting every second data point from an 11 by 11 grid-point sector of the NMC octagonal grid (Fig. 3.2); the small-area (SMALL) patterns are constructed by extracting every data point from a 6 by 6 grid-point sector of the NMC grid (Fig. 3.3). This results in a grid-point spacing of about 358 $\pm$ 23 km in the SMALL patterns, and about 752 $\pm$ 90 km in the BIG patterns. Hence, BIG patterns are more generalized than the SMALL patterns. An equal number of data points is used in both grids because it allows the use of the same computer programs for pattern classifications at both scales, and minimizes the amount of core memory needed to store an individual pattern. This latter advantage allows a larger number of patterns to be stored in memory at the same time; this is especially important when running the program for selecting keyday patterns.

3.3.2 The Sums-Of-Squares Technique

The SOS procedure begins by normalizing each of the daily grids. This involves replacing all grid-point values

with new values calculated by the formula:

$$Z_i = (x_i - x')/s \quad (1)$$

where Z_i is the normalized grid point i, x_i is the data value at grid point i, x' is the mean of the grid, and s is the standard deviation of the grid. In essence, the procedure standardizes the grids to make the patterns within the grids more important than the actual grid values. If one visualizes each grid as a three-dimensional surface (depicting 500 mb heights or MSL pressures), it should be apparent that two grids may produce surfaces which are exactly the same in every respect topographically but which differ in elevation. Normalization removes this difference and allows two patterns to be tested for similarity in form, regardless of the actual values observed within the grids.

Normalization also allows two patterns to be judged similar when the two patterns have different amplitudes. For example, one pattern of MSL pressures may depict a very deep depression and another a shallow depression. In form, these two patterns are essentially the same: they both represent cyclonic flows. The only real difference between the two is that one cyclone is intense and the other is not. The normalized versions of these cyclonic patterns will retain their spatial forms but will not identify them as having dissimilar pressure gradients.

Although pressure (height) magnitudes and pressure (height) gradients are important meteorological parameters, their loss through the normalization procedure is tolerable, because the pressure pattern is of primary interest to the synoptic climatologist or meteorologist. A basic knowledge of some of the more important hydro- and thermo-dynamic principles allows one to infer much meteorological information from normalized pressure patterns. These indicate wind direction, which usually has a great influence on air temperature, and identify the distribution, but not the intensity, of atmospheric convergence and divergence, which affect the occurrence of cloud and precipitation. These relationships are investigated in this thesis.

Following normalization, the next stage in the analysis involves the identification of those grids to be used as the 'keys' with which all other grids are compared, for purposes of classification. A pair of grids will be considered similar if the Kirchhofer Score (KS) for the pair is below a subjectively prescribed threshold. KS is calculated by:

$$KS = \sum (Z_{ai} - Z_{bi})^2 \text{ for } i = 1 \text{ to } N \qquad (2)$$

where N is the number of data points in each grid (36), Z_{ai} is the normalized grid value of point i on day a, and Z_{bi} is the normalized grid value of point i on day b.

If two normalized maps are very similar, a low KS will

result. It is possible, however, for a low KS to be produced from a pair of maps which are very different in specific map sectors. Consequently, similarity scores must also be calculated for map sections to ensure that overall map similarity is indeed present. To this end, Kirchhofer scores are calculated for each of the six rows (KR) and each of the six columns (KC) within the 36-point grids. This means that the comparison of two 6 by 6 grids will require the calculation of one score (KS) to measure the overall map similarity and 12 within-grid scores (6 KRs and 6 KCs) to measure the internal level of similarity.

The internal consistency, within map groups is controlled by the thresholds for the Kirchhofer scores. Two maps will not be considered similar if any of the thresholds are exceeded. As noted earlier, care must be exercised in the choice of thresholds, for the use of high thresholds will result in a few large groups, and the use of low thresholds will result in many small groups (Moritz, 1979). Too few groups might not allow for the separation of significantly different patterns, and too many groups might result in analytical complexities and confuse the interpretation of results. In this thesis, the choice of thresholds is based upon the research objectives and the results of previous work. Since one of the main goals is to generalize the atmospheric dynamics of a region, relatively low thresholds are adopted here.

In his study of 500 mb patterns affecting southern British Columbia, Yarnal (1984a) used relatively relaxed thresholds of 0.5N for KS and 1.0N for KC and KR (using 30 grid points), and identified 18 categories of patterns. This is considered to be a manageable number of categories, so these thresholds were chosen for use in the 500 mb analysis in this study. An indication that this was a good choice, given the objectives, was provided by the work of Hoard and Lee (1986). They used the SOS technique to classify 64-point grids of 500 mb heights over an area roughly the same size as that used to identify this study's BIG 500 (B500) patterns. This use of a much denser network of data points offers greater opportunities for detecting dissimilar grids. Despite this, Hoard and Lee (1986) only defined 10 synoptic types. This apparent discrepancy is attributable to their use of a more stringent threshold of similarity: a KS of about 0.31N (20/64), compared to this study's value of 0.50N. Most important, though, is that their KS threshold left 20% of the grids unclassified. In Chapter 4 it will be seen that only two per cent of this study's 1946-84 B500 grids were unclassified, providing for a comprehensive cataloguing of daily patterns.

Moritz (1979) and Bradley and England (1979) used thresholds of 1.0N for KS and 1.8N for KC and KR (using 36 grid points) in their classifications of MSL pressure patterns of the Arctic, and produced moderate numbers of

pattern keys (21 and 22, respectively). These thresholds are used in the MSL analysis of this study.

Kirchhofer scores are converted to Pearson's product-moment correlation coefficients by the following formula (from Willmott, 1987):

$$r = 1 - (T/2) \tag{3}$$

where r is the minimum allowable product-moment correlation coefficient between two grids and T is the maximum allowable Kirchhofer score divided by the number of grid points used. Hence, the minimum correlation coefficient between two maps is 0.75 in the 500 mb analysis and 0.50 in the MSL analysis. The minimum correlation between rows and columns is 0.5 for the 500 mb maps, and 0.1 for the MSL maps.

Had it been known prior to Willmott's (1987) study that the Kirchhofer score thresholds chosen for use were equivalent to such low correlation coefficients, particularly in the case of the MSL classification, they would have been revised. However, all classifications, and almost all of the climatological analyses of the results, were completed before Willmott (1987) showed how to convert Kirchhofer scores to correlation coefficients. It was not practical to repeat this large amount of work and the decision was made to adhere to the results as they are.

This does not imply that these results are highly

deficient. Indeed, some aspects of the classification procedure may have compensated for the lower than desired correlations. Yarnal and White (1987) suggested the use of a sample size of at least 1,000 when generating the pressure pattern keydays, to ensure the capture of a large proportion of the important pressure patterns. Nearly 4,000 maps are included in the samples used to select the keydays in the work reported here. Ideally, the keyday maps would be found by comparing each map to every other map and then identifying those maps which are similar to the largest number of maps. However, a grid population of 14,245 requires the calculation and storage of 101,452,890 KS values. This is not possible with the University of Manitoba's mainframe-user restrictions. Hence, the keyday maps are identified from only a sample of the grids. Eleven years were randomly selected to represent the 39-year study period: 1948, 1962, 1963, 1967, 1971, 1973, 1974, 1977, 1979, 1980, and 1982. It seems likely that most of the important pressure patterns which affect the RRR will have occurred during this eleven-year period. After excluding missing and invalid grids, and adjusting for some peculiarities of the FORTRAN language, 3,984 grids were left in the MSL sample and 3,892 grids in the 500 mb sample.

Yarnal and White (1987) also suggested that users of the SOS technique, when selecting keydays from a sample, should not exclude keydays that only have small numbers of

other maps similar to them. Patterns which do not occur frequently, or which did not occur very often during the sample period, may be important to the climatology of a region since they may generate rare but important phenomena such as rainstorms or blizzards. In this study, patterns were selected as keydays if they had as few as five other maps similar to them.

Consequently, from each sample, at both scales (BIG and SMALL), Keyday 1 is identified as the map which has the largest number of other maps significantly similar to it. Keyday 1 is then removed from the sample, as are all maps significantly similar to it, and also all maps significantly similar with those days (to ensure that the keydays will be significantly different). This procedure is repeated for Keyday 2 and subsequent keydays until all maps have been removed, or until a keyday grid is associated with fewer than five other grids.

With all the keydays identified, KSs are calculated again, this time by comparing every keyday grid to every grid of the entire non-keyday population. Each daily grid is then grouped with that key to which it is most significantly similar. Again, if any of the Kirchhofer score thresholds are exceeded, two grids will not be considered similar. Since it is possible for a grid to be significantly similar to more than one of the keys, a grid is always grouped with the key with which it produces the

lowest KS. A result of this is that a high-order keyday may not necessarily be associated with more grids than a lower-order keyday after final adjustments are made.

To recapitulate, the first step in the procedure for classifying each of the 1946-84 daily grids is the identification of those grids representative of those pressure patterns that occur most frequently in the grid regions. All grids are compared to these keyday grids and grouped with that grid to which they are most similar, as determined by the overall SOS Kirchhofer Score. These keyday grids are selected from only a sample of the 1946-84 grids. The BIG 500 mb (B500) and SMALL 500 mb (S500) keyday grids are selected from 3,892 grids, and the BIG MSL (BMSL) and SMALL MSL (SMSL) keys are selected from 3,984 grids. The results of these keyday selections are presented below. The pressure patterns themselves are described in Chapter 4.

3.4 KEYDAY SELECTIONS

3.4.1 BIG 500 mb Keyday Selections

Eighteen keyday grids were identified from the B500 sample. The dates on which these grids occurred and the total number of sample grids which were classified as

similar to these grids are shown in Table 3.1. Pressure patterns similar to that on B500 Keyday-1 will hereafter be referred to as B5TYPE-1 patterns, those similar to that on B500 Keyday-2 will be referred to as B5TYPE-2, and so on.

Only 56 grids, or 1.4% of the sample, were left unclassified and put into the NOTYP group. These grids are not similar to any of the 18 keys and did not have at least five other unclassified grids similar to them (which would have given them keyday status). Over 73% of the daily grids which were classified were typed as B5TYPE-1, with the second most frequent type accounting for less than 11% of the grids. Types with lower frequencies than B5TYPE-6 each account for fewer than one per cent of the sample grids. This type of frequency distribution was expected, because all grids similar to the earlier identified high-order keydays were not available for grouping with succeeding keydays (as explained in section 3.3.2).

3.4.2 SMALL 500 mb Keyday Selections

Twenty grids were selected as S500 keyday grids. Their dates and frequencies of association with individual grids are listed in Table 3.2. Only 106 grids were unclassified, and 65.2% were put into the highest-order group, S5TYPE-1. Types 7 through 20 each have fewer than one per cent of the

Table 3.1 B5TYPE Keyday dates and B5TYPE frequencies identified from a 3,892-day sample.

B5TYPE	Keyday date	Frequency	% Frequency
1	740113	2874	73.8
2	820209	399	10.3
3	740312	157	4.0
4	710930	102	2.6
5	631229	97	2.5
6	770923	47	1.2
7	730323	28	0.7
8	480615	26	0.7
9	710525	19	0.5
10	740519	15	0.4
11	770303	15	0.4
12	740515	14	0.4
13	630421	9	0.2
14	730525	8	0.2
15	630413	7	0.2
16	631016	7	0.2
17	480817	6	0.2
18	671213	6	0.2
NOTYP	------	56	1.4

grids associated with them.

Given that an S500 map depicts only a small sector of a B500 map, it may seem anomalous that more S500 grids were identified as keys than were B500 grids, but one must remember that grids at both scales contain the same number of data points (36). This means that the S500 grids contain more data points per unit area than the B500 grids and can, therefore, portray more detail in the pressure patterns that they represent. Since more S500 keys than B500 keys were identified from the same sample of grids, one must conclude that more patterns were introduced by increasing the data point resolution than were lost by reducing the map area.

3.4.3 BIG MSL Keyday Selections

Table 3.3 summarizes the BMSL keyday selections. A total of 47 grids were identified as keys. Only 115 (2.9%) of the grids were unclassified. It is immediately apparent that the frequency distribution of BMTYPEs is much less skewed than the B5TYPE and S5TYPE distributions, although the lower-order frequencies are still very small. The first two B5TYPEs and S5TYPEs accounted for 85% and 78% of the sample grids, respectively, but the first two BMTYPEs account for only 36% of the grids. Consequently, 75% of the grids are accounted for only after the first 10 BMTYPEs are extracted.

A much larger number of BMSL grids were selected as keys than was the case with the B500 grids primarily because the surface patterns are much more complex than the 500 mb patterns. This result is particularly noteworthy because the similarity score thresholds used in the MSL analyses were set lower than those in the 500 mb analyses, to reduce the number of unclassified and keyday grids. Despite these relaxations, a relatively large number of keydays was selected. Unfortunately, this means that further analysis of the BMTYPEs is not possible, for the classification of each of the 13,428 valid BMSL grids into one of the 47 BMTYPEs requires more memory than is available on the University of Manitoba's mainframe computer. Hence the BIG

Table 3.2 S5TYPE Keyday dates and S5TYPE frequencies identified from a 3,892-day sample.

S5TYPE	Keyday date	Frequency	% Frequency
1	800918	2540	65.3
2	621129	511	13.1
3	800225	333	8.6
4	630605	71	1.8
5	820811	68	1.8
6	790322	59	1.5
7	820205	31	0.8
8	730306	27	0.7
9	620715	20	0.5
10	791230	20	0.5
11	620315	19	0.5
12	770506	16	0.4
13	621007	14	0.4
14	670501	11	0.3
15	731224	11	0.3
16	820526	9	0.2
17	740625	7	0.2
18	790411	7	0.2
19	620110	6	0.2
20	800427	6	0.2
NOTYP	------	106	2.7

Table 3.3 BMTYPE Keyday dates and BMTYPE frequencies identified from a 3,984-day sample.

BMTYPE	Keyday date	Frequency	% Frequency
1	480810	817	20.5
2	671024	636	16.0
3	740309	362	9.1
4	820913	314	7.9
5	740509	237	6.0

cont.

Table 3.3 continued

BMTYPE	Keyday date	Frequency	% Frequency
6	670505	180	4.5
7	771010	148	3.7
8	801220	123	3.1
9	710607	96	2.4
10	620124	92	2.3
11	631115	76	1.9
12	801110	71	1.8
13	770811	70	1.8
14	800429	50	1.3
15	820118	48	1.2
16	730510	43	1.1
17	670924	41	1.0
18	771120	36	0.9
19	790416	33	0.8
20	791001	32	0.8
21	800120	29	0.7
22	630809	27	0.7
23	801030	21	0.5
24	820129	21	0.5
25	731031	20	0.5
26	791117	19	0.5
27	820331	19	0.5
28	630413	18	0.5
29	770725	17	0.4
30	770915	17	0.4
31	790919	16	0.4
32	730606	14	0.4
33	740313	14	0.4
34	740902	11	0.3
35	790312	11	0.3
36	710307	10	0.3
37	630525	10	0.3
38	791006	9	0.2
39	730323	9	0.2
40	620912	7	0.2
41	711221	7	0.2
42	790601	7	0.2
43	821228	7	0.2
44	620807	6	0.2
45	741031	6	0.2
46	790421	6	0.2
47	791014	6	0.2
NOTYP	------	115	2.9

map area can only be represented by B500 grids.

The loss of the synoptic climatology of the BMSL patterns is unfortunate but is not a fundamental setback to the synoptic climatology of the RRR. The SMALL MSL grids are large enough to identify all but the largest weather systems which cross the North American continent, hence, MSL patterns will be well represented by the SMSL synoptic types. Also, one of the objectives of this synoptic climatology is to identify relatively few patterns to represent the overall synoptic regime of the region. The identification and analysis of such a large number of patterns would not satisfy this goal.

3.4.4 SMALL MSL Keyday Selections

A total of 29 SMSL grids were selected as keys. These are listed in Table 3.4. The frequency distribution is not as skewed as are those for the B500 and S500 types, and is even less skewed than the BMSL distribution. The percentage of maps in the first two MSL types is almost equal (20.2% and 19.7%). The third type (SMTYPE-3) also has a relatively high percentage of the grids, with 14.6%. Types lower than SMTYPE-14 each have fewer than one per cent of the grids.

Reducing the MSL map area and increasing the data point resolution did not have the same effect on the number of

Table 3.4 SMTYPE Keyday dates and SMTYPE frequencies identified from a 3,984-day sample.

SMTYPE	Keyday date	Frequency	% Frequency
1	730723	804	20.2
2	631001	784	19.7
3	800720	580	14.6
4	630226	302	7.6
5	631121	295	7.4
6	770531	225	5.7
7	740203	152	3.8
8	790825	118	3.0
9	620522	114	2.9
10	670517	90	2.3
11	731109	69	1.7
12	790419	66	1.7
13	710918	45	1.1
14	631005	38	1.0
15	740123	34	0.9
16	630225	31	0.8
17	791024	27	0.7
18	480630	24	0.6
19	480116	23	0.6
20	730603	22	0.6
21	480719	14	0.4
22	730926	14	0.4
23	741012	12	0.3
24	820215	12	0.3
25	481117	8	0.2
26	631214	8	0.2
27	480625	7	0.2
28	821128	7	0.2
29	730729	6	0.2
NOTYP	------	53	1.3

keydays identified as it did in the 500 mb samples. Since 47 BMSL grids and only 29 SMSL grids were selected as keys, changing the MSL map scale from BIG to SMALL clearly resulted in more synoptic patterns going unselected as keys than were introduced by increasing the pattern resolution. Given that MSL pressure systems (i.e. highs, lows, troughs,

and ridges) can be quite small, compared to upper-level systems and, therefore, can be arranged in more numerous configurations, this reduction in the number of keys is to be expected. The exclusion of MSL systems from places as distant as the Baja Peninsula and the Gulf of Alaska should be expected to simplify the pressure pattern climatology of the RRR, even with an increase in the density of data points. Of course, there might be a limit to this scaling effect, in that a very dense grid of data points over a very small area might result in the identification of a large number of microscale pressure patterns, but this cannot be investigated here.

3.5 APPLICATION OF THE CLASSIFICATION TO THE 1946-84 GRIDS

With all of the keyday grids selected, the next and final steps in the classification procedure are 1) to compare all available grids from the 1946-84 time period to each of the grids in the corresponding keyday sets and 2) to group each grid with that key with which it produces the lowest KS (without exceeding any of the similarity scores).

The results of these procedures are summarized in the following sections. Only the gross frequencies of each synoptic type are reviewed at this time. The monthly and seasonal frequencies of each type are examined in Chapter 4.

The names which were assigned to the synoptic types in the keyday selections are retained. For example, a B5TYPE-1 pattern, as identified in the sample, is still called as such, even though it may not be the most frequent B5TYPE in the whole set of maps. A listing of the B500, S500, and SMSL synoptic types for each day of 1946-84 is given in Appendix C. The catalogue also includes the KSs associated with each of the daily grids. These are shown to indicate how closely the individual grids were found to correlate with their respective keyday grids.

3.5.1 B500 Grid Classification Results

Table 3.5 summarizes the results of the classification of all daily B500 grids. The types are listed in descending order of frequency. MSNG grids are those which are unclassified due to missing data; NOTYP grids are those which were unclassified because they were not sufficiently similar to any of the keyday grids.

The order of the types, ranked by frequency, is not the same as that in the sample classification. B5TYPE-1 is still the most frequent type, but the percentage of grids which have been typed as B5TYPE-1 has dropped substantially, from 73.8% in the sample to 47.9% (of non-MSNG grids) in the total grid set. The percentage frequencies of all other

Table 3.5 B5TYPE 1946-84 frequencies (raw and percentage of non-MSNG grids), mean Kirchhofer Scores (KS), KS standard deviations (s.d.), and KS coefficients of variation (c.v.).

B5TYPE	Frequency	% non-MSNG	Mean KS	KS s.d.	KS c.v.
1	6661	47.9	6.6	2.7	40.9
2	1523	11.0	8.0	2.7	33.8
3	1155	8.3	8.0	2.9	36.3
5	1122	8.1	8.4	2.8	33.3
4	827	6.0	8.5	2.6	30.6
11	450	3.2	9.5	2.8	30.6
MSNG	339	---	---	---	----
NOTYP	324	2.3	---	---	----
6	307	2.2	9.7	3.0	30.9
7	289	2.1	9.9	2.8	28.3
17	269	1.9	9.2	2.7	29.4
12	246	1.8	9.4	3.0	31.9
8	159	1.1	10.5	3.3	31.4
9	152	1.1	10.0	3.1	31.0
16	114	0.8	10.5	2.8	26.7
10	102	0.7	10.7	2.9	27.1
15	86	0.6	9.3	3.1	33.3
18	44	0.3	10.9	3.8	34.9
14	39	0.3	11.8	3.5	29.7
13	37	0.3	11.1	3.0	27.0

types rose. B5TYPE-5 gained the most in terms of percentage, rising from 2.5% to 8.1%, but B5TYPE-17 advanced the most in rank, from 17th to 10th place (excluding MSNG and NOTYP grids). B5TYPE-17 still has a rather small percentage of the grids, however, with only 1.9%. Obviously the frequency distribution is still very much skewed, with the first few types accounting for a large portion of the grid population.

Only 2.3%, or 324, of the 13,906 non-MSNG grids were

unclassified. This suggests that the keyday grids selected from the sample are quite representative of the B500 synoptic patterns which typically occur over the BIG map area. Alternatively, the high proportion successfully classified might be due to the similarity thresholds being set too low, allowing grids to be grouped too easily. However, the means and standard deviations of the KSs for each group of grids (Table 3.5) suggest that the level of within-group similarity is quite good. The lowest (best) mean KS is 6.6 (r=0.90) for B5TYPE-1, and the highest (worst) is 11.8 (r=0.84) for B5TYPE-14. The maximum KS allowed for 500 mb grids was set at 18.0 (r=0.50).

Figure 3.4 is a plot of the mean KS for the B500, S500, and SMSL types ranked by frequency (rank 1 being the most frequent). This figure clearly shows that the more frequent B500 types tend to be more similar to their keyday grids than the less frequent types. Moritz (1979) observed this tendency and suggested that it is a result of higher-order patterns being more clearly differentiated. This is indicated, albeit indirectly, by the individual grid standard deviations. Large within-grid standard deviations are produced by grids with large within-grid pressure variations, indicating, perhaps, the presence of well-formed pressure patterns. This tendency for frequent types to have larger within-grid variation is also observed in the B5TYPEs being discussed here (Figure 3.5), but the relationship is

not especially pronounced.

It also appears that the KSs recorded in the higher-order B500 types are more variable than those recorded in the lower-order types. This is shown in Figure 3.6, which is a plot of the coefficients of variation of the KSs for each of the B500, S500, and SMSL types, again ranked by frequency. The coefficient of variation is the standard deviation divided by the mean, expressed as a percentage. It indicates the amount of within-group variation relative to the value of the group mean. Petzold (1982) noted this relationship too, but pointed out that it is reasonable to expect more variation within large groups.

3.5.2 S500 Grid Classification Results

The results of this classification are summarized in Table 3.6. S5TYPE-1 remains the most frequent synoptic type, but its share of non-MSNG grids has decreased from 65.3% in the sample to 43.5% in the complete grid set. The percentages of grids classed as types 14, 15, and 20 also fell, but only by small amounts. All other types recorded gains. S5TYPE-3 gained the most in terms of percentage (8.6% to 13.3%) and S5TYPE-12 advanced the most in terms of rank, moving from 12th to 7th. The percentage of grids which were unclassified (3.6) is quite low, but this is

Table 3.6 S5TYPE 1946-84 frequencies (raw and percentage of non-MSNG grids), mean Kirchhofer Scores (KS), KS standard deviations (s.d.), and KS coefficients of variation (c.v.).

S5TYPE	Frequency	% non-MSNG	Mean KS	KS s.d.	KS c.v.
1	6045	43.5	4.7	2.6	55.3
2	2440	17.6	5.5	2.5	45.5
3	1854	13.3	6.0	3.0	50.0
5	515	3.7	7.7	2.9	37.7
NOTYP	503	3.6	---	---	----
7	461	3.3	7.7	3.2	41.6
MSNG	339	---	---	---	----
6	325	2.3	8.2	3.1	37.8
12	304	2.2	7.7	2.9	37.7
4	303	2.2	7.0	2.9	41.4
8	194	1.4	8.9	3.3	37.1
9	179	1.3	9.1	2.9	31.9
10	178	1.3	9.4	3.0	31.9
13	147	1.1	9.1	3.2	35.2
17	109	0.8	9.0	3.3	36.7
11	103	0.7	9.1	3.8	41.8
16	62	0.5	9.6	3.2	33.3
19	61	0.4	8.5	3.3	38.8
18	44	0.3	9.7	3.9	40.2
14	34	0.2	12.2	4.2	34.4
15	29	0.2	11.7	4.3	36.8
20	16	0.1	9.7	3.8	39.2

almost twice as many NOTYPs as observed in the B5TYPE set.

Mean KSs are generally lower than those observed in the B5TYPEs. This is probably a result of the change in scale, which has essentially trimmed distant synoptic patterns from the map frame. The lowest (best) mean KS is that for S5TYPE-1 (KS=4.7; r=0.93) and the highest (worst) is that for S5TYPE-14 (KS=12.2; r=0.83). It should also be noted, as it was for the B5TYPEs, that mean KSs tend to be lower for the higher-order types (Figure 3.4); that the higher-order types seem to be more intense than the lower-order types (Figure 3.5); and that the KSs within the higher-order groups tend to be more variable (Figure 3.6).

3.5.3 SMSL Grid Classification Results

This classification is summarized in Table 3.7. The percentage frequencies for SMTYPEs 1 and 2 have each dropped by over nine per cent, and that for SMTYPE-3 has fallen by almost eight per cent. SMTYPE-1 remains the most frequent SMTYPE, with 11.1% of the non-MSNG grids, but SMTYPE-2 is again close behind, with 10.6% of the grids. SMTYPE-7 is the only other type to have its percentage decrease, by only 1.9%, yet this was enough to drop it from frequency rank 7 to rank 18. Thus, the frequency distribution is still strongly positively skewed, but less so than the B500 and

Table 3.7 SMTYPE 1946-82 frequencies (raw and percentage of non-MSNG grids), mean Kirchhofer Scores (KS), KS standard deviations (s.d.), and KS coefficients of variation (c.v.).

SMTYPE	Frequency	% non-MSNG	Mean KS	KS s.d.	KS c.v.
1	1492	11.1	15.7	5.7	36.3
2	1423	10.6	13.0	5.4	41.5
4	1144	8.5	14.8	5.4	36.5
5	1076	8.0	15.5	5.6	36.1
6	1018	7.5	16.7	5.7	34.1
3	896	6.7	16.5	5.3	32.1
10	546	4.1	16.0	6.1	38.1
12	480	3.6	17.5	5.1	29.1
8	475	3.5	18.1	5.4	29.8
9	405	3.0	17.3	5.5	31.8
19	353	2.6	16.8	5.1	30.4
18	315	2.4	18.1	5.5	30.4
26	315	2.4	17.5	5.4	30.9
11	314	2.3	18.4	5.7	31.0
NOTYP	308	2.3	----	---	----
13	302	2.3	17.7	5.8	32.8
17	279	2.1	20.1	5.4	26.9
20	273	2.0	18.2	5.4	29.7
7	264	2.0	19.2	5.5	28.6
22	245	1.8	18.2	5.8	31.9
14	207	1.5	20.7	6.1	29.5
29	206	1.5	19.0	4.4	23.2
16	201	1.5	20.6	5.4	26.2
15	196	1.5	19.7	5.5	27.9
21	180	1.3	20.2	5.6	27.7
27	135	1.0	20.5	5.9	28.8
23	133	1.0	20.2	6.7	33.2
28	131	1.0	21.1	5.1	24.2
MSNG	86	---	----	---	----
25	65	0.5	21.7	5.8	26.7
24	51	0.4	21.4	6.4	29.9

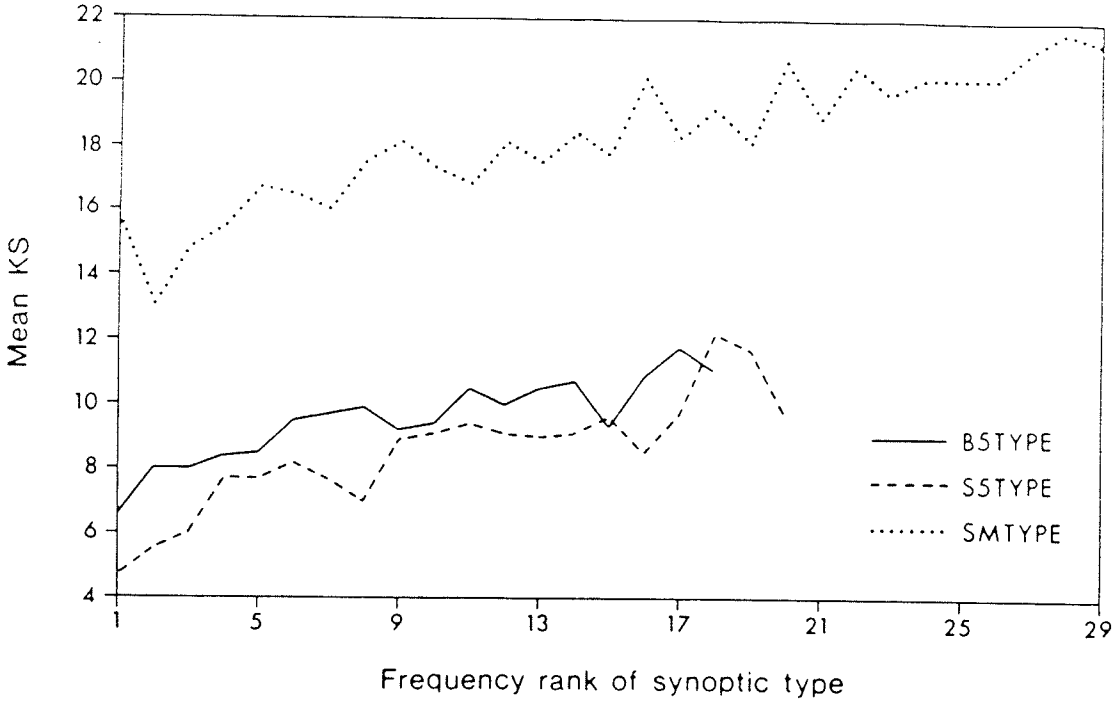


Figure 3.4 Mean Kirchhofer Scores (KS) for synoptic types ranked by frequency (1=most frequent).

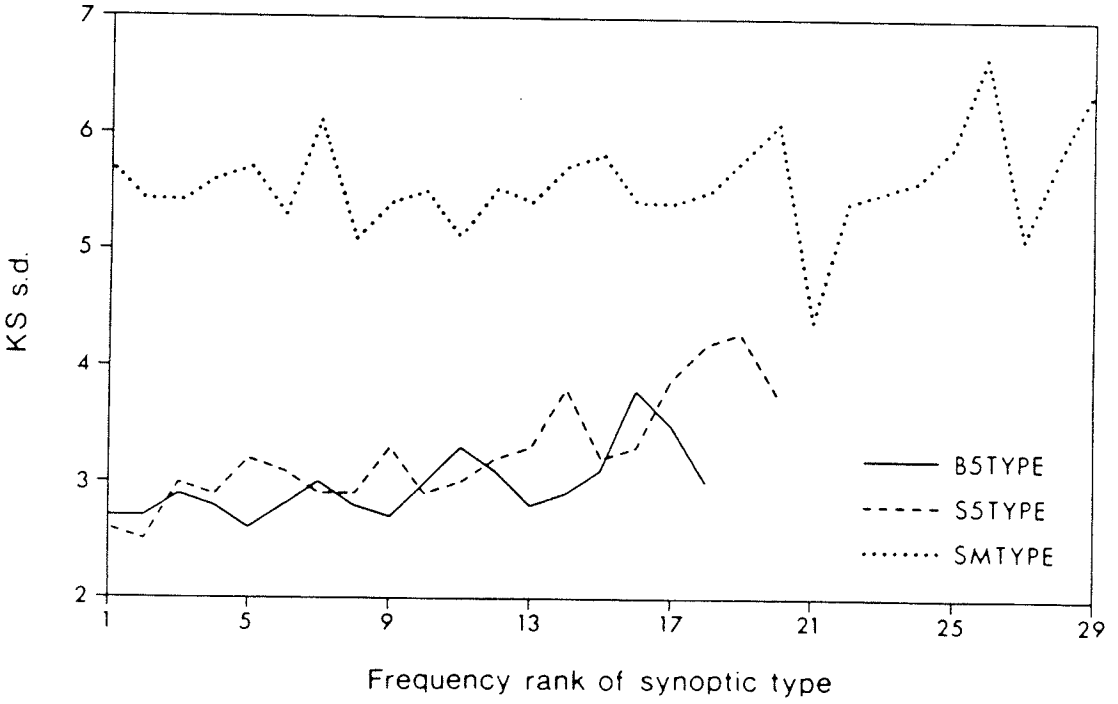


Figure 3.5 Standard deviations (s.d.) of mean Kirchhofer Scores for synoptic types ranked by frequency (1=most frequent).

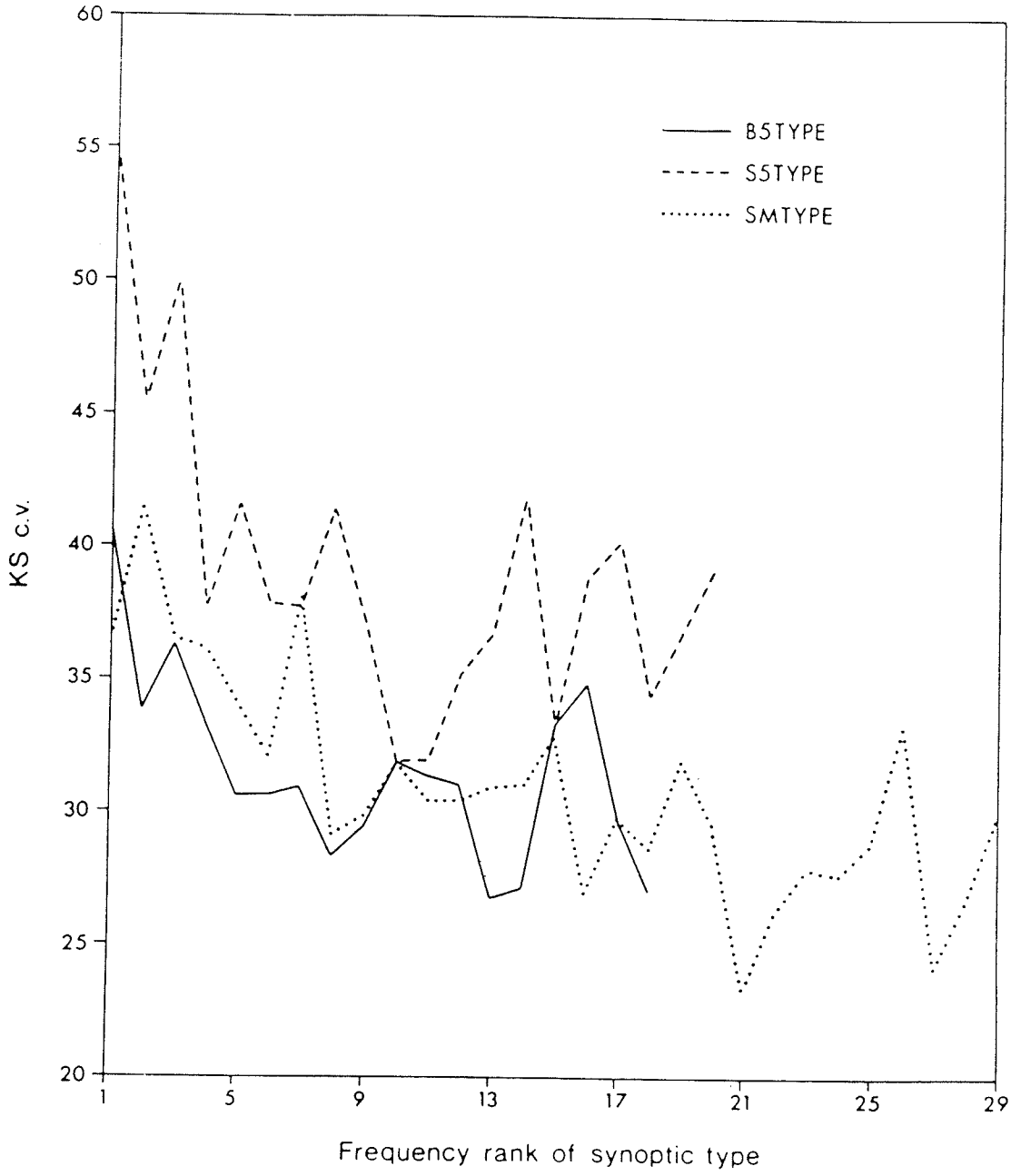


Figure 3.6 Coefficients of variation (c.v.) of mean Kirchhofer Scores for synoptic types ranked by frequency (1=most frequent).

S500 distributions. Only 2.3% of the grids were untyped.

Mean KSs are obviously much higher than the B5TYPE and S5TYPE mean KSs, but this is because the KS threshold for the MSL grids was set at 36.0, and not 18.0, as it was for the 500 mb grids. The lowest mean KS is that for SMTYPE-2 (KS=13.0; r=0.81) and the highest is that for SMTYPE-25 (KS=21.7; r=0.69). Figures 3.4 through 3.6 show that the previously observed relationships between KSs, frequencies, and grid intensities also hold for these MSL types.

3.6 SUMMARY

Daily pressure patterns over and around the RRR during the 39-year period of 1946-84 have been classified in three different ways: first, by the type of 500 mb pattern present over a large area of western North America, including part of the eastern Pacific; second, by the type of 500 mb pattern present over a relatively small area of the continental interior; and third, by the type of MSL pattern present over the same small area. Almost all patterns with valid data have been grouped into one of 18 BIG 500 mb synoptic types, one of 20 SMALL 500 mb synoptic types, and one of 29 SMALL MSL synoptic types occurring at, or near, 1200 GMT. A large percentage of the daily patterns were

grouped into a rather small number of the synoptic types. The level of within-group pattern similarity appears to be very high, especially in the BIG and SMALL 500 mb types. MSL patterns were grouped less rigorously than were the 500 mb patterns, thus, the internal consistency within the MSL types is somewhat less than in the 500 mb types.

4. PRESSURE PATTERN CLIMATOLOGY

This chapter examines the synoptic characteristics, seasonal distribution, and persistence/transitional characteristics of the B500, S500, and SMSL synoptic types that were identified in the previous chapter.

4.1 SYNOPTIC CHARACTERISTICS AND SEASONAL DISTRIBUTION

Descriptions of the synoptic characteristics of each synoptic weather type are made with reference to two different sets of maps. These maps are presented in Appendix A. For each synoptic type there is a keyday map showing the pattern of 500 mb heights or MSL pressures present on the type's keyday date, and a type mean map derived from the mean grid point values for all grids within the map type.

The keyday map shows the pattern to which all members of a given type are significantly similar. When looking at these maps one should keep in mind that the SOS procedure, through normalization, eliminates absolute grid values and replaces them with values relative to each grid mean. Thus,

the 500 mb heights (metres) or the MSL pressures (mb) which are shown on the keyday maps are not in themselves important, for they are simply the values which were observed on one particular day. Of much more importance is the isoline pattern derived from these values. The isolines reveal the locations, shapes, and gradients of the weather systems within the map frame.

The type mean maps are presented to indicate the amount of within-type variation and to represent the average configuration of synoptic types. Intra-type variation is inherent to the classification procedure, since grids are grouped because they are similar, and not because they are identical. Nevertheless, all maps within a particular type are expected to display the same general characteristics. The degree of similarity determines the degree to which the type mean map will resemble the type keyday map. Thus, a comparison of the type mean map and the type keyday map provides an indication of within-type homogeneity. Commonly, a keyday map shows a closed system where the mean map shows an open wave, but this is not seen as a significant difference. It arises because the keyday map refers to a specific situation whereas the type mean map is a summary of a group of specific situations. Hereafter, unless otherwise stated, all references to a synoptic type will be to the type mean map.

Maps of the standard deviations of the mean grid point

values of the type mean maps were also produced but they are not included in Appendix A. These were constructed to provide additional information on intra-type variation.

Two types of inter-map variation can be anticipated. First, the positions of significant map features may vary. Consider, for example, two maps, each depicting a low pressure cell and a high pressure cell with the highs on each map in exactly the same position but the lows in slightly different positions. The gradients within the cells are the same, but the values which produce these gradients need not be the same. Except for the positions of their lows, the maps are essentially the same. Now consider 200 maps of this type, all with their highs in exactly the same position and all with their lows in slightly different positions. A comparison of the mean of these maps with any one particular map would show that the highs were in the same position on both maps, but this single comparison would not reveal that the highs occupied the same positions on all of the maps. However, a map of the standard deviations would provide an indication of this. The zero-value standard deviation isoline in the area of the high would form exactly the same pattern as the high, but the isolines in the area of the low would not replicate the low. Thus, as Petzold (1982) showed, a map of standard deviations might reveal that the location of one particular feature of a type pattern tends to be more persistent than another and,

therefore, more characteristic of the type as a whole.

In addition to information about the locational component of variation, maps of the standard deviations also provide information on the magnitude of the variation. They do so by showing whether the heights or pressures associated with one feature of a map vary more than those affiliated with another feature of a map. Petzold (1982) found that surface pressures located in areas depicting anticyclonic systems are usually less variable than those in areas depicting cyclonic systems, presumably because anticyclone intensities tend to vary less than cyclonic intensities. Another contributing factor might be that cyclones move faster than anticyclones.

The standard deviation maps for the 67 synoptic types reported here show that cyclonic systems are generally more variable in intensity than anticyclonic systems. They also show that 500 mb heights in the south tend to be less variable than those in the north, presumably because of latitudinal differences in the annual range of temperatures.

The major synoptic features of each of the 67 patterns identified in Chapter 3 are described briefly in the following sections. Wind directions in the RRR, as indicated by the type mean maps, are noted. NOTYP patterns are not described synoptically because they do not represent one particular kind of flow. Patterns are described in descending order of frequency. The analysis and discussion

of the temperature and precipitation characteristics associated with each pattern are given in Chapter 5.

The seasonality of the patterns is also described. One verification that the atmosphere is dynamic is that pressure patterns observed over a given area of the earth's surface tend to change from one day to the next. Another is that pressure patterns tend to vary from one season to the next. As discussed in Chapter 2, this is especially true in the middle and high latitudes, where large seasonal changes are observed in available energy, free moisture, and surface albedo. Thus, an indicator of the validity of these pressure pattern classifications is provided by an inspection of the monthly frequency distributions of the various synoptic types. If the types characterize actual atmospheric configurations responding to seasonal changes in the circulation of the North American sector, at least some of them should exhibit seasonal variations in frequency of occurrences.

Tables 4.1 through 4.3 show the monthly frequencies for each of the B500, S500 and SMSL synoptic types. Graphs of the monthly frequencies of each synoptic type are included with the synoptic maps in Appendix A. It is readily apparent that most of the synoptic types exhibit some degree of seasonality and that some display very strong seasonal tendencies. Also, the similarity of many of the frequency distributions is striking. This is very good evidence that

Table 4.1 B5TYPE monthly frequencies, 1946-1984.

B5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	518	490	455	434	448	534	750	709	599	605	557	562	6661
2	279	198	209	101	43	43	52	60	131	66	135	206	1523
3	50	52	71	111	132	141	151	91	90	130	71	66	1155
4	38	22	67	76	103	111	55	99	103	68	40	45	827
5	181	167	115	83	64	32	31	26	40	90	150	143	1122
6	6	3	20	40	43	58	27	24	24	36	15	11	307
7	16	19	22	37	55	16	3	3	20	53	29	16	289
8	7	20	10	6	31	29	8	19	15	4	5	5	159
9	12	14	25	27	17	12	5	16	2	7	5	10	152
10	0	1	5	13	31	26	11	9	2	2	1	1	102
11	43	44	78	60	21	23	3	13	22	30	48	65	450
12	7	4	34	27	53	39	9	19	9	7	27	11	246
13	3	0	5	7	11	2	0	1	0	0	5	3	37
14	2	4	2	7	12	4	2	0	0	1	1	4	39
15	2	7	8	18	9	5	7	3	3	3	15	6	86
16	0	1	3	20	20	12	9	6	17	21	5	0	114
17	2	7	19	17	16	32	35	68	36	18	10	9	269
18	8	2	9	6	0	0	0	0	2	3	5	9	44
NOTYP	16	23	36	42	77	34	16	14	17	24	10	15	324
MSNG	19	24	16	38	23	17	36	29	38	41	36	22	339
Total	1209	1102	1209	1170	1209	1170	1209	1209	1170	1209	1170	1209	14245

Table 4.2 S5TYPE monthly frequencies, 1946-1984.

S5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	603	554	467	366	349	445	635	603	509	434	479	601	6045
2	136	86	188	181	158	277	281	292	269	263	162	147	2440
3	243	234	187	130	127	72	88	90	100	165	217	201	1854
4	0	8	14	42	89	60	9	11	25	29	10	6	303
5	28	16	44	47	71	49	79	68	31	28	26	28	515
6	27	21	41	36	50	27	1	3	24	39	32	24	325
7	55	50	35	39	40	26	5	11	45	43	51	61	461
8	6	11	19	19	31	29	0	3	15	27	21	13	194
9	13	5	19	16	27	20	6	12	14	10	25	12	179
10	12	17	18	21	21	7	4	17	14	13	17	17	178
11	7	9	20	17	11	1	1	2	0	10	13	12	103
12	15	11	14	42	46	53	20	32	26	21	12	12	304
13	2	7	5	13	27	33	11	10	16	12	6	5	147
14	2	1	6	4	5	2	0	0	2	5	5	2	34
15	0	2	7	3	6	0	0	1	1	3	1	5	29
16	5	2	7	6	6	6	5	5	3	11	3	3	62
17	7	2	13	14	19	8	13	6	5	9	8	5	109
18	1	0	7	16	10	2	0	0	0	5	1	2	44
19	12	12	5	12	1	4	0	0	2	4	9	0	61
20	0	1	0	8	3	1	0	0	0	1	2	0	16
NOTYP	16	29	77	100	89	31	15	14	31	36	34	31	503
MSNG	19	24	16	38	23	17	36	29	38	41	36	22	339
Total	1209	1102	1209	1170	1209	1170	1209	1209	1170	1209	1170	1209	14245

Table 4.3 SMTYPE monthly frequencies, 1946-1982.

SMTYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	89	102	166	170	191	133	105	159	122	89	66	100	1492
2	126	92	50	46	56	122	138	139	191	191	172	153	1423
3	76	61	100	97	94	60	58	65	61	71	82	71	896
4	69	64	69	70	61	92	125	135	125	137	103	94	1144
5	105	131	155	128	157	77	51	50	58	48	51	65	1076
6	81	78	64	76	79	76	72	39	83	114	153	103	1018
7	25	43	37	29	19	13	14	10	16	11	22	25	264
8	38	17	13	19	20	47	101	80	54	32	26	28	475
9	22	16	38	66	62	49	17	28	29	30	23	25	405
10	79	64	45	31	20	23	13	14	36	53	72	96	546
11	34	34	39	22	23	20	24	33	26	15	14	30	314
12	23	17	28	33	34	65	93	68	49	47	13	10	480
13	27	18	11	13	17	24	45	24	35	39	28	21	302
14	18	18	9	12	24	22	16	28	20	15	8	17	207
15	38	24	27	11	8	14	4	5	7	13	26	19	196
16	20	27	25	24	16	14	8	16	7	7	20	17	201
17	13	29	39	36	45	26	12	20	10	14	16	19	279
18	35	24	32	35	23	9	18	13	24	30	38	34	315
19	50	47	38	21	16	26	26	19	34	19	25	32	353
20	9	12	14	21	32	42	28	28	25	23	19	20	273
21	15	8	10	8	12	15	28	25	20	10	12	17	180
22	11	15	8	13	21	31	33	27	26	29	16	15	245
23	5	16	16	13	12	8	9	7	11	18	7	11	133
24	12	11	0	2	0	0	2	4	1	2	4	13	51
25	7	3	5	2	7	5	5	10	5	7	2	7	65
26	43	29	41	43	36	20	14	18	13	13	18	27	315
27	8	8	14	16	16	13	7	10	14	9	9	11	135
28	17	10	5	9	7	14	8	6	6	12	15	22	131
29	3	4	9	11	12	19	36	37	34	16	19	6	206
NOTYP	40	20	30	28	21	27	29	29	14	16	23	31	308
MSNG	9	3	10	5	6	4	8	2	6	17	8	8	86
Total	1147	1045	1147	1110	1147	1110	1147	1147	1110	1147	1110	1147	13514

there are different seasonal pressure pattern regimes in which certain kinds of patterns are dominant; that is, there seem to be 'natural seasons' which have distinct pressure pattern signatures. The identification of these seasons is investigated further in Section 4.2, but the traditional definition of the four standard seasons is utilized in the pattern descriptions which follow. Winter is December through February, spring is March through May, summer is June through August, and fall is September through November.

4.1.1 B5TYPE Characteristics

B5TYPE-1 is characterized by a high 500 mb surface in the south and a progressively lower surface toward the north. Except for slight anticyclonic curvature in the south and slight cyclonic curvature in the north, the pattern is very zonal. The surface is very flat in the lower midlatitudes (i.e. south of 40^{o}N). The pattern occurs throughout the year but is most frequent during the summer months.

B5TYPE-1 is obviously a reflection of the normal latitudinal temperature gradient. Where temperatures are low, in the north, the atmosphere is contracted, and the 500 mb surface is pulled closer to the surface; in the south, where temperatures are warm, the atmosphere is expanded, and

the 500 mb surface is raised. Anticyclonic curvature in the south probably reflects proximity to the North Pacific subtropical high and cyclonic curvature in the north is likely due to proximity to the Icelandic Low.

B5TYPE-2, in contrast to B5TYPE-1, depicts a very azonal flow, with a large, well-developed trough affecting virtually all of the map's continental area. The flow across the continent is from the northwest. Table 4.1 shows that this is very much a cold-season pattern.

B5TYPE-3 is characterized by a large area of weak ridging over the continental interior. The axis of the ridge is near 105°W. The RRR is located just east of the ridge axis, where the air being advected into the region is largely from the west. This type occurs most frequently during the early summer and in October.

B5TYPE-5, like B5TYPE-2, has a trough dominating the continental interior. Unlike B5TYPE-2, this pattern has strong ridging in the west, with the axis of the ridge along 120°W, just east of the west coast. The RRR is located in the northwesterly flow west of the trough axis. This flow comes from the high arctic. This pattern is most common from November through February and relatively uncommon during the summer.

B5TYPE-4 shows a trough covering almost all of the BIG map area. The trough lies along 120°W, but is slightly askew of north-south. The RRR is east of the trough axis, where the upper-level flow is coming from the American Southwest. This type occurs most frequently during early and late summer.

B5TYPE-11 is dominated by a trough in the middle of the continent, from the arctic down into Texas. Ridging dominates the western sector. The immediate flow over the RRR is from the southwest but upstream from the Great Plains it is drawn from southern British Columbia. This type is observed most often during the spring and early winter, and rarely during July and August.

B5TYPE-6 displays a trough just inland of the west coast and ridging in the east. The RRR is in the southwesterly flow from the western United States. This type is most common during April, May and June, and least common in the winter.

B5TYPE-7 is dominated by a near zonal flow north of 50°N and a shortwave ridge and trough to the south of 50°N latitude. The ridge is located over the Pacific coast and the trough over the Great Plains. This type is associated with the spring and fall.

B5TYPE-17 has a weak shortwave trough straddling the west coasts of southern British Columbia and Washington. Weak ridging is evident south of 50°N over the Great Plains and Rocky Mountains. North of 50°N the flow is relatively strong and from the northwest. The flow into the RRR is largely from the west. This is very much a warm-season pattern, occurring about 30 times as often in August as in January.

B5TYPE-12 has a very zonal flow. The gradient south of 50°N is much stronger than the gradient in the north. It shows a pronounced peak of activity in the spring, and a secondary peak in the late fall.

B5TYPE-8 is characterized by weak ridging over the western United States and a relatively intense northwesterly arctic flow into southern Manitoba and Saskatchewan. West of Saskatchewan the pressure surface is quite flat. It occurs most often in the late spring and early summer.

B5TYPE-9 depicts a ridge pushing up from the southwestern United States into central Saskatchewan and a trough over the eastern Pacific, north of 40°N. The RRR is east of the ridge axis and in the path of an airstream that originates from the Pacific coast. This is largely a spring-time pattern.

B5TYPE-16 shows a relatively intense, near zonal flow in that part of the Canadian sector east of British Columbia, and a shortwave trough over the American west coast. The pressure surface is quite weak in the American sector. This occurs principally in the spring and fall.

B5TYPE-10 portrays a well-formed trough along the western margin of the continent and a ridge to the east with its axis near 90°W. The flow into the RRR is from the southwest. It is very much a late-spring and early-summer pattern; rare in the fall and winter.

B5TYPE-15 has a large ridge covering all areas except the extreme north and the northeastern Pacific. The ridge axis is aligned along 110°W. The airstream over the RRR has followed an anticyclonic trajectory from the Pacific Ocean. This is most common during April and November.

B5TYPE-18 portrays a very perturbed 500 mb flow, with a deep trough extending from the region of Hudson Bay down into southern California. There is a ridge over the northeastern Pacific. The flow into the RRR is from the arctic. This pattern occurs only from September through April.

B5TYPE-14 has a relatively deep cyclonic system

offshore of northern British Columbia, and a much weaker closed low sitting directly over the RRR. It occurs most often in the late spring.

B5TYPE-13 is characterized by a trough affecting almost all of the map. The axis of the trough runs from northern Manitoba southwestward into northern California. The RRR is in a westerly flow. This is most common in the late spring.

Unclassified B500 grids occur most often in the spring, perhaps reflecting the unsettled nature of this transitional season.

B5TYPE-16 is the only B5TYPE whose type and mean maps appear appreciably different. The keyday map has a number of closed highs and lows in the southern part of the map, while the southern part of the mean map depicts a very open, flat trough. The northern part of both maps are quite similar. It seems, then, that the similarity of B5TYPE-16 maps is largely a function of the pressure surface in the northern part of the grid, while the pressure surface in the southern part of the grid need only be somewhat flat and not necessarily organized into one particular configuration.

4.1.2 S5TYPE Characteristics

S5TYPE-1 is quite similar to B5TYPE-1. The flow, however, is not quite as zonal, being from the west-northwest. There is again some cyclonic curvature in the north and indications of anticyclonic curvature in the south. This type occurs at all times of the year, though least often in the spring.

S5TYPE-2 also depicts a nearly uniform, straight flow, from the west-southwest over the entire map. This type is observed most frequently from June through October.

S5TYPE-3 portrays a northwesterly flow over the whole map. This is most common during the late winter, and least during the summer.

S5TYPE-5 is characterized by a ridge affecting the entire map area. The ridge extends from eastern Colorado to northern Manitoba, so the RRR is in the northwesterly flow to the east of the axis of the ridge. It occurs most often during May, July, and August.

S5TYPE-7 shows a trough where there was a ridge in S5TYPE-5. The RRR is very near the trough axis, receiving a northwesterly flow. It occurs with similar frequencies in

all months except July and August, when it is rare.

S5TYPE-6 depicts a ridge in the southeast quadrant and a trough in the northeast quadrant. These are separated by a converging westerly flow. Occurs very infrequently in July and August and most frequently in the late spring and October.

S5TYPE-12 has ridging across the northern Plains states, and a trough over the northeast quadrant of the map. The flow over the RRR is from the west. It occurs most often in the late spring and early summer, and least often in the winter.

S5TYPE-4 portrays a southwesterly flow, with cyclonic curvature in the west and anticyclonic curvature in the east. This is very much a late-spring and early-summer pattern, but does show a smaller peak of activity in the early fall.

S5TYPE-8 is characterized by a trough over the northern Great Plains, producing a southwesterly flow over the RRR. This pattern is most common in the late spring and early fall. It is rare in July and August.

S5TYPE-9 represents a relatively strong westerly flow

in the American sector, and a stagnant situation in the Canadian sector. This type is observed most frequently during May and November.

S5TYPE-10 depicts a weak trough in the northeast quadrant and a weak ridge in the southwest, with a diverging westerly flow between them and over the RRR. It occurs all year but least often in the early summer.

S5TYPE-13 is dominated by a trough with its axis aligned from the northwest to the southeast. The flow over the RRR is from the southwest. The pattern is most common in May and June.

S5TYPE-17 has a ridge affecting most of the map. This is steering air along an anticyclonic trajectory from the west into the RRR. It exhibits a peak of activity in the spring.

S5TYPE-11 depicts a closed low over Wisconsin, producing a northerly flow over areas to the west. This type is rare in the summer and early fall, and most common in the early spring and late fall.

S5TYPE-16 portrays a weak southwesterly flow in the Canadian sector and a flat pressure surface in the south.

It occurs in relatively equal frequencies throughout the year.

S5TYPE-19 is characterized by a northerly flow over almost all of the map. It is observed most frequently in the winter and early spring.

S5TYPE-18 depicts a southerly flow, and a small closed low over northern Colorado. It is quite strongly associated with the spring.

S5TYPE-14 shows a large closed low over the RRR. It occurs most often in the spring and fall.

S5TYPE-15 depicts a col centred over the RRR with a zonal circulation along the northern margin of the map. It is most common in the spring and secondarily in December.

S5TYPE-20 is characterized by a weak high over the Canadian sector and a more pronounced low over the southeast, producing a northeasterly flow over the RRR. This is largely a spring-season pattern.

Again, most of the NOTYP maps were found to occur in the spring. The keyday and mean maps associated with each of the S5TYPEs are very similar to each other.

4.1.3 SMTYPE Characteristics

SMTYPE-1 is a highly meridional pattern. Along the eastern margin there is a large surface high extending from Hudson Bay to the Great Lakes. A low is located over the western Great Plains. The RRR is thus in a zone where the surface flow is predominately from the southeast. This pattern is quite common throughout the year, but is observed most often in the spring and least often in the late fall.

SMTYPE-2 exhibits a large area of low pressure apparently centred on Hudson Bay and extending over all parts of the map except the extreme west. The RRR is in the southern sector of the cyclonic flow, where the surface winds are from the southwest. This pattern occurs most often in the fall and least in the spring.

SMTYPE-4 is dominated by a trough in the northwest and a ridge in the southeast. The RRR is located between these in a southerly flow. This pattern is most common in late summer and early fall.

SMTYPE-5 has a large high pressure system over the western provinces, centred over northern Saskatchewan and Manitoba. The lowest pressure is in the extreme southwest of the map. The RRR is in an anticyclonic, northeasterly

airstream. This type is strongly associated with late winter and spring.

SMTYPE-6 is the opposite of SMTYPE-1. It has a low east of the RRR and a high to the west. The surface wind in the RRR is from the northwest. This pattern is observed most frequently during the late fall and early winter.

SMTYPE-3 is also the opposite of a pattern already discussed -- SMTYPE-4. It portrays a large anticyclone over the northwestern portion of the map and a weak cyclone in the southeast. The RRR is in a northerly flow. The type exhibits a slight peak of activity in the spring.

SMTYPE-10 is dominated by a trough extending southeastward from a low centred over western Saskatchewan. The RRR is in a cyclonic airstream from the south. The pattern occurs most often in the cold months, and least often in the warm months.

SMTYPE-12 portrays a trough extending down the middle of the map, from northern Saskatchewan and Manitoba south to Colorado. Highs sit over southern British Columbia and Wisconsin. Southeasterly winds in the RRR are indicated. The pattern is observed most often in the warm months and least often in the cold months.

SMTYPE-8 depicts an anticyclone in southern Alberta, with ridging into South Dakota, and a relatively deep cyclone over Hudson Bay. The southern part of the map is covered by a weak col. This configuration produces westerly surface winds in southern Manitoba and North Dakota. It is most common in the summer, and least common in the spring.

SMTYPE-9 is dominated by a large, deep low affecting almost all of the map. Its centre is over Nebraska and Kansas. Surface winds in the RRR are from the east. The pattern exhibits a spring-time maximum.

SMTYPE-19 has a large high over the northern Great Plains. Its centre is in southern Saskatchewan, creating northwesterly winds in the RRR. This type is observed most often in late winter.

SMTYPE-18 approximates the opposite of SMTYPE-12. There is a ridge extending diagonally across the map from Hudson Bay to the southern Rockies. This separates two lows, one centred in southern Alberta and another south of the Great Lakes. The RRR is directly under the ridge. This pattern is associated with the colder months.

SMTYPE-26 is characterized by a large surface high over Manitoba and Saskatchewan, with ridging into Nebraska, and a

relatively intense low east of the RRR. There are northerly winds in the RRR. The pattern is least common during July through November and most common in winter.

SMTYPE-11 shows ridging from central Saskatchewan to Kansas, with a high pressure cell over eastern North Dakota and South Dakota. There is an anticyclonic flow from the northwest over the RRR. This type occurs relatively uniformly throughout the year, but least often during October and November.

SMTYPE-13 depicts a large high south of Manitoba, centred over South Dakota, and a strong zonal circulation over the Canadian sector of the map. Winds are from the southeast in the RRR. This is commonest from July through November and least common in the spring.

SMTYPE-17 portrays a large weak low over the American sector of the map and a relatively intense high over the Canadian sector. This pressure pattern causes northeasterly winds over the RRR, and is most common in the spring.

SMTYPE-20 depicts a large, relatively deep low centred over southwestern Manitoba. Winds into the RRR are coming from the southeast. This pattern is observed most often in summer.

SMTYPE-7 exhibits a high in northern Manitoba, with a ridge extending south into Nebraska. Surface lows are present in southern Alberta and the American Midwest. Winds are from the northeast in the RRR. The pressure pattern is most common during the late winter and early spring.

SMTYPE-22 presents a large anticyclonic flow extending eastward from the Pacific Northwest of the United States into eastern North Dakota. A surface low is situated over Hudson Bay. There is a northwesterly anticyclonic flow in the RRR. The pattern is primarily associated with the summer and early fall.

SMTYPE-14 is dominated by a large, weak low over the Great Plains with a zonal flow in Canada. Winds in the RRR are from the south. This pattern does not display a simple seasonal regime.

SMTYPE-29 has a small low placed almost directly over the RRR. High pressure cells or ridges extend over the northwestern and southeastern corners of the map. The airflow over the RRR is cyclonic and westerly. This is a late-summer and early-fall pattern.

SMTYPE-16 portrays a relatively weak high centred just to the west of the RRR. This directs northerly winds over

the RRR. The pattern is observed most frequently during the late winter and early spring.

SMTYPE-15 depicts a large low affecting most of the map area. The centre of the low is over Lake Superior, so the RRR is receiving northerly winds from this cold-season pattern.

SMTYPE-21 shows a large col separating highs over central Saskatchewan and the American Midwest and low pressure areas over Hudson Bay and the western states. The western low is very weak. The col is centred over the RRR, so winds here are indeterminate. This pattern is commonest from July through September.

SMTYPE-27 exhibits a ridge extending across the Canadian prairies and pressures decreasing southward over the Great Plains. Winds in the RRR are from the east. The pattern displays some preference for spring.

SMTYPE-23 is characterized by a weak high pressure cell over the RRR and a low over central Alberta. This occurs most often the late-winter, early-spring, and fall.

SMTYPE-28 shows a low pressure cell in western Saskatchewan, with a trough down into Nebraska. A high

extends into the southwestern margin of the map. Southeasterly winds prevail over the RRR. The pattern exhibits a slight winter maximum.

SMTYPE-25 places a relatively deep low in northwestern Ontario and a very weak pressure gradient in areas west of Manitoba. There is a cyclonic flow from the northwest over the RRR. Little seasonality is indicated.

SMTYPE-24 has a high in central Saskatchewan, and ridging down into southeastern North Dakota. There are northerly winds in the RRR. This is a winter pattern.

NOTYP SMSL grids are quite evenly distributed throughout the year, in contrast to the NOTYP 500 mb grids which usually occur in the spring.

The SOS procedure as applied here has identified a wide variety of 500 mb and MSL patterns. Thus, it does not seem that the classification scheme was paramaterized too loosely. The number and diversity of the patterns suggests that the important patterns have probably been identified, in addition to many secondary patterns. Some of the S500 patterns are clearly scaled-down versions of one or more B500 patterns, but others do not have B500 counterparts. Changing the map scale from BIG to SMALL, and increasing the data point resolution have thus revealed shortwave features

hidden within the longwave patterns.

Significantly, many of the patterns in each of the synoptic groups are quite similar, often differing only in the latitudinal or longitudinal placement of a major system. This clearly demonstrates that the thresholds used to discriminate patterns were not set too low. Had this been so, patterns even somewhat similar to each other would have been grouped together. Since the classification scheme is sufficiently sensitive to allow relatively subtle pattern changes to be detected, inter-diurnal transition frequencies should provide valuable information concerning the movement and development of patterns over the RRR. These frequencies are discussed in section 4.3.

4.2 PRESSURE PATTERN SEASONS

In the previous section it was apparent that there are sets of patterns which tend to occur at particular times of the year. These associations may be used to identify natural seasons. These represent times of the year when average pressure patterns tend to be similar in form and relative frequency, in response to persistent large-scale regimes of the general circulation.

One of the most oft quoted works in the now neglected

field of natural seasons is that by Bryson and Lahey (1958). They identified the major seasons and subseasons of the Northern Hemisphere as indicated by a wide variety of climatic indices, including various measures of zonality in upper-level flows and numerous regional circulation characterizations. They determined that the major season of winter is the longest period of circulation-pattern persistence, extending from early November to late March. This is followed by spring (late March to late June), summer (late June to the middle of August) and fall (middle of August to early November). Twelve subseasons were identified, each about one month in duration.

Here, a series of cluster analyses were performed to identify three sets of seasons, one for each of the major map groups. Cluster analysis is a procedure which seeks to separate a set of observations into significantly different groups, as determined by some measure of inter-observation or inter-group distance (Everitt, 1974). A large number of distance measures and clustering methods are available. Hence, care must be exercised in their selection for a given set of data and in deciding upon the number of clusters to be adopted.

The measure of distance selected for use is one of the most commonly used, the squared Euclidean distance. It is simply the sum of the squared differences between the respective variables in the two cases being compared. This

measure should only be used when all of the variables have the same unit of measurement. All variables used in the analyses here are percentages, hence, the squared Euclidian distance is well-suited to the data being utilized.

To facilitate the selection of seasons, four different clustering methods were applied and their results compared for evidence of a consistent clustering scheme. The four methods used were: single linkage, complete linkage, average linkage (between groups), and Ward's minimum variance. These are agglomerative hierarchical clustering methods where clusters are formed by the grouping of cases into larger and larger clusters until all cases are placed in one all-inclusive cluster.

The single linkage method is also known as the nearest neighbour method. It creates its first cluster by joining the two cases which are most similar (i.e. those with the smallest distance between them). The distance between this new cluster and the remaining individual cases is calculated as the minimum distance between the individual case and a case already in the cluster. New clusters are formed or cases added to existing clusters depending on where the minimum distances are observed at successive stages in the clustering scheme.

The complete linkage method is also known as the furthest neighbour technique. It calculates the distance between two clusters as the distance between their two

furthest points.

The average linkage (between groups) method calculates the distance between two clusters as the average of the distance between all possible pairs of cases between the two clusters. This method is usually thought to have more rigor than the single linkage and complete linkage methods.

Ward's method calculates the means for all variables within a cluster. For each case it then calculates the sum of the squared Euclidean distance from the cluster means. At successive stages in the clustering procedure, the two cases or clusters which are joined are those which result in the smallest increase in the overall total of the squared within-cluster distances.

Since an objective of this clustering is to identify major natural seasons that may be comparable to Bryson and Lahey's, the subjective decision was made to adopt no fewer than four and no more than five seasons.

For entry into the cluster analyses, the average synoptic composition of each of the twelve months of the year was derived in the following way. The monthly frequencies of each synoptic type during the period of record were determined by simple summations. These raw frequencies were converted to a percentage of non-MSNG patterns observed within the month. The NOTYP category was retained as an important indicator of a month's synoptic composition. These monthly percentages were entered into

the cluster analyses. The mean monthly B500 percentage frequencies are reported in Table 4.4. Tables 4.5 and 4.6 contain the equivalent S500 and SMSL statistics, respectively.

The results of the clustering of months into four and five seasons according to their B500, S500 and SMSL percentage frequencies are shown in Tables 4.7, 4.8, and 4.9. The four methods never produced identical clusters. No more than two methods produced identical clusters of months into five seasons. However, three of the four methods did 'concur' on how to group months into four distinct seasons. These clusters were chosen as the seasons to be used in subsequent analyses.

Admittedly, the natural seasons reported are very generalized. It is well known that the length of particular seasons can vary considerably from one year to the next, and the use of a month as the minimum unit of time certainly adds some error; that is, seasons can start and end at times other than a month's end. Nevertheless, the seasons identified by the methods used here are discussed below.

4.2.1 B500 Seasons

The clustering of months based on their non-MSNG B5TYPE frequencies revealed that there are four B500 seasons. One

Table 4.4 Mean monthly and annual B5TYPE frequencies (percent of non-MSNG days), 1946-1984.

B5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1	43.4	45.5	38.2	38.5	37.7	46.3	63.7	60.2	53.1	51.1	49.3	47.4	47.9
2	23.4	18.2	17.5	8.9	3.6	3.7	4.4	5.1	11.5	5.8	11.9	17.4	11.0
3	4.2	4.9	6.0	9.9	11.1	12.3	12.8	7.7	7.9	11.2	6.3	5.5	8.3
4	3.2	2.0	5.6	6.8	8.8	9.6	4.8	8.3	9.1	5.9	3.5	3.8	5.9
5	15.3	15.5	9.6	7.3	5.3	2.8	2.6	2.2	3.5	7.6	13.0	12.0	8.1
6	0.5	0.3	1.7	3.6	3.7	5.0	2.3	2.1	2.1	3.1	1.3	0.9	2.2
7	1.3	1.7	1.8	3.1	4.8	1.4	0.2	0.3	1.8	4.7	2.6	1.4	2.1
8	0.6	1.9	0.8	0.5	2.6	2.5	0.7	1.6	1.3	0.3	0.4	0.4	1.1
9	1.0	1.4	2.1	2.3	1.4	1.0	0.4	1.4	0.2	0.6	0.5	0.8	1.1
10	0.0	0.1	0.4	1.1	2.6	2.3	0.9	0.8	0.2	0.2	0.1	0.1	0.7
11	3.6	4.0	6.5	5.2	1.8	2.0	0.3	1.1	2.0	2.7	4.3	5.5	3.2
12	0.6	0.4	2.8	2.4	4.5	3.4	0.8	1.6	0.8	0.6	2.4	0.9	1.8
13	0.3	0.0	0.4	0.6	1.0	0.2	0.0	0.1	0.0	0.0	0.4	0.3	0.3
14	0.2	0.4	0.2	0.6	1.0	0.3	0.2	0.0	0.0	0.1	0.1	0.3	0.3
15	0.2	0.7	0.7	1.6	0.8	0.4	0.6	0.2	0.3	0.3	1.3	0.5	0.6
16	0.0	0.1	0.2	1.8	1.7	1.0	0.8	0.5	1.5	1.8	0.5	0.0	0.8
17	0.2	0.7	1.6	1.5	1.3	2.8	3.1	5.8	3.2	1.7	0.9	0.7	1.9
18	0.7	0.2	0.7	0.5	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.8	0.3
NOTYP	1.3	2.2	3.0	3.8	6.5	3.0	1.3	1.2	1.5	2.0	0.9	1.2	2.3

Table 4.5 Mean monthly and annual S5TYPE frequencies (percent of non-MSNG days), 1946-1984.

S5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1	50.6	51.4	39.2	32.5	29.3	38.6	54.0	51.2	44.8	37.1	42.1	50.6	43.5
2	11.4	8.1	15.8	16.1	13.3	23.9	24.0	24.7	24.0	22.4	14.4	12.5	17.5
3	20.5	21.7	15.6	11.3	10.7	6.3	7.5	7.6	8.8	14.0	19.0	16.9	13.3
4	0.0	0.7	1.2	3.8	7.5	5.2	0.8	0.9	2.2	2.5	0.9	0.5	2.2
5	2.4	1.5	3.7	4.2	6.0	4.2	6.8	5.8	2.8	2.4	2.3	2.4	3.6
6	2.3	1.9	3.4	3.2	4.2	2.3	0.1	0.2	2.1	3.5	2.8	2.0	2.3
7	4.6	4.6	2.9	3.5	3.4	2.2	0.4	0.9	3.9	3.8	4.6	5.1	3.3
8	0.5	1.1	1.6	1.7	2.6	2.5	0.0	0.3	1.3	2.3	1.9	1.1	1.4
9	1.1	0.4	1.6	1.4	2.3	1.7	0.5	1.0	1.2	0.8	2.2	1.0	1.3
10	1.0	1.6	1.5	1.9	1.8	0.6	0.3	1.4	1.2	1.1	1.6	1.4	1.3
11	0.6	0.8	1.7	1.5	0.9	0.1	0.1	0.2	0.0	0.9	1.1	1.0	0.7
12	1.3	1.0	1.2	3.7	3.9	4.6	1.7	2.7	2.3	1.8	1.1	1.0	2.2
13	0.2	0.7	0.4	1.2	2.7	2.8	0.9	0.8	1.4	1.1	0.5	0.4	1.1
14	0.2	0.1	0.5	0.4	0.4	0.2	0.0	0.0	0.2	0.4	0.4	0.2	0.2
15	0.0	0.2	0.6	0.3	0.5	0.0	0.0	0.1	0.1	0.3	0.1	0.4	0.2
16	0.4	0.2	0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.9	0.3	0.3	0.4
17	0.6	0.2	1.1	1.2	1.6	0.7	1.0	0.5	0.4	0.8	0.7	0.4	0.8
18	0.1	0.0	0.6	1.4	0.8	0.2	0.0	0.0	0.0	0.4	0.1	0.2	0.3
19	1.0	1.1	0.4	1.1	0.1	0.3	0.0	0.0	0.2	0.3	0.8	0.0	0.4
20	0.0	0.1	0.0	0.7	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.0	0.1
NOTYP	1.4	2.7	6.4	8.4	7.6	2.7	1.3	1.2	2.8	3.1	3.0	2.6	3.6

Table 4.6 Mean monthly and annual SMTYPE frequencies (percent of non-MSNG days), 1946-1982.

SMTYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1	7.8	9.8	14.6	15.4	16.8	12.0	9.2	13.9	11.0	7.9	6.0	8.8	11.1
2	11.1	8.8	4.4	4.2	4.9	11.0	12.1	12.0	12.6	17.0	15.6	13.5	10.6
3	6.7	5.8	8.8	8.8	8.3	5.4	5.1	5.7	5.5	6.3	7.5	6.2	6.7
4	6.1	6.2	6.1	6.3	5.4	8.3	11.0	11.8	11.3	12.1	9.3	8.2	8.5
5	9.2	12.6	13.6	11.6	13.7	6.9	4.5	4.3	5.2	4.2	4.6	5.7	8.0
6	7.1	7.5	5.7	6.9	6.9	6.9	6.3	3.4	7.5	10.1	13.8	9.1	7.6
7	2.2	4.1	3.2	2.6	1.7	1.2	1.2	0.9	1.4	1.0	2.0	2.2	2.0
8	3.3	1.6	1.1	1.7	1.7	4.2	8.9	7.0	4.9	2.8	2.4	2.5	3.5
9	1.9	1.5	3.4	6.0	5.4	4.4	1.5	2.4	2.6	2.6	2.1	2.2	3.0
10	6.9	6.1	4.0	2.8	1.7	2.1	1.1	1.2	3.3	4.7	6.5	8.4	4.1
11	3.0	3.3	3.4	2.0	2.0	1.8	2.1	2.9	2.4	1.3	1.3	2.6	2.3
12	2.0	1.6	2.5	3.0	3.0	5.9	8.2	5.9	4.4	4.1	1.2	0.9	3.6
13	2.4	1.7	1.0	1.2	1.5	2.2	4.0	2.1	3.2	3.5	2.6	1.8	2.2
14	1.6	1.7	0.8	1.1	2.1	2.0	1.4	2.4	1.8	1.3	0.7	1.5	1.5
15	3.3	2.3	2.4	1.0	0.7	1.3	0.3	0.4	0.6	1.2	2.4	1.7	1.5
16	1.8	2.6	2.2	2.2	1.4	1.3	0.7	1.4	0.6	0.6	1.8	1.5	1.5
17	1.1	2.8	3.4	3.3	3.9	2.4	1.1	1.7	0.9	1.2	1.4	1.7	2.1
18	3.1	2.3	2.8	3.2	2.0	0.8	1.6	1.1	2.2	2.6	3.4	3.0	2.3
19	4.4	4.5	3.1	1.9	1.4	2.3	2.3	1.7	3.1	1.7	2.3	2.8	2.6
20	0.8	1.2	1.2	1.9	2.8	3.8	2.5	2.4	2.3	2.0	1.7	1.8	2.0
21	1.3	0.8	0.9	0.7	1.0	1.4	2.5	2.2	1.8	0.9	1.1	1.5	1.3
22	1.0	1.4	0.7	1.2	1.8	2.8	2.9	2.4	2.3	2.6	1.4	1.3	1.8
23	0.4	1.5	1.4	1.2	1.1	0.7	0.8	0.6	1.0	1.6	0.6	1.0	1.0
24	1.1	1.1	0.0	0.2	0.0	0.0	0.2	0.3	0.1	0.2	0.4	1.1	0.4
25	0.6	0.3	0.4	0.2	0.6	0.5	0.4	0.9	0.5	0.7	0.2	0.6	0.5
26	3.8	2.8	3.6	3.9	3.1	1.8	1.2	1.6	1.2	1.2	1.6	2.4	2.3
27	0.7	0.8	1.2	1.5	1.4	1.2	0.6	0.9	1.3	0.8	0.8	1.0	1.0
28	1.5	1.0	0.4	0.8	0.6	1.3	0.7	0.5	0.5	1.1	1.4	1.9	1.0
29	0.3	0.4	0.8	1.0	1.0	1.7	3.2	3.2	3.1	1.4	1.7	0.5	1.5
NOTYP	3.5	1.9	2.6	2.5	1.9	2.4	2.5	2.5	1.2	1.4	2.1	2.7	2.3

Table 4.7 Results of the cluster analyses of months into 4 and 5 seasons based on monthly non-MSNG B5TYPE percentage frequencies.

Clustering method	Months included in the clusters	
	4 seasons	5 seasons
Average linkage	Nov,Dec,Jan,Feb,Mar Apr,May Jun,Sep,Oct Jul,Aug	Nov,Dec,Jan,Feb Mar Apr,May Jun,Sep,Oct Jul,Aug
Complete linkage	Nov,Dec,Jan,Feb,Mar Apr,May Jun,Sep,Oct Jul,Aug	Dec,Jan,Feb,Mar Apr,May Jun,Sep,Oct Jul,Aug Nov
Ward's method	Nov,Dec,Jan,Feb,Mar Apr,May Jun,Sep,Oct Jul,Aug	Dec,Jan,Feb,Mar Apr,May Jun,Sep,Oct Jul,Aug Nov
Single linkage	(Nov,Dec,Jan,Feb, Mar,Apr,May) Jun Jul,Aug Sep,Oct	Nov,Dec,Jan,Feb,Mar Apr,May Jun Jul,Aug Sep,Oct

Table 4.8 Results of the cluster analyses of months into 4 and 5 seasons based on monthly non-MSNG S5TYPE percentage frequencies.

Clustering method	Months included in the clusters	
	4 seasons	5 seasons
Average linkage	Nov,Dec,Jan,Feb,Mar Apr,May Jun,Sep,Oct Jul,Aug	Nov,Dec,Jan,Feb Mar Apr,May Jun,Sep,Oct Jul,Aug
Complete linkage	Nov,Dec,Jan,Feb,Mar Apr,May Jun,Sep,Oct Jul,Aug	Dec,Jan,Feb,Mar Apr,May Jun,Sep,Oct Jul,Aug Nov
Ward's method	Nov,Dec,Jan,Feb,Mar Apr,May Jun,Sep,Oct Jul,Aug	Dec,Jan,Feb,Mar Apr,May Jun,Sep,Oct Jul,Aug Nov
Single linkage	Dec,Jan,Feb Mar,Oct,Nov Apr,May Jun,Jul,Aug,Sep	Dec,Jan,Feb Mar,Oct,Nov Apr,May Jun Jul,Aug,Sep

Table 4.9 Results of the cluster analyses of months into 4 and 5 seasons based on monthly non-MSNG SMTYPE percentage frequencies.

Clustering method	Months included in the clusters	
	4 seasons	5 seasons
Average linkage	Jan,Feb Mar,Apr,May Jun,Jul,Aug,Sep Oct,Nov,Dec	Jan,Feb Mar,Apr,May Jun,Jul,Aug,Sep Oct,Nov Dec
Complete linkage	Jan,Feb Mar,Apr,May Jun,Jul,Aug,Sep Oct,Nov,Dec	Jan,Feb Mar,Apr,May Jun,Jul,Aug,Sep Oct,Nov Dec
Ward's method	Jan,Feb Mar,Apr,May Jun,Jul,Aug,Sep Oct,Nov,Dec	Jan,Feb Mar,Apr,May Jun,Sep Jul,Aug Oct,Nov,Dec
Single linkage	Jan,Feb,Dec Mar,Apr,May Jun,Jul,Aug,Sep Oct,Nov	Jan,Feb,Dec Mar,Apr,May Jun,Jul,Aug,Sep Oct Nov

of these is very long, being comprised of the five months of November, December, January, February, and March. This is the midlatitude cold season, and the same group of months included in Bryson and Lahey's winter. Two of the other seasons are each only two months long. Spring is represented by April and May, and summer is represented by July and August. Bryson and Lahey's spring also included most of June, but their summer is similar to that derived here. At first glance the final season seems odd, in that it contains months which are not consecutive, namely June, September, and October. However, there is a rational basis for this season. During June the polar and arctic fronts are usually still in retreat towards the north, where they remain until the fall, when they again progress towards the south to mark the beginning of winter (Bryson, 1966). Hence, June, September, and October are months during which there are normally important changes in the circulation over North America, changes which signify a transition into, or out of, the summer circulation regime. This transitional season is hereafter referred to as the sumtran season.

The mean percentage frequencies of B5TYPEs in the four B500 seasons are listed in Table 4.10. These, and the S500 and SMSL seasonal means reported in the next sections, were calculated by determining the frequency of each synoptic type observed in each season during the entire period of record and expressing these as percentages of non-MSNG

Table 4.10 Mean percentage frequencies of B5TYPEs in B500 seasons.

B5TYPE	Winter	Spring	Summer	Sumtran
1	44.7	38.1	62.0	50.3
2	17.8	6.2	4.8	7.0
3	5.4	10.5	10.2	10.5
4	3.7	7.7	6.5	8.2
5	13.1	6.3	2.4	4.7
6	1.0	3.6	2.2	3.4
7	1.8	4.0	0.3	2.6
8	0.8	1.6	1.1	1.4
9	1.1	1.9	0.9	0.6
10	0.1	1.9	0.8	0.9
11	4.8	3.5	0.7	2.2
12	1.4	3.5	1.2	1.6
13	0.3	0.8	0.0	0.1
14	0.2	0.8	0.1	0.1
15	0.7	1.2	0.4	0.3
16	0.2	1.7	0.6	1.4
17	0.8	1.4	4.4	2.5
18	0.6	0.3	---	0.1
NOTYP	1.7	5.1	1.3	2.2

patterns within each season.

Perhaps the most noteworthy statistic from Table 4.10 is the dominance of B5TYPE-1 during the summer, when, on average, 62.0% of the days record this pattern. In contrast, only 38.1% of spring days exhibit B5TYPE-1. A number of other patterns show strong seasonal preferences. B5TYPE-2 occurs on over 17% of the winter days, but only about one-third as often during the other seasons. B5TYPE-3 occurs on about five per cent of winter days but about twice as often during the rest of the year. B5TYPE-5 is obviously a cold-season pattern, occurring almost six times as often

during the winter as in the summer. Most of the remaining patterns occur on no more than one or two per cent of the days in any one season, but, still, it is clear that most are associated with particular seasons.

Of particular interest is that some types exhibit peaks of activity in both the spring and sumtran seasons, reflecting the underlying similarity of these seasons. These are the seasons during which the general circulation is 'flipping' into one of its two most distinct and synoptically stable seasons: winter and summer. The latter two seasons are dominated by two or three patterns, but the spring and sumtran seasons, and especially the spring, are much more diverse. Note, too, that NOTYP patterns are most frequent during the spring. Thus, the spring's reputation for variability seems justified.

Table 4.10 indicates that most B5TYPEs are seasonal to some degree and that some patterns show the same seasonal tendencies. However, it does not explicitly show what flow attributes are common to those patterns with similar seasonal distributions. For the purpose of identifying the seasonality of a more generalized description of 500 mb flows, each of the 18 individual B5TYPEs was subjectively reclassified according to the general configuration of the 500 mb flow in the immediate vicinity of the RRR. The non-MSNG and non-NOTYP patterns were put into one of three all-inclusive groups:

1) those dominated by zonal flows over the RRR;
2) those with cyclonic curvature (troughing) over the RRR;
3) those with anticyclonic curvature (ridging) over the RRR.

B5TYPEs 1 and 12 were classified as zonal; types 2, 4, 5, 6, 7, 8, 11, 13, 14, and 18 were put into the trough group; and types 3, 9, 10, 15, 16, and 17 were put into the ridge group. The mean seasonal percentage frequencies of these three basic kinds of patterns were determined by calculating the appropriate seasonal frequencies during the entire period of record and expressing these as percentages of non-MSNG grids. The percentages are reported in Table 4.11.

This reclassification produced some rather telling statistics. Summer is unquestionably the season most affected by zonal westerly flows (63.2%). This is presumably because the weak latitudinal temperature gradient in the midlatitude warm-season produces relatively weak upper-level flows, and this causes the formation of relatively long Rossby waves. In the winter, zonal flows are still quite common (46.4%), but almost as many troughing situations (43.6%) are observed over the RRR. The latter may either represent shortwave troughs passing over the RRR, or large-scale troughs associated with standing waves. Troughs are relatively uncommon in the summer (18.0%), as are ridges (17.4%). Mid-continental ridges are not very common in the winter (8.2%). The spring and sumtran seasons

Table 4.11 Mean percentage frequencies of generalized B5TYPEs in B500 seasons.

Flow Pattern	Winter	Spring	Summer	Sumtran
Zonal	46.4	41.3	63.2	51.9
Trough	43.6	35.1	18.0	29.6
Ridge	8.2	18.4	17.4	16.2
NOTYP	1.6	5.2	1.3	2.2

are quite similar to each other, with troughing occurring about twice as often as ridging, but zonal flows are more common in the sumtran season (51.9%) than in the spring (41.3%).

Thus, the B500 summer is dominated by warm-air advection from the west, with spells of airflow from the north and south. Winter experiences much less warm-air advection and much more cold-air advection. The spring and sumtran seasons, in keeping with their transitional positions, produce the most varied kinds of flows.

4.2.2 S500 Seasons

The four S500 seasons identified are identical to the four B500 seasons. To repeat, these are winter (November, December, January, February and March), spring (April and May), summer (July and August) and the sumtran season (June, September and October).

The mean seasonal frequencies of the S5TYPEs are listed in Table 4.12. S5TYPE-1 dominates all seasons, but more so the winter and the summer, when about half of the days, on average, are of this type. S5TYPE-2 occurs most frequently in the summer and sumtran seasons (24.4% and 23.4%), and least often in the winter (12.4%). The reverse is true for S5TYPE-3, for it is most common in the winter (18.7%) and least common during the sumtran and summer seasons (9.8% and 7.6%). The remaining types are much less common than these three types, but most show seasonal preferences. The NOTYP patterns are decidedly most common in the spring.

Each of the 20 individual S5TYPEs was subjectively reclassified in the same way that B5TYPEs were reclassified: as a zonal pattern, as a pattern dominated by a cyclonic flow (trough), or as a pattern dominated by an anticyclonic flow (ridge). S5TYPEs 1 and 9 were classified as zonal; types 3, 6, 7, 8, 10, 11, 13, 14, 15, 19, and 20 were classified as troughs; and types 2, 4, 5, 12, 16, 17, and 18 were classified as ridges. The seasonal percentage frequencies resulting from this reclassification are shown in Table 4.13.

It is interesting that zonal patterns occurred at about the same rate, approximately 50%, in both summer and winter, for zonal B5TYPEs were much more common in summer than in winter. It is obvious that many patterns which were identified as zonal using the B500 grid have been identified

Table 4.12 Mean percentage frequencies of S5TYPEs in S500 seasons.

S5TYPE	Winter	Spring	Summer	Sumtran
1	46.8	30.8	52.6	40.2
2	12.4	14.6	24.4	23.4
3	18.7	11.1	7.6	9.8
4	0.7	5.7	0.8	3.3
5	2.5	5.1	6.2	3.1
6	2.5	3.7	0.2	2.6
7	4.4	3.4	0.7	3.3
8	1.2	2.2	0.1	2.1
9	1.3	1.9	0.8	1.3
10	1.4	1.8	0.9	1.0
11	1.1	1.2	0.1	0.3
12	1.1	3.8	2.2	2.9
13	0.4	1.7	0.9	1.8
14	0.3	0.4	0.0	0.3
15	0.3	0.4	0.0	0.1
16	0.3	0.5	0.4	0.6
17	0.6	1.4	0.8	0.6
18	0.2	1.1	---	0.2
19	0.7	0.6	---	0.3
20	0.1	0.5	---	0.1
NOTYP	3.2	8.2	1.2	2.8

Table 4.13 Mean percentage frequencies of generalized S5TYPEs in S500 seasons.

Flow Pattern	Winter	Spring	Summer	Sumtran
Zonal	47.1	32.7	53.4	41.5
Trough	31.5	26.9	10.5	21.5
Ridge	18.0	32.2	34.9	34.2
NOTYP	3.4	8.2	1.2	2.8

as S500 troughs or ridges. This is attributable to the ability of the relatively dense S500 grid to differentiate relatively subtle pattern differences. This applies especially to S5TYPE-2 which portrays a west-southwesterly flow over the entire map and was, therefore, classified as a ridge. Had it been identified as a zonal pattern, which it very nearly is, the S500 and B500 winter and summer zonal statistics would be more alike, with zonal patterns occurring about 15% more often in the summer than in the winter. Zonal patterns as a whole are again seen to be least common in the spring.

S500 troughs occur most often in the winter (31.5%) and least often in the summer (10.5%), while ridges occur most often in the summer, spring, and sumtran seasons (about 34%) and least often in the winter (18%). This fits expectations, for troughs advect cold air into the RRR, and ridges are affiliated with warm-air advection.

4.2.3 SMSL Seasons

Four seasons were identified using the SMSL monthly frequencies. January and February represent the winter; March, April, and May comprise the spring; June, July, August, and September constitute the summer; and October, November, and December are included in what will generously

be called the fall.

Since most occur rather infrequently, only a few of the SMTYPEs display marked seasonal tendencies (Table 4.14). Certainly, none of the patterns dominates a season as do some of the B500 and S500 patterns. Indeed, the highest mean percentage frequency of a SMSL pattern in any of the four seasons is that of SMTYPE-1, in the spring (15.6%).

Of the more frequent patterns, the most seasonal is SMTYPE-2. Almost four times as many days with this pattern are observed during the fall (15.3%) as in the spring (4.5%). SMTYPE-5 is also quite seasonal, occurring almost three times as often in the spring (13.0%) as in the fall (4.9%) and summer (5.2%).

The generalization of SMSL patterns required a somewhat different approach from that used with the 500 mb patterns. SMSL patterns are much more detailed than the upper-level patterns and cannot, therefore, be accommodated into the simple threefold classification of zonal, troughs, or ridges. Consequently, six all-inclusive categories were subjectively derived for the SMSL types:

1) those dominated by a cyclonic system centred approximately over the centre of the map (central low);
2) those dominated by an anticyclonic system centred approximately over the centre of the map (central high);
3) those portraying a high west of a low, with both systems at about the same latitude (high-low);
4) those portraying a low west of a high, with both systems at about the same latitude (low-high);
5) patterns with a low pressure system largely confined to the Canadian sector of the map, with or without a

Table 4.14 Mean percentage frequencies of SMTYPEs in SMSL seasons.

SMTYPE	Winter	Spring	Summer	Fall
1	8.8	15.6	11.6	7.6
2	10.0	4.5	12.0	15.3
3	6.3	8.6	5.4	6.7
4	6.1	5.9	10.6	9.9
5	10.8	13.0	5.2	4.9
6	7.3	6.5	6.0	11.0
7	3.1	2.5	1.2	1.7
8	2.5	1.5	6.3	2.5
9	1.7	4.9	2.7	2.3
10	6.5	2.8	1.9	6.6
11	3.1	2.5	2.3	1.8
12	1.8	2.8	6.1	2.1
13	2.1	1.2	2.8	2.6
14	1.7	1.3	1.9	1.2
15	2.8	1.4	0.7	1.7
16	2.2	1.9	1.0	1.3
17	1.9	3.5	1.5	1.5
18	2.7	2.7	1.4	3.0
19	4.5	2.2	2.3	2.3
20	1.0	2.0	2.7	1.8
21	1.1	0.9	2.0	1.2
22	1.2	1.2	2.6	1.8
23	1.0	1.2	0.8	1.1
24	1.1	0.1	0.2	0.6
25	0.5	0.4	0.6	0.5
26	3.3	3.5	1.4	1.7
27	0.7	1.4	1.0	0.9
28	1.2	0.6	0.8	1.5
29	0.3	0.9	2.8	1.2
NOTYP	2.7	2.3	2.2	2.1

high towards the south (northern low); and
6) patterns with a high pressure system in the Canadian sector of the map, with or without a low in the south (northern high).

These six categories were chosen because they ostensibly reduce the 29 SMTYPEs to their most basic forms, as the 500 mb categories simplified the B5TYPEs and S5TYPEs.

SMTYPEs 9, 14, 15, and 20 were classified as central lows; types 7, 11, 13, 19 were classified as central highs; types 3, 6, 21, 25, 26, and 29 were classified as high-lows; types 1, 4, 12, 18, and 23 were classified as low-highs; types 2, 8, 10, 22, and 28 were classified as northern lows; and types 5, 16, 17, 24, and 27 were identified as northern highs. The mean seasonal percentage frequencies of these six classes are shown in Table 4.15.

The most seasonal class is the northern low. It occurs over two and one-half times more often in the fall (27.6%) as in the spring (10.7%) and about equally in the summer (23.5%) and winter (21.5%). This temporal distribution is undoubtedly related to the seasonal position of the polar-front jet stream and the baroclinic zone associated with it. The jet tends to remain quite far north (i.e. around $55^{o}N$) well into the fall (November), hence, this is when cyclogenesis in western and northwestern Canada is at a maximum (Whittaker and Horn, 1982). Cyclogenesis over the same area is at a minimum during the spring, when the jet is normally located over the southern Rockies. Given this, it

Table 4.15 Mean percentage frequencies of generalized SMTYPEs in SMSL seasons.

Major feature of SMTYPE	Winter	Spring	Summer	Fall
Central Low	7.2	9.6	8.1	7.1
Central High	12.8	8.4	8.7	8.3
High-Low	18.7	20.9	18.2	22.2
Low-High	20.4	28.2	30.5	23.6
Northern Low	21.5	10.7	23.5	27.6
Northern High	16.7	19.9	8.9	9.0
NOTYP	2.7	2.3	2.2	2.1

is not surprising that central lows were found to be most common in the spring (9.6%), when the spawning of Colorado lows reaches its peak. This peak is, however, quite small. The minimum of central-low activity in the fall (7.1%) is only 2.5 percentage points less than the value recorded in the spring.

Northern highs are also quite seasonal. They are most frequent during the spring (32.7%), at the same time that northern lows are at a minimum. The northern highs are least frequent in the fall (19.6%), when northern lows occur most often. Central highs are much less seasonal, but occur most frequently in the winter (14.1%). All of these findings about anticyclone frequencies are in general agreement with Harman's (1987) maps of mean monthly frequencies of North American anticyclones.

High-low configurations display a small peak of activity in the fall (22.2%) with a minimum in the summer (18.2%). Lack of seasonality in this category is probably due to the persistence of cyclone tracks over areas downwind of Alberta and Colorado.

Low-highs do show seasonality. They are most common in the summer (30.5%) when southerly meridional flows associated with ridging just east of the Rockies are common. They are least common in the winter (20.4%), when ridging just east of the Rockies is uncommon.

4.3 PERSISTENCE AND TRANSITIONAL TENDENCIES

One of the many potential applications of a synoptic catalogue is the identification of the persistence and transitional tendencies of daily synoptic patterns for the purpose of forecasting. In addition, information about how patterns tend to change, or not change, from day to day can reveal much about the dynamics of a region's climate, including how rapidly patterns evolve and move. Consequently, the 1946-84 catalogue of daily B500, S500, and SMSL synoptic types was subjected to analyses of the important persistence and transitional characteristics observed within the daily record.

The goal is to identify how patterns tend to change from one day to the next. However, it is not sufficient to use a simple frequency count to determine which patterns occur together most often, since one pattern can follow another pattern very frequently only because one or both of them occurs very frequently. Thus, one must employ probability analysis to distinguish random coincidences from non-random temporal associations between daily synoptic patterns. It is the latter which are of interest climatologically, for they imply dynamic associations between synoptic types.

With N different kinds of synoptic patterns, there are N^2 possible inter-diurnal combinations. N of these are cases of persistence, where the pattern on day two is the same as that on day one, and the rest are true transitional cases. For each of the daily sequences, the frequencies of these transitions were counted and arranged in a matrix for further analysis. The NOTYP and MSNG types were included to keep the sequences complete. Thus, a 20 x 20 matrix was created from the B500 data; a 22 x 22 matrix from the S500 data; and a 31 x 31 matrix from the SMSL data.

Each of the individual transitional frequencies was tested for non-randomness according to standard probability analysis, following the example of Moritz (1979). A number of probabilities need to be defined in order to assess these transitional frequencies. The probability of synoptic type

I (e.g. B5TYPE-1) on any one day is simply its relative frequency within the entire daily sequence:

$$P(I) = \frac{N(I)}{N_t} \tag{4}$$

The conditional probability that type J follows type I is given by:

$$P(J/I) = \frac{N(I \longrightarrow J)}{N(I)} \tag{5}$$

In this case, type J could be the same as type I. A more restrictive conditional probability, dealing only with non-persistence cases, is calculated by:

$$P(J/I, J \neq I) = \frac{N(I \longrightarrow J)}{N(I) - N(I \longrightarrow I)} \tag{6}$$

These transitional frequencies are tested for non-randomness by comparing them to the transitional probabilities that would be expected from a large number of random trials. Theoretically, the frequencies which would be created by these trials would fit the Normal (Gaussian) Distribution, thus, a test statistic can be calculated which quantifies the probability of obtaining a specific number of transitional frequencies from a sample of size N. For

persistence cases, this index is calculated by comparing the conditional probability of observing I⟶I to the unconditional probability of observing I on its own (i.e. P(I)). One must also consider the probability of <u>not</u> observing I⟶I. This is given by the simple subtraction:

(7) $$b = 1 - P(I/I)$$

The test statistic for <u>persistence cases</u> is calculated by:

(8) $$z = (P(I/I) - P(I)) \;/\; (((P(I/I)(b))^{.5}) \;/\; N(I)^{.5})$$

For non-persistence cases, the statistic is calculated by comparing the conditional probability of observing I⟶J with the probability of observing a random sequence. The latter is calculated as:

(9) $$P(J/?) = \frac{N(J)}{N_t - N(I)}$$

The test statistic for <u>non-persistence cases</u> is determined by:

(10) $$z = \frac{(P(J/I, J \neq I) - P(J/?))}{((P(J/?)(1-P(J/?))^{.5})/(N(I)-N(I \longrightarrow I))^{.5})}$$

With a 95% confidence level, the z values from

equations (8) and (10) indicate that the sequence being tested occurred: a) more often than expected by chance if $z > 2.0$, b) less often than expected if $z < -2.0$, and c) as often as expected if $-2.0 \geq z \leq 2.0$. The sequences which occur more often than expected are those which are of interest here, hence, the B5TYPE$\longrightarrow$B5TYPE, S5TYPE$\longrightarrow$S5TYPE, and SMTYPE$\longrightarrow$SMTYPE persistence and transitional frequencies were tested and those with $z > 2.0$ were noted. The persistence characteristics of all synoptic types are discussed in the following sections, but discussions of the significant transitional cases are limited to those in which N(I$\longrightarrow$J) is at least 10% of N(I).

4.3.1 B5TYPE Inter-diurnal Sequence Characteristics

All B5TYPEs, including the MSNG and NOTYP patterns, were found to be highly persistent, with the z-values from equation (8) all well above 2.0 (Table 4.16). There were 8,488 cases of persistence during 1946-84, accounting for 59.6% of all 14,244 inter-diurnal sequences (Table 4.17). The most persistent pattern, as indicated by P(I/I) from equation (5), is B5TYPE-1, with a value of 75%. B5TYPE-1 also has the highest mean spell-length (3.9 days), and it produced the longest spell observed during 1946-84, this being a surprisingly long spell of 34 days. The less

Table 4.16 B5TYPE inter-diurnal persistence cases: z-scores and related statistics.

B5TYPE	N	P(I/I)	Mean Spell (days)	Max. Spell (days)	z
1	6661	0.75	3.9	34	45.5
2	1523	0.62	2.6	22	64.3
3	1155	0.56	2.3	13	59.1
4	827	0.47	1.9	11	50.1
5	1122	0.52	2.1	10	54.5
6	307	0.31	1.5	5	35.1
7	289	0.28	1.4	4	31.3
8	159	0.38	1.6	8	45.5
9	152	0.18	1.2	3	20.0
10	102	0.27	1.4	5	32.0
11	450	0.37	1.6	7	40.6
12	246	0.43	1.8	8	49.8
13	37	0.22	1.3	3	25.5
14	39	0.36	1.6	4	42.6
15	86	0.27	1.4	3	31.3
16	114	0.25	1.3	5	29.5
17	269	0.38	1.6	11	43.4
18	44	0.36	1.6	5	43.1
NOTYP	324	0.43	1.8	10	49.1
MSNG	339	0.27	1.4	22	29.6

Table 4.17 Summary of B5TYPE inter-diurnal sequence probability analysis.

Transition types by probability category	Possibilities represented	Inter-diurnal sequences
Persistent, > chance	20 of 20	8,488 (59.6%)
Persistent, < chance	0 of 20	----------
Persistent, random	0 of 20	----------
Non-persist., > chance	90 of 380	2,851 (20.0%)
Non-persist., < chance	53 of 380	1,115 (7.8%)
Non-persist., random	237 of 380	1,780 (12.5%)
Transitions observed	265 of 400	14,244

frequent patterns, and especially those which occurred fewer than 1,000 times during 1946-84, are associated with much smaller values of P(I/I), but only one has a P(I/I) less than 25%. The least persistent pattern is B5TYPE-9, with a P(I/I) of 18%. Clearly, 500 mb patterns show a strong tendency to remain within the B500 window for a period longer than 24 hours.

Only 265 of the 380 non-persistent transitions which are mathematically possible actually occurred. Only 90 of these transitions occurred at a rate greater than expected by chance, but they produced 2,851 of the 5,756 non-persistent inter-diurnal sequences (Table 4.17). Another 53 transitions (1,115 sequences) occurred less often than expected by chance, with $z < -2.0$, and the remaining 237 transitions appeared neither more often nor less often than expected by chance (1,780 sequences).

Given such a high degree of persistence within the B5TYPEs as a whole, it was not unexpected to find that the probabilities associated with most of the non-persistent transitions which occurred more often than expected by chance are very low. In fact, only 18 of the 90 probabilities in question are greater than 10% (Table 4.18). However, inspection of the transitional probabilities associated with each of the B5TYPEs (not shown), indicates that most patterns tend to be followed frequently by only a few other patterns. So, the transitions may not be

Table 4.18 B5TYPE inter-diurnal transitional sequences with P(J/I) > 10% and z > 2.0.

B5TYPE	to	B5TYPE	P(J/I)	Number of transitions	z
3	to	1	25.4	292	3.0
5	to	1	30.3	340	5.6
6	to	4	11.1	34	6.3
7	to	1	44.6	129	4.1
8	to	5	12.6	20	4.6
10	to	3	18.6	19	5.5
10	to	6	10.8	11	7.2
11	to	2	18.7	84	9.9
13	to	4	24.3	9	5.8
13	to	11	18.9	7	6.4
14	to	3	23.1	9	5.1
14	to	NOTYP	12.8	5	5.9
15	to	3	30.2	26	9.6
16	to	3	24.6	28	8.4
17	to	2	10.0	27	2.2
17	to	4	16.4	44	11.2
18	to	2	29.5	13	6.1
18	to	NOTYP	11.4	5	5.5

significantly non-random at the 95% confidence level, but it is clear that certain transitions are favoured over others.

4.3.2 S5TYPE Inter-diurnal Sequence Characteristics

Only one of the S5TYPE synoptic patterns (S5TYPE-14) was found to be non-persistent (Table 4.19). It depicts a well-defined and apparently fast moving cold low over the northern Plains states. It occurred 34 times during the period of record, and not once did it persist from one day

Table 4.19 S5TYPE persistence scores (z) and related statistics.

S5TYPE	N	P(I/I)	Mean Spell (days)	Max. Spell (days)	z
1	6045	0.65	2.9	31	36.2
2	2440	0.47	1.9	12	39.4
3	1854	0.45	1.8	9	41.5
4	303	0.25	1.3	4	27.3
5	515	0.14	1.2	4	12.6
6	325	0.13	1.1	3	12.8
7	461	0.15	1.2	3	14.8
8	194	0.10	1.1	3	10.1
9	179	0.17	1.2	4	19.3
10	178	0.15	1.2	4	16.7
11	103	0.16	1.2	4	17.7
12	304	0.13	1.1	4	12.5
13	147	0.21	1.3	7	24.1
14	34	0.00	1.0	1	-0.3
15	29	0.07	1.1	2	8.0
16	62	0.05	1.1	2	5.3
17	109	0.09	1.1	3	10.1
18	44	0.09	1.1	3	10.5
19	61	0.21	1.3	3	25.0
20	16	0.38	1.6	6	44.6
NOTYP	503	0.34	1.5	8	36.8
MSNG	339	0.27	1.4	22	29.6

to the next. The remaining patterns were all found to be persistent, but their z-values are generally much lower than those associated with the B5TYPEs, as are the probabilities of persistence. These differences can be attributed to the fact that the S5TYPE patterns depict pressure configurations smaller than the B5TYPE patterns. In a given twenty-four hour period there is naturally more change in a pressure pattern over a small area than over a large area.

A total of 6,673 (46.8%) of the inter-diurnal sequences

were recorded as persistent (Table 4.20). The most persistent S500 pattern is S5TYPE-1, with a probability of persistence of 65%, a mean spell length of 2.9 days, and a maximum spell length of 31 days. S5TYPEs 2 and 3 are the only other patterns with probabilities of persistence greater than 40%, and only three of the remaining non-MSNG patterns are associated with a P(I/I) greater than 25%.

The non-persistent transitional sequences associated with the S5TYPEs are also quite low. Only 236 of the 420 non-persistent inter-diurnal transitional sequences which could occur did occur, and most of these did so infrequently. Only 46 of the transitions occurred more frequently than expected by chance. Only 29 of these have probabilities greater than 10% (Table 4.21).

Table 4.20 Summary of S5TYPE inter-diurnal sequence probability analysis.

Transition types by probability category	Possibilities represented	Inter-diurnal sequences
Persistent, > chance	21 of 22	6,673 (46.8%)
Persistent, < chance	0 of 22	----------
Persistent, random	1 of 22	----------
Non-persist., > chance	114 of 462	4,818 (33.8%)
Non-persist., < chance	73 of 462	921 (6.5%)
Non-persist., random	275 of 462	1,832 (12.5%)
Transitions observed	293 of 488	14,244

Table 4.21 S5TYPE inter-diurnal transitional sequences with P(J/I) > 10% and z > 2.0.

S5TYPE	to	S5TYPE	P(J/I)	Number of transitions	z
1	to	2	11.7	707	4.1
3	to	1	35.4	657	10.3
4	to	2	20.5	62	3.9
4	to	8	18.8	57	30.4
5	to	2	38.6	199	14.9
6	to	7	10.2	33	7.8
7	to	3	40.1	185	19.7
8	to	7	11.9	23	7.3
8	to	NOTYP	14.9	29	9.3
9	to	2	20.1	36	2.2
10	to	3	19.1	34	3.4
11	to	3	38.8	40	9.1
11	to	17	14.6	15	17.6
12	to	2	28.3	86	6.4
12	to	4	11.5	35	12.3
13	to	2	31.3	46	6.4
13	to	4	13.6	20	11.2
14	to	3	38.2	13	4.4
14	to	7	17.6	6	4.7
15	to	10	31.0	9	15.0
15	to	NOTYP	27.6	8	7.3
16	to	13	22.6	14	17.2
17	to	5	32.1	35	16.8
17	to	21	11.0	12	4.6
18	to	8	20.5	9	11.5
18	to	NOTYP	47.7	21	16.8
19	to	3	41.0	25	8.0
20	to	5	12.5	2	2.8
20	to	NOTYP	50.0	8	13.1

4.3.3 SMTYPE Inter-diurnal Sequence Characteristics

Only 23 SMTYPEs were found to be significantly persistent (Table 4.22), and only 14.6% of all inter-diurnal sequences were associated with them (Table 4.23).

Table 4.22 SMTYPE persistence scores (z) and related statistics.

SMTYPE	N	P(I/I)	Mean Spell (days)	Max. Spell (days)	z
1	1492	0.28	1.4	7	20.3
2	1423	0.26	1.3	5	18.8
3	896	0.10	1.1	3	4.0
4	1144	0.22	1.3	5	16.4
5	1076	0.32	1.5	6	29.0
6	1018	0.14	1.2	5	8.0
7	264	0.06	1.1	2	5.3
8	475	0.15	1.2	5	13.5
9	405	0.09	1.1	3	7.2
10	546	0.07	1.1	3	3.5
11	314	0.05	1.1	2	2.9
12	480	0.09	1.1	4	5.9
13	302	0.03	1.0	2	0.5
14	207	0.04	1.0	3	3.3
15	196	0.04	1.0	2	3.1
16	201	0.02	1.0	2	1.2
17	279	0.13	1.1	3	12.3
18	315	0.02	1.0	2	-0.5
19	353	0.08	1.1	4	6.3
20	273	0.03	1.0	2	1.1
21	180	0.02	1.0	2	1.0
22	245	0.04	1.0	2	2.7
23	133	0.02	1.0	2	0.6
24	51	0.04	1.0	2	4.1
25	65	0.00	1.0	1	-0.6
26	315	0.06	1.1	4	4.7
27	135	0.06	1.1	2	5.8
28	131	0.03	1.0	2	2.4
29	206	0.01	1.0	2	-0.6
NOTYP	308	0.05	1.1	2	3.4
MSNG	86	0.09	1.1	5	10.1

The most persistent pattern (SMTYPE-5) has a probability of persistence of only 32% and a mean spell length of only 1.5 days. SMTYPE-1 had the longest spell, this being 7 days. Eight patterns were not found to be significantly

Table 4.23 Summary of SMTYPE inter-diurnal sequence probability analysis.

Transition types by probability category	Possibilities represented	Inter-diurnal sequences
Persistent, > chance	23 of 31	1,973 (14.6%)
Persistent, < chance	0 of 31	---
Persistent, random	8 of 31	35 (0.3%)
Non-persist., > chance	162 of 930	6,456 (47.8%)
Non-persist., < chance	203 of 930	1,295 (9.6%)
Non-persist., random	565 of 930	3,754 (27.8%)
Transitions observed	807 of 961	13,513

persistent, but none of these were found to be less persistent than expected by chance. Thus, SMTYPEs were found to be much less persistent than the 500 mb patterns. This reflects the greater degree of changeability of surface pressure patterns in comparison to upper-level patterns.

Another consequence of the greater amount of inter-diurnal variability at the surface is an increase in the number of non-persistent transitions observed. Over 87% (762) of the 870 non-persistent transitional possibilities occurred (Table 4.23). This is a much higher rate than observed with the B500 and S500 types. However, only 162 transitions occurred more frequently than expected by chance, and only 48 of these produced probabilities greater than 10% (Table 4.24). Two-hundred and three transitions occurred less often than expected by chance, and the other 242 transitions observed did so randomly.

Table 4.24 SMTYPE inter-diurnal transitional sequences with P(J/I) > 10% and z > 2.0.

SMTYPE	to	SMTYPE	P(J/I)	Number of transitions	z
1	to	12	12.1	181	21.4
2	to	6	16.5	235	16.2
3	to	6	18.2	163	12.7
3	to	19	10.9	98	16.1
4	to	2	18.4	210	11.3
5	to	1	18.0	194	12.1
6	to	2	15.7	160	6.4
6	to	4	10.0	102	2.6
7	to	1	33.7	89	12.3
9	to	3	24.7	100	15.5
9	to	6	15.6	63	6.7
10	to	2	27.5	150	13.4
10	to	4	12.8	70	3.9
11	to	1	39.5	124	16.5
11	to	4	15.6	49	4.7
11	to	5	16.2	51	5.6
12	to	2	14.6	70	3.4
13	to	2	30.8	93	11.5
13	to	4	25.5	77	10.7
14	to	3	16.9	35	6.1
14	to	5	12.6	26	2.6
15	to	3	13.8	27	4.2
17	to	1	16.1	45	3.5
17	to	3	10.0	28	2.9
17	to	5	14.3	40	4.7
18	to	1	28.3	89	9.7
18	to	4	18.1	57	6.1
19	to	4	13.0	46	3.5
19	to	5	14.2	50	4.7
19	to	11	10.2	36	10.3
20	to	2	20.1	55	5.3
20	to	3	12.5	34	3.9
20	to	6	21.6	59	8.9
21	to	1	17.2	31	2.7
21	to	3	10.6	19	2.2
21	to	5	21.7	39	6.9
22	to	6	29.0	71	13.0
23	to	4	27.8	37	8.1
24	to	1	19.6	10	2.1
24	to	5	17.6	9	2.7
26	to	1	18.7	59	4.7
26	to	5	22.9	72	10.2
27	to	3	20.7	28	6.9
28	to	2	20.6	27	3.9

cont.

Table 4.24 continued

SMTYPE	to	SMTYPE	P(J/I)	transitions	z
28	to	10	13.0	17	5.3
29	to	3	16.0	33	5.4
29	to	6	18.0	37	5.6
NOTYP	to	1	14.3	44	2.0

To summarize the probability analyses, B5TYPEs were the most persistent (59.6% of all inter-diurnal sequences) and SMTYPEs the least (14.6%), reflecting the greater amount of inter-diurnal variability in upper-level pressure patterns as compared to surface patterns. Non-persistent transitions occurring more often than expected by chance were found to be associated most numerously with SMSL patterns (47.8% of all inter-diurnal sequences) and least with B500 patterns (20%). However, probabilities are generally far too low to be of any value in any kind of scheme used to forecast daily sequences.

4.4 SUMMARY

The pressure patterns which affect areas in and around the RRR have been shown to come in many shapes and forms. Zonal or near-zonal patterns dominate the upper-level 500 mb

flows, but lower zonal-index, meridional patterns are very common as well. Troughs advecting air of arctic origin into the central part of the continent are most common during the winter and least in the summer, while ridges are most common during the summer and least in the winter. This is just as one would expect, knowing that the upper-level North American trough is most intense and pronounced during the winter, when the westerlies expand into the southern United States, and that ridging often penetrates the heart of the continent during the summer, when the subtropical regime moves northward. These seasonal distributions were found to be evident in both the B500 and S500 data sets.

The SMSL patterns classified by the SOS procedure are much more complicated than the upper-level maps. Highs, lows, ridges, and troughs of various shapes and sizes are depicted in the SMSL keys, in many different configurations. A generalization of these patterns was, therefore, much more difficult than that for the 500 mb patterns. Nevertheless, despite the more difficult task, some seasonal configurations were revealed which fit the cyclone and anticyclone distributions discussed in Chapter 2. Large highs were found to be most common over the RRR in the winter, when the migration of cold arctic air masses toward the south is common. Lows affect the RRR at all times of the year, indicative of its perpetual proximity to primary and secondary cyclone tracks. Lows to the north of the RRR

are most common in the fall, when the baroclinic zone along the polar front is found farthest to the north. Conversely, northern highs are relatively uncommon in the fall, and most common in the winter and spring, when cold arctic air masses dominate the climate of the north. In general, then, the seasonal distribution of the surface disturbances seems to fit expectations.

Two different sets of natural seasons were identified using cluster analysis. Four seasons were identified using upper-level flows, and another four using surface-pressure patterns. Winter is the longest 500 mb season, followed by two distinct spring-time periods, a short summer, and then a short fall. Significantly, June, September, and October were found to be similar months according to their upper-level configurations, presumably because they are months when the continental climate is between its two most distinct seasonal modes, winter and summer. The SMSL seasons seem to coincide more closely with the thermal seasons, suggesting that boundary conditions are quite important to the formation of particular kinds of surface systems.

Almost all patterns were found to persist from one day to the next more often than one would expect in a random series. In fact, the persistence was found to dominate inter-diurnal sequences to a high degree, thereby reducing transitional probabilities to levels too low to be useful in

the forecasting of day-to-day series.

Now that the RRR's most frequent pressure patterns have been identified, and their salient morphological and temporal characteristics described, the next step in the development of the RRR's synoptic climatology is to determine the kinds of weather that each pattern tends to bring to the RRR. In particular, the temperature and precipitation conditions associated with each pattern needs to be assessed. This task is performed in the Chapter 5.

5. SYNOPTIC PATTERN WEATHER CHARACTERISTICS

This chapter assesses the effect of each synoptic type on the temperature and precipitation recorded at Winnipeg and Fargo. The temperature characteristics are analyzed by determining mean monthly, mean seasonal, and mean annual departures from long-term mean daily temperatures. Precipitation characteristics are assessed by determining the amount of precipitation produced by synoptic types relative to their observed seasonal and annual frequencies.

5.1 INTRODUCTION

In Chapter 3 it was noted that synoptic climatology attempts to identify and assess the relationship between the weather within a region and the atmospheric circulation patterns which affect that region (Barry and Perry, 1973). Since the circulation patterns have been identified, this thesis now turns its attention to the description and analysis of the kinds of weather that they produce. The MSNG and NOTYP synoptic categories are not included in the analyses because they do not represent specific synoptic

situations.

A wide variety of meteorological elements can be used to describe the weather at a particular place, but the two most important variables are temperature and precipitation. Hence, almost all regional synoptic climatologies assess the temperature and precipitation characteristics of synoptic patterns. Some studies have analyzed the effects of synoptic types on wind speed (Muller and Willis, 1983), wind direction (Moritz, 1979), cloud cover (Petzold, 1982), humidity (Stenning, Banfield, and Young, 1981), visibility (Brazel and Nickling, 1986) and insolation (Suckling and Hay, 1978), but temperature and precipitation are the only variables analyzed here, primarily for simplicity, but also because these are of critical importance to the phenomenon of spring flooding.

There are, of course, many indices which can be used to quantify the thermal conditions on any given day at a particular place. Most commonly used are maximum, minimum and mean daily temperatures. It would be a simple matter to calculate the average maximum, minimum, and mean daily temperatures associated with each synoptic type, but intra-annual trends in air temperature would cause very large ranges of temperatures to be associated with patterns not restricted to one part of the year. Hence, the descriptive and explanatory value of these means would be limited. Stratifying days into groups such as months or seasons

reduces the effect of intra-annual variation to a certain degree and allows more meaningful comparisons of the thermal conditions of synoptic patterns occurring within the same temporal group, but it does not eliminate the problems of inter-group comparisons.

In response to the difficulties associated with the use of observed daily temperatures, this thesis investigates the relationship between daily synoptic patterns and temperatures expressed as departures from long-term normals. Specifically, the variable used to represent the thermal condition on each of the days during 1946-84 is the departure from the normal mean daily temperature, calculated by:

$$dT = oT - LTM \tag{11}$$

where dT is the calculated departure on the day in question (e.g. January 1, 1946), oT is the observed mean daily temperature on the same day, and LTM is the normal, or long-term, mean daily temperature for the date in question (e.g. January 1). All daily means are based on the 24-hour period starting at 0000 CST. The long-term means for Winnipeg and Fargo were calculated using the entire 1946-84 time period. All temperatures are expressed in degrees Celsius.

The mean daily temperature was chosen for analysis primarily because it was judged to be the variable best

suited for the purpose at hand, this being the generalization of the weather conditions produced by daily synoptic patterns. The patterns depict pressure conditions at 1200 GMT (6 am CST), but it is not the purpose of this research to determine the weather that synoptic patterns produce at any particular instant. Instead, the goal is to generalize the conditions which patterns bring to the RRR. It is assumed that a single pressure pattern can adequately represent the weather conditions which occur within a 24-hour period, thus, it was decided to use a temperature index which ostensibly summarizes the conditions throughout the entire day, or at least a major portion of it. The mean daily temperature does this, for it is the average of the daily minimum and maximum temperatures. These usually occur within a few of hours of 6 am CST and in the early or mid-afternoon, respectively. Admittedly, fronts and other surface conditions can disrupt the expected diurnal temperature cycle and thereby interfere with the representative value of the mean daily temperature, but variation of this kind cannot be taken into account when a day is represented by a single synoptic map, as it is here.

The variable used to represent daily precipitation is the total precipitation recorded during the 24-hour period beginning at 0000 CST. Hence, the 0600 CST synoptic patterns used here occur one-quarter of the way into the 'precipitation day'. It would have been desirable to use

synoptic patterns which occur in the middle of the precipitation period, so that they could be related to the precipitation occurring in the 12-hour periods immediately before and after the time of observation, but the temporal format of the data would not allow balanced bracketing. As a result, the precipitation generalizations are in reference to the six hours before and the 18 hours after the time of pressure-pattern observation.

Mean daily precipitation totals for synoptic types are not calculated because daily precipitation data do not usually fit the Gaussian distribution. Instead, the precipitation efficiency (PE) of synoptic types is calculated, following the example of Bradley and England (1979), Barry, Kiladis, and Bradley (1981) and Yarnal (1984a). The PE of a synoptic type is a measure of how much precipitation it produces relative to its frequency. It is calculated as:

$$PE(i,j) = (P(i,j)\ (100))\ /\ F(i,j) \tag{12}$$

where PE(i,j) is the PE of synoptic type i in period (e.g. month, season, year) j, P(i,j) is the percentage of total (non-MSNG, non-NOTYP) precipitation produced by type i in period j, and F(i,j) is the percentage frequency of type i in period j. A PE of 100 indicates that a synoptic type produces just as much precipitation as one would expect

given its frequency. For example, a PE of 100 is calculated for a daily pattern which occurs 50% of the time and produces 50% of the total precipitation. A PE less than 100 indicates that a pattern is not very efficient at producing precipitation, relative to its frequency. Logically, then, a PE greater than 100 demonstrates that a synoptic type is a relatively efficient precipitation producer. One should expect, therefore, that cyclonic systems will, in general, be found to be efficient, while anticyclonic systems will be found to be inefficient. The PE values for all synoptic types are reported and discussed in Section 5.3.

All weather data for Winnipeg were obtained from the Atmospheric Environment Service. The data for Fargo were provided by North Dakota's state climatologist.

5.2 SYNOPTIC PATTERN TEMPERATURE CHARACTERISTICS

The mean departure (mdT) from the long-term mean daily temperature (LTM) for each synoptic type was calculated for each of the twelve months, each natural season, and the year as a whole. That is, the average dT for each synoptic type was computed for each of these time periods. These means are reported, compared, and discussed in the sections which follow.

Since differences in mean temperature departures between groups of synoptic patterns can be due to chance, it is important that the statistical significance of the differences be assessed. The Analysis of Variance, or ANOVA, technique was used to determine the statistical significance of observed differences. This technique, now well established as a statistical tool in climatological studies, is one which determines the probability that differences in group means are due to random chance. It does so by comparing the variance calculated between groups (i.e. deviations of the group means from the overall mean) to the variance calculated within groups (i.e. deviations of the observed values from corresponding group means). The reader is directed to Iversen and Norpeth (1976) or Sachs (1984) for detailed descriptions of the ANOVA technique. As it is applied here, variance in mean temperature departures associated with the synoptic patterns as a whole (e.g. all B5TYPEs in January) is compared to the variance associated with each of the synoptic patterns as separate groups (e.g. B5TYPE-1 in January, B5TYPE-2 in January, etc). An F-ratio (F) is calculated by comparing between-group variance to within-group variance and this ratio is compared to a 'critical' F-ratio (Fc) whose value depends on the number of groups, the number of observations, and the level of confidence needed or desired in stating that group means are or are not different.

The critical F-ratio decreases as the number of groups increases, and decreases as the number of observations increases. It also increases as the confidence level increases; that is, as the researcher becomes more cautious. A 95% confidence level is adopted here. With this confidence level, when the calculated F-ratio is found to be greater than the critical F-ratio one can state that at least some of the group means are significantly different, and be confident that this conclusion might be wrong, due to random chance, only 5% of the time.

There are restrictions concerning the use of ANOVA. It should only be used with variates that are continuous and normally distributed. Group variances should also be equal. The temperature variable used here is continuous and is assumed to be normally distributed across and within the synoptic groups. This is a safe assumption because temperature data tend to fit the normal distribution very well (Suzuki, 1980), especially when sample sizes are relatively large, as they are here. Group variances were not tested for homogeneity, but there is no reason to believe that they differ by an appreciable amount. Also, it has been noted that ANOVA is a fairly robust statistical technique (Alder and Roessler, 1972), able to produce acceptable results even when the data deviate somewhat from the guidelines concerning the normal distribution and variance homogeneity.

Another requirement of the ANOVA technique is that observations be statistically independent. Temperature conditions tend to persist from one day to the next, so daily observations within a continuous time series are not usually statistically independent, but serially correlated. Within series representing months or seasons the correlation tends to be quite strong for consecutive days and progressively weaker with increasing lags. As a result, a given 30-day period, for example, will contain fewer than 30 independent daily observations. In fact, Godske (1959) suggests that only about six observations within a 30-day period can be considered independent of each other. In his study of the synoptic climatology of the Beaufort Sea coast, Moritz (1979) found that only about five mean daily temperature departures in any given month could be considered independent.

It is necessary to know how many observations within a certain time period are independent if one wishes to use ANOVA with serially correlated data. An adjusted critical F-ratio (Fc') is calculated by assuming that the number of observations is less than it actually is (N) and only equal to the number of independent observations within the data set as a whole (N') (WMO, 1966). Here it is assumed that only five days of every 30-day month are independent, thus, the number of observations in each ANOVA test is reduced by five-sixths when the critical F-ratios are determined,

making them more restrictive. Since the sample sizes used in this study are relatively large, this adjustment only results in very small changes to the critical F-ratios.

It must be emphasized that ANOVA may indicate that some groups have statistically different means but it does not in any way indicate how many or which groups have statistically different means. Multiple comparison of means tests must be utilized for this purpose. There are many different tests of this kind, each suitable to particular data set characteristics (Einot and Gabriel, 1975; Dunnett, 1980; SAS, 1985). The so-called Tukey-Kramer method is used here, with a 95% confidence level. Dunnett (1980) recommended that this test be used when the groups being compared have unequal numbers of observations and homogeneous variances. The reader is directed to Dunnett (1980) for a detailed description of the calculations involved.

Of course, the use of means to characterize the thermal conditions produced by synoptic patterns can be problematic because of natural variation about the means. As stated earlier, it is being assumed that this variation is Gaussian in form and that the variance observed in separate groups is relatively homogeneous. However, the amount of variance will greatly affect the accuracy of predictions or reconstructions based on the means. As a matter of record, the standard deviations associated with the Winnipeg and

Fargo monthly, seasonal, and annual means are included in Appendix B.

Unless otherwise specified, mean departures referred to in the following sections are mean annual departures. Monthly and seasonal means will be identified as such when they are being discussed. Graphs of the seasonal mean departures for each synoptic type are shown in Appendix A.

5.2.1 B5TYPE Temperature Characteristics

The results of the ANOVA tests on mean temperature departures produced by B5TYPEs at Winnipeg and Fargo are shown in Tables 5.1 and 5.2. Since F is greater than Fc' in every case, all tests indicate that at least some B5TYPEs have significantly different mean departures at both locales, whether the means are derived from monthly groupings, from seasonal groupings, or from the entire year. All significance levels are well above the adopted 95% minimum, indicating that at least some B5TYPEs produce very distinct departures.

The monthly and seasonal mean departures associated with B5TYPEs at Winnipeg are shown in Tables 5.3 and 5.4. Those for Fargo are shown in Tables 5.5 and 5.6. The types are listed from the 'warmest' (i.e. most above normal) at the top of the list to the 'coolest' (i.e. most below

Table 5.1 ANOVA results for mean temperature departures (mdT) at Winnipeg and Fargo against B5TYPEs, monthly groupings (95% confidence level).

Month	Number of B5TYPEs	N	N'	Fc	Fc'	Wpg F	Fargo F
Jan.	16	1174	196	1.6	1.7	16.2	19.1
Feb.	17	1055	176	1.6	1.7	9.7	11.4
Mar.	18	1157	193	1.6	1.7	17.0	15.2
Apr.	18	1090	182	1.6	1.7	16.6	18.7
May	17	1109	185	1.6	1.7	20.7	21.1
Jun.	17	1119	187	1.6	1.7	15.1	13.4
Jul.	16	1157	193	1.6	1.7	11.6	13.0
Aug.	16	1166	194	1.6	1.7	11.8	13.6
Sep.	16	1115	186	1.6	1.7	13.2	13.1
Oct.	17	1144	191	1.6	1.7	24.8	24.5
Nov.	18	1124	187	1.6	1.7	9.8	14.5
Dec.	17	1172	195	1.6	1.7	13.8	16.3
All	18	13582	2264	1.6	1.6	132.4	139.4

Note: N is the total number of observations; N' is the number of observations adjusted for serial correlation; Fc is the unadjusted critical F-ratio; Fc' is the adjusted critical F-ratio; Wpg F is the calculated F-ratio for Winnipeg data; and Fargo F is the calculated F-ratio for Fargo data; if F > Fc' then there is a greater than 95% probability that some of the sample means for the synoptic types come from populations with different means.

normal) at the bottom. It is easily seen that the order of the B5TYPEs at both Winnipeg and Fargo is very similar. Types 16, 10, 6, and 3 are the four warmest patterns at both locations, all producing temperatures more than 2°C warmer than normal. The coolest pattern at both locations is B5TYPE-2. It produces temperatures more than 4°C below normal. At Winnipeg and Fargo the same eight B5TYPEs

Table 5.2 ANOVA results for mean temperature departures (mdT) at Winnipeg and Fargo against B5TYPEs, seasonal groupings (95% confidence level).

Season	Number of B5TYPEs	N	N'	Fc	Fc'	Wpg F	Fargo F
Winter	18	5682	947	1.6	1.6	57.2	67.2
Spring	18	2199	367	1.6	1.7	34.7	36.2
Summer	17	2323	387	1.6	1.7	21.1	24.1
Sumtran	18	3378	563	1.6	1.7	45.2	43.6
All	18	13582	2264	1.6	1.6	132.4	146.3

Note: N is the total number of observations; N' is the number of observations adjusted for serial correlation; Fc is the unadjusted critical F-ratio; Fc' is the adjusted critical F-ratio; Wpg F is the calculated F-ratio for Winnipeg data; and Fargo F is the calculated F-ratio for Fargo data; if F > Fc' then there is a greater than 95% probability that some of the sample means for the synoptic types come from populations with different means.

produce below normal temperatures. The remaining ten types produce normal or above normal temperatures.

By comparing the order of the B5TYPEs in the Winnipeg and Fargo lists it is seen that only one type, B5TYPE-4, changes its rank by as many as four places. However, the mean departures differ by only 0.8°C. The largest difference in mean departures is observed with B5TYPE-16. At Fargo it produces temperatures 1.2°C warmer than it does at Winnipeg. Only three other patterns show differences greater than 1°C. Hence, the departures produced at Winnipeg and Fargo are overall quite similar.

Table 5.3 Monthly and annual mean temperature departures (mdT) for B5TYPEs at Winnipeg

B5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
16	---	11.0	8.0	7.4	4.5	2.6	1.2	-1.3	4.6	5.1	8.6	---	4.7
10	---	9.3	6.7	2.8	6.3	2.8	2.4	1.8	4.3	2.2	6.3	11.6	4.1
6	6.5	-1.4	6.2	3.1	2.3	2.7	2.3	1.6	3.0	4.9	2.8	6.3	3.2
3	5.5	5.0	4.5	3.2	2.8	2.0	1.5	1.8	2.2	3.8	3.8	4.4	3.0
14	8.5	-1.9	-1.2	3.1	0.2	-1.8	1.1	---	---	2.0	0.9	9.8	1.8
7	6.1	3.1	2.5	2.1	0.9	-0.4	-1.5	4.0	0.6	-0.2	1.4	4.2	1.6
11	2.7	0.6	1.7	0.9	-0.3	0.3	0.9	0.6	0.6	-2.1	0.6	2.0	1.0
1	2.2	1.8	1.3	0.5	0.1	-0.3	-0.1	0.1	0.4	0.3	0.9	1.7	0.7
4	-0.7	-0.1	2.4	0.4	0.4	0.8	1.9	1.6	0.4	-0.8	-0.3	-0.6	0.6
17	-1.1	5.3	2.3	-0.7	-1.2	1.8	0.1	0.8	0.2	-1.1	-3.3	-4.1	0.3
15	15.4	0.8	0.0	0.3	1.1	-1.2	0.3	0.0	-2.7	-2.4	-3.3	1.4	-0.1
9	-2.5	0.3	0.0	-2.6	-2.6	-1.9	0.4	-2.2	-0.5	-3.3	-1.7	-2.7	-1.7
18	-1.5	-10.4	-0.5	-3.5	---	---	---	---	-4.4	-3.7	-0.3	-3.7	-2.6
13	-7.4	---	-2.8	-4.8	-2.8	-3.2	---	0.2	---	---	-0.9	4.0	-2.7
12	-5.9	-0.3	-2.8	-4.3	-3.7	-1.7	-2.2	-3.8	-1.8	-3.3	-0.6	-2.2	-2.8
5	-2.4	-2.5	-3.0	-3.9	-4.8	-3.4	-3.1	-4.4	-3.0	-3.6	-2.2	-2.0	-2.9
8	-3.5	-3.6	-2.9	-2.6	-3.4	-3.0	-3.3	-3.4	-1.6	-6.4	-1.8	-3.1	-3.1
2	-4.3	-4.1	-5.0	-4.0	-5.0	-4.1	-3.4	-3.1	-3.6	-5.4	-3.6	-4.9	-4.3

Table 5.4 Seasonal and annual mean temperature departures (mdT) for B5TYPEs at Winnipeg.

B5TYPE	Winter	Spring	Summer	Sumtran	Annual
16	8.6	6.0	0.2	4.3	4.7
10	7.6	5.3	2.1	2.8	4.1
6	4.9	2.7	2.0	3.4	3.2
3	4.6	3.0	1.6	2.7	3.0
14	3.6	1.3	1.1	-1.0	1.8
7	3.1	1.4	1.2	0.0	1.6
11	1.5	0.6	0.7	-0.6	1.0
1	1.6	0.3	0.0	0.1	0.7
4	0.5	0.4	1.7	0.3	0.6
17	0.2	-1.0	0.6	0.6	0.5
15	-0.1	0.5	0.2	-1.9	-0.1
9	-0.9	-2.6	-1.6	-2.2	-1.7
18	-2.2	-3.5	---	-4.0	-2.6
13	-1.8	-3.6	0.2	-3.2	-2.7
12	-2.2	-3.9	-3.3	-1.9	-2.8
5	-2.4	-4.3	-3.7	-3.4	-2.9
8	-3.2	-3.2	-3.3	-2.8	-3.1
2	-4.4	-4.3	-3.2	-4.2	-4.3

The results of the Tukey-Kramer means comparison tests on the Winnipeg and Fargo annual mean departures are shown graphically in Figures 5.1 and 5.2. As one would expect, B5TYPEs with similar means were not found to be significantly dissimilar, while most of those with means differing by at least one or two degrees Celsius were found to be significantly different. However, note that even quite dissimilar means were not found to be significantly different if one or more of the means was calculated from a small number of observations. For example, B5TYPE-14, with 39 observations, was not found to be significantly different

Table 5.5 Monthly and annual mean temperature departures (mdT) for B5TYPEs at Fargo.

B5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
10	---	8.7	9.1	3.5	7.0	3.8	5.2	2.8	8.5	0.4	3.4	12.5	5.2
16	---	5.7	5.2	6.2	3.3	1.4	1.5	-1.7	2.0	4.7	7.9	---	3.5
6	6.7	-1.4	4.5	2.6	1.5	1.9	1.0	1.5	2.8	4.7	4.3	5.1	2.7
3	4.9	3.5	3.5	2.3	1.9	1.6	1.1	1.0	1.8	3.5	3.2	3.6	2.4
7	5.3	2.2	1.7	2.2	0.9	-0.1	-2.2	2.9	0.3	-0.1	1.4	4.2	1.4
4	0.6	0.4	2.8	0.9	1.4	1.3	2.0	2.4	1.7	0.4	0.9	0.4	1.4
1	2.6	2.3	1.6	0.9	0.3	-0.1	0.0	0.1	0.4	0.4	1.4	2.1	0.9
14	5.3	-0.9	-3.7	2.5	-0.3	-3.7	2.1	---	---	3.3	-0.2	5.5	0.7
11	3.0	1.2	0.6	0.6	-1.4	-0.8	-0.3	-1.1	0.1	-2.2	0.1	1.7	0.6
17	-1.2	5.0	1.7	0.4	-1.3	0.5	-0.2	0.1	0.9	-1.1	-3.8	-3.8	0.0
15	12.6	-0.2	-1.3	1.6	-0.5	-0.9	-1.7	-0.8	-2.2	-2.8	-2.9	-2.1	-0.5
12	-4.2	-2.7	-2.3	-5.0	-3.3	-1.4	-0.8	-3.4	-1.3	-4.1	-1.0	0.0	-2.7
9	-4.5	-1.0	-1.0	-3.9	-3.2	-2.2	-1.3	-3.1	-0.1	-5.4	-3.9	-5.5	-2.8
8	-5.1	-2.3	-1.3	-2.7	-2.9	-2.9	-3.2	-3.2	-2.2	-6.0	-1.0	-4.1	-2.9
13	-6.1	---	-4.3	-5.6	-1.9	-3.2	---	-4.3	---	---	-1.6	-3.5	-3.0
18	-2.3	-12.1	-1.3	-2.3	---	---	---	---	-7.3	-6.1	-1.2	-4.4	-3.1
5	-3.5	-3.1	-3.1	-4.2	-5.0	-3.8	-4.6	-4.9	-3.4	-4.4	-3.4	2.1	-3.6
2	-4.1	-4.2	-4.3	-3.6	-4.6	-3.7	-2.8	-3.4	-3.7	-5.5	-3.9	-3.2	-4.1

Table 5.6 Seasonal and annual mean temperature departures (mdT) for B5TYPEs at Fargo.

B5TYPE	Winter	Spring	Summer	Sumtran	Annual
10	8.7	6.0	4.1	3.9	5.2
16	6.8	4.8	0.2	3.0	3.5
6	4.5	2.0	1.3	2.9	2.7
3	3.7	2.1	1.1	2.3	2.4
4	1.3	1.2	2.3	1.2	1.4
7	2.7	1.4	0.4	0.0	1.4
1	2.0	0.6	0.1	0.2	0.9
14	1.7	0.7	2.1	-2.3	0.7
11	1.2	0.1	-1.0	-1.1	0.6
17	-0.1	-0.5	0.0	0.3	0.0
15	-0.8	0.9	-1.4	-1.8	-0.5
12	-2.3	-3.9	-2.6	-1.7	-2.7
9	-2.2	-3.6	2.6	-3.1	-2.8
8	-2.6	-2.8	-3.2	-2.9	-2.9
13	-2.6	-3.3	-4.3	-3.2	-3.0
18	-2.7	-2.3	---	-6.6	-3.1
5	-3.2	-4.5	-4.7	-4.0	-3.6
2	-4.3	-3.9	-3.2	-4.2	-4.1

from B5TYPE-18, with 44 observations, even though their means at Fargo differ by 3.8°C. This is because the Tukey-Kramer test is quite sensitive to sample sizes. As a result, application of the Tukey-Kramer test to means based on monthly and seasonal groupings shows that there are fewer significantly dissimilar B5TYPE pairings than reported in Figures 5.1 and 5.2. The monthly and seasonal test results are not shown, therefore, for it seems adequate to show that given sufficiently large sample sizes most synoptic types can be shown to produce significantly different mean departures. With Winnipeg data, 99 (65%) of the 153 pairs

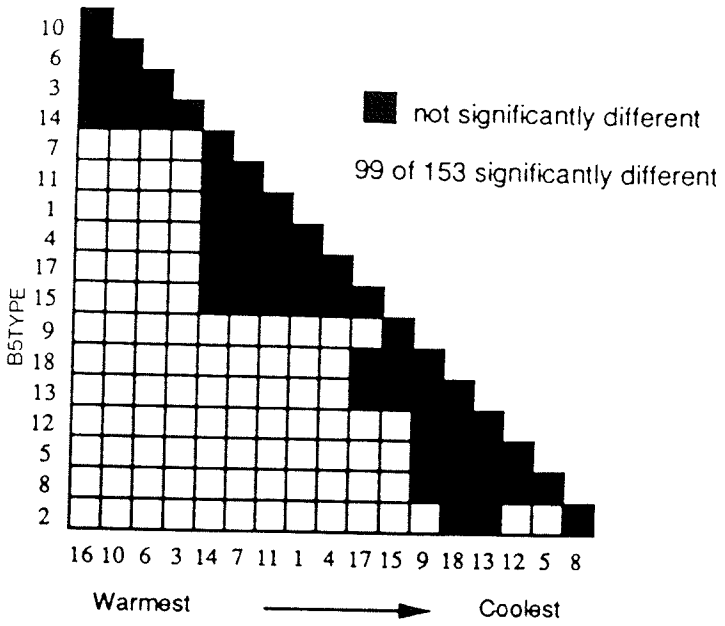


Figure 5.1 Map of Tukey-Kramer means comparison test of mean annual B5TYPE temperatures at Winnipeg.

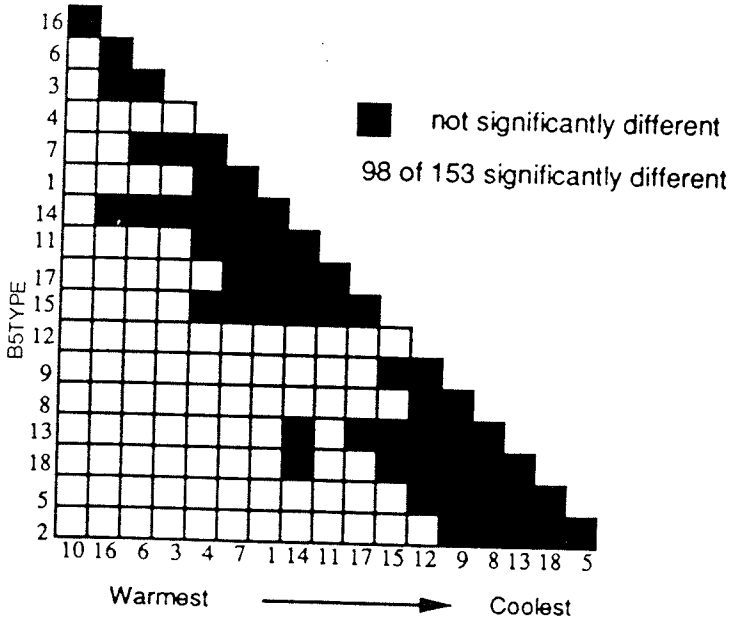


Figure 5.2 Map of Tukey-Kramer means comparison test of mean annual B5TYPE temperatures at Fargo.

of B5TYPEs were found to have significantly different mean temperature departures. With Fargo data, 98 (64%) of the pairs were shown to have significantly different means.

The mean departures produced by the B5TYPEs grouped into months display some marked contrasts from the annual means. For example, a December B5TYPE-10 produces temperatures more than 11°C warmer than normal in Winnipeg and more than 12°C warmer than normal in Fargo, but the annual mean departure for B5TYPE-10 is only 4.1°C in Winnipeg and 5.2°C in Fargo. However, when these and most other large discrepancies are investigated it is found that they are due to very small samples. In the example cited above the December B5TYPE-10 'means' were calculated from a sample of only one. This is an extreme case but the general principle is valid: small samples produce unrepresentative means. Since monthly samples are often quite small, mean departures based on monthly groups will not be discussed any further in the remainder of this thesis, although the S5TYPE and SMTYPE monthly means will be shown to be consistent.

The natural seasons are made up of groups of months, but since some of the B5TYPEs are infrequent overall, or are very seasonal, the use of seasons does not completely eliminate means based on small samples. B5TYPE-10 is again a good case in point. It occurred 102 times during 1946-84 but only eight times in the B5TYPE winter. Still, even after eliminating anomalies apparently due to small sample

sizes, there seem to be some B5TYPEs which have notable inter-season differences in mean departures. B5TYPEs 11, 15, and 17 each have seasonal mean departures with different signs, at Winnipeg and/or Fargo. However, the absolute differences are not large and all three patterns are in the middle of the pack, so to speak, amongst those patterns which do not normally produce large departures from the norm. Hence, variation of the sign of the temperature departure is perhaps an inherent characteristic of these patterns, within and between seasons. Note, too, that the Winnipeg and Fargo seasonal B5TYPE rankings are not markedly different from the annual rankings.

An interesting characteristic of the seasonal means is the tendency for the warm patterns to be warmest in the winter and, less consistently, least warm in the summer. This is likely a reflection of the propensity for winter temperatures to be much more variable than summer temperatures. However, for some unknown reason the cool patterns do not exhibit such an inclination in their seasonal extremes.

There must be meteorological reasons for some patterns to characteristically produce above normal temperatures and others below normal temperatures. It is beyond the scope of this thesis to investigate these reasons in any detail, but Table 5.7 strongly suggests that the directional source of the air being brought over the RRR is perhaps the primary

Table 5.7 Summary of the directional sources of the RRR 500 mb winds associated with B5TYPEs ranked by mean temperature departure (mdT) at Winnipeg.

B5TYPE	mdT	wind direction
16	4.7	W
10	4.1	SW
6	3.2	SW
3	3.0	W
14	1.8	W?
7	1.6	W
11	1.0	W
1	0.7	WNW
4	0.6	SW
17	0.3	NW
15	-0.1	SW
9	-1.7	N
18	-2.6	N
13	-2.7	N
12	-2.8	W
5	-2.9	NW
8	-3.1	NW
2	-4.3	NW

differentiating meteorological parameter. It shows that all but one of the warm B5TYPEs, as ranked by the Winnipeg departures, are associated with 500 mb geostrophic winds originating from the west or southwest and that two of the three warmest patterns are associated with southwesterly winds. Six of the eight cool patterns are related to winds which originate from areas north or northwest of the RRR. The numbers do not change if the Fargo rankings are used. Hence, there is good evidence that the daily temperature departures in the RRR are largely a result of the thermal characteristics of the air mass moving through the region.

This conclusion is certainly not surprising, for weather forecasters have long used the movement of air masses to predict surface temperatures. Of course, there are many variables which can disturb the simple relationship between surface temperature and the direction from which an air mass has come, including cloud cover, surface albedo and soil-water conditions. In addition, the 500 mb wind direction over an area does not necessarily translate into surface winds from the same direction. As a result, one might expect that the relationship between RRR surface temperatures and wind directions indicated by MSL pressure patterns will be quite strong. On the other hand, surface patterns change and move faster than do 500 mb patterns. This may greatly perturb the relationship between wind direction and temperature. These speculations are investigated in Section 5.2.3, where the SMTYPE temperature characteristics are discussed.

5.2.2 S5TYPE Temperature Characteristics

Tables 5.8 and 5.9 show the ANOVA test results for mean temperature departures produced by S5TYPEs at Winnipeg and Fargo. The means associated with the S5TYPEs grouped by the S500 seasons are highly significantly different, as are the

Table 5.8 ANOVA results for mean temperature departures (mdT) at Winnipeg and Fargo against S5TYPEs, monthly groupings (95% confidence level).

Month	Number of S5TYPEs	N	N'	Fc	Fc'	Wpg F	Fargo F
Jan.	17	1174	196	1.6	1.7	3.0	5.2
Feb.	19	1049	175	1.6	1.6	4.4	4.9
Mar.	19	1116	186	1.6	1.6	12.5	11.5
Apr.	20	1032	172	1.6	1.6	8.6	9.4
May	20	1097	183	1.6	1.6	17.7	17.8
Jun.	19	1122	187	1.6	1.6	14.3	13.9
Jul.	14	1158	193	1.7	1.8	20.8	28.3
Aug.	16	1166	194	1.6	1.7	12.4	16.3
Sep.	17	1101	184	1.6	1.7	9.1	11.2
Oct.	20	1132	189	1.6	1.6	14.1	20.4
Nov.	20	1100	183	1.6	1.6	5.2	11.3
Dec.	18	1156	193	1.6	1.7	5.9	5.9
All	20	13403	2318	1.6	1.6	74.2	93.1

Note: N is the total number of observations; N' is the number of observations adjusted for serial correlation; Fc is the unadjusted critical F-ratio; Fc' is the adjusted critical F-ratio; Wpg F is the calculated F-ratio for Winnipeg data; and Fargo F is the calculated F-ratio for Fargo data; if F > Fc' then there is a greater than 95% probability that some of the sample means for the synoptic types come from populations with different means.

annual means. All means derived from the monthly groupings are significantly different as well, but the calculated F-ratios suggest that the means in some months are much more different from each other than are those in other months. For example, note that the F-ratio associated with temperature departures in Winnipeg is 3.0 in January but 20.8 in July. Both ratios are greater than the critical F-

Table 5.9 ANOVA results for mean temperature departures (mdT) at Winnipeg and Fargo against S5TYPEs, seasonal groupings (95% confidence level).

Season	Number of S5TYPEs	N	N'	Fc	Fc'	Wpg F	Fargo F
Winter	20	5595	932	1.6	1.6	22.7	28.7
Spring	20	2129	355	1.6	1.6	23.7	24.8
Summer	16	2324	387	1.7	1.7	29.3	38.6
Sumtran	20	3355	559	1.6	1.6	32.6	40.5
All	20	13403	2234	1.6	1.6	74.2	93.1

Note: N is the total number of observations; N' is the number of observations adjusted for serial correlation; Fc is the unadjusted critical F-ratio; Fc' is the adjusted critical F-ratio; Wpg F is the calculated F-ratio for Winnipeg data; and Fargo F is the calculated F-ratio for Fargo data; if F > Fc' then there is a greater than 95% probability that some of the sample means for the synoptic types come from populations with different means.

ratios for the 95% confidence level, but it is clear that the mean departures in January are not as different from each other as those in July. In fact, the mean departures produced by S5TYPEs in the colder months of January, February, November, and December are much less significantly different than those in the summer months.

The monthly, seasonal, and annual mean temperature departures related to S5TYPEs in Winnipeg and Fargo are presented in Tables 5.10 through 5.13. Thirteen S5TYPEs produce normal or above normal temperatures in Winnipeg. Twelve produce normal or above normal temperatures at

Table 5.10 Monthly and annual mean temperature departures (mdT) for S5TYPEs at Winnipeg.

S5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
18	9.6	---	6.7	5.8	7.0	1.3	---	---	---	5.6	3.8	14.1	6.4
16	0.8	8.6	6.4	4.1	6.7	1.9	5.7	7.4	4.0	4.7	5.5	6.0	4.9
13	6.8	8.4	5.1	4.1	3.8	3.8	3.0	3.3	4.6	5.6	3.0	8.4	4.4
15	---	8.6	5.9	1.3	2.2	---	---	2.7	4.9	-0.5	1.1	9.2	4.4
4	---	7.3	8.4	3.7	4.6	2.9	2.6	3.9	4.3	4.9	3.1	8.6	4.3
20	---	3.5	---	5.7	0.7	-3.2	---	---	---	2.7	1.7	---	3.4
10	2.1	4.7	2.1	3.8	2.2	4.6	3.5	2.7	4.7	3.7	2.5	5.0	3.4
2	2.1	3.1	3.5	1.8	1.2	1.3	1.9	1.6	1.2	2.3	2.7	2.5	2.0
8	7.0	9.0	5.3	-0.3	0.2	-0.1	---	3.0	-0.6	-0.4	3.0	4.5	1.8
5	2.2	0.6	3.7	-0.4	2.5	2.2	1.7	1.3	1.5	0.9	0.1	3.0	1.7
17	4.0	7.3	1.4	2.0	1.6	-0.1	2.2	0.6	3.2	1.2	-1.7	3.7	1.7
12	-0.8	0.4	1.4	1.0	0.2	0.3	-0.7	-0.4	0.3	0.7	0.2	-2.7	0.2
19	1.4	1.2	-3.6	1.6	-2.9	0.3	---	---	-1.8	-2.6	-1.8	---	0.0
14	0.3	-2.6	-1.7	-1.0	-5.8	-1.2	---	---	-1.9	3.6	2.2	7.4	-0.2
6	3.7	1.9	-0.8	-0.2	-1.4	-2.1	-0.4	1.7	-1.3	-1.0	0.0	-3.7	-0.6
1	-0.2	-0.4	-1.4	-1.2	-1.8	-1.2	-0.9	-0.9	-0.6	-0.8	-0.2	-0.5	-0.8
11	-0.7	-0.3	-0.7	-1.8	-2.8	-3.2	-1.0	-2.2	---	-0.8	-0.8	-0.1	-1.1
9	0.1	-3.5	-0.2	-2.1	-1.9	-2.0	-0.9	-2.7	-1.1	-1.9	-0.2	0.9	-1.2
3	-1.3	-1.5	-2.7	-2.4	-2.6	-1.7	-1.8	-1.6	-1.5	-2.6	-1.7	-1.6	-1.9
7	-3.5	-2.4	-5.1	-2.8	-4.3	-3.7	-3.6	-3.9	-2.7	-3.5	-3.3	-2.4	-3.3

Table 5.11 Seasonal and annual mean temperature departures (mdT) for S5TYPEs at Winnipeg.

S5TYPE	Winter	Spring	Summer	Sumtran	Annual
18	8.0	6.3	---	4.4	6.4
16	5.0	5.4	6.5	3.8	4.9
13	6.3	3.9	3.1	3.1	4.4
15	7.1	1.9	2.7	0.8	4.4
4	6.8	4.3	3.3	3.7	4.3
20	2.3	4.3	---	-0.3	3.4
10	3.4	3.0	2.8	4.3	3.4
2	2.8	1.5	1.7	1.6	2.0
8	5.2	0.0	3.0	-0.3	1.8
5	2.3	1.4	1.5	1.6	1.7
17	1.9	1.8	1.7	1.2	1.7
12	-0.3	0.6	-0.5	0.4	0.2
19	-0.1	1.3	---	-1.3	0.0
14	0.8	-3.7	---	1.3	-0.2
6	0.1	-0.9	1.1	-1.4	-0.6
1	-0.5	-1.5	-0.9	-0.9	-0.8
11	-0.6	-2.2	-1.8	-1.0	-1.1
9	-0.2	-2.0	-2.1	-1.7	-1.2
3	-1.7	-2.5	-1.7	-2.1	-1.9
7	-3.2	-3.6	-3.8	-3.2	-3.3

Fargo. The five warmest patterns at Winnipeg and Fargo are identical and S5TYPE-18 is at the top of both lists. Seven patterns produce below normal temperatures at Winnipeg and eight produce below normal temperatures in Fargo. S5TYPEs 7 and 3 are the coolest and second coolest patterns, respectively, at both Winnipeg and Fargo.

The ranking of the S5TYPEs in the Winnipeg and Fargo lists is quite similar but not as similar as were the B5TYPE lists. Two patterns change rank by four places. S5TYPE-19

Table 5.12 Monthly and annual mean temperature departures (mdT) for S5TYPEs at Fargo.

S5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
18	9.7	---	5.7	4.2	4.9	0.8	---	---	---	6.7	6.8	11.1	5.2
4	---	5.6	7.2	3.8	4.8	2.6	2.3	4.1	4.3	4.9	3.1	7.8	4.2
16	0.7	7.6	3.9	2.5	3.5	-0.3	6.5	4.7	2.1	4.3	5.8	3.2	3.5
15	---	6.9	3.8	0.9	2.1	---	---	0.9	3.5	-2.3	-1.5	7.6	3.1
13	5.6	6.0	2.8	2.9	2.7	2.2	1.6	1.7	3.0	3.6	2.5	4.8	2.8
2	2.8	3.5	3.7	2.4	2.0	1.9	2.2	2.2	2.0	3.1	3.7	2.9	2.6
10	0.7	4.3	1.2	2.4	1.4	2.7	2.0	1.6	2.7	2.7	3.3	3.5	2.4
20	---	5.1	---	3.7	-0.8	-6.1	---	---	---	1.6	0.7	---	1.8
8	3.7	8.5	3.8	-0.5	0.3	-0.6	---	1.0	-0.7	-0.5	1.9	3.7	1.2
5	1.1	-1.1	2.2	-1.0	1.7	1.0	1.2	0.3	0.9	0.0	-0.2	0.3	0.7
12	-0.1	1.1	2.1	1.4	-0.4	0.3	0.4	0.8	0.4	1.1	1.3	-2.7	0.5
6	4.4	2.1	-0.1	0.3	-0.1	-1.8	1.5	1.7	-2.4	-0.5	-0.4	-2.0	0.0
1	0.5	0.0	-0.5	-0.5	-1.2	-0.9	-0.7	-0.7	-0.4	-0.5	0.4	0.0	-0.3
17	0.9	3.7	-0.8	-0.4	-0.2	-1.6	0.2	-2.0	0.3	-0.5	-2.8	2.5	-0.4
14	-2.4	-3.5	-4.6	-2.4	-5.1	-3.6	---	---	-0.8	1.9	1.6	8.3	-1.4
9	-3.2	-6.3	-1.0	-2.6	-2.3	-1.9	-1.9	-2.7	-1.7	-2.6	-1.0	-0.1	-2.0
19	-1.3	-0.4	-4.5	-0.7	-6.8	-3.2	---	---	-3.3	-5.7	-3.4	---	-2.1
11	-3.5	-3.2	-2.8	-2.8	-3.7	-4.1	-0.2	-6.1	---	-1.6	-2.4	0.1	-2.5
3	-2.3	2.0	-2.9	-2.9	-3.1	-2.3	-3.3	-2.9	-2.7	-3.6	-3.0	-2.6	-2.8
7	-4.5	-2.9	-5.1	-2.4	-4.4	-3.7	-4.1	-4.7	-3.3	-4.3	-3.8	-2.7	-3.7

Table 5.13 Seasonal and annual mean temperature departures (mdT) for S5TYPEs at Fargo.

S5TYPE	Winter	Spring	Summer	Sumtran	Annual
18	7.2	4.5	---	5.0	5.2
4	5.9	4.5	3.3	3.6	4.2
16	3.7	3.0	5.6	2.6	3.5
15	5.1	1.7	0.9	-0.8	3.1
13	4.3	2.8	1.6	2.7	2.8
2	3.3	3.0	2.2	2.3	2.6
10	2.7	1.9	1.7	2.7	2.4
20	2.2	2.5	---	-2.2	1.8
8	3.9	0.0	1.0	-0.6	1.2
5	0.8	0.6	0.8	0.7	0.7
12	0.4	0.4	0.6	0.5	0.5
6	0.7	0.1	1.6	-1.4	0.0
1	0.1	-0.8	-0.7	-0.6	-0.3
17	-0.2	-0.3	-0.5	-0.7	-0.4
14	-0.7	-3.9	---	-0.1	-1.4
9	-1.6	-2.4	-2.4	-2.0	-2.0
19	-1.9	-1.2	---	-4.2	-2.1
11	-2.3	-3.2	-4.2	-1.9	-2.5
3	-2.6	-3.0	-3.1	-3.1	-2.8
7	-3.7	-3.4	-4.5	-3.8	-3.7

is the fourth coolest pattern at Fargo (mdT=-2.1°C) but a neutral pattern at Winnipeg (mdT=0.0°C), and S5TYPE-17 is the seventh coolest pattern at Fargo (mdT=-0.4°C) but a warm pattern for Winnipeg (mdT=1.7°C). These two types, 19 and 17, not only display the greatest rank changes from the Winnipeg list to the Fargo list but also the largest absolute differences in mean departures. No other patterns have departures which differ by as much as 2.0°C, but eight others differ by more than 1.0°C.

Most of the warm S5TYPEs, like the warm B5TYPEs,

display their highest positive departures in the winter and the least warm departure in the summer, especially at Winnipeg (Tables 5.11 and 5.13). The cool patterns do not show any consistent inter-season differences.

The results of the Tukey-Kramer means comparison tests are shown in Figures 5.3 and 5.4. The proportion of S5TYPE means found to be significantly different from each other is smaller than that found with the B5TYPE means. Only 108 (57%) of the 190 means comparisons were found to be significantly different from each other, at both Winnipeg and Fargo. This indicates that departures produced by S5TYPEs are more variable than those produced by B5TYPEs, probably because S500 patterns are too small to be consistently representative of a particular kind of air mass. Nevertheless, the RRR 500 mb wind directions associated with S5TYPEs ranked by the Winnipeg departures (Table 5.14) definitely shows that the warmer patterns have winds coming from the south and that the cooler patterns have winds coming from the north. So, once again the direction of the upper-level winds has been shown to have a substantial influence on surface temperatures.

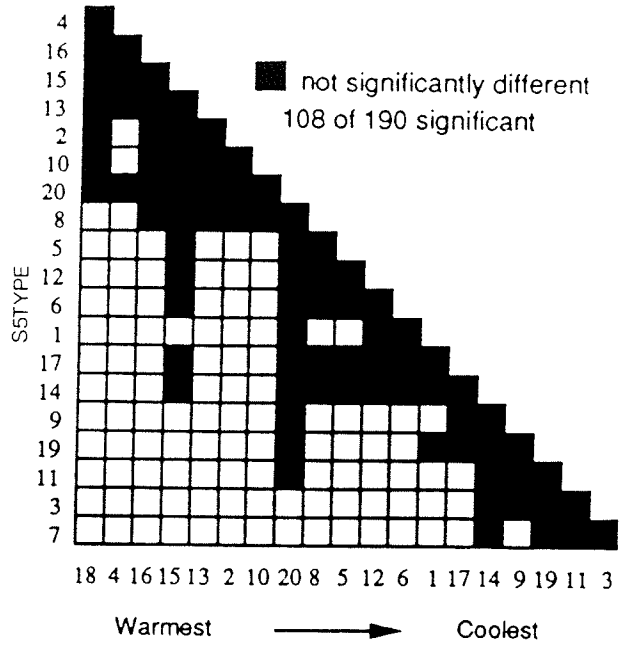


Figure 5.3 Map of Tukey-Kramer means comparison test of mean annual S5TYPE temperatures at Winnipeg.

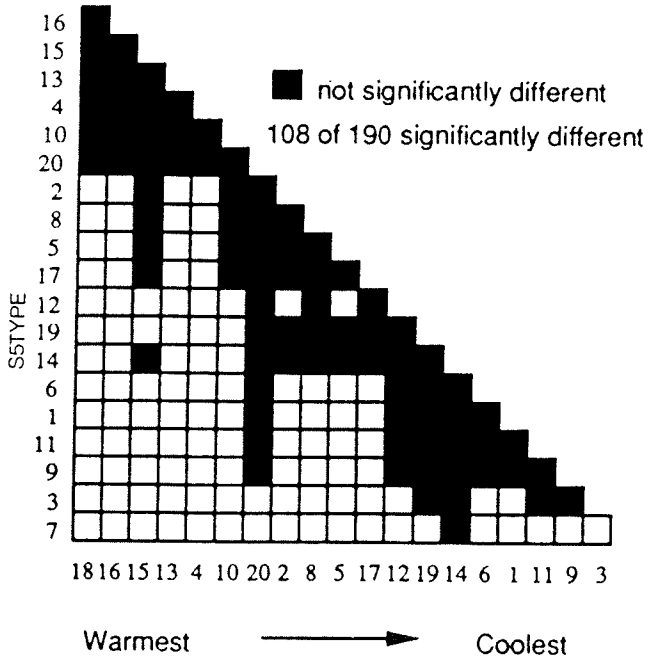


Figure 5.4 Map of Tukey-Kramer means comparison test of mean annual S5TYPE temperatures at Fargo.

Table 5.14 Summary of the directional sources of the RRR 500 mb winds associated with S5TYPEs ranked by mean temperature departure (mdT) at Winnipeg.

S5TYPE	mdT	wind direction
18	6.4	S
16	4.9	SW
13	4.4	SW
15	4.4	S
4	4.3	SW
20	3.4	NE
10	3.4	W
2	2.0	WSW
8	1.8	SW
5	1.7	NW
17	1.7	W
12	0.2	W
19	0.0	N
14	-0.2	?
6	-0.6	W
1	-0.8	WNW
11	-1.1	NE
9	-1.2	W
3	-1.9	NW
7	-3.3	NW

5.2.3 SMTYPE Temperature Characteristics

Each of the monthly, seasonal, and annual groups of Winnipeg and Fargo SMTYPE mean temperature departures were found to contain highly significantly different means (Tables 5.15 and 5.16), and the proportion of annual means different from each other, according to the Tukey-Kramer test, was determined to be much higher than observed with the B5TYPEs and S5TYPEs (Figures 5.5 and 5.6). About 71% of the means from both cities were found to be significantly

Table 5.15 ANOVA results for mean temperature departures (mdT) at Winnipeg and Fargo against SMTYPEs, monthly groupings (95% confidence level).

Month	Number of SMTYPEs	N	N'	Fc	Fc'	Wpg F	Fargo F
Jan.	29	1098	183	1.5	1.5	18.2	18.1
Feb.	29	1022	170	1.5	1.5	19.4	16.9
Mar.	28	1107	185	1.5	1.5	11.3	12.3
Apr.	29	1077	180	1.5	1.5	17.4	17.2
May	28	1120	187	1.5	1.5	19.2	17.3
Jun.	28	1079	180	1.5	1.5	19.3	18.5
Jul.	29	1110	185	1.5	1.5	17.8	18.8
Aug.	29	1116	186	1.5	1.5	18.0	16.8
Sep.	29	1090	182	1.5	1.5	16.2	16.5
Oct.	29	1114	186	1.5	1.5	15.8	17.2
Nov.	29	1079	180	1.5	1.5	10.9	9.6
Dec.	29	1108	185	1.5	1.5	20.7	19.7
All	29	13120	2187	1.5	1.5	147.8	146.3

Note: N is the total number of observations; N' is the number of observations adjusted for serial correlation; Fc is the unadjusted critical F-ratio; Fc' is the adjusted critical F-ratio; Wpg F is the calculated F-ratio for Winnipeg data; and Fargo F is the calculated F-ratio for Fargo data; if F > Fc' then there is a greater than 95% probability that some of the sample means for the synoptic types come from populations with different means.

different. This could indicate that the means associated with individual SMTYPEs are less variable than those associated with B5TYPEs and S5TYPEs, but inspection of the standard deviations associated with the SMTYPE means does not suggest that they are any different from the B5TYPE and S5TYPE standard deviations. It is more likely that SMTYPE means are more dissimilar because of the relatively even

Table 5.16 ANOVA results for mean temperature departures (mdT) at Winnipeg and Fargo against SMTYPEs, seasonal groupings (95% confidence level).

Season	Number of SMTYPEs	N	N'	Fc	Fc'	Wpg F	Fargo F
Winter	29	2120	353	1.5	1.5	36.0	33.6
Spring	29	3304	551	1.5	1.5	38.7	39.2
Summer	29	4395	733	1.5	1.5	65.9	65.5
Fall	29	3301	551	1.5	1.5	41.5	39.7
All	29	13120	2187	1.5	1.5	147.8	146.3

Note: N is the total number of observations; N' is the number of observations adjusted for serial correlation; Fc is the unadjusted critical F-ratio; Fc' is the adjusted critical F-ratio; Wpg F is the calculated F-ratio for Winnipeg data; and Fargo F is the calculated F-ratio for Fargo data; if F > Fc' then there is a greater than 95% probability that some of the sample means for the synoptic types come from populations with different means.

distribution of sample days among the 29 synoptic categories, leaving few SMTYPEs with means based on samples too small to be useful in the Tukey-Kramer test.

The Winnipeg and Fargo monthly, seasonal, and annual SMTYPE mean temperature departures are shown in Tables 5.17 through 5.20. Ten of the 29 patterns produce above normal temperatures at Winnipeg. Thirteen produce above normal temperatures at Fargo. It is immediately apparent that the order of the SMTYPEs in the Winnipeg and Fargo lists, from warmest to coolest, is not nearly as similar as were the 500 mb pattern lists. This is not surprising, however, because

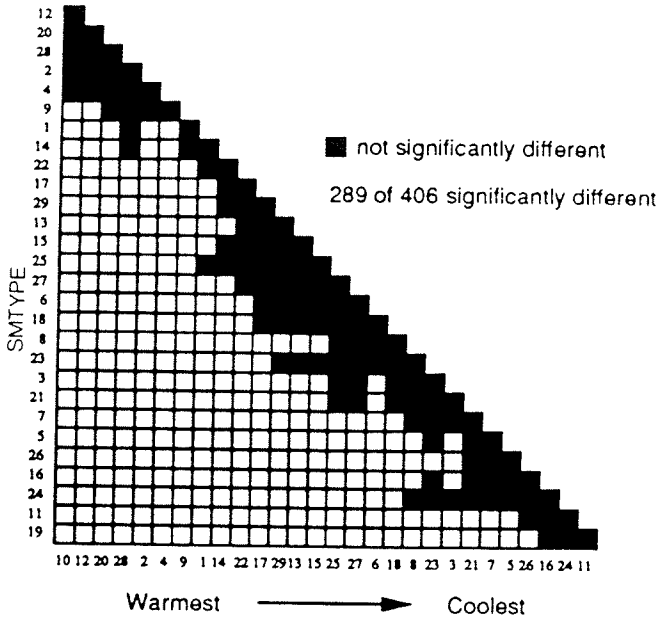


Figure 5.5 Map of Tukey-Kramer means comparison test of mean annual SMTYPE temperatures at Winnipeg.

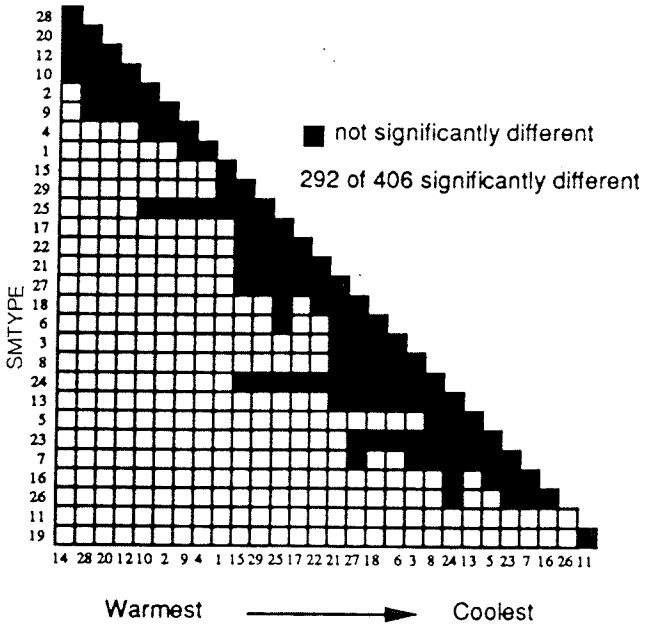


Figure 5.6 Map of Tukey-Kramer means comparison test of mean annual SMTYPE temperatures at Fargo.

Table 5.17 Monthly and annual mean temperature departures (mdT) for SMTYPEs at Winnipeg.

SMTYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
10	4.8	4.1	2.3	4.4	3.7	2.2	2.0	3.8	3.2	2.0	2.3	4.2	3.4
12	2.1	5.1	5.6	3.7	4.8	3.7	2.4	1.8	3.2	4.2	1.9	6.6	3.3
20	8.1	6.1	5.4	5.3	4.3	1.5	1.9	1.2	3.0	1.8	4.6	4.1	3.3
28	4.1	4.6	4.5	1.6	5.2	2.6	3.3	2.2	0.1	2.2	2.0	4.0	3.1
4	0.7	2.5	2.1	5.8	4.8	3.2	2.4	2.7	3.4	2.7	2.5	2.6	2.9
2	6.7	7.0	4.6	2.7	1.5	0.6	0.8	1.6	1.4	1.7	2.8	5.5	2.9
9	3.9	7.6	4.3	1.8	0.9	0.0	-0.4	0.9	-0.4	0.2	3.0	7.6	2.0
1	2.4	0.6	2.8	2.1	2.5	1.6	1.0	0.3	0.8	2.2	1.3	1.2	1.6
14	-1.2	2.0	4.1	-0.4	2.2	1.2	1.4	1.1	1.9	1.8	2.7	1.4	1.4
22	-0.1	4.5	2.3	2.4	2.1	-1.7	0.0	-1.0	-0.3	0.0	0.5	2.2	0.5
17	-0.3	0.1	-0.1	-0.3	-0.1	-0.2	0.5	-0.7	-1.3	-1.8	0.0	-6.1	0.4
29	4.8	3.0	2.5	-1.7	-0.5	-0.9	-1.3	0.2	0.3	0.1	-1.5	2.2	-0.1
15	0.1	2.7	-0.7	-1.0	-3.0	-3.0	-2.3	-3.6	-1.0	-2.1	-0.4	2.3	-0.2
13	-2.1	-0.3	-1.1	0.9	1.1	0.8	0.0	-0.2	0.6	-0.4	-0.8	2.1	-0.3

cont.

Table 5.17 continued

SMTYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
25	0.2	-6.2	3.3	-1.8	-0.3	-2.0	-1.5	0.2	-0.1	-0.3	-3.5	-0.1	-0.5
27	2.4	-2.4	-3.5	-1.1	3.5	-1.0	-0.8	-1.2	-2.2	-2.4	-0.7	-4.3	-1.1
6	1.4	2.5	-1.6	-1.3	-2.9	-2.1	-1.8	-2.3	-2.2	-2.2	-0.9	-0.4	-1.1
18	0.0	-2.8	-2.1	-1.5	0.8	-1.8	-2.0	-1.9	-1.4	-1.5	-1.6	-0.4	-1.3
8	-5.0	-4.0	-1.1	-1.6	-0.2	-1.0	-1.3	-2.4	-1.2	-2.1	-3.0	-3.8	-2.1
23	-2.7	-5.4	-0.8	-3.3	-0.3	-2.1	-0.6	-1.4	-0.2	-2.8	-1.4	-2.6	-2.1
3	-1.2	-1.5	-1.3	-3.1	-2.9	-3.5	-2.8	-2.8	-3.2	-3.3	-1.9	-1.0	-2.3
21	-5.9	-5.8	-1.3	-2.2	-1.4	-0.6	-0.7	-1.3	-0.4	-1.2	-6.1	-7.5	-2.6
7	-2.3	-4.4	-2.6	-2.6	-4.0	-3.3	-0.8	-2.4	-2.4	-4.9	-2.9	-5.5	-3.3
5	-6.1	-5.0	-2.9	-3.0	-2.8	-2.3	-2.1	-3.3	-3.4	-4.2	-4.0	-6.1	-3.7
26	-3.4	-3.2	-3.0	-4.6	-5.4	-4.3	-3.8	-4.5	-3.4	-5.3	-3.6	-4.7	-4.0
16	-6.2	-6.1	-2.4	-3.3	-2.7	-3.3	-3.4	-3.2	-2.7	-3.3	-2.0	-8.2	-4.1
24	-3.1	-5.5	---	-6.0	---	---	-1.4	-1.4	-2.2	-6.1	-5.4	-5.7	-4.5
11	-7.1	-8.7	-5.9	-3.5	-3.4	-2.2	-2.7	-3.3	-3.5	-4.6	-6.3	-7.2	-5.1
19	-6.8	-6.3	-6.7	-5.3	-2.2	-3.0	-4.1	-4.6	-4.2	-5.0	-6.4	-8.3	-5.6

Table 5.18 Seasonal and annual mean temperature departures (mdT) for SMTYPEs at Winnipeg.

SMTYPE	Winter	Spring	Summer	Fall	Annual
10	4.5	3.3	2.9	3.0	3.4
12	3.4	4.7	2.7	4.1	3.3
20	6.9	4.8	1.8	3.4	3.3
28	4.3	3.5	2.2	2.9	3.1
4	1.6	4.2	2.9	2.6	2.9
2	6.8	2.9	1.1	3.2	2.9
9	5.5	2.0	0.1	3.4	2.0
1	1.4	2.4	0.9	1.6	1.6
14	0.4	1.9	1.4	1.8	1.4
22	2.5	2.2	-0.7	0.7	0.5
17	0.0	-0.2	-0.4	0.4	-0.1
29	3.8	-0.1	-0.4	-0.3	-0.2
15	1.1	-1.2	-2.5	0.0	-0.3
13	-1.4	0.5	0.3	-0.8	-0.3
25	-1.7	0.8	-0.6	-0.6	-0.5
27	0.0	-0.2	-1.4	-2.5	-1.1
6	2.0	-2.0	-2.1	-1.2	-1.1
18	-1.2	-1.1	-1.7	-1.2	-1.3
8	-4.6	-0.9	-1.5	-2.9	-2.1
23	-4.8	-1.5	-1.0	-2.5	-2.1
3	-1.4	-2.4	-3.1	-2.1	-2.3
21	-5.9	-1.6	-0.8	-5.5	-2.6
7	-3.6	-2.9	-2.2	-4.4	-3.3
5	-5.5	-2.8	-2.7	-4.9	-3.7
26	-3.3	-4.3	-4.1	-4.5	-4.0
16	-6.1	-2.8	-3.2	-4.6	-4.1
24	-4.2	-6.0	-1.5	-5.7	-4.5
11	-7.9	-4.6	-3.0	-6.3	-5.1
19	-6.6	-5.3	-3.9	-6.9	-5.6

the SMTYPE patterns are, by proximity, coupled much more directly to specific surface-temperature patterns than are upper-level patterns. These temperature patterns can, of course, be quite complex due to the influence of fronts, clouds and various surface conditions. Consequently, an SMTYPE pattern which brings much below normal temperatures

Table 5.19 Monthly and annual mean temperature departures (mdT) for SMTYPEs at Fargo.

SMTYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
14	1.8	4.5	6.5	4.2	4.6	3.7	3.2	3.4	5.9	4.7	4.5	3.3	4.1
28	5.8	6.0	5.4	1.7	3.4	2.4	3.2	3.5	1.0	2.9	3.6	4.5	3.8
20	8.7	7.3	5.4	5.6	4.5	1.3	1.6	1.2	3.2	3.1	5.3	3.7	3.5
12	1.7	4.2	5.1	2.9	4.4	3.5	2.5	1.7	3.5	4.7	1.8	4.9	3.2
10	4.4	3.6	1.6	4.5	2.8	1.6	1.8	2.9	3.0	1.8	1.8	3.7	3.0
2	5.5	5.1	4.3	3.5	1.8	1.1	0.9	1.6	1.5	1.8	2.4	4.8	2.7
9	5.4	7.2	4.2	1.8	1.7	1.0	-0.2	1.8	0.6	0.5	2.9	7.8	2.5
4	-0.5	1.4	1.5	5.0	3.7	2.4	2.0	1.9	2.3	2.1	2.1	1.6	2.1
1	3.1	1.1	2.6	1.9	1.9	1.0	1.0	0.6	1.2	2.6	2.3	1.8	1.7
15	1.8	4.1	0.8	-1.5	-3.4	-1.3	-0.9	-2.9	-0.3	-2.2	-0.2	3.3	0.7
25	0.7	-4.5	4.2	-0.6	0.2	0.6	1.8	0.8	0.9	0.9	-1.8	0.4	0.7
29	3.4	2.0	2.8	-1.2	2.4	-0.2	0.0	0.9	0.5	2.2	-0.5	1.7	0.7
17	0.8	1.6	0.8	-0.6	-0.4	0.3	0.0	0.5	0.9	-1.3	0.6	3.5	0.5
22	-0.3	2.0	2.4	1.1	1.9	-2.1	-0.4	-1.0	-1.1	-0.9	-0.4	1.7	-0.2

cont.

Table 5.19 continued

SMTYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
21	-4.7	-5.4	-0.1	-0.3	1.1	1.7	1.1	0.5	1.0	-0.1	-3.0	-5.2	-0.8
27	2.9	-1.7	-2.6	-0.7	2.2	-1.9	-0.6	-2.9	-2.9	-0.9	-0.7	-4.2	-1.2
18	0.6	-2.4	-0.3	-1.5	-0.4	-0.6	-1.5	-2.6	-1.9	-2.1	-1.9	-0.9	-1.2
6	0.8	2.2	-1.4	-1.3	-2.8	-2.4	-2.3	-2.5	-2.6	-2.6	-1.8	-0.4	-1.4
8	-5.8	-5.1	-0.7	-0.9	-0.6	-0.1	-1.2	-2.1	-1.0	-2.1	-3.0	-4.5	-2.0
3	-0.7	-0.2	-1.8	-2.6	-2.2	-2.8	-1.9	-2.7	-2.8	-3.1	-1.7	-0.9	-2.0
24	0.8	-3.7	---	-0.7	---	---	-0.5	-1.4	-2.4	-2.3	-2.7	-3.8	-2.1
13	-5.0	-2.8	-3.0	-0.4	-2.1	-1.9	-2.0	-0.6	-1.3	-2.1	-2.6	-2.6	-2.2
5	-4.8	-4.3	-2.1	-2.2	-2.2	-2.1	-1.9	-2.8	-3.1	-2.7	-1.9	-4.6	-2.9
23	-3.5	-5.5	-1.8	-2.9	-1.7	-2.5	-1.8	-4.0	-1.9	-4.3	-0.5	-4.1	-3.0
7	-1.5	-4.1	-2.8	-2.9	-3.4	-3.6	-1.1	-2.1	-2.4	-4.8	-2.2	-4.9	-3.0
16	-5.9	-5.8	-2.7	-3.4	-2.8	-3.3	-3.2	-2.7	-3.4	-2.5	-1.8	-8.1	-4.0
26	-3.3	-2.5	-2.6	-4.9	-5.1	-4.0	-4.6	-4.5	-3.3	-6.1	-5.5	-4.5	-4.1
11	-7.7	-8.7	-6.4	-3.5	-4.4	-3.8	-3.6	-4.1	-4.0	-5.4	-4.7	-7.5	-5.6
19	-8.6	-7.0	-7.4	-5.2	-2.6	-3.5	-4.0	-5.1	-4.5	-6.6	-6.8	-9.3	-6.3

Table 5.20 Seasonal and annual mean temperature departures (mdT) for SMTYPEs at Fargo.

SMTYPE	Winter	Spring	Summer	Fall	Annual
14	3.2	4.9	4.0	4.1	4.1
28	5.9	3.2	2.5	3.8	3.8
20	7.9	5.0	1.7	4.0	3.5
12	2.8	4.1	2.7	4.2	3.2
10	4.0	2.8	2.4	2.6	3.0
2	5.3	3.1	1.3	2.9	2.7
9	6.2	2.3	0.9	3.6	2.5
4	0.4	3.4	2.1	1.9	2.1
1	2.0	2.1	0.9	2.2	1.7
15	2.7	-0.5	-1.3	0.5	0.7
25	-0.8	1.5	1.0	0.3	0.7
29	2.6	1.3	0.3	0.9	0.7
17	1.4	-0.1	0.4	1.2	0.5
22	1.0	1.8	-1.1	-0.1	-0.2
21	-4.9	0.3	1.0	-3.2	-0.8
27	0.6	-0.3	-2.2	-2.1	-1.2
18	-0.6	-0.8	-1.7	-1.6	-1.2
6	1.5	-1.9	-2.5	-1.7	-1.4
8	-5.6	-0.7	-1.2	-3.2	-2.0
3	-0.5	-2.2	-2.6	-1.9	-2.0
24	-1.5	-0.7	-1.3	-3.4	-2.1
13	-4.1	-1.8	-1.5	-2.4	-2.2
5	-4.5	-2.2	-2.5	-3.2	-2.9
23	-5.0	-2.1	-2.4	-3.5	-3.0
7	-3.1	-3.0	-2.3	-3.8	-3.1
16	-5.9	-3.0	-3.1	-4.3	-4.0
26	-3.0	-4.2	-4.1	-5.2	-4.1
11	-8.2	-5.1	-3.9	-6.3	-5.6
19	-7.9	-5.7	-4.2	-7.8	-6.3

to Winnipeg may not necessarily do the same to Fargo because the cities are far enough apart to be within, for example, different temperature sectors of the surface pattern in question.

Nevertheless, the number of patterns which produce quite different departures in Winnipeg and Fargo is not

large. Only five patterns have departures which differ by more than 1°C. SMTYPE-14, which depicts a low to the west of the RRR, is the warmest pattern at Fargo (mdT=4.1°C) but only the ninth warmest pattern at Winnipeg (mdt=1.4°C). Hence, Fargo seems to be in a warmer part of the warm sector of the low than is Winnipeg.

SMTYPE-24 is the third coolest pattern at Winnipeg (mdt=-5.7°C) but only the ninth coolest pattern at Fargo (mdT=-2.1°C). The pattern shows a high pressure system just north and west of the RRR and a relatively flat pressure surface toward the south. Thus, Winnipeg seems to be under the influence of a cold air mass which has yet to completely penetrate the southern part of the RRR.

SMTYPE-13 is the sixteenth coolest pattern at Winnipeg (mdT=-0.3°C) but only the eighth coolest pattern at Fargo (mdT=-2.2°C). The pattern portrays a high in the American sector of the map and a near zonal flow in the Canadian sector, so the difference in departures may be due to the presence of a cold core high affecting Fargo and a warmer westerly flow affecting Winnipeg.

SMTYPE-21 results in departures 1.8°C warmer at Fargo than at Winnipeg. It is the eight coolest pattern at Winnipeg (mdT=-2.6°C) and the fifteenth coolest pattern at Fargo (mdT=-0.8°C). Since the pattern has a col affecting the RRR it is difficult to ascertain wind directions, but the Winnipeg and Fargo departures suggest that winds in the

northern part of the RRR are more northerly than those in the south.

The final pattern whose Winnipeg and Fargo mean departures differ by more than 1°C is SMTYPE-25. It is one of only five patterns whose Winnipeg and Fargo departures have different signs. It is a warm pattern for Fargo (mdT=0.7°C) and a cool pattern for Winnipeg (mdT=-0.5°C). The pressure pattern depicts a low passing just to the north of the RRR and a high toward the south. Hence, Winnipeg is likely under the influence of northwesterly winds while Fargo is getting southerly winds.

Table 5.21 shows the apparent wind directions associated with all of the SMTYPEs ranked by their departures at Winnipeg. As expected, the wind directions associated with warm patterns are quite distinct from those associated with cool patterns. Only two of the 10 warm patterns have an apparent wind coming from a direction other than the south, southeast, or southwest, and only four of the 12 cool patterns with identifiable winds are related to winds which do not come from the north, northeast, or northwest. Hence, the suggestion made in Section 5.2.1, that surface patterns might move too quickly within a 24 hour period to result in a strong relationship between wind direction and daily temperature departure, has clearly not been realized.

Table 5.21 Summary of the apparent RRR surface winds associated with SMTYPEs ranked by mean temperature departure (mdT) at Winnipeg.

SMTYPE	mdT	wind direction
10	3.4	S
12	3.3	SE
20	3.3	SE
28	3.1	SE
4	2.9	S
2	2.9	SW
9	2.0	E
1	1.6	SE
14	1.4	S
22	0.5	NW
17	-0.1	NE
29	-0.2	W
15	-0.3	N
13	-0.3	SW
25	-0.5	NW
27	-1.1	E
6	-1.1	NW
18	-1.3	?
8	-2.1	W
23	-2.1	?
3	-2.3	N
21	-2.6	?
7	-3.3	NE
5	-3.7	NE
26	-4.0	N
16	-4.1	N
24	-4.5	N
11	-5.1	NW
19	-5.6	NW

5.3 SYNOPTIC PATTERN PRECIPITATION CHARACTERISTICS

The second meteorological variable to be related to the synoptic types is total daily precipitation (water equivalent, mm). The goal here is to determine whether or not the individual synoptic types produce significantly different precipitation totals in the RRR, and to characterize and compare their potential for producing precipitation at Winnipeg and Fargo.

Differences in the amounts of precipitation produced by synoptic categories cannot be tested for significance with the ANOVA technique because precipitation data, unlike temperature data, do not usually fit the Gaussian probability distribution, a strict requirement of ANOVA. Instead, precipitation data, especially that for relatively short periods of time, tend to fit the positively-skewed Gamma distribution (Suzuki, 1980) in which many cases have zero values and few cases have large values.

The chi square test is often used in situations where the ANOVA method cannot be used to assess the significance of inter-group differences, and is used here. It does not require data to approximate the Gaussian distribution, nor does it require data to be continuous. Indeed, it can only be used with nominal data, for it assesses inter-group differences by comparing observed frequencies, arranged in a contingency table, to expected frequencies. The expected

frequencies for individual cells of the contingency table are based on probabilities of membership in the row and column which define the cell. Hence, the chi square test is used to determine whether observed frequencies are significantly different from frequencies one would expect to occur if there was no bias toward particular combinations of the variables in question. The level of bias is determined by comparing a calculated chi square value (X^2) to a critical chi square value ($X^{2'}$). The frequency distribution in the contingency table is different from the expected distribution if X^2 is greater than $X^{2'}$. The value of $X^{2'}$ depends on the chosen confidence level and also on the number of data categories used to construct the contingency table. A description of the calculations involved in the chi square test can be found in most statistics texts, including Ebdon (1985). As with ANOVA, individual observations in the data being analyzed should be independent, but no adjustment is made here for the relatively small amount of serial correlation typically observed with daily precipitation data.

To meet the requirements of chi square, it was necessary to place daily precipitation totals into nominal precipitation categories. It was obvious that one of these categories should define days with no measurable precipitation, but the process of selecting other categories was problematic. Chi square results may be invalid when

more than 20% of the cells of the contingency table contain fewer than five expected observations, so the use of too many categories can result in spurious results. In addition, the range of values used to define categories must be selected with care, not only to avoid the problem of too many cells with too few cases, but also to maximize separation of data values into groups which represent meaningful divisions within the data being used.

For pragmatic reasons, after experimentation with numerous classification schemes, the decision was made to classify precipitation totals in a very simple manner, whereby days with no precipitation are distinguished from those with at least some precipitation. Although this method of classification does not distinguish days with traces of precipitation from days with large amounts of precipitation, it does allow predominately dry patterns to be distinguished from predominately wet patterns, thereby indicating that at least some synoptic patterns have significantly different precipitation characteristics.

The contingency table of the observed and expected frequencies of the two precipitation types against the non-MSNG and non-NOTYP B500, S500, and SMSL synoptic types, for Winnipeg and Fargo, are shown in Tables 5.22 through 5.27. They depict frequencies for the entire period of record. Contingency tables for individual seasons are not included because they resulted in too many low-frequency

Table 5.22 Observed and expected frequencies of days with no precipitation (Zero) and days with some precipitation (Some) against non-MSNG, non-NOTYP B5TYPEs, at Winnipeg.

	Zero		Some	
B5TYPE	Observed	Expected	Observed	Expected
1	4506	4455.2	2155	2215.8
2	949	1016.4	574	506.6
3	918	770.8	237	384.2
4	416	551.9	411	275.1
5	785	748.8	337	373.2
6	158	204.9	149	102.1
7	196	192.9	93	96.1
8	123	106.1	36	52.9
9	129	101.4	23	50.6
10	60	68.1	42	33.9
11	239	300.3	211	149.7
12	127	164.2	119	81.8
13	24	24.7	13	12.3
14	27	26.0	12	13.0
15	79	57.4	7	28.6
16	93	76.1	21	37.9
17	209	179.5	60	89.5
18	26	29.4	18	14.6

Calculated chi square value= 386.7.
Critical chi square value (p = 0.05) = 27.5.

Table 5.23 Observed and expected frequencies of days with no precipitation (Zero) and days with some precipitation (Some) against non-MSNG, non-NOTYP B5TYPEs, at Fargo.

	Zero		Some	
B5TYPE	Observed	Expected	Observed	Expected
1	5113	4870.9	1548	1790.1
2	1032	113.7	491	409.3
3	938	844.6	217	310.4
4	426	604.8	401	222.2
5	887	820.5	235	301.5
6	180	224.5	127	82.5
7	178	211.3	111	77.7
8	130	116.3	29	42.7
9	132	111.2	20	40.8
10	64	74.6	38	27.4
11	242	329.1	208	120.9
12	147	179.9	99	66.1
13	25	27.1	12	9.9
14	22	28.5	17	10.5
15	80	62.9	6	23.1
16	95	83.4	19	30.6
17	211	196.7	58	72.3
18	30	32.2	14	11.8

Calculated chi square value = 542.7.
Critical chi square value (p = 0.05) = 27.5.

Table 5.24 Observed and expected frequencies of days with no precipitation (Zero) and days with some precipitation (Some) against non-MSNG, non-NOTYP S5TYPEs, at Winnipeg.

	Zero		Some	
S5TYPE	Observed	Expected	Observed	Expected
1	4095	4027.1	1950	2017.9
2	1352	1625.5	1088	814.5
3	1459	1235.1	395	618.9
4	134	201.9	169	101.1
5	404	343.1	111	171.9
6	240	216.5	85	108.5
7	307	307.1	154	153.9
8	48	129.2	146	64.8
9	68	119.2	111	59.8
10	145	118.6	33	59.4
11	69	68.6	34	34.4
12	259	202.5	45	101.5
13	77	97.9	70	49.1
14	14	22.7	20	11.3
15	22	19.3	7	9.7
16	48	41.3	14	20.7
17	101	72.6	8	36.4
18	20	29.3	24	14.7
19	52	40.6	9	20.4
20	15	10.7	1	5.3

Calculated chi square value = 739.5.
Critical chi square value (p = 0.05) = 30.1.

Table 5.25 Observed and expected frequencies of days with no precipitation (Zero) and days with some precipitation (Some) against non-MSNG, non-NOTYP S5TYPEs, at Fargo.

	Zero		Some	
S5TYPE	Observed	Expected	Observed	Expected
1	4746	4431.3	1299	1613.7
2	1478	1788.6	962	651.4
3	1562	1359.1	292	494.9
4	124	222.1	179	80.9
5	460	377.5	55	137.5
6	195	238.2	130	86.8
7	325	337.9	136	123.1
8	54	142.2	140	51.8
9	90	131.2	89	47.8
10	149	130.5	29	47.5
11	63	75.5	40	27.5
12	243	222.8	61	81.2
13	85	107.8	62	39.2
14	8	24.9	26	9.1
15	15	21.3	14	7.7
16	41	45.4	21	16.6
17	105	79.9	4	29.1
18	15	32.3	29	11.7
19	53	44.7	8	16.3
20	14	11.7	2	4.3

Calculated chi square value = 1079.4.
Critical chi square value (p = 0.05) = 30.1.

Table 5.26 Observed and expected frequencies of days with no precipitation (Zero) and days with some precipitation (Some) against non-MSNG, non-NOTYP SMTYPEs, at Winnipeg.

	Zero		Some	
SMTYPE	Observed	Expected	Observed	Expected
1	923	993.3	569	498.7
2	917	947.4	506	475.6
3	520	596.5	376	299.5
4	850	761.6	294	382.4
5	790	716.4	286	359.6
6	681	677.8	337	340.2
7	220	175.8	44	88.2
8	372	316.2	103	158.8
9	161	269.6	244	135.4
10	387	363.5	159	182.5
11	275	209.1	39	104.9
12	235	319.6	245	160.4
13	258	201.1	44	100.9
14	105	137.8	102	69.2
15	99	130.5	97	65.5
16	176	133.8	25	67.2
17	152	185.8	127	93.2
18	267	209.7	48	105.3
19	295	235.0	58	118.0
20	98	181.8	175	91.2
21	131	119.8	49	60.2
22	160	163.1	85	81.9
23	122	88.5	11	44.5
24	37	34.0	14	17.0
25	51	43.3	14	21.7
26	229	209.7	86	105.3
27	79	89.9	56	45.1
28	56	87.2	75	43.8
29	89	137.2	117	68.8

Calculated chi square value = 927.8.
Critical chi square value (p = 0.05) = 41.3.

Table 5.27 Observed and expected frequencies of days with no precipitation (Zero) and days with some precipitation (Some) against non-MSNG, non-NOTYP SMTYPEs, at Fargo.

	Zero		Some	
SMTYPE	Observed	Expected	Observed	Expected
1	1020	1087.6	472	404.4
2	1131	1037.3	292	385.7
3	473	653.2	423	242.8
4	1010	833.9	134	310.1
5	744	784.4	332	291.6
6	772	742.1	246	275.9
7	216	192.4	48	71.6
8	383	346.3	92	128.7
9	136	295.2	269	109.8
10	487	398.0	59	148.0
11	297	228.9	17	85.1
12	256	349.9	224	130.1
13	283	220.1	19	81.9
14	137	150.9	70	56.1
15	122	142.9	74	53.1
16	172	146.5	29	54.5
17	155	203.4	124	75.6
18	291	229.6	24	85.4
19	311	257.3	42	95.7
20	150	199.0	123	74.0
21	127	131.2	53	48.8
22	149	178.6	96	66.4
23	118	97.0	15	36.0
24	33	37.2	18	13.8
25	53	47.4	12	17.6
26	248	229.6	67	85.4
27	76	98.4	59	36.6
28	88	95.5	43	35.5
29	126	150.2	80	55.8

Calculated chi square value = 200.1.
Critical chi square value (p = 0.05) = 41.3.

cells. Appended to the tables are the calculated chi square values and the critical chi square values for the 0.05 confidence level.

All calculated chi square values are much above the critical values. Hence, at least some of the synoptic patterns produce dry and non-dry (wet) days at significantly different rates than one would expect based on simple, marginal probabilities. This is as one would expect, for some pressure patterns are conducive to precipitation while others are not. The identification of those patterns which do indeed produce more, or less, precipitation than expected from their frequency of occurrence is covered in the following sections, using the concept of precipitation efficiency (PE). Graphs of the seasonal PE values for each synoptic type are included in Appendix A.

5.3.1 B5TYPE Precipitation Characteristics

Seasonal and annual PE values for B5TYPEs at Winnipeg and Fargo are shown in Tables 5.28 and 5.29, ranked in descending order by annual efficiency. The same seven types produce more than the expected annual precipitation (termed efficient hereafter) at both Winnipeg and Fargo, but their rankings are different. For example, type 10 is the most efficient pattern at Winnipeg but only the fourth most

Table 5.28 B5TYPE seasonal and annual precipitation efficiencies, Winnipeg.

B5TYPE	Winter	Spring	Summer	Sumtran	Annual
10	237.4	402.3	127.5	295.0	360.8
6	349.7	363.5	153.5	246.5	311.2
4	268.5	208.0	188.4	217.0	242.9
7	155.3	158.1	125.8	174.9	160.9
11	132.6	130.4	273.8	264.9	143.4
12	108.5	120.3	79.9	194.6	135.9
14	165.5	87.3	0.0	196.8	109.3
18	126.6	171.2	---	143.4	96.1
1	106.4	66.2	90.0	76.0	90.0
16	23.3	100.3	102.0	27.9	78.8
17	37.7	24.7	64.2	69.5	77.4
3	66.8	74.2	62.3	66.3	76.0
2	68.5	60.7	135.5	82.8	63.9
13	162.4	39.7	0.0	0.0	57.0
15	77.6	79.8	0.0	21.9	49.0
5	50.6	47.5	91.2	34.0	38.5
8	45.2	19.7	28.7	25.8	30.5
9	20.5	29.4	0.0	33.6	20.3

efficient pattern at Fargo. The rankings of the types producing less than the expected annual precipitation (termed inefficient hereafter) is similar, too, with the same four patterns at the bottom of both lists. Of course, a pattern that is an efficient precipitator is not necessarily an important source of the RRR's total precipitation. This is corroborated by Tables 5.30 and 5.31, which show that over 40% of the precipitation which falls at Winnipeg and Fargo on non-MSNG and non-NOTYP days is brought by B5TYPE-1, an inefficient precipitator that happens to occur very often.

Seasonal efficiencies are, for the most part, in good

Table 5.29 B5TYPE seasonal and annual precipitation efficiencies, Fargo.

B5TYPE	Winter	Spring	Summer	Sumtran	Annual
4	364.2	220.1	221.9	277.9	298.1
6	410.9	264.5	137.5	195.1	261.6
11	234.1	233.5	453.1	286.9	207.0
10	231.3	110.2	206.7	166.8	202.1
7	308.0	179.9	222.1	167.1	196.3
14	176.2	145.9	22.6	120.2	137.2
12	212.3	119.0	76.6	130.1	133.5
18	105.5	141.4	---	195.7	88.5
17	11.2	80.4	80.7	51.0	87.3
1	73.0	69.8	87.4	78.1	83.8
16	0.0	37.1	240.2	23.8	83.6
13	170.7	84.1	0.0	0.0	83.0
3	54.2	82.9	68.2	58.8	77.0
2	86.2	70.5	112.2	61.8	60.5
8	28.1	37.7	12.1	45.7	36.8
5	54.7	20.3	81.6	18.1	29.7
9	20.7	28.2	3.2	48.6	24.0
15	22.0	0.6	0.0	1.3	4.6

agreement with the annual efficiencies, with a few notable exceptions. B5TYPE-18 is rated as inefficient annually at both Winnipeg and Fargo, but it is efficient in the winter, spring, and sumtran seasons. The difference is accounted for by the fact that this pattern did not occur in any of the summers of 1946-84, but the summer days are used in the calculation of the annual PE. Hence, B5TYPE-18 should be, and hereafter will be, considered an efficient precipitator. Most other discrepancies are either modest in amount or associated with small sample sizes. It is noteworthy that the PE values of the most efficient patterns (i.e. those with PE > 200) and the most inefficient patterns (i.e. those

Table 5.30 B5TYPE seasonal and annual percentages of total precipitation on non-MSNG and non-NOTYP days, Winnipeg (* efficient).

B5TYPE	Winter	Spring	Summer	Sumtran	Annual
1	49.0*	26.0	59.0	39.1	44.2
4	10.1*	16.6*	13.0*	18.1*	14.8*
2	12.5	3.9	6.8*	5.9	7.2
6	3.4*	13.4*	3.5*	8.6*	7.0*
3	3.7	8.0	6.8	7.1	6.5
11	6.6*	4.7*	2.0*	5.9*	4.8*
7	2.8*	6.5*	0.3*	4.6*	3.4*
5	6.8	3.1	2.3	1.6	3.2
10	0.3*	7.9*	1.1*	2.6*	2.7*
12	1.6*	4.3*	1.0	3.2*	2.5*
17	0.3	0.4	3.0	1.8	1.5
16	0.0	1.8*	0.7*	0.4	0.7
8	0.4	0.3	0.3	0.4	0.4
14	0.4*	0.7	0.0	0.3*	0.3*
15	0.5	1.0	0.0	0.1	0.3
18	0.7*	0.5*	---	0.2*	0.3*
9	0.2	0.6	0.0	0.2	0.2
13	0.5*	0.3	0.0	0.0	0.2

with PE < 50) do not exhibit large variations from season to season, suggesting that their precipitation characteristics are a result of large-scale dynamic processes associated with the pressure configurations themselves, and less so with precipitation-enhancing or inhibiting influences at or near the surface, such as radiative heating or cooling and frontal activity. This is substantiated by an examination of these extreme patterns. Each of the very efficient patterns has the RRR beneath the eastern side of a large trough, where divergence aloft can promote low-level convergence and the formation of cloud and precipitation,

Table 5.31 B5TYPE seasonal and annual percentages of total precipitation on non-MSNG and non-NOTYP days, Fargo (* efficient).

B5TYPE	Winter	Spring	Summer	Sumtran	Annual
1	33.4	28.2	55.7	40.5	41.1
4	13.7*	18.1*	14.8*	23.4*	18.2*
11	11.5*	8.7*	3.1*	6.4*	6.9*
2	15.7	4.7	5.5*	4.4	6.8
3	3.0	9.2	7.1	6.3	6.6
6	4.0*	10.1*	3.0*	6.9*	5.9*
7	5.6*	7.6*	0.6*	4.4*	4.2*
5	7.3	1.4	2.0	0.9	2.5
12	3.1*	4.4*	0.9	2.1*	2.4*
17	0.1	1.2	3.6	1.3	1.7
10	0.3*	2.2*	1.8*	1.5*	1.5*
16	0.0	0.7	1.6*	0.4	0.7
8	0.2	0.6	0.1	0.7	0.4
14	0.4*	1.3*	0.0	0.2*	0.4*
18	0.6*	0.4*	---	0.3*	0.3*
9	0.2	0.6	0.0	0.3	0.3
13	0.5*	0.7	0.0	0.0	0.2
15	0.1	0.0	0.0	0.0	0.0

while each of the very inefficient patterns puts the RRR beneath the eastern side of a large ridge, where subsidence commonly inhibits the formation of cloud and, therefore, precipitation. Patterns which are neither markedly efficient or inefficient cannot be so easily generalized as trough-dominated or ridge-dominated patterns, perhaps because they are more sensitive to surface conditions.

5.3.2 S5TYPE Precipitation Characteristics

Tables 5.32 and 5.33 show the seasonal and annual PE values for S5TYPEs at Winnipeg and Fargo, and Tables 5.34 and 5.35 show their seasonal and annual percentages of precipitation. Eight patterns are efficient annually at Winnipeg, with six of these patterns having PEs greater than 200. The same eight patterns are also efficient at Fargo, where a total of ten S5TYPEs are efficient. Eight of these have PEs greater than 200. The PE values associated with the eight efficient types common to both locales are quite similar. However, it is very interesting that the most efficient pattern at Fargo, S5TYPE-15, with an annual PE value of 553.3, is a very inefficient pattern at Winnipeg, where its PE value is only 26.8. The pattern depicts a col situation with a near zonal flow north of the RRR and a low south-southwest of the basin. The pattern only occurred 29 times during the period of record, but there does seem to be a real difference between its precipitation production at Winnipeg and Fargo. It produced measurable precipitation at Winnipeg on seven occasions, the greatest amount being only 5.1 mm. At Fargo it produced precipitation on eleven occasions, with nine of these with having more than 5 mm recorded and five with more than 20 mm. The pattern is primarily a spring pattern, and may represent a Colorado Low passing just to the south of the RRR.

Table 5.32 S5TYPE seasonal and annual precipitation efficiencies, Winnipeg.

S5TYPE	Winter	Spring	Summer	Sumtran	Annual
8	466.7	404.5	261.5	406.0	407.6
4	264.3	417.3	207.7	313.0	397.9
14	507.2	429.5	---	121.5	289.9
9	159.7	280.5	211.3	431.6	286.1
13	243.0	353.8	94.5	220.0	272.9
18	444.4	249.7	---	207.1	263.9
2	192.6	124.3	169.7	168.0	188.5
16	11.2	130.8	189.5	84.8	117.1
1	88.5	47.8	77.4	48.5	67.4
6	71.6	100.6	0.0	46.7	63.0
5	33.3	70.5	44.2	65.5	61.8
7	44.9	85.7	228.8	53.7	59.6
11	96.4	23.9	4.3	136.5	55.9
12	63.9	19.9	75.7	45.9	54.9
15	64.3	9.2	0.0	36.6	26.8
3	45.9	19.5	32.2	11.4	24.4
10	27.2	20.4	26.9	12.1	19.9
17	13.6	14.9	0.0	0.7	7.4
19	19.5	0.0	---	1.6	6.5
20	23.3	0.0	---	0.0	2.2

S5TYPE-6 is another pattern which is efficient at Fargo but not at Winnipeg. It depicts a low just north of the RRR and a high toward the southeast, producing a confluent flow over the basin. The position of the zone of confluence suggests that a front may be located in the southern part of the basin. This feature may account for the production of more precipitation at Fargo than at Winnipeg. The forms of the patterns which are efficient at both Winnipeg and Fargo are consistent with expectations concerning 500 mb flows conducive to the formation of precipitation. Specifically, S5TYPE-14 portrays a closed

Table 5.33 S5TYPE seasonal and annual precipitation efficiencies, Fargo.

S5TYPE	Winter	Spring	Summer	Sumtran	Annual
15	942.8	468.1	0.0	859.8	553.3
8	781.7	387.6	222.1	478.7	490.6
18	1157.5	387.6	---	159.8	446.3
14	1016.0	584.2	---	94.8	434.1
4	336.2	296.5	258.1	333.6	378.0
13	445.8	228.1	136.6	211.1	262.3
2	179.3	146.3	212.2	158.9	203.6
9	136.3	142.0	144.9	325.4	200.2
6	145.5	220.8	0.0	257.2	198.0
16	189.4	175.5	35.0	131.4	136.0
12	42.7	53.2	73.2	86.8	83.0
11	162.5	29.2	0.0	127.1	69.9
7	59.3	100.5	207.5	42.4	61.9
1	58.6	35.5	63.9	39.5	50.9
10	70.7	51.6	39.3	9.5	39.4
5	15.8	33.0	46.4	19.0	39.1
3	38.5	12.4	36.4	13.9	21.2
20	0.0	12.4	---	21.0	14.0
19	34.8	0.0	---	2.8	9.9
17	6.3	5.5	0.0	0.0	2.9

low, and S5TYPEs 2, 4, 8, 9, 13, 16, and 18 have the RRR beneath the eastern side of an upper-level trough.

Winnipeg and Fargo each have six S5TYPEs with PE values lower than 50, with five patterns common to both lists. Three of these patterns (17, 19, and 20) are especially inefficient, with PEs less than 15. The pressure-pattern configurations of these very dry patterns are each quite different. S5TYPE-17 shows ridging pushing into the RRR from the southwest, S5TYPE-19 has the RRR west of a large trough, and S5TYPE-20 depicts an upper-level high

Table 5.34 S5TYPE seasonal and annual percentages of total precipitation on non-MSNG and non-NOTYP days, Winnipeg (* efficient).

S5TYPE	Winter	Spring	Summer	Sumtran	Annual
2	25.6*	19.0*	43.0*	40.9*	34.3*
1	44.1	15.4	42.4	20.3	30.3
4	1.9*	24.6*	1.8*	10.7*	9.0*
8	6.0*	9.1*	0.3*	8.7*	5.9*
9	2.2*	5.4*	1.7*	5.7*	3.8*
3	9.2	2.3	2.5	1.2	3.4
13	1.1*	6.4*	0.9	4.0*	3.0*
5	0.9	3.8	2.9	2.1	2.4
7	2.1	3.0	1.6*	1.8	2.1
6	1.9	3.9*	0.0	1.3	1.5
12	0.8	0.8	1.7	1.4	1.2
18	0.9*	2.9*	---	0.4*	0.9*
14	1.5*	1.7*	---	0.3*	0.7*
16	0.0	0.7*	0.8*	0.5	0.5*
11	1.1	0.3	0.0	0.5*	0.4
10	0.4	0.4	0.3	0.1	0.3
19	0.1	0.0	---	0.0	0.0
17	0.1	0.2	0.0	0.0	0.0
15	0.2	0.0	0.0	0.0	0.0
20	0.0	0.0	---	0.0	0.0

over the basin.

5.3.3 SMTYPE Precipitation Characteristics

The PE values for SMTYPEs at Winnipeg and Fargo are shown in Tables 5.36 and 5.37. The seasonal and annual percentages of precipitation brought by each pattern are listed in Tables 5.38 and 5.39. As with the B500 and S500 synoptic types, it can be seen that patterns which occur

Table 5.35 S5TYPE seasonal and annual percentages of total precipitation on non-MSNG and non-NOTYP days, Fargo (* efficient).

S5TYPE	Winter	Spring	Summer	Sumtran	Annual
2	24.7*	23.4*	52.0*	38.3*	37.1*
1	30.3	12.0	33.9	16.3	23.0
4	2.4*	18.3*	2.2*	11.3*	8.5*
8	10.5*	9.1*	0.3*	10.1*	7.1*
6	4.0*	9.0*	0.0	6.9*	4.8*
13	2.1*	4.3*	1.2*	3.8*	2.9*
3	8.0	1.5	2.8	1.4	2.9
9	1.9*	2.9*	1.1*	4.3*	2.7*
7	2.9	3.7*	1.4*	1.4	2.1
12	0.5	2.2	1.6	2.6	1.9
5	0.4	1.8	2.9	0.6	1.5
18	2.4*	4.8*	---	0.3*	1.5*
15	2.7*	2.0*	0.0	1.0*	1.2*
14	3.1*	2.5*	---	0.3	1.1*
16	0.7*	1.0*	0.1	0.8*	0.6*
11	1.9*	0.4	0.0	0.4*	0.5
10	1.1	1.0	0.4	0.1	0.5
17	0.0	0.1	0.0	0.0	0.0
19	0.3	0.0	---	0.0	0.0
20	0.0	0.1	---	0.0	0.0

often produce relatively large proportions of the precipitation recorded at Winnipeg and Fargo, but these patterns are not necessarily efficient.

Ten of eleven patterns efficient at Winnipeg are also efficient at Fargo, where a total of thirteen SMTYPEs are efficient. Only SMTYPE-15 is efficient at Winnipeg but not at Fargo. It has a low-pressure centre just to the east of the RRR. Its position suggests that the pattern might be giving the northern part of the basin more precipitation from warm-front activity than it is giving to the southern

Table 5.36 SMTYPE seasonal and annual precipitation efficiencies, Winnipeg.

SMTYPE	Winter	Spring	Summer	Fall	Annual
9	379.0	376.3	317.3	397.0	360.1
20	320.3	277.5	230.0	345.4	288.5
12	137.5	128.5	251.3	233.2	280.4
29	493.8	103.6	162.5	185.9	204.7
14	208.4	125.9	166.2	151.0	171.1
28	121.1	184.0	227.0	148.6	167.6
1	201.2	154.5	118.4	165.5	145.9
17	205.0	153.0	129.4	181.8	145.4
27	151.2	107.9	129.3	176.0	133.1
15	133.3	85.3	208.8	160.0	118.9
3	151.1	99.3	106.1	196.0	117.0
22	24.9	70.0	93.5	30.7	88.4
5	89.6	69.4	62.4	172.9	73.6
2	61.4	59.1	83.1	49.2	71.5
21	106.4	24.9	59.7	73.5	66.9
4	72.1	62.7	71.1	27.5	66.5
6	57.9	76.7	71.3	45.3	59.9
10	94.5	28.4	58.4	87.7	53.0
24	124.6	30.1	0.0	74.3	45.1
8	19.1	4.6	32.1	22.2	34.6
26	51.6	27.1	22.9	71.4	30.8
25	14.4	63.0	24.4	7.7	29.7
11	40.9	17.8	15.2	99.9	28.1
18	97.4	19.4	5.9	55.0	26.7
13	17.9	22.8	24.0	26.4	25.1
7	38.3	7.7	1.9	56.6	15.3
19	17.4	12.4	13.3	19.3	13.6
16	25.7	12.7	15.3	10.3	13.5
23	9.6	10.5	12.6	17.9	12.0

part of the basin.

Three SMTYPEs (5, 21, and 22) that are inefficient precipitators at Winnipeg are efficient at Fargo. SMTYPE-5 has Winnipeg closer than Fargo to the centre of a northern high, SMTYPE-21 places Winnipeg in relatively close proximity to a high located in southern Saskatchewan while

Table 5.37 SMTYPE seasonal and annual precipitation efficiencies, Fargo.

SMTYPE	Winter	Spring	Summer	Fall	Annual
9	737.3	441.6	295.1	614.2	422.9
12	124.6	114.5	250.2	231.5	276.9
17	211.6	210.5	149.6	376.5	201.3
20	74.8	89.1	193.8	158.0	185.8
3	347.7	164.7	150.4	316.2	185.7
22	22.9	104.9	163.3	146.2	165.7
14	57.2	84.2	189.4	17.1	150.4
27	33.9	97.0	155.9	242.4	147.7
29	100.6	67.4	125.9	91.0	146.3
1	110.1	119.9	142.7	108.9	138.9
21	96.6	26.0	127.4	154.7	128.6
28	42.2	178.8	145.7	69.2	108.4
5	144.0	93.3	95.0	204.8	101.8
15	72.5	149.4	48.5	83.7	70.3
8	15.8	50.2	56.9	35.1	64.2
2	41.8	43.8	57.3	35.5	49.3
6	64.8	49.4	49.6	60.7	48.6
13	8.4	48.2	54.7	14.8	46.9
25	16.3	5.2	43.0	112.8	45.0
24	219.1	0.0	18.1	29.5	44.3
7	101.2	17.1	14.4	77.2	29.3
4	19.6	17.4	29.7	24.2	28.0
26	67.0	26.5	11.7	50.4	25.0
23	51.6	28.3	21.4	19.9	24.0
16	73.8	28.2	6.4	36.1	22.2
10	30.7	17.2	29.5	12.7	16.4
19	11.2	11.6	22.4	14.7	16.2
18	35.8	7.7	8.7	15.9	10.4
11	27.1	1.3	8.4	4.2	7.2

Fargo is closer to a large, weak low southwest of the basin, and SMTYPE-22 shows a large high west of the basin, with a low toward the south. Thus, the PE values for these three patterns seem to be higher at Fargo than at Winnipeg because Fargo is closer to low pressure systems.

The most efficient pattern at both stations is SMTYPE-

Table 5.38 SMTYPE seasonal and annual percentages of total precipitation on non-MSNG and non-NOTYP days, Winnipeg (* efficient).

SMTYPE	Winter	Spring	Summer	Fall	Annual
1	18.1*	24.6*	4.0*	12.8*	16.6*
9	6.8*	18.9*	8.9*	9.4*	11.1*
12	2.6*	3.7*	15.7*	4.9*	10.3*
3	9.8*	8.7	5.9*	13.3*	8.0*
2	6.3	2.7	10.2	7.7	7.8
5	10.0	9.2	3.4	8.6*	6.0
20	3.2*	5.6*	6.4*	6.5*	6.0*
4	4.5	3.8	7.7	2.8	5.8
6	4.3	5.1	4.4	5.1	4.6
29	1.6*	1.0*	4.7*	2.3*	3.2*
17	4.1*	5.6*	2.0*	2.7*	3.1*
14	3.5*	1.7*	3.3*	1.8*	2.7*
10	6.4	0.8	1.1	5.9	2.2
15	3.9*	1.2	1.4*	2.8*	1.8*
28	1.5*	1.2*	1.8*	2.2*	1.7*
22	0.3	0.9	2.5	0.6	1.7
27	1.1*	1.5*	1.3*	1.5*	1.4*
8	0.5	0.1	2.1	0.6	1.3
21	1.2*	0.2	1.2	0.9	0.9
26	1.8	1.0	0.3	1.3	0.7
11	1.3	0.5	0.4	1.8	0.7
18	2.7	0.5	0.1	1.7	0.6
13	0.4	0.3	0.7	0.7	0.6
19	0.8	0.3	0.3	0.4	0.4
7	1.2	0.2	0.0	1.0	0.3
16	0.6	0.3	0.2	0.1	0.2
24	1.4*	0.0	0.0	0.4	0.2
25	0.1	0.3	0.1	0.0	0.1
23	0.1	0.1	0.1	0.2	0.1

9. On an annual basis it produces about four times as much precipitation as one would expect according to its frequency. At Winnipeg its PE value is relatively constant throughout the year, ranging from 317 in summer to 397 in fall, but at Fargo it is substantially more efficient during winter (PE=737) and fall (PE=614) than during spring

Table 5.39 SMTYPE seasonal and annual percentages of total precipitation on non-MSNG and non-NOTYP days, Fargo (* efficient).

SMTYPE	Winter	Spring	Summer	Fall	Annual
1	9.9*	19.1*	16.9*	8.4*	15.8*
9	13.2*	22.2*	8.3*	14.5*	13.1*
3	22.5*	14.5*	8.4*	21.5*	12.7*
12	2.4*	3.3*	15.7*	4.9*	10.1*
5	16.0*	12.4	5.1	10.2*	8.4*
2	4.3	2.0	7.0	5.6	5.4
17	4.2*	7.6*	2.3*	5.6*	4.3*
20	0.7	1.8	5.4*	3.0*	3.9*
6	4.9	3.3	3.0	6.8	3.8
22	0.3	1.3*	4.3*	2.7*	3.1*
4	1.2	1.1	3.2	2.4	2.4
14	1.0	1.1	3.7*	0.2	2.4
8	0.4	0.8	3.6	0.9	2.3
29	0.3*	0.7	3.6*	1.1	2.3*
21	1.0	0.2	2.6*	1.8*	1.8*
27	0.3	1.4	1.6*	2.1*	1.5*
28	0.5	1.1*	1.1*	1.0	1.1*
13	0.2	0.6	1.6	0.4	1.1
15	2.1	2.1*	0.3	1.5	1.1
10	2.1	0.5	0.6	0.8	0.7
26	2.3	1.0	0.2	0.9	0.6
7	3.3*	0.4	0.2	1.4	0.6
19	0.5	0.3	0.5	0.3	0.4
16	1.6	0.6	0.1	0.5	0.3
18	1.0	0.2	0.1	0.5	0.3
23	0.5	0.4	0.2	0.2	0.2
25	0.1	0.0	0.2	0.5*	0.2
11	0.9	0.0	0.2	0.1	0.2
24	2.4*	0.0	0.0	0.2	0.2

(PE=441) and summer (PE=295). The pattern depicts a large low with its centre almost directly south of the RRR. It occurs most frequently during the spring, but is quite common throughout the year.

The remaining SMTYPEs which are efficient at both locations are types 1, 3, 12, 14, 17, 20, 27, 28, and 29.

Aside from SMTYPE-9, three types (12, 20, and 29) at Winnipeg and two types (12 and 17) at Fargo have annual efficiencies greater than 200. Not surprisingly, each of these efficient patterns displays a low-pressure area directly over or very close to the RRR.

Neither is it surprising that the SMTYPEs which are inefficient precipitators at Winnipeg and Fargo portray high-pressure areas in close proximity to the RRR. For example, the most inefficient pattern at Winnipeg (PE=12) and the sixth most inefficient pattern at Fargo (PE=24), SMTYPE-23, puts an anticyclone directly over the RRR. So, too, does SMTYPE-11, the most inefficient pattern at Fargo (PE=7) and the seventh most inefficient type at Winnipeg (PE=28).

A very interesting difference between SMTYPEs at Winnipeg and Fargo is that the PE values for the efficient SMTYPEs at Winnipeg are much more consistent from season to season than they are at Fargo. At Winnipeg, only 2 of 44 seasons associated with the 11 types that are efficient on an annual basis have PE values below 100, but at Fargo 16 of 52 seasons associated with 13 efficient patterns have PEs that indicate inefficiency, most of them in the winter and spring. It is not clear why there should be such a large difference in the Winnipeg and Fargo seasonal PEs, but it may be related to the principal tracks of cyclones that move across the region. Klein's (1957) work reported in Chapter

2 indicates that lows pass through or north of the northern part of the region more often than they do through the southern part of the region. This may mean that Winnipeg is more consistently within the precipitation-inducing part of cyclones than is Fargo, simply because Winnipeg tends to be closer to the low-pressure centres. Furthermore, this might explain why Winnipeg gets more precipitation than does Fargo.

5.4 SUMMARY

The primary goal of this chapter was to assess the temperature and precipitation characteristics of B500 (BIG 500 mb), S500 (SMALL 500 mb), and SMSL (SMALL MSL) synoptic patterns at Winnipeg and Fargo. ANOVA was used to show that at least some of the patterns in each group produce significantly different mean daily temperature departures, and the Tukey-Kramer means comparison test was used to identify which patterns, when compared to each other, can be considered to produce significantly different mean departures. Standard deviations associated with the mean departures were observed to be moderately large but relatively equal amongst all patterns. The chi square test indicated that some synoptic patterns tend to produce

precipitation more often than do others, and the concept of precipitation efficiency was utilized to identify which patterns produce proportionally more or less precipitation than expected from their frequencies of occurrence.

Annually averaged mean daily temperature departures produced by B5TYPEs at Winnipeg and Fargo range from about 5°C above normal to about 4°C below normal. Mean departures for SMTYPEs range from about 6°C above normal to about 3°C below normal at Winnipeg, and from about 5°C above normal to about 4°C below normal at Fargo, while mean departures for SMTYPEs range from about 3°C warmer than normal to about 6°C cooler than normal at Winnipeg and from about 4°C above normal to about 6°C below normal at Fargo. Seasonally average mean departures for the synoptic types are, for the most part, consistent with their annually averaged departures, although less so with those patterns with very low frequencies and with those whose annual departures are near 0°C. The departures calculated for Winnipeg and Fargo are generally quite similar for individual patterns, especially with the B500 and S500 types. The SMSL patterns exhibit more differences between Winnipeg and Fargo departures than do the 500 mb patterns, which is logical since the SMSL types are more directly linked to boundary layer phenomena such as clouds and fronts than are upper-level patterns.

Overall, the apparent direction of the wind that a

synoptic pattern produces over the RRR seems to be highly correlated with the nature of the temperature departure that results within the RRR. Those patterns that produce warmer than normal temperatures within the RRR appear to be related to winds coming from the south, the southwest, or the west, while those that cause colder than normal temperatures appear to be associated with winds coming from the north or northwest. Hence, by representing large-scale air mass attributes, the synoptic patterns seem to be able to 'explain' much of the thermal conditions observed within the RRR, even without considering synoptic details such as cloud cover, frontal boundaries, surface conditions, or radiative processes.

The precipitation characteristics of synoptic patterns also seem to be captured quite well by the synoptic types. B500 and S500 types that produce disproportionately large amounts of precipitation at Winnipeg and Fargo can be generalized as those patterns that place the RRR beneath the eastern portion of an upper-level trough, where basic principles of dynamical meteorology dictate that upper-level divergence promotes low-level convergence and cloud formation. The 500 mb patterns that bring disproportionably small amounts of precipitation to Winnipeg and Fargo are those that put the RRR beneath the eastern side of an upper-level ridge, where subsidence inhibits cloud formation near the surface. Furthermore, the SMSL types that are efficient

precipitators for Winnipeg and Fargo are those that have the RRR beneath or in close proximity to a low-pressure system, while inefficient precipitators are those that have the RRR affected by high-pressure systems. These generalizations, too, are consistent with basic principles of dynamical meteorology.

Thus, at least some of the B500, S500, and SMSL synoptic types have significantly different effects on the temperature and precipitation conditions observed at Winnipeg and Fargo. Most produce qualitatively similar conditions at both locales but some patterns, and in particular some from the SMSL group, result in quite different conditions at the two cities.

The next chapter compiles the thermal and precipitation characteristics that have been reported in this chapter. It does so for the major synoptic patterns, and summarizes this information for months representing the standard climatological seasons.

6. RED RIVER REGION SYNOPTIC CLIMATOLOGY

This chapter compiles and summarizes the synoptic climatological information presented in the previous chapters. It does so by identifying the temperature departures and precipitation efficiencies (PEs) of the B500, S500, and SMSL synoptic patterns which are major contributors to the synoptic regimes of the standard climatological seasons of winter, spring, summer, and fall in the RRR. Because they are common to the natural B500, S500, and SMSL seasons identified in the previous chapters, the months of January, April, July, and October are used to represent the four standard seasons. Those synoptic patterns which occur on at least 5% of the days of these months are considered major synoptic patterns, but other patterns are discussed where it is deemed appropriate to do so. One should keep in mind that these discussions focus upon average frequencies and average weather conditions which are associated with substantial amounts of variation. Nevertheless, these averages are appropriate for describing the major synoptic controls of the RRR's climate. Also, the reader is again directed to Appendix A for maps of the synoptic patterns, and graphs of their monthly frequencies, seasonal mean temperature departures, and seasonal

precipitation efficiencies.

6.1 WINTER

Table 6.1 summarizes the frequency and weather characteristics of the major winter synoptic patterns. It shows that B5TYPE-1 and S5TYPE-1 dominate the 500 mb flows, with B5TYPE-1 occurring on over 43% of January days and S5TYPE-1 on over 50% of the days. Both of these patterns portray nearly zonal flows, with a slight inclination toward west-northwesterly flows over the RRR. B5TYPE-1 produces positive temperature departures at Winnipeg (+2.2^{o}C) and Fargo (+2.6^{o}C), while S5TYPE-1 results in temperatures which deviate only slightly from normal. However, the standard deviations of the mean temperature departures for these two types are quite large (i.e. 7^{o}C and more), as they are with all winter types, indicating that wide ranges of thermal conditions occur with these patterns. Neither pattern has an exceptionally high or low precipitation efficiency, but because they occur so frequently they both account for very large portions of the precipitation which falls at Winnipeg and Fargo in January. For example, 53% of Fargo's January precipitation is associated with B5TYPE-1, and 44% of Winnipeg's January precipitation comes from S5TYPE-1.

Table 6.1 Summary of January weather conditions at Winnipeg (top value) and Fargo (bottom value) for major B500, S500, and SMSL synoptic types.

Type	% of non-MSNG days	mdT (s.d.)[a]	PE[b]	% of Total[c] Precipitation
B5TYPE-1	43.4	2.2 (7.6)	106.4	49.0
		2.6 (7.0)	73.0	53.4
B5TYPE-2	23.4	-4.3 (6.6)	68.5	12.5
		-4.1 (6.8)	86.2	15.7
B5TYPE-5	15.3	-2.4 (6.5)	50.6	6.8
		-3.5 (6.8)	54.7	7.3
S5TYPE-1	50.6	-0.2 (7.9)	88.5	44.1
		0.5 (7.6)	58.6	30.3
S5TYPE-3	20.5	-1.3 (6.7)	45.9	9.2
		-2.3 (6.9)	38.5	8.0
S5TYPE-2	11.4	2.1 (8.1)	192.6	25.6
		2.8 (7.5)	179.3	24.7
SMTYPE-2	11.1	6.7 (7.1)	61.4	6.3
		5.5 (6.6)	41.8	4.3
SMTYPE-5	9.2	-6.1 (5.3)	89.6	10.0
		-4.8 (6.2)	144.0	16.0
SMTYPE-1	7.8	2.4 (6.6)	201.2	18.1
		3.1 (6.2)	110.1	9.9
SMTYPE-6	7.1	1.4 (6.4)	57.9	4.3
		0.8 (6.3)	64.8	4.9
SMTYPE-10	6.9	4.8 (5.9)	94.5	6.4
		4.4 (6.2)	30.7	2.1
SMTYPE-3	6.7	-1.2 (6.8)	151.1	9.8
		-0.7 (6.3)	347.7	22.5
SMTYPE-4	6.1	0.7 (7.7)	72.1	4.5
		-0.5 (7.3)	19.6	1.2

Notes: (a) mdT = mean departure (^{o}C) from long-term mean daily temperature; s.d. = standard deviation.

(b) PE = precipitation efficiency for natural season winter, using all non-MSNG and non-NOTYP days.

(c) total precipitation calculated from all non-MSNG and non-NOTYP days in natural season winter.

The second most common B500 pattern is B5TYPE-2, which occurs on more than 23% of January days. It is the coldest of all the winter B5TYPEs, bringing temperatures 4.3°C below normal to Winnipeg and 4.1°C below normal to Fargo in January. This is because the pattern portrays a large trough that is drawing cold arctic air deep into the continental interior, including the RRR. The PE values associated with the pattern show that it is somewhat inefficient at Winnipeg (PE=68) and Fargo (PE=86).

Another major January B500 pattern is B5TYPE-5. It occurs on about 15% of January days. Like B5TYPE-2, it too draws cold arctic air into the RRR from the north, and results in negative temperature departures at Winnipeg (-2.4°C) and Fargo (-3.5°C), but unlike B5TYPE-2 this pattern has a large ridge near the west coast of the continent. Only around the RRR are the circulations of the two patterns very similar. However, B5TYPE-5 is also an inefficient precipitator, with PE values of about 50 at Winnipeg and Fargo.

No other B5TYPEs occur on more than 5% of January days, but it is worth noting that B5TYPEs 4 and 11 are substantial contributors to winter precipitation at Winnipeg and Fargo. The two patterns together account for over 16% of Winnipeg's winter precipitation and over one-quarter of Fargo's winter precipitation. Both patterns have deep troughs west of the RRR, and thereby place the region beneath an upper-level

configuration which is usually conducive to the formation of low-level convergence and precipitation.

S5TYPE-3 occurs on about 20% of January days and is the second most frequent winter S5TYPE. The pattern causes negative temperature departures at Winnipeg (-1.3°C) and Fargo (-2.3°C) and the PE values at both stations are lower than 50. The coldness that this type brings to the RRR can be attributed to its associated northwesterly winds, and its dryness is probably related to the placement of the RRR beneath the western side of an upper-level trough. Upper-level convergence usually occurs at this location in an upper-level trough, and this convergence translates into subsidence towards the surface. This process, of course, tends to inhibit the formation of cloud and precipitation.

The only other S5TYPE that occurs on more than 5% of January days is S5TYPE-2. It accounts for about 11% of January patterns and depicts a west-southwesterly flow over the RRR. Consequently, it is associated with positive temperature departures at Winnipeg (+2.1°C) and Fargo (+2.8°C). The pattern is a very efficient precipitator, having PE values of 192 at Winnipeg and 179 at Fargo, and it brings about 25% of the region's winter precipitation. Unlike S5TYPE-3, this pattern places the RRR beneath the eastern side of an upper-level trough, which is a zone of upper-level divergence that often induces low-level convergence and the formation of precipitation.

Although it is not a major S5TYPE according to its frequency, it is perhaps prudent to note that another significant contributor to RRR winter precipitation is S5TYPE-8, especially at Fargo, where it accounts for over 10% of the precipitation. This has a trough west of the RRR and brings much above average temperatures to Winnipeg (+9.0°C in February) and Fargo (+8.5°C in February).

No SMTYPEs dominate the winter synoptic regime. The most common type in January is SMTYPE-2, representing only about 11% of all January daily patterns. Temperatures associated with this pattern are much above normal at Winnipeg (+6.7°C) and Fargo (+5.5°C). This is because the pattern places the RRR beneath a large trough that is drawing air into the region almost directly from the south. Since this is a relatively dry pattern at Winnipeg (PE=61) and Fargo (PE=41), frontal activity associated with this pattern is probably located north of the RRR, putting the region in the usually dry, warm sector of the cyclonic system.

SMTYPE-5, comprising a large high to the northwest of the RRR and a low toward the southwest, is the second most frequent January SMTYPE, accounting for about 9% of all January daily patterns. This pattern shows a cold arctic air mass moving into the RRR, and producing temperature departures of -6.1°C at Winnipeg and -4.8°C at Fargo. It may be surprising that this anticyclonic pattern is an

efficient precipitator at Fargo (PE=144), but an explanation for this is that these cold-core highs very often induce frontal activity at their leading edges. Hence, the front seems to be affecting Fargo, but not Winnipeg, where the PE value is only 89. The frequencies of this pattern increase from 9.2% in January to about 13% in February, March, April, and May, and then drop to about 5% for the remainder of the year. Thus, these cold arctic highs are most common during late winter and spring.

The third most frequent SMTYPE in January is type 1, which occurs on about 8% of all days, and depicts a low west of the RRR and a high toward the east. This configuration creates generally southerly flow into the RRR, for the temperature departures associated with it are positive at Winnipeg (+2.4^{o}C) and Fargo (+3.1^{o}C). Warm front activity in the northeast quadrant of the low probably explains the high PE values at Winnipeg (PE=201).

SMTYPE-6, which occurs on about 7% of January days, is the fourth most common January surface pattern. It causes above normal temperatures at Winnipeg (+1.4^{o}C) and Fargo (+0.8^{o}C) in January, but it must be noted that only during the months of January and February does this pattern produce positive departures. Throughout the rest of the year it results in temperatures about 1 or 2^{o}C below normal. The reason for this difference is unclear. The pattern has a low-pressure area east of the RRR, and a large high-pressure

area toward the west, so one would indeed expect it to draw cold air into the RRR. The PE values for this pattern are about 60 at Winnipeg and Fargo. This dryness is probably related to the advance of the high pressure area into the region as the low withdraws toward the east.

SMTYPE-10 places the RRR in the southeast quadrant of a large low. It accounts for about 7% of January daily patterns. Southerly winds likely produce the high positive temperature departures at Winnipeg (+4.8°C) and Fargo (+4.4°C). The pattern is a slightly inefficient precipitator at Winnipeg (PE=94) and quite inefficient at Fargo (PE=30), where anticyclonic curvature ahead of the low is evident in the isobars of the type keyday map.

SMTYPE-3 accounts for almost 7% of January days. This pattern is very similar to SMTYPE-5, for it has a large high northwest of the RRR that is bringing cold air into the RRR. This results in negative temperature departures at Winnipeg (-1.2°C) and Fargo (-0.7°C). The pattern also has a low-pressure area just to the southeast of the RRR, and this results in a very high PE value at Fargo (PE=347) and a relatively high one at Winnipeg (PE=151). Thus, even though it is quite infrequent, this pattern brings a rather large proportion (22%) of Fargo's winter precipitation.

The final SMTYPE which occurs on more than 5% of January days is SMTYPE-4. It accounts for slightly more than 6% of January daily patterns and produces near normal

temperatures at Winnipeg (+0.7°C) and Fargo (-0.5°C). Winds in the RRR appear to be southerly. The pattern is associated with PE values of 72 at Winnipeg and 19 at Fargo. The low PE value at Fargo seems to be related to Fargo's proximity to a large high southeast of the RRR, while Winnipeg is more under the influence of a trough located west of the region.

In summary, the winter 500 mb flows affecting the RRR are very much dominated by just a few patterns which bring air masses into the region from the west and northwest. Three B500 and three S500 patterns account for over 80% of all January patterns in their respective groups. The temperatures associated with the major upper-level patterns are highly variable, but are warmest when they are associated with flows from the west or south and coolest with flows from the north. The precipitation efficiencies of the most common 500 mb patterns are generally quite low, but because they occur so frequently the patterns are major contributors to the region's total winter precipitation. In general, 500 mb patterns with troughs west of the RRR (or ridges toward the east) are efficient precipitators while those with troughs toward the east (or ridges toward the west) are inefficient. Winter-season MSL patterns are not dominated by a few patterns, but are represented by a much greater variety of pressure configurations that are, in general, associated with anticyclonic and cyclonic systems

moving into the region from the north or west. The seven most frequent SMSL patterns represent approximately 54% of all January patterns. Only about 60% of the region's precipitation is brought by these seven SMTYPEs, so a substantial portion of the region's total winter precipitation is brought by relatively infrequent patterns. Cyclonic isobaric configurations clearly bring more precipitation to the RRR than do anticyclonic patterns.

6.2 SPRING

The frequencies and weather characteristics of the major synoptic types of April are summarized in Table 6.2. B5TYPE-1 still dominates the B500 regime, but its frequency has dropped from 43% in January to 38% in April. The pattern again brings positive temperature departures to Winnipeg (+0.5^{o}C) and Fargo (+0.9^{o}C), but these are slightly less than those observed in January. The spring PE values associated with this nearly zonal pattern are also somewhat less than observed in winter, being 66 at Winnipeg and 70 at Fargo. Accordingly, the percentage of precipitation that B5TYPE-1 brings to the RRR drops from about 50% in winter to less than 30% in spring. The standard deviations associated with spring synoptic patterns are substantially less

Table 6.2 Summary of April weather conditions at Winnipeg (top value) and Fargo (bottom value) for major B500, S500, and SMSL synoptic types.

Type	% of non-MSNG days	mdT (s.d.)[a]	PE[b]	% of Total[c] Precipitation
B5TYPE-1	38.5	0.5 (5.1)	66.2	26.0
		0.9 (4.8)	69.8	28.2
B5TYPE-3	9.9	3.2 (5.6)	74.2	8.0
		2.3 (5.1)	82.9	9.2
B5TYPE-2	8.9	-4.0 (4.5)	60.7	3.9
		-3.6 (3.8)	70.5	4.7
B5TYPE-5	7.3	-3.9 (4.0)	47.5	3.1
		-4.2 (3.3)	20.3	1.4
B5TYPE-4	6.8	0.4 (4.3)	208.0	16.6
		0.9 (4.1)	220.1	18.1
B5TYPE-11	5.2	0.9 (4.8)	130.4	4.7
		0.6 (4.2)	233.5	8.7
S5TYPE-1	32.5	-1.2 (5.7)	47.8	15.4
		-0.5 (5.2)	35.5	12.0
S5TYPE-2	16.1	1.8 (4.9)	124.3	19.0
		2.4 (4.8)	146.3	23.4
S5TYPE-3	11.3	-2.4 (4.5)	19.5	2.3
		-2.9 (3.8)	12.4	1.5
S500-NOTYP	8.4	1.4 (4.3)	-----	----
		0.3 (4.4)	-----	----
SMTYPE-1	15.4	2.1 (4.4)	154.5	24.6
		1.9 (4.2)	119.9	19.1
SMTYPE-5	11.6	-6.1 (4.4)	69.4	9.2
		-2.2 (4.6)	93.3	12.4
SMTYPE-3	8.8	-3.1 (4.5)	99.3	8.7
		-2.6 (3.8)	164.7	14.5
SMTYPE-6	6.9	-1.3 (3.9)	76.7	5.1
		-1.3 (3.6)	49.4	3.3
SMTYPE-4	6.3	5.8 (4.6)	62.7	3.8
		5.0 (4.7)	17.4	1.1
SMTYPE-9	6.0	1.8 (4.2)	376.3	18.9
		1.8 (4.7)	441.6	22.2

Notes: (a) mdT = mean departure (^{o}C) from long-term mean daily temperature; s.d. = standard deviation.

(b) PE = precipitation efficiency for natural season spring, using all non-MSNG and non-NOTYP days.

(c) total precipitation calculated from all non-MSNG and non-NOTYP days in natural season spring.

than those of winter, indicating that the coupling between upper-level flows and thermal conditions at the surface is more direct in spring than in winter. The same comparison to winter holds true for summer and fall (sumtran) patterns as well. Surface temperatures in winter may be more variable than those in other seasons because the temperatures of the air mass source regions are more different in winter and upper-level circulations are strong enough in winter to cause vigorous air mass interplay (Kendall and Anderson, 1966). It follows, then, that surface temperatures in seasons other than winter, and summer in particular, may be less variable because the temperatures of the air masses which affect the RRR are more similar and mixed to a lesser degree by weaker upper-level flows.

The observed drop in the relative importance of B5TYPE-1 in spring is not matched by a jump in the importance of any one other pattern. Indeed, no other B5TYPE occurs on more than 10% of April days, but a total of five other patterns each occur on more than 5% of the days. For example, the frequency of B5TYPE-2, which was the second most common winter B500 pattern, drops from 23% to less than 9%. Thus, the negative temperature departures that this large trough brings to Winnipeg ($-4.0^{o}C$) and Fargo ($-3.6^{o}C$) are still quite common in spring, but much less so than in winter. It remains a relatively dry pattern, with PE values

of 60 at Winnipeg and 70 at Fargo.

The frequency of B5TYPE-5, which was the third most common B500 pattern in winter, drops considerably from January to April, from 15% to 7%. Temperature departures are negative at Winnipeg (-3.9°C) and Fargo (-4.2°C), as they were in winter, and the pattern remains an inefficient precipitator, with PE values less than 50.

The second most frequent spring B5TYPE was not a major pattern in winter. This is B5TYPE-3, which shows ridging well into the interior of the continent, including the RRR. The air moving over the RRR can be traced to an area over the Pacific at about latitude 40°N, so it is not surprising that this pattern results in above normal temperature departures at Winnipeg (+3.2°C) and Fargo (+2.3°C). Neither is it surprising that this ridge pattern is an inefficient precipitator at Winnipeg (PE=74) and Fargo (PE=82).

Another major B5TYPE of spring which was not a major pattern of winter is B5TYPE-4. It occurs on almost 7% of April days and has a very deep trough west of the RRR that penetrates far into the American southwest. Since the RRR is under the eastern side of the trough, positive temperature departures are observed in Winnipeg (+0.4°C) and Fargo (+0.9°C), and its PEs for the cities are very high. The PE at Winnipeg is 208 and that at Fargo is 220. Consequently, this pattern is associated with almost 20% of the RRR's spring precipitation.

The final major spring B500 pattern is B5TYPE-11, which occurs on just over 5% of April days. This pattern also has a trough to the west of the RRR, so it too produces above normal temperatures in Winnipeg (+0.9°C) and Fargo (+0.6°C) and more than efficient precipitation amounts, especially at Fargo. The PE for Winnipeg is 130 and Fargo's is 233. The higher PE in Fargo seems to be related to a small closed low that appears on the type's keyday map but not on its mean map. This small upper-level low might be associated with a lee-side low (i.e. a Colorado Low) moving across the northern Great Plains.

The only other B5TYPE which occurs on more than 5% of a spring-season month is the NOTYP B500 pattern, in May. The NOTYP S500 patterns also occur on more than 5% of the days of May, and March and April as well. As was discussed in earlier chapters, this implies that the spring is a rather unsettled period, subject to rapidly changing and complex synoptic situations.

The most common January S500 pattern, S5TYPE-1, is also the most frequent April pattern, and like B5TYPE-1 its contribution to RRR precipitation drops substantially from winter to spring, from 44% to 15% at Winnipeg and from 30% to 12% at Fargo. It remains a slightly colder than normal pattern for Winnipeg (-1.2°C) and Fargo (-0.5°C), due to its west-northwesterly winds.

The second most frequent winter S500 type, S5TYPE-3,

occurs on about 11% of April days, which is about one-half of its January frequency. The northwesterly flow of this pattern again causes temperatures to be below normal at Winnipeg (-2.4°C) and Fargo (-2.9°C). This type is even more inefficient as a precipitator in spring (PE less than 20) than in winter (PE above 40).

The southwesterly flows associated with S5TYPE-2 increase in frequency from about 11% in winter to 16% in spring. As was the case in winter, it typically results in temperatures about 2°C above normal. It is responsible for about 20% of spring precipitation, which is slightly less than its winter contribution.

The frequency of the most common spring SMTYPE is much lower than the frequencies of the most common 500 mb patterns. SMTYPE-1, which has a low to the west of the RRR and a high toward the east, is the most frequent pattern in spring, occurring on approximately 15% of all days. This is about twice its rate of occurrence in winter. It produces about 20-25% of the RRR's spring precipitation and temperatures about 2°C greater than normal.

SMTYPE-5 is again the second most frequent SMSL pattern, being recorded on about 12% of all spring days, which is slightly less than its winter frequency. It was an efficient precipitator at Fargo but not at Winnipeg in winter. In spring it is slightly inefficient at Fargo (PE=93) and remains inefficient at Winnipeg (PE=69). As in

winter, colder than normal temperatures are produced at both of the RRR stations, but the negative departures in April are much greater at Winnipeg (-6.1°C) than at Fargo (-2.2°C). It again seems that the cold air mass that this pattern pushes into the RRR from the north has not yet fully penetrated the southern part of the basin.

SMTYPE-3, which accounts for about 9% of spring days and shows a high moving into the region from the north, is associated with April weather that is similar to that which it produces in January. Negative temperature departures are observed at Winnipeg (-3.1°C) and Fargo (-2.6°C) and lower PE values occur at Winnipeg (PE=99) than at Fargo (PE=164). However, the spring temperatures are a couple of degrees colder than those observed in winter, and the spring PEs are only about one-half of those in winter. This difference might be due to the spring pattern moving faster than the winter pattern, thereby bringing the cold air near the centre of the arctic high into the region more quickly and reducing the amount of precipitation that can be left by the cyclonic system ahead of the high.

SMTYPE-6 is the fourth most frequent spring SMSL pattern, occurring on about 6% of all spring days. The northwesterly winds associated with a low moving out of the region bring Winnipeg and Fargo temperatures that are about 1°C below normal and weather that is generally quite dry.

The final two relatively important spring SMSL patterns

are SMTYPEs 4 and 9. SMTYPE-9 is not a major pattern at any other time of the year. Both types represent about 7% of all spring SMTYPEs, and both cause warmer than normal temperatures in the RRR. However, SMTYPE-4 produces temperature departures of +5.8°C at Winnipeg and +5.0°C at Fargo, while SMTYPE-9 only causes departures about 2°C above normal. Only in April and May does SMTYPE-4 produce positive departures as high as 5°C. Throughout the rest of the year it is associated with temperatures only about 2 or 3°C greater than normal. Both patterns result in warmer than normal temperatures because they place the RRR in generally southerly flows. However, with SMTYPE-9 the RRR is in the northeast quadrant of a large low, while in SMTYPE-4 it is in the northwest quadrant of a large high. A consequence of this is that the PE values for SMTYPE-9 are very high at Winnipeg (PE=376) and Fargo (441), but much lower for SMTYPE-4, being 62 at Winnipeg and only 17 at Fargo. Hence, SMTYPE-9, which might be a very strong Colorado Low, is a significant contributor to spring-season precipitation in the RRR, bringing about 20% of its total.

To summarize, then, the spring-season 500 mb regime is dominated by a few synoptic patterns, but not to the same extent as is the winter. Six B500 patterns account for about 80% of all April B5TYPEs, and four S500 types, including the unclassified patterns of the NOTYP category, represent about 70% of the April S5TYPEs. Patterns which

bring ridging over or near the RRR are more common in spring than in winter, indicating the shift from the trough-dominated winter regime toward the more zonal summer regime. Thus, the season can be described as one of transition. The six major B5TYPEs are relatively inefficient precipitators, bringing only about 60% of the RRR's spring precipitation. The important S5TYPEs are also associated with low PEs, hence, relatively infrequent 500 mb patterns bring a substantial amount of the region's precipitation. The propensity for 500 mb patterns to bring precipitation is again seen to be related to the position of troughs and ridges relative to the RRR. To reiterate, troughs to the west favour precipitation and ridges to the west inhibit it. Also, as in winter, the temperature conditions that the B500, S500, and SMTYPE patterns bring to the RRR appear to be highly correlated to the apparent wind directions over the RRR. Furthermore, the frequency distribution of spring MSL patterns is quite uniform, with the six most common patterns accounting for about 55% of all patterns and about 70% of all precipitation. However, two patterns, SMTYPEs 1 and 9, contribute about 40% of the total precipitation even though they together only occur on about 20% of all spring days. Not surprisingly, both of these patterns have cyclonic systems affecting the RRR. Finally, patterns which show cold arctic highs moving into the region from the north are more common in spring than in winter. This is

consistent with statements made in earlier chapters that spring is the season when northern air makes its deepest penetration into the southern part of the continent.

6.3 SUMMER

Table 6.3 lists the frequencies and weather characteristics of the major synoptic patterns of July. It shows that an important change occurs in summer, this being a large increase in the frequencies of B5TYPE-1 and S5TYPE-1, the nearly zonal 500 mb flows. B5TYPE-1 increases in frequency from 38% in April to 63% in July, while the frequency of S5TYPE-1 increases from 32% to 54%. Both patterns are associated with temperatures that deviate no more than $1^{o}C$ below normal and PE values less than 100. It is quite clear that the increase in the frequencies of these two patterns is a result of the breakdown of the North American trough of the winter regime and its replacement with a more zonal situation. This allows more warm and relatively dry air masses to stream eastward from the western part of the continent, in contrast to winter, when many cold air masses move into the central part of the continent from the north. Furthermore, B5TYPE-3, which depicts ridging over the west-central part of the

Table 6.3 Summary of July weather conditions at Winnipeg (top value) and Fargo (bottom value) for major B500, S500, and SMSL synoptic types.

Type	% of non-MSNG days	mdT (s.d.)[a]	PE[b]	% of Total[c] Precipitation
B5TYPE-1	63.7	-0.1 (3.1)	90.0	59.0
		0.0 (3.1)	87.4	55.7
B5TYPE-3	12.8	1.5 (3.2)	62.3	6.8
		1.1 (3.1)	68.2	7.1
S5TYPE-1	54.0	-0.9 (3.1)	77.4	42.4
		-0.7 (2.9)	63.9	33.9
S5TYPE-2	24.0	1.9 (2.8)	169.7	40.9
		2.2 (2.8)	212.2	52.0
S5TYPE-3	7.5	-1.8 (2.6)	32.2	2.5
		-3.3 (3.0)	36.4	2.8
S5TYPE-5	6.8	1.7 (2.8)	44.2	2.5
		1.2 (2.3)	46.4	2.9
SMTYPE-2	12.1	0.8 (2.7)	83.1	10.2
		0.9 (2.5)	57.3	7.0
SMTYPE-4	11.0	2.4 (2.9)	71.1	7.7
		2.0 (2.8)	29.7	3.2
SMTYPE-1	9.2	1.0 (2.8)	118.4	4.0
		1.0 (2.7)	142.7	16.9
SMTYPE-8	8.9	-1.3 (2.6)	32.1	2.1
		-1.2 (2.8)	56.9	3.6
SMTYPE-12	8.2	2.4 (2.8)	251.3	15.7
		2.5 (2.9)	250.2	15.7
SMTYPE-6	6.3	-1.8 (2.6)	71.3	4.4
		-2.3 (2.3)	49.6	3.0
SMTYPE-3	5.1	-2.8 (2.8)	106.1	5.9
		-1.9 (3.0)	150.4	8.4

Notes: (a) mdT = mean departure (^{o}C) from long-term mean daily temperature; s.d. = standard deviation.

(b) PE = precipitation efficiency for natural season summer, using all non-MSNG and non-NOTYP days.

(c) total precipitation calculated from all non-MSNG and non-NOTYP days in natural season summer.

continent and flows of western origin over the RRR, is the only other B5TYPE which occurs on more than 5% of July days. It typically results in temperatures about 1°C above normal and is an inefficient precipitator at Winnipeg (PE=62) and Fargo (PE=68). S5TYPE-2, which is the second most common S500 pattern, accounting for 24% of July days, also brings warmer than normal temperatures by producing a southwesterly flow over the RRR. As it is in all other seasons, S5TYPE-2 is an efficient precipitator, with PE values of 169 at Winnipeg and 212 at Fargo, and therefore brings 40-50% of the RRR's summer precipitation.

The third and fourth most common S5TYPEs occur much less frequently than do S5TYPEs 1 and 2. S5TYPEs 3 and 5 each occur on about 7% of July days. Both are inefficient precipitators, with PEs less than 50, but S5TYPE-3 results in below normal temperatures and S5TYPE-5 causes above normal temperatures. The trough depicted in S5TYPE-3 brings cold northern air into the RRR, and causes negative temperature departures at Winnipeg (-1.8°C) and Fargo (-3.3°C), as it did in winter and spring. S5TYPE-5, which was not a major pattern in winter or spring, is another summer 500 mb pattern that has a ridge affecting the region. As a result, it produces above normal temperatures in Winnipeg (+1.7°C) and Fargo (+1.2°C).

It is interesting that the most frequent summer SMTYPE is also the most frequent winter SMTYPE. This is SMTYPE-2,

which occurs on about 12% of July days and places a large trough over the RRR. It is not an important pattern in spring. It is also interesting that in winter it produces temperatures much above normal (i.e. about +6°C) but in summer it results in positive departures less than 1°C. Winter lows and troughs tend to be much deeper than those in summer, so the difference in the magnitude of the departures may be a result of very strong advection of southern air into the RRR in winter compared to that which occurs in summer. As in winter, the pattern is not an efficient precipitator.

The second and third most frequent summer SMTYPEs are SMTYPEs 4 and 1, which each represent about 10% of July daily patterns. By producing winds from the south, these patterns result in temperatures of 2°C and 1°C above normal, respectively. As in the previous seasons, SMTYPE-4 is an inefficient precipitator, especially at Fargo (PE=29), where its anticyclonic curvature is greater than that at Winnipeg. SMTYPE-1, with a low moving into the region from the west, is again efficient at both Winnipeg (PE=118) and Fargo (PE=142).

SMTYPE-8 is the fourth most common SMTYPE. It is recorded on almost 9% of July days. Only in summer is this a major pattern. It shows a low, or a trough, northeast of the RRR and a high toward the west, and produces generally westerly winds in Winnipeg and Fargo. It brings

temperatures about 1°C below normal and is associated with PEs of 32 at Winnipeg and 56 at Fargo. It is, therefore, quite a dry pattern, due to the influence of the western high.

As with the previous type, SMTYPE-12 is only a major pattern in summer. It occurs on about 8% of July days. It has a high, or ridge, east of the RRR and a low-pressure area moving into the region from the west. Winds into the RRR come from the southeast and the pattern produces temperatures of about 2.5°C greater than normal at both Winnipeg and Fargo. This is a very efficient precipitator at Winnipeg (PE=251) and Fargo (PE=250), and brings almost 16% of the cities' summer precipitation.

The final two important summer SMTYPEs are types 6 (6%) and 3 (5%). As in winter and spring (except for SMTYPE-6 in winter), both patterns result in temperatures about 2 or 3°C below normal, as highs toward the west of the RRR draw northern air into the region. The cyclonic system southeast of the RRR again results in SMTYPE-3 being a more efficient precipitator at Fargo (PE=150) than at Winnipeg (PE=106), and SMTYPE-6 continues to be moderately inefficient at both stations.

In summary, the summer synoptic regime is markedly different from the winter and spring regimes, especially in the upper-atmosphere. Particularly noteworthy is that nearly zonal or ridge-associated flows very much dominate

the 500 mb synoptic types and that a very few patterns account for large proportions of all days. Over 75% of all July days are represented by only two B5TYPEs, and over 90% of all days are accounted for by only four S5TYPEs. Both B5TYPEs and three of the four S5TYPEs portray nearly zonal or anticyclonic flows. Northerly upper-level flows over the RRR are, therefore, not nearly as important in summer as they were in winter and spring. This is expected, since the North American trough weakens and shifts toward the east with the advent of summer. About 65% of summer precipitation is associated with the two most common B5TYPEs and over 80% of the total is contributed by the two most frequent S5TYPEs. Neither of the major B5TYPEs and only one of the major S5TYPEs is an efficient precipitator. As in the previous seasons, SMSL patterns are not dominated by only a few configurations, but over 60% of the daily July patterns are represented by seven major patterns, making summer the least diverse SMSL season. Three of the seven major summer SMTYPEs are efficient precipitators, but since only about 45% of all summer precipitation is brought by the seven major types, it is clear that many infrequent patterns contribute substantial amounts of precipitation. Cold highs north of the RRR appear to be less prevalent than in the previous two seasons, while warm highs toward the south appear to occur more frequently. This is expected given that upper-level ridging is more common in summer than in

winter and spring.

6.4 FALL

Table 6.4 summarizes the frequencies and weather characteristics of the major October synoptic types. The important fall 500 mb flows over the RRR are not nearly as zonal as they are in summer, and are quite similar to those that are major patterns in spring, the other transitional season. In fact, the five B5TYPEs that occur on more than 5% of October days also occur on more than 5% of April days. B5TYPE-1 and S5TYPE-1 are again the most frequent B500 and S500 patterns, but their frequencies are not as high as they were in summer. They do, however, occur more often than they did in spring. B5TYPE-1 and S5TYPE-1 are observed on 51% and 37% of October days, respectively. With fewer of these nearly zonal patterns occurring, it is not surprising, then, that meridional circulations are more common in fall than in summer. The trough-dominated patterns (B5TYPEs 5, 4, and 2, and S5TYPE-3) are each major fall circulations, showing that the North American trough is becoming more prevalent as winter approaches. However, ridging is still relatively common in the central part of the continent, as indicated by the frequencies of B5TYPE-3 (11%) and S5TYPE-2

Table 6.4 Summary of October weather conditions at Winnipeg (top value) and Fargo (bottom value) for major B500, S500, and SMSL synoptic types.

Type	% of non-MSNG days	mdT (s.d.)[a]	PE[b]	% of Total[c] Precipitation
B5TYPE-1	51.1	0.3 (4.1)	76.0	39.1
		0.4 (4.3)	78.1	40.5
B5TYPE-3	11.2	3.8 (4.6)	66.3	7.1
		3.5 (4.6)	58.8	6.3
B5TYPE-5	7.6	-3.6 (3.0)	34.0	1.6
		-4.4 (3.5)	18.1	0.9
B5TYPE-4	5.9	-0.8 (4.7)	217.0	18.1
		0.4 (5.1)	277.9	23.4
B5TYPE-2	5.8	-5.4 (3.6)	82.8	5.9
		-5.5 (3.8)	61.8	4.4
S5TYPE-1	37.1	-0.8 (4.3)	48.5	20.3
		-0.5 (4.4)	39.5	16.3
S5TYPE-2	22.4	2.3 (4.6)	168.0	40.9
		3.1 (4.5)	158.9	38.3
S5TYPE-3	14.0	-2.6 (3.7)	11.4	1.2
		-3.6 (3.8)	13.9	1.4
SMTYPE-2	17.0	1.7 (3.9)	49.2	7.7
		1.8 (3.7)	35.5	5.6
SMTYPE-4	12.1	2.7 (4.6)	27.5	2.8
		2.1 (4.8)	24.2	2.4
SMTYPE-6	10.1	-2.2 (3.4)	45.3	5.1
		-2.6 (3.3)	60.7	6.8
SMTYPE-1	7.9	2.2 (4.4)	165.5	12.8
		2.6 (4.7)	108.9	8.4
SMTYPE-3	6.3	-3.3 (3.0)	196.0	13.3
		-3.1 (3.1)	316.2	21.5

Notes: (a) mdT = mean departure (^{o}C) from long-term mean daily temperature; s.d. = standard deviation.

(b) PE = precipitation efficiency for natural season fall (or sumtran), using all non-MSNG and non-NOTYP days.

(c) total precipitation calculated from all non-MSNG and non-NOTYP days in natural season fall (or sumtran).

(22%). This indicates that the summer regime remains present to some degree in October. As is the case in spring, B5TYPE-4 and S5TYPE-2 are very efficient precipitators, bringing about 20 and 40% of the RRR's fall precipitation, respectively. Temperature departures associated with the 500 mb patterns are again very much related to the direction of the wind that they produce over the RRR, and are consistent with those observed in the other seasons.

One interesting difference between the fall and spring synoptic regimes is that the most frequent fall SMTYPE, type 2, is not a major pattern in spring. In fact, the pattern is least common in spring, occurring on about 4% of the days, and most common in fall, when it represents about 12-17% of daily patterns (considering all fall months). It is observed about 5% more often in fall than in summer and winter. The difference between the fall and spring frequencies may be due to the high-pressure area over the southwestern part of the map. This may be a warm-core high associated with a subtropical high that has pushed far to the north at the end of the warm season. Such highs are known to occur in fall because these are the systems that help spawn the hot, dry Santa Ana winds of southern California. These winds are not usually observed in spring.

The second most frequent fall SMSL pattern is SMTYPE-4. It occurs on about 12% of October days and places the RRR in

the northwest quadrant of a high, with a low toward the northwest. Consequently, this configuration brings warm southern air into the region, resulting in positive temperature departures at Winnipeg (+2.7°C) and Fargo (+2.1°C). The anticyclonic curvature of the isobars over the RRR cause weather that is quite dry, with PEs less than 30.

SMTYPE-6 is the third most frequent fall surface pattern, occurring on about 10% of October days. As it did in spring and summer, the combination of a low east of the RRR and a high (ridge) toward the southwest produces a northerly flow into the RRR and negative temperature departures at Winnipeg (-2.2°C) and Fargo (-2.6°C). Its PE values at Winnipeg and Fargo indicate that it is a fairly dry pattern in fall, as it was in the other three seasons.

SMTYPE-1 is the most common SMTYPE in spring, occurring on about 15% of April days, but it is only the fourth most frequent fall pattern, occurring on about 8% of October days. With a low west of the RRR and a high toward the east, this pattern produces warmer than normal temperatures at Winnipeg (+2.2°C) and Fargo (+2.6°C). As was observed in the earlier seasons, the pattern is an efficient precipitator, but more so at Winnipeg (PE=165) than at Fargo (PE=108).

The final surface pattern that occurs on more than 5% of fall days is SMTYPE-3. Northerly winds induced by a

large high northwest of the RRR and a cyclonic system toward the southeast cause below normal temperatures at Winnipeg (-3.3°C) and Fargo (-3.1°C). Once again the cyclonic system clearly affects Fargo more than it does Winnipeg, for the PE value at Fargo is 316 while that at Winnipeg is only 196. More fall precipitation is associated with this pattern than is associated with any of the other SMTYPEs. At Winnipeg it brings just over 13% of the precipitation but at Fargo it contributes more than 21%.

Fall, then, is a season of transition, much like spring. The nearly zonal and anticyclonic upper-level flows of summer begin to be replaced by more meridional patterns which bring cool northern air into the central part of the continent, including the RRR, leading up to the strongly meridional North American trough circulation of winter. In general, the 500 mb flows are more varied than they are in summer and winter, but slightly less varied than they are in spring. About 70% of fall precipitation is brought by the five major B5TYPEs, and about 60% is brought by the three major S5TYPEs. Only five surface patterns occur on more than 5% of October days, and these patterns together only account for about 40% of all the precipitation that falls in this season. No other season has such a small percentage of its precipitation associated with its major patterns. Being a transitional season, it is not surprising that the pressure patterns represented by the major SMTYPEs are very

difficult to generalize. However, it is again apparent that wind directions determine the nature of temperature departures, that high precipitation efficiencies at Winnipeg and Fargo are related to proximity to zones of cyclonic activity at the surface, and that low PE values are related to anticyclonic activity at the surface.

6.5 SUMMARY

In the previous chapter it was shown that differences in the mean temperature departures produced by the 500 mb and MSL pressure patterns are for the most part statistically significant, and are related to air mass trajectories over the RRR. It was also shown that some of the patterns produce fractions of the RRR's total precipitation which are disproportionate to their relative frequencies of occurrence. This indicates that precipitation potential seems largely to be a function of the rate and direction of vertical motion in the atmosphere.

This chapter identified the patterns which are major contributors to the synoptic regimes of months representative of the standard climatological seasons, it examined the characteristics of the weather that they produce at Winnipeg and Fargo, and it attempted to explain

these characteristics in more detail than was given in Chapter 5. It was shown that the latitudinal origin of the air being advected into the RRR, either at the 500 mb level or at the surface, is indeed a very important control of the direction and magnitude of the temperature departures observed in the RRR. Not surprisingly, winds which originate from some direction toward the north generally bring colder than normal temperatures to the RRR and those which originate from a southerly direction are generally associated with warmer than normal temperatures. Westerly winds typically result in slightly positive departures. Easterly winds are not common.

It was also shown that the 500 mb patterns that place zones of upper-level divergence over the RRR are usually efficient precipitators in the RRR, while those that put the RRR beneath zones of upper-level convergence generally contribute relatively small proportions of the RRR's total precipitation. From basic principles of dynamical meteorology, it was assumed that upper-level divergence occurs beneath the eastern half of an upper-level trough (or the western half of a ridge) and that convergence occurs beneath the western half of an upper-level trough (or the eastern half of a ridge). It was quite evident that cyclonic MSL pressure patterns are much more efficient precipitators than are anticyclonic systems. Indeed, even slight cyclonic or anticyclonic curvature in the isobaric

configurations seems to have a substantial effect on the precipitation efficiency of the surface patterns. As a result, the precipitation efficiencies of a particular MSL pattern can be very different at Winnipeg and Fargo when the isobaric curvatures over the two cities differ even slightly. The temperature departures at Winnipeg and Fargo, on the other hand, are almost always very similar. Nevertheless, the departures associated with some patterns do suggest that a frontal boundary has affected one of the cities but not the other.

Very importantly, this chapter showed that the synoptic regimes of the climatological seasons are quite distinct. The 500 mb flows of winter and summer are especially different from each other. Deep upper-level troughs over the west-central part of North America are a common occurrence in winter, but in summer they are almost completely replaced by nearly zonal and ridge-associated flows. This is in complete agreement with standard climatological descriptions of the North American climate. Spring and fall are easily recognized as transitional seasons, having quite diverse synoptic activity, especially at the surface. MSL pressure patterns are not dominated by only one or two patterns, as are the 500 mb patterns, so it is very difficult to generalize the kinds of MSL pressure patterns which affect each of the seasons. However, the frequencies of the major SMSL patterns verify that more

frequent incursions of northern air into the RRR occur during winter than summer, and that more frequent advection of southern air toward the north occurs in summer than in winter.

Now that the weather conditions of the synoptic patterns and the synoptic characteristics of the major seasons have been shown to be quite distinct, the thesis will next investigate the potential applicability of this kind of synoptic information to applied problems. Specifically, Chapter 7 will examine the contribution that this synoptic information makes to the understanding of RRR floods.

7. SURFACE-PRESSURE PATTERNS AND RED RIVER FLOODS

This chapter presents a preliminary survey of the information that this synoptic climatology may contribute to knowledge of Red River floods. However, a full, comprehensive study of this topic has not been undertaken and this remains an avenue of future work that may evolve from this thesis. A setting for this applied study is provided in the first part of the chapter, by means of introductory outlines of the history and meteorological causes of Red River floods. The chapter then presents the discriminant analysis that is used to identify the SMSL patterns whose frequencies are important for distinguishing years with low Red River discharges at Emerson, Manitoba, during April, from years with high April discharges. The weather characteristics associated with these SMSL patterns are then compared to the kinds of fall, winter, and spring weather known to cause low and high flows at Emerson during April. Finally, conclusions are made regarding the ability of SMSL frequencies to represent temperature and precipitation conditions at the surface.

7.1 FLOOD HISTORY

Red River floods are capable of causing massive amounts of damage and disruption. A case in point was the spring flood of 1950 which inundated over 1600 square kilometres of cropland in southern Manitoba, flooded 10,500 homes in Winnipeg, forced the evacuation of more than 100,000 people, and caused the payout of about $30 million in damages (United States Geological Survey, 1952). The cost of the damage may have exceeded $100 million (Rannie, 1980). The city of Winnipeg has since been protected by a massive and costly flood control system (Rannie, 1980) that is designed to protect the city from 160-year flood conditions. In addition, ring dykes designed for 100-year flood conditions have been built around the towns and villages in the valley south of Winnipeg. However, these measures by no means ensure that these settlements are safe from flood disasters in the future. Indeed, Booy and Morgan (1985) point out that there is a 27% chance that a 160-year flood will be exceeded in a 50-year period, and that the probability of a 100-year flood being exceeded in a 50-year period is 39%.

One of the reasons why the 1950 flood did so much damage in Winnipeg and elsewhere in the RRR was that residents of the valley had been lulled into a false sense of security by a long period without major floods. There had been a flood event in the valley in 1948, but this was

the first flood recorded since 1916 (Clark, 1950). From records of peak flood stages kept almost continuously at Winnipeg since 1875, floods prior to 1916 are known to have occurred in 1882, 1893, 1897, and 1904, but all of these events were small compared to three events that affected the valley in the early to middle part of the nineteenth century. Reconstructions from historical accounts indicate that the flood peaks at Winnipeg in 1826, 1852, and 1861 have not since been matched. The 1826 flood was particularly bad (Bumstead, 1986), and apparently produced peak flows at Winnipeg that were over twice as high as those observed in the disastrous flood of 1950.

Post-1950 Red River floods have been recorded in 1965, 1966, 1969, 1974, 1975, 1978, 1979, and 1989. Thus, floods have been much more common in the latter half of this century than they were in the first half, giving rise to the possibility that Red River floods are not serially independent, but susceptible to temporal clustering (Booy and Morgan, 1985). It is beyond the scope of this thesis to determine if there are any temporal fluctuations in the frequencies of B500, S500, and SMSL that can be used to explain long-term fluctuations in the magnitude of Red River floods. The limited objective of this chapter is to examine the general differences between the synoptic conditions of the flood and non-flood years of 1947-82. These comparisons are presented in section 7.3.

7.2 METEOROLOGICAL FACTORS

The Red River floods being discussed here are those occurring during the spring thaw. Only on rare occasions have floods been recorded at times other than when the winter snowpack melts and flows through the basin. The meteorological factors that aid in the creation of large spring flows have been well documented (e.g. Clark, 1950) and are summarized below:

1. Wet weather in fall;
2. Cold weather before the first significant snowfalls of winter;
3. Heavy snowpacks persistent into late winter;
4. A late and rapid spring melt;
5. Heavy rain over large parts of the basin during river break-up.

Wet weather in the fall contributes to spring flooding by storing water in the ground, marshes, lakes, and low-lying areas of the basin, thereby reducing the ability of the basin to absorb snowmelt water in spring. The flood potential is further enhanced if wet fall weather is followed by prolonged cold weather before the first snows of winter cover the ground. This cold weather locks the fall precipitation into the ground, and causes the ground to freeze to a relatively great depth, thus delaying both the spring thaw and subsequent soil absorption of meltwater. Heavy snowfall during winter, especially in its latter part,

contributes to the flood potential by producing a snowpack that acts as a reservoir of water which will be released when warm weather arrives in spring. If this warm weather arrives later than normal it tends to cause very rapid melting, with above freezing temperatures during the night as well as the day. A normal spring melt tends to proceed quite slowly because significant melting does not occur during the night, when temperatures fall below $0^{o}C$. Finally, large amounts of rain during the break-up of the Red and its tributaries can greatly aggravate the flood problem.

Any one of these meteorological factors alone would not normally produce a Red River flood, nor does this depend on the occurrence of all of these conditions. Nevertheless, the worst floods are generally produced in those years when all the conditions described above are observed to some degree over significant portions of the basin. This was the case in 1950, and there is evidence that the conditions leading to the floods of 1826 were similar to those in 1950 (Red River Basin Investigation, Water Resources Division, 1953). Also, it must be emphasized that no flood will ever occur if water is not present in relatively large quantities. Hence, the amount of precipitation that falls on the Red River basin before and during the flood season is certainly much more important in determining the size of spring flows than is the thermal regime of the same period.

7.3 SYNOPTIC CHARACTERISTICS

The previous section outlined the meteorological conditions that contribute to the development of spring-season Red River floods. This section applies discriminant analysis to select variables representing the frequencies of non-MSNG and non-NOTYP SMSL pressure patterns in each of the six months immediately preceding April, in order to determine the synoptic conditions that are associated with flood and non-flood events at Emerson in April. April flows are used because April is one of the two months when spring floods normally peak in the RRR, the other being May. SMSL frequencies for April are excluded to allow a more detailed investigation of synoptic conditions prior to the flood-period. Surface-pressure patterns are used because the mean temperature departures and precipitation efficiencies associated with the SMSL patterns are more distinct than those associated with the 500 mb patterns. It was, therefore, anticipated that these patterns would best be able to produce a model that successfully discriminates Red River flows of different magnitudes.

The discharge at Emerson, located at the border separating Manitoba from North Dakota (Fig. 2.1), is used to represent the magnitude of Red River flows because the hydrology at, and upstream of, this part of the river is relatively free from human modification compared to points

further downstream, such as Winnipeg. Monthly mean discharges are used to represent the magnitude of the spring discharges because they effectively distinguish non-flood years from flood years and because this information was easily available in published form.

The mean April discharges at Emerson for 1947-82 are listed in Table 7.1. The range of mean discharges is very large. In April of 1981 the average discharge was only 51.2 cubic metres per second (cms), but in April of 1966 it was 1300 cms. The largest flow is not associated with the 1950 flood because the flood that year peaked in May. Table 7.1 also indicates that mean flows below 200 cms are classified as low and that those above 650 are considered to be high. All others are intermediate. These categories were derived subjectively, by examining the distribution and identifying apparent natural breaks that create two groups of extremes with approximately equal numbers. With the classification indicated, seven of the nine flood years of 1947-82 are included in the high-flow category. In total there are 10 observations in the low category, and 17 and 9 in the intermediate and high categories, respectively. Years with intermediate April flows are not included in the discriminant analysis because the goal is to identify and emphasize differences in the synoptic regimes leading up to low- and high-flow Aprils only.

Keables (1988) has asserted that few hydrological

Table 7.1 Mean Red River discharges (cubic metres per second) and flow categories at Emerson, Manitoba, during April, 1947-82.

Year	Mean discharge	Flow category
1947	505.0	Intermediate
1948	704.0	High
1949	417.0	Intermediate
1950	751.0	High
1951	556.0	Intermediate
1952	486.0	Intermediate
1953	115.0	Low
1954	165.0	Low
1955	300.0	Intermediate
1956	361.0	Intermediate
1957	167.0	Low
1958	94.3	Low
1959	171.0	Low
1960	468.0	Intermediate
1961	73.4	Low
1962	418.0	Intermediate
1963	222.0	Intermediate
1964	240.0	Intermediate
1965	708.0	High
1966	1300.0	High
1967	720.0	High
1968	138.0	Low
1969	825.0	High
1970	544.0	Intermediate
1971	410.0	Intermediate
1972	677.0	High
1973	76.7	Low
1974	548.0	Intermediate
1975	367.0	Intermediate
1976	494.0	Intermediate
1977	59.5	Low
1978	1020.0	High
1979	698.0	High
1980	287.0	Intermediate
1981	51.2	Low
1982	625.0	Intermediate
Mean	437.8	
Maximum	1300.0	
Minimum	51.2	

Source: Environment Canada, 1987.

studies have investigated the long-term relationship between climate and streamflow, and very few have incorporated synoptic information. Of course, daily synoptic patterns have often been used to explain the weather that occurred during or just prior to floods, (Red River Basin Investigation, 1953), and this is especially true of flash floods (Huff, 1978; Maddox et al., 1979), but relatively few studies have looked at the relationship between non-flash floods and the synoptic conditions in the weeks and months prior to the floods. Notable exceptions are the works of Chin et al. (1975), Knox et al. (1975), Hirschboeck (1975), and Keables (1988) related to the synoptic climatology of streamflows and flooding in the Upper Mississippi Valley. In general, these studies found that non-flash flood events in the Mississippi Valley are associated with meridional circulation patterns that result in abnormally high frequencies of cyclones over the basin. The investigations of Knox et al. (1975) and Hirschboeck (1975) are interesting because they too examined the relationships between the frequencies of daily circulation patterns and the magnitudes of flood events. However, their studies used upper-level patterns, not surface patterns.

Discriminant analysis is a technique that forms linear combinations of independent (predictor) variables to classify cases into one of two or more groups. In the analysis performed here the predictor variables are monthly

percentage frequencies of SMSL patterns in each of the six months immediately preceding April. For example, one predictor variable is the percentage frequency of SMTYPE-1 in October (%OctSM-1) and another is the percentage frequency of SMTYPE-1 in March (%MarSM-1). The groups are the low and high-flow categories of April flows at Emerson. Discriminant analysis is quite complex, but in simple terms it uses the variables entered into the model to calculate a linear discriminant function, similar to a regression equation, that is best able to separate observations into the groups that they have been indicated to belong to. Good descriptions of the procedure can be found in Klecka, (1980) and Norusis et al. (1988). The discriminant function is optimal if it classifies all observations into their correct groups. If it is less than optimal it misclassifies some cases. Of course, a function will have discriminatory power only if the variables entered into the model have some relationship to the groups specified. As with most multivariate techniques, the variables used in the procedure should be normally distributed and display equal amounts of variance. The variables used here are assumed to meet these criteria.

Before a discriminant function can be developed, one must decide which variables to enter into the model in order to maximise its discriminatory power. One should only include those variables that are known to be important for

group separation, and an initial task is to identify these variables. To expedite this, a version of discriminant analysis called stepwise discriminant analysis was employed. This calculates a discriminant function by selecting from a large set of variables only those variables that are significant contributors to group separation. All 174 variables representing the monthly percentage frequencies of the 29 non-MSNG, non-NOTYP SMSLs in the six months immediately preceding April were first entered as potential predictors. The stepwise technique identified and entered into the model only those variables that make a significant contribution to its discriminatory power. In order to be entered, and stay, in the model, a variable had to meet a criterion based on the significance of differences in group means, taking into account the number of variables already entered into the model, the amount of discrimination already achieved, the number of groups, and the number of observations in the data set. The criteria for entry and removal were both set to reflect a 95% confidence level.

The variable entered in the first step of the selection procedure was that which contributes most to discrimination, as indicated by an F-statistic that measures the significance of the differences between group means. In subsequent steps the variable selected from those not yet in the model was that which contributed most to the discriminatory power of the model. After each selection,

all variables entered into the model were reevaluated, and the variable contributing the least amount of discriminatory power to the model was checked to see if it met the criterion to stay. No variables were removed once they were selected.

The results of the variable selection procedure are summarized in Table 7.2. Only 16 of the 174 variables specifying monthly frequencies of SMSL patterns in the six months preceding April were found to be significant predictors for the discrimination of low- and high-flow conditions at Emerson in April. The Partial R^2 and Wilks' Lambda values associated with the last step of the procedure indicate that the model achieves a high level of discrimination. Partial R^2 approaches unity, and Wilks' Lambda approaches zero as a discriminant function nears optimality. It is noteworthy that none of the 19 low- and high-flow cases are misclassified when these 16 variables were used as predictors of them. Admittedly, the number of cases is rather small, but the success of the model strongly suggests that the synoptic information adequately represents the weather conditions of the RRR.

Table 7.3 lists the annually averaged mean daily temperature departures and the annual precipitation efficiencies associated with the 16 SMTYPEs selected as predictor variables. The temperature and precipitation data refer to conditions at Fargo, which is about 250 km

Table 7.2 SMTYPEs selected in the stepwise discriminant analysis and Partial R^2 and Wilks' Lambda associated with each step of the selection procedure.

Step	Variable Entered	Partial (R^2)	Wilks' Lambda
1	%DecSM-1*	0.39	0.61
2	%NovSM-5	0.31	0.42
3	%JanSM-11	0.35	0.27
4	%FebSM-12	0.39	0.17
5	%DecSM-3	0.52	0.08
6	%MarSM-18	0.30	0.06
7	%MarSM-7	0.53	0.03
8	%FebSM-24	0.52	0.01
9	%DecSM-4	0.58	0.01
10	%FebSM-13	0.65	0.00
11	%OctSM-5	0.82	0.00
12	%OctSM-10	0.77	0.00
13	%NovSM-27	0.77	0.00
14	%NovSM-18	0.89	0.00
15	%OctSM-23	0.91	0.00
16	%DecSM-19	0.98	0.00

* %DecSM-1 refers to the frequency of SMTYPE-1 pressure patterns in December, expressed as a percentage of non-MSNG, non-NOTYP SMSL patterns, etc.

south of Emerson. Also listed in the table are the mean values of the predictors in low- and high-flow years. For example, the table shows that the mean percentage frequency of SMTYPE-18 in March (%MarSM-18) is 2.9% in low-flow years and 2.2% in high-flow years. Finally, the table also includes the mean values of the predictor variables for the entire period of 1946-82 (e.g. the mean percentage frequency of SMTYPE-18s in March), and the mean values of the predictors in the low- and high-flow categories are

Table 7.3 Mean monthly frequencies and Fargo weather characteristics for the 16 SMTYPEs selected as predictors of low and high-flow conditions at Emerson.

Predictor[a] Variable	mdT[b]	PE[c]	Mean value of predictor[d] Low-flow years	High-flow years	All[e] years
%MarSM-18	-1.2	10.4	2.9 n	2.2 b	2.9
%MarSM-7	-3.1	29.3	2.9 b	2.5 b	3.3
%FebSM-12	3.2	276.9	1.1 b	1.6 b	1.7
%FebSM-24	-2.1	44.3	0.7 b	1.9 a	1.1
%FebSM-13	-2.2	46.9	2.5 a	0.4 b	1.8
%JanSM-11	-5.6	7.2	1.0 b	6.3 a	3.1
%DecSM-1	1.7	138.9	4.9 b	11.2 a	9.0
%DecSM-3	-2.0	185.7	5.5 b	6.9 a	6.4
%DecSM-4	2.1	28.0	7.5 b	5.1 b	8.5
%DecSM-19	-6.3	16.2	3.2 a	2.5 b	2.9
%NovSM-5	-2.9	101.8	2.7 b	9.1 a	4.7
%NovSM-27	-1.2	147.7	1.3 a	0.4 b	0.8
%NovSM-18	-1.2	10.4	4.0 a	3.4 b	3.5
%OctSM-5	-2.9	101.8	4.5 a	3.2 b	4.3
%OctSM-10	3.0	16.4	5.5 a	4.1 b	4.8
%OctSM-23	-3.0	24.0	1.0 b	1.9 a	1.6

Notes: (a) %DecSM-1 refers to the frequency of SMTYPE-1 pressure patterns in December, expressed as a percentage of non-MSNG, non-NOTYP SMSL patterns, etc.
(b) mdT is the annually averaged mean daily temperature departure (^{o}C).
(c) PE is the annual precipitation efficiency.
(d) a = above normal value
b = below normal value
n = normal value
(e) Normal value of predictor, based on 1946-82.

labelled to indicate whether they are above (a) or below (b) these long-term means.

Fourteen of the 29 SMSL patterns are represented among the predictors and two appear twice. SMSLs from each of the six months preceding April are included in the model. January is represented by only one pattern and December by four. Ten of the 16 predictors occur in October, November, and December, verifying that weather in late fall and early winter has a significant effect on the magnitude of the Red River flows in April.

By comparing the mean values of the predictors in low- and high-flow years, one finds that five dry SMTYPEs (7, 10, 13, 18, and 19) occur more often in the low-flow years than they do in the high-flow years, and that four wet SMTYPEs (1, 3, 5, and 12) occur more often in the high-flow years than they do in the low-flow years. Furthermore, SMTYPEs 3, 5, 11, and 24, which produce colder than normal temperatures in the RRR, occur more often in the high-flow years than they do in the low-flow years, and two warmer than normal patterns, SMTYPEs 4 and 10, occur more often in low-flow years than in high-flow years. These results indicate that cold and/or wet weather in the months preceding April are conducive to high Red River flows in April, and that warm and/or dry weather in the same period is conducive to low April flows. Only two of the predictors (%NovSM-27, and %OctSM-5) contradict these generalizations, which are in

good agreement with the meteorological factors described in the previous section. To recapitulate, wet weather in the months preceding the flood-season supplies water which will either promote or participate in overland flow, and cold weather throughout winter inhibits thawing in spring and helps the snowpack to persist into the melt season. Thus, the frequencies of relatively few SMSL patterns seem to have captured very well the important meteorological characteristics that determine whether Red River flows in April will be low or high.

It is not possible to generalize the pressure pattern configurations of the SMSLs selected as predictors. This is not surprising, for the sample on which the discriminant function is based is quite small, and can hardly be expected to be representative of all synoptic regimes which might produce low or high Red River discharges.

7.4 SUMMARY

This chapter presented a preliminary investigation of the value of synoptic information to the understanding of Red River floods. A discriminant model was derived that correctly classified each of the 19 low and high cases observed during 1947-82, based only on SMSL frequencies in

the six months preceding the flood season. The number of cases that this model was based upon is not very large, but the success of the model, even at this scale, does indicate that the weather conditions associated with the SMSL patterns are sufficiently distinct to allow the use of the patterns to reconstruct weather conditions at the surface. More importantly, perhaps, it has been shown that the SMSL patterns can be used to reconstruct, if only in categorical terms, the characteristics of environmental events that are affected by meteorological conditions.

It is tempting, therefore, to suggest that knowledge of SMSL frequencies might be used to forecast the magnitude or occurrence of a particular kind of environmental event, such as a flood. However, the results of this brief, exploratory study are certainly not definitive, and are in need of expansion and refinement. Recommendations for this and other forms of follow-up work are made in the following chapter.

THE SYNOPTIC CLIMATOLOGY OF THE RED RIVER REGION

by

Danny Ernest Blair

A thesis
presented to the University of Manitoba
in partial fulfillment of the
requirements for the degree of
Doctor in Philosophy
in
The Department of Geography
University of Manitoba

Winnipeg, Manitoba

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8. SUMMARY AND CONCLUSIONS

This chapter briefly reviews the methods and results of the work presented in this thesis. More detailed summaries can be found at the end of Chapters 3 through 7. Conclusions are made concerning the fulfilment of the research objectives stated in Chapter 1, and recommendations are made regarding further research.

8.1 SUMMARY

This study developed a synoptic climatology for the Red River Region (RRR) of Manitoba, North Dakota, South Dakota, and Minnesota. It did so by using a computer-assisted classification scheme (the Sums-of-Squares method) and gridded, numerical pressure data to classify each of the days of 1946-84 according to the type of pressure pattern over and around the RRR. Three different classifications were completed. Separate classifications were developed for 500 mb configurations at two different scales, one to represent conditions over a large area of North America west of the Great Lakes, and the other to define conditions over

a smaller area of west-central North America. The third classification identified MSL conditions over this same small area. MSL data were not available for 1983-84.

Eighteen large-area 500 mb (B500), 20 small-area 500 mb (S500), and 29 small-area MSL (SMSL) patterns were objectively chosen to represent the synoptic conditions which most frequently affect the RRR. The synoptic characteristics of these representative patterns were described and found to depict a large array of pressure configurations, indicative of the large amount of pressure pattern variability experienced in the RRR, and in central North America as a whole. Only a small percentage of the 1946-84 daily grids without missing data were not able to be classified into one of these representative synoptic types.

The monthly frequencies of the synoptic types clearly show that some patterns exhibit strong seasonal preferences. Consequently, these monthly frequencies were used in a cluster analysis to identify natural seasons, that is, times of the year when pressure patterns tend to be similar in form and relative frequency. Four natural seasons were identified for each synoptic category. B500 and S500 seasons were found to be identical, with winter comprised of November through March, spring of April and May, summer of July and August, and a transitional 'sumtran' season of June, September, and October. A reclassification of B500 and S500 patterns revealed, as expected, that winter upper-

level patterns tend to portray large troughs that bring arctic air to the central part of North America, while summer is normally very much dominated by zonal and ridge-associated patterns that cause westerly and southerly flows over and around the RRR. Thus, winter is the longest upper-level season and is very different in character from the relatively short summer. Months between winter and summer are transitional, exhibiting much more varied upper-level flows than do winter or summer months. In general, then, these seasons coincide quite well with the thermal seasons observed in the RRR, and with the standard climatological descriptions of seasonal changes in the upper-level environment.

According to SMSL frequencies, winter is only two months long (January and February), spring is three months long (March, April, May), summer is four months long (June, July, August, September), and fall is made up of October, November, and December. A reclassification of SMSL patterns based on their placement of highs and lows over or around the RRR showed that lows affect the region quite frequently at all times of the year, that highs over or north of the region are most common in winter and spring, and that lows are observed north of the RRR most often during fall. These findings are in agreement with the seasonal placement and migration of the polar front and its associated cyclonic and anticyclonic activity. Thus, even though the SMSL seasons

do not seem to match the thermal regimes of the RRR to the same degree as do the 500 mb seasons, they do capture the dynamics of the climate quite well.

The inter-diurnal persistence and transitional tendencies of the synoptic patterns were investigated using probability analysis. Almost all patterns were found to persist from one day to the next more often than expected by chance. Many transitions of one pattern into another were also found to occur more often than expected, but the probabilities are too low to be of any use in a forecasting application.

The weather that these synoptic types produce in the RRR was characterized by analyzing the weather records of Winnipeg, Manitoba, and Fargo, North Dakota. The temperature and precipitation characteristics of the synoptic types were represented by mean daily temperature departures and precipitation efficiencies, respectively. The mean daily temperature departure of a synoptic pattern refers to its tendency to produce above or below normal mean daily temperatures. The precipitation efficiency of a pressure pattern type is a measure of its precipitation production relative to its frequency of occurrence. The B500, S500, and SMSL groups each contain synoptic types that are associated with significantly different temperature departures and precipitation efficiencies. That is, some patterns are 'cold' and others 'warm', and some are 'dry'

and others 'wet'. The direction and magnitude of the temperature departures affiliated with the synoptic types is clearly determined by wind direction, and their potential for producing precipitation is related to the direction of vertical motion in the atmosphere. The weather characteristics associated with the SMSL patterns are more distinct than those related to the 500 mb patterns, which is as expected since surface patterns are more directly coupled to surface weather than are upper-level configurations. The temperature departures and precipitation efficiencies affiliated with individual patterns are quite consistent from season to season, and the weather conditions produced by the patterns at Winnipeg and Fargo are also quite similar, although there are some SMSL patterns that cause substantially different weather at the two cities.

Finally, discriminant analysis was used to show that the monthly frequencies of SMSL patterns in the months leading up to spring can be used in lieu of climate data to help explain the environmental conditions which produce high and low Red River discharges at Emerson, Manitoba, in April. This indicates that the weather conditions associated with the SMSL patterns are sufficiently distinct such that knowledge of the frequency of the various patterns allows one to reconstruct, to some degree, the weather conditions that occurred in the RRR.

8.2 CONCLUSIONS AND RECOMMENDATIONS

The primary objective of this dissertation was to contribute to the understanding of the synoptic climatology of the RRR. This has been done by the creation and analysis of a catalogue of 1946-84 daily 500 mb and MSL pressure patterns. Description and analysis of the daily patterns has shown that the RRR is subject to a large array of synoptic patterns, both at the surface and in the upper-atmosphere. Inter-seasonal differences in the frequencies of the synoptic patterns were highlighted to explain large shifts in the character of the weather experienced in the RRR (e.g. from winter to summer), and differences in the weather produced by the patterns were emphasized to help explain day-to-day weather variability. Importantly, to fulfil a secondary objective of the thesis, it was shown that synoptic information can be used to help explain an environmental process (i.e. flooding) largely controlled by meteorological conditions.

Many kinds of follow-up work can be recommended. Subjectivity was involved in some of the methodologies utilized in the thesis, thus, it might be prudent to check whether these subjective decisions had significant effects on results. For example, the thresholds chosen for use in the Sums-of-Squares classification technique were based on those used in other studies, and without prior knowledge of

their equivalent correlation coefficients. More stringent thresholds should be used to reclassify the synoptic patterns, and the results compared to those reported here. Subjectivity was also involved in the reclassification of synoptic patterns as troughs, ridges, etc.. A more rigorous reclassification should be conducted, and seasonal summaries updated accordingly. That is, it might be possible to develop a more concise classification of the synoptic patterns to facilitate better summaries of the kinds of patterns that occur in the different seasons.

There is much more that can and should be done with the synoptic catalogue developed for this thesis. Most importantly, perhaps, the amount of inter-annual variation in the synoptic regimes of the RRR should be investigated, and related to short-period climate fluctuations that occurred during 1946-84. This could help explain the causes of droughts and other locally experienced climatic anomalies, and perhaps help forecasters recognize their onset in the future. The 500 mb and MSL catalogues could also be used to explore the relationships between climatic anomalies in central and western North America and large-scale processes such as the El Nino-Southern Oscillation (ENSO) and the so-called greenhouse house effect. The associations between upper-level and surface pressure patterns should also be investigated by way of cross-tabulations.

In addition, it would be interesting to follow up on the exploratory assessment of the synoptic characteristics leading up to Red River flows of different magnitudes. The simple model developed in Chapter 7 needs to be expanded and modified, ideally with the goal of producing probabilities of receiving peak discharges of certain magnitudes. Whether this is possible needs to be determined. Certainly, more than 19 years have to be included in the development of any such model, and years other than those used to develop the model should be used to test the model's validity.

It would also be interesting to relate meteorological and environmental variables other than temperature and precipitation to the synoptic patterns. Obvious choices are wind speed, wind direction, relative humidity, dew point, cloud cover, hours of sunshine, net radiation, and evapotranspiration. Also, the synoptic patterns could be related to conditions at points other than Winnipeg and Fargo. This information might then be used to investigate the synoptic climatological conditions of meteorological and environmental events other than spring-season floods. For example, the synoptic climatology of severe thunderstorms in Manitoba could be investigated, and the results compared to those of LaDochy (1985). In addition, the synoptic climatology of blizzards, wind storms, dust storms, forest fires, heat waves, urban air pollution, domestic power consumption, and cold snaps are topics worthy of

investigation. It is believed that synoptic climatology has much to contribute to the understanding of these and other topics.

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APPENDIX A

Synoptic-type mean and keyday maps; seasonal mean departures from long-term daily mean temperatures; seasonal precipitation efficiencies; and monthly frequencies.

The top graph shows the total monthly frequencies of the synoptic type for the entire period of record (1946-84 for B5TYPEs and S5TYPEs, and 1946-82 for SMTYPEs).

mdT = the mean departure from the 1951-80 mean daily temperature

Wint = Winter (November, December, January, February, and March for B5TYPEs and S5TYPEs, and January and February for SMTYPEs)

Spri = Spring (April and May for B5TYPEs and S5TYPEs, and March, April, and May for SMTYPEs)

Summ = Summer (July and August for B5TYPEs and S5TYPEs, and June, July, August, and September for SMTYPEs)

Sumt = Sumtran (June, September, and October for B5TYPEs and S5TYPEs)

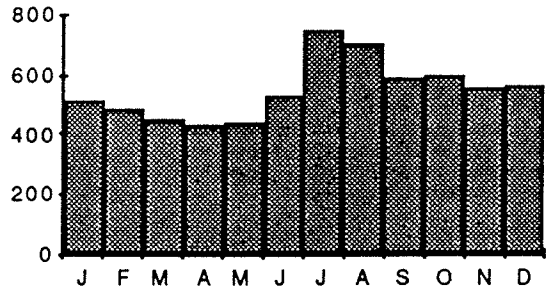
Fall = October, November, and December for SMTYPEs

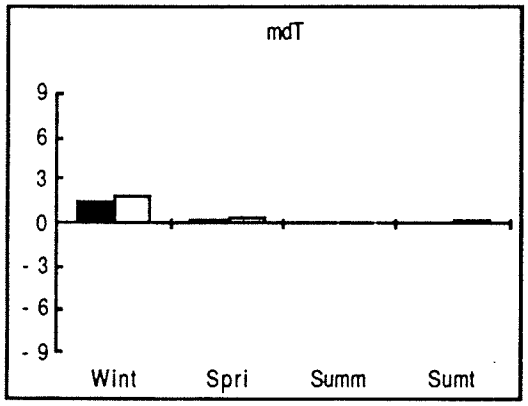
In the mdT and Precipitation Efficiency graphs, the black bar represents conditions at Winnipeg and the hollow bar represents conditions at Fargo.

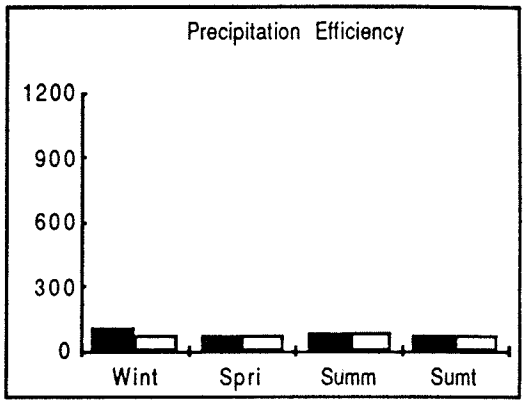
The isopleths in the B5TYPE and S5TYPE maps represent the height of the 500 mb surface in geopotential metres above mean sea-level.

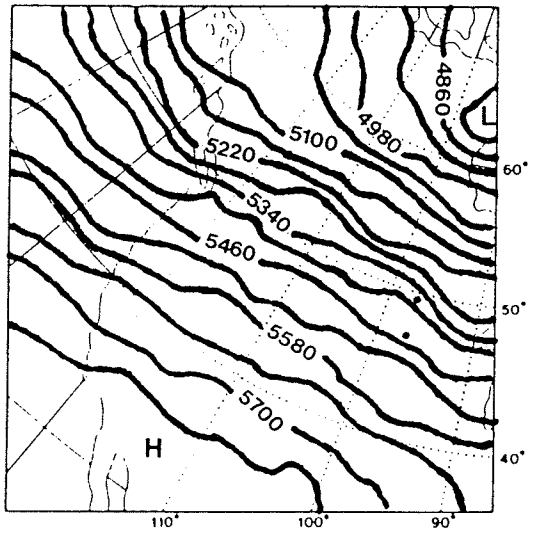
The isopleths in the SMTYPE maps represent mean sea-level pressure in millibars.

B5TYPE-1

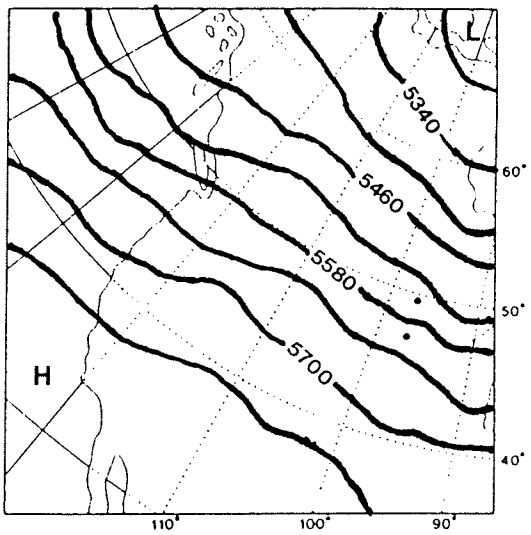






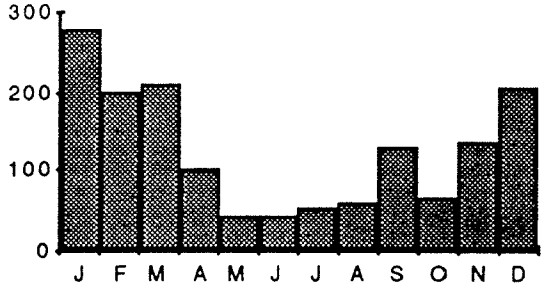


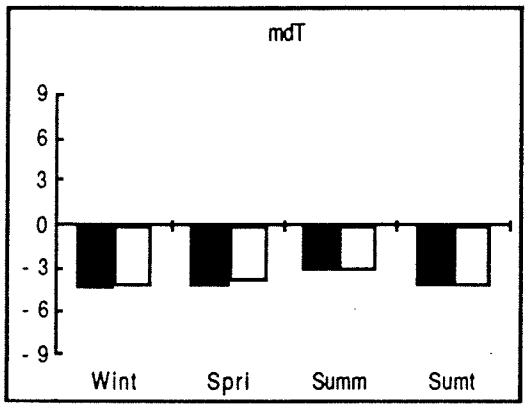
KEYDAY MAP

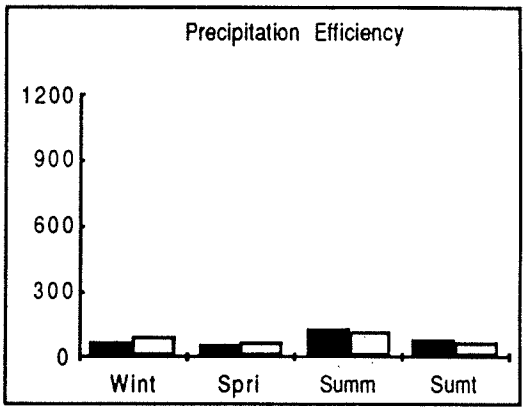


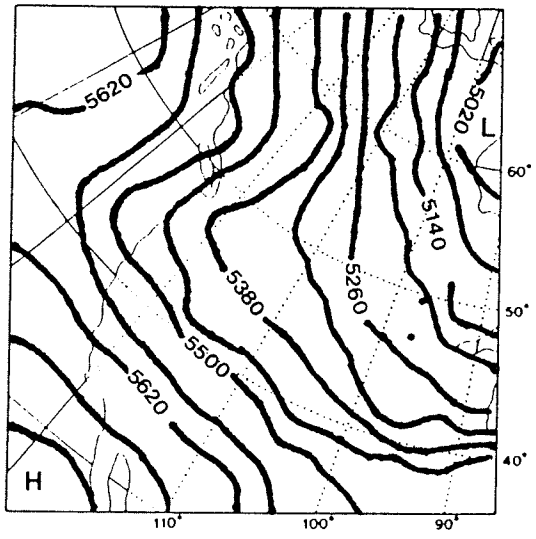
MEAN MAP

B5TYPE-2

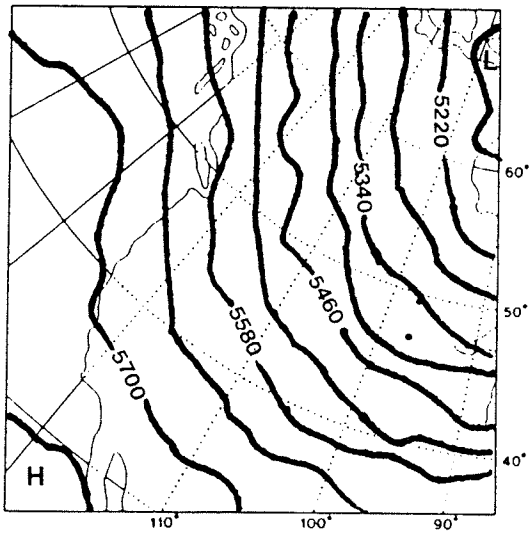






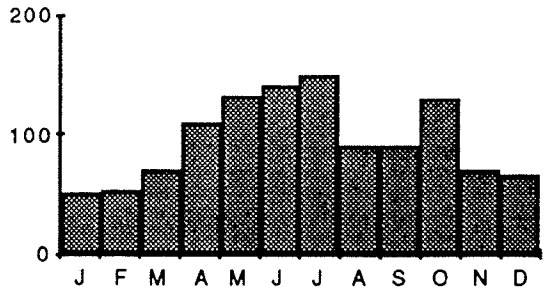


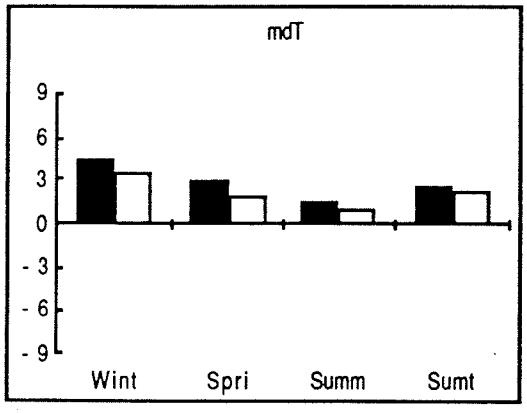
KEYDAY MAP

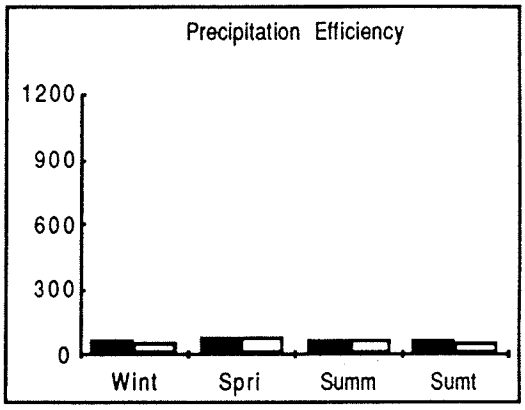


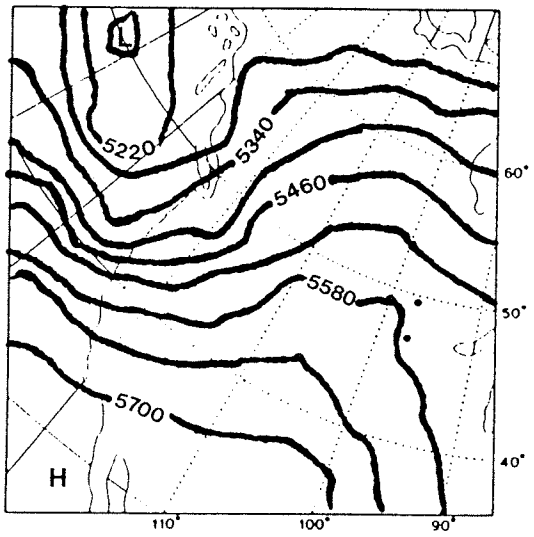
MEAN MAP

B5TYPE-3

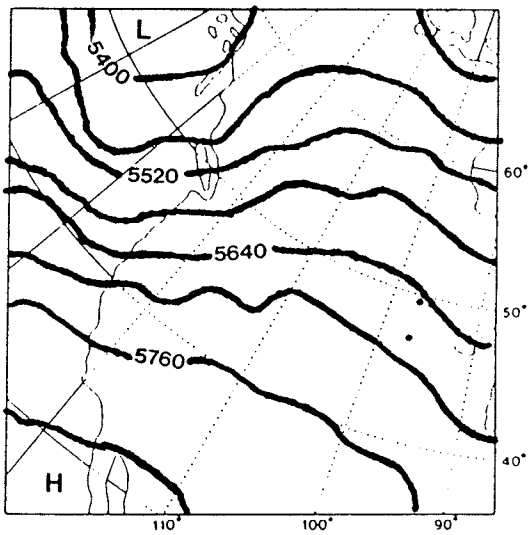






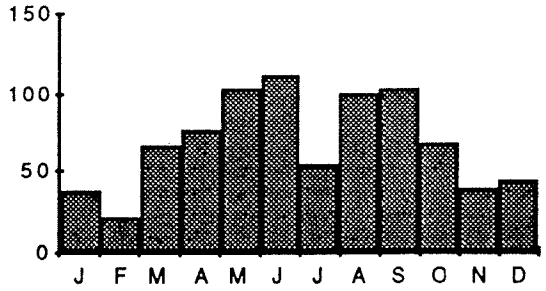


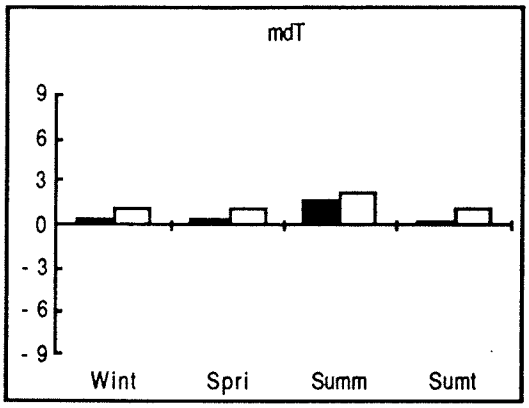
KEYDAY MAP

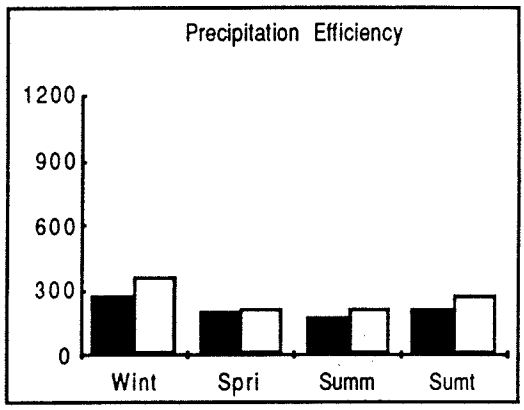


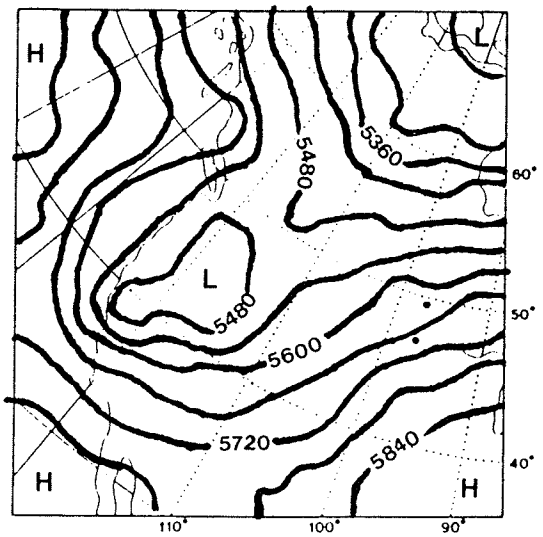
MEAN MAP

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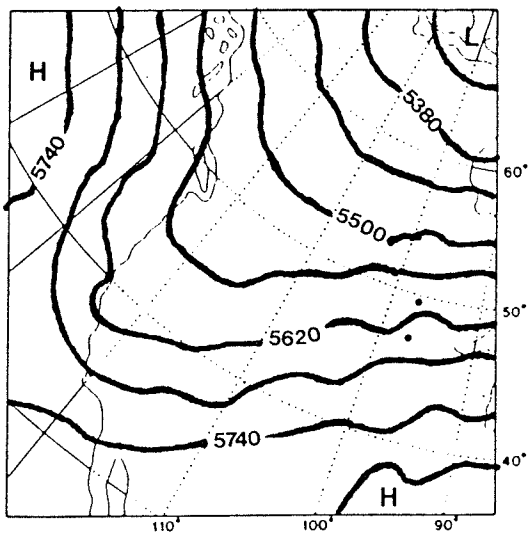






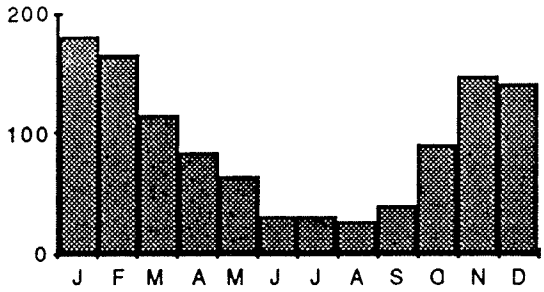


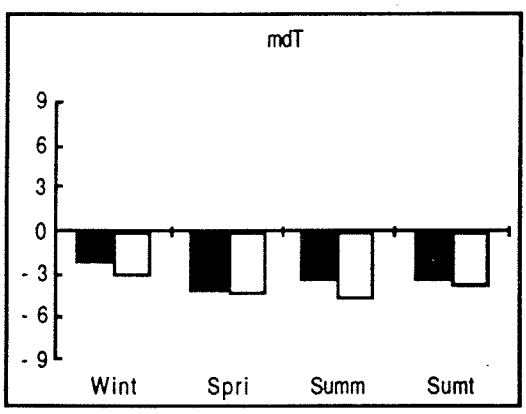
KEYDAY MAP

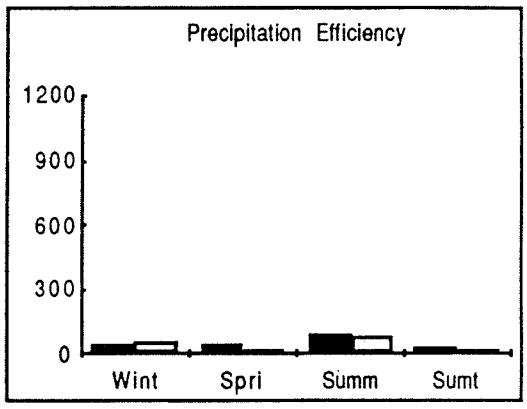


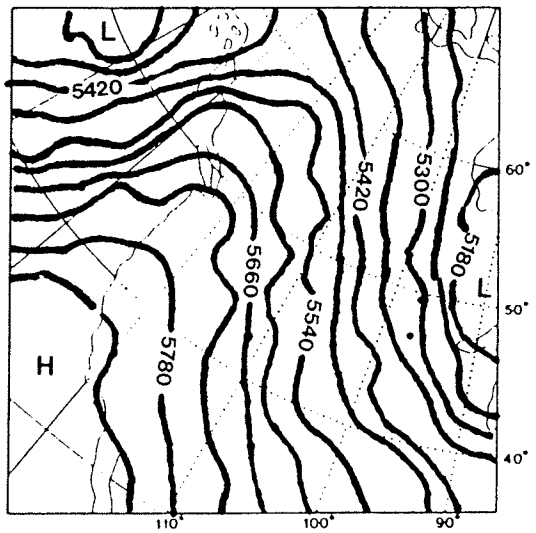
MEAN MAP

B5TYPE-5

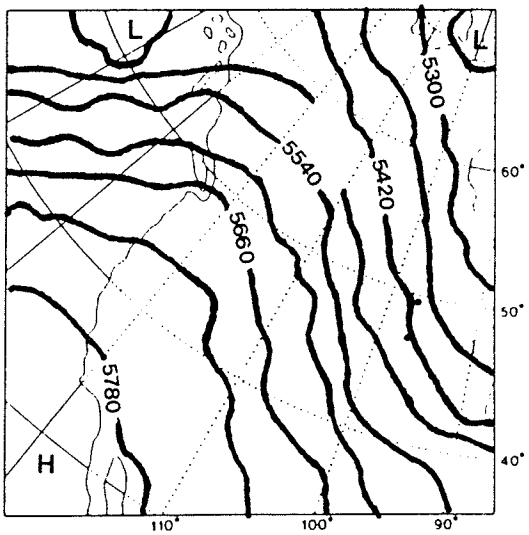






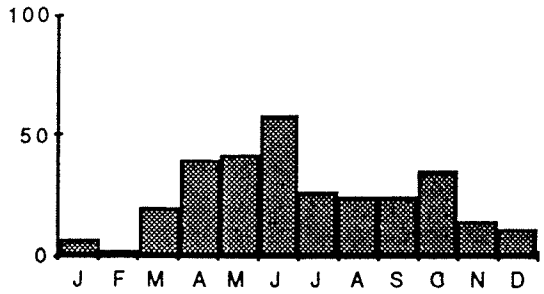


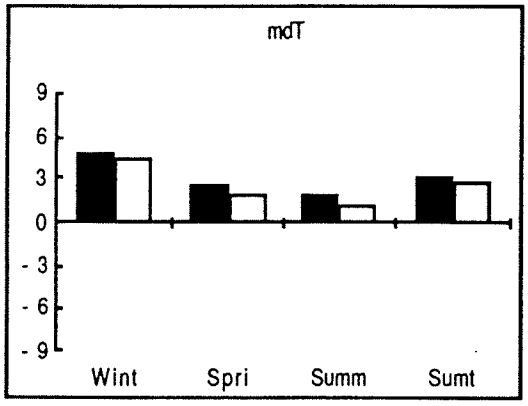
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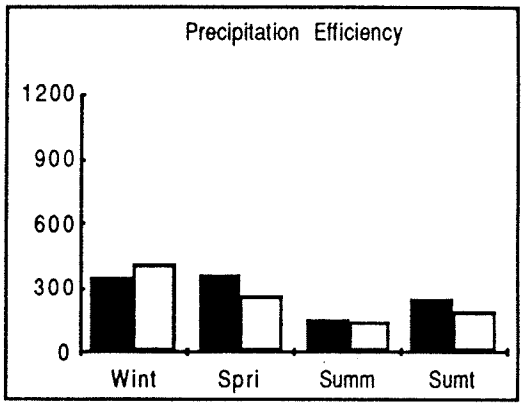


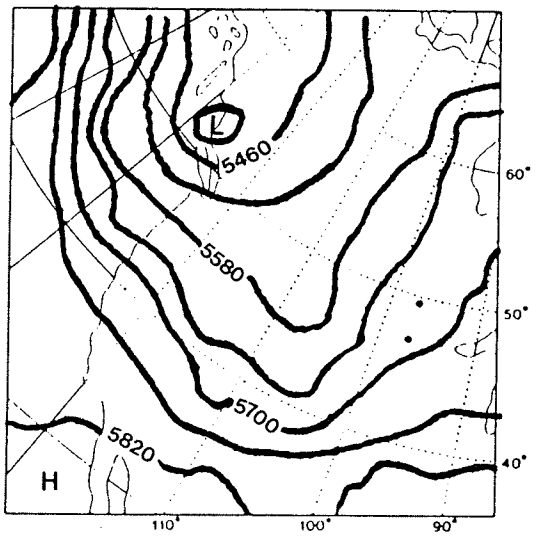
MEAN MAP

B5TYPE-6

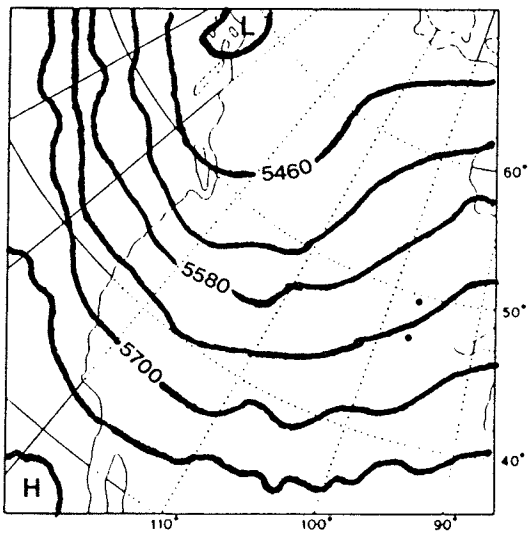






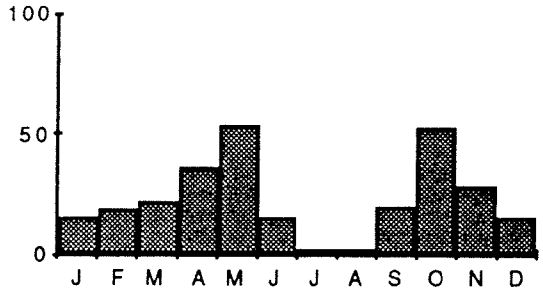


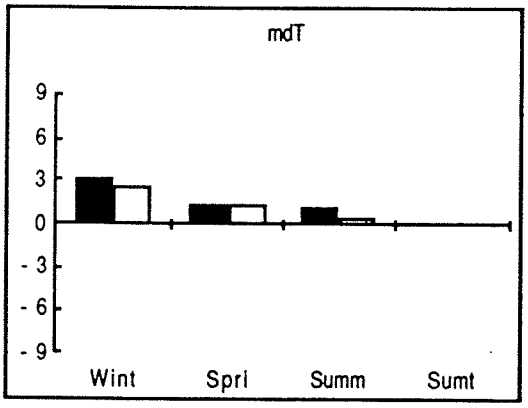
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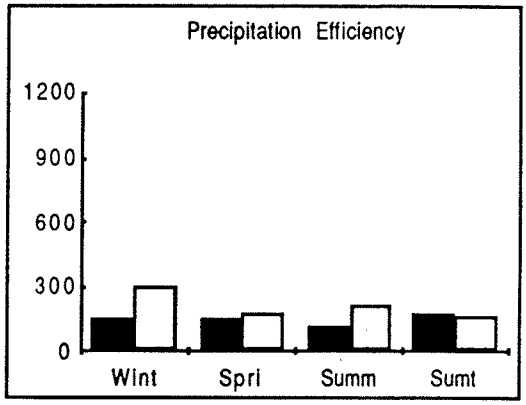


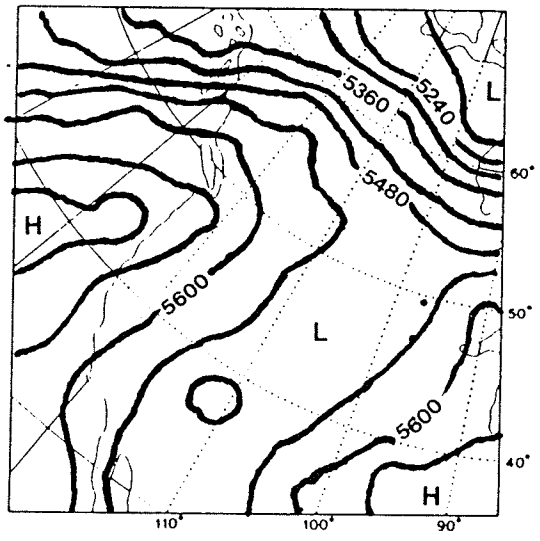
MEAN MAP

B5TYPE-7

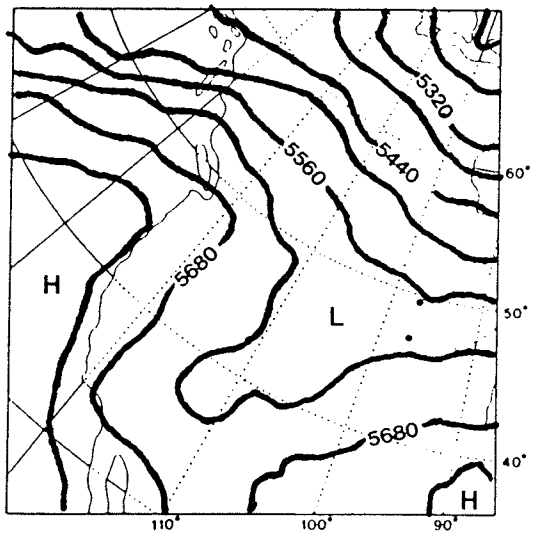






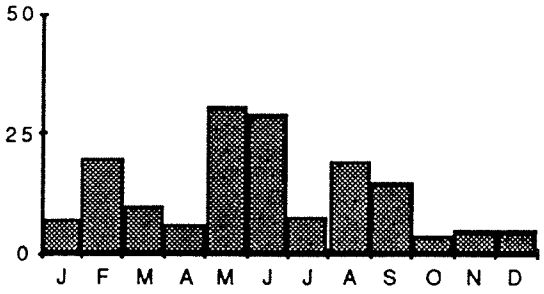


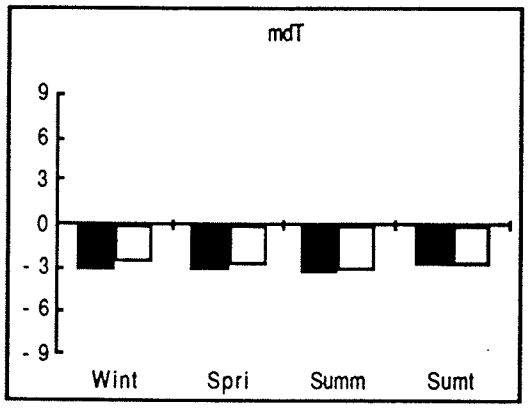
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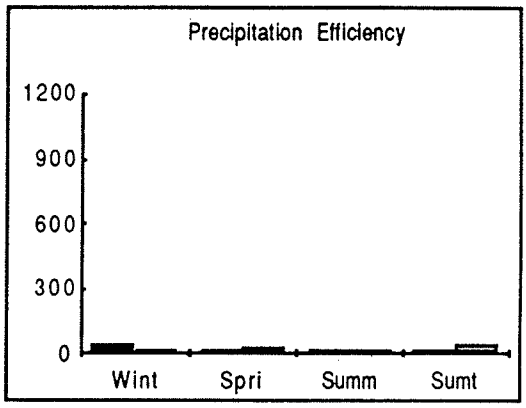


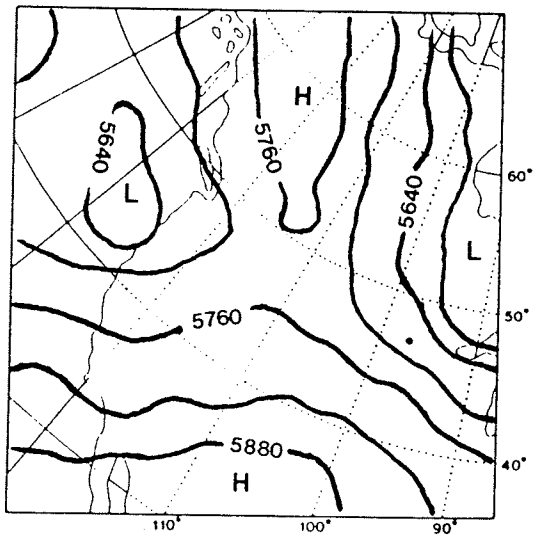
MEAN MAP

B5TYPE-8

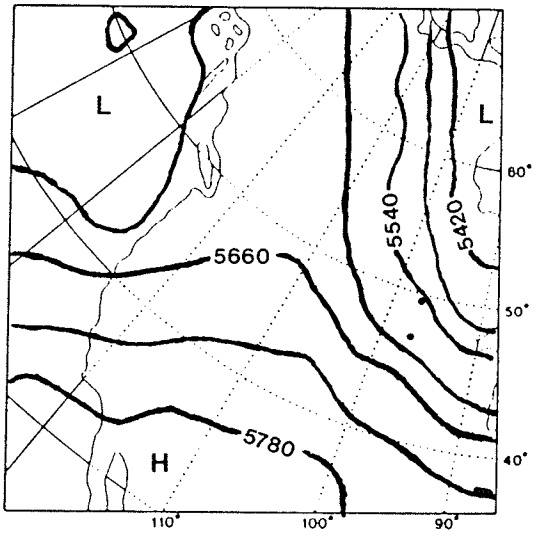






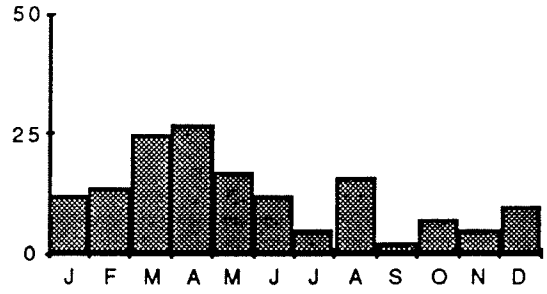


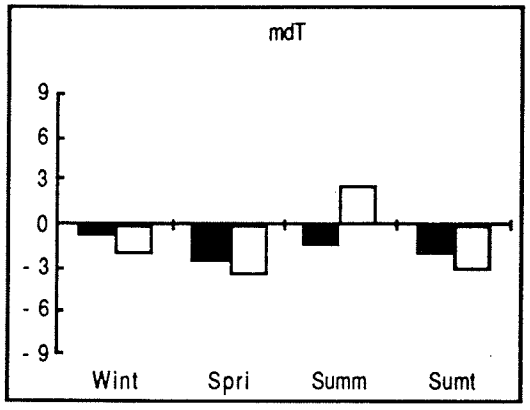
KEYDAY MAP

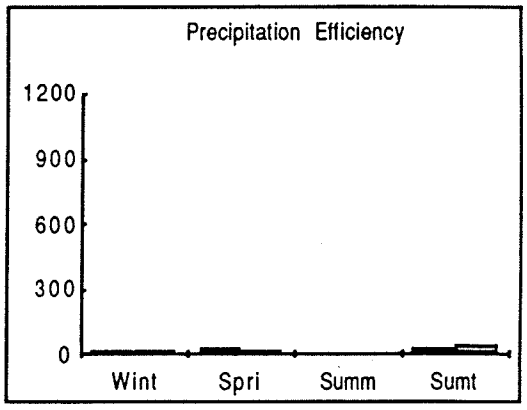


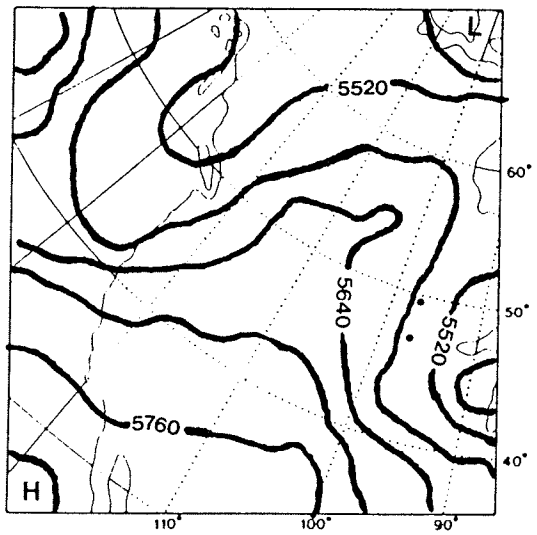
MEAN MAP

B5TYPE-9

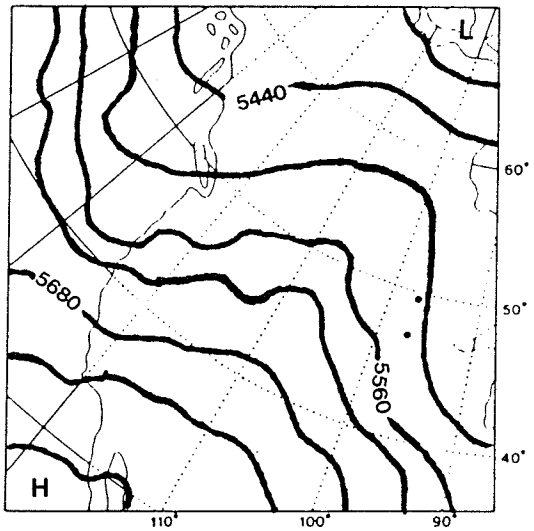






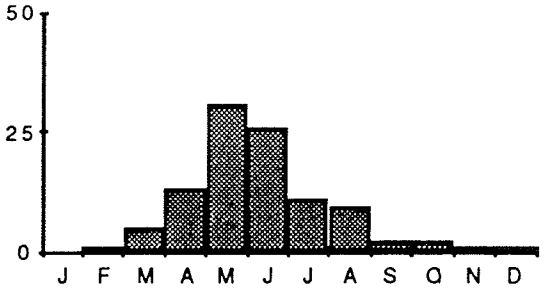


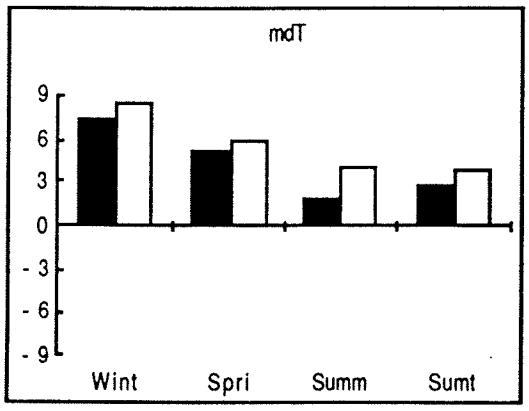
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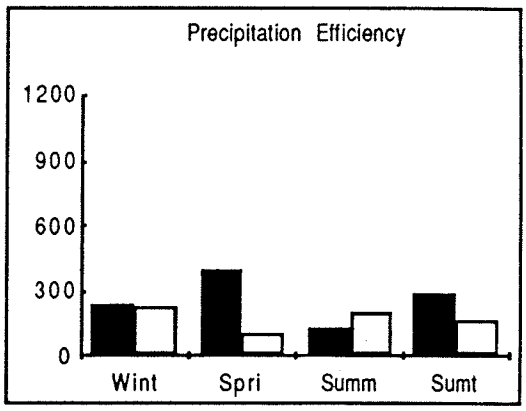


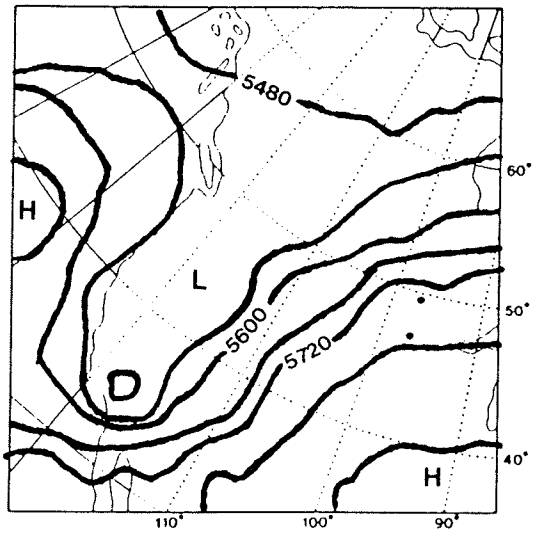
MEAN MAP

B5TYPE-10

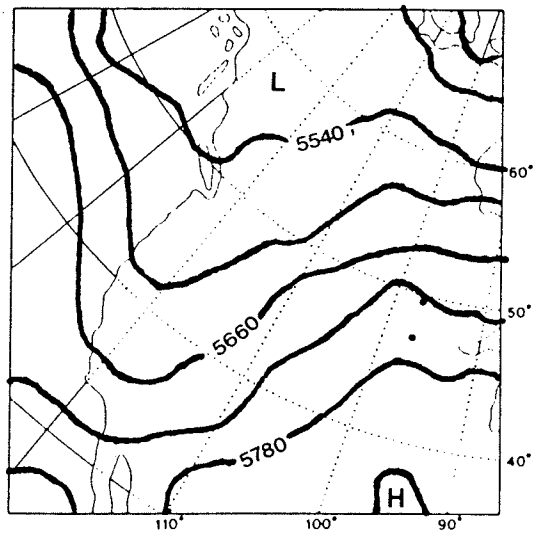






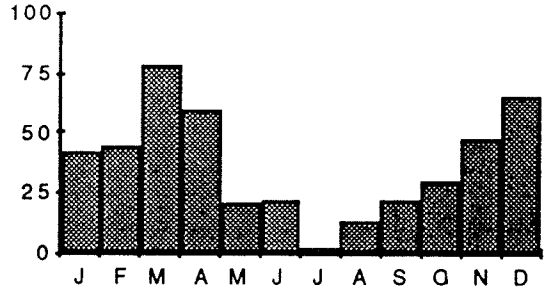


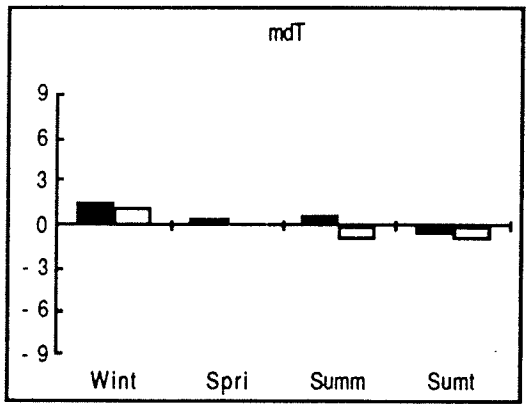
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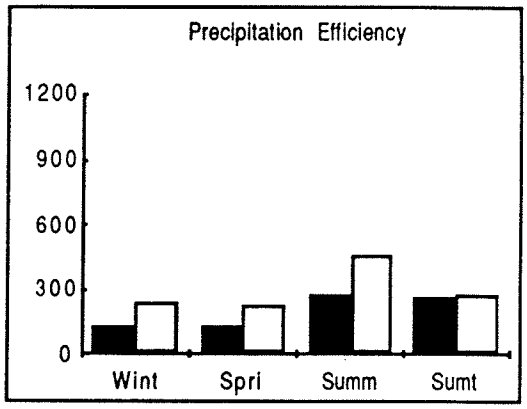


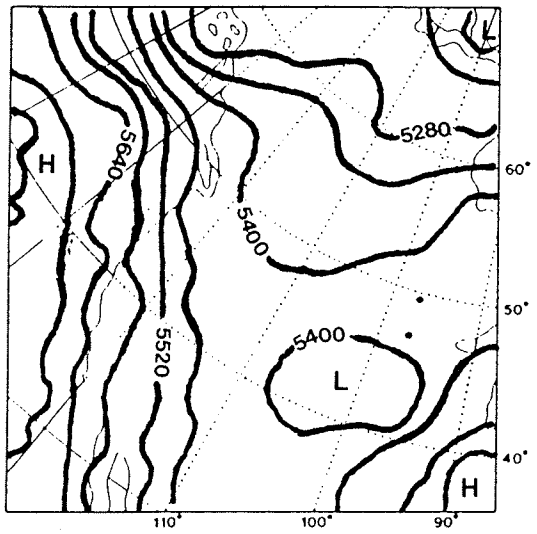
MEAN MAP

B5TYPE-11

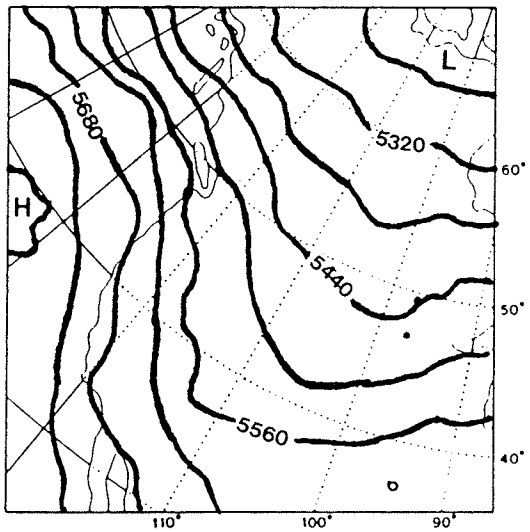






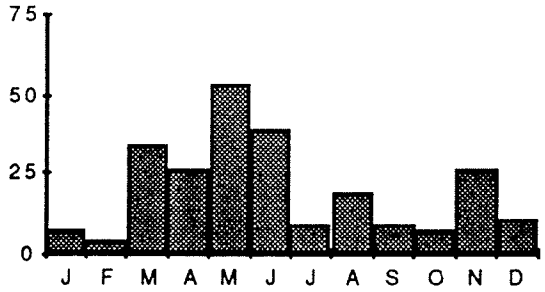


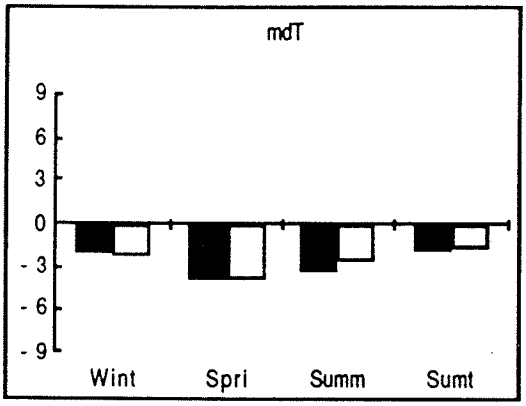
KEYDAY MAP

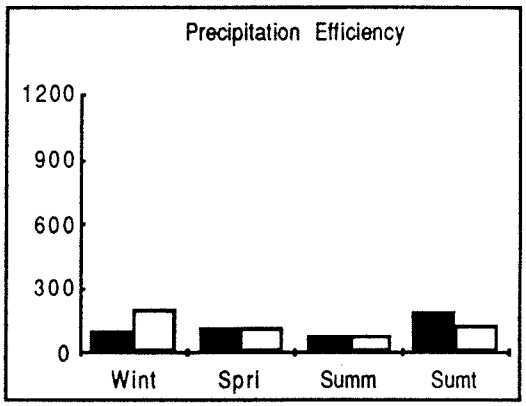


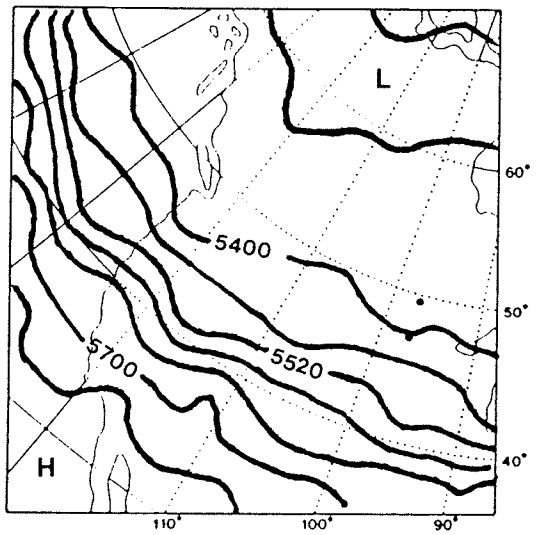
MEAN MAP

B5TYPE-12

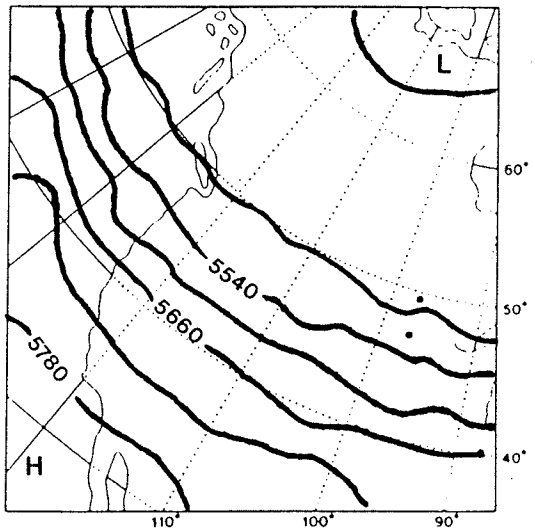






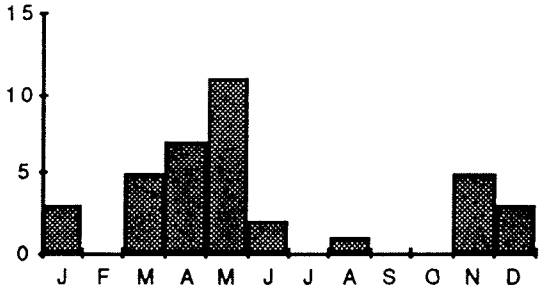


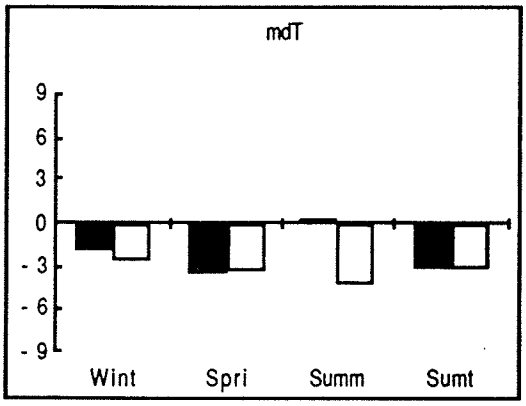
KEYDAY MAP

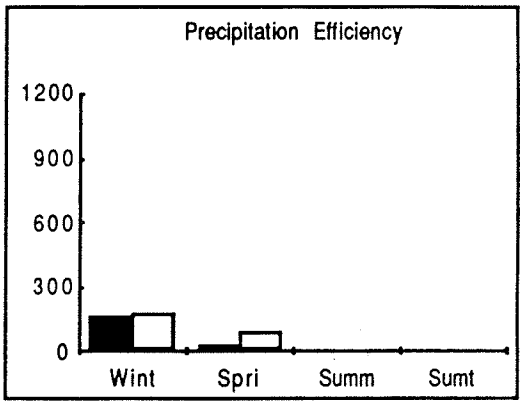


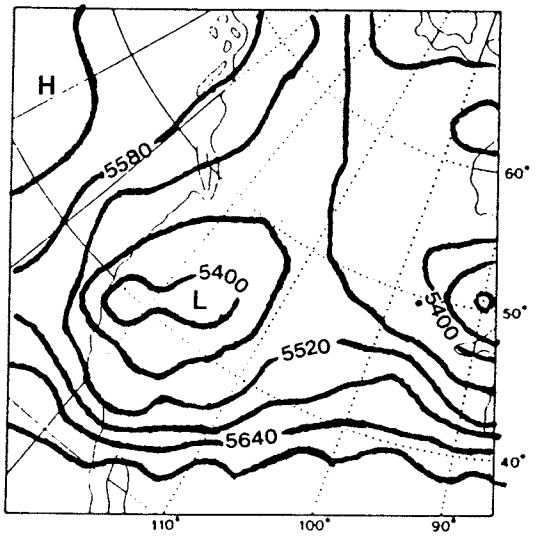
MEAN MAP

B5TYPE-13

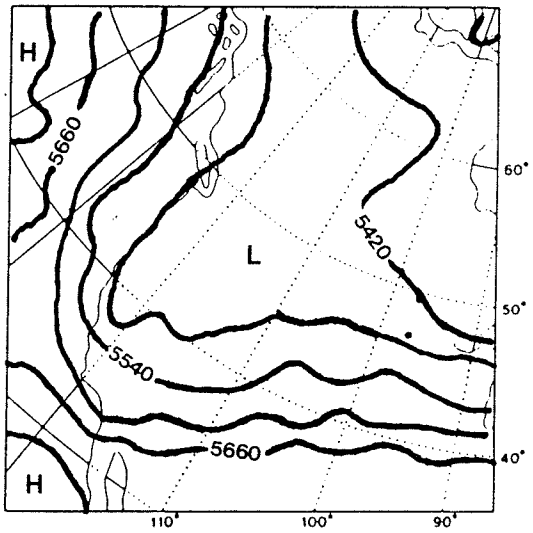






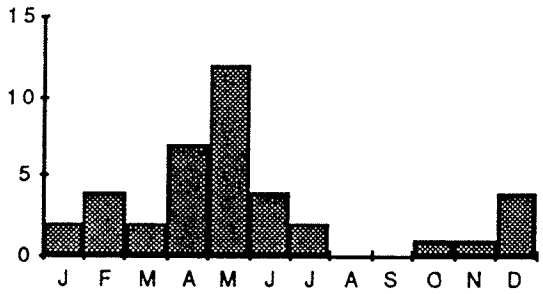


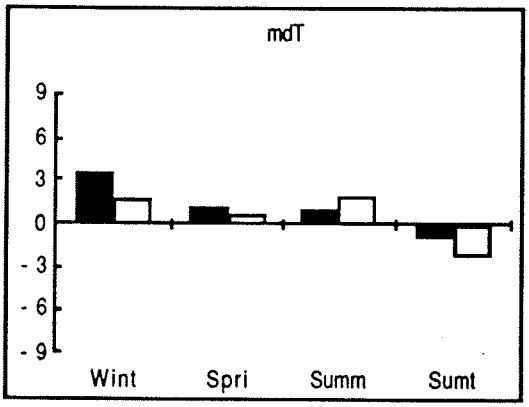
KEYDAY MAP

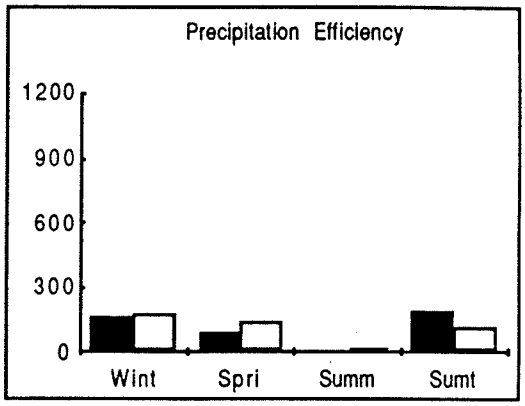


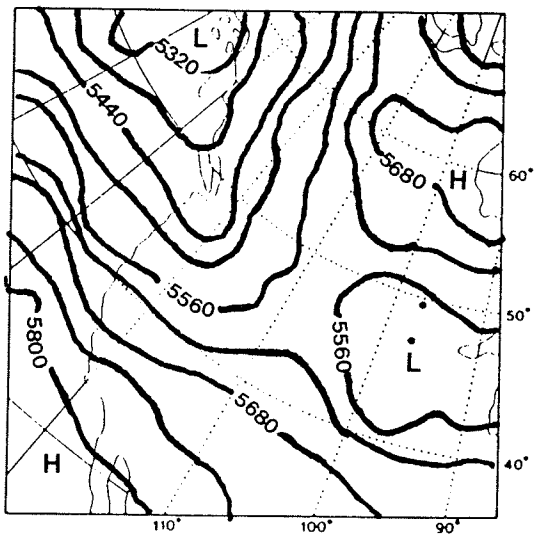
MEAN MAP

B5TYPE-14

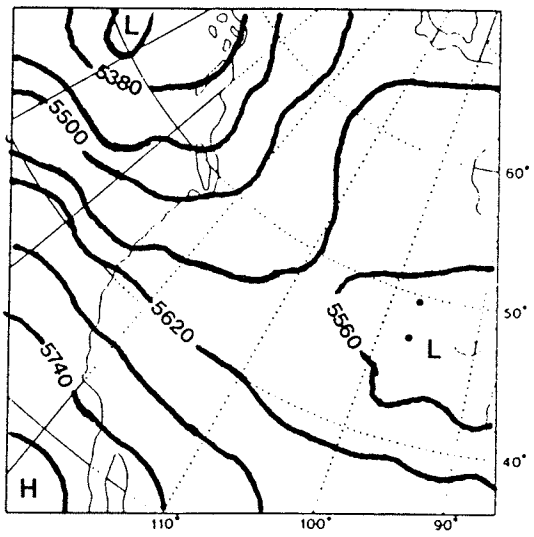






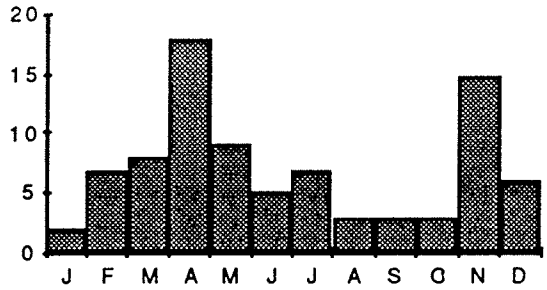


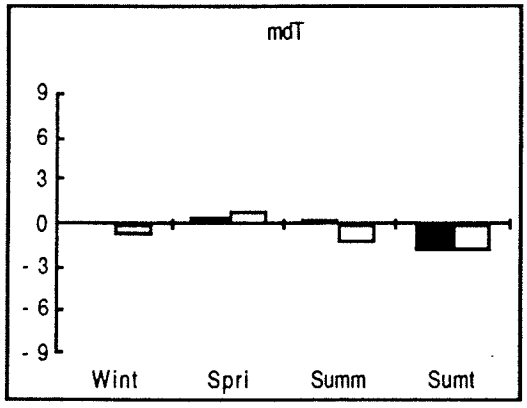
KEYDAY MAP

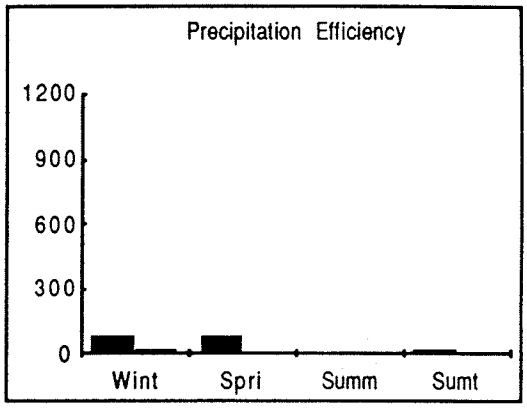


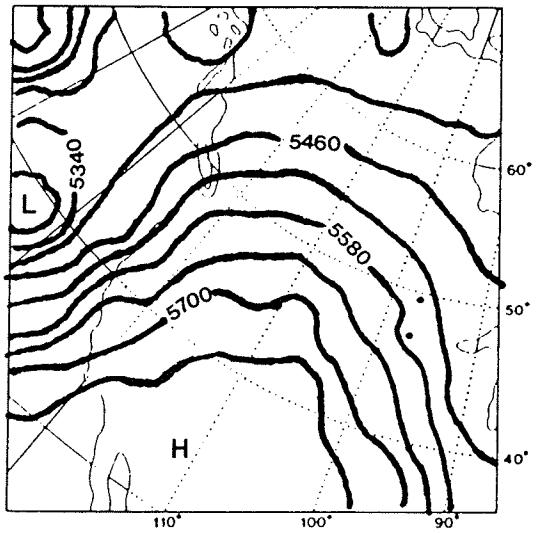
MEAN MAP

B5TYPE-15

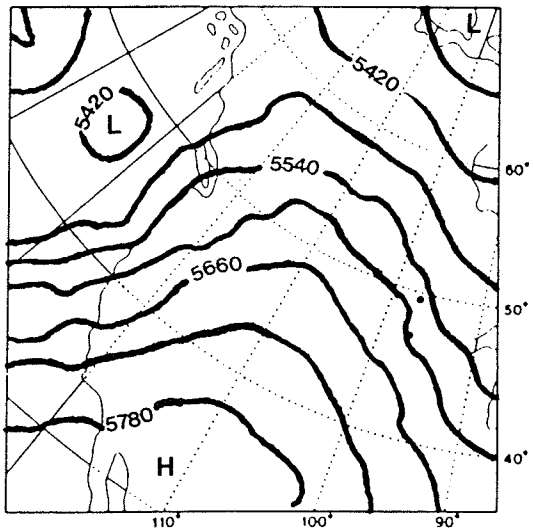






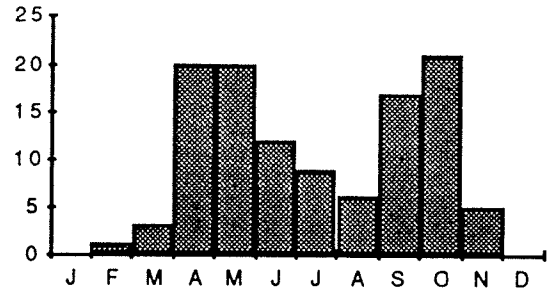


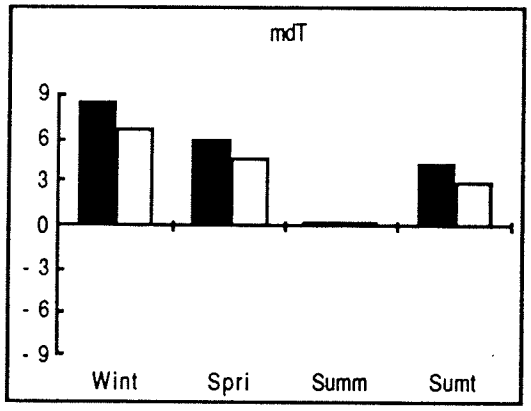
KEYDAY MAP

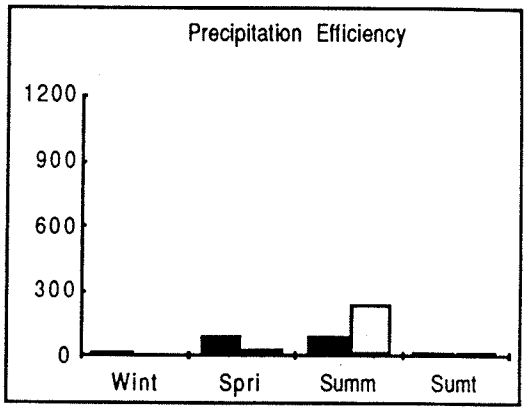


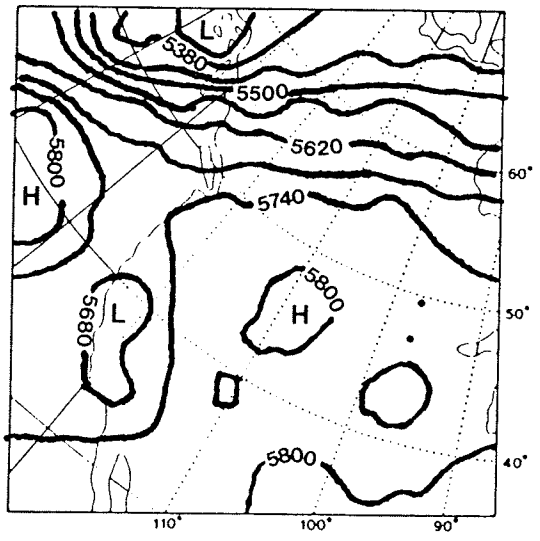
MEAN MAP

B5TYPE-16

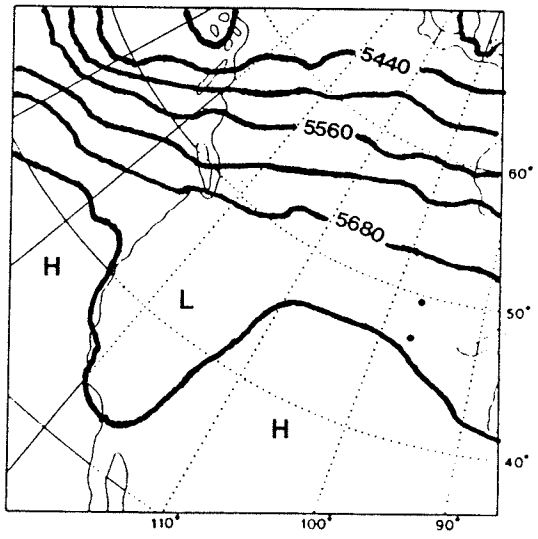






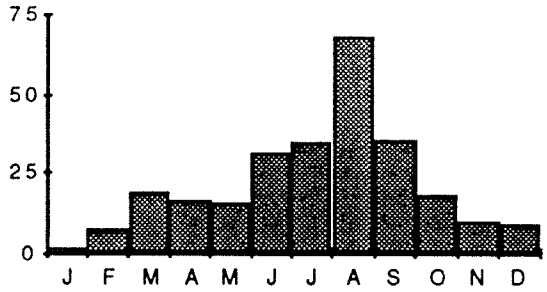


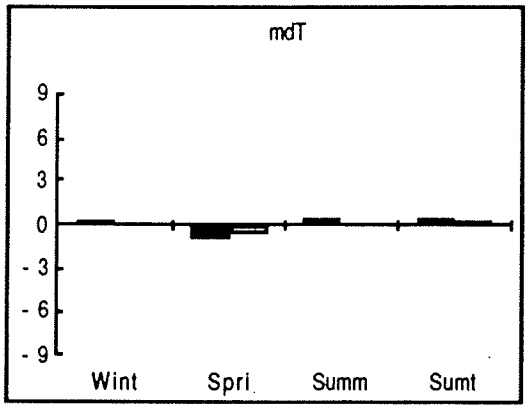
KEYDAY MAP

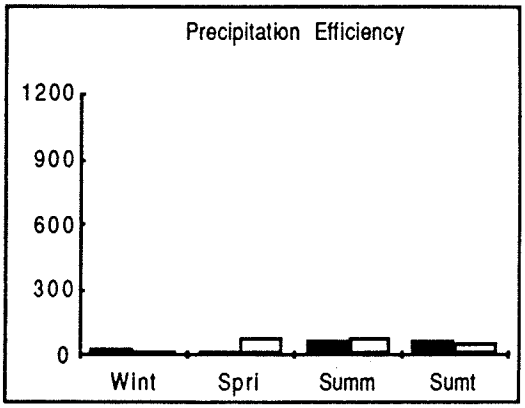


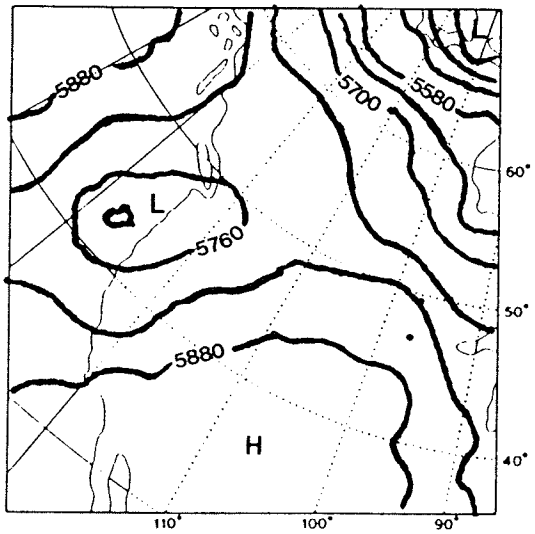
MEAN MAP

B5TYPE-17

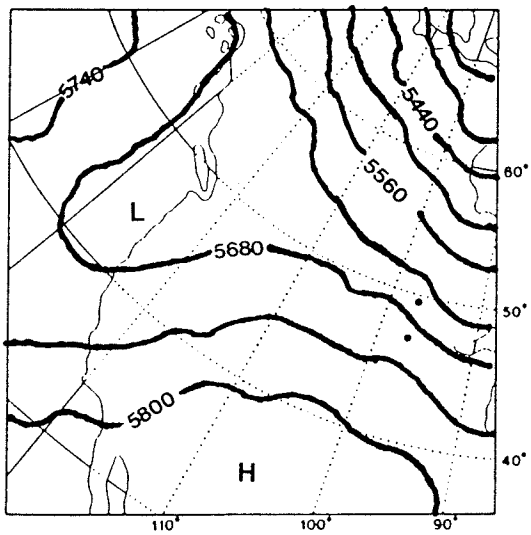






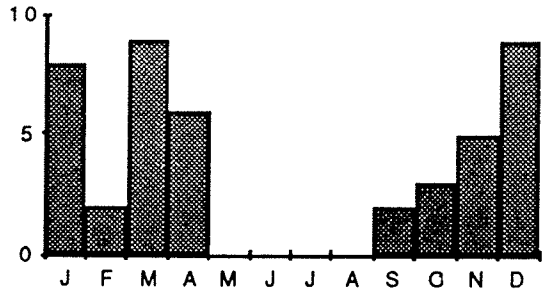


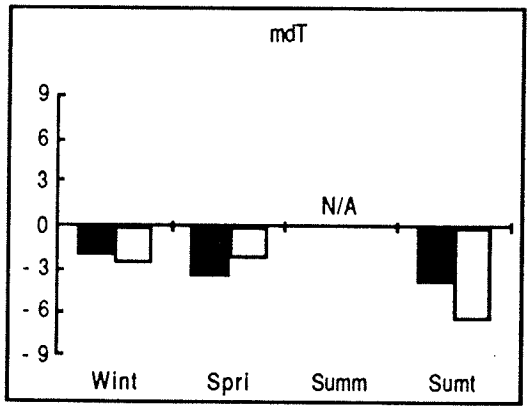
KEYDAY MAP

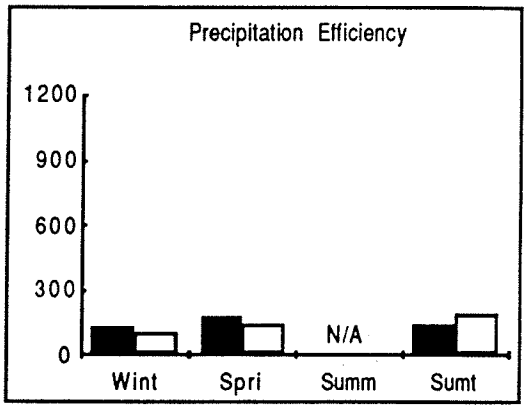


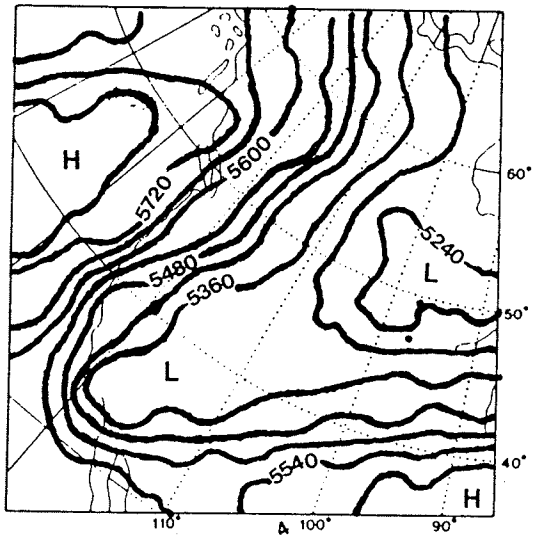
MEAN MAP

B5TYPE-18

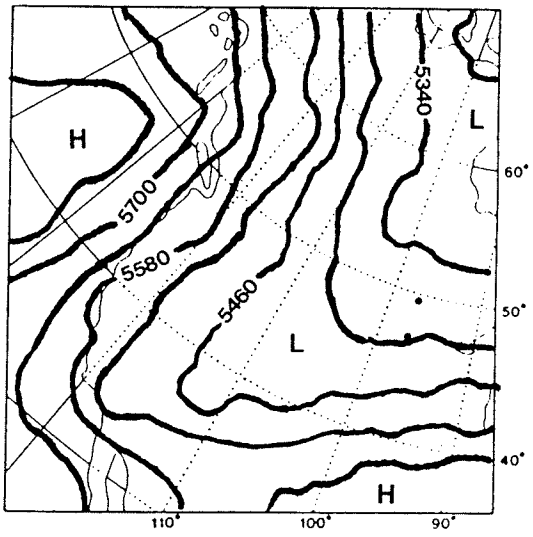






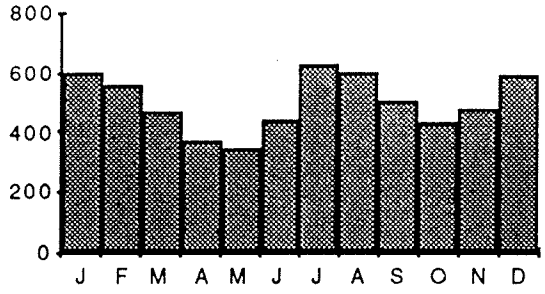


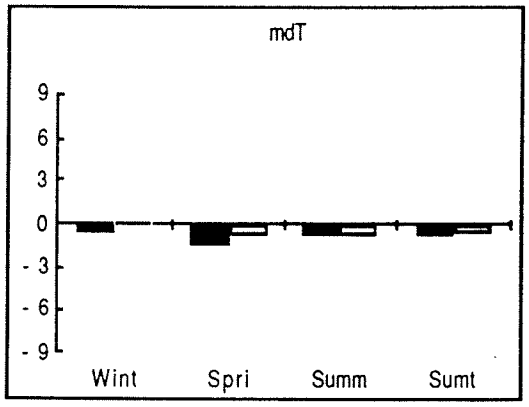
KEYDAY MAP

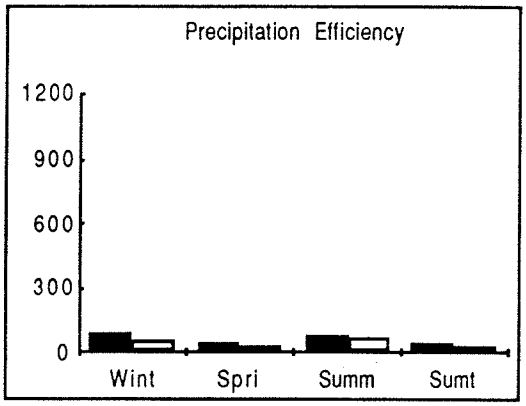


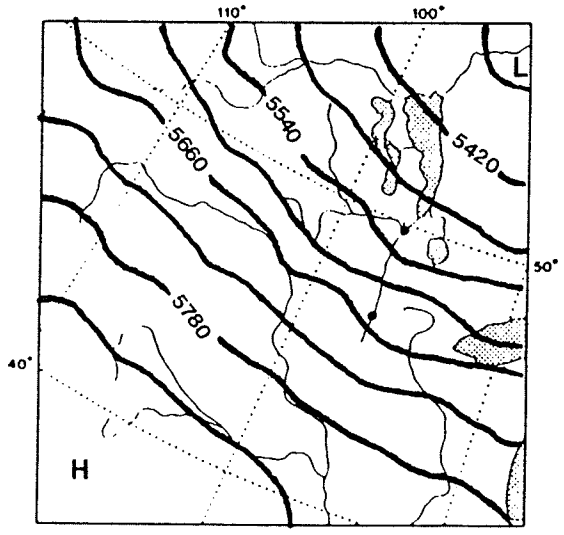
MEAN MAP

S5TYPE-1

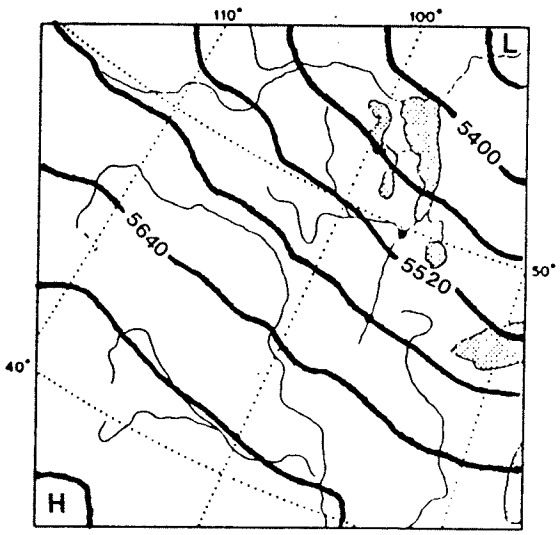






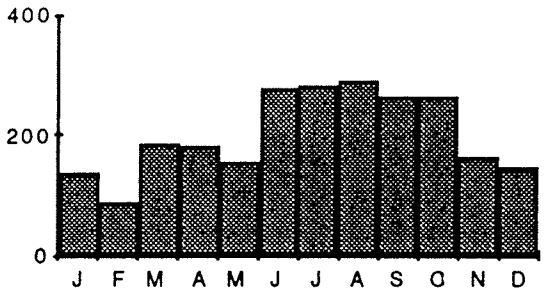


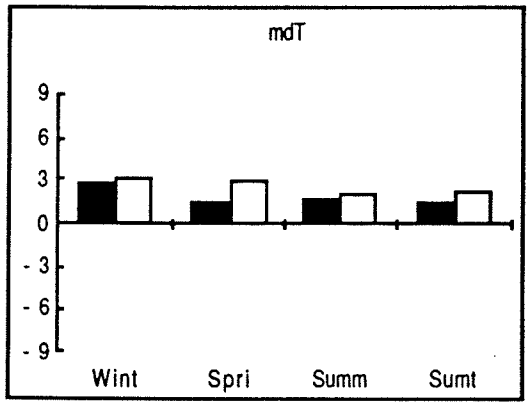
KEYDAY MAP

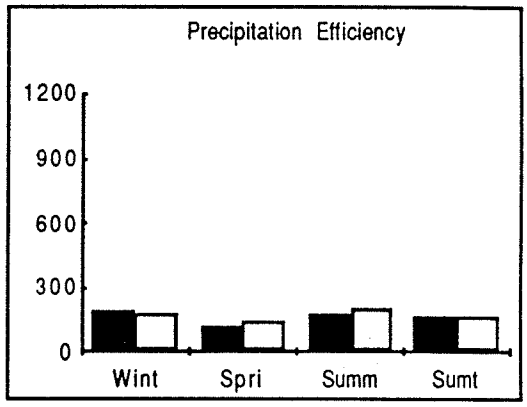


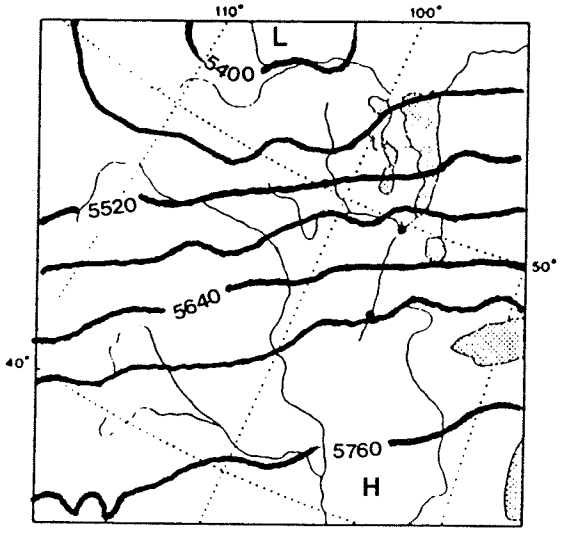
MEAN MAP

S5TYPE-2

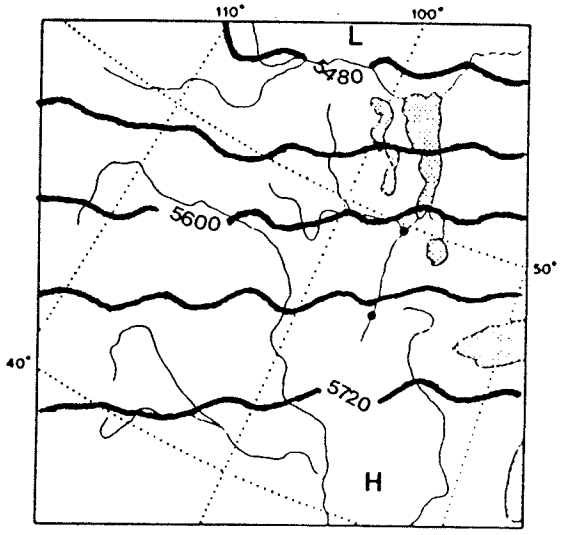






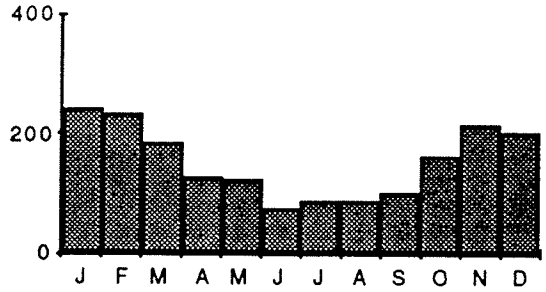


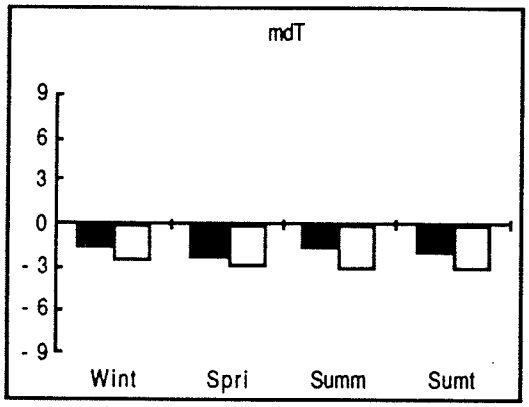
KEYDAY MAP

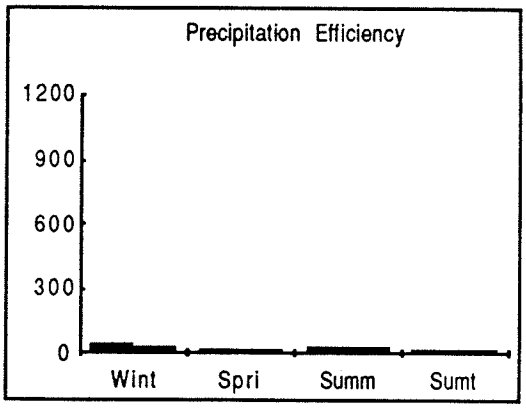


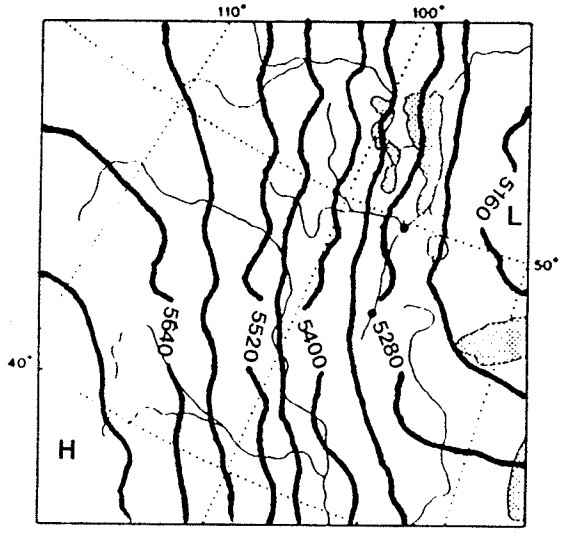
MEAN MAP

S5TYPE-3

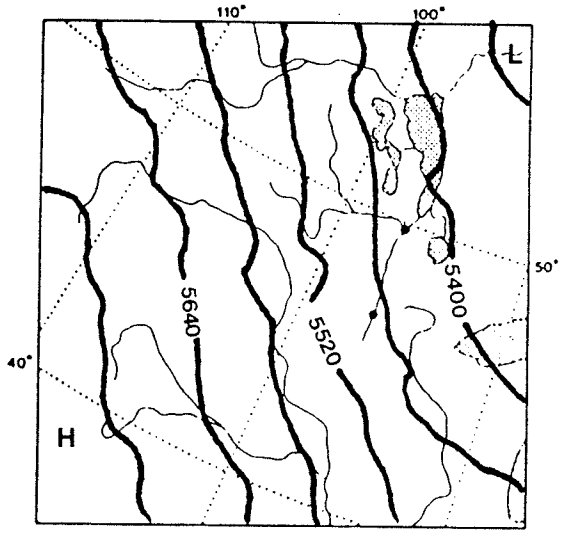






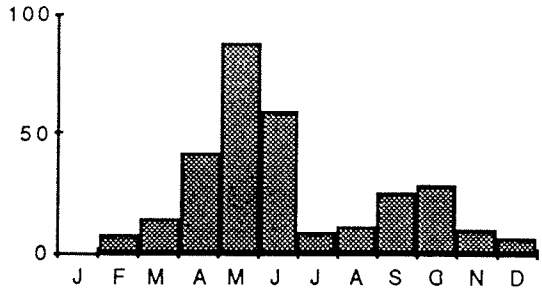


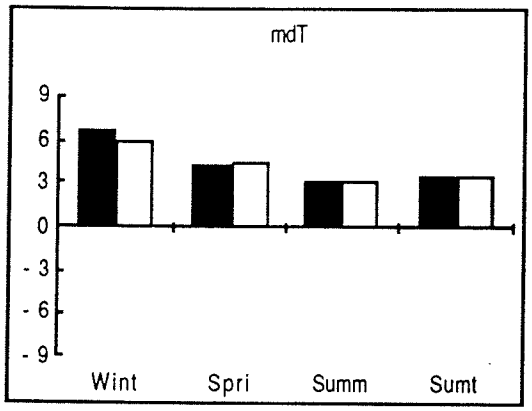
KEYDAY MAP

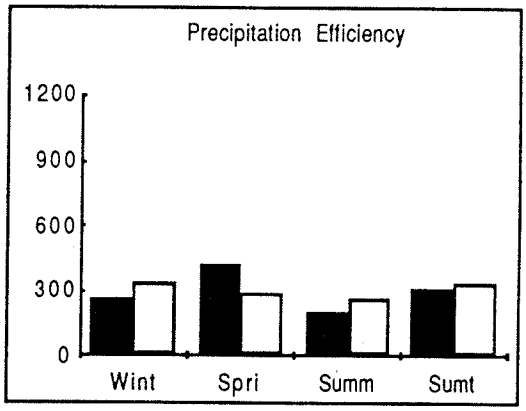


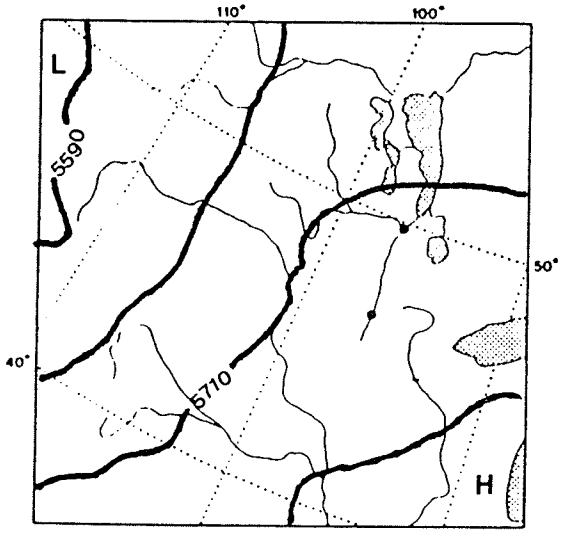
MEAN MAP

S5TYPE-4

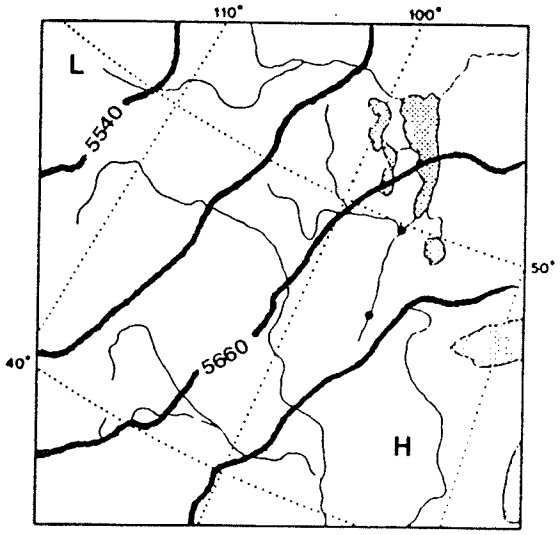






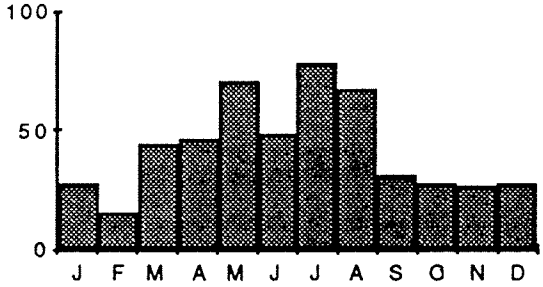


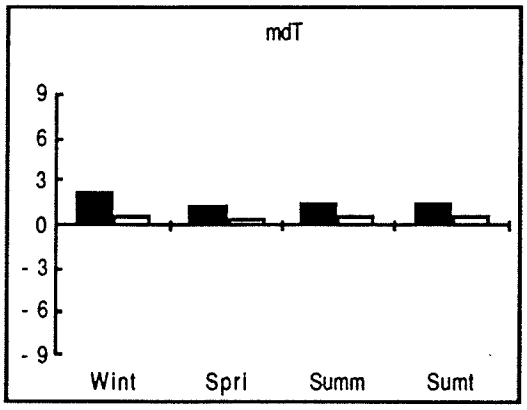
KEYDAY MAP

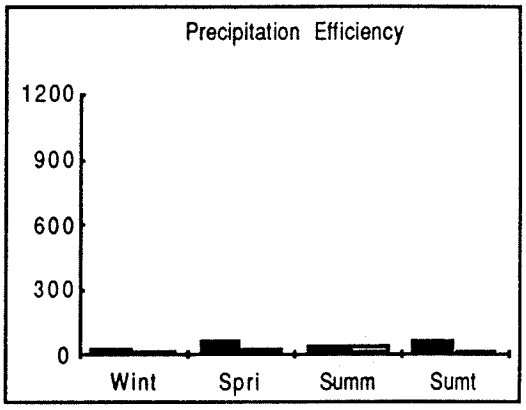


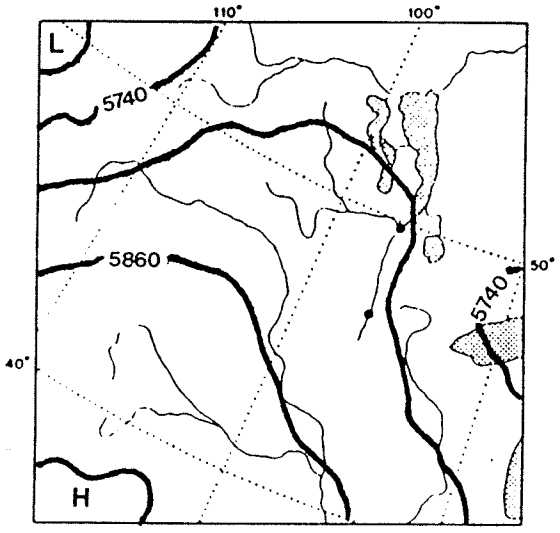
MEAN MAP

S5TYPE-5

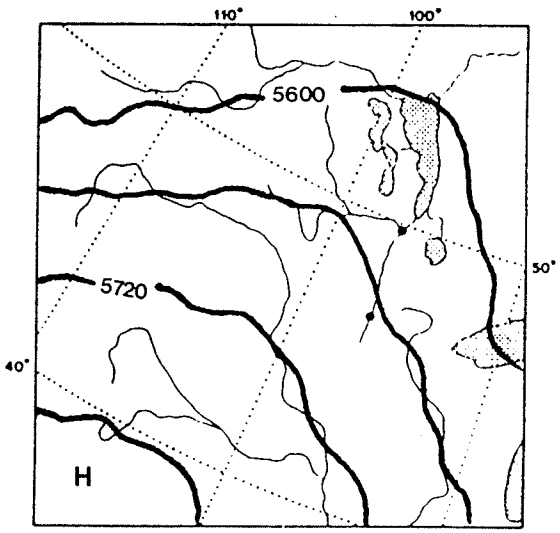






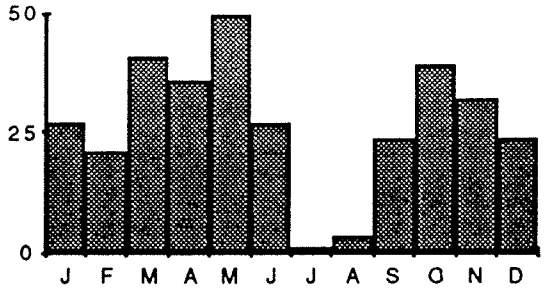


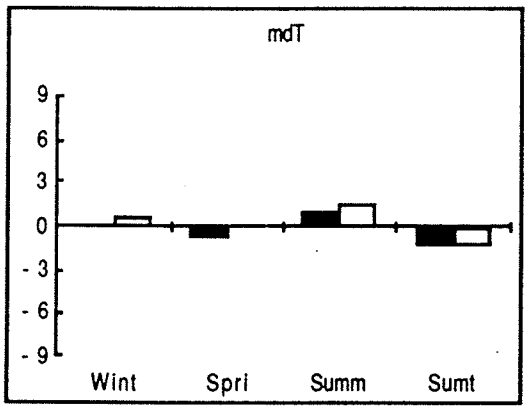
KEYDAY MAP

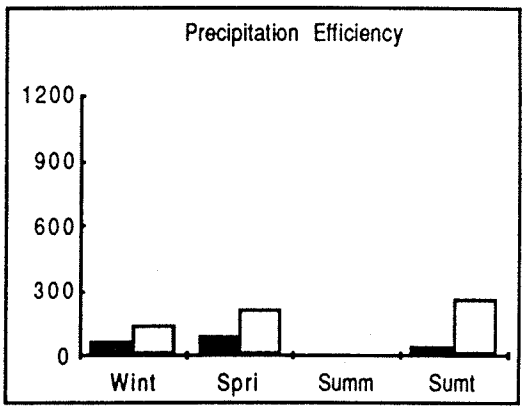


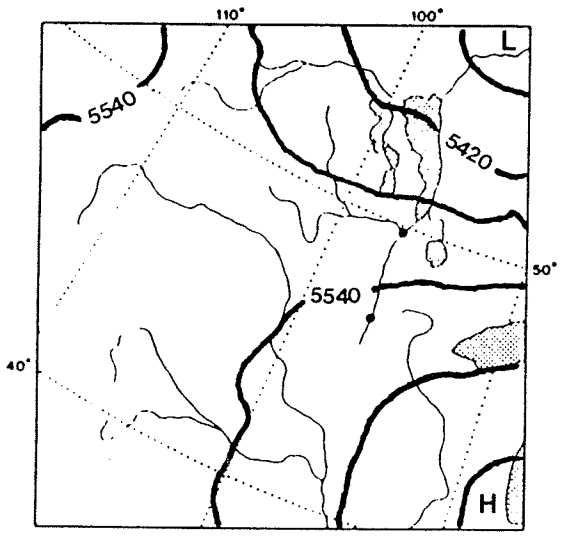
MEAN MAP

S5TYPE-6

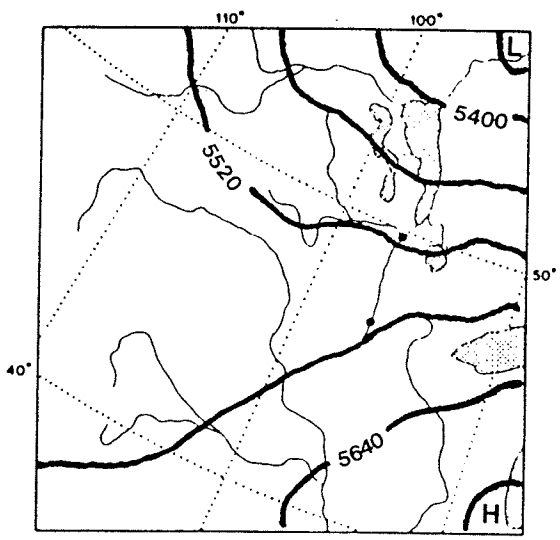






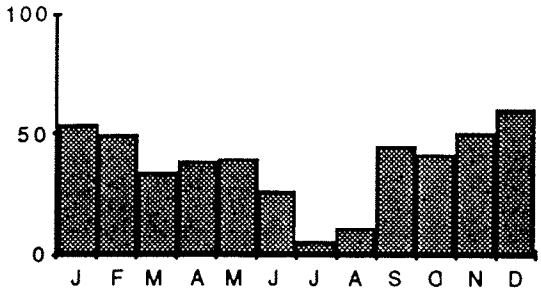


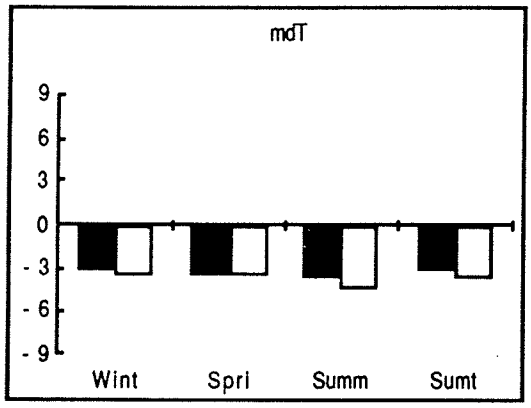
KEYDAY MAP

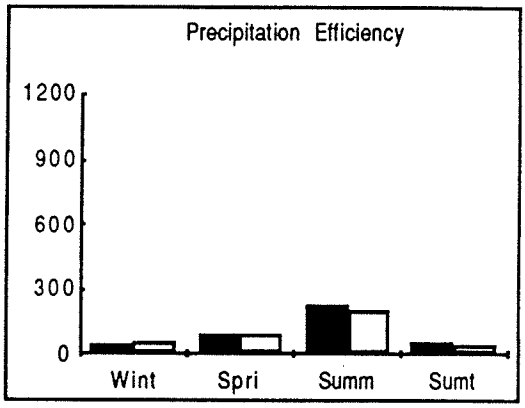


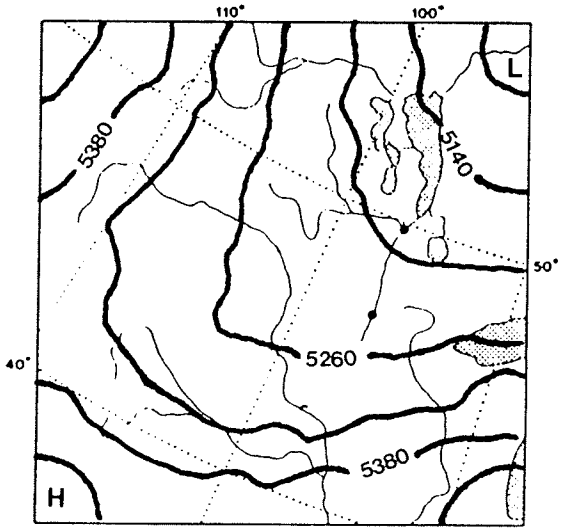
MEAN MAP

S5TYPE-7

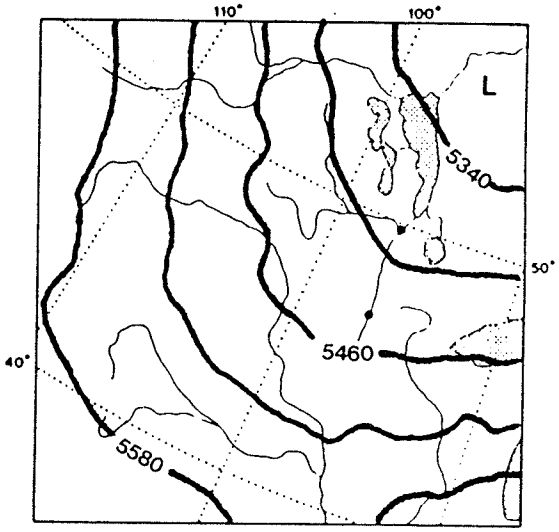






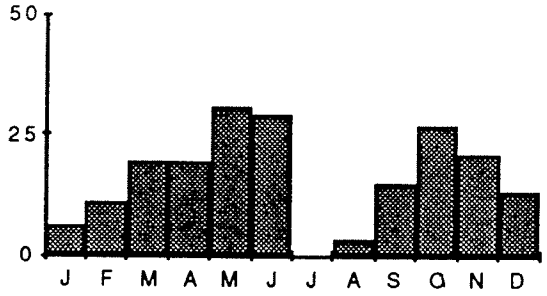


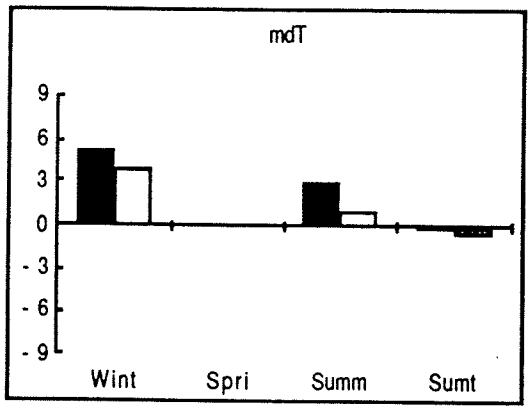
KEYDAY MAP

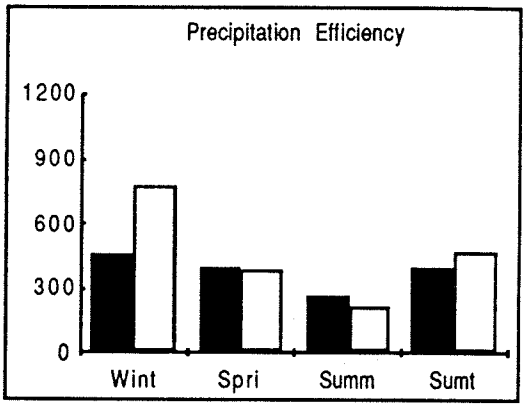


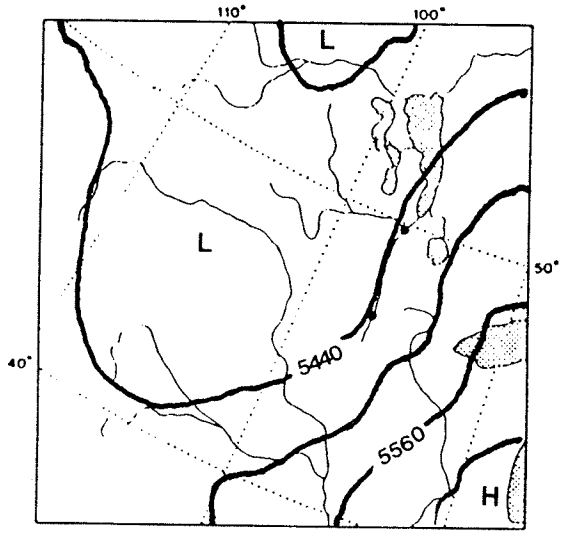
MEAN MAP

S5TYPE-8

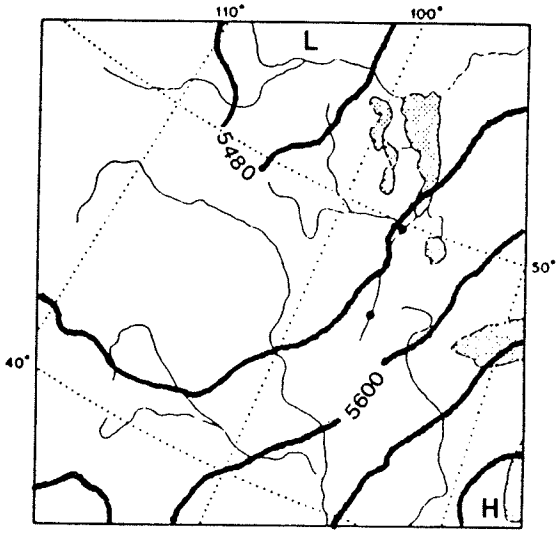








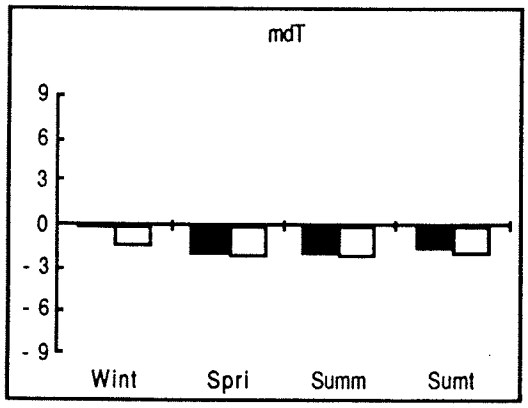
KEYDAY MAP

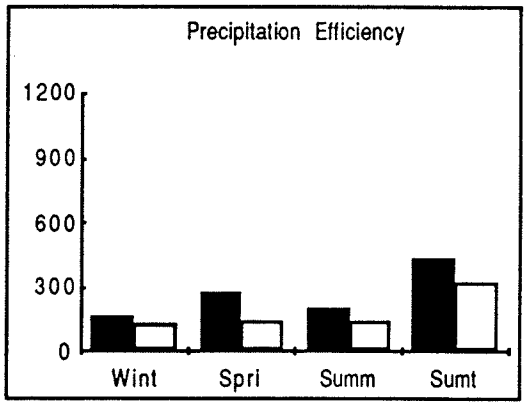


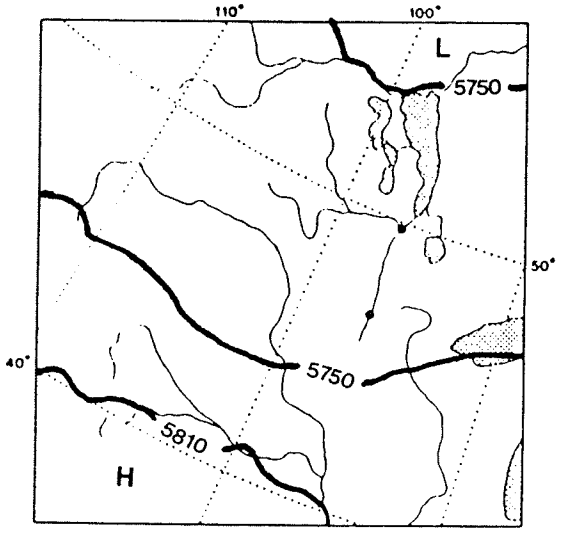
MEAN MAP

S5TYPE-9

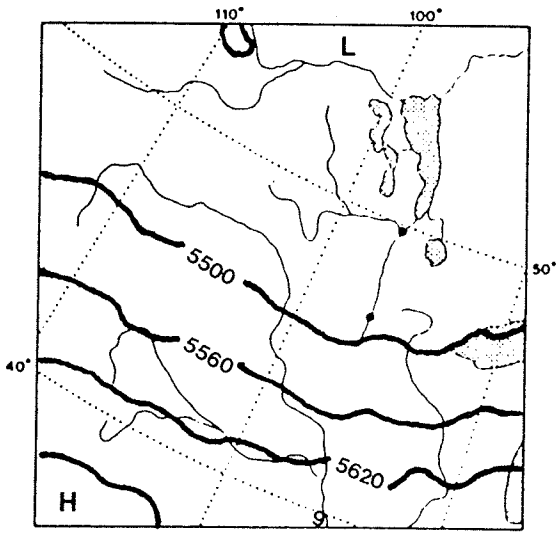






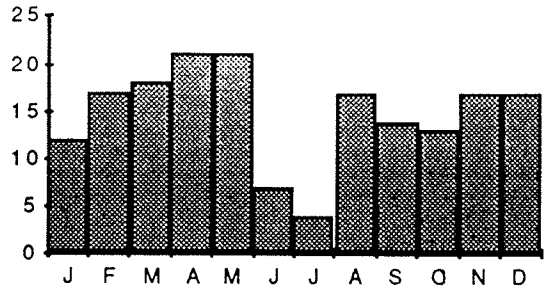


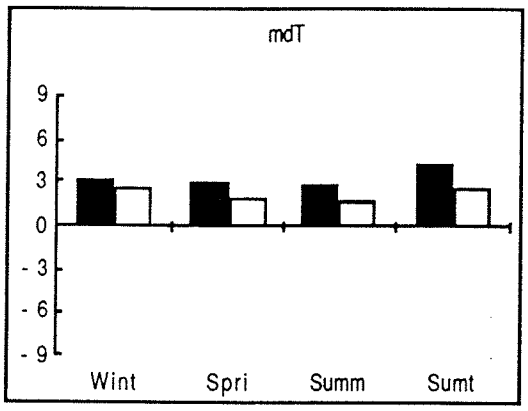
KEYDAY MAP

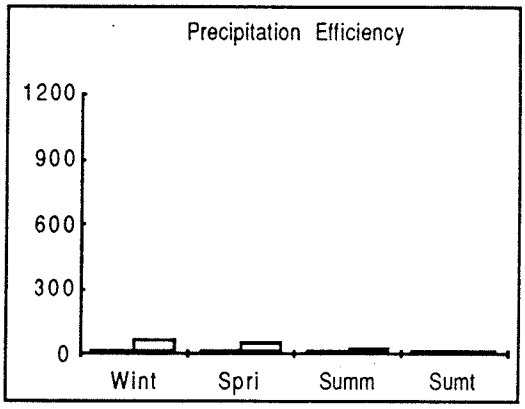


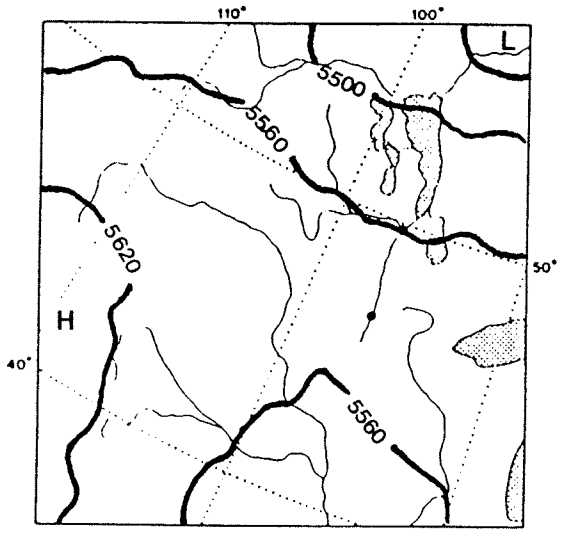
MEAN MAP

S5TYPE-10

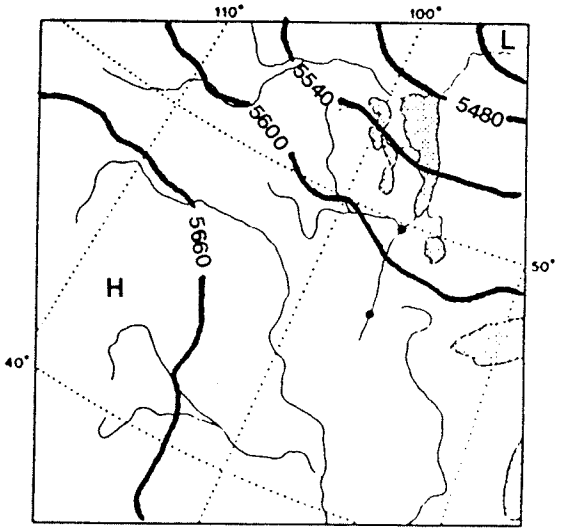






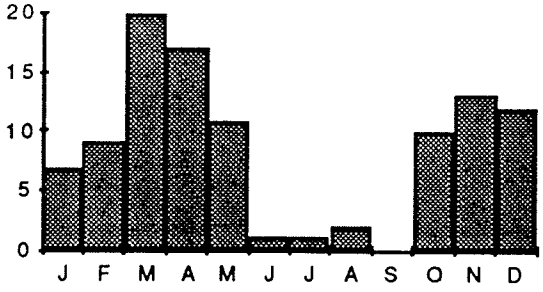


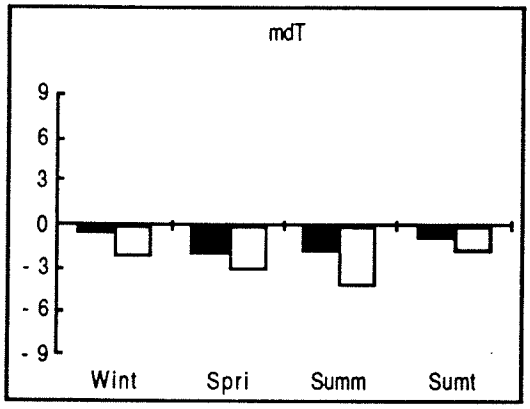
KEYDAY MAP

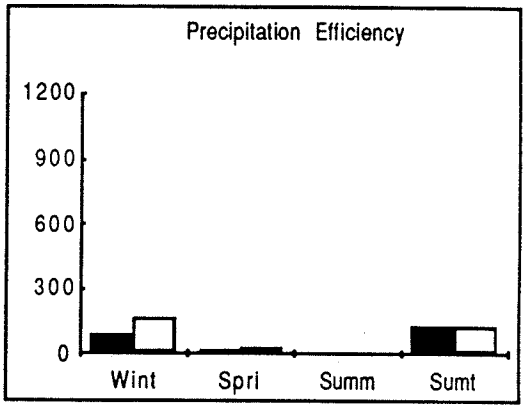


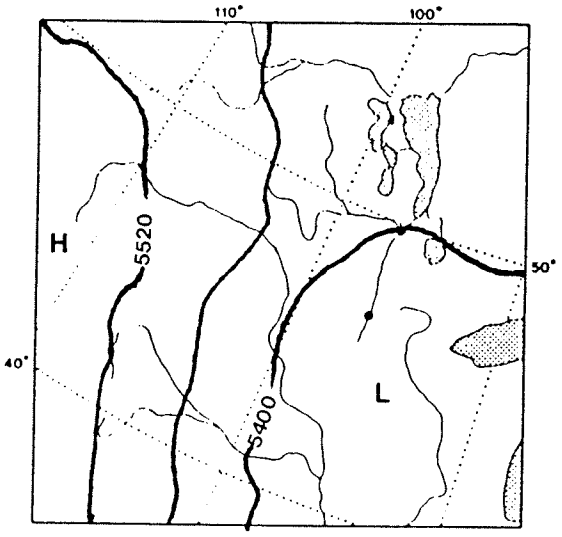
MEAN MAP

S5TYPE-11

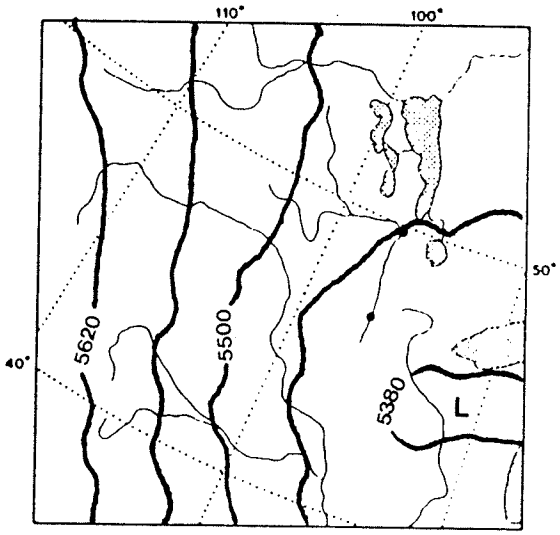






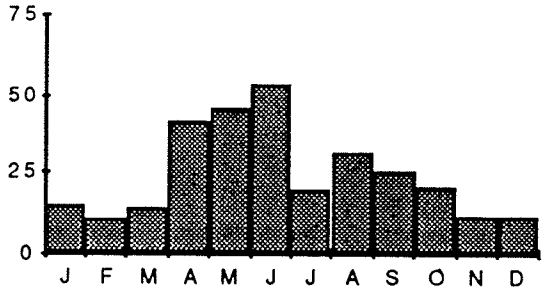


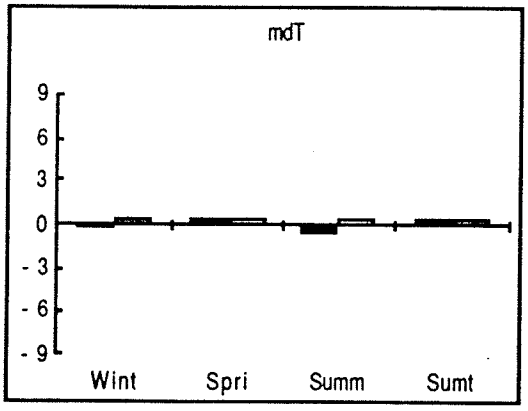
KEYDAY MAP

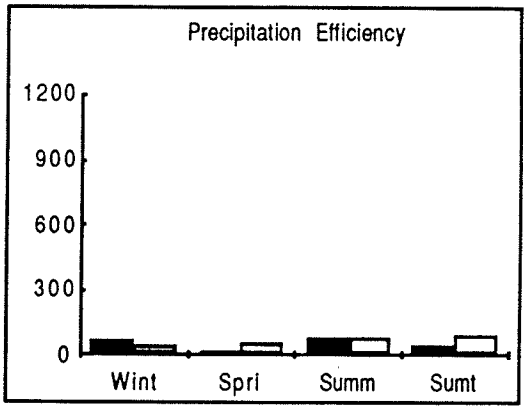


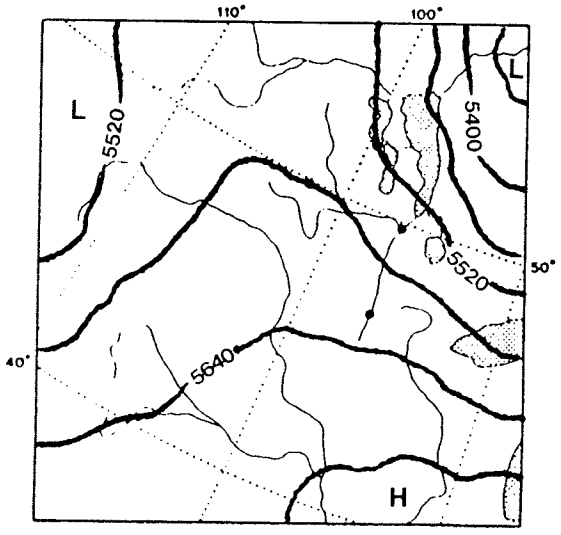
MEAN MAP

S5TYPE-12

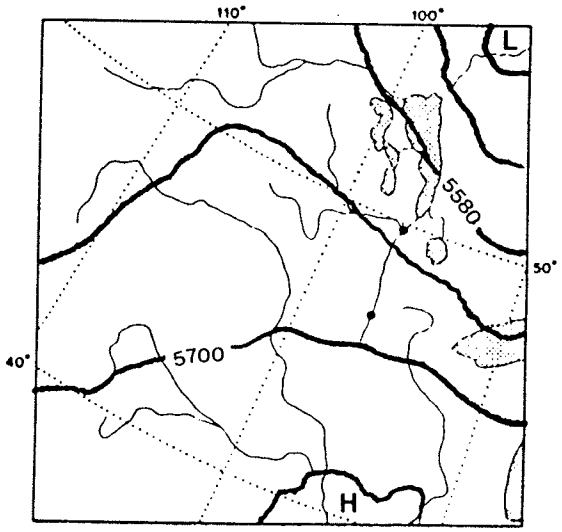






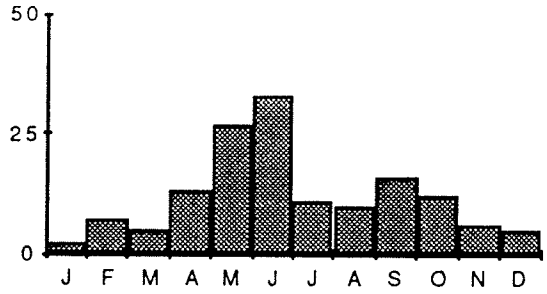


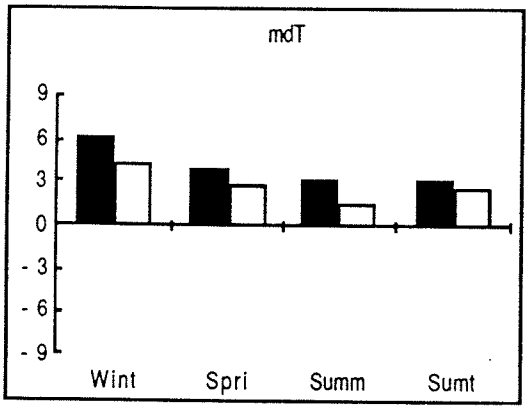
KEYDAY MAP

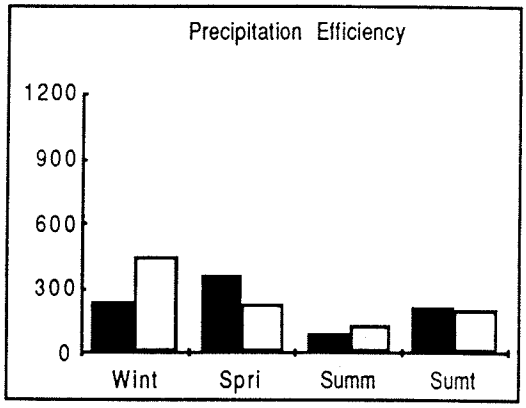


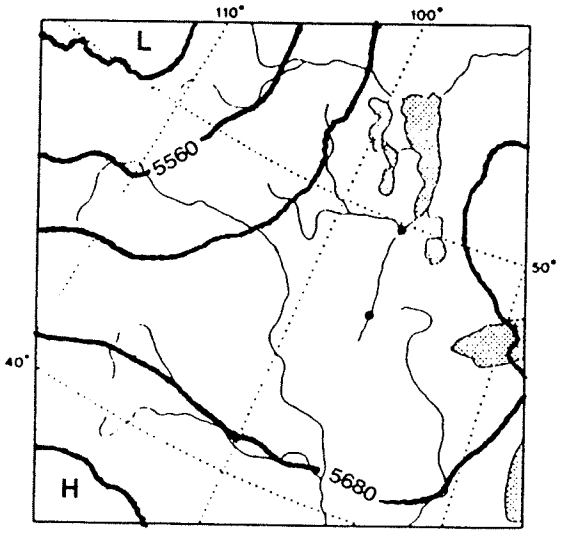
MEAN MAP

S5TYPE-13

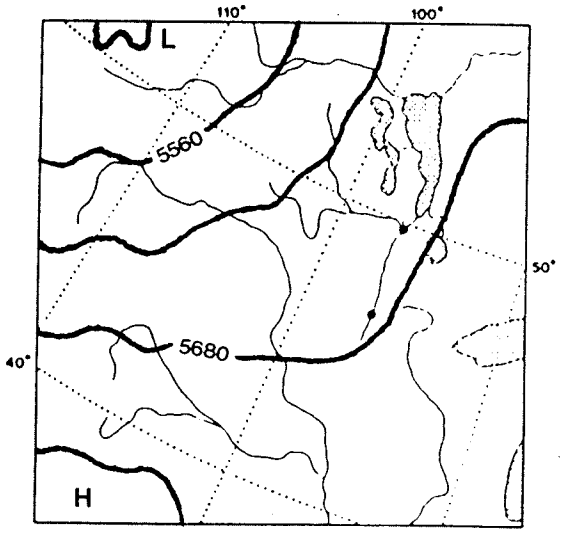






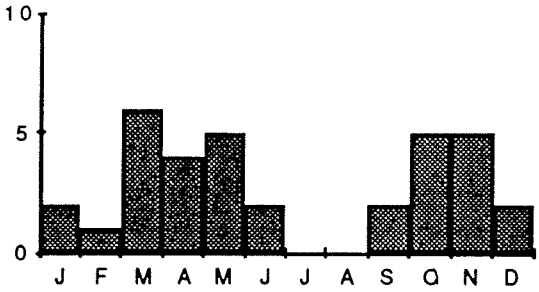


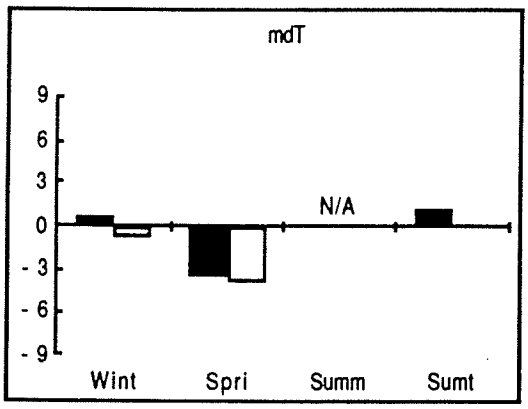
KEYDAY MAP

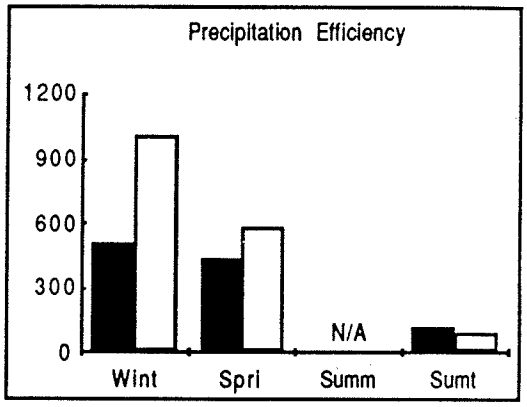


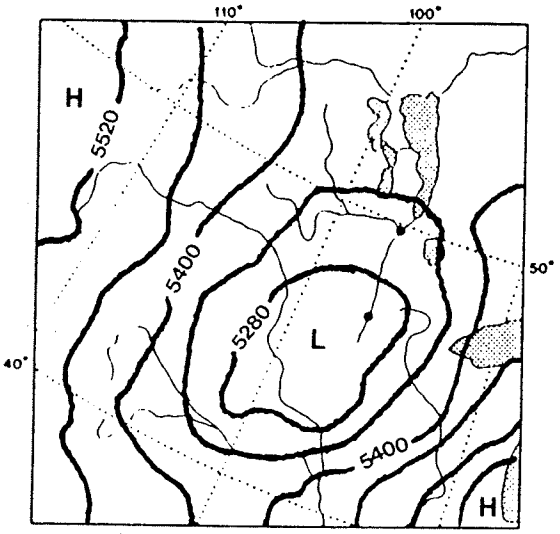
MEAN MAP

S5TYPE-14

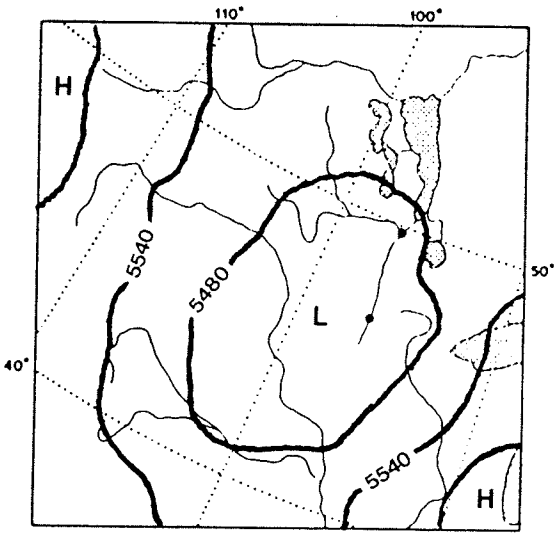






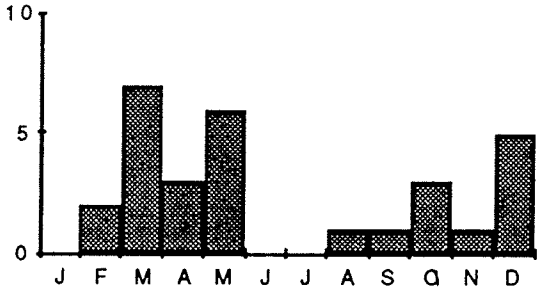


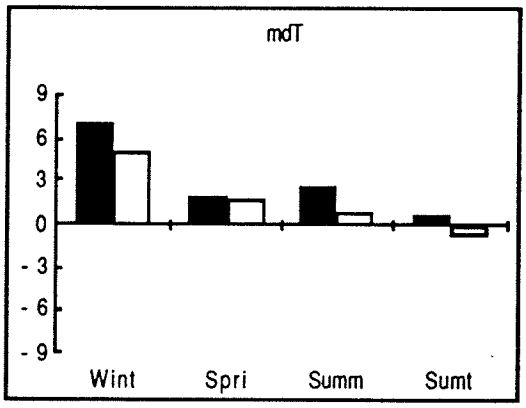
KEYDAY MAP

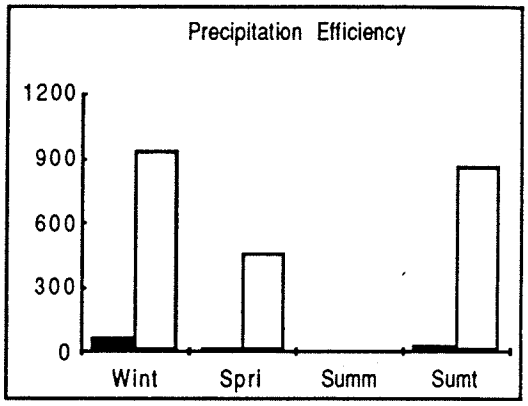


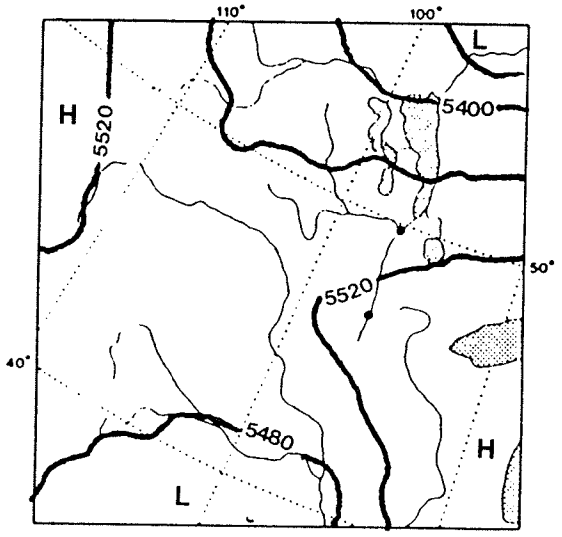
MEAN MAP

S5TYPE-15

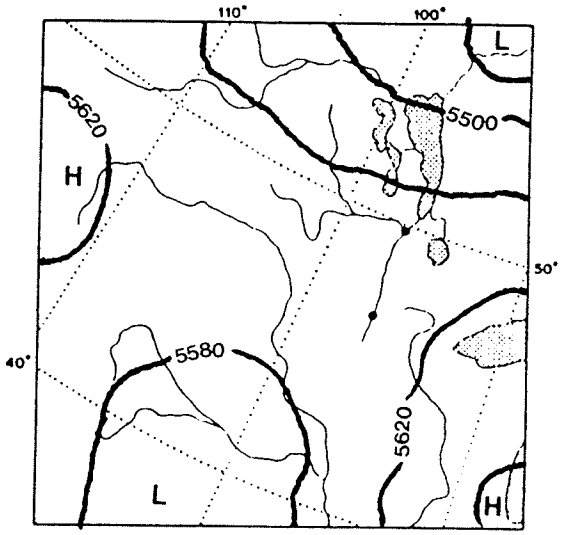






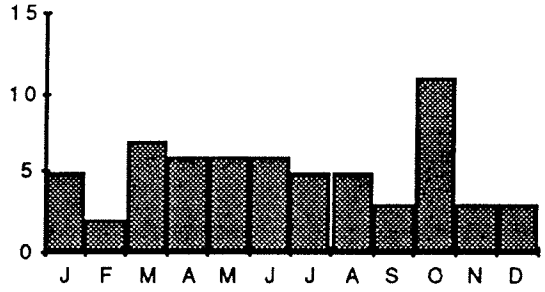


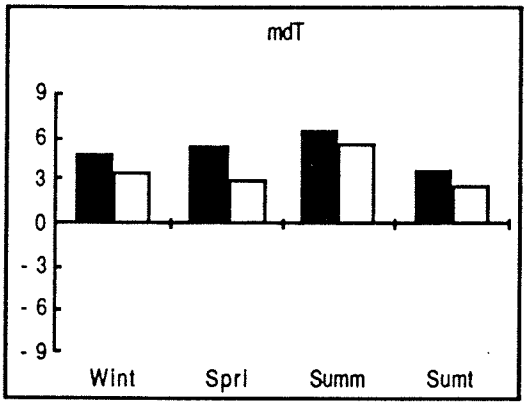
KEYDAY MAP

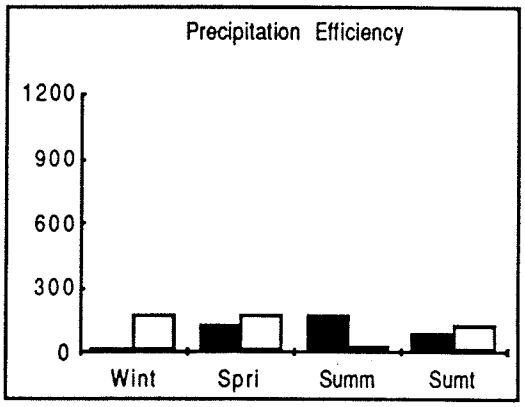


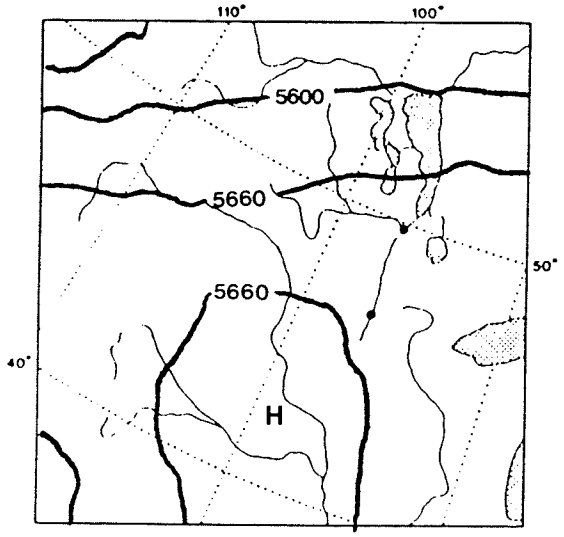
MEAN MAP

S5TYPE-16

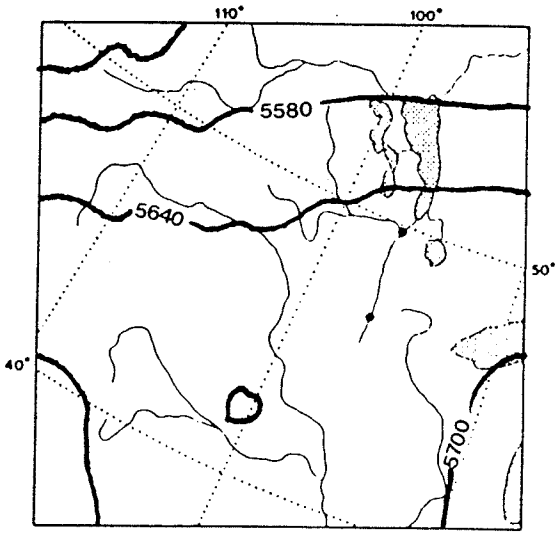








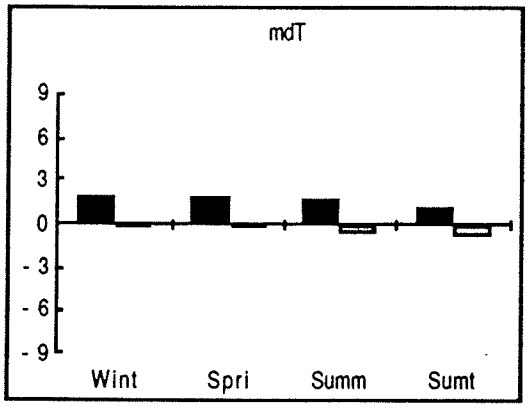
KEYDAY MAP

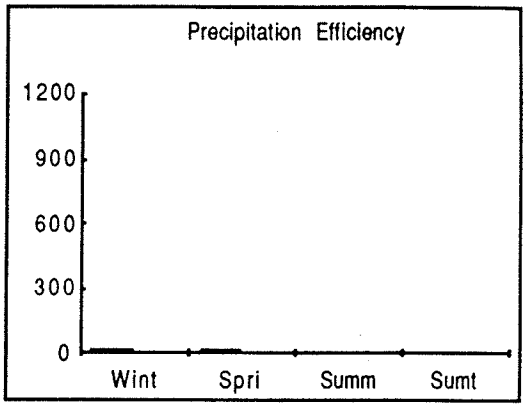


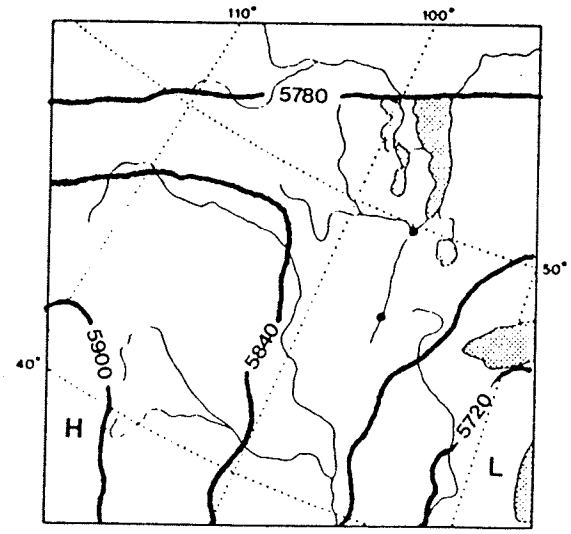
MEAN MAP

S5TYPE-17

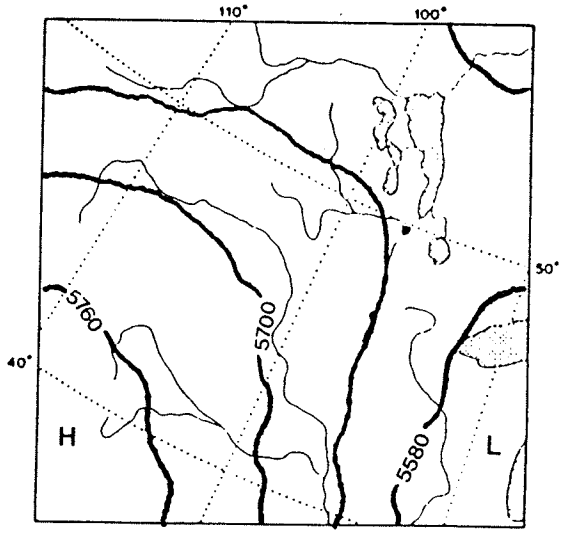






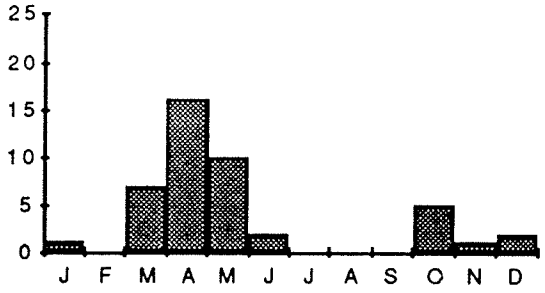


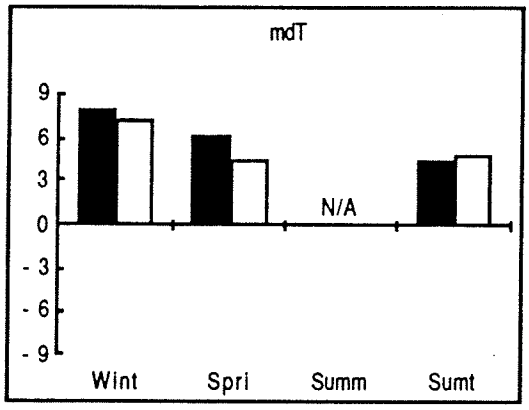
KEYDAY MAP

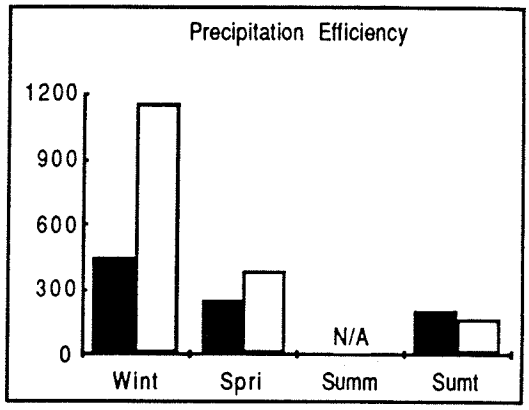


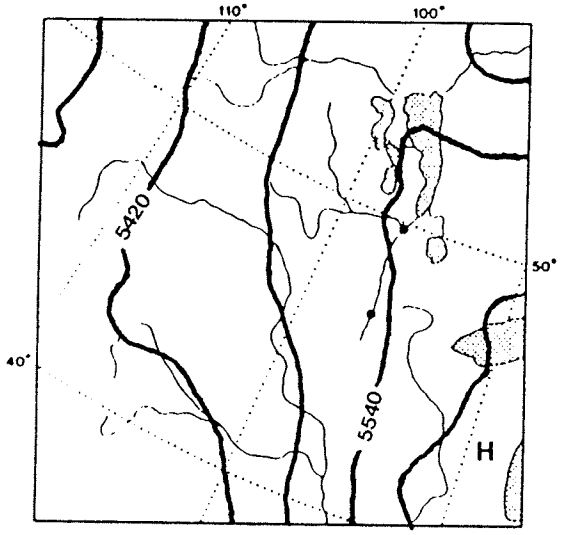
MEAN MAP

S5TYPE-18

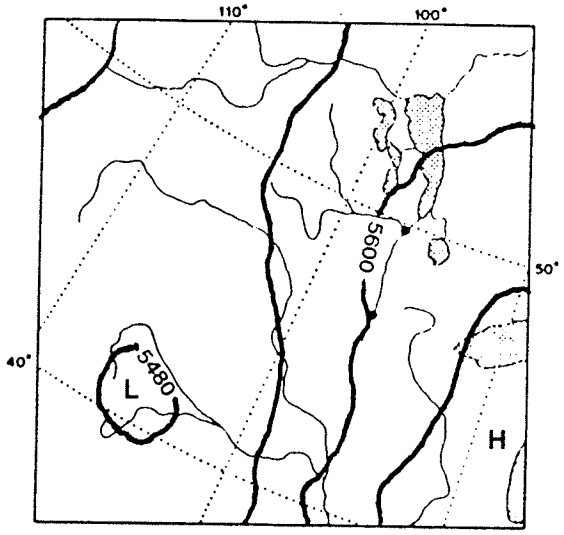






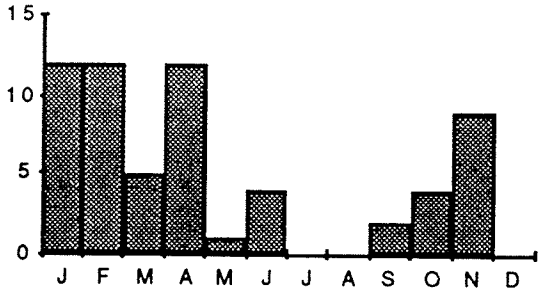


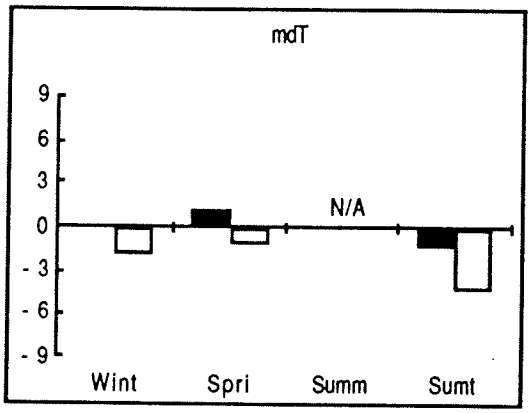
KEYDAY MAP

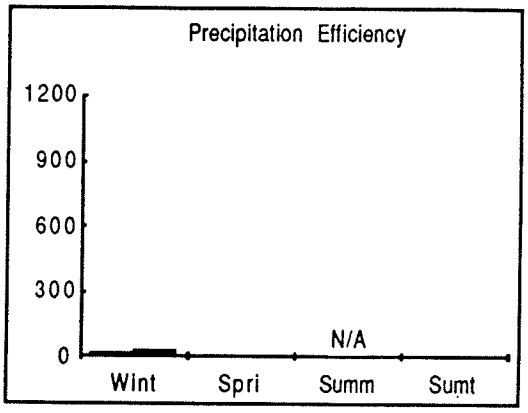


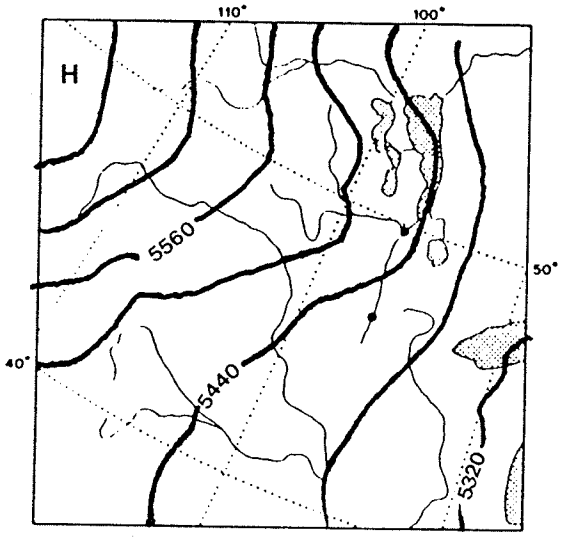
MEAN MAP

S5TYPE-19

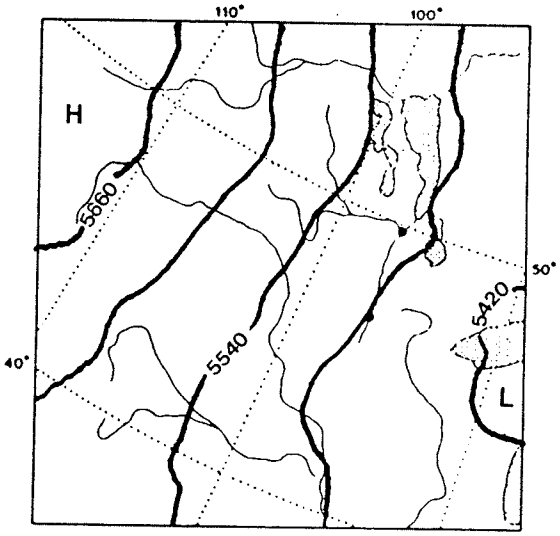






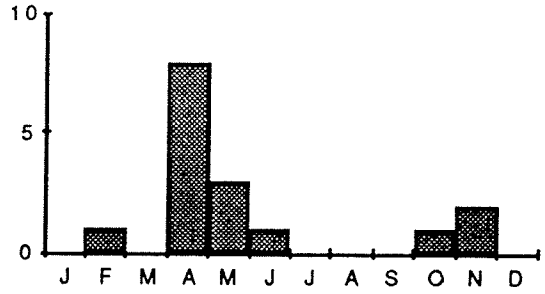


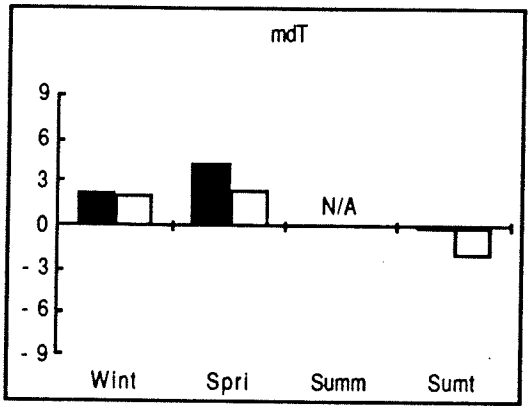
KEYDAY MAP

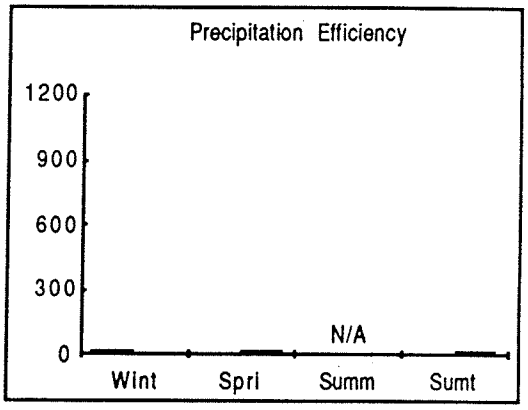


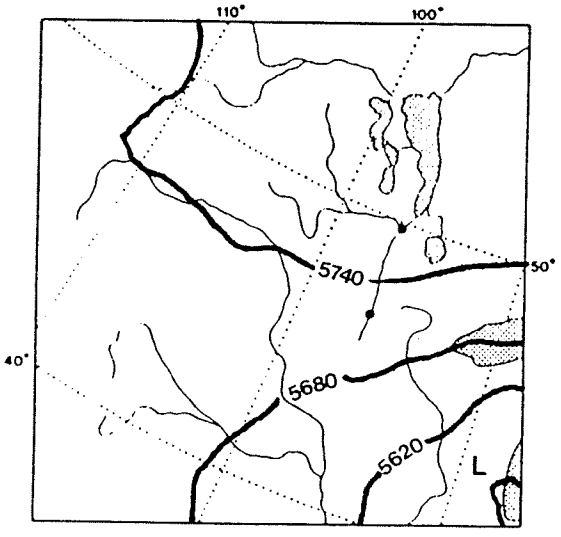
MEAN MAP

S5TYPE-20

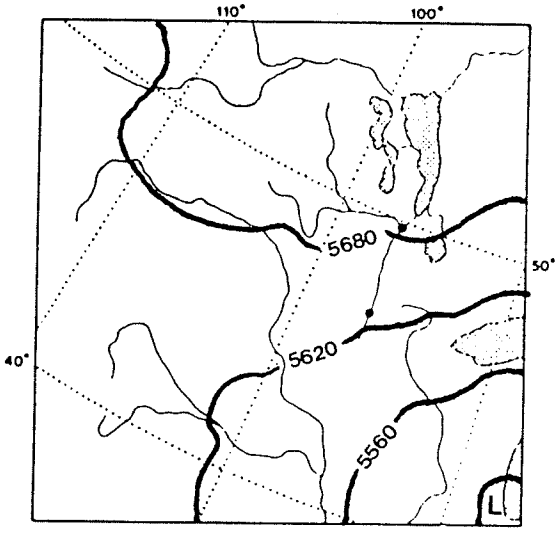






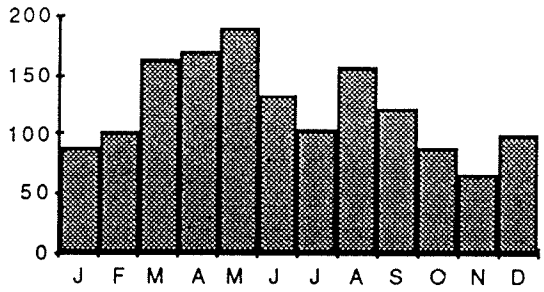


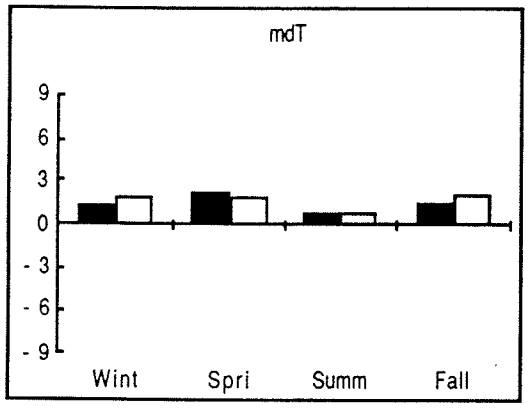
KEYDAY MAP

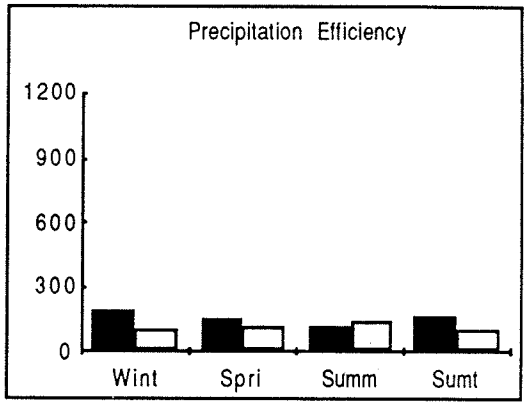


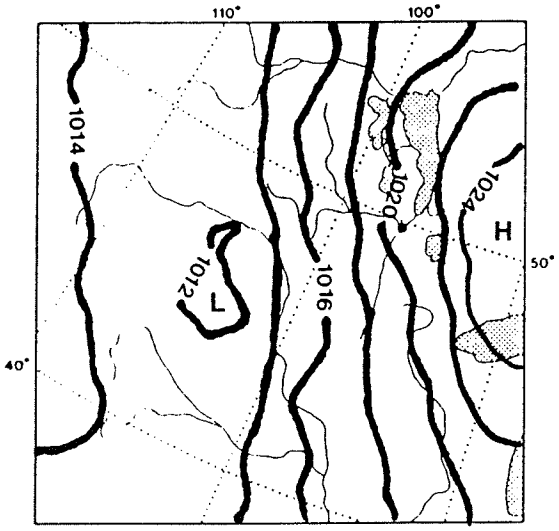
MEAN MAP

SMTYPE-1

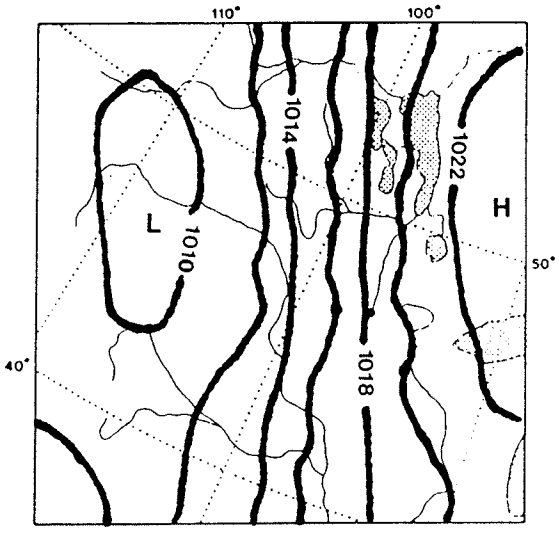






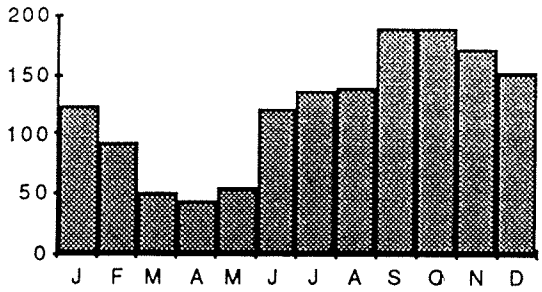


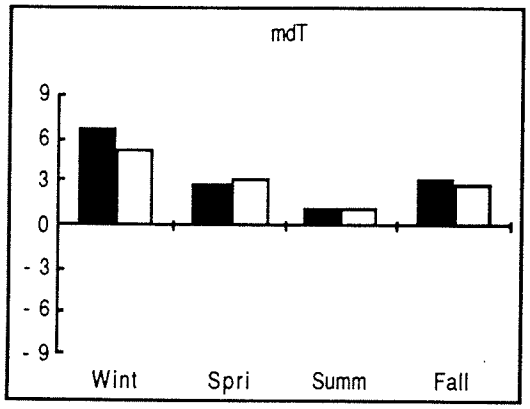
KEYDAY MAP

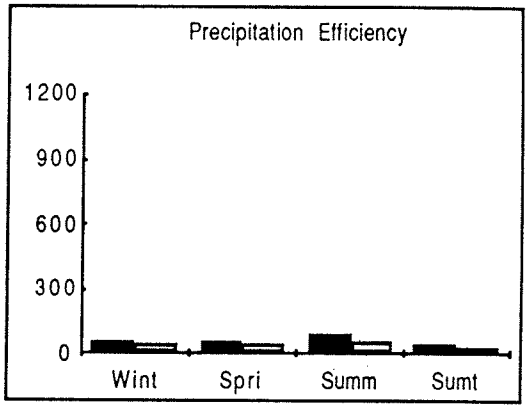


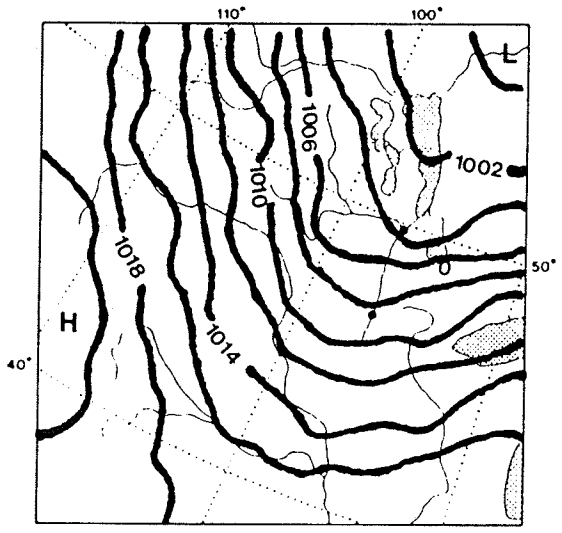
MEAN MAP

SMTYPE-2

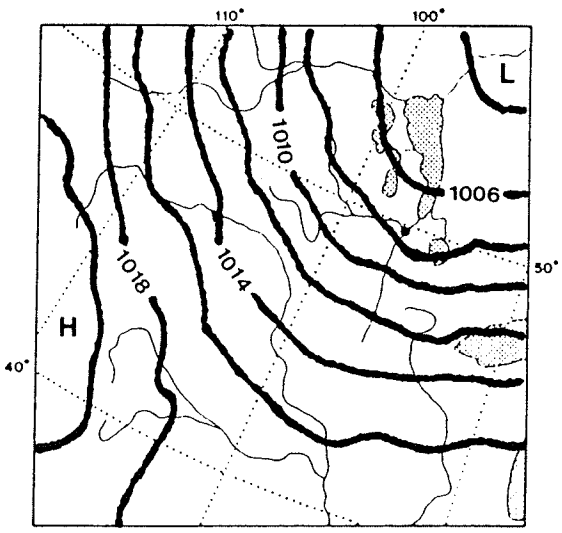






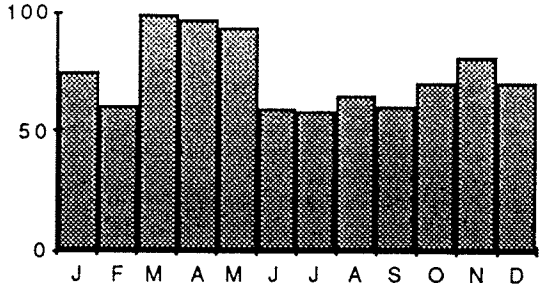


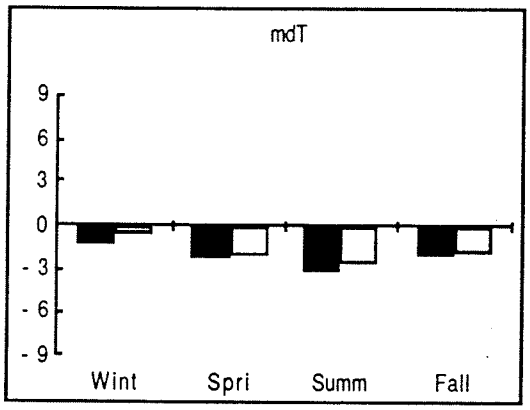
KEYDAY MAP

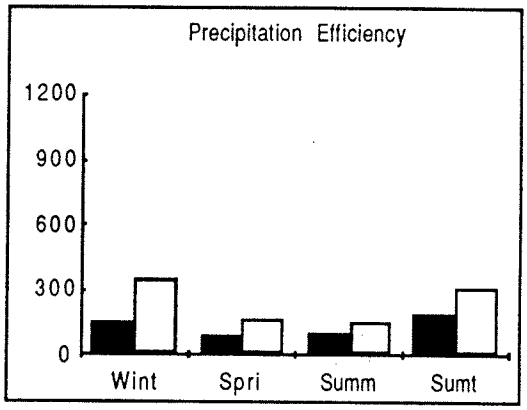


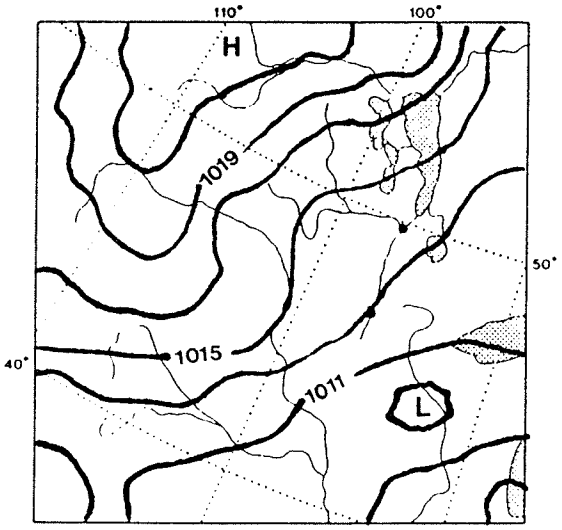
MEAN MAP

SMTYPE-3

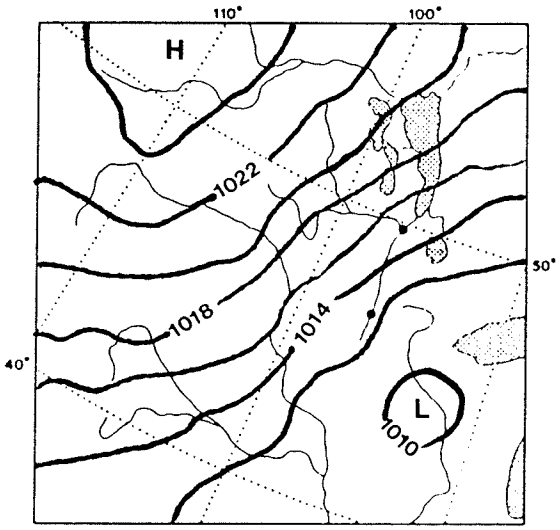






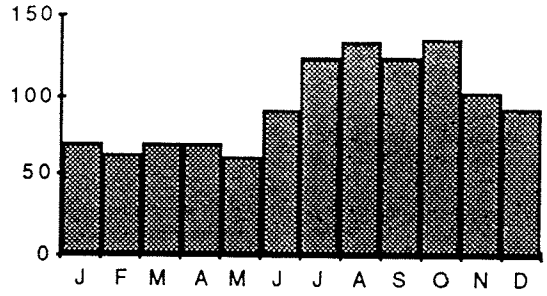


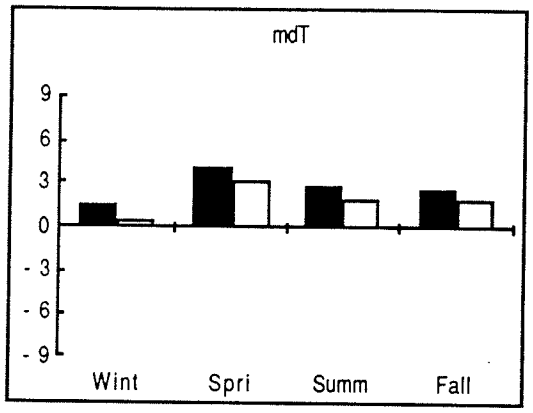
KEYDAY MAP

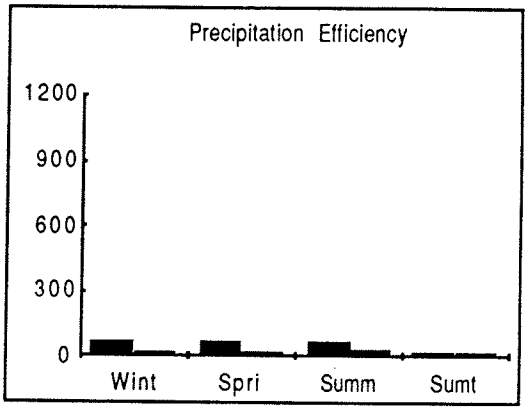


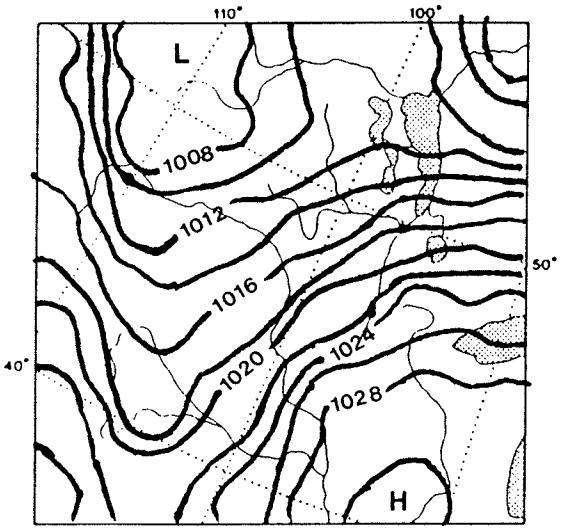
MEAN MAP

SMTYPE-4

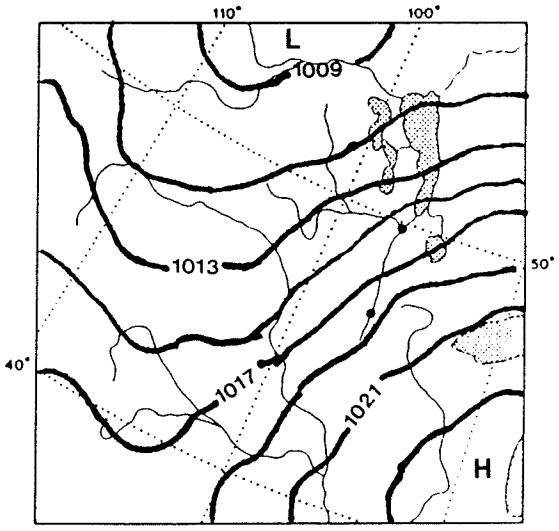






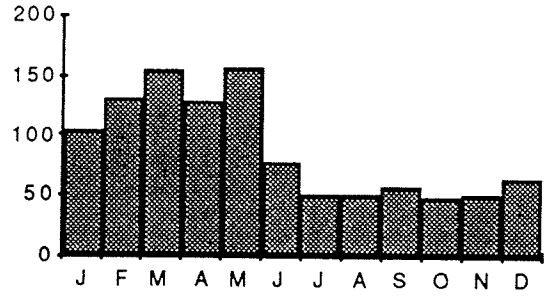


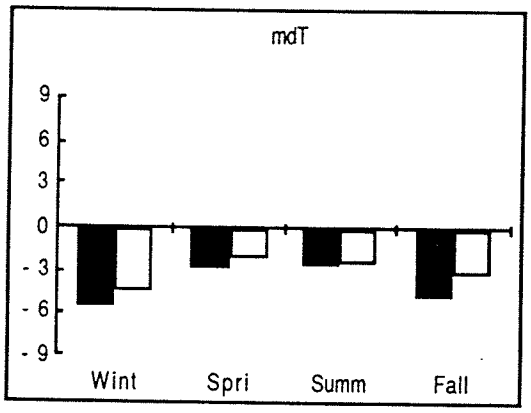
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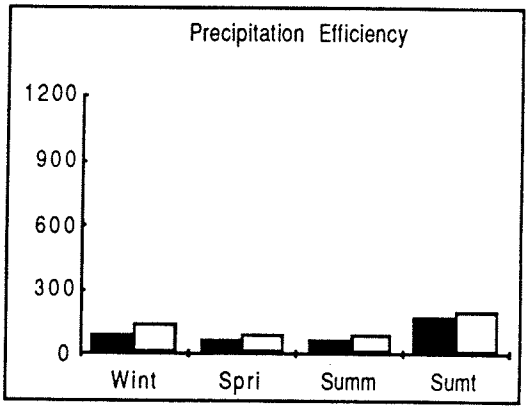


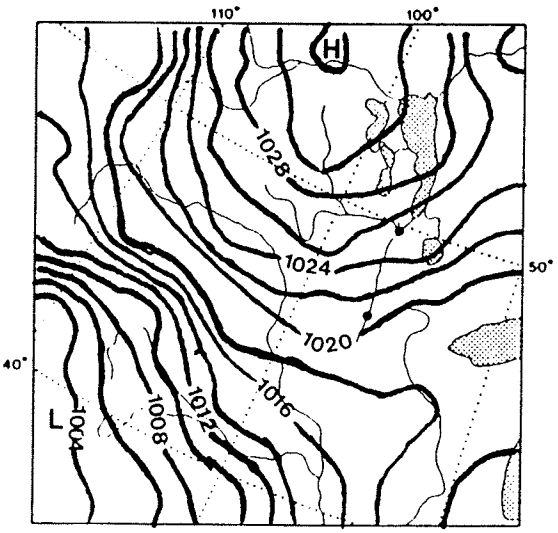
MEAN MAP

SMTYPE-5

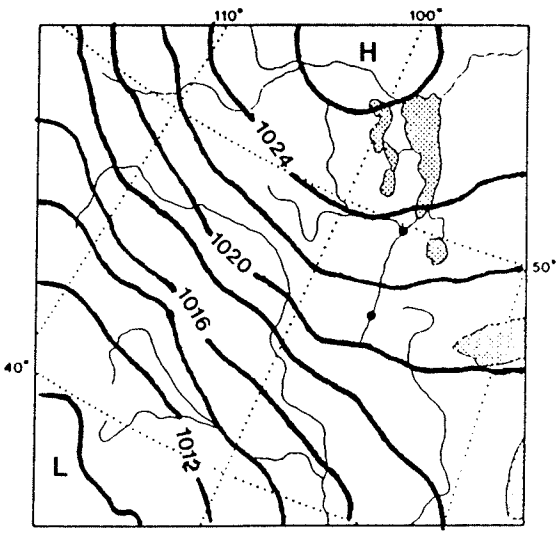






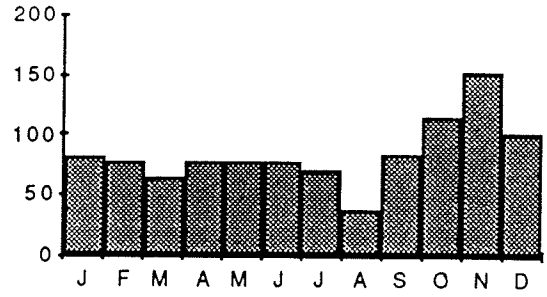


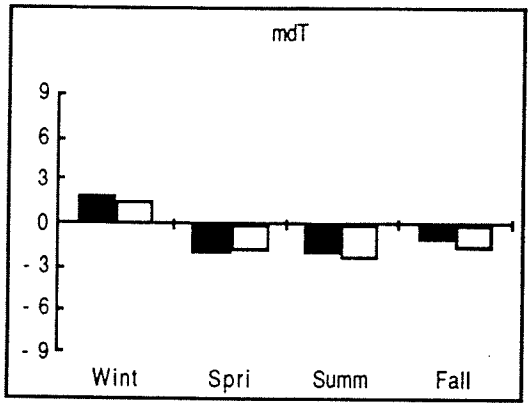
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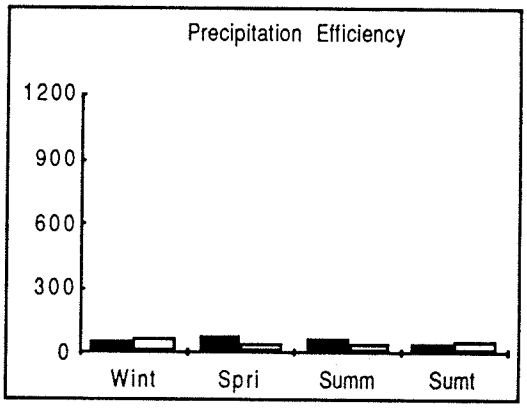


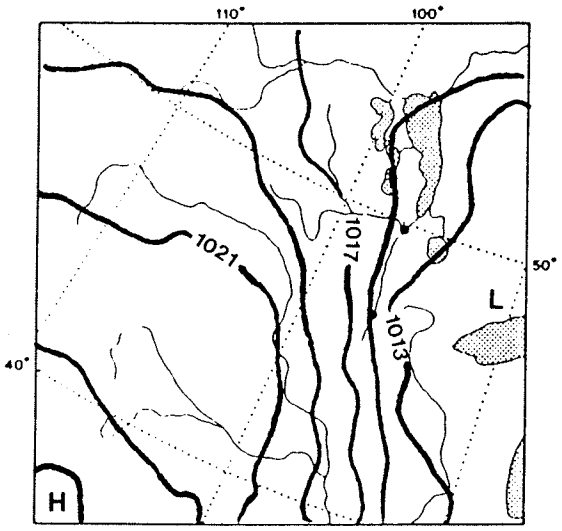
MEAN MAP

SMTYPE-6

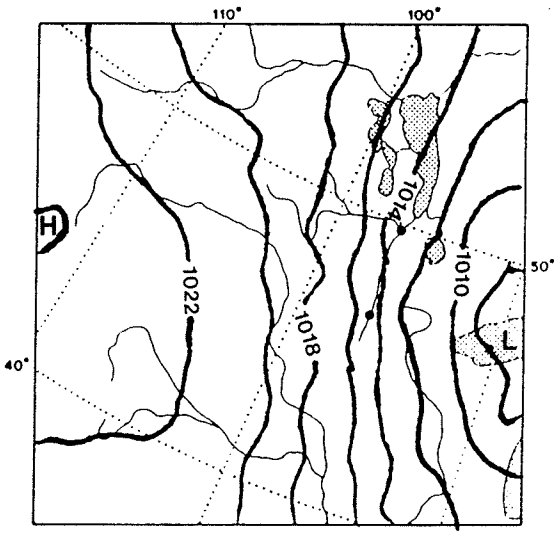






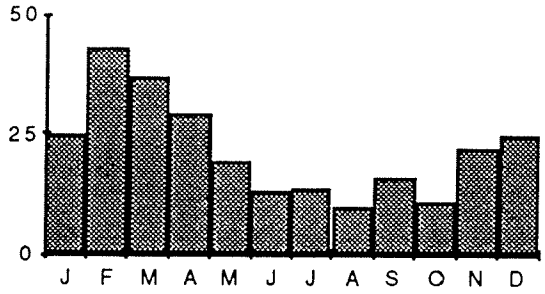


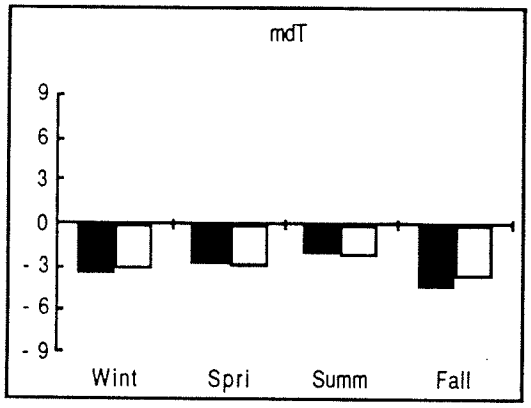
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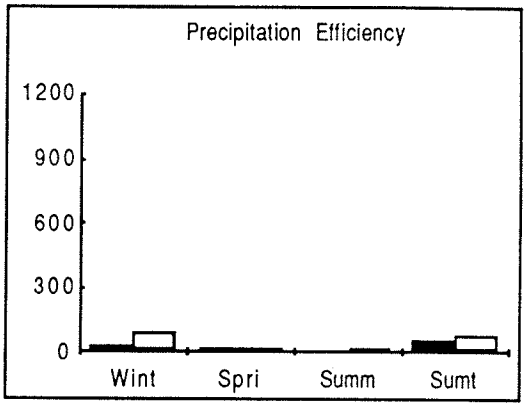


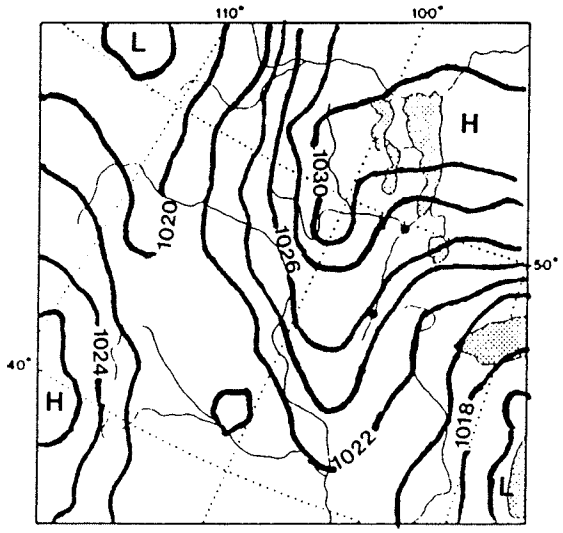
MEAN MAP

SMTYPE-7

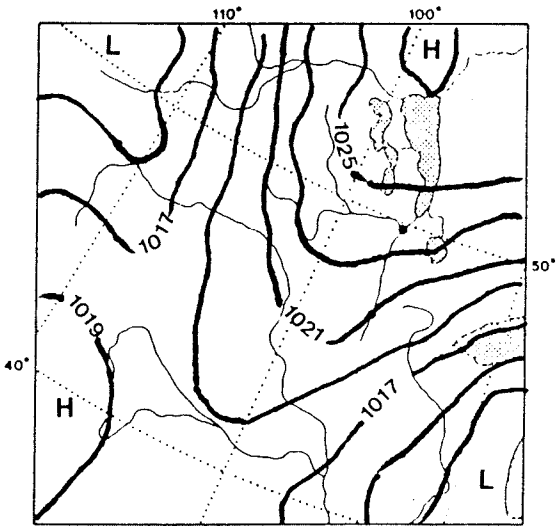






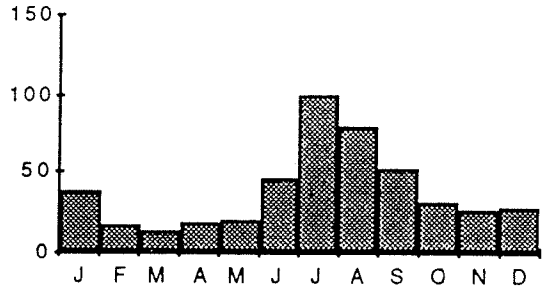


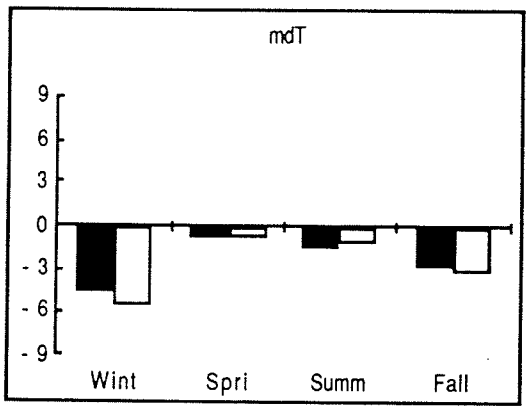
KEYDAY MAP

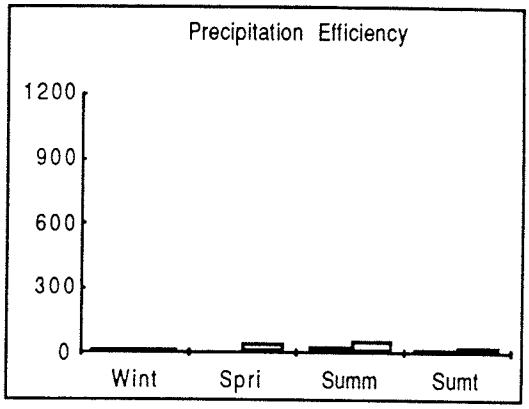


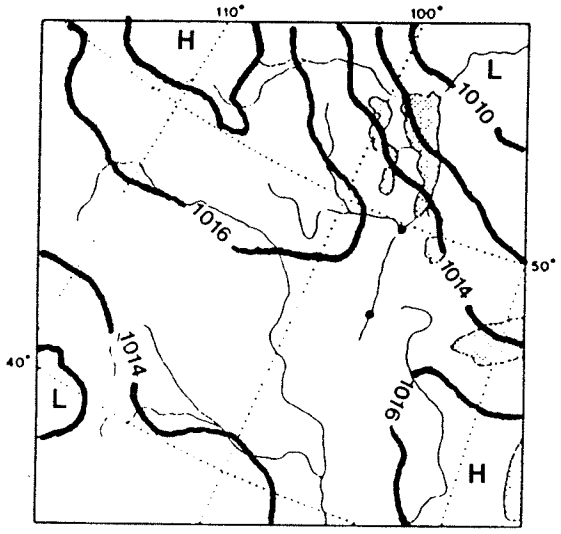
MEAN MAP

SMTYPE-8

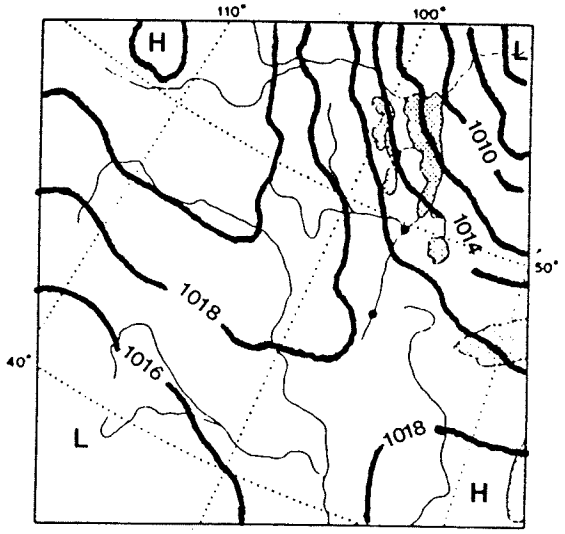






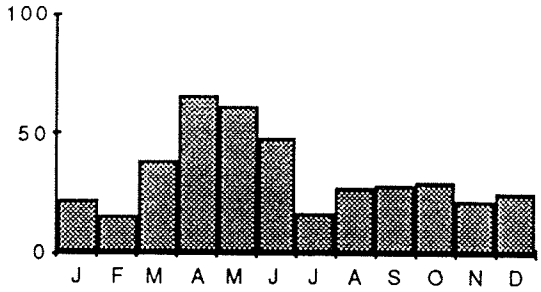


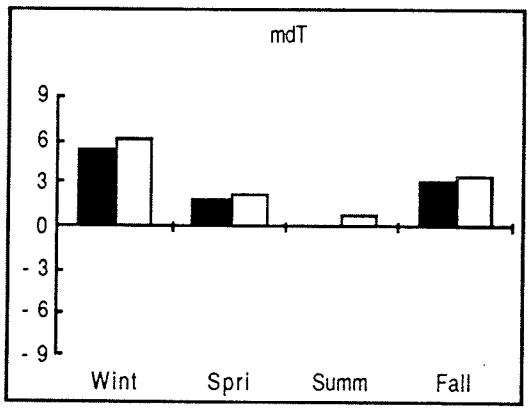
KEYDAY MAP

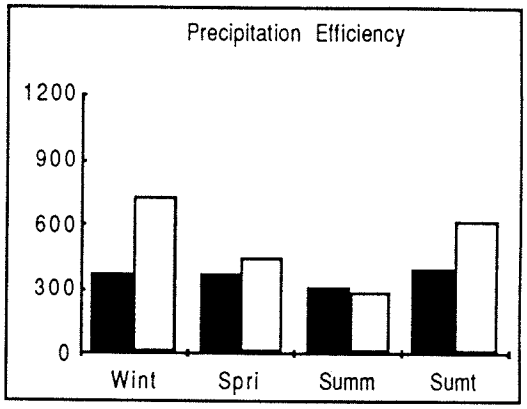


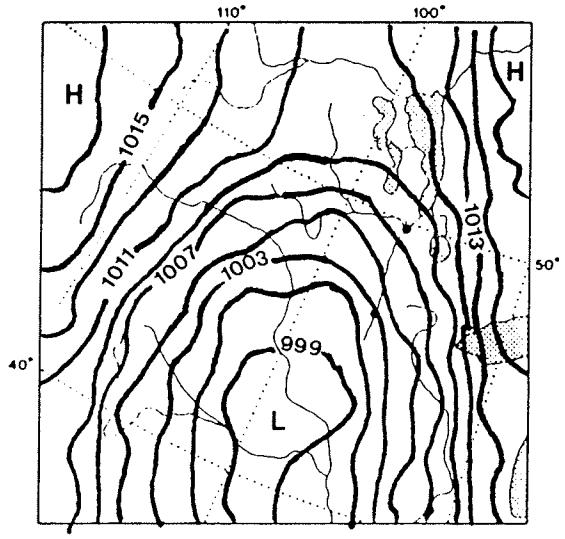
MEAN MAP

SMTYPE-9

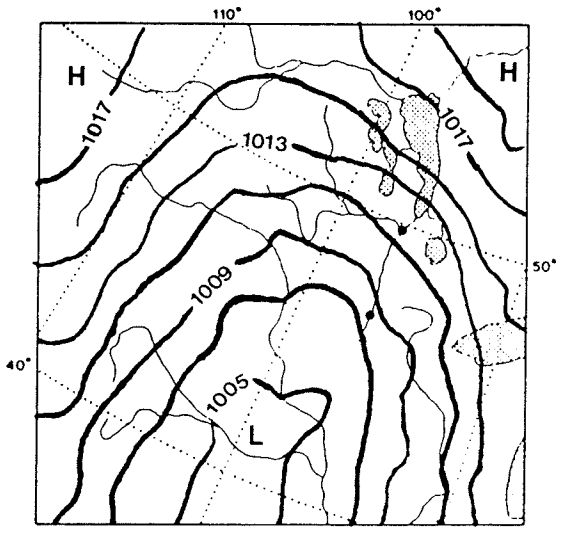






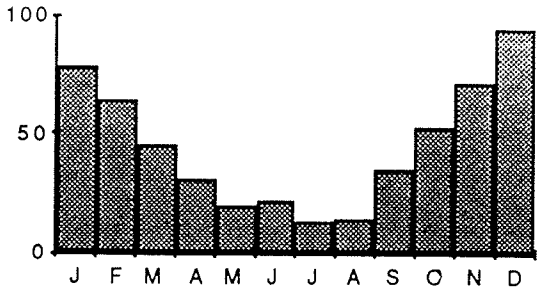


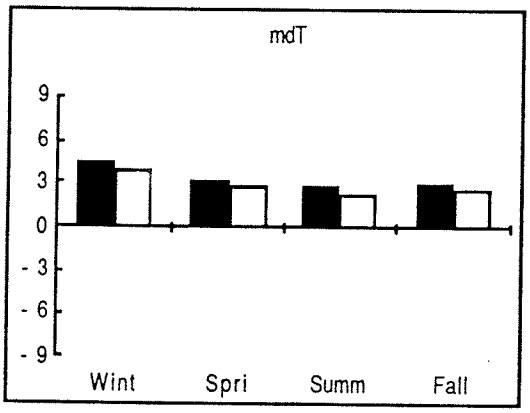
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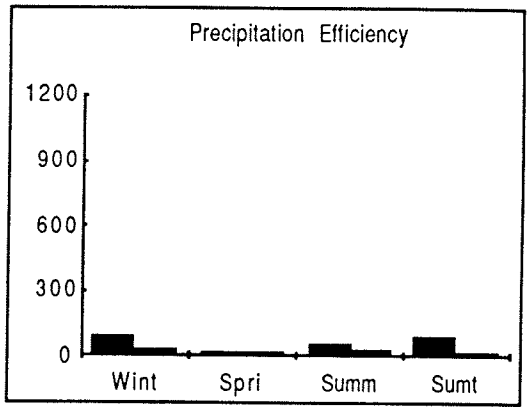


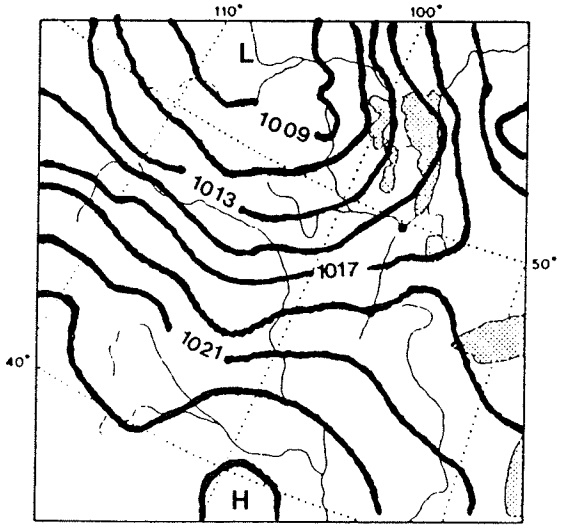
MEAN MAP

SMTYPE-10

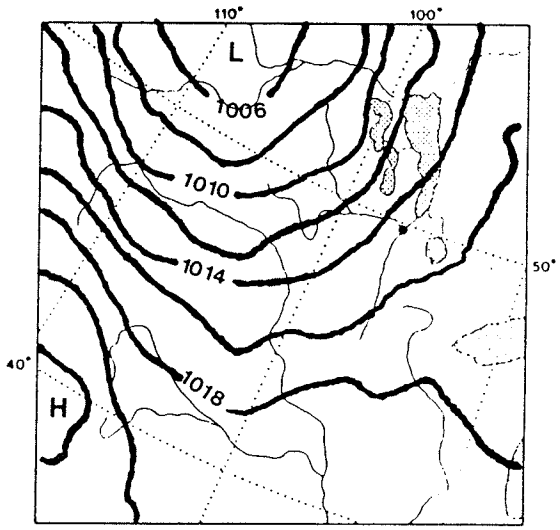






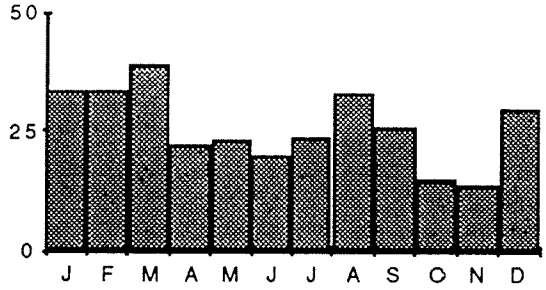


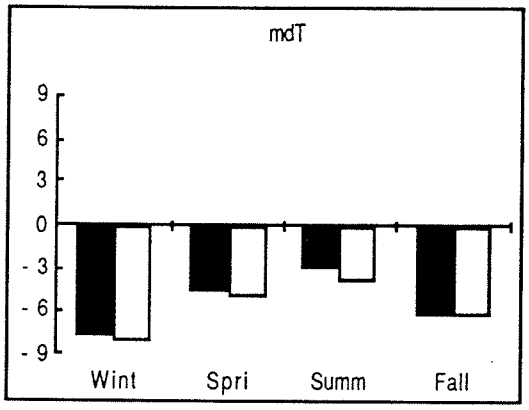
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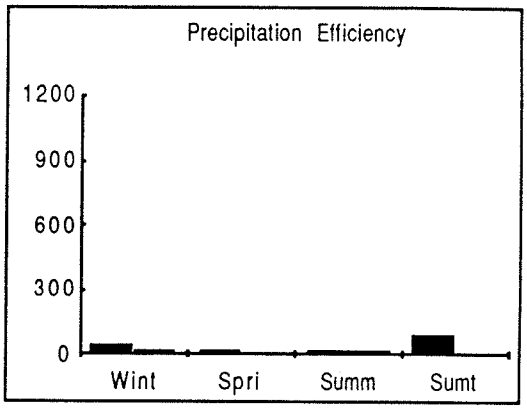


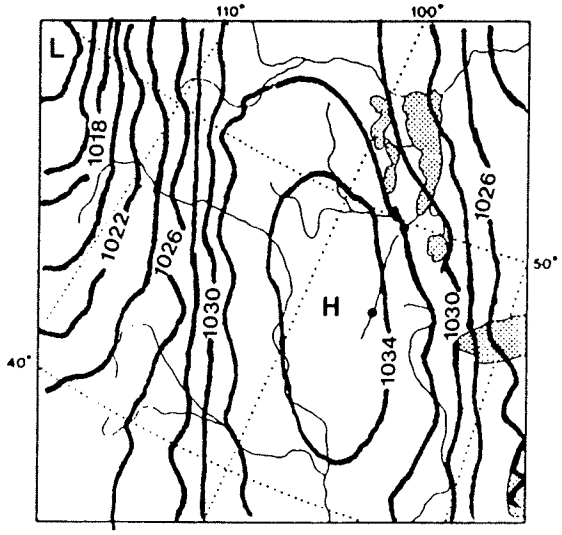
MEAN MAP

SMTYPE-11

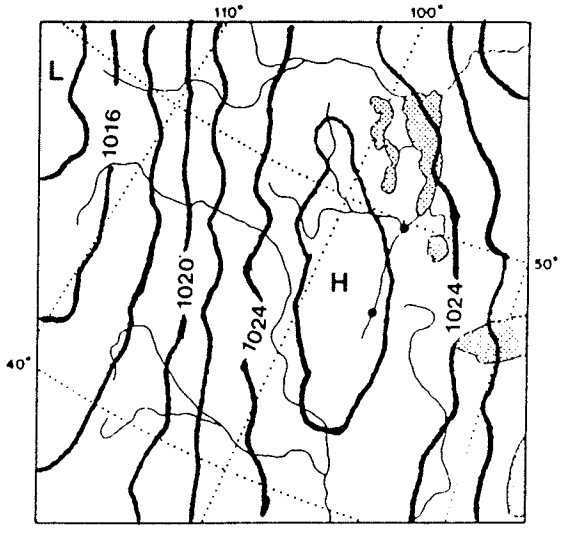






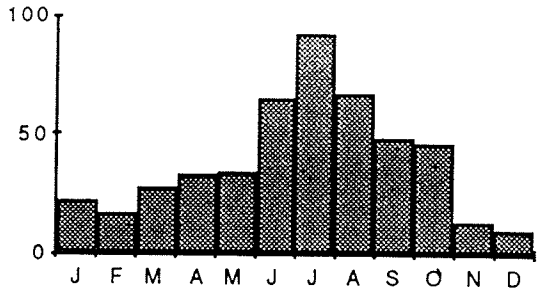


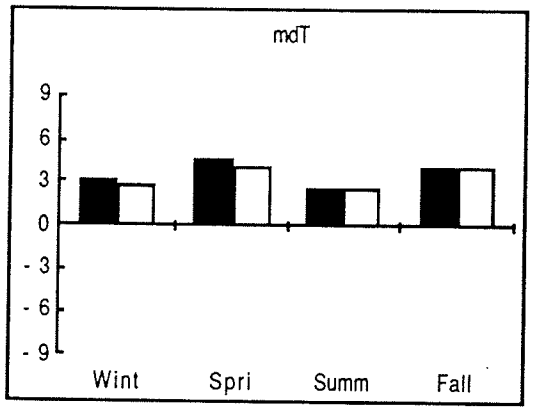
KEYDAY MAP

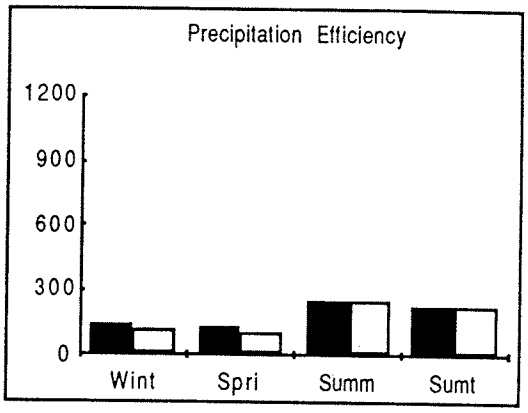


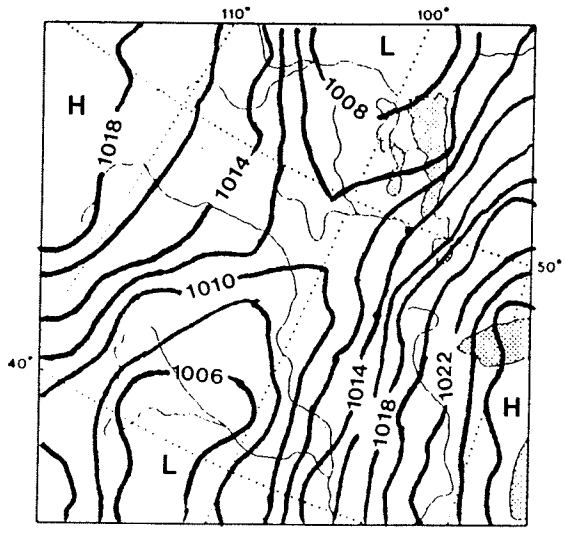
MEAN MAP

SMTYPE-12

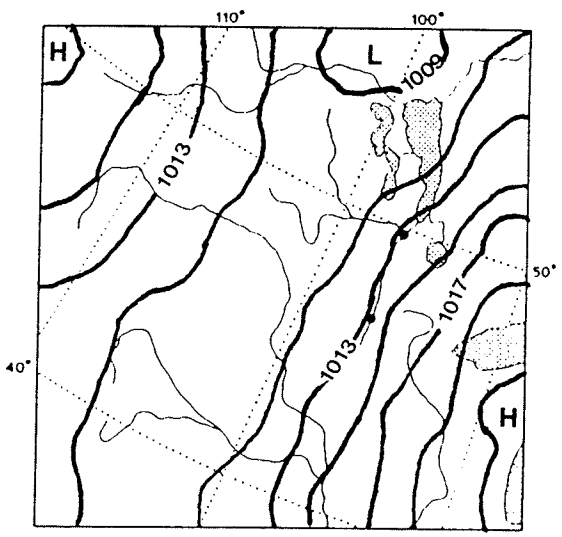






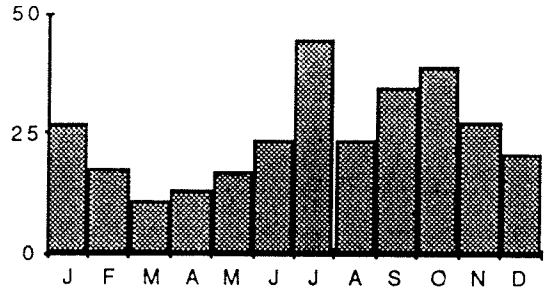


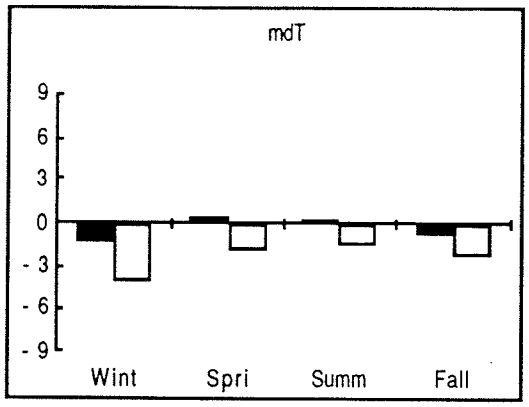
KEYDAY MAP

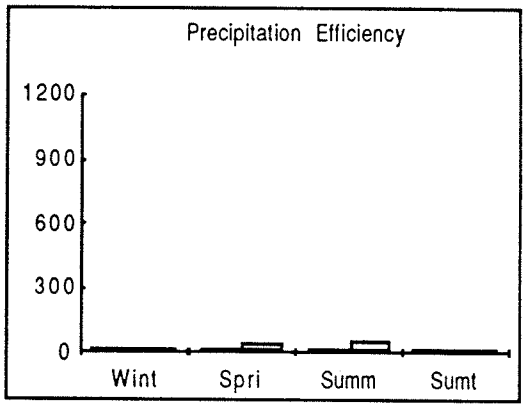


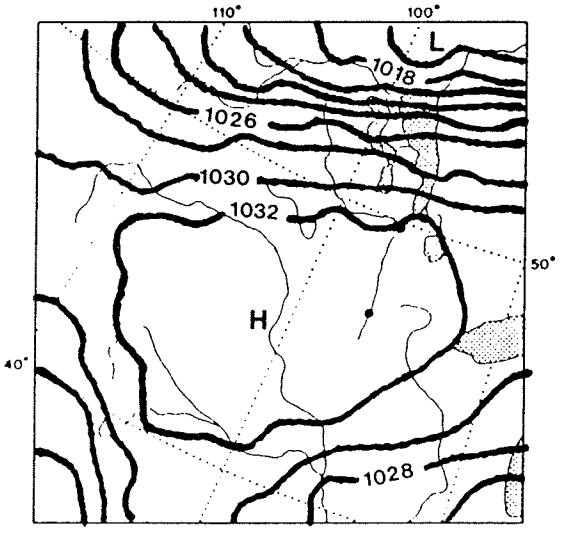
MEAN MAP

SMTYPE-13

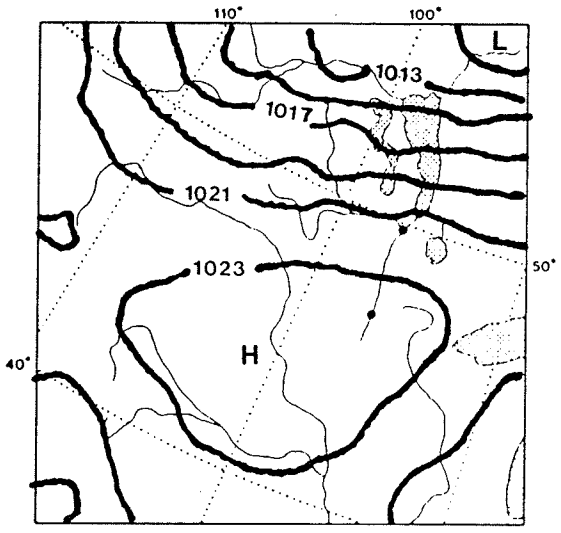






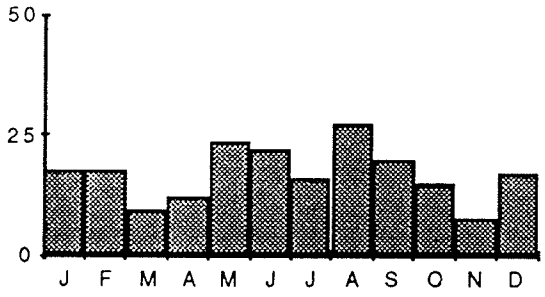


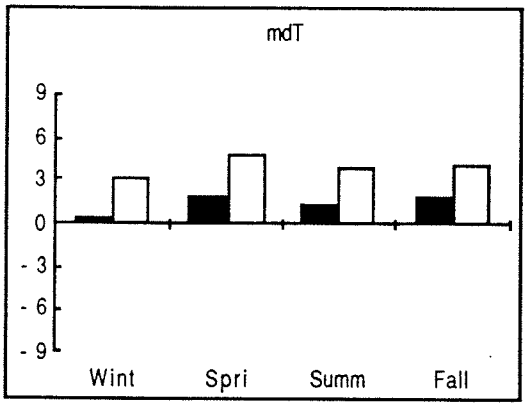
KEYDAY MAP

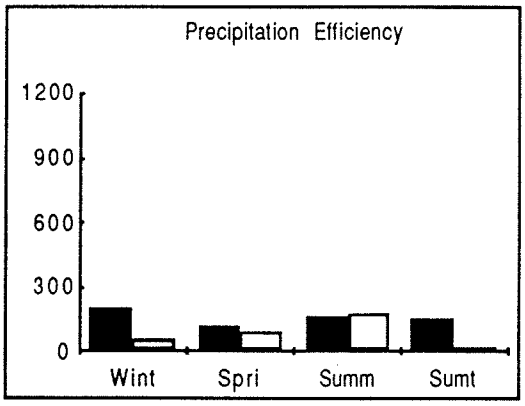


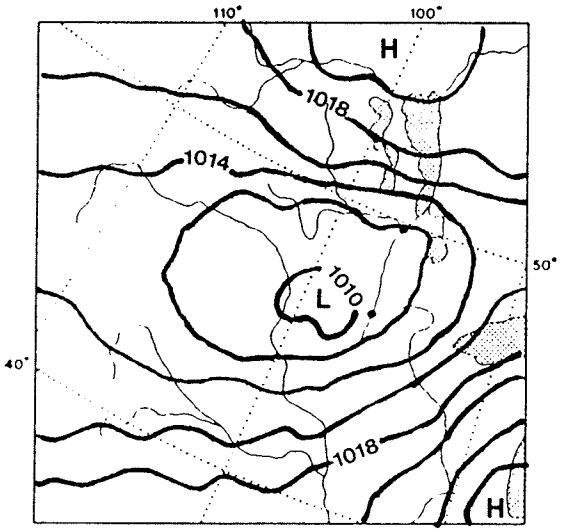
MEAN MAP

SMTYPE -14

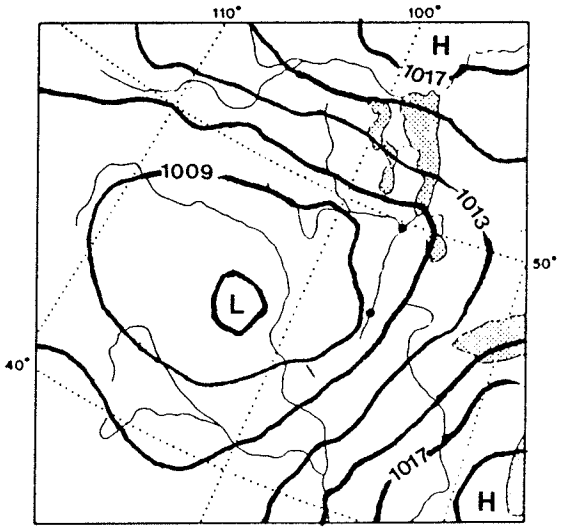






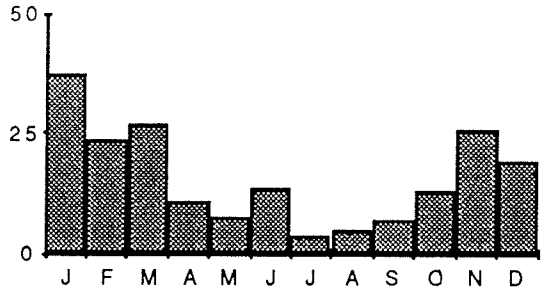


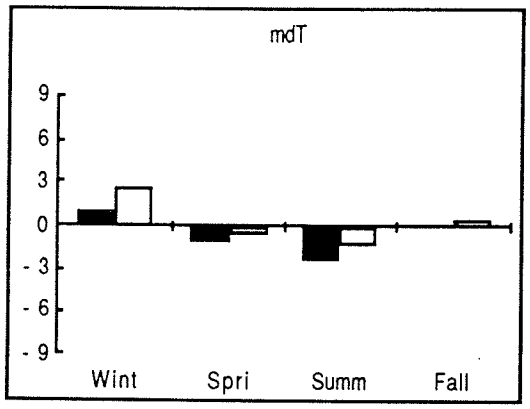
KEYDAY MAP

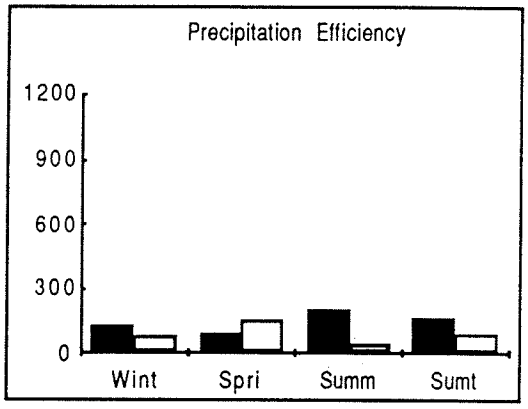


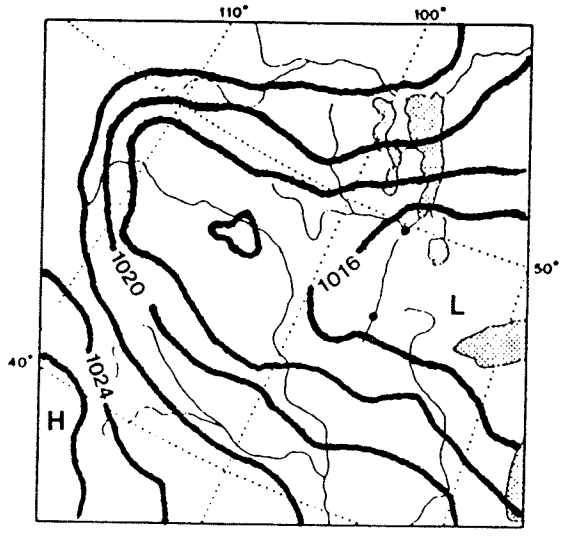
MEAN MAP

SMTYPE-15

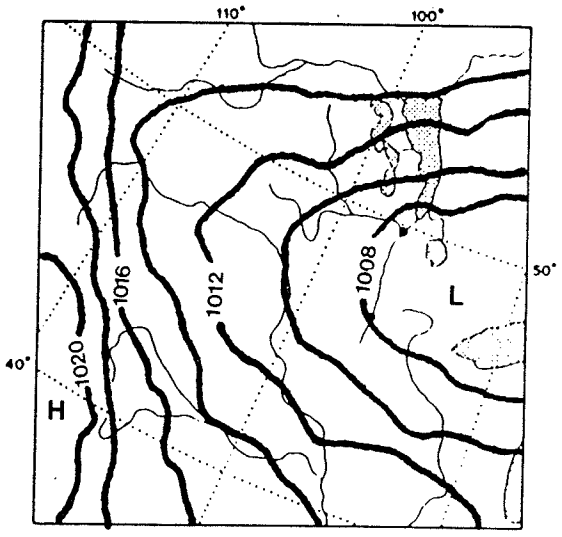






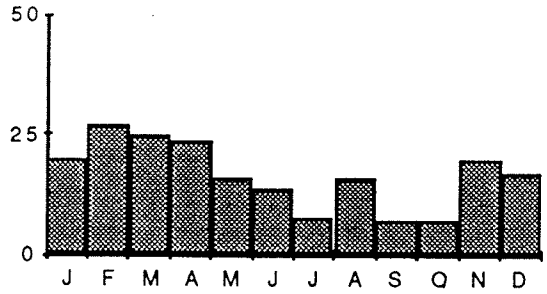


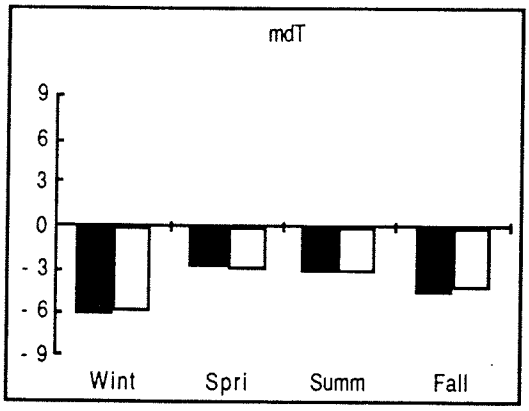
KEYDAY MAP

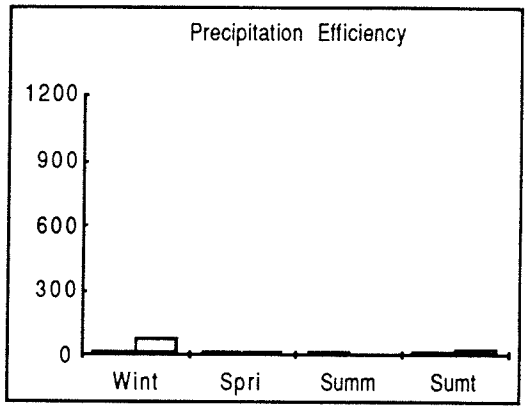


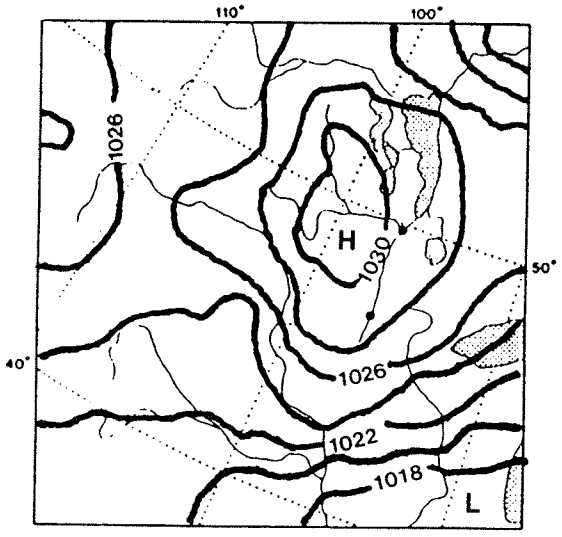
MEAN MAP

SMTYPE-16

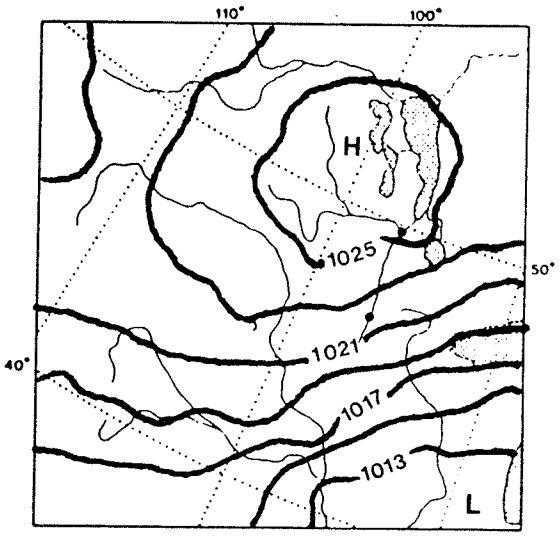






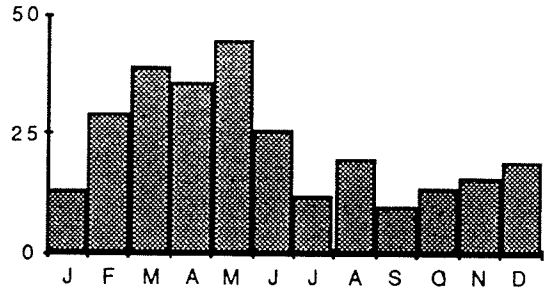


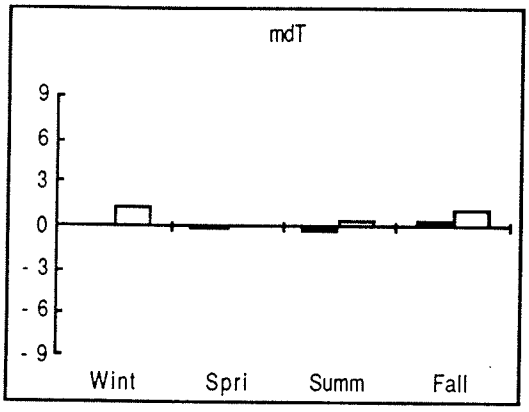
KEYDAY MAP

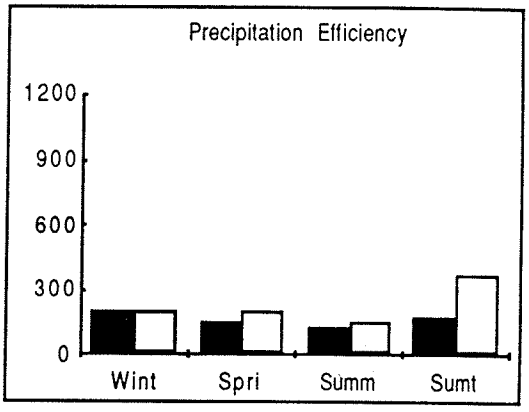


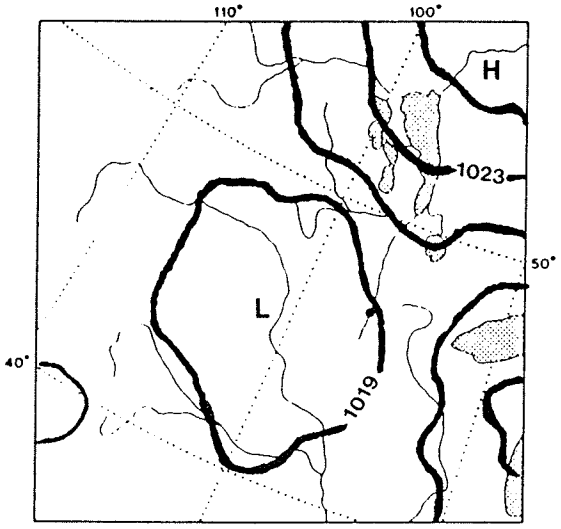
MEAN MAP

SMTYPE-17

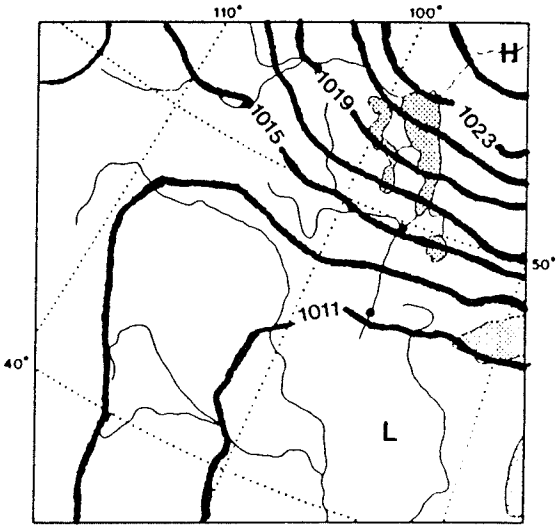






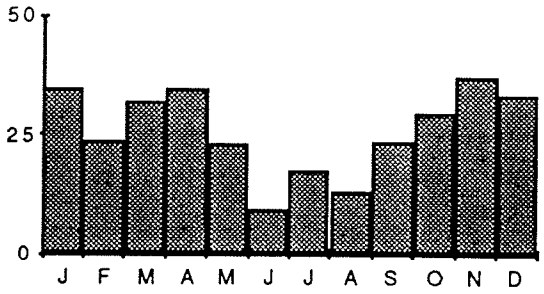


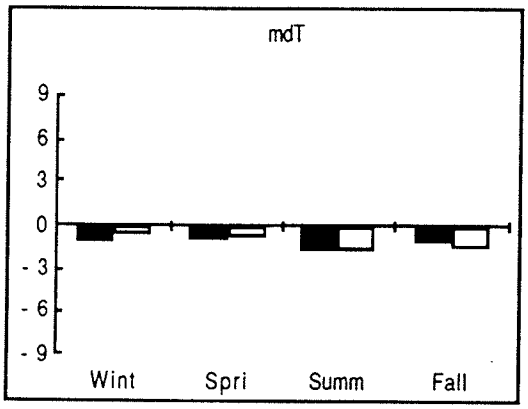
KEYDAY MAP

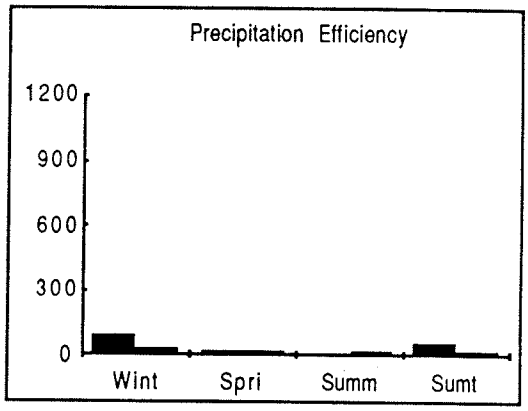


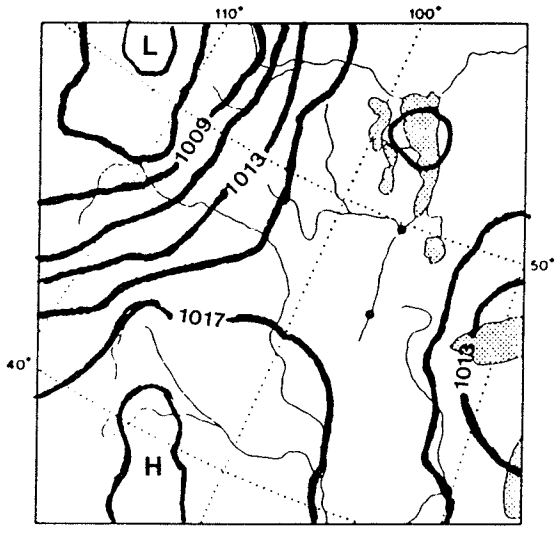
MEAN MAP

SMTYPE-18

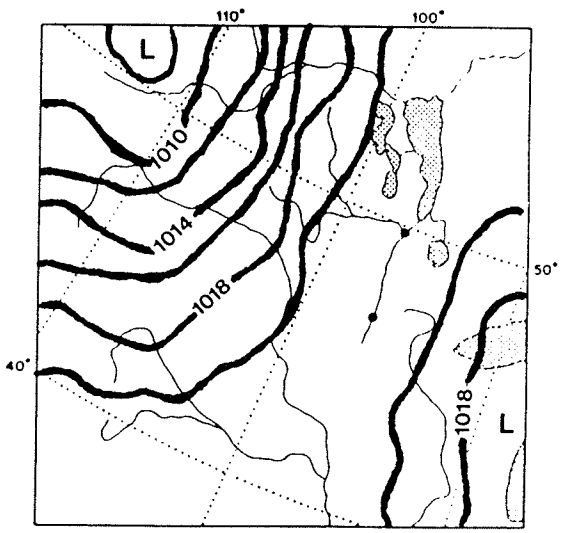






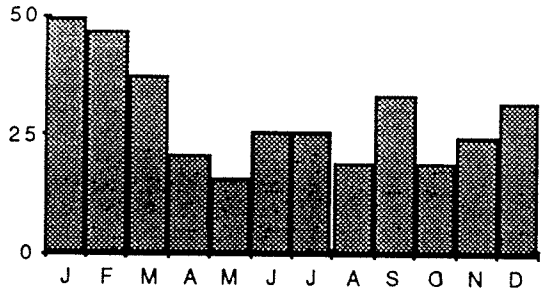


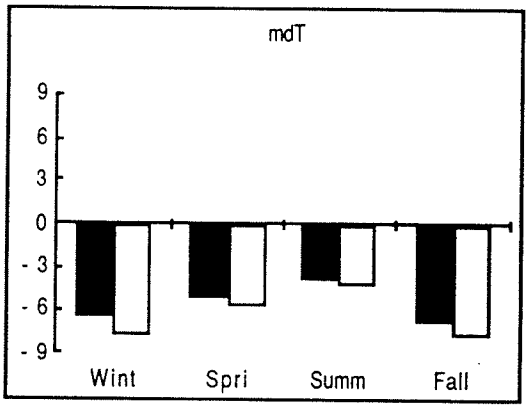
KEYDAY MAP

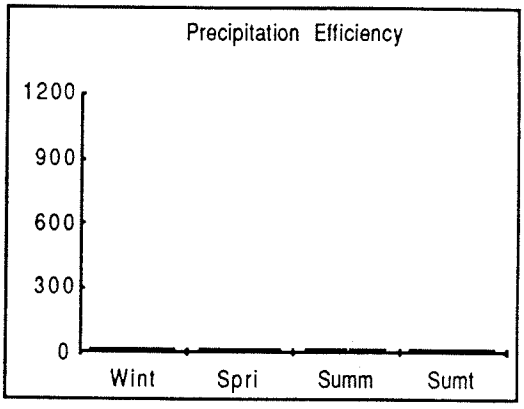


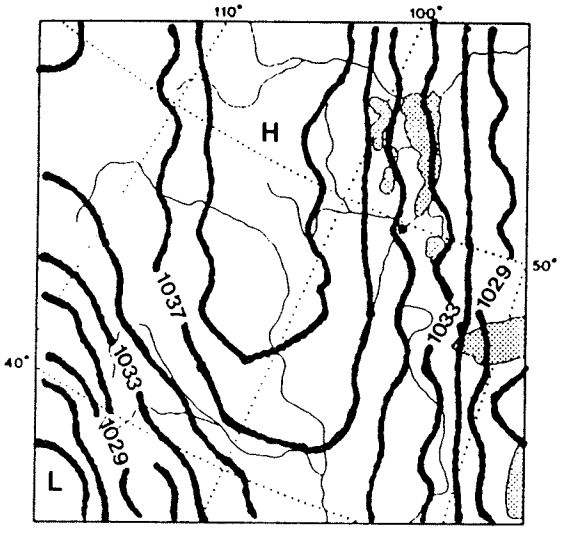
MEAN MAP

SMTYPE-19

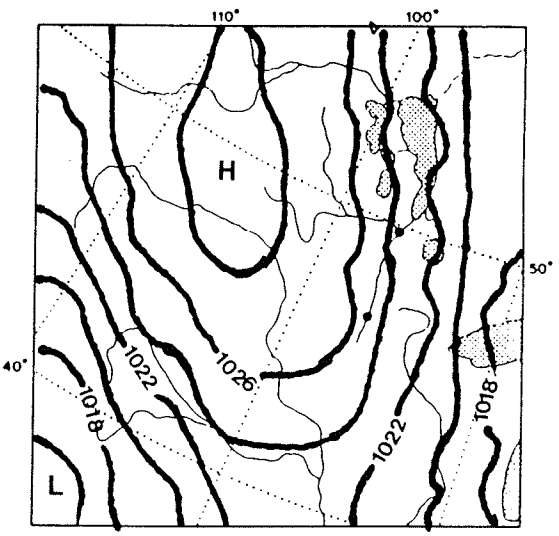








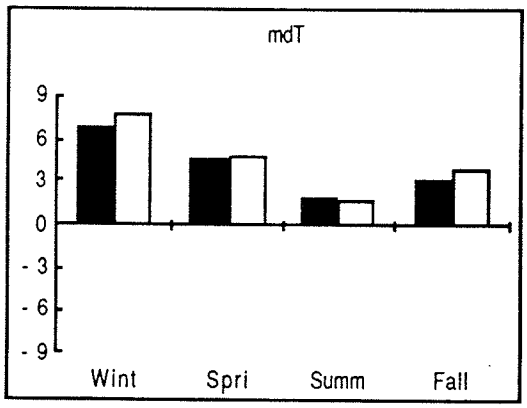
KEYDAY MAP

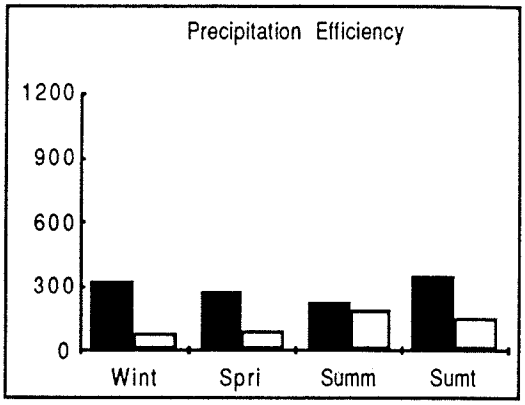


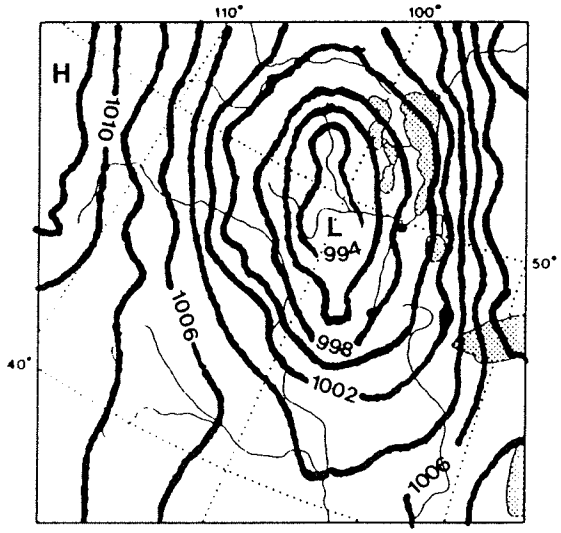
MEAN MAP

SMTYPE-20

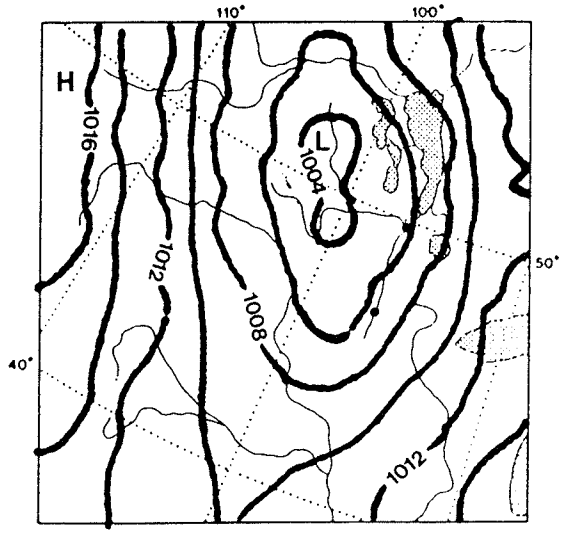






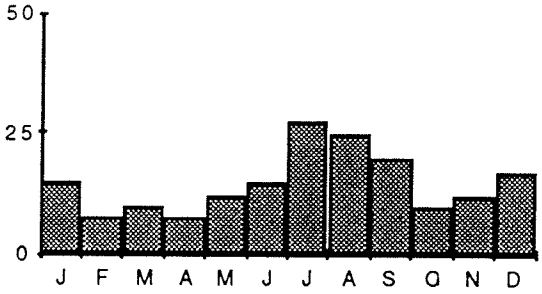


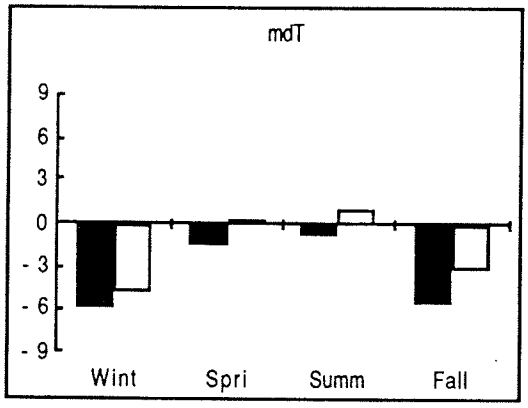
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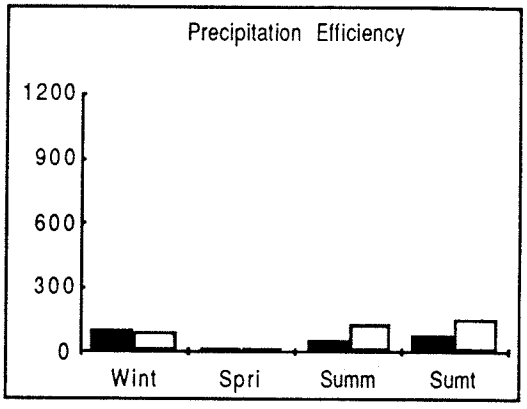


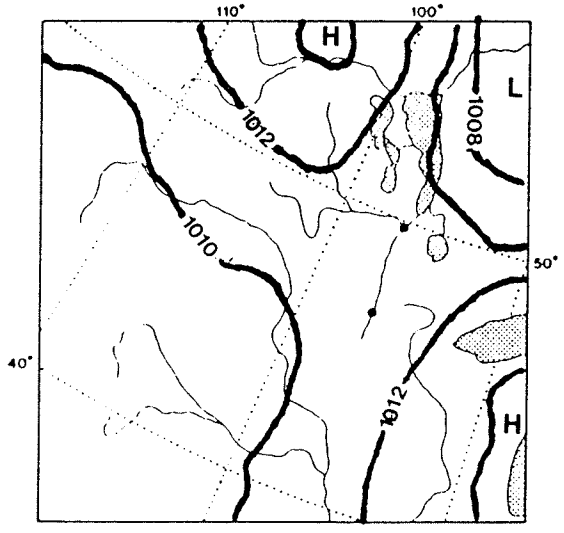
MEAN MAP

SMTYPE-21

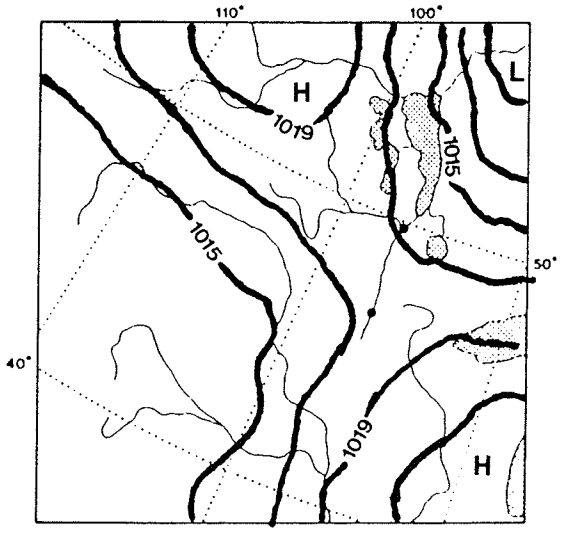






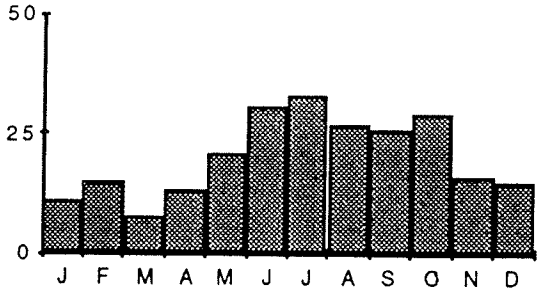


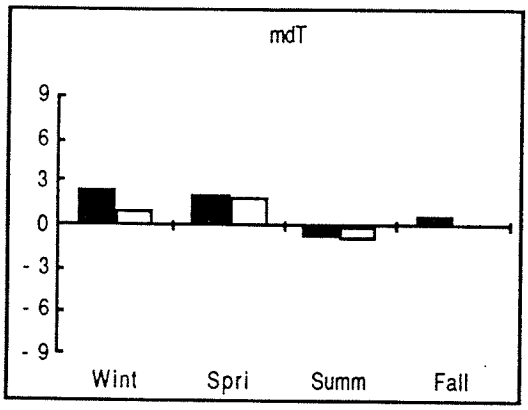
KEYDAY MAP

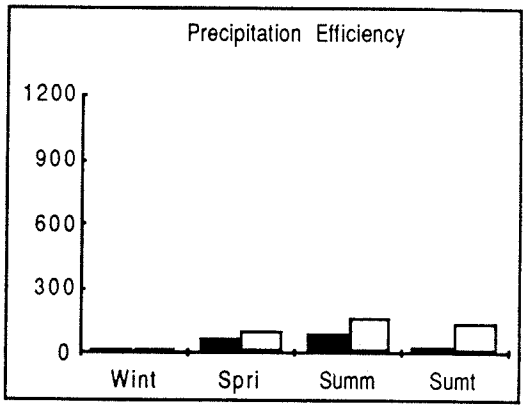


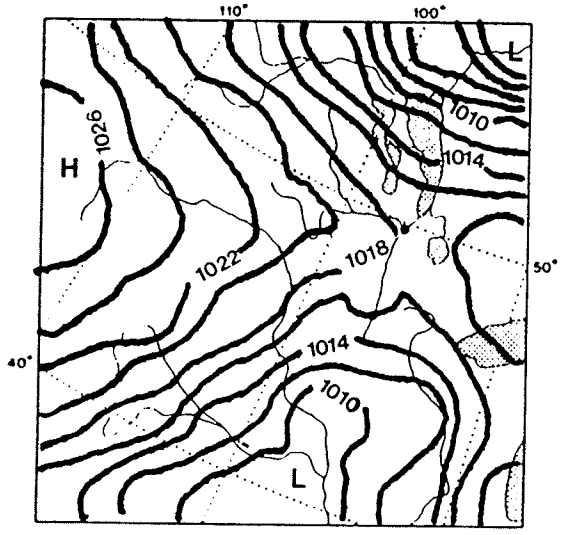
MEAN MAP

SMTYPE-22

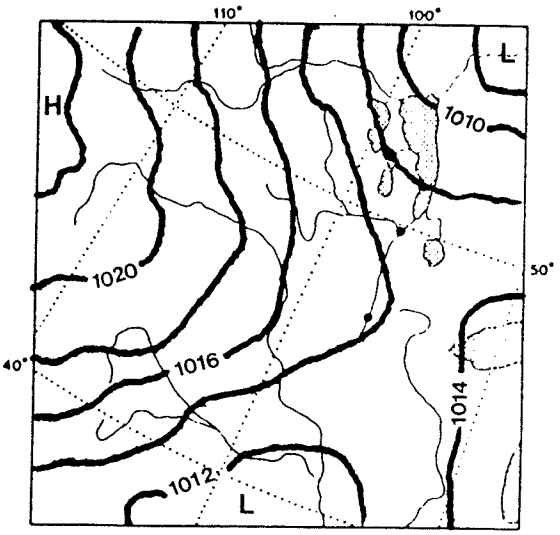






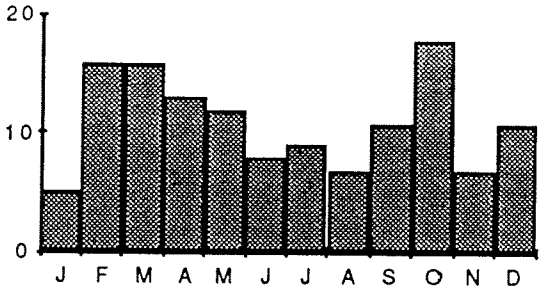


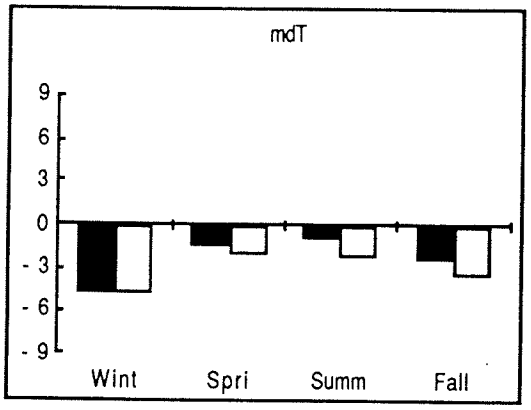
KEYDAY MAP

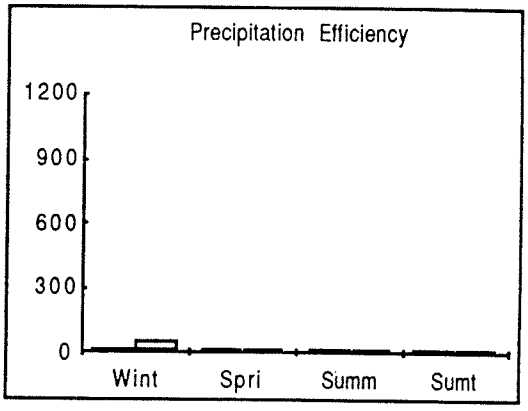


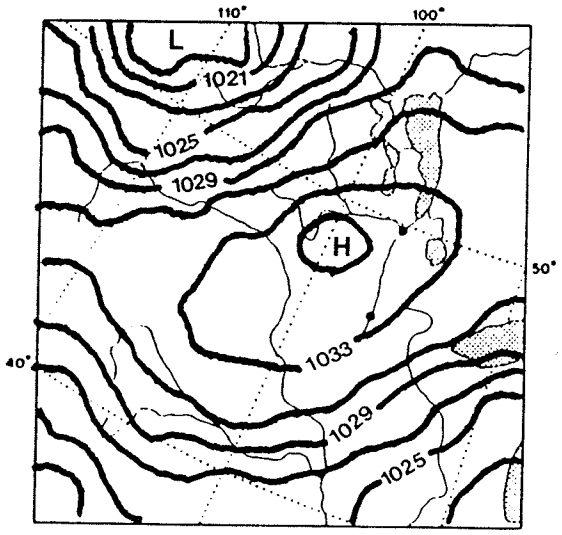
MEAN MAP

SMTYPE-23

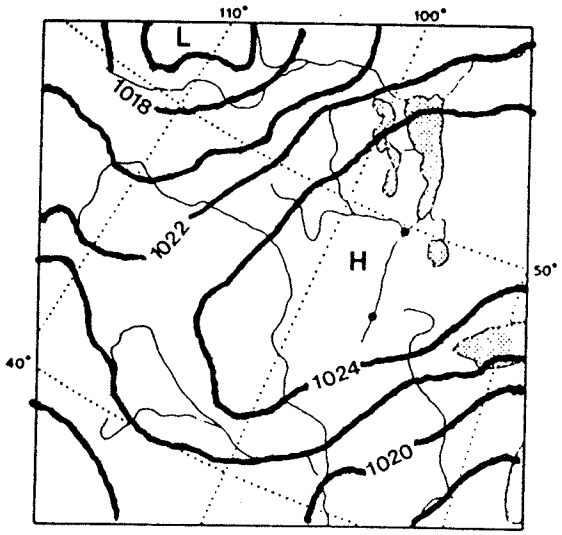






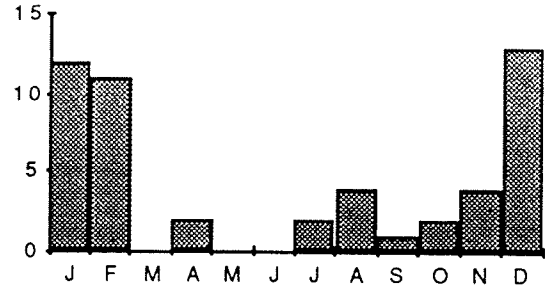


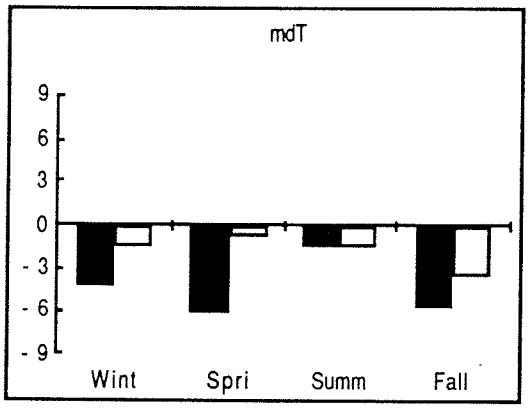
KEYDAY MAP

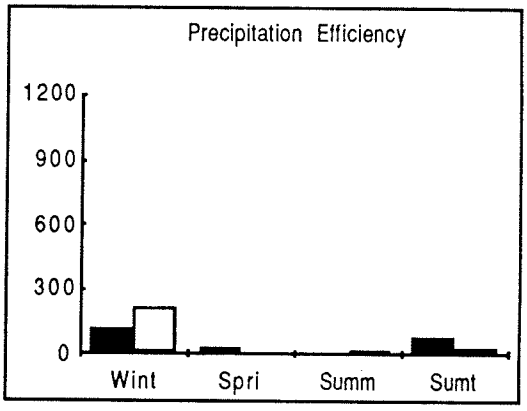


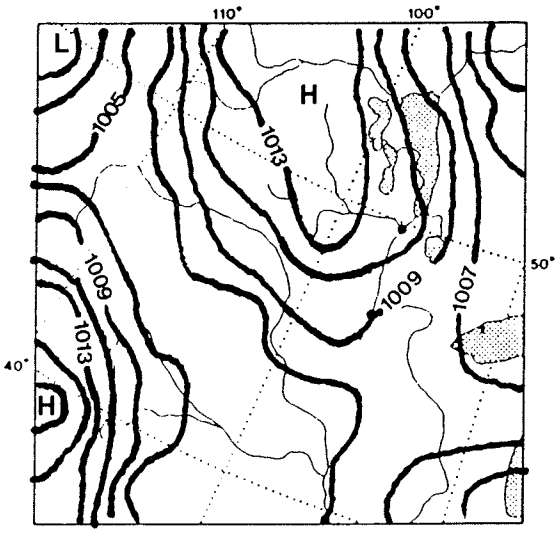
MEAN MAP

SMTYPE-24

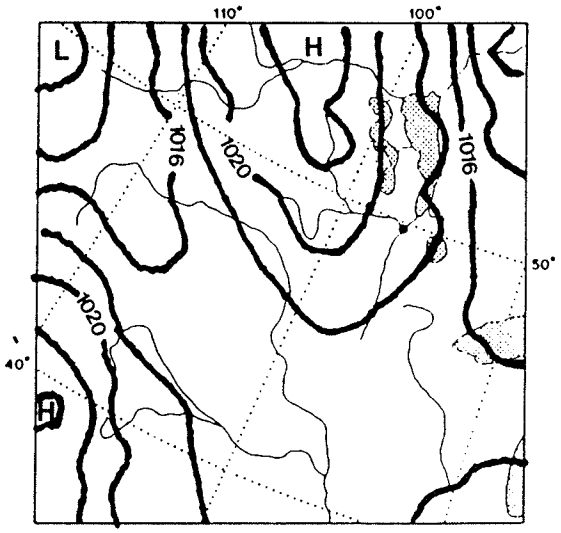






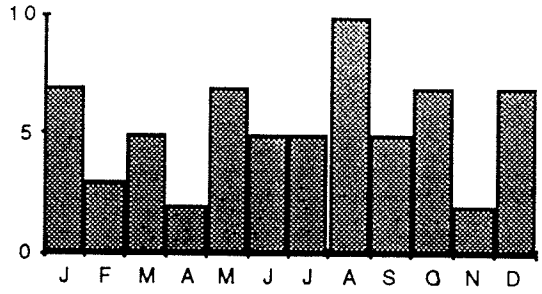


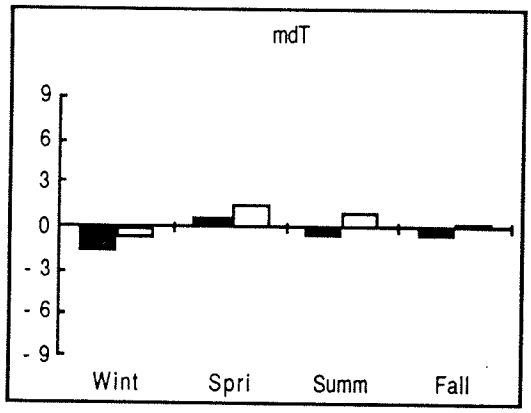
KEYDAY MAP

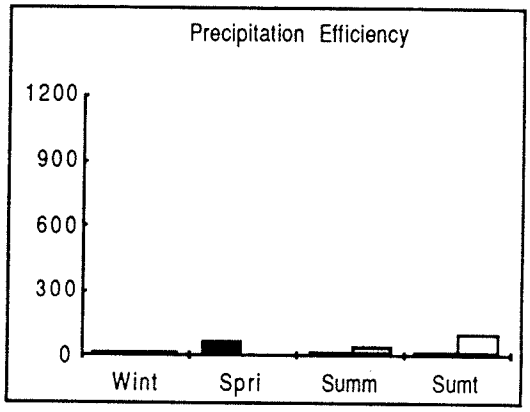


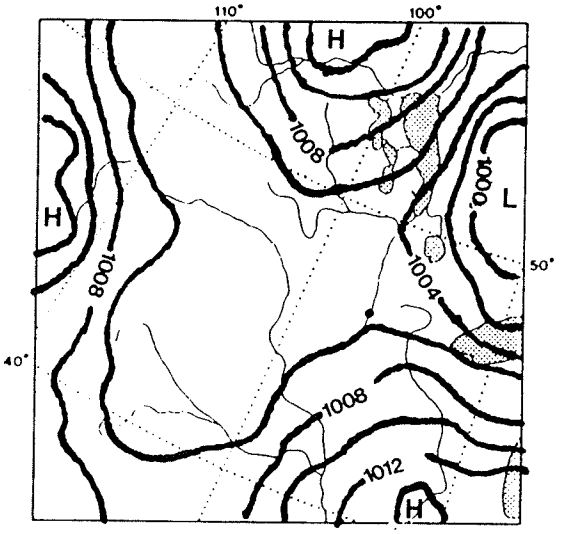
MEAN MAP

SMTYPE-25

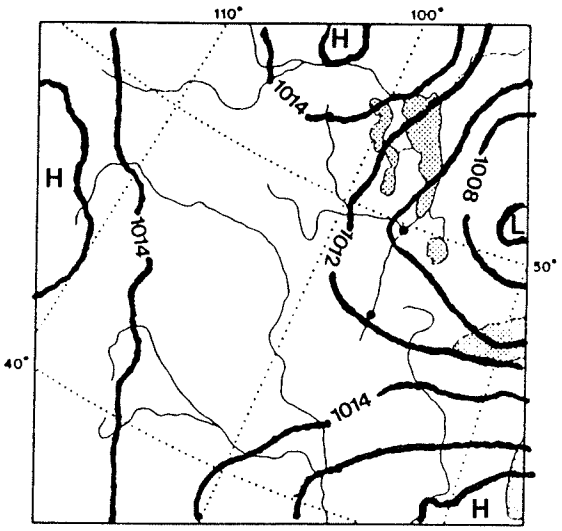






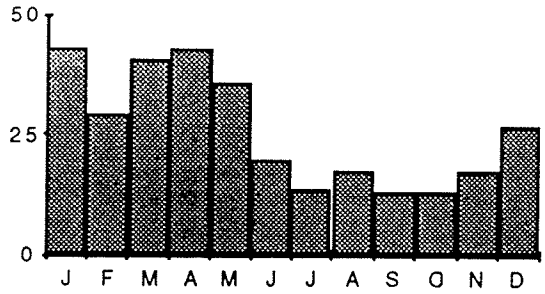


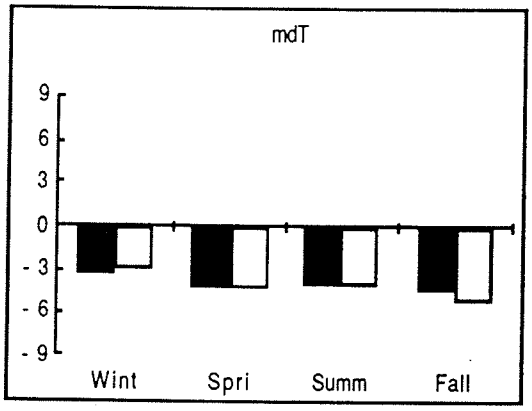
KEYDAY MAP

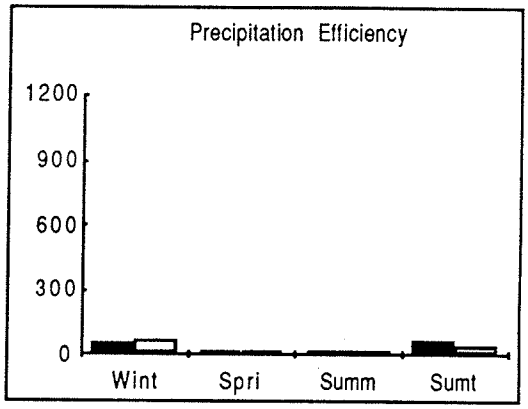


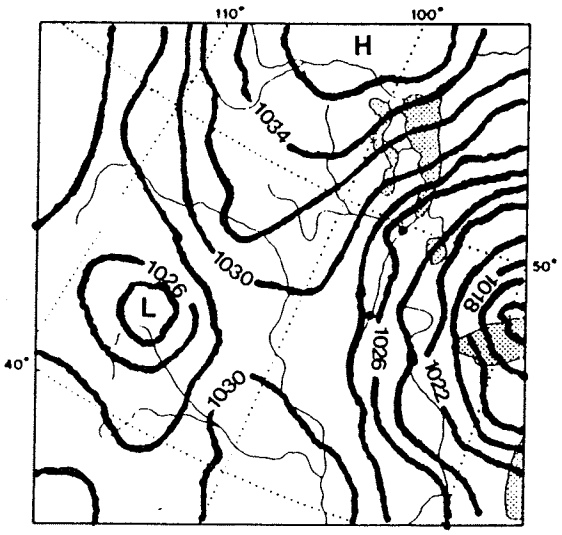
MEAN MAP

SMTYPE-26

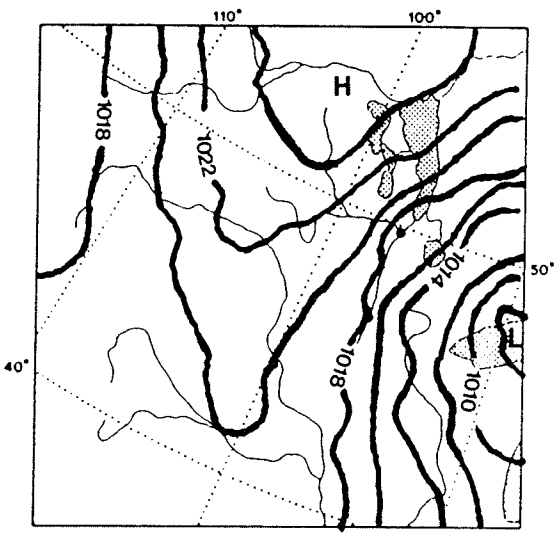






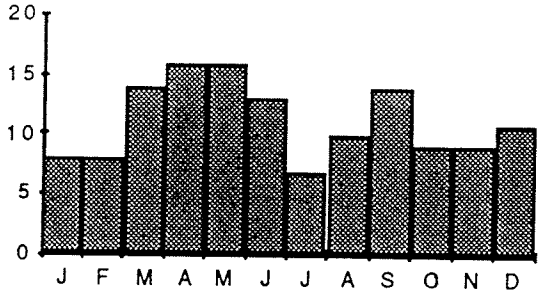


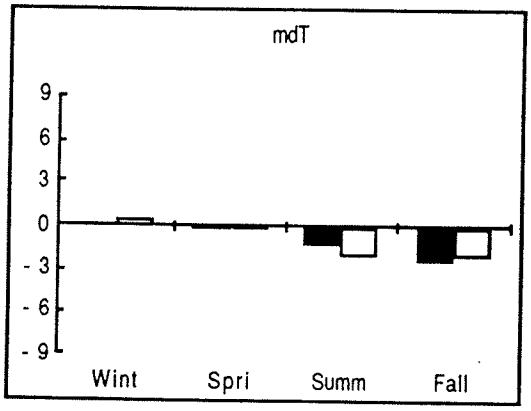
KEYDAY MAP

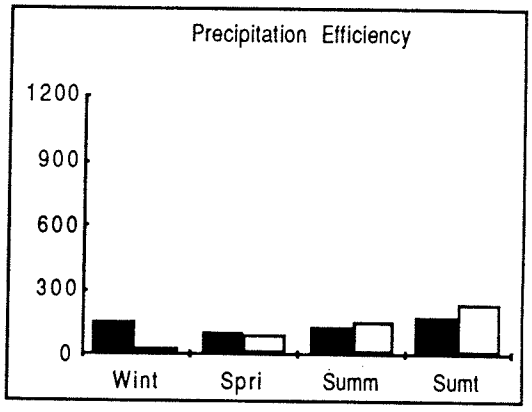


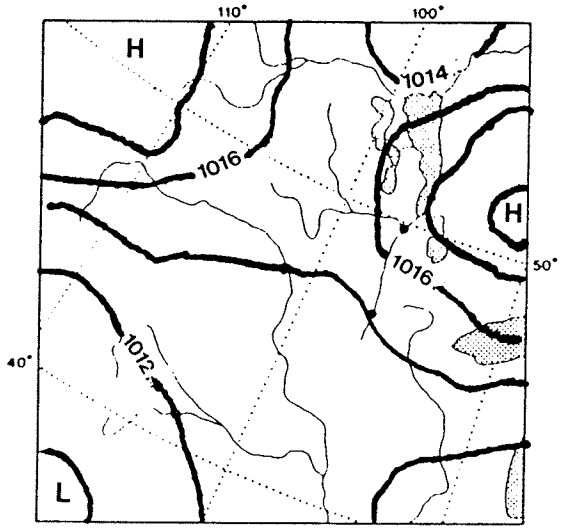
MEAN MAP

SMTYPE-27

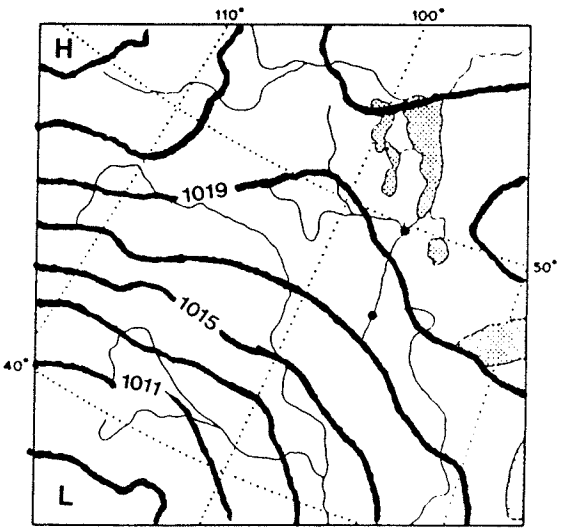






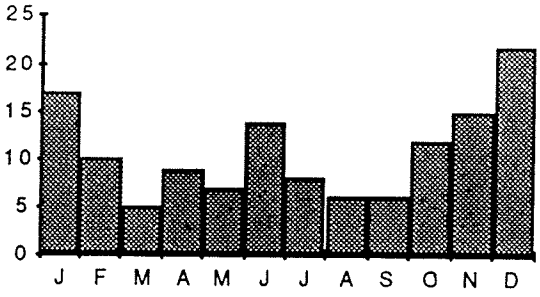


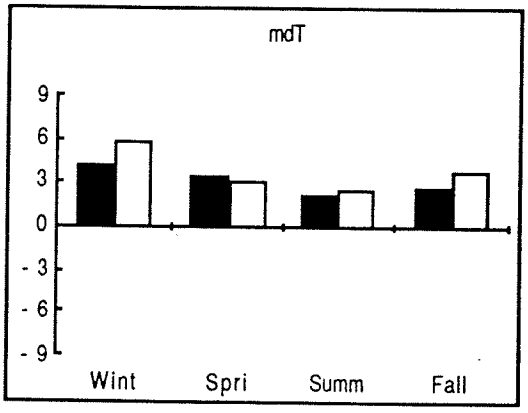
KEYDAY MAP

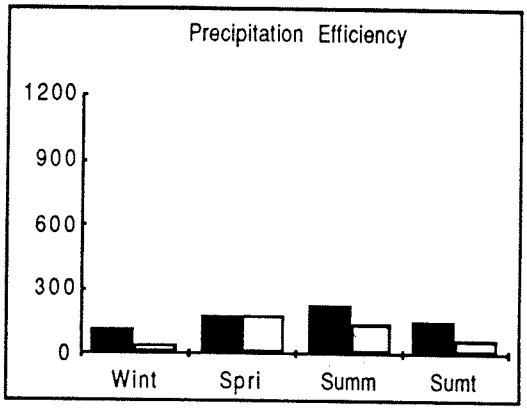


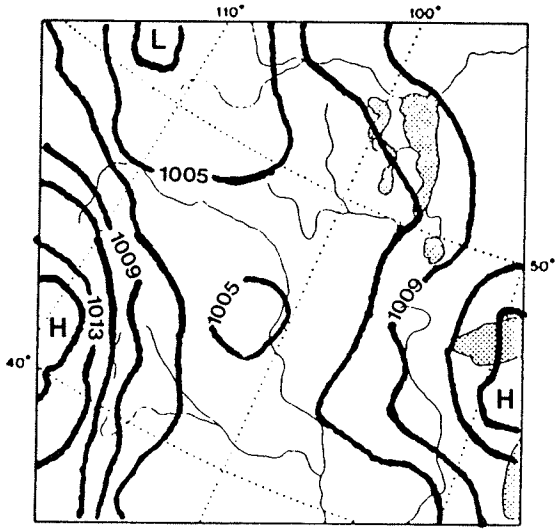
MEAN MAP

SMTYPE-28

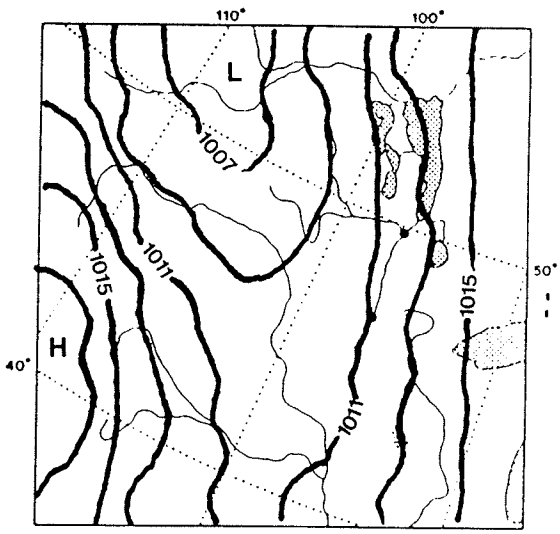






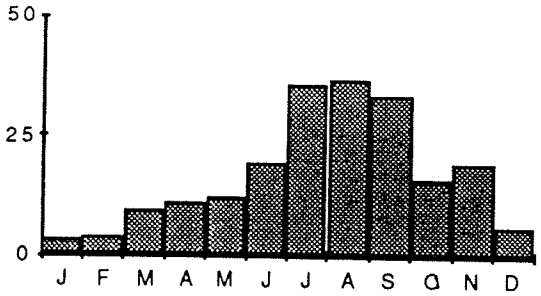


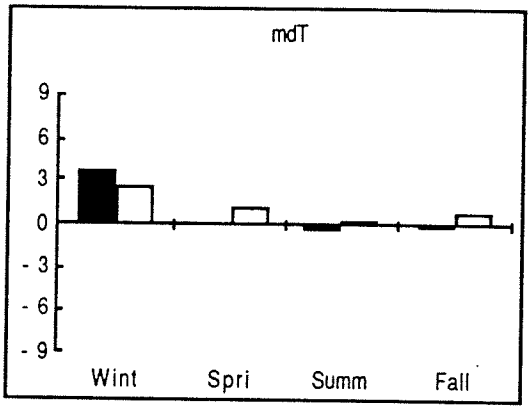
KEYDAY MAP

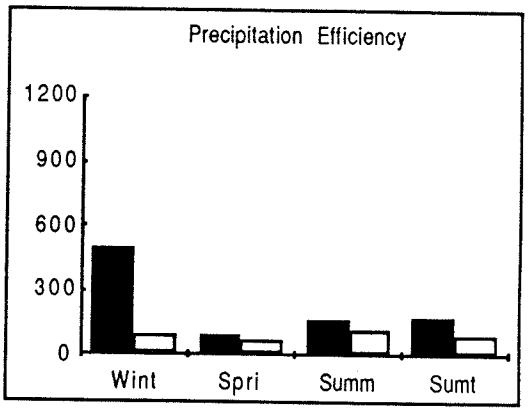


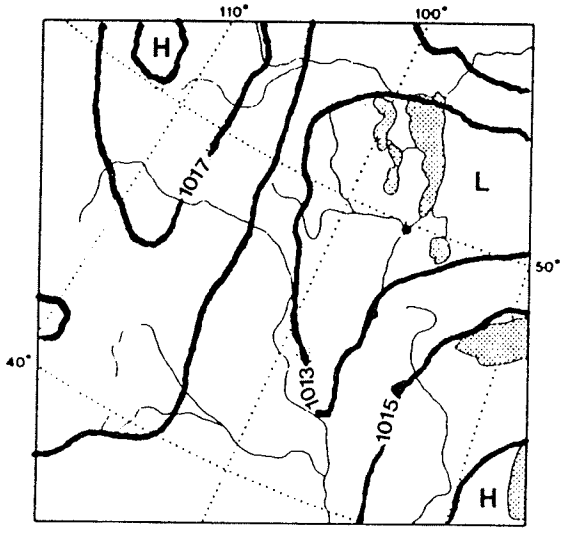
MEAN MAP

SMTYPE-29

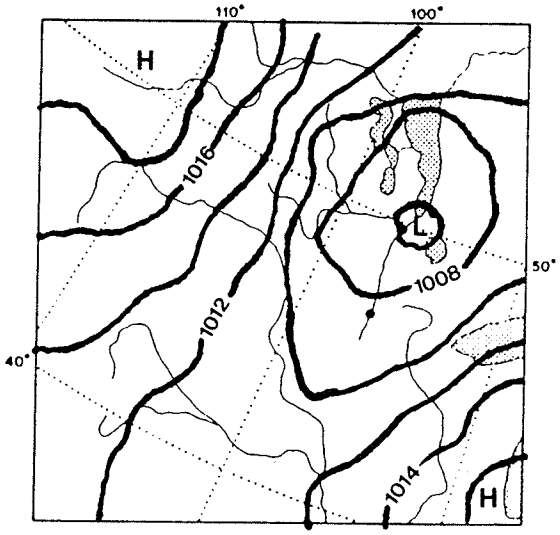








KEYDAY MAP



MEAN MAP

APPENDIX B

Monthly, seasonal, and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatures for B5TYPEs, S5TYPEs, and SMTYPEs at Winnipeg and Fargo.

Monthly and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatures for B5TYPEs at Winnipeg, 1946-84.

B5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1	7.6	7.6	5.9	5.1	4.5	3.5	3.1	3.7	4.1	4.1	5.3	6.8	5.3
2	6.6	6.6	6.6	4.5	3.8	2.8	2.7	2.5	3.2	3.6	5.1	6.5	5.6
3	6.1	6.9	5.6	5.6	5.1	3.9	3.2	3.7	4.4	4.6	4.4	5.8	4.9
4	5.7	9.8	5.9	4.3	5.1	3.7	3.3	3.8	4.6	4.7	6.2	6.6	5.0
5	6.5	7.0	6.2	4.0	3.3	2.6	2.4	3.3	2.6	3.0	5.4	6.7	5.6
6	6.0	7.1	3.8	4.1	4.8	2.6	2.9	3.4	2.9	3.7	4.9	6.3	4.1
7	4.2	4.0	6.1	3.9	4.3	2.7	1.7	1.8	4.0	4.6	4.0	5.8	4.6
8	5.4	5.4	4.8	2.3	4.1	2.6	2.0	2.6	3.4	1.6	2.6	9.2	3.9
9	6.0	6.2	3.8	5.6	3.2	3.5	5.1	2.4	0.3	2.9	2.7	6.7	4.6
10	.	.	5.5	4.0	5.1	4.3	3.1	3.1	1.4	9.5	.	.	4.7
11	6.2	6.2	5.2	4.8	4.3	3.2	2.4	2.6	3.7	3.4	4.3	7.1	5.3
12	8.8	7.2	6.0	4.7	2.6	2.8	3.1	2.5	4.4	1.8	5.5	8.7	4.7
13	4.5	.	6.3	4.4	1.6	4.5	.	.	.	.	5.3	4.4	4.6
14	4.7	2.1	7.9	2.1	3.9	1.8	0.2	.	.	.	.	3.0	4.7
15	0.0	5.3	6.5	5.4	4.7	2.1	3.3	1.8	3.2	5.0	4.0	4.6	5.2
16	.	.	0.8	4.0	4.6	3.1	1.8	2.2	2.6	4.0	1.3	.	4.2
17	9.8	4.0	6.1	3.3	2.7	3.9	3.0	3.2	3.6	4.3	8.1	5.0	4.3
18	3.1	8.8	6.6	4.2	.	.	.	.	0.5	1.4	6.6	6.9	5.6

Monthly and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatures for B5TYPEs at Fargo, 1946-84.

B5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1	7.0	7.1	5.8	4.8	4.4	3.6	3.1	3.6	4.2	4.3	5.0	6.2	5.0
2	6.8	6.5	6.2	3.8	3.8	2.5	3.0	2.8	3.3	3.8	4.9	6.5	5.5
3	5.6	7.3	5.2	5.1	4.4	3.8	3.1	3.4	4.2	4.6	4.9	5.6	4.7
4	6.4	9.4	5.3	4.1	4.8	3.7	3.3	4.5	5.2	5.1	6.1	6.0	5.0
5	6.8	6.7	5.7	3.3	3.4	1.9	2.3	3.2	2.5	3.5	5.7	6.7	5.5
6	5.6	8.3	4.4	4.2	4.7	2.6	3.1	3.7	3.6	2.9	4.5	5.0	4.1
7	5.6	4.5	6.5	3.5	3.6	3.1	2.2	1.1	3.3	4.4	3.6	5.1	4.4
8	6.4	4.6	5.8	3.0	3.5	2.7	2.3	2.5	3.8	2.7	3.1	7.5	3.8
9	6.4	6.4	3.7	4.5	2.9	3.1	4.6	2.8	0.6	2.5	3.0	7.1	4.5
10	.	.	3.6	4.0	3.9	3.5	3.2	2.9	3.0	10.1	.	.	4.2
11	5.5	6.4	5.3	4.2	3.7	3.1	2.5	2.8	3.6	3.0	3.8	5.8	4.9
12	7.5	8.3	5.9	5.1	3.3	2.6	1.6	3.3	5.4	3.9	5.0	8.8	4.8
13	0.4	.	4.7	3.9	3.7	4.7	.	.	.	.	4.1	2.6	4.1
14	0.2	2.4	9.0	1.0	2.8	3.0	0.1	.	.	.	.	2.8	3.8
15	1.5	7.1	6.0	4.0	3.8	2.9	2.1	1.6	2.1	4.5	5.5	6.4	5.2
16	.	.	1.6	4.3	3.9	3.1	1.2	1.8	2.4	4.4	2.1	.	4.0
17	5.6	3.1	5.6	3.7	2.3	4.1	3.4	3.4	4.2	5.1	7.2	4.4	4.3
18	5.1	8.3	5.5	3.5	.	.	.	.	2.0	3.8	6.0	6.8	5.7

Monthly and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatures for S5TYPEs at Winnipeg, 1946-84.

S5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1	7.9	7.7	6.7	5.7	4.5	3.4	3.1	3.5	4.1	4.3	5.8	7.3	5.7
2	8.1	8.8	5.7	4.9	4.9	3.7	2.8	3.7	4.6	4.6	5.6	6.8	5.1
3	6.7	7.0	6.1	4.5	3.6	2.9	2.6	3.6	3.3	3.7	5.1	6.8	5.4
4	.	4.9	5.2	5.0	5.5	3.3	3.5	3.1	4.5	4.7	5.5	5.2	4.9
5	7.0	6.9	4.3	5.1	4.7	3.3	2.8	3.7	3.1	4.2	5.7	5.5	4.5
6	6.9	7.1	4.8	4.5	4.0	2.8	.	2.6	3.3	4.3	4.7	7.1	5.2
7	6.4	6.6	7.3	4.4	4.5	3.2	1.4	1.4	3.0	3.7	4.6	7.1	5.4
8	8.3	5.5	4.5	4.2	5.2	2.8	.	2.6	3.3	4.8	4.1	8.0	5.5
9	7.6	2.7	7.1	4.9	2.9	2.9	4.0	1.6	2.7	6.1	4.2	6.8	4.8
10	6.3	7.9	5.6	5.1	5.8	3.9	1.7	3.2	2.3	4.1	5.3	4.1	5.1
11	6.7	2.6	4.0	4.2	3.5	.	.	1.0	.	3.3	2.6	7.1	4.2
12	5.2	6.4	5.3	5.1	4.0	4.4	3.5	4.1	4.2	3.7	4.3	6.5	4.6
13	3.6	3.7	3.4	3.4	2.5	3.2	2.9	1.9	3.0	4.0	3.3	5.4	3.4
14	6.2	.	2.4	3.2	4.2	2.6	.	.	3.4	4.2	4.5	10.8	5.1
15	.	4.4	4.6	4.1	3.8	.	.	.	.	1.6	.	2.4	4.6
16	8.0	8.0	3.5	4.3	4.6	5.1	2.4	2.2	4.8	4.8	2.8	6.9	4.8
17	6.2	0.9	5.2	5.2	4.2	3.5	2.3	1.8	2.7	2.0	5.5	4.4	4.3
18	.	.	5.5	5.7	3.7	0.4	.	.	.	7.3	.	1.3	5.3
19	7.0	5.5	5.0	2.8	.	4.1	.	.	0.5	3.2	1.6	.	4.8
20	.	.	.	2.5	1.5	.	.	.	.	.	1.6	.	3.3

Monthly and annual standard deviations (°C) of mean departures from long-term (1946-84) mean daily temperatures for S5TYPEs at Fargo, 1946-84.

S5TYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1	7.6	7.4	6.3	5.2	4.5	3.4	2.9	3.5	4.2	4.4	5.4	7.0	5.5
2	7.5	8.6	5.5	4.8	4.8	3.6	2.8	3.8	4.9	4.5	5.2	6.1	5.0
3	6.9	6.5	5.6	3.8	3.5	2.2	3.0	3.1	2.9	3.8	5.3	6.8	5.3
4	.	4.8	5.5	5.3	4.8	3.3	4.2	3.9	4.9	3.9	6.2	4.4	4.7
5	6.9	7.6	4.3	4.6	4.5	3.6	2.3	3.5	2.8	4.1	4.2	5.3	4.3
6	7.0	7.3	4.2	4.0	4.1	3.8	.	2.6	3.1	4.2	3.4	6.9	5.0
7	7.1	7.5	7.4	3.6	4.1	2.6	2.8	3.0	3.1	3.3	5.2	6.7	5.5
8	7.8	4.6	4.1	4.3	4.9	2.9	.	2.6	3.3	4.2	3.5	8.1	5.1
9	7.5	4.5	6.4	4.9	3.4	3.1	3.6	1.9	2.5	5.4	4.2	7.6	4.8
10	6.0	5.8	5.1	3.7	3.8	3.6	1.0	3.4	2.0	3.4	3.9	4.0	4.2
11	6.7	3.0	4.3	3.8	3.5	.	.	0.7	.	3.5	2.8	6.6	4.3
12	4.2	6.4	4.7	5.3	3.4	4.3	3.5	4.0	4.0	4.1	4.2	8.3	4.5
13	4.9	3.6	3.9	3.0	2.7	3.0	3.0	2.5	2.8	3.6	3.2	4.7	3.1
14	7.5	.	3.3	2.0	3.5	0.6	.	.	3.2	4.5	3.4	7.1	4.9
15	.	2.1	6.0	2.5	2.5	.	.	.	.	0.8	.	1.3	4.4
16	6.2	5.0	3.1	3.1	3.4	4.7	1.3	2.8	2.6	3.9	3.9	7.0	4.1
17	7.3	2.1	4.8	3.6	2.9	2.6	2.6	2.6	3.2	2.2	4.3	2.7	3.7
18	.	.	5.4	5.0	3.2	3.2	.	.	.	4.8	.	0.4	4.6
19	5.5	4.6	5.9	2.7	.	0.8	.	.	3.0	3.4	3.1	.	4.3
20	.	.	.	2.1	1.1	.	.	.	.	.	1.5	.	3.3

Monthly and annual standard deviations (°C) of mean departures from long-term (1946-84) mean daily temperatures for SMTYPEs at Winnipeg, 1946-82.

SMTYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1	6.6	6.4	5.8	4.4	4.8	3.4	2.8	3.5	4.3	4.4	5.2	6.4	4.9
2	7.1	5.8	5.9	5.1	4.2	3.2	2.7	3.2	3.6	3.9	5.1	5.4	5.1
3	6.8	5.0	5.8	4.5	3.5	2.7	2.8	2.7	2.8	3.0	4.2	6.7	4.6
4	7.7	6.3	7.0	4.6	5.0	3.6	2.9	2.8	4.1	4.6	5.6	6.0	5.0
5	5.3	6.1	5.9	4.4	3.6	3.0	3.2	2.6	3.5	3.8	4.6	6.1	4.9
6	6.4	7.1	6.5	3.9	4.4	2.6	2.6	3.1	3.0	3.4	4.8	6.2	5.0
7	6.8	5.7	6.5	4.3	1.9	2.0	2.6	2.3	3.0	2.9	3.7	5.7	5.0
8	4.4	5.6	6.9	5.2	5.3	3.6	2.6	3.1	3.9	4.2	6.2	6.1	4.3
9	6.9	4.4	4.7	4.2	4.6	3.1	2.5	2.4	3.2	3.4	3.4	5.2	4.7
10	5.9	6.6	6.6	5.0	5.1	2.4	2.2	3.6	4.0	4.2	4.3	5.1	5.2
11	4.3	5.4	5.7	7.3	4.8	3.5	2.8	3.1	3.0	2.6	5.5	5.8	5.1
12	6.8	6.2	4.9	4.4	3.8	2.9	2.8	3.5	3.4	5.3	6.0	5.3	4.3
13	5.5	7.2	3.7	4.4	3.0	3.0	2.7	2.2	4.2	4.6	5.0	7.0	4.5
14	6.6	6.1	4.5	3.5	5.3	2.9	2.5	4.3	5.2	5.2	5.9	5.9	4.9
15	6.6	6.4	5.6	3.0	3.0	3.3	1.8	2.2	2.7	3.5	4.7	4.8	5.3
16	4.8	5.7	5.8	4.2	3.4	2.2	1.7	2.5	2.8	3.3	4.5	3.3	4.6
17	5.3	6.4	5.3	3.8	3.8	4.0	2.5	3.2	2.6	3.8	4.4	6.1	4.5
18	5.8	4.6	4.9	5.7	5.1	2.4	2.8	2.4	2.9	4.8	5.6	6.4	5.0
19	5.9	5.0	7.3	3.6	5.3	2.9	2.2	2.2	2.9	3.8	6.0	5.7	5.1
20	5.3	4.8	3.2	5.0	3.3	3.4	3.2	2.8	3.3	3.8	3.6	5.9	4.2
21	3.3	6.3	7.0	6.2	4.8	3.5	3.0	3.5	3.6	3.6	4.6	4.7	4.9
22	7.0	7.7	6.2	3.0	3.5	2.6	2.1	3.1	2.7	3.4	3.3	6.6	4.3
23	3.7	5.9	5.3	3.4	3.2	2.3	0.9	2.9	3.9	4.4	5.2	7.6	4.7
24	6.3	7.2	...	1.7	...	...	1.6	3.2	...	9.1	3.0	5.9	5.8
25	9.1	2.2	3.4	1.9	5.5	2.7	4.3	5.3	2.9	2.6	5.0	6.2	5.1
26	5.6	6.3	4.9	4.4	3.2	2.8	2.6	2.0	2.5	2.4	5.1	5.3	4.5
27	8.2	6.2	9.3	4.5	3.5	3.8	4.0	2.8	3.2	6.4	4.6	7.6	5.8
28	8.3	5.3	4.1	4.7	5.4	4.6	3.1	3.5	2.8	4.4	4.5	6.1	5.3
29	4.3	3.1	3.7	4.5	3.3	3.3	2.7	3.6	3.1	2.2	3.6	1.5	3.4

Monthly and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatures for SMTYPEs at Fargo, 1946-82.

SMTYPE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1	6.2	6.5	5.4	4.2	4.6	3.2	2.7	3.7	4.5	4.7	4.9	6.1	4.8
2	6.6	6.0	5.5	4.1	3.4	3.0	2.5	3.2	3.5	3.7	5.2	5.3	4.7
3	6.3	4.8	5.2	3.8	3.5	3.2	3.0	2.8	3.0	3.1	4.2	5.8	4.3
4	7.3	6.1	6.8	4.7	4.9	3.6	2.8	3.5	4.2	4.8	6.0	6.0	5.1
5	6.2	6.3	5.4	4.6	4.0	3.3	2.6	3.1	3.4	5.0	4.9	6.6	5.1
6	6.3	6.4	6.0	3.6	4.2	2.4	2.3	2.5	2.9	3.3	4.9	6.1	4.8
7	6.6	4.7	6.6	3.4	2.4	2.3	2.7	2.7	2.6	2.9	4.2	5.4	4.7
8	4.4	5.4	7.4	4.9	4.7	3.5	2.8	3.2	4.2	4.7	5.9	6.0	4.5
9	5.1	4.0	4.5	4.7	4.3	3.1	2.5	2.6	3.2	3.4	3.8	4.0	4.5
10	6.2	6.5	6.4	4.8	4.6	3.0	1.5	4.4	4.2	4.7	5.0	5.0	5.3
11	4.9	6.1	5.9	6.4	4.1	3.4	3.2	3.1	3.3	3.0	5.7	5.7	5.1
12	6.3	5.0	3.9	3.5	4.1	2.8	2.9	2.8	4.0	4.6	6.0	4.3	3.9
13	5.8	7.5	3.9	3.4	2.6	2.7	2.9	2.8	4.2	4.0	5.9	7.0	4.6
14	5.9	6.1	6.1	5.2	4.5	2.7	2.6	3.6	5.0	5.8	4.4	5.8	4.8
15	6.9	5.5	4.8	3.7	3.4	3.2	1.7	2.0	3.7	2.8	4.4	4.9	5.3
16	5.3	5.5	5.5	3.3	3.1	1.8	1.9	2.5	2.4	4.1	3.6	4.3	4.5
17	5.5	6.2	4.6	4.0	4.1	3.7	2.6	2.7	3.7	3.9	3.2	4.6	4.4
18	6.0	6.3	4.6	4.9	3.9	2.7	3.2	2.1	2.9	4.4	5.7	6.0	4.9
19	5.5	5.2	7.1	4.1	4.3	2.6	2.4	2.6	3.4	3.7	5.4	5.2	5.1
20	5.6	4.2	3.4	4.0	3.7	3.7	2.7	2.3	3.9	3.8	2.4	5.2	4.1
21	5.1	7.2	6.6	5.0	5.4	3.8	3.1	3.5	3.6	5.1	5.4	4.9	5.1
22	8.2	7.6	4.7	3.4	2.5	2.3	2.1	3.1	2.7	3.8	3.7	5.1	4.1
23	5.3	5.5	4.5	3.6	2.4	2.0	1.0	2.5	3.8	4.1	4.1	7.1	4.3
24	5.1	6.2	.	3.8	.	.	1.4	4.5	.	8.0	1.4	6.3	5.4
25	9.0	3.2	4.6	3.8	3.8	2.0	2.8	5.8	4.0	4.7	3.3	7.2	5.2
26	5.9	7.2	4.8	4.1	3.3	2.8	4.2	3.2	2.0	2.3	4.9	4.6	4.7
27	8.2	8.0	8.0	4.0	3.6	3.2	2.6	2.9	2.8	6.1	4.7	6.9	5.5
28	7.1	2.9	2.1	3.4	5.7	3.6	2.8	4.9	2.1	4.5	4.4	5.8	4.8
29	4.7	2.4	3.5	4.5	3.1	4.1	2.5	3.9	2.8	2.6	3.7	3.5	3.5

Seasonal and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatues for B5TYPEs at Winnipeg, 1946-84.

B5TYPE	Winter	Spring	Summer	Sumtran
1	6.7	4.8	3.4	4.0
2	6.4	4.3	2.6	3.3
3	5.7	5.3	3.4	4.3
4	6.7	4.8	3.6	4.3
5	6.4	3.7	2.9	2.8
6	5.4	4.5	3.1	3.2
7	5.0	4.1	3.4	4.2
8	5.3	3.8	2.4	3.0
9	5.2	4.8	3.3	3.2
10	4.6	5.1	3.0	4.4
11	5.9	4.7	2.5	3.6
12	6.6	3.4	2.8	3.0
13	6.1	3.1	.	4.5
14	6.5	3.6	0.2	2.3
15	6.2	5.1	2.8	3.0
16	1.4	4.5	2.3	3.4
17	6.9	3.0	3.1	4.0
18	7.3	4.2	.	1.1

Seasonal and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatues for B5TYPEs at Fargo, 1946-84.

B5TYPE	Winter	Spring	Summer	Sumtran
1	6.3	4.6	3.4	4.1
2	6.3	3.9	2.9	3.4
3	5.7	4.7	3.2	4.3
4	6.3	4.5	4.1	4.7
5	6.4	3.3	2.7	3.0
6	5.0	4.5	3.4	3.2
7	5.2	3.6	3.2	3.9
8	5.3	3.4	2.4	3.2
9	5.5	3.9	3.3	3.2
10	3.7	4.2	3.2	4.1
11	5.5	4.2	2.7	3.3
12	6.2	4.1	3.1	3.4
13	4.4	4.1	.	4.7
14	5.0	2.7	0.1	4.0
15	6.7	4.0	1.9	3.0
16	2.1	4.3	2.1	3.8
17	6.3	3.2	3.4	4.4
18	6.2	3.5	.	2.9

Seasonal and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatues for S5TYPEs at Winnipeg, 1946-84.

S5TYPE	Winter	Spring	Summer	Sumtran
1	7.2	5.2	3.3	4.0
2	6.8	4.9	3.3	4.3
3	6.4	4.0	3.1	3.5
4	5.5	5.3	3.3	4.0
5	5.8	5.0	3.2	3.5
6	6.4	4.2	2.3	3.6
7	6.4	4.5	1.4	3.3
8	5.9	4.8	2.6	3.7
9	6.0	3.7	2.6	3.7
10	6.0	5.4	3.0	3.3
11	4.6	3.9	1.0	3.2
12	5.6	4.5	3.8	4.2
13	4.3	2.8	2.4	3.4
14	5.2	4.3	5.2	4.3
15	4.1	3.6	.	3.0
16	5.8	4.4	2.3	4.8
17	5.6	4.6	2.3	2.9
18	5.4	5.0	.	6.4
19	5.5	3.0	.	3.3
20	1.6	3.2	.	4.2

Seasonal and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatues for S5TYPEs at Fargo, 1946-84.

S5TYPE	Winter	Spring	Summer	Sumtran
1	6.8	4.9	3.2	4.1
2	6.4	4.8	3.4	4.4
3	6.3	3.7	3.1	3.3
4	5.5	4.9	4.0	4.0
5	5.6	4.7	3.0	3.5
6	6.0	4.0	2.2	3.9
7	6.8	4.0	2.9	3.0
8	5.6	4.7	2.6	3.5
9	6.1	4.0	2.5	3.5
10	5.0	3.7	3.1	2.9
11	4.8	3.6	3.4	3.4
12	5.7	4.5	3.8	4.1
13	3.9	2.8	2.7	3.0
14	5.8	3.1	5.8	4.1
15	4.8	2.4	.	3.0
16	4.9	3.1	2.2	4.3
17	5.1	3.2	2.7	2.6
18	4.8	4.4	.	5.0
19	4.9	3.1	.	2.6
20	2.7	2.8	.	5.4

Seasonal and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatues for SMTYPEs at Winnipeg, 1946-82.

SMTYPE	Winter	Spring	Summer	Sumtran
1	6.5	5.0	3.6	5.4
2	6.6	5.2	3.2	5.0
3	6.0	4.8	2.8	4.9
4	7.1	5.9	3.4	5.3
5	5.8	4.7	3.1	5.2
6	6.8	5.0	2.8	4.9
7	6.2	5.0	2.7	4.6
8	4.8	5.6	3.2	5.5
9	6.2	4.6	2.9	5.1
10	6.2	5.9	3.3	4.7
11	4.9	6.0	3.1	5.1
12	6.6	4.3	3.2	5.5
13	6.2	3.7	3.2	5.3
14	6.4	4.9	3.9	5.5
15	6.6	4.7	2.8	4.7
16	5.3	4.7	2.3	4.8
17	6.0	4.3	3.3	5.2
18	5.5	5.4	2.7	5.6
19	5.4	6.2	2.7	5.5
20	5.0	3.9	3.2	4.6
21	4.4	5.8	3.3	5.0
22	7.6	3.9	2.7	4.4
23	5.5	4.3	2.8	5.6
24	6.7	1.7	2.3	5.4
25	8.2	4.7	4.1	4.6
26	5.9	4.3	2.5	4.7
27	7.4	6.6	3.6	6.4
28	7.2	4.9	3.8	5.3
29	3.5	4.1	3.2	3.1

Seasonal and annual standard deviations (^{o}C) of mean departures from long-term (1946-84) mean daily temperatues for SMTYPEs at Fargo, 1946-82.

SMTYPE	Winter	Spring	Summer	Sumtran
1	6.4	4.7	3.6	5.3
2	6.3	4.5	3.1	4.9
3	5.7	4.2	3.0	4.6
4	6.8	5.7	3.6	5.5
5	6.2	4.7	3.2	5.7
6	6.3	4.6	2.6	4.9
7	5.6	4.9	2.7	4.7
8	4.7	5.5	3.4	5.6
9	4.7	4.6	3.0	4.8
10	6.3	5.7	3.7	5.0
11	5.5	5.7	3.2	5.3
12	5.9	3.9	3.1	4.9
13	6.5	3.3	3.3	5.4
14	6.0	5.0	3.7	5.5
15	6.5	4.6	3.0	4.7
16	5.3	4.2	2.1	4.9
17	6.0	4.3	3.2	4.4
18	6.2	4.5	2.8	5.4
19	5.4	6.1	2.8	5.0
20	4.8	3.7	3.3	4.0
21	5.7	5.5	3.4	5.4
22	7.8	3.2	2.6	4.2
23	5.4	3.7	2.7	5.3
24	6.0	3.8	3.3	5.5
25	7.9	4.3	4.1	5.6
26	6.4	4.3	3.1	4.3
27	8.2	5.6	2.9	6.1
28	5.8	4.2	3.4	5.0
29	3.3	4.0	3.3	3.5

APPENDIX C

Catalogue of daily B5TYPE, S5TYPE, and SMTYPE synoptic patterns for 1946-84.

Type 99 = missing (MSNG)

Type 0 = unclassified (NOTYP)

B5KS = Kirchhofer Score (KS) associated with B5TYPE keyday

S5KS = Kirchhofer Score (KS) associated with S5TYPE keyday

SMKS = Kirchhofer Score (KS) associated with SMTYPE keyday

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1946	1	1	5	3.9	3	2.3	10	16.6
1946	1	2	1	3.6	1	4.2	4	15.3
1946	1	3	1	1.5	1	2.7	10	17.4
1946	1	4	1	3.5	1	5.9	4	15.4
1946	1	5	99	.	99	.	28	16.6
1946	1	6	11	7.7	7	4.8	3	19.2
1946	1	7	1	4.2	1	4.0	10	8.8
1946	1	8	99	.	99	.	12	15.5
1946	1	9	7	4.5	6	4.1	6	18.9
1946	1	10	1	5.2	1	3.9	10	11.4
1946	1	11	2	7.9	6	6.2	3	9.9
1946	1	12	5	13.6	7	5.1	6	13.3
1946	1	13	5	9.9	3	3.9	10	11.7
1946	1	14	1	6.7	1	1.0	3	11.9
1946	1	15	1	8.4	1	6.1	1	24.5
1946	1	16	1	2.9	1	1.5	2	7.0
1946	1	17	1	2.6	1	2.1	10	9.9
1946	1	18	1	3.0	1	2.5	26	16.0
1946	1	19	1	2.8	1	2.8	1	12.5
1946	1	20	1	7.1	1	1.1	3	16.3
1946	1	21	5	4.4	3	8.0	0	.
1946	1	22	1	5.5	3	6.7	4	8.0
1946	1	23	1	4.3	1	2.1	2	20.8
1946	1	24	1	5.5	3	8.5	10	18.3
1946	1	25	2	5.3	1	1.3	3	5.6
1946	1	26	2	3.8	1	3.5	13	16.5
1946	1	27	2	7.1	1	3.5	10	16.0
1946	1	28	1	6.3	1	1.6	18	13.9
1946	1	29	1	6.8	1	3.0	1	19.5
1946	1	30	2	8.2	2	4.6	3	13.2
1946	1	31	2	9.0	7	6.7	15	19.3
1946	2	1	2	7.7	1	2.3	7	19.6
1946	2	2	9	6.6	1	8.0	18	20.8
1946	2	3	1	10.6	1	5.0	1	5.1
1946	2	4	4	5.0	2	2.0	1	10.6
1946	2	5	1	6.7	2	3.6	3	13.5
1946	2	6	1	4.6	10	14.2	6	19.3
1946	2	7	1	5.2	5	4.9	1	16.0
1946	2	8	1	6.3	1	7.9	3	25.7
1946	2	9	1	5.6	7	7.5	10	13.0
1946	2	10	1	6.0	1	1.8	29	19.1
1946	2	11	2	5.6	1	2.9	5	9.4
1946	2	12	2	10.1	1	3.7	5	16.2
1946	2	13	1	9.4	1	5.8	22	23.1
1946	2	14	5	5.3	3	6.7	6	16.9
1946	2	15	1	6.2	3	7.6	10	8.9
1946	2	16	1	5.8	1	0.7	6	19.4
1946	2	17	1	6.0	1	7.5	0	.
1946	2	18	1	2.5	1	5.0	12	18.6
1946	2	19	1	9.4	1	2.4	6	8.7
1946	2	20	8	8.9	3	6.2	18	22.1
1946	2	21	1	4.2	1	1.8	20	20.7
1946	2	22	1	3.2	1	3.1	7	13.1
1946	2	23	1	4.4	1	3.1	6	18.5
1946	2	24	1	5.4	3	6.5	10	35.4
1946	2	25	1	3.4	1	6.8	1	21.7
1946	2	26	1	6.2	1	2.6	16	16.1
1946	2	27	5	5.4	1	6.9	4	14.4
1946	2	28	1	3.2	1	1.7	20	23.5
1946	3	1	1	4.4	1	1.9	2	8.3
1946	3	2	1	3.7	1	6.2	2	18.7
1946	3	3	1	5.0	1	4.6	8	22.2
1946	3	4	4	11.9	12	8.2	16	15.7
1946	3	5	11	9.6	1	6.1	4	33.4
1946	3	6	11	6.0	8	8.1	15	19.9
1946	3	7	2	7.2	1	1.8	3	14.8
1946	3	8	1	6.6	1	4.0	7	24.9
1946	3	9	1	5.5	1	5.9	9	24.9
1946	3	10	1	6.0	3	3.2	18	14.6
1946	3	11	1	2.2	1	2.9	4	14.1
1946	3	12	1	2.2	2	6.9	10	21.4
1946	3	13	1	3.6	2	7.2	4	27.6
1946	3	14	1	9.3	2	1.7	5	9.8
1946	3	15	6	10.3	0	.	5	25.7
1946	3	16	3	16.8	4	12.2	9	14.0
1946	3	17	3	10.3	16	13.2	16	26.3
1946	3	18	3	9.0	17	9.9	7	19.9
1946	3	19	16	13.4	2	13.8	18	26.6
1946	3	20	4	10.7	2	2.8	12	23.7
1946	3	21	7	6.9	6	8.4	21	15.6
1946	3	22	1	6.5	6	4.1	7	20.9
1946	3	23	1	4.7	16	11.3	1	21.0
1946	3	24	1	5.0	2	4.0	4	19.2
1946	3	25	1	5.1	2	5.3	22	15.1
1946	3	26	1	4.6	1	9.3	2	21.5
1946	3	27	1	3.0	1	4.2	2	16.7
1946	3	28	1	6.3	2	5.3	14	14.8
1946	3	29	3	8.4	2	6.2	17	18.1
1946	3	30	4	16.7	12	8.4	1	16.7
1946	3	31	4	7.8	2	4.5	1	4.9
1946	4	1	4	8.0	2	2.5	20	15.5
1946	4	2	4	8.6	1	4.1	6	24.3
1946	4	3	4	5.3	2	4.0	9	7.4
1946	4	4	1	6.7	1	8.6	6	18.8
1946	4	5	1	6.3	1	1.8	8	11.6
1946	4	6	1	3.3	1	4.0	1	11.3
1946	4	7	1	4.3	2	4.5	9	11.2
1946	4	8	1	3.2	1	1.6	26	11.8
1946	4	9	1	3.9	1	7.1	1	10.7
1946	4	10	1	3.0	2	3.6	1	12.8
1946	4	11	1	3.5	1	9.6	10	23.5
1946	4	12	1	3.6	1	5.2	4	9.9
1946	4	13	1	3.2	1	3.3	1	13.5
1946	4	14	1	4.4	1	2.7	3	15.9
1946	4	15	1	4.0	1	2.5	26	20.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1946	4	16	1	2.8	1	5.0	4	16.3
1946	4	17	1	3.1	1	3.1	2	14.4
1946	4	18	1	2.4	1	1.3	11	14.4
1946	4	19	1	3.6	1	2.3	0	.
1946	4	20	1	4.3	12	6.9	1	4.2
1946	4	21	3	7.1	2	2.1	4	20.2
1946	4	22	1	4.2	2	3.4	22	8.0
1946	4	23	1	4.8	1	2.1	2	16.4
1946	4	24	1	4.6	1	2.1	6	14.8
1946	4	25	1	5.6	3	6.1	7	16.8
1946	4	26	3	7.3	3	4.4	18	18.8
1946	4	27	1	7.4	5	3.7	12	10.7
1946	4	28	1	2.2	1	1.0	12	17.1
1946	4	29	1	5.4	1	4.9	1	19.7
1946	4	30	1	7.5	12	6.8	1	15.8
1946	5	1	1	8.6	2	8.5	9	13.4
1946	5	2	1	13.3	15	12.4	9	20.1
1946	5	3	5	17.7	10	9.1	9	18.9
1946	5	4	0	.	3	11.0	6	24.6
1946	5	5	5	7.6	1	5.3	3	13.1
1946	5	6	5	9.9	1	5.2	5	8.3
1946	5	7	5	10.5	3	5.1	19	17.1
1946	5	8	2	10.4	3	4.6	8	13.1
1946	5	9	5	11.1	1	2.9	3	19.0
1946	5	10	2	7.2	1	3.7	3	12.8
1946	5	11	2	5.0	7	3.4	6	27.8
1946	5	12	2	8.2	3	6.3	10	17.2
1946	5	13	2	5.9	1	2.6	14	13.2
1946	5	14	1	7.5	2	5.8	5	13.3
1946	5	15	2	7.7	1	4.5	5	15.2
1946	5	16	1	10.9	1	2.8	1	19.2
1946	5	17	1	9.9	7	6.4	28	18.2
1946	5	18	2	10.8	1	8.4	17	17.0
1946	5	19	2	9.5	7	4.0	3	13.3
1946	5	20	2	6.8	3	9.1	6	14.9
1946	5	21	2	4.5	3	3.7	11	21.0
1946	5	22	2	8.8	1	3.8	14	18.3
1946	5	23	4	7.6	6	7.6	5	14.2
1946	5	24	1	10.2	7	11.4	3	20.1
1946	5	25	8	8.1	1	8.3	23	22.6
1946	5	26	15	9.3	10	13.8	18	21.6
1946	5	27	3	10.9	0	.	1	16.6
1946	5	28	3	12.9	4	9.5	1	10.2
1946	5	29	3	17.5	18	8.6	1	10.3
1946	5	30	0	.	18	10.1	9	18.7
1946	5	31	12	9.7	0	.	17	9.8
1946	6	1	14	11.0	0	.	5	15.0
1946	6	2	5	14.2	1	5.6	5	19.1
1946	6	3	3	10.0	3	9.0	18	19.2
1946	6	4	3	5.4	5	6.8	4	20.6
1946	6	5	3	6.1	1	7.3	8	15.5
1946	6	6	1	4.9	1	3.0	1	16.4
1946	6	7	8	11.1	2	3.4	9	21.0
1946	6	8	1	8.7	1	2.4	19	16.3
1946	6	9	1	7.8	1	2.4	1	15.3
1946	6	10	1	9.4	2	8.0	12	20.4
1946	6	11	1	9.9	1	6.1	8	14.9
1946	6	12	1	8.8	1	5.1	3	14.8
1946	6	13	1	4.8	1	3.1	23	27.6
1946	6	14	1	1.9	1	1.3	1	10.6
1946	6	15	1	7.3	2	4.7	12	17.0
1946	6	16	1	8.3	2	6.5	29	17.3
1946	6	17	1	7.6	2	3.0	3	16.5
1946	6	18	1	10.7	12	7.8	16	14.1
1946	6	19	1	8.2	7	4.5	22	16.1
1946	6	20	1	9.2	14	8.0	6	8.5
1946	6	21	2	9.8	3	3.1	13	20.3
1946	6	22	17	7.8	1	7.2	21	15.8
1946	6	23	1	9.1	2	5.5	14	13.2
1946	6	24	1	7.8	2	3.6	1	22.7
1946	6	25	1	7.2	2	5.1	6	18.1
1946	6	26	12	8.3	1	5.3	12	18.3
1946	6	27	12	11.0	2	2.7	14	25.0
1946	6	28	1	11.6	2	1.6	9	26.2
1946	6	29	1	10.2	2	2.4	1	12.4
1946	6	30	1	5.6	2	3.7	22	19.6
1946	7	1	1	6.3	1	1.1	19	16.3
1946	7	2	1	3.9	1	1.4	4	23.5
1946	7	3	1	6.4	1	2.2	12	14.0
1946	7	4	1	7.9	2	5.3	12	17.1
1946	7	5	1	4.9	1	4.5	21	20.3
1946	7	6	1	3.0	2	5.2	27	21.6
1946	7	7	1	4.9	2	3.6	18	26.7
1946	7	8	1	3.8	2	7.6	1	14.5
1946	7	9	1	6.9	2	4.2	12	16.3
1946	7	10	1	7.8	2	11.5	29	18.7
1946	7	11	3	7.1	1	1.3	19	21.6
1946	7	12	1	6.4	1	5.3	1	21.5
1946	7	13	1	6.4	1	4.1	29	18.2
1946	7	14	1	9.7	12	6.5	5	13.8
1946	7	15	3	9.3	5	9.0	1	7.6
1946	7	16	1	7.6	2	6.6	12	10.0
1946	7	17	1	6.6	2	4.6	12	18.2
1946	7	18	1	5.1	2	2.1	22	13.4
1946	7	19	1	10.4	1	2.0	6	12.9
1946	7	20	1	11.7	1	6.4	6	6.4
1946	7	21	1	9.9	3	3.2	18	13.7
1946	7	22	1	8.7	17	11.0	12	27.1
1946	7	23	1	6.0	1	6.6	8	12.0
1946	7	24	1	6.6	1	0.9	8	17.1
1946	7	25	1	4.8	1	1.9	11	19.3
1946	7	26	1	4.2	1	2.5	4	10.3
1946	7	27	1	3.9	1	4.0	8	20.6
1946	7	28	1	4.3	1	4.6	0	.
1946	7	29	1	7.1	1	5.4	18	22.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1946	7	30	3	9.9	5	6.9	1	9.1
1946	7	31	1	11.5	5	10.1	4	12.9
1946	8	1	1	5.9	2	7.5	2	8.4
1946	8	2	1	4.0	1	5.5	2	14.3
1946	8	3	1	5.0	1	8.3	8	13.4
1946	8	4	1	5.2	1	1.6	8	11.6
1946	8	5	1	3.1	1	2.6	4	20.1
1946	8	6	1	3.7	1	3.8	4	12.6
1946	8	7	1	7.6	2	7.7	20	12.0
1946	8	8	1	14.5	2	6.8	20	17.6
1946	8	9	1	12.1	1	1.8	3	10.7
1946	8	10	1	12.0	3	6.6	26	18.1
1946	8	11	1	10.7	3	6.3	5	12.2
1946	8	12	1	9.1	1	5.9	1	13.1
1946	8	13	1	6.6	1	5.3	4	17.7
1946	8	14	1	6.8	1	5.6	2	14.2
1946	8	15	1	11.5	1	6.1	20	17.8
1946	8	16	1	8.3	1	4.9	14	32.4
1946	8	17	1	5.8	2	3.5	9	15.8
1946	8	18	1	6.6	1	2.9	6	12.0
1946	8	19	1	5.6	1	7.3	6	11.7
1946	8	20	1	6.1	1	7.0	26	24.5
1946	8	21	1	5.6	1	3.4	1	18.0
1946	8	22	1	5.9	1	3.6	1	13.3
1946	8	23	16	8.6	1	6.0	1	20.3
1946	8	24	1	10.2	5	6.7	1	18.4
1946	8	25	17	7.6	5	4.9	12	13.6
1946	8	26	17	8.7	1	6.5	29	19.2
1946	8	27	1	7.9	1	3.4	3	17.4
1946	8	28	2	6.3	1	3.4	19	14.9
1946	8	29	8	8.0	3	4.4	8	13.9
1946	8	30	8	4.6	1	5.2	8	19.6
1946	8	31	8	8.8	1	6.0	2	13.9
1946	9	1	2	9.2	1	5.8	6	21.8
1946	9	2	8	9.3	1	8.9	11	12.7
1946	9	3	17	9.3	1	3.7	4	10.5
1946	9	4	17	6.4	1	6.3	4	17.7
1946	9	5	17	6.2	2	4.5	9	18.4
1946	9	6	1	7.1	2	7.0	3	13.6
1946	9	7	17	10.8	2	5.0	5	9.3
1946	9	8	4	8.9	2	4.7	27	15.2
1946	9	9	1	10.0	6	6.6	22	10.6
1946	9	10	1	8.5	1	4.6	6	5.1
1946	9	11	1	6.3	1	4.6	11	12.6
1946	9	12	3	5.3	1	3.4	1	11.4
1946	9	13	3	4.9	1	3.9	4	11.1
1946	9	14	3	3.2	5	7.5	4	8.5
1946	9	15	3	5.7	2	9.5	4	13.3
1946	9	16	3	9.1	4	6.9	4	16.4
1946	9	17	4	7.5	4	4.1	12	9.5
1946	9	18	4	7.6	2	3.8	12	20.7
1946	9	19	7	10.9	8	11.8	15	29.0
1946	9	20	1	7.3	7	12.1	2	8.1
1946	9	21	1	5.3	1	2.5	2	11.0
1946	9	22	1	8.4	2	4.5	29	20.2
1946	9	23	1	10.6	14	17.6	2	11.4
1946	9	24	1	8.9	3	12.3	2	9.4
1946	9	25	1	2.4	1	1.9	2	10.9
1946	9	26	1	1.9	1	2.3	21	19.4
1946	9	27	1	2.4	2	9.1	29	19.4
1946	9	28	1	4.3	1	4.0	19	13.8
1946	9	29	1	3.6	1	1.1	11	13.6
1946	9	30	3	6.0	1	6.6	1	21.3
1946	10	1	3	7.7	5	8.5	4	13.8
1946	10	2	10	8.8	2	7.0	1	16.5
1946	10	3	4	6.5	2	6.1	2	13.9
1946	10	4	4	6.0	2	1.7	8	14.5
1946	10	5	4	4.6	2	6.4	5	15.8
1946	10	6	7	10.0	8	3.9	3	22.9
1946	10	7	4	13.3	8	11.1	5	11.2
1946	10	8	4	11.2	8	11.5	10	24.8
1946	10	9	11	11.1	2	5.6	2	16.0
1946	10	10	2	6.9	1	8.2	3	9.7
1946	10	11	2	7.2	7	5.1	6	8.4
1946	10	12	2	5.8	3	9.1	2	15.8
1946	10	13	2	5.0	7	5.9	4	27.3
1946	10	14	2	4.8	1	2.4	1	22.1
1946	10	15	17	7.5	1	5.8	3	16.1
1946	10	16	4	10.1	1	4.7	23	18.8
1946	10	17	1	7.9	1	6.8	13	11.4
1946	10	18	1	5.0	1	6.2	6	7.4
1946	10	19	1	2.2	1	5.1	10	14.7
1946	10	20	1	2.3	1	5.8	4	7.8
1946	10	21	1	2.7	1	4.5	4	7.4
1946	10	22	1	3.2	2	5.1	2	20.8
1946	10	23	1	3.7	2	3.4	20	21.5
1946	10	24	11	9.9	2	6.4	2	11.7
1946	10	25	1	10.3	1	5.1	2	3.6
1946	10	26	2	8.0	1	1.4	8	23.5
1946	10	27	4	6.1	2	1.4	5	11.1
1946	10	28	4	2.2	2	1.5	9	22.7
1946	10	29	4	4.3	2	1.5	1	14.5
1946	10	30	4	5.1	2	2.3	2	11.7
1946	10	31	1	7.4	1	6.0	2	8.4
1946	11	1	1	6.5	2	6.7	4	14.1
1946	11	2	11	6.3	2	5.0	22	13.0
1946	11	3	7	4.3	0	.	13	13.0
1946	11	4	7	8.5	6	13.8	6	17.8
1946	11	5	7	9.0	6	8.1	4	10.9
1946	11	6	1	10.4	6	10.7	4	21.9
1946	11	7	1	9.3	16	4.5	3	18.4
1946	11	8	2	9.5	1	10.0	19	13.7
1946	11	9	18	11.5	6	7.4	27	28.3
1946	11	10	11	6.9	6	8.6	0	.
1946	11	11	2	9.2	1	10.7	2	17.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1946	11	12	17	17.0	7	7.0	2	16.3
1946	11	13	17	13.6	1	12.0	2	4.5
1946	11	14	4	14.9	12	7.8	4	11.5
1946	11	15	4	8.3	2	2.8	29	19.2
1946	11	16	1	7.1	6	8.8	6	8.3
1946	11	17	1	4.2	1	0.5	11	13.2
1946	11	18	1	2.8	1	2.3	14	13.8
1946	11	19	1	8.1	2	5.6	14	33.2
1946	11	20	6	17.5	2	3.4	5	11.7
1946	11	21	4	11.0	2	2.7	3	7.7
1946	11	22	1	5.1	1	1.5	0	.
1946	11	23	1	3.4	1	1.4	4	19.1
1946	11	24	1	5.0	2	5.6	3	13.9
1946	11	25	2	8.3	1	3.5	4	18.5
1946	11	26	1	4.0	1	1.1	2	11.5
1946	11	27	1	5.8	1	0.6	0	.
1946	11	28	1	3.7	1	0.6	3	28.8
1946	11	29	1	3.7	1	0.7	21	16.7
1946	11	30	1	4.3	1	1.4	3	11.4
1946	12	1	1	6.2	1	4.8	11	14.1
1946	12	2	1	2.9	1	4.0	4	7.2
1946	12	3	1	5.2	1	3.3	4	23.6
1946	12	4	3	3.8	1	4.1	14	23.7
1946	12	5	1	5.5	1	3.7	10	23.3
1946	12	6	1	4.6	2	4.2	4	11.0
1946	12	7	1	6.8	2	3.5	1	21.0
1946	12	8	6	6.9	4	6.7	28	20.0
1946	12	9	11	11.5	2	5.1	2	6.6
1946	12	10	1	8.3	1	4.0	2	31.8
1946	12	11	1	7.6	1	2.5	10	19.2
1946	12	12	1	9.5	1	3.8	3	27.5
1946	12	13	1	6.5	1	2.3	8	12.4
1946	12	14	1	5.1	1	1.6	21	12.8
1946	12	15	1	4.5	1	2.3	21	21.7
1946	12	16	1	6.9	1	7.4	3	13.6
1946	12	17	2	5.4	7	9.3	6	15.9
1946	12	18	2	6.2	3	9.0	2	11.1
1946	12	19	2	7.2	7	5.7	4	11.6
1946	12	20	5	10.3	7	7.6	2	10.2
1946	12	21	1	8.6	3	3.3	6	11.7
1946	12	22	1	6.6	1	3.7	10	18.2
1946	12	23	2	9.1	1	1.8	2	14.8
1946	12	24	2	8.3	1	3.5	6	16.7
1946	12	25	2	8.9	1	5.2	25	17.5
1946	12	26	1	6.7	1	3.1	1	17.3
1946	12	27	4	7.0	1	6.9	5	16.3
1946	12	28	1	6.5	1	3.9	5	12.0
1946	12	29	2	4.5	7	6.7	16	26.1
1946	12	30	2	5.9	1	2.8	19	12.8
1946	12	31	2	9.3	1	3.0	4	11.1
1947	1	1	2	5.7	1	4.8	12	18.6
1947	1	2	2	10.4	6	6.1	16	14.4
1947	1	3	5	12.9	3	14.9	13	7.6
1947	1	4	7	15.5	19	7.3	2	4.5
1947	1	5	2	12.1	3	10.1	6	32.1
1947	1	6	2	4.8	1	1.9	2	6.4
1947	1	7	2	7.8	7	3.9	2	8.0
1947	1	8	2	9.0	1	6.1	6	14.0
1947	1	9	1	9.9	3	4.2	2	13.8
1947	1	10	1	4.1	1	3.5	10	14.2
1947	1	11	1	6.2	1	0.9	26	17.5
1947	1	12	2	6.8	1	3.8	1	3.6
1947	1	13	4	6.1	2	4.9	1	14.3
1947	1	14	4	9.4	8	7.0	29	19.7
1947	1	15	2	8.2	1	8.7	22	23.2
1947	1	16	1	9.8	7	3.8	2	11.4
1947	1	17	1	5.4	1	2.5	2	11.5
1947	1	18	1	5.4	1	6.2	10	12.3
1947	1	19	1	5.0	1	8.2	2	8.1
1947	1	20	1	9.5	1	3.9	6	14.5
1947	1	21	5	4.6	3	1.5	6	29.1
1947	1	22	1	4.8	3	6.4	10	16.5
1947	1	23	1	3.0	1	3.0	2	13.0
1947	1	24	1	3.4	1	3.0	10	16.3
1947	1	25	1	3.2	1	3.8	2	5.8
1947	1	26	1	3.0	1	4.2	10	13.9
1947	1	27	1	3.7	1	7.3	6	13.3
1947	1	28	1	6.5	1	6.1	5	7.4
1947	1	29	4	8.7	2	6.5	5	11.0
1947	1	30	11	9.3	16	7.1	7	22.7
1947	1	31	11	9.6	13	11.8	17	20.3
1947	2	1	1	6.7	1	11.3	11	15.5
1947	2	2	1	4.5	1	2.9	18	24.3
1947	2	3	1	6.2	2	6.5	3	9.7
1947	2	4	5	7.1	3	5.6	6	10.2
1947	2	5	5	8.5	3	2.1	10	27.3
1947	2	6	5	7.0	3	6.7	3	9.7
1947	2	7	5	7.9	3	9.2	3	11.0
1947	2	8	0	.	11	9.7	3	12.2
1947	2	9	0	.	19	12.6	19	14.6
1947	2	10	8	13.2	3	6.9	11	18.7
1947	2	11	1	6.5	1	4.6	1	26.9
1947	2	12	1	5.3	1	4.2	10	16.9
1947	2	13	1	4.3	1	6.2	14	21.2
1947	2	14	1	3.9	1	1.5	7	25.3
1947	2	15	1	5.1	1	6.9	15	15.4
1947	2	16	2	4.4	1	5.8	2	16.3
1947	2	17	2	6.8	1	3.1	3	14.0
1947	2	18	2	8.7	1	5.8	19	7.4
1947	2	19	2	7.9	1	2.6	5	15.7
1947	2	20	2	6.3	1	3.8	5	18.2
1947	2	21	2	10.6	1	6.8	17	20.2
1947	2	22	5	6.8	3	5.8	5	16.8
1947	2	23	5	8.7	11	4.8	26	9.3
1947	2	24	0	.	11	7.5	26	16.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1947	2	25	0	.	11	5.9	26	16.4
1947	2	26	2	12.2	3	10.4	19	12.0
1947	2	27	0	.	3	6.6	11	25.2
1947	2	28	2	12.0	7	13.7	5	4.9
1947	3	1	2	11.7	0	.	26	20.8
1947	3	2	5	11.8	11	8.2	26	13.3
1947	3	3	9	14.0	3	9.6	5	24.9
1947	3	4	2	8.3	1	4.3	5	15.8
1947	3	5	11	17.5	9	10.8	5	11.9
1947	3	6	11	14.5	0	.	5	11.3
1947	3	7	12	11.3	2	11.5	5	10.1
1947	3	8	9	10.5	9	8.2	5	18.0
1947	3	9	1	11.9	5	10.0	1	12.8
1947	3	10	1	4.8	1	10.1	1	10.3
1947	3	11	1	4.4	1	4.5	12	8.3
1947	3	12	1	8.7	1	7.6	3	14.8
1947	3	13	5	6.9	1	10.1	3	16.5
1947	3	14	5	5.0	3	12.1	3	11.9
1947	3	15	5	5.5	11	6.1	26	15.4
1947	3	16	5	6.5	3	5.4	15	16.9
1947	3	17	5	10.3	3	2.9	19	14.4
1947	3	18	5	4.4	3	3.0	5	8.4
1947	3	19	2	8.5	3	7.5	19	24.8
1947	3	20	2	13.5	3	4.3	20	18.3
1947	3	21	5	8.3	3	1.5	13	20.7
1947	3	22	1	3.7	1	7.2	4	14.3
1947	3	23	1	2.4	1	5.2	3	18.5
1947	3	24	1	4.5	1	1.9	6	17.6
1947	3	25	2	7.4	3	1.9	6	16.5
1947	3	26	2	6.7	3	5.4	0	.
1947	3	27	2	7.4	1	6.8	2	13.3
1947	3	28	2	10.1	3	2.5	2	7.3
1947	3	29	5	6.9	3	4.5	19	13.3
1947	3	30	1	4.0	1	6.5	21	23.3
1947	3	31	1	2.8	1	4.3	1	8.5
1947	4	1	1	1.8	1	4.9	17	17.3
1947	4	2	1	3.3	1	4.8	1	12.9
1947	4	3	1	9.6	2	4.4	1	22.6
1947	4	4	4	10.1	2	5.8	5	13.9
1947	4	5	11	9.3	8	9.6	3	17.1
1947	4	6	1	7.8	0	.	26	18.2
1947	4	7	1	3.2	1	2.5	5	20.3
1947	4	8	1	2.3	1	3.3	4	20.6
1947	4	9	1	4.1	1	7.6	1	18.6
1947	4	10	1	5.6	6	5.1	9	15.7
1947	4	11	1	5.6	1	3.8	17	20.1
1947	4	12	5	6.6	3	6.1	16	26.6
1947	4	13	5	12.4	7	13.4	2	7.1
1947	4	14	2	10.9	1	6.3	0	.
1947	4	15	2	9.2	1	3.3	16	21.0
1947	4	16	2	9.2	7	6.3	6	10.4
1947	4	17	5	6.8	3	3.5	15	18.5
1947	4	18	1	5.9	1	3.6	5	12.8
1947	4	19	1	2.9	1	4.9	1	16.4
1947	4	20	1	3.5	1	2.0	1	14.5
1947	4	21	17	8.9	1	6.5	27	22.7
1947	4	22	4	9.2	2	7.3	27	16.7
1947	4	23	4	11.7	6	5.6	3	13.5
1947	4	24	2	9.1	1	4.1	19	5.7
1947	4	25	2	8.8	1	6.2	13	12.3
1947	4	26	1	11.7	1	9.0	2	12.7
1947	4	27	1	9.0	1	8.3	7	10.7
1947	4	28	1	4.2	1	7.4	4	17.3
1947	4	29	1	3.4	1	8.7	20	26.2
1947	4	30	1	4.8	2	8.2	20	10.0
1947	5	1	1	5.4	1	13.7	6	9.3
1947	5	2	1	9.0	11	6.8	6	24.4
1947	5	3	1	5.5	1	11.4	6	24.5
1947	5	4	1	5.6	1	4.8	26	9.2
1947	5	5	1	7.9	1	10.3	5	11.2
1947	5	6	1	6.2	1	3.5	5	7.8
1947	5	7	5	9.1	3	2.3	5	20.6
1947	5	8	5	12.5	3	0.9	5	14.2
1947	5	9	1	9.3	3	8.8	1	17.8
1947	5	10	7	10.1	12	7.0	1	13.5
1947	5	11	7	9.4	6	5.9	12	18.0
1947	5	12	1	8.2	6	2.6	3	26.6
1947	5	13	1	5.8	12	15.6	7	16.3
1947	5	14	1	4.3	2	6.6	12	15.1
1947	5	15	1	6.8	1	6.1	22	22.1
1947	5	16	1	4.9	1	2.7	10	25.0
1947	5	17	1	2.9	1	7.5	20	13.8
1947	5	18	1	4.3	1	4.1	2	14.9
1947	5	19	1	6.7	1	2.0	3	26.4
1947	5	20	1	7.5	1	2.8	22	22.0
1947	5	21	2	6.1	1	3.2	15	28.7
1947	5	22	2	6.7	1	2.7	3	16.2
1947	5	23	2	7.3	1	3.6	13	13.9
1947	5	24	1	12.1	1	4.1	21	31.9
1947	5	25	5	11.1	1	5.3	15	25.6
1947	5	26	8	12.5	1	4.4	26	20.5
1947	5	27	8	13.9	1	2.0	5	14.0
1947	5	28	8	12.4	1	4.7	19	22.9
1947	5	29	5	13.3	7	11.0	6	17.8
1947	5	30	2	10.3	1	7.8	4	11.8
1947	5	31	1	4.0	1	1.9	14	15.3
1947	6	1	1	4.4	1	4.4	16	20.8
1947	6	2	17	6.4	1	3.0	7	25.7
1947	6	3	1	5.3	1	5.0	1	8.1
1947	6	4	1	9.3	2	4.3	14	14.0
1947	6	5	1	5.1	2	7.5	17	12.8
1947	6	6	3	8.8	2	4.6	1	18.1
1947	6	7	1	7.1	1	5.5	9	23.1
1947	6	8	1	7.6	1	3.1	5	34.6
1947	6	9	1	5.4	2	5.1	9	20.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1947	6	10	1	6.5	6	8.1	3	16.3
1947	6	11	1	13.4	7	7.2	19	9.7
1947	6	12	1	11.7	6	4.6	13	14.4
1947	6	13	1	8.0	7	9.2	6	21.7
1947	6	14	1	7.7	5	9.8	0	.
1947	6	15	3	11.1	5	10.0	0	.
1947	6	16	3	7.2	5	8.6	1	14.0
1947	6	17	1	9.1	5	5.3	9	21.2
1947	6	18	0	.	0	.	5	21.1
1947	6	19	1	9.2	5	6.6	1	9.9
1947	6	20	6	7.2	13	9.0	1	13.3
1947	6	21	11	9.2	4	7.9	27	15.1
1947	6	22	4	9.3	4	10.5	9	10.0
1947	6	23	4	8.1	8	7.8	2	16.9
1947	6	24	2	12.0	1	7.0	2	11.1
1947	6	25	1	7.1	1	1.4	4	17.2
1947	6	26	1	3.1	1	4.8	2	14.9
1947	6	27	1	6.1	2	5.8	2	20.2
1947	6	28	4	8.8	2	2.6	2	19.1
1947	6	29	4	6.7	2	5.0	22	11.4
1947	6	30	1	4.0	2	6.7	22	11.9
1947	7	1	1	2.9	1	1.9	6	17.9
1947	7	2	1	2.7	1	3.8	4	13.8
1947	7	3	1	4.9	5	5.0	12	22.1
1947	7	4	1	3.9	2	7.4	8	22.6
1947	7	5	1	4.8	1	7.2	22	16.3
1947	7	6	1	7.3	1	5.0	23	19.3
1947	7	7	3	8.2	5	6.2	1	16.3
1947	7	8	3	7.9	5	6.5	4	10.9
1947	7	9	1	12.4	5	7.3	4	11.0
1947	7	10	1	10.0	17	15.0	12	22.2
1947	7	11	1	5.8	5	8.1	10	20.7
1947	7	12	3	5.6	2	7.3	10	27.3
1947	7	13	3	6.1	1	3.7	2	16.0
1947	7	14	3	6.5	5	5.9	6	16.1
1947	7	15	3	6.5	17	5.7	10	18.7
1947	7	16	3	8.2	5	6.7	20	23.5
1947	7	17	1	9.6	1	9.4	3	12.0
1947	7	18	1	8.6	1	4.4	6	12.5
1947	7	19	8	11.7	1	7.5	2	18.2
1947	7	20	5	11.7	1	4.1	3	9.0
1947	7	21	8	10.3	3	2.2	11	15.1
1947	7	22	1	7.1	3	6.9	4	6.8
1947	7	23	1	6.3	1	8.9	14	15.2
1947	7	24	1	8.2	1	7.8	1	18.4
1947	7	25	1	12.7	2	7.3	4	11.6
1947	7	26	3	11.5	12	8.8	14	16.3
1947	7	27	3	8.4	2	8.6	13	14.9
1947	7	28	17	12.1	5	7.0	4	8.2
1947	7	29	1	7.3	2	10.8	2	15.2
1947	7	30	1	7.8	1	6.3	3	16.6
1947	7	31	17	7.6	1	2.4	13	15.0
1947	8	1	17	5.0	1	3.0	4	13.8
1947	8	2	4	8.0	1	4.8	2	11.1
1947	8	3	1	9.3	1	6.0	4	15.3
1947	8	4	4	10.7	2	4.0	10	12.9
1947	8	5	1	6.9	2	2.5	2	9.1
1947	8	6	1	3.5	2	2.0	22	24.3
1947	8	7	1	3.8	1	8.2	11	15.4
1947	8	8	1	7.5	2	5.9	1	4.1
1947	8	9	1	8.6	2	7.7	4	23.8
1947	8	10	4	6.0	2	4.9	29	16.3
1947	8	11	1	7.9	2	1.8	22	22.0
1947	8	12	4	6.9	2	2.0	5	34.8
1947	8	13	4	9.4	2	3.4	29	14.3
1947	8	14	1	8.4	1	5.8	25	30.3
1947	8	15	1	5.3	1	2.8	1	4.8
1947	8	16	4	6.2	2	2.5	1	13.0
1947	8	17	4	9.2	2	2.3	2	18.8
1947	8	18	1	8.6	2	3.2	4	27.3
1947	8	19	1	9.7	2	5.6	12	25.1
1947	8	20	4	8.0	2	8.6	5	27.2
1947	8	21	4	7.1	2	7.2	1	8.5
1947	8	22	4	6.5	4	4.7	14	20.9
1947	8	23	4	5.3	4	5.8	20	12.8
1947	8	24	4	5.0	2	2.0	8	20.7
1947	8	25	1	7.9	2	4.8	19	19.5
1947	8	26	1	7.6	1	4.3	21	35.0
1947	8	27	1	10.4	1	4.7	8	16.3
1947	8	28	1	10.0	1	1.7	1	22.6
1947	8	29	4	9.7	1	4.3	4	27.1
1947	8	30	1	7.8	1	2.6	24	19.6
1947	8	31	1	5.8	12	7.8	22	20.1
1947	9	1	1	5.2	1	0.7	2	8.5
1947	9	2	1	3.6	1	3.6	2	11.1
1947	9	3	1	2.4	1	2.0	0	.
1947	9	4	1	2.9	1	1.7	20	21.0
1947	9	5	1	3.1	1	5.9	2	14.8
1947	9	6	1	3.3	2	8.3	8	8.1
1947	9	7	1	4.9	2	8.2	1	19.6
1947	9	8	1	7.7	2	6.6	1	20.3
1947	9	9	6	7.4	2	2.3	12	13.9
1947	9	10	4	7.8	2	3.8	9	15.8
1947	9	11	7	7.1	6	3.8	6	23.7
1947	9	12	1	7.0	10	6.8	2	25.3
1947	9	13	1	8.6	10	10.1	2	8.5
1947	9	14	2	7.7	1	6.1	6	16.5
1947	9	15	2	8.4	1	2.8	2	15.6
1947	9	16	2	7.3	1	1.9	21	12.5
1947	9	17	4	9.0	2	4.9	5	12.1
1947	9	18	4	3.8	4	4.7	5	14.4
1947	9	19	4	4.7	4	3.4	9	14.2
1947	9	20	4	7.1	2	2.8	2	11.5
1947	9	21	2	10.3	1	5.4	6	17.5
1947	9	22	2	11.3	3	5.1	4	13.2

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1947	9	23	17	9.1	1	3.9	2	18.3
1947	9	24	2	8.3	1	3.0	19	18.2
1947	9	25	1	11.1	1	3.5	11	12.9
1947	9	26	1	7.0	1	7.7	1	16.8
1947	9	27	1	6.5	1	5.1	12	13.3
1947	9	28	1	6.4	1	4.2	3	21.7
1947	9	29	1	8.6	1	2.2	5	15.4
1947	9	30	1	7.8	1	6.2	1	26.1
1947	10	1	3	7.2	12	8.2	4	15.8
1947	10	2	1	8.4	13	5.6	4	19.6
1947	10	3	1	5.7	2	6.4	2	17.2
1947	10	4	1	5.0	1	5.8	2	6.0
1947	10	5	1	2.3	1	2.3	4	17.6
1947	10	6	1	5.9	2	5.1	8	7.5
1947	10	7	1	6.2	2	4.6	5	21.4
1947	10	8	3	4.0	1	6.2	1	11.1
1947	10	9	3	5.3	2	5.3	1	21.8
1947	10	10	3	6.2	2	3.1	1	17.1
1947	10	11	1	8.1	2	5.6	12	7.4
1947	10	12	7	4.9	6	3.3	2	18.4
1947	10	13	7	9.1	1	2.2	4	12.3
1947	10	14	1	7.6	2	2.8	2	13.6
1947	10	15	1	7.0	2	6.3	28	25.7
1947	10	16	3	5.9	16	4.9	10	16.9
1947	10	17	6	8.0	13	9.8	2	16.6
1947	10	18	1	7.9	2	6.7	13	17.0
1947	10	19	1	4.4	1	5.4	4	11.6
1947	10	20	1	5.4	2	8.3	4	20.1
1947	10	21	1	5.9	2	2.2	14	12.1
1947	10	22	1	6.6	2	6.3	3	8.2
1947	10	23	3	6.7	4	12.0	7	19.3
1947	10	24	1	9.8	8	4.5	0	.
1947	10	25	16	8.7	14	9.8	23	12.5
1947	10	26	1	9.9	0	.	13	13.4
1947	10	27	1	4.7	10	5.8	2	24.3
1947	10	28	3	6.8	17	6.5	18	18.5
1947	10	29	3	3.8	5	11.3	1	13.8
1947	10	30	3	6.0	2	8.9	12	9.9
1947	10	31	1	6.2	16	7.7	22	24.3
1947	11	1	3	4.8	10	8.8	18	12.4
1947	11	2	1	8.2	5	7.2	12	22.4
1947	11	3	1	8.3	4	11.0	12	15.4
1947	11	4	6	9.0	4	10.3	9	15.2
1947	11	5	1	9.5	13	4.0	6	19.8
1947	11	6	11	7.9	2	6.8	22	9.1
1947	11	7	11	5.9	14	14.8	6	13.8
1947	11	8	2	7.7	3	5.5	6	13.2
1947	11	9	2	5.0	1	8.5	8	10.7
1947	11	10	2	7.7	1	3.3	13	18.1
1947	11	11	2	6.7	1	4.0	15	27.3
1947	11	12	2	8.2	1	4.3	19	9.2
1947	11	13	0	.	1	2.2	4	6.8
1947	11	14	11	11.8	1	7.1	1	6.3
1947	11	15	12	10.5	2	9.7	17	15.0
1947	11	16	11	7.8	9	10.7	5	16.1
1947	11	17	11	8.8	1	10.3	5	29.4
1947	11	18	11	6.5	9	8.6	5	17.5
1947	11	19	11	10.4	2	4.7	5	9.9
1947	11	20	2	13.3	2	2.3	5	14.1
1947	11	21	11	10.4	8	8.7	3	16.1
1947	11	22	2	8.9	6	11.4	6	16.3
1947	11	23	2	6.6	7	2.2	2	23.8
1947	11	24	5	9.7	3	5.6	6	22.9
1947	11	25	2	8.7	3	3.7	6	20.1
1947	11	26	99	.	99	.	2	16.4
1947	11	27	5	5.8	3	5.6	6	15.1
1947	11	28	5	5.5	3	1.6	2	10.5
1947	11	29	5	8.1	3	3.8	13	19.2
1947	11	30	1	5.4	3	4.7	4	7.5
1947	12	1	1	5.7	1	4.8	21	24.9
1947	12	2	4	11.5	1	6.8	5	12.8
1947	12	3	2	10.1	1	2.6	11	17.2
1947	12	4	4	9.0	12	6.4	5	21.8
1947	12	5	4	11.4	1	6.3	6	21.5
1947	12	6	2	7.8	1	5.4	1	18.5
1947	12	7	2	9.8	2	6.2	3	17.6
1947	12	8	2	4.7	1	4.0	19	16.1
1947	12	9	2	8.6	1	3.0	1	16.1
1947	12	10	2	7.1	1	5.0	25	21.8
1947	12	11	1	8.9	1	1.6	4	16.2
1947	12	12	2	7.6	7	5.9	2	18.2
1947	12	13	1	9.9	1	8.2	10	10.3
1947	12	14	1	4.4	1	2.2	20	14.4
1947	12	15	2	6.1	1	2.7	6	17.0
1947	12	16	5	6.3	1	7.9	2	16.5
1947	12	17	1	9.3	1	7.5	18	17.0
1947	12	18	1	3.0	1	1.1	1	22.8
1947	12	19	1	3.2	1	5.8	10	16.9
1947	12	20	1	4.2	1	3.8	2	16.9
1947	12	21	1	3.6	1	2.2	4	10.0
1947	12	22	1	3.9	12	8.4	9	22.0
1947	12	23	3	11.1	0	.	10	22.9
1947	12	24	1	8.4	10	7.2	2	12.1
1947	12	25	1	9.0	3	7.9	6	12.1
1947	12	26	5	9.0	3	2.1	2	14.6
1947	12	27	1	4.2	1	5.2	6	14.4
1947	12	28	1	4.2	1	4.4	1	19.9
1947	12	29	1	5.4	1	6.1	9	15.6
1947	12	30	2	12.5	2	7.1	5	15.2
1947	12	31	7	7.8	6	4.4	23	8.8
1948	1	1	1	4.8	10	5.8	13	24.4
1948	1	2	1	5.8	5	10.6	10	11.4
1948	1	3	1	2.5	2	6.7	2	8.6
1948	1	4	1	2.5	1	4.4	18	21.8
1948	1	5	1	1.4	1	4.4	2	4.3

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1948	1	6	1	2.5	1	4.8	18	9.9
1948	1	7	1	3.9	1	6.1	4	23.6
1948	1	8	1	2.7	1	3.3	15	21.0
1948	1	9	1	2.7	1	1.8	26	16.0
1948	1	10	1	3.8	1	7.6	4	15.4
1948	1	11	1	1.6	2	7.7	20	22.0
1948	1	12	2	7.5	1	2.8	3	15.2
1948	1	13	5	7.9	1	9.3	6	14.2
1948	1	14	5	9.8	3	1.5	10	12.3
1948	1	15	2	6.8	1	6.8	3	9.9
1948	1	16	2	7.2	3	5.7	19	0.0
1948	1	17	2	7.0	3	1.4	4	18.1
1948	1	18	2	5.9	3	7.9	12	18.8
1948	1	19	2	6.4	3	8.8	10	6.8
1948	1	20	2	6.7	1	3.9	15	17.0
1948	1	21	2	8.5	3	4.6	15	22.0
1948	1	22	5	8.8	3	2.9	7	18.8
1948	1	23	5	8.4	3	2.4	4	17.1
1948	1	24	2	7.4	10	13.9	12	15.0
1948	1	25	2	7.7	3	7.9	5	25.1
1948	1	26	2	4.7	7	7.6	19	11.5
1948	1	27	2	10.9	3	14.1	13	8.8
1948	1	28	5	11.5	19	6.6	2	6.1
1948	1	29	1	10.8	3	7.1	20	30.0
1948	1	30	1	6.6	1	13.6	1	12.3
1948	1	31	11	9.6	1	17.5	2	21.4
1948	2	1	2	5.9	1	5.4	8	16.2
1948	2	2	2	6.4	1	1.9	19	15.0
1948	2	3	2	7.8	1	5.4	1	21.8
1948	2	4	2	4.5	1	5.5	5	18.5
1948	2	5	2	11.3	1	5.7	21	30.7
1948	2	6	2	9.0	1	3.8	8	27.1
1948	2	7	2	7.9	1	3.5	3	16.2
1948	2	8	2	7.7	1	2.6	11	11.6
1948	2	9	2	8.5	1	1.2	5	19.8
1948	2	10	2	3.8	1	9.0	27	21.1
1948	2	11	2	9.0	6	6.0	22	18.7
1948	2	12	7	7.4	6	14.6	10	16.6
1948	2	13	7	9.6	6	7.0	2	8.1
1948	2	14	1	7.6	1	5.8	24	18.7
1948	2	15	1	1.4	1	1.8	1	15.0
1948	2	16	1	1.2	1	6.6	2	8.1
1948	2	17	1	1.3	1	0.7	15	22.1
1948	2	18	1	1.2	1	1.6	1	17.0
1948	2	19	1	2.8	1	6.6	3	15.4
1948	2	20	1	4.3	1	0.5	21	27.8
1948	2	21	1	3.5	1	2.3	1	22.8
1948	2	22	1	2.9	1	2.6	1	11.1
1948	2	23	11	9.2	2	3.4	12	18.2
1948	2	24	7	8.5	6	5.5	19	19.7
1948	2	25	1	7.0	1	4.4	10	12.1
1948	2	26	1	3.0	1	0.9	18	19.3
1948	2	27	1	5.5	2	5.9	9	17.7
1948	2	28	2	6.4	0	.	17	14.3
1948	2	29	2	11.1	1	8.4	6	15.3
1948	3	1	1	4.6	1	7.6	5	19.0
1948	3	2	11	8.3	1	10.0	17	20.1
1948	3	3	11	9.5	12	5.4	5	5.4
1948	3	4	7	7.8	0	.	5	22.9
1948	3	5	7	5.7	15	13.6	4	15.3
1948	3	6	11	10.4	15	15.6	1	14.4
1948	3	7	11	9.1	0	.	3	18.6
1948	3	8	2	6.4	1	4.4	19	18.0
1948	3	9	2	4.8	1	1.8	19	9.7
1948	3	10	2	8.3	7	4.1	19	16.3
1948	3	11	2	7.5	7	7.4	4	8.4
1948	3	12	1	6.9	3	4.1	10	9.2
1948	3	13	17	5.3	1	3.6	4	9.3
1948	3	14	4	6.3	2	4.4	14	18.3
1948	3	15	4	6.7	6	9.0	3	16.4
1948	3	16	1	7.1	1	7.9	26	14.1
1948	3	17	2	7.8	1	1.3	5	13.1
1948	3	18	1	7.1	2	5.3	1	11.5
1948	3	19	4	6.9	2	2.8	6	24.0
1948	3	20	4	4.2	2	1.6	12	23.3
1948	3	21	1	7.5	6	7.5	7	34.9
1948	3	22	1	3.5	1	9.4	10	6.3
1948	3	23	1	3.7	2	6.0	2	17.7
1948	3	24	1	7.1	1	5.4	5	10.8
1948	3	25	10	7.6	2	1.8	5	12.7
1948	3	26	1	4.8	6	7.7	3	16.1
1948	3	27	1	6.6	3	7.9	16	22.9
1948	3	28	2	7.3	1	5.0	2	11.3
1948	3	29	2	5.7	1	1.6	18	22.7
1948	3	30	2	3.0	1	2.3	9	10.8
1948	3	31	2	8.3	6	7.4	7	23.3
1948	4	1	1	8.7	1	5.5	26	14.5
1948	4	2	1	7.5	1	4.7	11	18.8
1948	4	3	1	9.5	2	8.1	1	8.4
1948	4	4	4	7.6	2	4.0	29	16.7
1948	4	5	4	8.3	2	2.2	24	32.5
1948	4	6	4	5.7	2	2.1	5	14.6
1948	4	7	1	5.8	2	2.4	17	17.0
1948	4	8	1	8.2	1	7.5	26	10.7
1948	4	9	1	7.9	1	2.7	1	16.2
1948	4	10	17	6.7	1	5.7	1	11.6
1948	4	11	2	7.2	2	6.1	6	10.1
1948	4	12	2	5.2	1	3.0	21	21.7
1948	4	13	1	5.3	1	3.8	1	19.6
1948	4	14	1	8.1	1	5.5	2	21.0
1948	4	15	1	5.1	1	0.8	28	16.5
1948	4	16	1	3.9	1	1.8	23	14.5
1948	4	17	1	3.7	1	2.9	4	12.3
1948	4	18	1	4.1	2	3.2	12	21.9
1948	4	19	1	3.9	6	6.8	9	17.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1948	4	20	1	4.4	1	7.1	17	22.9
1948	4	21	1	5.8	1	4.7	1	16.2
1948	4	22	3	6.4	12	6.2	1	7.9
1948	4	23	6	8.2	4	2.6	1	9.4
1948	4	24	16	15.7	4	5.7	9	12.9
1948	4	25	11	12.9	8	16.1	9	23.8
1948	4	26	6	7.4	8	10.9	3	16.5
1948	4	27	4	10.5	9	10.8	3	15.5
1948	4	28	15	13.9	5	5.8	11	15.6
1948	4	29	0	.	5	2.5	5	23.2
1948	4	30	14	10.8	0	.	1	18.0
1948	5	1	14	6.3	13	9.2	17	15.8
1948	5	2	14	11.6	4	6.8	17	12.8
1948	5	3	3	8.6	13	9.6	28	32.4
1948	5	4	1	8.9	9	9.9	17	29.8
1948	5	5	1	7.2	1	4.7	3	8.4
1948	5	6	3	7.6	3	7.4	7	20.1
1948	5	7	9	5.1	5	8.5	1	21.3
1948	5	8	2	13.3	5	10.8	5	12.6
1948	5	9	0	.	12	14.7	5	14.5
1948	5	10	3	16.4	0	.	5	17.2
1948	5	11	7	14.3	12	11.5	5	12.6
1948	5	12	3	8.5	4	12.0	5	24.2
1948	5	13	3	4.6	13	4.8	18	13.8
1948	5	14	3	5.7	5	6.4	1	17.2
1948	5	15	1	7.3	9	7.1	2	12.2
1948	5	16	3	6.9	3	9.7	6	11.2
1948	5	17	3	4.7	5	7.9	18	24.1
1948	5	18	10	13.9	5	3.7	1	6.7
1948	5	19	10	13.2	4	10.2	1	23.8
1948	5	20	4	10.3	2	10.5	8	23.5
1948	5	21	16	11.2	12	8.3	16	16.5
1948	5	22	3	11.4	0	.	17	20.4
1948	5	23	0	.	0	.	7	18.2
1948	5	24	0	.	3	15.7	5	6.0
1948	5	25	3	14.3	3	8.5	8	22.0
1948	5	26	0	.	10	11.0	14	23.6
1948	5	27	8	10.4	1	8.2	26	21.4
1948	5	28	8	3.9	1	3.4	5	12.4
1948	5	29	8	7.7	12	7.3	5	14.5
1948	5	30	8	13.5	12	7.7	5	23.4
1948	5	31	10	12.2	5	9.3	11	25.7
1948	6	1	10	6.6	2	5.7	4	15.2
1948	6	2	10	9.6	2	6.5	4	18.1
1948	6	3	1	8.4	12	10.2	21	15.3
1948	6	4	16	9.8	12	4.1	17	12.4
1948	6	5	16	9.1	1	15.5	16	15.4
1948	6	6	1	14.0	1	3.5	2	10.2
1948	6	7	0	.	3	4.6	6	8.7
1948	6	8	1	13.6	3	2.7	6	27.9
1948	6	9	17	10.0	1	6.7	2	19.5
1948	6	10	17	8.7	1	3.7	19	19.6
1948	6	11	8	8.1	1	3.3	11	19.8
1948	6	12	8	4.5	1	4.4	3	16.3
1948	6	13	8	6.3	1	7.8	19	31.5
1948	6	14	8	3.7	1	2.7	5	13.0
1948	6	15	8	0.0	1	5.1	5	8.5
1948	6	16	8	2.3	1	2.7	5	4.9
1948	6	17	8	6.7	1	6.2	5	6.4
1948	6	18	8	10.8	1	13.4	3	20.9
1948	6	19	17	10.5	1	7.0	19	13.0
1948	6	20	1	4.9	12	4.0	1	19.3
1948	6	21	11	9.6	4	10.0	1	6.6
1948	6	22	11	3.3	8	6.3	9	10.0
1948	6	23	11	5.8	8	7.6	15	20.4
1948	6	24	11	7.5	1	5.3	15	21.6
1948	6	25	1	8.9	1	7.3	27	0.0
1948	6	26	1	5.1	1	5.1	22	21.1
1948	6	27	1	7.7	1	4.4	22	11.5
1948	6	28	1	9.5	1	6.2	6	20.2
1948	6	29	1	8.2	1	6.1	6	8.1
1948	6	30	1	6.8	3	2.5	18	0.0
1948	7	1	1	6.8	5	5.4	4	20.5
1948	7	2	4	9.1	2	4.1	10	26.8
1948	7	3	4	9.8	2	4.4	1	28.3
1948	7	4	6	12.0	2	1.4	4	18.4
1948	7	5	10	16.6	2	5.4	4	23.2
1948	7	6	10	10.9	4	9.4	1	14.2
1948	7	7	10	12.2	2	6.2	12	19.2
1948	7	8	3	9.7	2	4.2	2	16.9
1948	7	9	1	7.5	2	3.5	2	11.9
1948	7	10	1	5.7	1	3.8	8	7.7
1948	7	11	1	8.3	1	6.1	5	10.7
1948	7	12	1	11.6	12	8.0	5	11.5
1948	7	13	3	10.7	5	7.6	5	11.1
1948	7	14	1	10.5	5	9.2	27	12.1
1948	7	15	1	9.9	1	7.4	29	21.3
1948	7	16	2	10.6	1	7.4	29	17.0
1948	7	17	1	8.4	1	2.1	6	18.3
1948	7	18	1	8.1	1	2.9	8	19.0
1948	7	19	1	11.1	1	1.1	21	0.0
1948	7	20	1	10.0	12	7.6	1	11.2
1948	7	21	1	12.1	2	8.2	17	13.4
1948	7	22	1	10.9	7	9.0	7	15.4
1948	7	23	1	9.1	3	7.5	1	21.6
1948	7	24	1	8.2	5	3.7	4	23.4
1948	7	25	1	4.1	2	5.9	2	7.5
1948	7	26	1	4.5	1	1.7	2	9.2
1948	7	27	1	6.9	1	7.5	19	25.9
1948	7	28	11	17.5	5	8.0	1	12.3
1948	7	29	4	9.4	2	6.3	20	13.1
1948	7	30	2	11.5	1	6.8	6	13.7
1948	7	31	1	8.5	1	2.6	8	16.6
1948	8	1	2	10.6	1	6.1	19	8.5
1948	8	2	12	8.3	1	2.3	5	5.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1948	8	3	9	10.3	1	10.4	5	9.6
1948	8	4	9	9.3	3	8.5	11	19.2
1948	8	5	12	13.3	5	5.5	1	12.8
1948	8	6	12	10.4	5	9.0	1	8.9
1948	8	7	12	17.5	9	7.1	1	11.3
1948	8	8	13	13.9	5	10.2	1	8.7
1948	8	9	4	7.7	2	4.1	1	9.7
1948	8	10	1	10.9	9	8.9	20	15.2
1948	8	11	1	4.8	1	5.3	3	12.9
1948	8	12	1	6.7	1	2.8	16	20.1
1948	8	13	1	8.7	1	4.7	27	23.9
1948	8	14	17	8.7	2	8.7	1	13.9
1948	8	15	17	6.3	1	6.7	14	31.8
1948	8	16	17	3.9	5	9.1	13	28.8
1948	8	17	17	0.0	1	4.5	2	16.8
1948	8	18	17	3.7	1	7.8	4	18.8
1948	8	19	17	8.9	5	9.6	1	16.9
1948	8	20	4	9.6	2	6.1	2	12.5
1948	8	21	4	9.8	2	3.0	13	13.2
1948	8	22	4	5.6	2	4.2	4	22.5
1948	8	23	4	5.1	2	2.8	2	25.5
1948	8	24	4	7.2	2	1.7	2	8.4
1948	8	25	1	8.1	2	7.7	2	11.4
1948	8	26	1	4.2	2	5.1	2	12.4
1948	8	27	1	3.8	2	9.9	1	11.7
1948	8	28	1	3.9	2	6.7	21	21.6
1948	8	29	1	6.7	1	4.8	7	19.3
1948	8	30	1	6.0	1	5.0	1	9.4
1948	8	31	1	7.0	2	8.0	12	15.2
1948	9	1	1	5.9	1	5.3	8	16.8
1948	9	2	3	5.5	1	3.5	21	18.2
1948	9	3	3	7.0	1	8.3	10	15.3
1948	9	4	1	5.6	2	8.6	12	18.5
1948	9	5	1	6.9	2	1.9	8	17.0
1948	9	6	1	9.6	2	6.3	22	15.3
1948	9	7	2	8.2	1	5.7	3	15.0
1948	9	8	2	8.8	7	4.8	6	19.3
1948	9	9	1	11.5	7	6.9	19	20.0
1948	9	10	1	11.5	3	2.8	2	13.5
1948	9	11	1	5.6	3	8.6	2	4.6
1948	9	12	1	2.3	1	3.2	29	23.4
1948	9	13	1	2.8	1	1.3	11	21.8
1948	9	14	1	5.3	1	3.4	1	13.9
1948	9	15	1	9.9	1	5.9	1	15.5
1948	9	16	4	10.0	2	1.9	12	18.3
1948	9	17	4	4.5	2	4.7	21	17.4
1948	9	18	1	8.4	1	7.3	13	15.2
1948	9	19	1	5.8	2	4.7	8	15.0
1948	9	20	1	6.1	12	4.6	7	17.9
1948	9	21	16	7.7	2	9.0	23	25.5
1948	9	22	3	8.5	5	9.8	1	15.0
1948	9	23	6	5.3	13	6.6	1	6.1
1948	9	24	6	10.5	13	5.1	12	18.0
1948	9	25	0	.	13	9.3	5	15.5
1948	9	26	16	13.3	4	10.8	1	14.9
1948	9	27	3	12.0	4	6.1	4	12.9
1948	9	28	3	9.4	2	10.7	13	10.6
1948	9	29	1	9.4	2	14.2	0	.
1948	9	30	1	9.1	2	16.3	8	18.0
1948	10	1	1	6.0	1	7.1	19	14.2
1948	10	2	1	8.7	1	6.1	1	31.7
1948	10	3	3	6.9	5	10.0	4	15.7
1948	10	4	3	5.3	2	14.2	4	12.1
1948	10	5	6	5.6	4	9.0	12	12.2
1948	10	6	11	12.1	13	15.3	9	13.3
1948	10	7	6	17.6	0	.	6	28.0
1948	10	8	0	.	17	4.4	2	12.3
1948	10	9	1	9.3	1	5.5	6	20.0
1948	10	10	3	13.1	3	3.7	19	21.9
1948	10	11	9	9.8	11	12.6	18	26.8
1948	10	12	16	7.2	3	7.1	6	20.6
1948	10	13	1	11.4	3	4.7	8	19.8
1948	10	14	1	6.2	1	7.5	11	10.4
1948	10	15	1	4.2	2	7.2	29	18.6
1948	10	16	2	8.2	1	5.7	6	17.4
1948	10	17	5	9.9	7	5.2	2	18.6
1948	10	18	1	8.2	1	7.1	2	4.3
1948	10	19	1	7.3	3	4.8	18	21.1
1948	10	20	1	5.6	1	4.6	9	12.5
1948	10	21	1	8.4	3	4.4	13	11.9
1948	10	22	1	6.2	1	6.1	6	18.5
1948	10	23	1	6.5	1	8.6	4	12.8
1948	10	24	1	5.5	1	7.4	4	7.6
1948	10	25	1	4.9	2	2.7	2	12.3
1948	10	26	1	4.0	2	6.8	10	24.0
1948	10	27	7	5.4	2	3.1	8	19.7
1948	10	28	7	9.7	0	.	1	34.0
1948	10	29	4	5.0	4	4.8	12	15.2
1948	10	30	16	5.8	8	8.0	28	21.9
1948	10	31	6	8.1	2	7.7	2	9.2
1948	11	1	1	3.8	2	5.9	8	14.4
1948	11	2	1	5.6	2	5.0	11	34.7
1948	11	3	3	5.6	2	7.7	1	19.2
1948	11	4	1	9.5	2	5.1	9	10.5
1948	11	5	1	10.8	14	12.5	3	25.0
1948	11	6	1	7.3	1	14.3	6	8.4
1948	11	7	2	6.5	1	5.1	8	14.6
1948	11	8	2	7.3	7	8.1	22	17.5
1948	11	9	2	8.9	7	4.8	6	18.1
1948	11	10	2	7.6	3	7.4	2	11.5
1948	11	11	2	6.4	7	5.1	2	12.8
1948	11	12	5	10.8	7	2.4	22	21.4
1948	11	13	1	6.1	3	5.5	4	13.5
1948	11	14	1	3.9	1	2.2	10	21.9
1948	11	15	1	2.4	1	3.6	10	14.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1948	11	16	1	4.1	2	4.1	6	12.3
1948	11	17	1	4.0	1	4.0	25	0.0
1948	11	18	1	9.5	6	6.8	3	14.7
1948	11	19	1	7.8	10	8.0	7	17.6
1948	11	20	11	6.8	17	14.3	17	24.7
1948	11	21	11	4.0	0	.	3	14.6
1948	11	22	11	8.3	3	13.3	10	8.9
1948	11	23	11	8.8	1	6.0	2	9.6
1948	11	24	1	5.6	1	4.2	4	16.4
1948	11	25	1	7.5	1	6.3	17	20.1
1948	11	26	11	5.6	9	9.7	17	16.2
1948	11	27	11	5.5	1	5.1	3	17.0
1948	11	28	1	4.3	1	7.7	10	8.4
1948	11	29	1	4.4	1	4.9	20	14.3
1948	11	30	1	4.3	1	1.6	18	19.5
1948	12	1	1	8.7	1	5.3	1	20.0
1948	12	2	1	4.9	1	6.1	10	6.5
1948	12	3	1	5.2	1	5.6	14	23.7
1948	12	4	1	6.9	2	4.8	5	18.7
1948	12	5	1	7.2	8	5.9	3	23.0
1948	12	6	2	10.8	9	13.8	26	19.6
1948	12	7	11	8.8	1	5.6	26	14.0
1948	12	8	11	11.0	1	13.9	27	30.9
1948	12	9	1	8.0	1	6.8	8	25.3
1948	12	10	1	7.1	1	3.2	1	10.6
1948	12	11	1	6.8	2	7.4	14	15.4
1948	12	12	1	5.5	1	5.5	11	26.2
1948	12	13	1	5.4	1	5.4	5	15.8
1948	12	14	4	5.4	2	4.3	5	7.4
1948	12	15	4	3.9	2	2.6	27	21.5
1948	12	16	4	8.0	9	12.0	6	15.8
1948	12	17	17	8.2	1	2.8	8	24.2
1948	12	18	2	7.1	1	3.5	22	25.8
1948	12	19	2	7.9	1	6.9	2	8.7
1948	12	20	1	8.6	1	7.6	28	20.8
1948	12	21	2	6.0	1	7.8	6	17.2
1948	12	22	2	6.3	9	8.7	19	18.0
1948	12	23	1	7.6	1	2.3	27	33.5
1948	12	24	1	8.6	7	9.7	5	8.4
1948	12	25	17	8.4	3	8.9	23	23.9
1948	12	26	17	6.6	1	1.8	2	9.4
1948	12	27	1	4.6	1	1.7	2	18.1
1948	12	28	1	3.9	6	8.5	22	14.8
1948	12	29	1	4.1	10	5.6	13	27.0
1948	12	30	1	3.7	5	8.8	4	14.5
1948	12	31	1	2.5	1	2.7	18	13.7
1949	1	1	1	5.0	5	8.3	4	16.1
1949	1	2	11	8.4	2	5.0	27	14.0
1949	1	3	11	4.8	18	12.3	3	13.3
1949	1	4	7	8.6	0	.	3	19.1
1949	1	5	11	8.3	14	15.6	15	23.3
1949	1	6	11	17.3	3	2.8	2	7.5
1949	1	7	1	7.0	1	3.3	2	10.2
1949	1	8	2	12.9	1	6.3	3	19.1
1949	1	9	13	11.2	2	3.4	19	9.8
1949	1	10	4	15.1	2	7.0	5	19.6
1949	1	11	0	.	6	8.1	13	7.1
1949	1	12	0	.	1	7.6	2	15.7
1949	1	13	0	.	1	3.1	2	14.2
1949	1	14	1	10.8	1	4.0	10	20.3
1949	1	15	4	7.6	2	3.5	9	18.1
1949	1	16	11	8.6	6	6.7	26	18.7
1949	1	17	11	9.6	7	11.0	10	10.7
1949	1	18	11	6.8	2	7.8	3	18.2
1949	1	19	2	4.1	1	4.2	26	13.7
1949	1	20	2	6.3	1	5.2	5	13.5
1949	1	21	1	7.9	1	9.6	18	18.8
1949	1	22	4	8.1	2	5.9	5	9.6
1949	1	23	4	5.7	2	2.3	5	10.9
1949	1	24	4	8.3	2	4.5	19	19.9
1949	1	25	4	13.8	2	6.3	23	11.1
1949	1	26	7	10.9	1	5.5	10	19.1
1949	1	27	1	10.0	1	8.4	8	23.1
1949	1	28	2	7.1	1	7.5	3	17.4
1949	1	29	2	10.0	3	6.8	13	17.2
1949	1	30	2	4.3	1	2.7	2	10.0
1949	1	31	2	4.6	1	6.3	2	16.9
1949	2	1	2	2.5	7	7.2	6	16.3
1949	2	2	2	6.0	1	2.1	4	16.5
1949	2	3	4	9.1	1	7.6	23	28.5
1949	2	4	2	6.9	1	7.7	11	20.5
1949	2	5	2	5.6	2	6.4	1	21.8
1949	2	6	1	6.6	1	9.9	18	29.1
1949	2	7	1	6.7	1	5.3	14	15.9
1949	2	8	11	8.7	2	4.9	26	19.3
1949	2	9	2	5.9	1	1.0	21	26.4
1949	2	10	1	4.9	1	3.4	18	11.7
1949	2	11	1	8.5	1	4.6	14	17.3
1949	2	12	4	6.1	2	2.3	3	11.4
1949	2	13	4	7.7	2	6.8	23	10.8
1949	2	14	4	12.2	1	5.6	10	11.5
1949	2	15	11	7.0	2	10.2	2	18.8
1949	2	16	1	7.4	1	2.7	0	.
1949	2	17	1	2.8	1	2.4	1	20.4
1949	2	18	1	2.4	1	5.1	3	12.9
1949	2	19	1	4.6	1	3.8	5	13.5
1949	2	20	1	3.0	1	0.4	5	14.4
1949	2	21	1	2.0	1	3.0	12	22.9
1949	2	22	1	3.0	1	2.1	18	12.6
1949	2	23	1	3.2	1	3.0	14	14.4
1949	2	24	1	2.6	1	2.6	7	23.6
1949	2	25	1	5.3	1	4.4	5	26.3
1949	2	26	1	5.2	1	3.5	9	20.1
1949	2	27	1	12.1	7	6.8	26	15.1
1949	2	28	5	11.3	3	1.4	23	30.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1949	3	1	1	7.6	3	9.1	4	12.4
1949	3	2	1	10.0	3	11.3	0	.
1949	3	3	17	4.5	1	7.0	4	8.9
1949	3	4	17	6.6	1	1.4	2	4.1
1949	3	5	8	11.2	1	3.4	3	10.2
1949	3	6	2	7.9	3	6.9	23	9.4
1949	3	7	17	9.2	1	5.8	2	20.3
1949	3	8	2	8.0	1	2.0	5	11.3
1949	3	9	2	4.4	1	2.0	16	11.4
1949	3	10	2	6.8	1	4.4	23	21.8
1949	3	11	17	10.4	3	8.1	13	32.0
1949	3	12	2	10.5	1	6.3	21	19.8
1949	3	13	2	15.4	1	3.5	3	18.7
1949	3	14	8	10.6	1	3.2	19	12.0
1949	3	15	1	11.1	3	6.2	11	30.3
1949	3	16	8	6.6	1	1.1	8	11.5
1949	3	17	8	6.8	1	2.9	8	16.0
1949	3	18	1	7.8	1	6.1	11	21.9
1949	3	19	1	8.3	1	6.6	1	12.4
1949	3	20	1	4.0	1	2.1	1	12.8
1949	3	21	1	4.7	6	4.8	17	16.5
1949	3	22	1	6.9	1	3.6	17	19.2
1949	3	23	4	9.2	2	7.8	1	15.6
1949	3	24	4	6.5	2	8.0	9	12.1
1949	3	25	11	11.2	0	.	26	30.8
1949	3	26	11	8.4	2	8.3	9	28.5
1949	3	27	1	9.8	2	11.6	15	24.1
1949	3	28	2	8.1	9	7.4	3	17.7
1949	3	29	7	10.5	1	8.9	0	.
1949	3	30	1	9.1	6	8.9	5	21.2
1949	3	31	11	11.5	0	.	16	17.8
1949	4	1	7	7.8	3	11.2	0	.
1949	4	2	11	7.5	0	.	1	26.0
1949	4	3	7	8.6	0	.	13	14.2
1949	4	4	1	8.7	1	11.0	2	5.0
1949	4	5	1	6.7	3	5.4	10	17.4
1949	4	6	1	8.0	1	8.9	6	24.8
1949	4	7	1	6.8	1	7.6	6	9.3
1949	4	8	1	5.5	3	5.6	1	15.0
1949	4	9	1	10.9	1	11.1	12	18.6
1949	4	10	1	9.5	10	13.6	22	16.5
1949	4	11	1	6.4	10	8.3	10	7.5
1949	4	12	1	3.4	1	7.8	15	22.1
1949	4	13	1	4.1	1	4.4	3	17.0
1949	4	14	1	5.9	1	5.2	3	16.4
1949	4	15	1	10.1	3	4.1	7	33.7
1949	4	16	1	9.0	3	6.2	4	19.2
1949	4	17	5	8.3	1	7.4	3	14.3
1949	4	18	1	8.9	3	2.0	23	19.8
1949	4	19	1	5.0	3	11.9	4	11.2
1949	4	20	1	6.4	12	8.5	14	17.7
1949	4	21	1	5.8	2	6.8	20	15.2
1949	4	22	1	4.5	1	9.0	6	24.3
1949	4	23	1	5.1	1	4.5	26	10.0
1949	4	24	1	5.0	5	3.1	1	12.1
1949	4	25	1	3.3	1	5.5	8	19.0
1949	4	26	1	4.6	1	1.3	19	28.2
1949	4	27	3	5.7	1	2.6	1	25.4
1949	4	28	3	3.5	1	4.4	4	9.2
1949	4	29	3	3.8	2	8.5	4	14.0
1949	4	30	6	8.6	4	5.7	12	11.7
1949	5	1	3	11.4	8	12.2	2	7.8
1949	5	2	1	5.8	1	12.8	25	28.4
1949	5	3	1	5.7	1	7.4	20	21.3
1949	5	4	1	7.7	2	2.5	9	15.1
1949	5	5	1	8.6	2	3.6	3	10.1
1949	5	6	7	3.9	6	3.5	19	21.3
1949	5	7	1	6.0	6	9.6	13	22.9
1949	5	8	1	6.1	6	6.8	5	22.6
1949	5	9	1	8.5	10	11.2	17	26.4
1949	5	10	1	10.2	1	7.5	1	16.7
1949	5	11	7	10.3	1	11.6	14	24.1
1949	5	12	1	11.4	3	12.4	1	20.9
1949	5	13	1	7.1	1	4.3	25	25.0
1949	5	14	1	11.7	1	6.0	1	9.4
1949	5	15	7	9.0	1	5.7	1	22.1
1949	5	16	7	12.6	6	9.7	1	9.1
1949	5	17	4	12.3	4	11.1	14	24.4
1949	5	18	4	10.8	6	6.5	3	18.0
1949	5	19	4	13.2	12	5.4	7	18.2
1949	5	20	17	10.4	1	6.4	1	11.8
1949	5	21	17	11.0	6	9.0	22	13.0
1949	5	22	2	7.2	1	4.7	6	17.4
1949	5	23	2	8.2	1	1.7	8	17.1
1949	5	24	1	8.1	1	2.3	4	19.6
1949	5	25	1	5.6	1	4.4	0	.
1949	5	26	1	6.5	3	6.7	17	13.1
1949	5	27	1	5.2	3	7.9	1	16.7
1949	5	28	9	7.3	5	8.4	1	6.6
1949	5	29	1	11.1	5	6.7	1	9.9
1949	5	30	10	8.6	2	8.4	1	16.2
1949	5	31	3	4.7	2	10.4	12	15.3
1949	6	1	3	9.3	4	8.2	20	11.8
1949	6	2	1	12.0	8	11.1	2	8.8
1949	6	3	1	9.8	6	6.7	2	15.8
1949	6	4	7	6.0	7	7.3	0	.
1949	6	5	7	6.5	1	6.1	2	15.5
1949	6	6	1	7.4	1	6.7	26	16.9
1949	6	7	1	4.4	1	8.1	1	17.8
1949	6	8	1	5.6	2	10.1	12	18.4
1949	6	9	1	7.4	6	7.3	4	17.2
1949	6	10	1	6.4	1	8.5	4	14.3
1949	6	11	1	3.9	10	11.0	20	23.2
1949	6	12	1	5.7	2	5.4	8	18.3
1949	6	13	1	5.1	1	3.5	16	27.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1949	6	14	1	8.4	2	8.6	22	17.6
1949	6	15	1	9.3	1	4.7	2	16.7
1949	6	16	2	9.9	1	5.4	21	21.9
1949	6	17	4	9.9	2	1.9	8	25.4
1949	6	18	4	10.0	2	4.0	19	17.0
1949	6	19	4	5.2	2	1.6	1	6.3
1949	6	20	4	4.4	2	1.4	9	18.7
1949	6	21	4	8.0	1	5.1	6	17.8
1949	6	22	17	8.0	1	2.5	10	16.8
1949	6	23	4	9.2	2	4.7	2	20.2
1949	6	24	11	10.4	1	6.2	2	5.3
1949	6	25	1	7.1	2	7.1	2	10.0
1949	6	26	1	8.1	1	8.4	14	34.5
1949	6	27	6	6.3	2	2.1	20	7.6
1949	6	28	6	6.6	2	2.7	13	16.0
1949	6	29	4	8.5	2	4.0	4	19.9
1949	6	30	6	8.9	2	3.5	2	14.4
1949	7	1	1	6.9	2	4.7	13	15.7
1949	7	2	1	8.1	2	5.6	2	21.7
1949	7	3	1	7.2	2	4.3	21	19.3
1949	7	4	1	6.3	2	7.5	5	10.3
1949	7	5	1	6.5	2	4.6	1	16.1
1949	7	6	1	10.0	2	6.9	1	17.6
1949	7	7	3	9.8	2	3.7	12	19.1
1949	7	8	1	9.2	2	4.7	22	16.2
1949	7	9	1	6.7	1	5.4	19	18.5
1949	7	10	1	7.8	1	2.2	8	17.0
1949	7	11	1	9.3	1	4.6	8	7.5
1949	7	12	1	11.1	1	5.6	8	15.1
1949	7	13	1	8.3	1	1.8	22	13.7
1949	7	14	1	8.4	1	4.8	22	22.3
1949	7	15	1	6.9	1	7.0	13	27.8
1949	7	16	1	6.9	1	6.4	4	4.6
1949	7	17	1	5.4	2	7.8	20	16.7
1949	7	18	1	6.3	1	4.9	29	11.8
1949	7	19	1	9.6	1	3.2	5	21.8
1949	7	20	1	11.1	2	5.3	99	.
1949	7	21	1	6.6	2	3.8	20	15.9
1949	7	22	1	5.2	1	1.8	8	25.3
1949	7	23	1	4.9	2	4.7	12	18.2
1949	7	24	1	8.9	2	6.7	4	15.1
1949	7	25	4	8.1	2	2.9	20	13.0
1949	7	26	1	6.3	2	7.4	2	9.3
1949	7	27	4	10.4	2	6.3	8	20.2
1949	7	28	1	6.8	2	3.4	3	10.2
1949	7	29	1	6.4	1	2.3	19	17.8
1949	7	30	1	5.1	1	0.5	13	9.7
1949	7	31	1	6.9	1	3.6	2	15.4
1949	8	1	1	8.5	1	5.2	3	12.7
1949	8	2	1	7.8	3	4.2	7	22.7
1949	8	3	1	5.5	17	6.9	4	16.0
1949	8	4	3	7.0	1	5.4	4	12.3
1949	8	5	1	6.8	1	5.8	1	21.9
1949	8	6	1	10.3	5	8.7	4	14.8
1949	8	7	1	8.6	2	10.3	4	11.8
1949	8	8	1	8.8	2	9.3	25	24.0
1949	8	9	6	10.8	2	2.4	0	.
1949	8	10	1	12.3	2	5.0	14	26.2
1949	8	11	6	11.0	2	2.5	17	15.4
1949	8	12	6	12.9	2	9.2	1	14.4
1949	8	13	6	10.2	2	9.3	1	25.7
1949	8	14	6	6.5	2	4.9	9	17.5
1949	8	15	6	10.4	2	3.8	1	10.4
1949	8	16	3	7.0	2	5.9	1	15.3
1949	8	17	3	7.7	1	7.6	0	.
1949	8	18	3	8.1	5	9.3	17	16.0
1949	8	19	3	6.1	5	8.8	27	17.2
1949	8	20	1	5.7	5	6.8	1	23.7
1949	8	21	1	4.4	1	5.3	4	10.7
1949	8	22	1	4.5	1	3.0	14	13.7
1949	8	23	1	8.6	5	5.3	1	16.2
1949	8	24	1	9.8	2	5.5	20	15.0
1949	8	25	1	8.1	2	1.9	2	10.6
1949	8	26	1	6.2	1	6.3	2	16.2
1949	8	27	17	7.0	1	2.0	3	10.8
1949	8	28	17	7.1	1	2.6	0	.
1949	8	29	2	11.8	1	3.6	8	17.3
1949	8	30	8	11.9	1	3.4	6	17.5
1949	8	31	5	9.4	1	6.3	3	11.4
1949	9	1	5	8.7	3	4.5	2	14.1
1949	9	2	2	10.0	1	3.6	2	20.3
1949	9	3	2	6.3	1	4.6	8	14.9
1949	9	4	2	9.0	1	6.8	3	16.1
1949	9	5	2	7.2	1	1.9	5	14.8
1949	9	6	2	11.0	1	1.1	5	4.1
1949	9	7	17	10.2	1	3.5	5	17.6
1949	9	8	1	9.0	3	5.7	13	13.4
1949	9	9	17	5.8	1	10.2	1	25.2
1949	9	10	1	5.8	2	5.1	1	20.4
1949	9	11	4	6.1	2	2.4	29	14.3
1949	9	12	1	8.8	2	4.6	3	18.4
1949	9	13	1	6.1	1	10.5	6	15.3
1949	9	14	1	7.0	1	5.6	25	22.8
1949	9	15	3	8.7	1	7.8	4	14.5
1949	9	16	3	8.5	5	6.2	10	18.4
1949	9	17	12	5.7	2	3.2	20	17.5
1949	9	18	12	9.5	9	10.0	2	13.3
1949	9	19	1	6.0	1	6.4	0	.
1949	9	20	1	4.8	5	5.8	12	13.8
1949	9	21	1	6.5	1	3.9	2	14.6
1949	9	22	5	8.7	3	7.2	6	9.4
1949	9	23	5	7.9	3	3.2	23	21.3
1949	9	24	1	3.8	1	6.9	4	16.3
1949	9	25	1	8.2	1	3.4	14	18.1
1949	9	26	7	16.0	1	5.4	2	15.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1949	9	27	0	.	3	7.4	6	16.8
1949	9	28	5	13.1	3	1.3	23	16.1
1949	9	29	1	9.5	3	6.9	4	14.8
1949	9	30	1	4.8	12	9.4	1	11.9
1949	10	1	1	4.8	2	5.7	1	9.5
1949	10	2	1	5.9	2	4.9	2	6.5
1949	10	3	1	3.4	2	3.8	8	14.0
1949	10	4	1	3.1	1	1.1	4	13.3
1949	10	5	1	5.1	2	6.1	1	14.3
1949	10	6	6	5.5	2	4.7	2	17.8
1949	10	7	4	9.4	2	1.9	8	9.9
1949	10	8	4	8.1	2	1.3	22	19.2
1949	10	9	4	12.0	2	4.5	13	16.5
1949	10	10	4	8.9	4	6.9	20	16.6
1949	10	11	1	6.9	2	13.4	2	11.0
1949	10	12	1	3.8	1	1.8	2	10.8
1949	10	13	1	4.8	1	3.5	8	19.2
1949	10	14	1	5.2	1	1.4	13	9.3
1949	10	15	1	5.0	1	8.0	4	10.6
1949	10	16	1	6.0	2	5.9	8	9.3
1949	10	17	4	7.1	2	1.4	5	11.4
1949	10	18	4	4.8	2	2.4	5	15.3
1949	10	19	4	7.1	4	6.7	5	18.1
1949	10	20	4	12.4	0	.	3	21.4
1949	10	21	7	8.4	8	7.3	6	20.6
1949	10	22	1	11.1	1	7.8	2	5.1
1949	10	23	1	8.8	1	2.7	3	14.3
1949	10	24	1	6.7	1	2.8	4	12.6
1949	10	25	1	8.5	1	2.6	2	16.3
1949	10	26	1	6.1	1	3.9	4	15.8
1949	10	27	1	1.9	1	2.5	2	5.0
1949	10	28	1	2.6	1	2.1	10	11.2
1949	10	29	1	2.7	1	3.5	2	8.1
1949	10	30	5	7.0	7	4.9	6	10.6
1949	10	31	5	4.5	3	4.0	10	9.3
1949	11	1	5	7.2	1	2.0	2	15.3
1949	11	2	5	3.7	3	2.1	6	18.7
1949	11	3	5	7.7	3	1.3	2	3.5
1949	11	4	5	9.2	3	1.4	16	24.8
1949	11	5	15	12.2	3	3.6	2	7.6
1949	11	6	1	8.5	3	5.5	6	14.2
1949	11	7	1	5.0	1	2.8	2	6.0
1949	11	8	1	3.1	1	3.1	7	26.5
1949	11	9	3	5.6	12	6.0	1	15.4
1949	11	10	1	9.3	2	3.8	1	19.9
1949	11	11	3	5.8	2	3.4	9	12.0
1949	11	12	3	7.8	16	12.7	0	.
1949	11	13	1	7.1	1	7.9	6	13.2
1949	11	14	5	6.4	3	5.7	6	9.0
1949	11	15	5	7.4	3	4.7	6	9.8
1949	11	16	5	3.9	3	4.8	6	6.6
1949	11	17	5	4.5	3	2.0	6	10.3
1949	11	18	1	9.0	3	1.7	2	7.5
1949	11	19	1	7.0	1	2.7	15	15.4
1949	11	20	5	5.6	3	6.8	3	14.5
1949	11	21	5	8.9	3	0.6	13	18.6
1949	11	22	5	6.4	3	5.6	2	2.5
1949	11	23	5	6.2	3	6.5	0	.
1949	11	24	5	5.1	1	3.5	17	32.5
1949	11	25	5	6.4	3	4.0	10	14.6
1949	11	26	1	3.9	1	2.9	20	20.2
1949	11	27	1	4.1	1	4.6	10	8.7
1949	11	28	1	2.2	1	5.4	2	4.5
1949	11	29	1	3.6	1	1.2	2	5.7
1949	11	30	1	6.0	1	6.7	6	12.9
1949	12	1	1	4.6	1	1.1	0	.
1949	12	2	1	3.1	1	7.2	10	9.1
1949	12	3	1	1.9	1	5.9	2	8.0
1949	12	4	1	5.3	1	1.2	6	13.9
1949	12	5	1	6.8	1	5.6	11	16.1
1949	12	6	1	4.7	1	3.2	9	13.3
1949	12	7	2	8.8	1	6.4	19	18.3
1949	12	8	2	11.0	3	5.2	19	34.4
1949	12	9	1	10.7	1	2.0	4	5.2
1949	12	10	4	7.6	2	2.7	12	14.8
1949	12	11	4	9.3	4	8.8	3	6.4
1949	12	12	2	7.8	0	.	6	15.7
1949	12	13	2	5.7	1	5.5	8	12.9
1949	12	14	2	5.0	1	8.2	2	22.5
1949	12	15	2	6.7	1	6.2	4	10.8
1949	12	16	1	6.1	1	4.8	1	14.6
1949	12	17	1	7.6	2	8.8	17	24.6
1949	12	18	1	10.5	2	4.3	26	29.4
1949	12	19	4	6.9	2	2.5	5	14.4
1949	12	20	4	8.8	2	4.8	16	33.2
1949	12	21	11	7.0	1	7.2	20	27.9
1949	12	22	2	7.1	7	8.3	6	13.9
1949	12	23	2	6.3	1	3.9	24	17.5
1949	12	24	2	6.0	1	1.5	1	11.6
1949	12	25	11	6.6	2	5.7	0	.
1949	12	26	1	8.1	1	7.5	28	17.8
1949	12	27	1	6.6	1	9.1	26	33.1
1949	12	28	1	2.2	1	1.9	14	29.2
1949	12	29	1	1.6	1	1.9	18	28.5
1949	12	30	1	5.8	2	3.3	1	20.9
1949	12	31	1	5.4	2	1.3	11	21.0
1950	1	1	4	6.9	2	2.5	5	32.2
1950	1	2	4	7.6	2	1.1	5	12.0
1950	1	3	2	8.3	6	6.5	3	18.7
1950	1	4	2	5.4	1	6.3	7	30.2
1950	1	5	11	7.8	6	8.5	4	10.5
1950	1	6	1	4.3	1	1.8	28	25.3
1950	1	7	1	6.1	1	2.6	18	15.0
1950	1	8	4	6.1	2	4.8	14	12.9
1950	1	9	1	5.5	2	2.1	5	13.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1950	1	10	1	6.2	1	2.8	26	7.3
1950	1	11	4	4.4	2	1.7	1	13.1
1950	1	12	4	6.5	2	2.1	3	27.9
1950	1	13	2	9.3	2	3.7	5	16.6
1950	1	14	4	7.8	2	3.5	11	22.6
1950	1	15	2	9.3	2	6.9	3	9.8
1950	1	16	1	7.3	1	1.4	8	16.3
1950	1	17	1	8.1	1	5.7	5	15.4
1950	1	18	1	5.9	1	1.1	4	33.2
1950	1	19	1	4.1	1	0.6	19	16.8
1950	1	20	1	2.6	1	0.5	21	14.3
1950	1	21	1	1.8	1	1.4	1	19.6
1950	1	22	1	1.6	1	1.1	26	23.4
1950	1	23	1	4.5	1	6.3	5	14.4
1950	1	24	4	9.0	2	2.4	5	15.0
1950	1	25	2	10.4	2	5.4	19	15.2
1950	1	26	2	7.1	1	2.7	11	17.3
1950	1	27	1	7.0	1	2.1	4	24.8
1950	1	28	2	7.1	2	4.6	9	17.2
1950	1	29	2	4.8	1	3.6	19	7.4
1950	1	30	2	5.0	2	5.9	0	.
1950	1	31	2	3.8	1	2.6	13	18.8
1950	2	1	2	3.6	1	7.0	2	26.3
1950	2	2	2	6.4	1	2.8	2	9.8
1950	2	3	1	2.0	1	1.9	2	5.6
1950	2	4	1	4.6	1	3.3	18	15.4
1950	2	5	3	4.7	1	5.0	14	18.0
1950	2	6	3	3.9	5	7.1	7	16.4
1950	2	7	3	5.5	2	5.5	1	6.4
1950	2	8	1	3.1	1	4.5	0	.
1950	2	9	1	5.1	1	7.4	10	15.2
1950	2	10	1	5.9	1	5.2	26	19.0
1950	2	11	1	12.1	12	6.4	5	11.3
1950	2	12	1	12.5	8	9.9	5	16.0
1950	2	13	3	11.3	0	.	7	15.8
1950	2	14	3	11.2	11	7.4	7	18.4
1950	2	15	3	7.1	3	3.1	6	24.0
1950	2	16	3	4.2	5	6.5	10	8.7
1950	2	17	1	3.1	1	5.4	8	20.9
1950	2	18	1	3.4	1	4.2	26	10.1
1950	2	19	1	3.4	1	6.2	7	18.5
1950	2	20	1	1.7	1	3.2	1	10.4
1950	2	21	1	7.1	1	2.0	16	14.7
1950	2	22	5	6.9	3	5.8	17	19.3
1950	2	23	5	7.5	1	3.6	26	19.0
1950	2	24	1	7.8	1	5.8	11	21.9
1950	2	25	1	4.9	1	3.4	21	23.6
1950	2	26	1	3.7	1	6.5	4	24.3
1950	2	27	1	2.6	2	5.8	12	19.8
1950	2	28	1	7.8	1	2.3	6	14.4
1950	3	1	5	4.8	3	1.1	6	15.4
1950	3	2	5	7.8	3	6.6	11	16.5
1950	3	3	1	5.9	1	7.4	1	12.3
1950	3	4	1	2.0	1	1.6	2	9.6
1950	3	5	1	2.4	1	2.1	26	18.9
1950	3	6	1	8.4	2	6.9	1	13.3
1950	3	7	5	10.3	6	10.5	3	7.0
1950	3	8	2	6.9	1	7.6	26	15.3
1950	3	9	2	7.1	1	1.2	5	15.0
1950	3	10	2	6.7	1	4.2	5	9.1
1950	3	11	2	3.7	1	3.3	19	15.5
1950	3	12	2	5.4	6	7.7	8	17.7
1950	3	13	2	5.5	1	2.8	2	16.3
1950	3	14	2	8.3	1	2.4	2	13.2
1950	3	15	12	10.3	1	0.9	12	9.8
1950	3	16	12	10.2	1	5.0	17	21.4
1950	3	17	12	10.5	3	8.9	26	15.7
1950	3	18	1	10.6	0	.	5	5.9
1950	3	19	1	6.9	2	8.8	1	15.4
1950	3	20	1	5.8	2	4.3	12	20.8
1950	3	21	1	6.4	1	9.0	13	25.4
1950	3	22	3	6.3	5	7.4	18	17.1
1950	3	23	1	4.6	1	6.3	9	10.8
1950	3	24	1	8.1	1	7.9	26	17.3
1950	3	25	4	10.7	12	6.5	5	9.9
1950	3	26	6	9.8	18	8.9	5	18.8
1950	3	27	12	11.6	0	.	17	17.4
1950	3	28	5	9.7	3	10.9	17	19.5
1950	3	29	1	6.7	3	10.5	6	27.3
1950	3	30	1	3.8	1	4.4	4	11.1
1950	3	31	1	3.8	1	1.9	9	5.0
1950	4	1	1	4.8	1	6.2	18	11.0
1950	4	2	1	6.8	1	2.5	9	10.3
1950	4	3	1	8.3	7	12.9	3	20.4
1950	4	4	1	6.8	3	8.5	6	21.7
1950	4	5	15	9.8	3	3.0	18	15.2
1950	4	6	15	8.7	1	3.9	1	24.5
1950	4	7	15	11.4	1	5.6	5	9.8
1950	4	8	4	10.2	2	5.1	1	14.5
1950	4	9	10	7.7	2	3.2	1	7.1
1950	4	10	1	7.8	6	11.3	3	13.3
1950	4	11	3	12.2	1	4.2	26	7.3
1950	4	12	3	7.8	3	2.5	7	16.5
1950	4	13	3	5.8	17	7.3	18	25.6
1950	4	14	3	8.8	5	13.9	1	17.9
1950	4	15	1	5.9	2	10.5	12	15.6
1950	4	16	1	3.9	1	7.0	2	7.5
1950	4	17	1	2.5	1	5.9	10	15.6
1950	4	18	5	8.4	7	6.4	6	20.0
1950	4	19	5	2.6	3	5.7	6	7.4
1950	4	20	5	5.6	3	1.1	6	15.9
1950	4	21	1	5.2	1	6.8	1	23.0
1950	4	22	1	4.6	1	5.1	14	27.0
1950	4	23	1	6.6	2	5.9	17	21.8
1950	4	24	1	9.7	0	.	9	14.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1950	4	25	12	9.8	0	.	17	20.4
1950	4	26	12	7.5	3	15.6	26	19.7
1950	4	27	12	7.0	5	12.7	5	14.7
1950	4	28	12	10.8	12	10.3	5	5.9
1950	4	29	12	14.7	4	12.9	5	10.1
1950	4	30	12	8.7	9	10.5	17	24.5
1950	5	1	12	5.4	1	4.4	11	16.4
1950	5	2	12	11.0	9	10.8	1	16.2
1950	5	3	4	9.9	2	8.4	5	5.3
1950	5	4	6	13.8	4	2.4	5	12.6
1950	5	5	6	11.5	8	7.2	9	20.8
1950	5	6	13	10.1	0	.	15	20.6
1950	5	7	4	10.5	0	.	5	6.8
1950	5	8	7	11.4	4	4.1	5	21.1
1950	5	9	1	10.4	7	7.9	6	15.6
1950	5	10	1	10.1	1	4.5	2	17.7
1950	5	11	1	9.4	7	6.6	2	29.1
1950	5	12	1	8.3	7	6.3	20	20.5
1950	5	13	1	4.8	1	4.0	20	19.1
1950	5	14	1	8.1	1	4.9	6	20.8
1950	5	15	1	5.2	1	2.6	7	19.2
1950	5	16	1	4.0	1	2.7	1	13.5
1950	5	17	1	4.9	5	5.3	1	19.5
1950	5	18	1	7.5	13	8.1	1	3.2
1950	5	19	1	10.5	13	10.3	13	29.0
1950	5	20	1	6.0	2	6.4	13	17.1
1950	5	21	1	4.3	1	6.4	10	20.6
1950	5	22	1	4.3	1	6.7	2	14.0
1950	5	23	1	5.7	2	3.1	29	16.5
1950	5	24	1	6.6	2	4.3	3	7.1
1950	5	25	1	6.7	7	7.3	16	19.4
1950	5	26	1	7.1	6	11.6	13	7.7
1950	5	27	1	8.0	16	5.6	4	18.7
1950	5	28	6	11.8	13	11.1	12	15.4
1950	5	29	1	6.7	16	13.2	22	16.8
1950	5	30	1	10.0	1	11.5	2	12.7
1950	5	31	2	9.9	1	5.2	2	12.9
1950	6	1	2	10.0	1	1.1	2	6.0
1950	6	2	5	10.3	7	4.1	22	19.3
1950	6	3	1	7.3	7	7.7	6	16.0
1950	6	4	1	3.6	1	5.4	2	11.2
1950	6	5	1	2.9	1	2.3	15	12.9
1950	6	6	4	7.7	2	4.9	14	12.7
1950	6	7	4	8.9	2	13.7	5	9.4
1950	6	8	1	10.8	8	10.0	9	11.5
1950	6	9	17	11.2	9	10.6	2	9.8
1950	6	10	17	5.9	1	5.8	6	10.4
1950	6	11	17	4.2	12	5.8	0	.
1950	6	12	17	7.0	12	6.8	12	14.9
1950	6	13	17	9.8	12	5.5	22	12.6
1950	6	14	17	9.3	12	4.7	1	15.9
1950	6	15	4	11.7	1	7.1	9	24.7
1950	6	16	8	10.4	1	5.3	5	18.7
1950	6	17	8	9.0	1	5.2	5	19.2
1950	6	18	8	11.9	1	7.2	12	26.8
1950	6	19	8	12.4	1	4.1	2	17.8
1950	6	20	1	10.4	1	5.1	6	21.9
1950	6	21	1	4.2	1	2.5	4	18.0
1950	6	22	1	5.4	2	3.5	10	19.2
1950	6	23	4	9.0	2	4.5	2	8.8
1950	6	24	4	5.2	2	1.8	8	20.3
1950	6	25	1	9.2	2	6.6	9	6.5
1950	6	26	8	11.4	1	5.3	6	7.8
1950	6	27	8	12.9	1	1.5	8	25.1
1950	6	28	5	10.3	1	5.3	8	19.9
1950	6	29	5	7.4	3	2.8	6	10.5
1950	6	30	5	7.9	3	4.2	6	26.5
1950	7	1	1	5.7	1	3.8	29	12.0
1950	7	2	1	8.0	1	1.5	27	16.7
1950	7	3	1	9.6	1	3.1	3	13.8
1950	7	4	1	9.9	3	7.3	3	20.2
1950	7	5	3	9.8	3	7.0	13	14.8
1950	7	6	1	4.0	1	6.2	4	14.5
1950	7	7	1	3.2	1	5.7	1	19.8
1950	7	8	1	4.6	2	3.6	12	12.6
1950	7	9	1	5.8	1	7.2	21	12.1
1950	7	10	1	6.0	2	12.5	12	13.7
1950	7	11	1	4.5	2	2.7	20	22.8
1950	7	12	1	3.5	1	2.6	3	13.2
1950	7	13	1	6.4	1	4.3	6	15.9
1950	7	14	1	6.3	1	1.4	4	16.7
1950	7	15	2	6.8	1	6.6	12	17.1
1950	7	16	2	7.6	1	2.9	8	15.4
1950	7	17	1	7.1	1	2.6	8	23.7
1950	7	18	1	2.1	1	4.3	0	.
1950	7	19	1	3.5	5	4.4	23	26.3
1950	7	20	1	5.7	2	10.6	12	23.4
1950	7	21	3	14.2	1	7.6	2	20.9
1950	7	22	3	16.8	1	6.5	29	17.3
1950	7	23	5	14.3	3	7.3	3	9.5
1950	7	24	1	10.7	1	4.5	19	12.3
1950	7	25	1	10.9	1	6.5	8	10.5
1950	7	26	1	6.9	1	6.8	4	11.4
1950	7	27	1	9.3	5	8.5	4	11.7
1950	7	28	6	9.8	5	6.3	4	9.0
1950	7	29	1	10.4	2	11.3	20	16.3
1950	7	30	11	10.5	9	9.4	20	19.1
1950	7	31	1	16.5	1	15.9	9	21.0
1950	8	1	1	12.2	3	7.2	3	21.4
1950	8	2	9	8.3	3	8.1	18	22.5
1950	8	3	9	10.9	5	4.1	1	13.9
1950	8	4	1	16.3	5	13.9	27	15.3
1950	8	5	4	9.9	13	9.0	1	8.9
1950	8	6	4	7.1	2	1.1	4	14.5
1950	8	7	1	5.2	2	3.2	2	13.3

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1950	8	8	3	8.0	1	4.5	8	11.3
1950	8	9	1	8.8	1	2.7	5	17.4
1950	8	10	1	9.1	1	3.0	5	5.8
1950	8	11	3	14.0	1	3.7	5	16.9
1950	8	12	3	11.9	12	8.1	1	21.9
1950	8	13	1	10.2	2	7.3	1	13.4
1950	8	14	1	5.3	1	5.6	2	12.1
1950	8	15	1	3.5	1	2.7	2	5.9
1950	8	16	1	6.5	1	6.7	29	13.4
1950	8	17	1	6.5	1	2.0	22	22.3
1950	8	18	1	10.4	1	2.1	29	23.6
1950	8	19	5	8.8	1	7.0	19	16.6
1950	8	20	5	10.3	1	5.5	2	12.8
1950	8	21	2	8.6	1	6.2	8	24.2
1950	8	22	1	9.7	1	3.4	2	9.7
1950	8	23	1	4.8	1	1.1	21	16.0
1950	8	24	1	4.0	1	2.0	0	.
1950	8	25	1	6.5	1	3.5	1	24.6
1950	8	26	1	10.1	7	4.2	22	25.3
1950	8	27	1	7.6	10	11.4	4	26.8
1950	8	28	1	8.1	1	5.2	9	20.9
1950	8	29	1	5.7	1	4.0	1	23.9
1950	8	30	1	3.2	1	2.8	8	18.6
1950	8	31	1	5.6	1	1.2	8	18.9
1950	9	1	1	6.3	1	4.9	16	20.6
1950	9	2	1	7.1	1	6.0	9	20.4
1950	9	3	1	8.4	1	7.4	7	23.3
1950	9	4	16	8.2	5	8.3	1	17.8
1950	9	5	16	7.5	2	9.4	21	21.5
1950	9	6	1	9.3	2	8.5	4	9.8
1950	9	7	1	7.3	2	10.0	12	19.2
1950	9	8	1	11.1	2	8.6	8	10.6
1950	9	9	17	10.3	2	6.7	5	10.3
1950	9	10	2	9.5	0	.	5	21.1
1950	9	11	0	.	0	.	17	20.2
1950	9	12	0	.	8	15.4	5	16.7
1950	9	13	8	17.8	0	.	19	11.6
1950	9	14	8	11.5	12	15.2	8	15.5
1950	9	15	8	13.0	12	13.4	5	12.3
1950	9	16	17	9.3	12	9.9	5	11.9
1950	9	17	4	10.5	2	5.4	12	32.3
1950	9	18	1	9.1	1	5.4	25	23.6
1950	9	19	1	8.8	12	7.4	23	33.8
1950	9	20	1	9.6	7	8.0	9	11.9
1950	9	21	16	13.4	3	13.2	22	9.9
1950	9	22	0	.	7	15.5	6	9.8
1950	9	23	3	8.9	3	15.3	23	16.3
1950	9	24	3	5.0	12	11.3	4	9.5
1950	9	25	3	5.4	2	9.2	4	7.4
1950	9	26	1	6.9	2	3.5	4	5.1
1950	9	27	12	11.5	2	5.3	2	10.2
1950	9	28	2	10.5	2	6.6	2	8.6
1950	9	29	4	9.4	2	2.6	8	12.6
1950	9	30	4	5.9	2	3.4	27	20.2
1950	10	1	10	15.0	2	3.5	8	23.9
1950	10	2	3	14.9	9	10.2	3	10.3
1950	10	3	1	10.4	1	4.8	8	14.4
1950	10	4	1	8.6	1	4.8	4	14.4
1950	10	5	1	5.5	1	3.5	14	13.1
1950	10	6	1	5.0	2	3.5	1	11.3
1950	10	7	1	6.1	7	11.4	15	18.0
1950	10	8	1	4.9	17	7.7	10	20.0
1950	10	9	1	5.6	2	4.7	4	15.5
1950	10	10	1	2.7	1	2.5	4	21.8
1950	10	11	1	3.0	1	3.3	2	13.7
1950	10	12	1	3.8	1	3.7	6	13.5
1950	10	13	1	1.8	1	1.3	28	21.2
1950	10	14	1	1.6	1	1.5	3	17.2
1950	10	15	1	3.0	2	3.5	1	7.5
1950	10	16	1	7.0	2	3.4	29	20.9
1950	10	17	1	8.2	2	1.6	1	13.3
1950	10	18	1	3.6	2	3.4	14	14.5
1950	10	19	1	2.8	1	2.0	6	16.6
1950	10	20	1	3.8	1	4.0	14	22.0
1950	10	21	1	3.8	1	1.9	5	10.5
1950	10	22	1	3.3	1	0.7	23	22.0
1950	10	23	1	2.3	1	5.9	4	16.4
1950	10	24	1	4.4	1	0.7	6	16.9
1950	10	25	3	3.1	12	8.4	4	20.5
1950	10	26	3	5.6	2	3.8	4	13.9
1950	10	27	3	3.6	2	4.0	18	14.5
1950	10	28	3	5.7	2	5.2	10	8.5
1950	10	29	3	5.0	1	5.9	4	8.7
1950	10	30	3	5.6	2	3.0	18	20.5
1950	10	31	3	8.5	2	0.7	2	15.3
1950	11	1	1	2.5	2	5.4	3	17.0
1950	11	2	5	5.8	1	3.0	3	15.6
1950	11	3	5	6.1	3	6.7	6	20.8
1950	11	4	1	6.3	3	6.6	10	10.3
1950	11	5	1	4.0	1	2.4	20	12.9
1950	11	6	1	4.6	1	3.4	6	8.0
1950	11	7	1	5.9	1	4.8	4	18.4
1950	11	8	2	6.9	1	13.2	3	6.1
1950	11	9	2	9.9	3	14.3	6	15.5
1950	11	10	5	7.7	3	4.5	6	16.9
1950	11	11	2	3.0	3	5.8	8	26.9
1950	11	12	2	2.3	7	6.5	8	12.8
1950	11	13	1	6.4	1	3.6	4	8.7
1950	11	14	1	7.6	2	1.8	4	13.2
1950	11	15	6	6.7	2	2.5	9	14.0
1950	11	16	3	2.8	5	4.8	18	12.9
1950	11	17	1	3.4	1	6.8	10	20.1
1950	11	18	1	3.0	1	5.1	29	24.1
1950	11	19	1	5.2	1	3.0	19	13.1
1950	11	20	1	3.7	1	5.6	18	14.3

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1950	11	21	1	2.7	1	1.8	24	30.0
1950	11	22	1	7.3	1	4.0	15	16.8
1950	11	23	5	4.6	3	6.7	19	13.7
1950	11	24	1	6.4	17	6.8	18	9.1
1950	11	25	1	5.2	3	6.6	24	15.1
1950	11	26	1	9.3	17	7.7	7	11.5
1950	11	27	3	6.5	17	7.5	7	7.0
1950	11	28	1	5.9	17	13.1	0	.
1950	11	29	1	8.5	1	9.6	20	24.3
1950	11	30	2	10.1	1	4.0	19	14.3
1950	12	1	1	11.2	2	3.6	21	13.8
1950	12	2	1	6.5	2	6.2	3	12.8
1950	12	3	1	8.3	1	4.1	26	16.8
1950	12	4	5	8.8	1	3.1	5	16.9
1950	12	5	5	5.0	7	13.5	19	17.2
1950	12	6	3	12.8	11	14.2	23	13.9
1950	12	7	3	12.0	0	.	7	19.1
1950	12	8	5	10.9	3	8.9	15	14.6
1950	12	9	5	7.6	3	1.4	6	14.3
1950	12	10	1	8.4	3	5.0	10	19.6
1950	12	11	9	8.3	3	2.1	6	27.1
1950	12	12	5	8.4	3	4.6	3	18.9
1950	12	13	5	8.1	1	6.3	0	.
1950	12	14	8	10.6	1	7.0	29	19.2
1950	12	15	5	7.9	1	4.6	11	17.3
1950	12	16	5	7.8	3	2.9	26	33.1
1950	12	17	1	6.2	3	6.0	4	26.9
1950	12	18	1	4.3	1	4.2	2	23.1
1950	12	19	1	4.8	1	5.1	7	16.7
1950	12	20	1	5.0	1	5.5	4	23.5
1950	12	21	1	2.4	1	1.3	10	16.6
1950	12	22	1	2.1	1	1.9	10	6.3
1950	12	23	1	3.5	1	1.1	2	6.5
1950	12	24	1	6.4	3	4.9	26	18.0
1950	12	25	1	6.8	1	3.4	1	15.4
1950	12	26	5	6.4	3	4.0	16	23.0
1950	12	27	1	5.6	1	3.9	4	11.0
1950	12	28	5	8.8	1	1.9	2	22.8
1950	12	29	5	6.9	7	7.1	2	20.8
1950	12	30	2	7.7	1	3.9	18	11.1
1950	12	31	2	10.0	1	8.2	9	20.3
1951	1	1	2	11.2	1	7.3	25	26.9
1951	1	2	1	9.8	1	7.9	0	.
1951	1	3	2	7.0	1	4.1	1	24.2
1951	1	4	2	6.4	1	1.2	5	24.1
1951	1	5	1	7.0	1	2.5	5	21.3
1951	1	6	5	6.1	7	7.9	13	8.7
1951	1	7	5	6.8	3	2.6	2	16.4
1951	1	8	1	2.0	1	4.7	2	12.1
1951	1	9	1	2.9	1	3.1	2	8.3
1951	1	10	1	4.3	1	3.4	6	14.5
1951	1	11	1	8.1	5	8.9	1	25.4
1951	1	12	7	7.7	2	10.4	12	13.7
1951	1	13	1	6.0	1	6.5	2	21.4
1951	1	14	1	3.2	1	2.1	10	18.2
1951	1	15	9	5.2	3	8.5	0	.
1951	1	16	1	4.6	2	4.1	10	13.3
1951	1	17	1	2.4	1	3.0	10	19.4
1951	1	18	1	3.1	1	4.3	15	23.6
1951	1	19	1	4.1	2	6.3	5	8.6
1951	1	20	1	2.8	1	3.4	16	12.4
1951	1	21	1	3.6	1	3.9	18	13.8
1951	1	22	1	2.9	1	6.1	1	20.0
1951	1	23	1	6.1	3	7.3	6	20.9
1951	1	24	5	6.7	3	4.2	26	14.1
1951	1	25	1	6.4	3	7.3	17	30.6
1951	1	26	2	8.1	1	1.8	5	13.1
1951	1	27	2	6.8	1	1.5	19	16.9
1951	1	28	2	5.6	1	4.5	19	11.1
1951	1	29	2	3.1	7	4.7	0	.
1951	1	30	2	7.3	1	2.5	8	24.0
1951	1	31	2	6.7	7	2.2	8	14.8
1951	2	1	5	8.3	3	5.7	2	15.9
1951	2	2	1	3.3	1	2.4	4	17.9
1951	2	3	1	3.3	1	1.8	28	23.2
1951	2	4	1	3.2	1	1.6	17	17.5
1951	2	5	1	3.8	1	1.6	1	14.3
1951	2	6	1	6.4	1	2.8	3	8.0
1951	2	7	5	6.5	3	4.4	11	14.4
1951	2	8	1	3.8	1	2.1	5	14.3
1951	2	9	1	3.8	1	4.3	1	17.8
1951	2	10	1	4.1	1	1.1	4	17.2
1951	2	11	1	5.6	1	2.3	5	19.8
1951	2	12	2	6.6	1	2.3	19	19.8
1951	2	13	1	10.0	7	5.3	23	12.7
1951	2	14	1	6.8	1	6.3	4	5.7
1951	2	15	17	9.2	2	12.3	4	5.5
1951	2	16	1	7.6	2	11.4	4	19.5
1951	2	17	1	5.6	2	5.8	4	32.3
1951	2	18	4	7.2	2	3.0	12	15.4
1951	2	19	1	5.9	2	7.6	3	20.3
1951	2	20	1	5.8	1	6.9	28	23.9
1951	2	21	17	4.7	1	5.4	5	20.8
1951	2	22	17	9.4	12	4.8	5	7.6
1951	2	23	4	7.4	2	5.0	1	22.4
1951	2	24	4	8.0	2	4.5	4	16.1
1951	2	25	4	7.9	4	6.8	17	16.5
1951	2	26	4	11.4	13	4.9	17	10.0
1951	2	27	4	10.2	2	8.0	5	7.7
1951	2	28	4	9.7	4	9.8	9	20.1
1951	3	1	13	11.6	9	4.0	17	12.8
1951	3	2	4	8.6	2	7.2	5	10.6
1951	3	3	11	10.0	0	.	3	20.5
1951	3	4	6	12.5	1	5.8	21	16.9
1951	3	5	12	6.5	2	4.3	5	28.2

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1951	3	6	12	6.3	2	5.0	3	19.5
1951	3	7	12	2.9	9	8.3	19	23.0
1951	3	8	12	5.4	1	4.7	19	8.5
1951	3	9	1	9.4	2	8.1	11	20.4
1951	3	10	6	7.9	2	4.3	5	17.0
1951	3	11	1	8.7	2	5.0	3	17.6
1951	3	12	1	11.5	10	10.8	7	18.8
1951	3	13	0	.	17	9.0	7	13.3
1951	3	14	1	11.4	0	.	16	22.9
1951	3	15	1	7.4	1	6.7	11	14.7
1951	3	16	11	10.6	13	11.4	1	8.3
1951	3	17	11	7.9	8	6.3	9	20.0
1951	3	18	11	13.0	0	.	3	19.8
1951	3	19	5	4.3	11	10.4	6	17.6
1951	3	20	5	4.6	3	3.6	19	22.5
1951	3	21	1	7.8	3	6.6	4	14.2
1951	3	22	1	5.3	1	2.6	14	8.7
1951	3	23	1	4.1	1	5.0	16	17.1
1951	3	24	5	5.7	3	6.7	10	19.3
1951	3	25	1	5.6	3	3.9	18	14.2
1951	3	26	1	7.9	1	2.9	4	14.7
1951	3	27	11	6.1	2	2.5	2	24.9
1951	3	28	1	9.8	7	12.0	3	17.0
1951	3	29	1	10.7	10	12.1	26	23.2
1951	3	30	9	17.0	0	.	26	13.7
1951	3	31	0	.	0	.	3	20.2
1951	4	1	9	10.9	19	16.4	3	17.3
1951	4	2	9	13.0	3	7.5	26	17.4
1951	4	3	1	9.6	3	4.5	6	22.5
1951	4	4	1	11.1	3	16.7	13	25.7
1951	4	5	7	8.2	6	3.9	8	21.1
1951	4	6	7	7.6	10	10.1	3	13.0
1951	4	7	11	12.2	0	.	6	25.6
1951	4	8	11	10.3	11	6.3	16	20.1
1951	4	9	2	13.9	17	15.3	0	.
1951	4	10	2	12.2	0	.	3	7.4
1951	4	11	2	17.1	11	11.7	3	15.2
1951	4	12	0	.	11	5.1	16	25.4
1951	4	13	2	11.1	3	7.1	7	22.0
1951	4	14	2	7.8	3	13.3	3	7.3
1951	4	15	2	6.4	3	6.8	3	16.1
1951	4	16	2	8.0	3	3.5	6	22.7
1951	4	17	2	12.4	1	4.3	1	20.9
1951	4	18	0	.	1	6.2	3	17.4
1951	4	19	12	11.2	5	6.6	5	13.8
1951	4	20	1	13.6	2	4.8	5	14.1
1951	4	21	1	8.5	2	4.4	27	18.6
1951	4	22	2	6.4	1	5.9	6	7.3
1951	4	23	1	7.1	1	0.8	8	17.4
1951	4	24	1	4.3	1	4.9	5	15.6
1951	4	25	1	4.8	1	1.5	23	22.7
1951	4	26	1	5.8	2	7.2	1	30.8
1951	4	27	3	8.2	2	7.1	28	17.3
1951	4	28	3	5.6	12	6.9	4	17.7
1951	4	29	10	10.0	4	4.4	1	6.2
1951	4	30	0	.	18	4.8	1	4.6
1951	5	1	0	.	18	5.8	1	3.9
1951	5	2	0	.	18	16.4	10	17.4
1951	5	3	0	.	13	16.7	17	7.6
1951	5	4	0	.	0	.	17	20.4
1951	5	5	0	.	11	14.2	5	16.2
1951	5	6	0	.	20	9.0	5	17.8
1951	5	7	3	11.9	0	.	11	13.5
1951	5	8	3	16.4	12	5.9	25	22.3
1951	5	9	1	11.2	3	10.8	16	19.6
1951	5	10	1	8.4	3	13.7	16	17.1
1951	5	11	1	8.5	3	11.8	0	.
1951	5	12	1	8.6	12	4.2	1	16.3
1951	5	13	4	6.1	4	3.6	1	9.6
1951	5	14	7	5.2	4	8.3	1	22.9
1951	5	15	7	6.3	6	4.8	5	26.9
1951	5	16	7	6.5	6	6.6	7	21.4
1951	5	17	1	7.0	0	.	1	14.8
1951	5	18	1	6.1	2	9.3	1	17.8
1951	5	19	1	4.8	2	5.6	2	16.0
1951	5	20	1	7.2	2	6.6	6	17.5
1951	5	21	1	6.5	1	4.9	19	18.5
1951	5	22	1	6.3	3	6.7	13	22.4
1951	5	23	3	4.3	5	9.5	10	7.6
1951	5	24	1	6.8	2	5.2	2	9.6
1951	5	25	1	9.3	1	9.9	2	3.3
1951	5	26	1	9.2	17	17.3	6	8.2
1951	5	27	9	10.7	17	8.0	26	17.1
1951	5	28	1	5.8	5	4.7	0	.
1951	5	29	1	6.0	2	5.1	22	22.2
1951	5	30	4	6.3	2	2.6	8	11.7
1951	5	31	4	7.8	2	3.6	5	11.1
1951	6	1	4	10.0	6	10.3	5	18.0
1951	6	2	4	10.4	8	8.6	3	12.5
1951	6	3	2	6.7	1	7.0	26	30.8
1951	6	4	2	8.5	1	7.4	11	22.5
1951	6	5	1	12.4	12	4.8	5	18.2
1951	6	6	2	10.2	12	5.7	5	19.2
1951	6	7	1	7.7	2	4.1	1	7.5
1951	6	8	1	8.1	2	7.8	20	25.3
1951	6	9	1	2.8	1	1.8	6	8.8
1951	6	10	1	3.6	1	2.5	19	16.0
1951	6	11	1	5.1	1	2.2	23	34.0
1951	6	12	1	5.9	1	1.9	10	16.8
1951	6	13	1	9.8	5	8.5	10	24.0
1951	6	14	16	9.4	7	8.3	2	15.2
1951	6	15	1	7.5	10	5.5	2	5.4
1951	6	16	1	5.8	1	5.3	8	17.9
1951	6	17	1	5.3	1	5.9	8	15.9
1951	6	18	1	8.3	1	3.0	22	15.2

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1951	6	19	2	7.3	1	6.9	22	12.8
1951	6	20	2	6.3	1	2.3	3	15.2
1951	6	21	2	5.5	1	5.5	3	22.0
1951	6	22	2	7.2	1	6.5	3	11.5
1951	6	23	2	5.8	1	4.3	0	.
1951	6	24	2	8.6	2	5.6	17	30.9
1951	6	25	4	8.3	2	3.6	1	14.1
1951	6	26	1	16.3	9	10.2	2	18.8
1951	6	27	0	.	2	7.2	29	16.1
1951	6	28	12	16.4	1	8.0	2	17.3
1951	6	29	2	6.9	1	6.5	29	21.4
1951	6	30	2	3.7	1	3.9	6	12.8
1951	7	1	2	2.4	1	4.1	19	17.5
1951	7	2	2	8.9	1	3.2	5	10.6
1951	7	3	1	6.1	1	6.8	5	29.6
1951	7	4	17	10.4	5	3.3	11	18.8
1951	7	5	17	9.1	5	5.2	1	14.4
1951	7	6	17	6.1	2	6.5	12	10.3
1951	7	7	1	6.2	1	5.3	2	5.6
1951	7	8	2	5.2	1	1.3	2	10.7
1951	7	9	2	6.5	1	2.1	3	19.2
1951	7	10	2	9.4	1	5.6	19	18.0
1951	7	11	17	9.0	1	4.8	13	17.9
1951	7	12	1	6.3	1	4.3	13	10.4
1951	7	13	1	5.1	1	5.5	21	28.8
1951	7	14	1	5.3	1	3.1	21	16.0
1951	7	15	1	5.8	1	2.1	5	28.9
1951	7	16	1	4.9	1	2.1	5	14.6
1951	7	17	1	5.8	1	1.2	8	15.0
1951	7	18	1	7.0	1	2.6	19	23.1
1951	7	19	1	4.5	1	7.5	0	.
1951	7	20	1	3.3	1	5.8	12	17.9
1951	7	21	1	6.2	1	2.4	2	20.2
1951	7	22	1	3.3	1	1.8	6	20.9
1951	7	23	1	2.9	1	0.9	4	16.6
1951	7	24	1	3.0	1	4.2	4	9.6
1951	7	25	1	4.7	1	6.1	14	22.6
1951	7	26	1	4.5	1	3.1	17	20.2
1951	7	27	1	5.3	1	4.5	17	13.5
1951	7	28	1	5.6	1	6.9	4	25.3
1951	7	29	1	6.4	2	7.7	1	21.2
1951	7	30	1	3.7	1	2.0	29	18.8
1951	7	31	1	2.7	1	1.0	26	19.7
1951	8	1	1	3.7	1	2.9	1	22.5
1951	8	2	1	5.5	1	0.7	29	22.0
1951	8	3	1	7.1	1	6.7	5	23.4
1951	8	4	1	6.1	1	8.6	4	11.9
1951	8	5	1	6.5	12	10.0	12	16.8
1951	8	6	1	4.1	1	5.2	20	20.1
1951	8	7	1	8.5	1	3.5	2	15.9
1951	8	8	2	7.6	1	0.9	6	15.6
1951	8	9	2	7.0	1	1.1	3	14.0
1951	8	10	2	6.8	1	2.4	8	21.2
1951	8	11	1	4.8	1	1.0	5	19.0
1951	8	12	1	4.1	1	4.9	5	18.5
1951	8	13	1	5.8	1	1.9	5	16.6
1951	8	14	1	8.5	1	3.1	27	16.6
1951	8	15	1	10.0	9	9.4	17	24.2
1951	8	16	1	7.5	9	11.5	0	.
1951	8	17	1	5.9	1	7.5	27	17.9
1951	8	18	1	6.3	1	7.7	12	19.4
1951	8	19	1	8.0	1	2.5	8	13.7
1951	8	20	1	11.9	1	2.7	3	5.3
1951	8	21	1	8.2	3	7.9	26	13.0
1951	8	22	1	8.9	5	5.0	4	23.6
1951	8	23	4	4.4	2	2.9	4	15.9
1951	8	24	4	4.1	2	1.0	12	12.0
1951	8	25	4	5.8	2	2.7	12	16.2
1951	8	26	4	10.0	2	4.3	2	9.3
1951	8	27	2	13.6	2	4.8	8	10.9
1951	8	28	4	9.6	2	2.8	5	17.8
1951	8	29	4	6.4	2	1.7	5	15.4
1951	8	30	4	6.8	2	5.2	17	16.1
1951	8	31	4	7.8	2	6.2	17	16.8
1951	9	1	4	10.5	2	3.5	1	15.3
1951	9	2	1	8.6	2	7.1	5	19.5
1951	9	3	1	8.6	2	9.0	5	14.1
1951	9	4	1	9.6	1	8.6	27	19.8
1951	9	5	1	9.0	1	3.4	8	14.3
1951	9	6	1	11.2	3	5.0	26	16.7
1951	9	7	3	4.4	5	7.9	4	16.7
1951	9	8	1	5.0	2	6.9	4	15.3
1951	9	9	1	7.0	7	5.1	2	14.3
1951	9	10	1	9.8	1	14.0	6	18.8
1951	9	11	11	12.1	2	2.9	29	20.0
1951	9	12	11	11.2	8	13.5	2	14.2
1951	9	13	2	10.2	1	7.9	2	6.9
1951	9	14	5	7.7	1	5.8	2	15.6
1951	9	15	5	9.6	3	4.9	6	18.0
1951	9	16	5	7.4	3	7.0	2	12.0
1951	9	17	1	9.8	3	6.9	8	20.9
1951	9	18	2	10.0	1	6.5	2	13.7
1951	9	19	2	7.6	1	6.1	20	13.1
1951	9	20	2	5.7	1	8.9	29	14.2
1951	9	21	2	5.8	7	3.3	6	13.4
1951	9	22	2	3.3	1	3.2	15	27.6
1951	9	23	2	7.3	1	2.6	8	5.2
1951	9	24	1	5.9	1	1.1	8	17.8
1951	9	25	1	6.4	1	3.2	1	22.3
1951	9	26	1	4.9	9	9.2	9	7.0
1951	9	27	1	6.2	1	7.7	6	17.7
1951	9	28	1	3.2	1	2.8	11	13.7
1951	9	29	1	3.7	2	4.0	1	10.8
1951	9	30	1	3.9	2	6.3	10	7.9
1951	10	1	1	3.2	2	6.1	2	19.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1951	10	2	1	3.9	2	2.3	28	19.9
1951	10	3	1	8.1	12	5.7	3	17.5
1951	10	4	1	10.2	6	16.4	17	19.0
1951	10	5	1	11.8	0	.	7	22.4
1951	10	6	1	8.8	0	.	23	15.0
1951	10	7	5	11.4	3	6.4	0	.
1951	10	8	3	11.6	3	3.2	2	12.7
1951	10	9	15	11.0	3	7.3	4	12.7
1951	10	10	1	7.1	1	7.3	2	13.6
1951	10	11	1	6.8	12	9.5	1	21.2
1951	10	12	6	8.5	2	4.9	1	5.9
1951	10	13	1	5.8	2	6.7	12	18.1
1951	10	14	1	2.7	1	7.7	2	10.5
1951	10	15	1	4.0	2	1.8	14	14.0
1951	10	16	1	5.0	2	4.5	3	17.4
1951	10	17	1	4.2	2	4.3	5	9.5
1951	10	18	1	2.9	1	3.8	5	14.2
1951	10	19	1	5.2	1	1.8	14	27.1
1951	10	20	2	6.9	2	8.0	12	25.6
1951	10	21	1	7.0	2	4.9	5	12.4
1951	10	22	1	4.1	2	6.2	26	10.3
1951	10	23	1	2.8	2	7.4	18	14.3
1951	10	24	4	6.6	2	4.4	0	.
1951	10	25	4	4.9	2	1.5	5	20.6
1951	10	26	7	10.4	1	3.5	19	8.3
1951	10	27	1	9.4	1	5.1	2	11.1
1951	10	28	1	8.6	1	3.3	6	24.8
1951	10	29	1	8.1	1	2.1	14	26.6
1951	10	30	2	8.2	1	2.0	3	7.0
1951	10	31	2	8.9	1	2.9	19	13.5
1951	11	1	5	8.5	7	2.9	19	17.6
1951	11	2	5	2.2	3	5.0	10	12.1
1951	11	3	5	5.2	3	4.4	3	14.4
1951	11	4	5	7.6	3	5.2	26	25.3
1951	11	5	5	2.8	3	7.6	0	.
1951	11	6	5	7.7	3	7.9	2	17.8
1951	11	7	1	5.6	3	7.6	13	25.2
1951	11	8	1	1.9	1	1.3	2	11.7
1951	11	9	1	1.8	1	2.6	2	4.7
1951	11	10	1	2.9	1	1.1	4	35.9
1951	11	11	1	3.1	2	2.6	1	11.3
1951	11	12	1	7.5	2	6.1	14	21.6
1951	11	13	11	9.2	8	11.9	9	20.0
1951	11	14	12	11.2	0	.	26	19.6
1951	11	15	11	11.0	9	13.1	3	11.3
1951	11	16	5	6.2	11	8.8	3	14.9
1951	11	17	1	7.0	3	3.4	6	20.9
1951	11	18	15	6.4	3	5.0	18	27.9
1951	11	19	15	5.3	1	8.6	1	13.4
1951	11	20	17	7.8	2	2.0	4	17.4
1951	11	21	4	8.9	2	6.1	8	10.1
1951	11	22	2	8.0	1	3.3	8	19.0
1951	11	23	2	9.9	1	3.2	8	11.4
1951	11	24	1	5.4	1	1.9	4	15.6
1951	11	25	1	4.2	1	3.1	29	19.7
1951	11	26	1	3.5	1	2.8	18	11.2
1951	11	27	1	2.7	1	2.8	4	16.4
1951	11	28	1	2.0	1	4.3	10	7.5
1951	11	29	1	1.9	1	1.3	2	18.0
1951	11	30	1	3.8	1	3.8	4	21.2
1951	12	1	3	5.3	2	4.5	10	15.5
1951	12	2	1	6.4	2	2.0	4	12.5
1951	12	3	1	4.5	2	8.7	2	24.8
1951	12	4	1	7.6	2	8.5	25	18.5
1951	12	5	6	7.3	2	5.0	1	6.1
1951	12	6	11	8.1	18	8.0	9	6.4
1951	12	7	11	10.9	0	.	3	17.5
1951	12	8	11	6.9	6	5.9	6	13.9
1951	12	9	2	11.0	1	9.7	6	17.9
1951	12	10	2	8.1	7	6.4	2	3.6
1951	12	11	2	9.6	3	4.7	15	23.1
1951	12	12	2	8.1	3	4.4	3	25.9
1951	12	13	2	5.7	1	3.1	21	18.8
1951	12	14	2	5.1	1	3.9	3	16.8
1951	12	15	2	6.2	3	5.8	6	29.2
1951	12	16	2	4.1	1	3.1	21	21.9
1951	12	17	2	8.4	1	1.9	21	22.1
1951	12	18	2	7.8	1	2.4	11	10.5
1951	12	19	2	6.8	1	5.5	5	8.9
1951	12	20	11	5.9	6	7.9	16	12.3
1951	12	21	2	6.3	1	12.0	6	23.9
1951	12	22	2	4.1	1	3.3	14	29.9
1951	12	23	2	4.3	1	2.9	16	26.0
1951	12	24	1	4.1	1	2.9	4	22.3
1951	12	25	1	2.0	1	2.4	13	21.0
1951	12	26	1	6.2	1	1.5	19	8.6
1951	12	27	17	10.7	1	2.2	21	18.4
1951	12	28	1	5.2	1	0.4	4	17.9
1951	12	29	1	8.7	1	4.5	0	.
1951	12	30	4	5.2	2	3.2	5	16.4
1951	12	31	4	6.2	2	4.8	3	11.2
1952	1	1	2	8.8	7	7.1	6	23.0
1952	1	2	1	9.9	7	3.9	10	21.1
1952	1	3	1	6.9	1	5.8	2	9.7
1952	1	4	1	2.8	1	7.6	2	8.1
1952	1	5	1	4.2	1	3.4	10	28.2
1952	1	6	1	4.5	1	7.1	4	9.7
1952	1	7	1	4.5	2	4.9	4	9.2
1952	1	8	1	3.8	2	8.5	9	20.7
1952	1	9	1	3.1	1	6.4	26	15.9
1952	1	10	1	3.5	1	8.2	10	14.8
1952	1	11	1	5.6	2	5.7	29	19.8
1952	1	12	4	6.4	1	4.6	11	26.4
1952	1	13	1	5.2	1	4.8	1	13.3
1952	1	14	6	8.3	2	6.0	0	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1952	1	15	1	8.4	2	7.1	26	15.2
1952	1	16	4	3.8	2	1.0	5	18.0
1952	1	17	1	5.3	1	3.5	6	19.1
1952	1	18	1	4.3	1	2.6	4	12.0
1952	1	19	1	3.3	1	2.4	3	9.9
1952	1	20	1	5.9	1	3.3	11	7.5
1952	1	21	12	6.3	2	12.3	5	12.6
1952	1	22	12	10.2	0	.	3	15.3
1952	1	23	5	9.5	1	5.4	19	13.0
1952	1	24	1	9.1	1	0.4	4	25.9
1952	1	25	1	6.8	1	2.3	12	17.6
1952	1	26	1	5.5	1	2.6	16	21.9
1952	1	27	5	8.3	1	2.9	22	26.6
1952	1	28	5	3.8	3	1.0	0	.
1952	1	29	1	5.6	3	5.2	4	12.7
1952	1	30	1	1.9	1	3.2	4	9.1
1952	1	31	1	1.6	1	6.3	2	11.5
1952	2	1	1	2.4	1	1.0	6	22.1
1952	2	2	1	2.3	1	5.0	1	21.1
1952	2	3	1	5.3	1	3.7	0	.
1952	2	4	1	5.7	1	6.9	6	21.5
1952	2	5	5	3.9	3	5.6	22	18.6
1952	2	6	1	6.5	3	4.2	10	20.0
1952	2	7	1	4.8	1	1.4	15	18.0
1952	2	8	1	6.6	1	3.4	6	23.7
1952	2	9	1	4.2	1	5.0	10	20.7
1952	2	10	1	4.1	1	4.6	2	14.0
1952	2	11	1	4.2	1	7.6	10	7.4
1952	2	12	1	5.7	12	8.6	1	10.9
1952	2	13	1	8.3	15	11.7	9	10.7
1952	2	14	1	9.1	10	6.8	9	22.1
1952	2	15	1	8.2	1	3.0	0	.
1952	2	16	1	9.8	1	3.5	7	23.8
1952	2	17	9	7.3	1	9.4	5	14.6
1952	2	18	6	8.7	2	11.7	5	5.6
1952	2	19	6	10.4	4	12.0	5	21.8
1952	2	20	9	11.4	13	16.4	17	14.7
1952	2	21	12	8.3	5	5.8	5	18.7
1952	2	22	1	6.9	9	7.1	1	18.9
1952	2	23	1	10.1	1	10.3	5	6.1
1952	2	24	5	8.4	3	12.7	22	25.6
1952	2	25	1	5.7	1	10.0	2	11.0
1952	2	26	17	8.1	1	3.9	2	20.0
1952	2	27	2	8.9	1	1.7	15	17.3
1952	2	28	2	4.1	1	1.5	16	21.1
1952	2	29	2	3.5	1	2.0	7	22.1
1952	3	1	2	8.7	1	1.6	5	7.0
1952	3	2	2	8.2	1	5.6	5	5.6
1952	3	3	1	8.1	1	5.9	16	17.3
1952	3	4	1	2.9	1	1.9	7	26.0
1952	3	5	1	3.5	2	3.7	1	10.5
1952	3	6	4	7.5	2	6.9	1	5.3
1952	3	7	4	10.0	2	7.3	1	8.5
1952	3	8	4	15.7	1	2.4	1	14.7
1952	3	9	11	10.1	1	6.7	27	23.3
1952	3	10	2	8.9	1	3.7	5	17.1
1952	3	11	4	9.0	12	5.0	5	10.1
1952	3	12	6	11.8	6	13.0	5	13.4
1952	3	13	1	9.0	5	7.6	7	18.2
1952	3	14	9	10.8	1	12.0	5	14.7
1952	3	15	9	14.0	3	8.9	5	23.4
1952	3	16	0	.	5	8.3	1	23.6
1952	3	17	6	7.8	2	8.1	1	9.6
1952	3	18	3	6.7	16	7.5	0	.
1952	3	19	12	7.4	13	9.0	17	11.3
1952	3	20	11	9.1	9	6.8	3	18.1
1952	3	21	11	6.3	6	11.8	3	15.1
1952	3	22	11	5.4	14	15.8	16	19.4
1952	3	23	11	9.2	11	5.6	6	28.8
1952	3	24	2	9.9	3	8.5	17	33.1
1952	3	25	2	8.7	7	10.5	2	14.7
1952	3	26	2	9.3	3	4.8	19	25.0
1952	3	27	5	7.5	3	3.8	10	8.8
1952	3	28	1	8.3	5	9.5	18	16.3
1952	3	29	6	7.4	2	5.1	1	13.2
1952	3	30	6	5.3	2	1.6	1	16.0
1952	3	31	1	7.3	2	5.8	9	26.8
1952	4	1	1	8.7	1	8.6	6	11.1
1952	4	2	9	7.6	3	8.8	26	12.8
1952	4	3	5	9.7	3	12.0	0	.
1952	4	4	1	9.8	3	5.2	7	26.4
1952	4	5	9	9.7	3	4.5	7	10.5
1952	4	6	1	11.0	17	5.3	10	18.6
1952	4	7	1	9.7	5	9.5	4	13.5
1952	4	8	1	8.3	2	2.7	29	23.6
1952	4	9	2	9.6	1	7.5	16	19.1
1952	4	10	4	12.4	1	2.9	11	23.6
1952	4	11	7	8.0	1	9.9	1	14.2
1952	4	12	1	8.0	6	7.8	12	17.9
1952	4	13	3	7.3	11	11.1	7	19.4
1952	4	14	3	5.7	17	13.4	18	12.9
1952	4	15	3	9.3	0	.	12	25.8
1952	4	16	16	9.4	12	11.8	0	.
1952	4	17	16	7.4	10	9.0	4	14.6
1952	4	18	1	5.8	10	6.9	2	13.3
1952	4	19	1	7.4	12	12.0	4	8.8
1952	4	20	7	9.6	4	11.0	12	15.8
1952	4	21	1	10.7	6	4.9	22	18.2
1952	4	22	1	5.3	6	10.9	19	26.1
1952	4	23	3	5.9	1	3.2	1	30.3
1952	4	24	15	7.3	10	6.1	21	20.5
1952	4	25	16	8.4	1	10.6	18	19.6
1952	4	26	16	10.3	1	5.5	10	7.8
1952	4	27	16	11.6	1	14.0	20	25.3
1952	4	28	3	10.3	4	10.2	1	16.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1952	4	29	3	10.7	18	7.8	20	26.5
1952	4	30	3	7.7	18	13.8	11	24.6
1952	5	1	3	4.2	13	14.5	17	14.1
1952	5	2	3	5.4	5	9.2	17	33.6
1952	5	3	3	6.7	5	8.1	1	33.7
1952	5	4	3	8.0	2	3.2	20	11.4
1952	5	5	1	4.2	1	6.5	3	20.2
1952	5	6	1	5.2	1	6.0	5	24.2
1952	5	7	1	6.7	1	5.1	12	15.4
1952	5	8	1	8.6	1	3.7	21	21.7
1952	5	9	5	11.5	7	3.5	3	8.1
1952	5	10	5	13.2	3	6.1	6	20.4
1952	5	11	3	12.2	3	8.4	7	21.8
1952	5	12	15	9.3	3	4.7	7	22.3
1952	5	13	9	9.0	3	7.8	0	.
1952	5	14	12	10.1	1	1.4	3	14.2
1952	5	15	5	15.2	0	.	5	19.7
1952	5	16	0	.	0	.	5	14.3
1952	5	17	7	8.8	7	9.0	23	20.7
1952	5	18	1	9.8	7	4.4	1	27.6
1952	5	19	1	6.7	10	8.6	4	18.2
1952	5	20	1	6.6	5	12.9	4	16.3
1952	5	21	1	7.0	0	.	12	13.2
1952	5	22	1	9.0	15	14.9	9	15.1
1952	5	23	7	9.0	0	.	9	21.5
1952	5	24	1	3.3	1	5.3	22	17.7
1952	5	25	1	3.1	1	5.1	26	22.3
1952	5	26	1	6.0	2	6.3	9	19.3
1952	5	27	1	8.6	1	8.9	6	20.3
1952	5	28	1	5.9	3	7.4	26	21.8
1952	5	29	1	7.8	1	7.7	1	19.4
1952	5	30	12	7.9	1	7.6	9	19.4
1952	5	31	12	10.8	1	4.9	19	17.9
1952	6	1	1	12.5	1	5.0	11	26.4
1952	6	2	1	10.4	1	1.3	14	16.5
1952	6	3	1	6.5	1	5.8	11	21.6
1952	6	4	1	7.4	1	4.5	4	18.7
1952	6	5	1	6.0	1	5.3	2	5.0
1952	6	6	1	9.3	12	6.8	11	28.5
1952	6	7	4	10.1	2	2.6	20	15.4
1952	6	8	1	10.3	1	1.3	2	15.4
1952	6	9	1	7.9	1	1.4	8	16.3
1952	6	10	1	11.5	5	8.6	5	20.9
1952	6	11	4	13.1	2	2.8	1	12.0
1952	6	12	4	10.2	2	6.3	17	24.6
1952	6	13	4	7.8	2	1.1	9	15.8
1952	6	14	1	8.8	2	7.6	8	10.7
1952	6	15	1	5.4	2	1.9	1	13.9
1952	6	16	1	3.4	2	4.1	2	15.9
1952	6	17	1	2.6	1	1.7	2	14.7
1952	6	18	1	3.7	1	1.1	8	18.3
1952	6	19	1	2.5	1	2.0	11	12.8
1952	6	20	1	2.7	1	4.2	1	20.1
1952	6	21	1	3.8	2	6.8	1	15.1
1952	6	22	1	6.3	2	6.3	1	12.8
1952	6	23	12	9.9	2	1.3	1	23.2
1952	6	24	4	7.5	2	3.5	9	17.3
1952	6	25	4	9.3	2	8.7	3	7.3
1952	6	26	4	10.7	2	6.2	5	13.3
1952	6	27	4	9.6	12	7.6	5	12.9
1952	6	28	10	11.6	2	6.6	14	22.5
1952	6	29	10	10.3	2	9.2	5	21.1
1952	6	30	6	9.9	13	7.7	1	15.0
1952	7	1	1	9.3	2	2.0	13	17.6
1952	7	2	1	5.7	2	2.6	22	19.5
1952	7	3	1	4.6	1	0.9	6	12.0
1952	7	4	1	4.0	1	3.8	4	10.7
1952	7	5	1	4.3	1	7.2	4	6.5
1952	7	6	1	7.4	2	1.3	2	13.0
1952	7	7	7	10.5	7	11.5	6	18.4
1952	7	8	1	10.8	3	6.6	2	17.8
1952	7	9	2	12.0	1	5.4	2	9.4
1952	7	10	2	9.8	1	2.1	29	19.4
1952	7	11	1	12.4	1	2.7	5	11.1
1952	7	12	4	10.3	2	4.7	12	18.0
1952	7	13	2	8.8	1	5.2	3	13.3
1952	7	14	2	8.5	1	3.2	13	24.5
1952	7	15	2	8.6	1	4.0	4	7.0
1952	7	16	1	11.9	2	4.8	4	16.4
1952	7	17	1	11.4	2	4.7	2	15.6
1952	7	18	1	10.6	2	5.3	29	13.1
1952	7	19	6	10.2	2	2.7	5	25.1
1952	7	20	6	12.2	9	7.2	17	22.0
1952	7	21	1	9.7	2	3.3	2	17.5
1952	7	22	1	10.0	2	7.4	2	21.2
1952	7	23	17	6.0	1	3.9	6	21.1
1952	7	24	1	9.0	2	6.4	4	4.8
1952	7	25	1	7.4	1	1.9	2	4.5
1952	7	26	1	6.9	1	2.0	2	6.9
1952	7	27	1	10.2	1	2.8	2	7.3
1952	7	28	1	11.6	1	1.5	19	18.3
1952	7	29	1	11.7	1	3.1	2	12.4
1952	7	30	1	9.6	1	3.2	8	18.6
1952	7	31	1	6.4	1	3.8	4	18.7
1952	8	1	1	7.8	1	4.5	25	10.3
1952	8	2	1	11.1	1	2.5	16	34.4
1952	8	3	2	10.6	1	5.3	3	14.3
1952	8	4	2	6.8	1	2.4	6	25.7
1952	8	5	1	7.0	1	0.9	8	17.8
1952	8	6	17	7.0	1	7.1	13	16.8
1952	8	7	2	7.0	1	6.7	4	11.1
1952	8	8	2	6.6	1	7.1	8	18.5
1952	8	9	2	5.4	1	3.0	13	26.9
1952	8	10	2	5.1	1	0.6	8	16.5
1952	8	11	2	4.7	1	1.6	8	20.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1952	8	12	2	7.9	1	1.0	8	17.2
1952	8	13	1	5.6	1	0.4	4	14.3
1952	8	14	1	4.0	1	6.5	2	9.0
1952	8	15	1	2.8	1	3.4	22	16.5
1952	8	16	1	2.6	1	1.6	22	17.3
1952	8	17	1	2.1	1	0.7	8	17.7
1952	8	18	1	2.3	1	2.5	4	10.4
1952	8	19	1	1.9	1	4.5	12	13.7
1952	8	20	1	2.6	1	1.7	8	17.6
1952	8	21	3	4.7	1	2.1	5	20.1
1952	8	22	3	5.4	1	5.2	1	17.5
1952	8	23	3	6.9	5	8.6	4	12.0
1952	8	24	1	7.4	2	7.3	4	6.9
1952	8	25	1	9.8	16	11.3	4	14.1
1952	8	26	4	6.5	2	3.5	12	7.0
1952	8	27	4	6.1	2	2.0	9	12.9
1952	8	28	4	8.1	2	6.1	0	.
1952	8	29	4	7.9	2	3.3	1	14.5
1952	8	30	4	10.4	2	2.8	9	16.3
1952	8	31	2	8.6	9	9.7	29	19.0
1952	9	1	2	8.3	7	6.3	6	15.9
1952	9	2	2	9.5	3	2.9	6	13.3
1952	9	3	1	4.6	1	1.9	4	16.8
1952	9	4	1	4.0	1	6.6	14	9.9
1952	9	5	1	5.4	1	3.8	5	18.7
1952	9	6	1	8.5	1	6.7	1	15.6
1952	9	7	1	7.9	2	3.4	1	18.5
1952	9	8	1	6.3	2	3.6	12	23.2
1952	9	9	4	4.4	2	2.5	21	14.8
1952	9	10	4	5.3	2	4.2	14	12.4
1952	9	11	4	8.3	4	5.5	14	19.1
1952	9	12	4	7.9	4	3.7	1	14.2
1952	9	13	4	13.8	4	11.5	20	14.6
1952	9	14	1	9.3	1	8.9	2	6.7
1952	9	15	1	6.8	3	7.8	2	10.1
1952	9	16	1	6.8	1	3.5	2	12.7
1952	9	17	1	13.1	1	4.0	2	15.4
1952	9	18	5	12.1	3	5.4	3	13.6
1952	9	19	5	12.4	3	5.9	19	20.9
1952	9	20	5	7.2	3	4.8	19	9.5
1952	9	21	5	7.4	3	7.3	19	19.5
1952	9	22	5	7.8	3	1.6	19	22.3
1952	9	23	5	9.5	3	4.2	4	18.4
1952	9	24	1	8.8	1	8.2	4	18.8
1952	9	25	1	9.8	1	9.6	6	19.7
1952	9	26	1	4.8	1	6.0	10	12.8
1952	9	27	1	3.6	1	7.5	2	14.5
1952	9	28	1	3.1	1	0.8	0	.
1952	9	29	1	3.4	1	2.1	13	15.8
1952	9	30	1	6.0	1	3.6	2	2.9
1952	10	1	1	10.0	1	4.4	6	12.0
1952	10	2	1	9.9	3	3.5	13	20.7
1952	10	3	1	10.4	1	2.5	2	12.0
1952	10	4	5	10.5	1	4.1	8	15.6
1952	10	5	5	6.2	3	6.4	8	19.4
1952	10	6	5	7.2	3	5.4	19	12.9
1952	10	7	1	8.4	3	7.8	4	16.1
1952	10	8	1	5.6	1	7.7	0	.
1952	10	9	1	6.1	1	4.2	1	9.0
1952	10	10	1	8.5	1	2.3	12	14.5
1952	10	11	1	8.0	1	2.9	13	17.2
1952	10	12	2	6.3	1	2.7	2	13.2
1952	10	13	2	4.7	1	2.7	3	18.8
1952	10	14	2	4.1	1	4.6	6	20.6
1952	10	15	2	6.2	3	7.0	6	19.1
1952	10	16	2	8.6	1	2.5	0	.
1952	10	17	1	9.4	3	6.3	13	12.4
1952	10	18	1	9.7	1	6.4	2	7.2
1952	10	19	5	13.1	3	6.0	7	14.6
1952	10	20	1	6.4	3	16.2	4	14.6
1952	10	21	1	5.8	1	6.7	4	10.6
1952	10	22	1	6.5	3	8.9	2	15.5
1952	10	23	1	4.7	1	6.5	2	19.3
1952	10	24	3	5.7	1	4.1	14	28.4
1952	10	25	1	7.4	1	5.0	12	25.0
1952	10	26	1	9.1	1	1.2	2	10.7
1952	10	27	5	9.6	3	4.8	6	13.9
1952	10	28	1	9.7	3	2.9	6	25.5
1952	10	29	1	2.4	1	3.4	4	12.8
1952	10	30	1	1.2	1	2.0	2	12.5
1952	10	31	1	1.1	1	1.0	2	7.8
1952	11	1	1	2.9	1	5.5	2	20.7
1952	11	2	1	5.3	1	3.4	6	9.5
1952	11	3	1	3.9	1	8.8	10	17.8
1952	11	4	1	3.5	1	1.6	10	12.9
1952	11	5	1	8.3	1	3.3	6	9.9
1952	11	6	1	9.7	3	4.8	6	8.6
1952	11	7	1	9.1	1	3.0	10	10.2
1952	11	8	2	11.0	7	3.3	3	16.5
1952	11	9	5	5.3	3	7.2	6	20.6
1952	11	10	1	6.9	10	7.3	2	9.0
1952	11	11	1	5.4	1	5.1	10	24.5
1952	11	12	1	4.2	1	3.6	10	15.6
1952	11	13	3	5.9	2	2.8	4	17.3
1952	11	14	6	6.6	13	5.9	1	30.5
1952	11	15	4	6.3	4	3.0	1	9.3
1952	11	16	4	12.9	8	9.2	9	15.0
1952	11	17	7	9.6	8	13.8	9	11.7
1952	11	18	1	11.6	7	15.2	6	16.6
1952	11	19	5	10.8	3	5.5	6	8.4
1952	11	20	2	10.4	17	13.3	2	9.2
1952	11	21	2	8.3	1	7.8	2	20.4
1952	11	22	18	6.3	7	14.8	16	24.6
1952	11	23	18	6.2	7	10.0	6	27.2
1952	11	24	18	5.2	6	8.2	27	27.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1952	11	25	2	11.3	6	7.7	3	13.2
1952	11	26	2	9.5	11	11.5	6	17.8
1952	11	27	2	5.0	3	4.5	6	10.6
1952	11	28	2	5.8	1	4.8	4	10.9
1952	11	29	1	5.6	1	5.6	2	25.0
1952	11	30	1	5.5	1	5.6	4	5.8
1952	12	1	1	4.0	1	7.0	4	17.5
1952	12	2	1	5.0	2	7.5	1	13.6
1952	12	3	6	10.0	8	3.6	1	6.4
1952	12	4	3	9.5	0	.	28	19.3
1952	12	5	3	8.8	5	4.6	18	15.2
1952	12	6	6	8.1	2	2.5	28	20.1
1952	12	7	3	8.6	2	5.4	10	15.8
1952	12	8	12	7.6	2	7.5	20	19.7
1952	12	9	12	10.3	1	6.2	2	14.6
1952	12	10	1	9.5	1	13.7	6	23.7
1952	12	11	1	8.1	1	7.9	22	24.5
1952	12	12	5	6.4	3	3.9	6	14.9
1952	12	13	5	11.8	11	5.7	7	15.0
1952	12	14	1	13.7	3	10.5	13	21.3
1952	12	15	1	4.7	1	7.3	2	6.7
1952	12	16	1	7.4	1	2.3	22	27.8
1952	12	17	1	12.0	1	1.3	19	14.7
1952	12	18	1	8.2	1	2.5	11	14.1
1952	12	19	1	8.8	12	6.2	1	21.7
1952	12	20	1	6.9	1	8.6	0	.
1952	12	21	1	4.4	2	7.8	12	15.8
1952	12	22	7	11.7	0	.	22	9.5
1952	12	23	7	10.5	1	12.3	3	14.9
1952	12	24	1	10.0	7	8.5	6	18.3
1952	12	25	1	7.0	3	7.3	2	6.8
1952	12	26	1	5.9	1	8.4	15	19.8
1952	12	27	1	3.2	1	2.5	10	6.4
1952	12	28	1	4.3	1	3.2	10	23.1
1952	12	29	1	8.6	1	1.4	28	23.1
1952	12	30	1	3.7	1	5.1	18	20.7
1952	12	31	1	5.0	1	6.8	4	7.6
1953	1	1	1	7.5	6	6.7	2	17.6
1953	1	2	5	3.5	3	5.9	6	14.9
1953	1	3	5	4.3	3	3.1	15	18.9
1953	1	4	5	4.0	3	3.3	15	13.0
1953	1	5	5	6.4	3	7.1	26	32.5
1953	1	6	1	9.1	1	4.1	5	28.3
1953	1	7	1	5.5	1	4.6	1	13.6
1953	1	8	1	6.7	1	6.4	1	23.9
1953	1	9	1	5.1	1	9.3	10	13.6
1953	1	10	1	1.9	1	1.4	15	24.6
1953	1	11	1	2.5	1	3.3	0	.
1953	1	12	1	2.0	1	1.8	14	16.6
1953	1	13	1	1.7	1	3.4	5	21.2
1953	1	14	1	4.9	2	6.2	5	6.6
1953	1	15	1	5.7	10	8.4	16	15.2
1953	1	16	1	4.3	1	2.4	4	10.3
1953	1	17	1	3.3	1	4.5	4	18.8
1953	1	18	1	2.4	1	0.5	7	17.2
1953	1	19	1	2.1	1	0.8	1	23.2
1953	1	20	1	1.6	1	2.6	10	13.9
1953	1	21	1	3.3	1	4.4	14	24.4
1953	1	22	1	3.6	1	4.5	23	17.8
1953	1	23	1	5.0	1	3.7	6	15.3
1953	1	24	1	7.1	3	4.6	7	15.0
1953	1	25	1	3.0	5	5.8	1	11.9
1953	1	26	1	2.8	2	6.2	1	18.7
1953	1	27	1	3.9	1	2.7	3	18.6
1953	1	28	1	5.2	1	7.9	15	13.4
1953	1	29	1	3.9	1	2.3	1	22.8
1953	1	30	1	6.4	1	2.8	1	22.6
1953	1	31	1	6.8	1	3.9	24	19.0
1953	2	1	1	2.6	1	1.3	1	15.7
1953	2	2	1	2.8	1	1.1	23	23.8
1953	2	3	1	3.7	1	5.8	28	17.6
1953	2	4	1	2.0	1	4.4	10	13.0
1953	2	5	1	7.5	1	5.9	20	27.0
1953	2	6	5	5.8	3	6.7	26	23.4
1953	2	7	1	8.6	3	7.5	18	12.9
1953	2	8	11	10.8	1	4.4	5	17.1
1953	2	9	7	5.5	6	9.1	5	9.9
1953	2	10	7	9.3	7	13.2	1	21.9
1953	2	11	5	10.0	10	8.4	6	15.9
1953	2	12	5	8.8	3	6.2	6	8.6
1953	2	13	5	8.3	1	1.8	2	4.2
1953	2	14	5	7.6	3	6.3	6	8.4
1953	2	15	12	7.5	1	11.3	7	23.9
1953	2	16	1	7.1	3	5.9	16	15.4
1953	2	17	1	6.0	1	3.6	4	8.6
1953	2	18	2	4.3	1	3.7	27	25.0
1953	2	19	2	13.9	6	2.9	5	17.6
1953	2	20	11	10.5	6	11.7	3	13.9
1953	2	21	2	11.0	3	7.2	6	10.6
1953	2	22	2	6.1	1	6.2	2	12.5
1953	2	23	7	12.9	1	6.7	0	.
1953	2	24	2	14.4	1	8.5	13	11.5
1953	2	25	2	9.8	7	8.8	2	1.9
1953	2	26	2	8.6	1	5.7	2	10.8
1953	2	27	2	7.6	1	6.3	6	10.6
1953	2	28	2	5.2	1	3.1	5	8.0
1953	3	1	4	11.7	12	6.5	5	8.5
1953	3	2	11	13.6	2	6.7	1	6.3
1953	3	3	11	6.9	6	13.7	0	.
1953	3	4	2	7.0	3	5.8	2	14.6
1953	3	5	2	5.8	1	4.1	15	19.2
1953	3	6	2	6.4	1	2.3	11	10.5
1953	3	7	1	8.9	1	6.1	4	16.9
1953	3	8	1	4.7	1	5.3	18	19.0
1953	3	9	1	4.4	1	4.2	1	20.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1953	3	10	1	4.1	1	8.1	1	21.2
1953	3	11	1	2.0	12	5.6	5	23.1
1953	3	12	1	6.5	9	7.8	17	14.9
1953	3	13	1	5.7	2	6.6	1	17.6
1953	3	14	1	7.6	8	14.6	9	7.3
1953	3	15	3	6.9	5	12.3	26	18.5
1953	3	16	1	7.5	1	2.5	4	16.1
1953	3	17	12	8.3	2	5.8	4	15.3
1953	3	18	12	6.1	1	7.3	6	15.3
1953	3	19	1	6.7	1	4.3	4	22.4
1953	3	20	1	8.0	2	3.1	1	7.7
1953	3	21	6	10.3	18	8.9	9	13.4
1953	3	22	11	14.2	8	14.8	20	15.7
1953	3	23	5	6.2	3	10.3	6	14.4
1953	3	24	9	8.4	3	1.4	26	18.4
1953	3	25	3	6.0	5	8.1	18	14.9
1953	3	26	3	5.7	5	15.8	12	11.6
1953	3	27	3	5.0	1	5.5	11	9.0
1953	3	28	1	7.3	5	6.6	11	21.8
1953	3	29	16	12.3	2	8.2	1	14.3
1953	3	30	1	8.6	6	10.5	12	14.0
1953	3	31	1	8.3	16	10.6	1	22.4
1953	4	1	1	10.6	13	6.3	0	.
1953	4	2	1	7.4	0	.	3	14.4
1953	4	3	1	10.9	0	.	26	18.5
1953	4	4	5	14.5	3	11.0	26	16.1
1953	4	5	12	12.3	0	.	0	.
1953	4	6	12	12.0	0	.	5	11.5
1953	4	7	13	15.9	0	.	5	7.3
1953	4	8	0	.	8	9.6	5	11.4
1953	4	9	8	16.7	0	.	99	.
1953	4	10	2	6.8	1	10.2	6	18.1
1953	4	11	2	7.8	1	6.7	19	8.3
1953	4	12	2	10.6	1	7.8	0	.
1953	4	13	2	13.0	1	12.1	11	17.4
1953	4	14	1	10.9	1	5.8	9	16.5
1953	4	15	5	8.4	1	11.0	6	19.8
1953	4	16	5	11.5	1	6.4	26	15.4
1953	4	17	5	9.7	0	.	5	13.8
1953	4	18	5	9.1	0	.	26	12.4
1953	4	19	9	14.6	11	7.9	26	18.0
1953	4	20	1	10.9	3	5.0	4	18.0
1953	4	21	1	5.5	1	3.4	10	14.6
1953	4	22	1	3.9	1	0.7	2	14.6
1953	4	23	1	6.2	1	5.7	5	9.6
1953	4	24	1	11.0	7	18.0	9	10.0
1953	4	25	5	12.7	11	6.6	3	19.3
1953	4	26	3	12.6	3	7.1	7	18.1
1953	4	27	12	15.7	1	4.7	5	15.8
1953	4	28	12	13.0	12	7.9	5	13.5
1953	4	29	0	.	18	8.8	1	19.1
1953	4	30	0	.	0	.	17	17.1
1953	5	1	0	.	0	.	17	13.6
1953	5	2	0	.	20	6.8	3	14.8
1953	5	3	7	14.0	0	.	3	16.1
1953	5	4	7	13.3	0	.	6	16.5
1953	5	5	1	11.5	10	11.4	6	20.8
1953	5	6	3	10.0	10	10.2	2	18.7
1953	5	7	3	5.6	0	.	18	17.5
1953	5	8	3	12.3	4	8.3	10	21.9
1953	5	9	6	13.0	4	2.5	9	21.1
1953	5	10	11	13.8	8	8.7	9	14.0
1953	5	11	0	.	14	15.8	17	21.0
1953	5	12	0	.	7	10.8	3	16.7
1953	5	13	12	10.6	7	4.5	11	11.1
1953	5	14	12	17.1	1	4.3	4	17.3
1953	5	15	0	.	1	3.7	21	16.5
1953	5	16	0	.	6	5.5	1	25.6
1953	5	17	1	14.3	1	8.7	22	20.1
1953	5	18	5	10.0	1	3.5	6	16.5
1953	5	19	12	8.9	1	2.6	21	26.3
1953	5	20	3	10.3	12	5.4	5	25.1
1953	5	21	12	8.0	9	10.0	26	10.1
1953	5	22	12	7.6	1	7.9	9	27.2
1953	5	23	8	11.5	2	8.3	1	30.3
1953	5	24	4	8.8	4	2.5	1	13.5
1953	5	25	4	11.8	2	9.8	9	16.3
1953	5	26	4	12.4	12	4.9	5	13.0
1953	5	27	10	11.2	12	7.3	1	13.9
1953	5	28	4	13.2	2	5.1	1	7.6
1953	5	29	4	9.5	4	9.0	1	13.5
1953	5	30	4	13.3	9	9.5	20	23.5
1953	5	31	0	.	9	7.3	3	22.1
1953	6	1	10	8.9	5	7.3	5	18.2
1953	6	2	3	9.8	4	6.9	1	10.8
1953	6	3	12	14.0	2	12.6	14	21.6
1953	6	4	1	15.7	6	16.8	3	19.1
1953	6	5	1	9.2	12	10.3	3	18.3
1953	6	6	1	7.3	9	9.1	11	15.4
1953	6	7	1	14.3	4	3.9	1	11.8
1953	6	8	8	12.7	9	7.8	17	19.9
1953	6	9	17	12.1	2	3.9	5	14.9
1953	6	10	17	10.1	2	4.1	1	6.9
1953	6	11	10	15.1	1	6.1	12	23.3
1953	6	12	3	13.5	1	6.0	8	28.7
1953	6	13	1	7.0	5	4.6	28	15.8
1953	6	14	1	4.0	2	4.7	12	23.2
1953	6	15	1	5.9	2	5.8	29	16.2
1953	6	16	4	7.4	1	4.5	26	20.8
1953	6	17	1	11.5	2	3.6	1	10.9
1953	6	18	1	11.2	2	2.6	20	13.8
1953	6	19	4	8.2	2	7.2	5	21.1
1953	6	20	6	9.3	13	5.9	9	19.4
1953	6	21	1	8.5	1	5.3	2	15.4
1953	6	22	1	4.1	1	2.2	8	12.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1953	6	23	1	6.2	2	6.9	1	13.8
1953	6	24	4	9.6	2	2.6	12	12.7
1953	6	25	2	7.9	1	8.3	2	10.9
1953	6	26	1	5.8	1	5.9	8	17.3
1953	6	27	1	6.3	2	6.1	22	25.4
1953	6	28	4	7.3	1	6.1	0	.
1953	6	29	4	9.1	2	4.8	21	16.2
1953	6	30	1	8.9	2	4.2	1	23.6
1953	7	1	1	5.6	2	5.4	12	26.2
1953	7	2	1	7.2	1	1.9	6	10.8
1953	7	3	1	6.0	1	3.7	4	12.8
1953	7	4	1	5.4	1	5.0	29	13.0
1953	7	5	1	8.3	1	1.4	8	11.9
1953	7	6	1	12.1	1	0.8	2	15.8
1953	7	7	1	11.5	1	3.1	8	18.3
1953	7	8	1	11.2	3	4.3	11	10.0
1953	7	9	3	11.4	3	7.4	11	15.2
1953	7	10	3	9.1	5	5.8	4	8.8
1953	7	11	3	7.7	1	6.5	12	17.9
1953	7	12	3	6.3	3	6.9	21	32.2
1953	7	13	3	4.4	5	16.8	18	14.9
1953	7	14	3	6.7	17	9.4	1	16.1
1953	7	15	6	16.7	0	.	4	17.1
1953	7	16	0	.	0	.	12	15.4
1953	7	17	1	4.7	1	5.7	13	11.4
1953	7	18	1	2.3	1	5.7	13	14.6
1953	7	19	1	3.7	1	7.4	8	33.8
1953	7	20	1	6.4	16	5.8	1	19.6
1953	7	21	1	6.2	0	.	22	22.5
1953	7	22	1	5.0	1	1.4	6	24.3
1953	7	23	1	5.0	1	5.0	0	.
1953	7	24	1	6.2	2	6.0	12	17.3
1953	7	25	1	8.6	2	6.8	8	16.8
1953	7	26	1	8.0	1	5.5	8	16.9
1953	7	27	1	6.9	1	9.4	21	22.7
1953	7	28	1	5.1	1	4.8	2	13.7
1953	7	29	1	6.4	1	5.1	8	12.0
1953	7	30	1	8.9	1	6.3	21	19.6
1953	7	31	1	8.4	2	11.8	1	10.8
1953	8	1	1	10.0	2	8.6	17	18.2
1953	8	2	4	10.1	2	6.8	9	13.4
1953	8	3	4	8.4	2	5.4	5	25.2
1953	8	4	17	7.2	1	8.6	7	17.5
1953	8	5	8	7.3	1	3.8	17	14.2
1953	8	6	8	11.7	7	15.4	3	20.1
1953	8	7	9	8.2	3	8.8	19	15.7
1953	8	8	9	9.9	17	5.9	18	18.2
1953	8	9	1	8.7	13	8.6	4	18.8
1953	8	10	1	11.5	2	4.3	12	18.4
1953	8	11	1	6.7	1	8.8	2	7.3
1953	8	12	1	3.8	1	2.6	2	15.6
1953	8	13	1	4.1	1	2.3	2	13.3
1953	8	14	1	6.6	1	2.3	8	25.6
1953	8	15	1	7.6	1	2.0	11	12.3
1953	8	16	3	5.5	3	11.4	11	17.6
1953	8	17	3	2.6	5	4.4	1	14.4
1953	8	18	3	3.4	17	9.2	1	17.1
1953	8	19	3	4.8	0	.	1	17.6
1953	8	20	3	7.1	5	17.0	1	15.5
1953	8	21	3	6.1	13	5.1	1	11.8
1953	8	22	3	8.5	16	7.5	12	13.9
1953	8	23	4	14.0	16	11.9	4	9.8
1953	8	24	6	10.4	13	6.7	4	19.6
1953	8	25	6	15.1	2	6.0	4	14.3
1953	8	26	4	7.9	2	1.6	4	15.0
1953	8	27	4	9.4	2	2.1	2	20.2
1953	8	28	4	7.3	2	2.0	14	15.7
1953	8	29	4	5.6	2	1.6	12	27.9
1953	8	30	4	9.4	2	6.7	13	17.6
1953	8	31	4	9.2	2	5.6	2	15.6
1953	9	1	1	11.1	2	7.9	8	10.9
1953	9	2	11	15.3	2	2.2	9	17.4
1953	9	3	2	13.8	0	.	6	18.4
1953	9	4	5	10.3	7	8.3	2	12.1
1953	9	5	1	10.6	1	3.3	2	10.3
1953	9	6	1	7.0	1	6.0	8	18.1
1953	9	7	1	5.1	1	4.0	4	13.2
1953	9	8	1	7.5	1	5.9	1	7.0
1953	9	9	1	5.5	1	3.8	12	15.3
1953	9	10	1	7.6	1	2.3	20	15.9
1953	9	11	1	12.8	1	7.4	3	15.2
1953	9	12	3	10.5	3	4.7	7	9.0
1953	9	13	1	6.1	1	5.6	1	26.9
1953	9	14	1	6.4	1	7.6	20	25.5
1953	9	15	1	5.0	1	4.5	6	10.1
1953	9	16	1	5.9	1	5.5	1	18.8
1953	9	17	1	9.5	2	3.4	12	17.6
1953	9	18	1	9.0	1	4.2	2	8.8
1953	9	19	2	13.0	1	1.1	2	4.5
1953	9	20	1	11.4	1	6.1	6	15.7
1953	9	21	1	6.3	3	6.2	11	17.1
1953	9	22	1	4.0	1	3.1	1	19.2
1953	9	23	1	2.2	1	6.6	12	17.5
1953	9	24	1	2.9	1	5.8	3	31.8
1953	9	25	1	4.2	1	4.8	18	24.6
1953	9	26	1	6.3	1	3.7	20	17.1
1953	9	27	1	4.6	1	5.3	4	11.1
1953	9	28	1	5.9	2	6.0	18	20.4
1953	9	29	1	9.4	2	4.7	0	.
1953	9	30	1	6.5	1	2.8	4	25.3
1953	10	1	3	9.1	2	5.2	4	19.0
1953	10	2	1	6.9	2	1.1	12	17.4
1953	10	3	1	3.4	1	5.0	22	12.4
1953	10	4	1	9.9	1	4.4	2	23.5
1953	10	5	5	10.7	3	2.6	26	18.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1953	10	6	1	7.7	3	7.4	23	19.5
1953	10	7	1	8.4	1	4.2	4	15.1
1953	10	8	3	7.3	3	7.5	0	.
1953	10	9	3	3.9	1	3.6	10	9.4
1953	10	10	3	6.1	1	3.3	4	29.0
1953	10	11	16	10.4	1	7.2	17	18.1
1953	10	12	16	8.4	1	9.4	1	8.8
1953	10	13	1	8.4	1	15.8	4	8.8
1953	10	14	1	8.6	1	10.8	8	21.0
1953	10	15	3	6.4	12	9.7	4	7.1
1953	10	16	3	6.7	0	.	12	19.4
1953	10	17	3	3.9	9	5.5	10	22.1
1953	10	18	3	6.1	2	6.7	4	14.5
1953	10	19	16	6.8	2	2.7	12	19.2
1953	10	20	4	10.6	2	5.4	12	16.0
1953	10	21	7	8.8	18	9.4	12	16.1
1953	10	22	7	7.0	6	9.5	29	19.8
1953	10	23	7	13.3	12	15.7	6	19.2
1953	10	24	4	10.2	4	7.9	4	13.1
1953	10	25	7	8.7	6	9.7	22	14.3
1953	10	26	1	11.1	1	7.8	6	15.9
1953	10	27	1	9.5	10	8.5	13	28.7
1953	10	28	1	7.2	3	6.8	2	16.6
1953	10	29	1	3.3	1	4.3	2	16.5
1953	10	30	1	3.2	1	2.5	9	22.2
1953	10	31	1	2.5	1	1.4	18	16.9
1953	11	1	1	2.8	1	1.3	2	17.2
1953	11	2	1	2.9	1	4.6	20	11.5
1953	11	3	1	7.1	1	2.1	19	22.3
1953	11	4	3	6.7	3	10.2	1	21.6
1953	11	5	3	4.9	5	13.8	4	17.4
1953	11	6	3	9.9	4	6.0	4	15.8
1953	11	7	3	10.3	0	.	12	17.6
1953	11	8	1	9.9	17	13.3	18	20.4
1953	11	9	3	8.8	1	3.1	10	6.6
1953	11	10	3	6.7	1	6.7	14	24.5
1953	11	11	3	3.0	5	8.9	18	20.4
1953	11	12	3	3.3	1	5.1	4	6.2
1953	11	13	3	5.1	2	3.8	4	15.0
1953	11	14	3	5.7	1	5.4	4	15.8
1953	11	15	3	8.6	2	4.6	10	7.5
1953	11	16	1	4.6	1	3.1	2	6.9
1953	11	17	4	5.1	2	1.7	4	20.4
1953	11	18	7	10.6	2	3.5	3	20.6
1953	11	19	1	8.9	6	5.9	16	20.7
1953	11	20	11	10.9	0	.	7	25.9
1953	11	21	11	12.2	0	.	17	27.1
1953	11	22	1	6.2	1	14.6	10	11.6
1953	11	23	1	6.1	1	6.9	2	17.1
1953	11	24	5	6.3	3	6.8	6	9.6
1953	11	25	5	7.7	3	3.6	6	8.7
1953	11	26	5	5.3	3	9.3	15	15.5
1953	11	27	1	5.1	3	3.9	13	18.6
1953	11	28	1	3.5	1	7.3	4	20.2
1953	11	29	1	3.8	1	7.6	2	6.3
1953	11	30	1	3.5	5	8.4	18	5.5
1953	12	1	11	7.4	2	3.2	12	11.4
1953	12	2	11	6.4	6	6.6	8	29.9
1953	12	3	1	7.8	6	8.5	7	23.4
1953	12	4	11	9.8	5	7.2	17	18.1
1953	12	5	1	7.5	2	11.0	1	25.5
1953	12	6	1	4.9	1	5.4	10	13.2
1953	12	7	1	7.7	1	5.6	2	10.5
1953	12	8	1	8.1	1	8.8	22	19.2
1953	12	9	1	5.2	10	7.3	10	13.6
1953	12	10	1	6.0	1	3.7	2	11.0
1953	12	11	1	7.6	1	4.7	6	13.2
1953	12	12	1	5.7	1	5.0	10	7.8
1953	12	13	5	3.3	3	8.5	6	14.0
1953	12	14	5	7.3	3	4.2	18	24.3
1953	12	15	5	3.4	3	6.0	3	17.3
1953	12	16	5	3.8	3	2.9	19	15.6
1953	12	17	5	7.0	3	1.5	4	11.9
1953	12	18	1	3.4	1	8.8	4	9.9
1953	12	19	1	4.6	1	3.2	2	14.9
1953	12	20	1	3.9	1	0.7	15	17.0
1953	12	21	5	9.0	7	7.6	3	8.6
1953	12	22	5	4.8	3	8.1	6	17.7
1953	12	23	5	9.7	3	6.1	2	10.0
1953	12	24	1	7.4	1	1.8	2	1.7
1953	12	25	1	9.4	1	1.8	2	10.2
1953	12	26	2	6.8	1	3.1	10	16.1
1953	12	27	2	8.7	7	5.7	22	16.6
1953	12	28	2	7.9	1	1.8	10	11.5
1953	12	29	2	4.4	1	3.1	16	19.7
1953	12	30	1	8.1	1	5.0	2	10.5
1953	12	31	1	3.2	1	1.3	10	10.3
1954	1	1	1	2.8	1	2.5	18	19.0
1954	1	2	1	1.5	1	2.5	7	18.3
1954	1	3	1	1.6	2	3.4	4	13.0
1954	1	4	1	1.0	1	2.3	24	29.2
1954	1	5	1	2.3	1	6.1	17	20.3
1954	1	6	1	3.9	1	4.1	17	28.4
1954	1	7	1	2.7	1	3.4	7	21.9
1954	1	8	1	8.0	1	7.9	17	18.9
1954	1	9	5	7.3	1	6.6	26	17.7
1954	1	10	2	5.7	3	7.4	4	20.0
1954	1	11	2	9.2	3	2.1	26	20.1
1954	1	12	2	16.6	3	12.1	0	.
1954	1	13	2	11.1	1	2.9	14	12.8
1954	1	14	2	9.4	1	2.3	14	31.4
1954	1	15	2	10.0	1	2.7	5	22.0
1954	1	16	2	6.5	1	1.3	19	17.7
1954	1	17	1	5.7	1	1.7	11	16.2
1954	1	18	2	10.1	2	6.1	5	20.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1954	1	19	4	8.7	2	4.5	27	15.4
1954	1	20	1	6.4	1	2.9	19	14.4
1954	1	21	1	3.9	1	0.9	5	14.6
1954	1	22	1	2.9	1	1.9	1	16.9
1954	1	23	1	4.4	2	3.3	14	17.1
1954	1	24	1	4.6	2	4.9	5	12.6
1954	1	25	1	4.9	2	3.6	5	6.2
1954	1	26	1	5.1	2	7.3	11	12.1
1954	1	27	1	5.8	1	9.6	0	.
1954	1	28	1	1.7	1	4.4	1	14.5
1954	1	29	1	2.7	1	0.3	29	19.1
1954	1	30	1	4.9	1	4.9	18	27.9
1954	1	31	1	3.3	1	2.5	10	20.3
1954	2	1	5	8.1	1	6.8	2	8.6
1954	2	2	5	7.1	3	2.5	6	12.4
1954	2	3	5	8.7	3	8.3	2	12.4
1954	2	4	1	8.7	3	4.3	6	8.2
1954	2	5	5	7.2	3	2.8	3	24.6
1954	2	6	5	9.2	19	5.7	6	23.0
1954	2	7	5	12.2	3	9.5	2	8.1
1954	2	8	1	8.0	3	3.8	6	13.2
1954	2	9	1	6.7	1	1.5	2	8.4
1954	2	10	2	5.2	1	1.0	3	12.3
1954	2	11	1	6.3	1	2.8	19	13.6
1954	2	12	1	2.6	1	1.5	4	23.2
1954	2	13	1	2.6	1	5.6	1	17.6
1954	2	14	1	4.1	2	2.9	14	18.0
1954	2	15	1	1.9	1	6.6	26	23.0
1954	2	16	1	2.3	1	6.1	10	12.6
1954	2	17	1	4.8	1	7.1	10	22.7
1954	2	18	1	5.8	2	4.2	4	16.4
1954	2	19	1	6.3	2	13.6	22	12.7
1954	2	20	1	4.6	10	6.9	28	31.7
1954	2	21	1	2.2	1	5.2	6	17.8
1954	2	22	1	4.6	1	4.9	20	14.9
1954	2	23	1	6.4	3	4.9	6	19.2
1954	2	24	1	9.2	1	7.1	15	13.3
1954	2	25	1	7.3	1	8.1	0	.
1954	2	26	2	10.2	1	4.6	20	19.4
1954	2	27	11	7.4	7	6.5	6	12.3
1954	2	28	2	9.1	3	12.1	18	15.1
1954	3	1	2	8.8	1	13.9	3	17.0
1954	3	2	2	12.5	0	.	3	10.6
1954	3	3	5	6.8	3	4.9	26	14.0
1954	3	4	5	4.7	3	3.1	19	10.0
1954	3	5	1	8.2	3	3.8	13	18.1
1954	3	6	1	2.7	1	1.6	2	4.9
1954	3	7	1	3.7	1	2.0	3	18.9
1954	3	8	1	3.2	1	1.4	4	7.4
1954	3	9	3	6.4	1	4.1	18	11.0
1954	3	10	12	7.2	5	5.8	1	14.3
1954	3	11	12	13.5	4	11.1	5	13.6
1954	3	12	11	13.8	0	.	5	18.8
1954	3	13	11	14.9	11	7.1	16	20.9
1954	3	14	5	15.8	17	11.9	7	12.9
1954	3	15	9	6.8	5	13.8	11	11.4
1954	3	16	17	8.9	1	7.9	11	21.7
1954	3	17	10	8.7	2	6.5	1	16.1
1954	3	18	6	15.3	15	15.4	9	16.2
1954	3	19	9	11.4	17	13.5	17	19.2
1954	3	20	17	8.8	5	7.8	5	24.3
1954	3	21	2	6.8	1	6.7	12	21.7
1954	3	22	2	8.8	1	2.8	0	.
1954	3	23	4	11.1	1	3.6	21	32.6
1954	3	24	4	6.2	2	6.2	5	11.3
1954	3	25	2	6.4	7	7.9	3	11.4
1954	3	26	2	6.1	1	1.2	4	23.8
1954	3	27	2	5.2	1	1.9	5	28.1
1954	3	28	2	3.7	1	1.9	16	19.8
1954	3	29	2	4.0	1	2.0	8	32.2
1954	3	30	2	2.8	1	2.6	19	18.2
1954	3	31	2	4.4	1	1.2	2	18.9
1954	4	1	2	9.3	1	0.6	21	14.9
1954	4	2	1	6.2	1	1.3	3	23.3
1954	4	3	1	3.1	1	2.6	11	14.5
1954	4	4	1	3.0	1	2.7	12	16.4
1954	4	5	1	3.0	2	4.8	1	16.1
1954	4	6	1	1.3	2	4.4	17	10.7
1954	4	7	1	3.2	1	3.8	3	8.2
1954	4	8	1	2.5	1	2.1	11	18.4
1954	4	9	1	2.7	2	3.9	1	13.6
1954	4	10	1	3.9	1	9.2	20	22.0
1954	4	11	1	4.2	1	1.4	0	.
1954	4	12	1	5.3	1	3.8	4	7.9
1954	4	13	1	3.5	1	1.9	10	20.0
1954	4	14	1	3.7	2	4.0	9	18.1
1954	4	15	1	8.4	0	.	22	15.3
1954	4	16	1	6.8	3	4.3	6	10.9
1954	4	17	1	6.5	1	0.6	2	5.3
1954	4	18	1	8.1	1	0.5	8	14.6
1954	4	19	1	7.6	1	1.6	8	10.8
1954	4	20	1	8.1	2	6.2	5	19.6
1954	4	21	1	8.9	1	11.2	3	22.1
1954	4	22	1	7.5	1	2.7	18	24.6
1954	4	23	1	5.7	2	5.5	1	7.1
1954	4	24	1	6.1	2	6.2	5	23.4
1954	4	25	1	7.0	2	4.3	5	17.7
1954	4	26	1	9.6	2	4.0	9	17.3
1954	4	27	1	7.6	2	6.2	5	30.2
1954	4	28	1	10.6	2	1.7	5	12.4
1954	4	29	4	11.3	2	2.8	3	13.5
1954	4	30	4	10.3	2	4.8	5	15.6
1954	5	1	7	15.4	2	8.0	5	17.4
1954	5	2	1	8.1	6	16.2	3	17.5
1954	5	3	5	6.6	3	5.7	26	10.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1954	5	4	5	8.5	3	3.8	26	8.7
1954	5	5	5	7.9	3	5.0	26	14.1
1954	5	6	5	6.3	3	6.6	3	12.5
1954	5	7	5	10.7	11	11.2	26	19.6
1954	5	8	5	17.3	17	13.9	5	15.6
1954	5	9	15	12.5	17	7.2	5	14.3
1954	5	10	14	15.3	3	6.7	5	12.1
1954	5	11	9	11.5	17	12.1	5	17.1
1954	5	12	1	7.4	5	10.7	1	11.6
1954	5	13	1	6.8	2	7.4	1	20.3
1954	5	14	1	9.2	2	7.0	12	16.3
1954	5	15	1	6.4	1	0.3	8	6.1
1954	5	16	1	9.4	1	6.1	19	14.2
1954	5	17	5	8.7	1	3.9	5	9.5
1954	5	18	1	10.1	3	2.5	5	13.1
1954	5	19	1	8.9	17	7.2	1	24.5
1954	5	20	1	5.6	5	10.3	4	15.7
1954	5	21	1	8.0	5	7.6	14	16.7
1954	5	22	7	8.1	4	6.8	1	18.8
1954	5	23	1	11.3	8	10.6	9	13.2
1954	5	24	1	6.8	1	5.0	6	17.7
1954	5	25	1	9.2	12	4.4	11	20.0
1954	5	26	6	12.7	4	4.7	1	4.6
1954	5	27	12	10.5	4	13.6	1	13.9
1954	5	28	12	9.4	7	7.4	3	18.1
1954	5	29	12	6.3	1	5.6	26	19.6
1954	5	30	12	8.0	2	5.4	1	19.0
1954	5	31	12	7.7	2	7.2	3	21.7
1954	6	1	12	7.3	2	11.3	17	20.7
1954	6	2	0	.	7	14.2	3	14.4
1954	6	3	3	10.7	17	10.5	16	33.6
1954	6	4	9	10.1	5	4.2	11	19.1
1954	6	5	4	11.4	0	.	1	8.1
1954	6	6	0	.	4	3.9	1	13.1
1954	6	7	0	.	8	12.1	20	10.8
1954	6	8	4	12.1	2	9.7	2	16.2
1954	6	9	10	10.4	12	4.5	8	13.9
1954	6	10	10	10.4	4	8.2	5	9.0
1954	6	11	3	10.0	4	8.6	9	17.1
1954	6	12	3	9.3	2	7.2	20	24.8
1954	6	13	1	11.7	2	3.8	1	23.9
1954	6	14	3	12.8	4	5.4	9	16.0
1954	6	15	3	7.8	2	8.7	2	11.7
1954	6	16	6	6.9	2	5.7	4	14.5
1954	6	17	6	8.9	2	4.2	2	32.9
1954	6	18	3	10.0	2	1.4	13	17.6
1954	6	19	1	7.3	2	3.6	12	18.5
1954	6	20	1	4.4	12	7.4	8	23.3
1954	6	21	1	3.7	1	4.0	20	18.5
1954	6	22	1	4.2	1	6.8	6	17.6
1954	6	23	1	3.3	1	7.2	4	12.8
1954	6	24	1	3.9	2	6.7	8	15.4
1954	6	25	1	7.0	2	5.7	27	13.7
1954	6	26	1	9.9	12	3.9	19	17.3
1954	6	27	10	10.3	4	6.4	1	4.7
1954	6	28	1	9.7	2	5.5	12	17.0
1954	6	29	3	10.0	2	7.7	3	18.3
1954	6	30	3	6.7	9	6.2	26	15.5
1954	7	1	3	9.6	9	11.8	5	6.8
1954	7	2	3	8.1	2	9.8	5	11.4
1954	7	3	3	8.3	1	6.1	1	13.0
1954	7	4	3	7.1	1	3.4	5	19.3
1954	7	5	3	8.2	1	9.3	18	27.0
1954	7	6	3	9.3	1	3.2	20	15.2
1954	7	7	3	4.9	3	8.6	17	19.5
1954	7	8	3	4.7	5	3.0	1	18.5
1954	7	9	3	5.3	5	5.1	1	8.2
1954	7	10	3	7.9	5	9.4	1	7.6
1954	7	11	3	11.0	2	7.5	12	15.3
1954	7	12	1	10.1	1	7.2	8	14.0
1954	7	13	1	11.1	1	3.3	29	19.7
1954	7	14	3	10.6	1	2.3	3	14.8
1954	7	15	1	7.5	5	5.5	5	20.7
1954	7	16	1	8.4	1	6.0	12	14.1
1954	7	17	3	9.1	1	3.3	21	24.2
1954	7	18	3	7.0	1	3.5	2	28.9
1954	7	19	1	7.2	1	4.4	2	16.9
1954	7	20	6	9.5	5	8.2	7	23.7
1954	7	21	6	11.3	13	6.6	1	13.3
1954	7	22	6	15.4	13	10.2	20	28.8
1954	7	23	1	11.7	1	7.9	13	10.1
1954	7	24	1	9.5	2	5.8	12	21.2
1954	7	25	1	5.8	1	3.9	12	16.3
1954	7	26	1	5.3	1	5.8	21	21.2
1954	7	27	1	4.4	1	6.5	0	.
1954	7	28	1	6.2	2	8.0	20	12.0
1954	7	29	1	4.6	1	1.8	8	13.0
1954	7	30	1	5.8	1	2.7	8	17.9
1954	7	31	1	8.0	1	0.6	22	16.7
1954	8	1	1	10.4	1	0.9	2	16.2
1954	8	2	12	9.0	3	7.0	6	17.9
1954	8	3	12	8.0	5	6.1	5	25.5
1954	8	4	0	.	9	7.5	5	14.8
1954	8	5	6	14.3	5	14.7	5	11.5
1954	8	6	6	7.9	2	10.4	5	14.4
1954	8	7	12	7.0	2	7.9	9	29.8
1954	8	8	12	5.7	1	5.3	17	26.4
1954	8	9	9	11.7	3	8.0	26	9.4
1954	8	10	12	13.1	5	6.8	5	14.8
1954	8	11	12	10.4	1	4.5	1	13.1
1954	8	12	0	.	1	5.3	1	20.8
1954	8	13	0	.	2	5.9	12	22.2
1954	8	14	1	18.0	1	5.4	0	.
1954	8	15	1	14.7	1	3.6	21	24.1
1954	8	16	1	10.8	12	6.0	16	10.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1954	8	17	1	9.4	2	4.1	1	18.4
1954	8	18	2	9.9	1	5.5	22	15.0
1954	8	19	2	10.1	1	3.6	11	10.7
1954	8	20	4	9.6	2	12.8	1	6.4
1954	8	21	4	7.7	4	3.6	1	9.8
1954	8	22	4	11.8	2	4.4	12	17.6
1954	8	23	0	.	2	5.6	2	13.2
1954	8	24	0	.	2	5.9	21	13.1
1954	8	25	0	.	12	4.0	5	17.3
1954	8	26	0	.	12	5.4	5	15.7
1954	8	27	0	.	2	4.3	1	23.4
1954	8	28	15	15.8	1	6.6	3	15.1
1954	8	29	15	9.4	1	4.4	5	14.9
1954	8	30	15	9.9	5	8.0	0	.
1954	8	31	1	6.9	5	5.0	4	12.1
1954	9	1	1	3.9	1	4.1	2	12.4
1954	9	2	1	3.6	1	3.1	6	23.1
1954	9	3	1	5.7	2	7.8	4	23.8
1954	9	4	1	7.8	2	4.3	29	18.3
1954	9	5	1	6.7	12	5.5	5	10.0
1954	9	6	1	5.9	1	9.8	9	16.0
1954	9	7	1	4.5	1	4.4	19	12.8
1954	9	8	1	5.5	2	5.5	1	16.8
1954	9	9	1	7.8	1	2.4	29	27.4
1954	9	10	8	10.0	1	4.9	26	18.9
1954	9	11	9	12.8	1	7.1	1	19.0
1954	9	12	12	12.6	12	8.8	1	11.7
1954	9	13	6	9.6	9	5.5	17	21.1
1954	9	14	17	11.6	9	2.1	5	19.4
1954	9	15	4	9.2	9	10.8	5	18.8
1954	9	16	4	7.2	2	3.4	5	20.6
1954	9	17	4	6.4	12	6.4	5	8.8
1954	9	18	4	7.6	2	3.7	9	17.1
1954	9	19	2	9.4	1	3.6	6	17.2
1954	9	20	1	8.5	1	5.0	29	18.7
1954	9	21	1	7.5	3	4.5	6	7.3
1954	9	22	1	4.7	5	7.5	18	21.1
1954	9	23	1	6.4	2	7.1	12	6.9
1954	9	24	1	8.4	1	4.3	22	15.8
1954	9	25	1	7.5	1	4.6	2	4.9
1954	9	26	1	7.6	1	5.0	2	15.5
1954	9	27	1	8.1	1	3.4	2	16.4
1954	9	28	2	8.7	2	2.5	9	16.9
1954	9	29	4	10.5	2	2.2	3	11.0
1954	9	30	2	9.4	2	2.7	19	11.0
1954	10	1	4	10.9	1	4.9	12	19.3
1954	10	2	4	8.1	2	5.3	1	8.3
1954	10	3	1	6.9	2	4.1	9	11.7
1954	10	4	1	6.2	1	2.7	8	13.1
1954	10	5	1	7.4	1	2.9	8	25.0
1954	10	6	1	7.8	1	4.0	11	16.2
1954	10	7	1	7.2	2	5.7	4	13.1
1954	10	8	1	3.1	1	5.4	4	12.1
1954	10	9	1	3.1	1	5.9	0	.
1954	10	10	1	3.4	2	6.8	22	15.8
1954	10	11	1	4.7	2	8.5	10	8.0
1954	10	12	1	6.6	9	4.5	2	7.9
1954	10	13	1	6.8	2	6.7	2	15.3
1954	10	14	5	9.9	7	13.3	6	9.6
1954	10	15	5	6.7	3	1.7	6	6.2
1954	10	16	5	10.3	3	2.4	6	7.8
1954	10	17	3	9.3	3	5.2	7	12.6
1954	10	18	3	4.9	17	13.4	4	18.6
1954	10	19	3	2.2	16	8.7	4	14.4
1954	10	20	3	6.5	13	6.2	12	19.9
1954	10	21	1	6.6	16	9.6	4	18.1
1954	10	22	1	3.4	2	8.0	4	12.6
1954	10	23	1	7.6	2	5.1	0	.
1954	10	24	7	6.6	6	6.8	5	14.4
1954	10	25	7	7.1	6	11.4	5	19.4
1954	10	26	7	6.7	7	10.0	22	8.7
1954	10	27	1	9.8	3	11.6	2	11.7
1954	10	28	2	7.8	1	6.1	2	18.5
1954	10	29	2	10.4	3	2.2	6	7.2
1954	10	30	2	9.1	3	3.2	22	15.6
1954	10	31	5	11.4	3	5.7	2	13.1
1954	11	1	5	10.0	3	4.4	26	18.3
1954	11	2	1	12.3	3	10.9	4	15.7
1954	11	3	5	7.7	7	7.8	29	19.1
1954	11	4	5	4.6	3	1.0	6	22.3
1954	11	5	1	6.0	1	5.9	2	8.6
1954	11	6	1	3.6	1	4.2	10	15.1
1954	11	7	1	6.3	1	2.2	2	11.8
1954	11	8	3	9.5	1	5.2	5	19.7
1954	11	9	3	6.6	1	9.1	1	13.5
1954	11	10	1	7.8	2	8.2	4	11.2
1954	11	11	1	8.3	1	4.6	11	21.3
1954	11	12	1	4.7	2	4.8	1	10.0
1954	11	13	1	3.4	1	4.1	29	17.5
1954	11	14	1	3.8	1	3.3	18	8.5
1954	11	15	1	3.4	1	6.0	4	17.3
1954	11	16	1	3.1	2	6.5	1	23.4
1954	11	17	1	9.2	1	11.8	20	18.1
1954	11	18	1	6.3	3	9.2	6	18.9
1954	11	19	1	4.1	1	5.8	6	20.9
1954	11	20	5	6.1	1	7.5	2	9.0
1954	11	21	5	8.0	3	4.4	6	17.8
1954	11	22	1	6.6	3	4.5	2	12.8
1954	11	23	5	3.5	3	5.5	2	14.8
1954	11	24	5	4.3	3	2.5	6	7.5
1954	11	25	5	10.0	3	2.4	7	21.4
1954	11	26	1	7.8	1	6.7	20	12.5
1954	11	27	2	10.9	3	13.5	15	11.0
1954	11	28	2	7.6	11	7.9	3	16.3
1954	11	29	2	13.5	0	.	26	13.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1954	11	30	4	12.1	9	12.1	5	10.1
1954	12	1	17	8.9	1	9.6	23	19.1
1954	12	2	1	8.2	1	3.9	4	14.9
1954	12	3	1	3.4	1	3.3	2	11.5
1954	12	4	1	6.4	1	9.3	5	16.4
1954	12	5	3	5.4	3	12.9	7	16.5
1954	12	6	1	7.6	5	8.0	4	13.6
1954	12	7	1	5.7	13	6.4	4	11.3
1954	12	8	1	7.7	1	16.2	22	18.3
1954	12	9	9	5.0	3	6.3	6	15.6
1954	12	10	1	5.8	5	9.5	4	14.7
1954	12	11	1	5.0	1	6.3	0	.
1954	12	12	1	3.8	10	7.0	13	16.1
1954	12	13	1	1.9	2	4.9	4	6.1
1954	12	14	1	2.6	1	5.9	6	13.8
1954	12	15	1	8.3	5	3.8	10	9.6
1954	12	16	2	10.6	7	7.5	22	6.6
1954	12	17	5	7.5	3	6.3	6	24.2
1954	12	18	5	7.3	3	5.6	6	25.9
1954	12	19	5	8.8	3	4.6	22	21.6
1954	12	20	5	9.8	3	2.4	20	22.1
1954	12	21	1	6.1	1	7.6	2	11.6
1954	12	22	1	3.8	1	4.0	2	3.9
1954	12	23	1	5.5	1	5.3	6	5.7
1954	12	24	1	2.4	1	7.3	1	19.3
1954	12	25	1	4.5	2	4.2	29	22.1
1954	12	26	1	6.9	2	8.1	16	16.7
1954	12	27	11	8.6	6	3.8	23	16.7
1954	12	28	1	6.6	1	5.2	10	10.1
1954	12	29	1	7.4	1	7.7	2	15.6
1954	12	30	1	4.3	1	3.8	24	15.6
1954	12	31	1	3.4	2	6.0	1	20.0
1955	1	1	1	6.8	1	5.5	15	32.2
1955	1	2	4	5.0	2	6.5	21	14.1
1955	1	3	1	8.7	12	5.4	5	26.6
1955	1	4	1	5.9	2	5.4	12	21.9
1955	1	5	1	8.9	12	10.8	22	18.7
1955	1	6	0	.	1	5.4	6	15.8
1955	1	7	0	.	1	4.6	10	18.8
1955	1	8	2	12.4	7	4.2	9	18.5
1955	1	9	2	4.9	1	2.8	6	23.2
1955	1	10	2	6.6	1	4.5	1	23.9
1955	1	11	2	12.9	1	11.7	1	16.3
1955	1	12	5	7.9	3	7.3	3	17.8
1955	1	13	1	10.1	1	4.6	10	5.2
1955	1	14	1	7.4	1	11.9	20	14.7
1955	1	15	1	6.8	1	7.8	6	16.9
1955	1	16	1	5.5	1	7.6	7	17.7
1955	1	17	1	5.4	1	10.2	1	15.7
1955	1	18	17	11.4	1	8.9	1	21.9
1955	1	19	1	9.3	12	8.3	1	16.4
1955	1	20	11	5.1	8	4.2	1	9.0
1955	1	21	2	11.0	3	12.3	3	24.7
1955	1	22	5	6.9	3	9.1	6	12.8
1955	1	23	5	7.5	3	5.8	10	25.8
1955	1	24	5	6.1	3	5.9	6	32.1
1955	1	25	5	6.7	3	6.6	6	25.3
1955	1	26	5	5.9	3	4.3	3	19.2
1955	1	27	5	5.2	3	4.9	2	20.0
1955	1	28	5	3.8	3	1.6	13	30.2
1955	1	29	5	9.1	3	1.8	22	29.7
1955	1	30	1	4.8	1	5.1	4	19.6
1955	1	31	1	2.2	1	2.0	9	17.6
1955	2	1	1	8.1	1	6.8	7	13.7
1955	2	2	11	10.6	0	.	1	12.9
1955	2	3	11	9.7	0	.	1	17.7
1955	2	4	11	6.2	8	5.6	1	14.7
1955	2	5	2	8.7	1	8.2	10	17.2
1955	2	6	1	10.2	7	6.5	3	16.7
1955	2	7	1	4.7	1	5.8	10	7.9
1955	2	8	1	5.1	1	3.3	15	22.4
1955	2	9	2	5.8	1	5.4	3	13.0
1955	2	10	5	7.4	7	9.7	16	19.4
1955	2	11	5	4.8	3	2.7	26	11.5
1955	2	12	1	7.3	3	4.2	18	18.5
1955	2	13	1	3.3	1	2.5	4	17.5
1955	2	14	1	5.2	1	4.5	2	25.3
1955	2	15	1	5.8	1	3.9	9	20.1
1955	2	16	1	4.5	3	6.6	10	18.4
1955	2	17	4	7.8	2	2.5	12	14.5
1955	2	18	11	10.6	8	8.9	3	17.4
1955	2	19	2	13.2	6	8.8	16	15.0
1955	2	20	2	15.4	14	16.4	3	21.2
1955	2	21	2	7.8	7	6.0	15	19.8
1955	2	22	2	6.0	1	4.7	0	.
1955	2	23	2	4.6	1	4.0	5	15.7
1955	2	24	2	5.2	1	0.8	18	12.4
1955	2	25	4	7.3	2	4.4	12	17.7
1955	2	26	4	8.7	1	5.7	5	13.8
1955	2	27	4	5.6	2	6.0	5	18.1
1955	2	28	1	4.3	2	5.5	1	12.2
1955	3	1	1	3.3	1	4.7	15	10.0
1955	3	2	1	4.3	1	5.8	1	21.9
1955	3	3	1	7.9	2	3.8	17	18.4
1955	3	4	2	6.3	2	7.7	27	20.8
1955	3	5	2	5.8	1	5.5	16	33.0
1955	3	6	2	5.4	3	3.9	6	24.8
1955	3	7	2	8.4	3	3.1	10	17.0
1955	3	8	2	7.5	1	1.7	2	10.2
1955	3	9	1	9.1	1	1.1	0	.
1955	3	10	1	6.2	1	5.8	15	26.4
1955	3	11	1	3.3	1	5.1	1	24.3
1955	3	12	1	4.1	1	2.3	26	14.2
1955	3	13	1	4.5	2	5.3	1	10.5
1955	3	14	4	8.0	2	6.3	9	22.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1955	3	15	2	6.3	1	5.6	3	14.1
1955	3	16	2	6.8	1	3.0	0	.
1955	3	17	2	8.6	1	4.5	27	20.3
1955	3	18	2	7.1	1	0.7	10	14.5
1955	3	19	2	8.7	1	5.8	3	13.8
1955	3	20	18	16.3	2	4.4	27	19.3
1955	3	21	0	.	6	11.8	23	19.9
1955	3	22	0	.	5	11.4	15	25.1
1955	3	23	12	13.2	9	4.9	3	4.2
1955	3	24	12	13.9	9	6.9	8	17.4
1955	3	25	5	12.9	0	.	19	21.1
1955	3	26	5	10.0	19	9.1	3	16.2
1955	3	27	5	9.1	3	6.3	10	18.1
1955	3	28	3	7.9	3	9.4	4	6.2
1955	3	29	3	2.9	5	5.0	4	21.1
1955	3	30	1	8.0	2	7.1	4	16.0
1955	3	31	1	10.3	8	16.5	20	32.2
1955	4	1	1	6.3	1	5.4	2	22.7
1955	4	2	6	8.4	2	9.7	1	17.1
1955	4	3	11	7.3	18	6.5	9	13.1
1955	4	4	11	9.2	0	.	9	6.7
1955	4	5	7	4.8	14	9.3	3	9.1
1955	4	6	7	8.8	3	7.6	6	9.0
1955	4	7	1	6.3	3	11.9	10	15.0
1955	4	8	1	7.5	1	11.9	2	13.7
1955	4	9	1	6.1	1	10.5	2	16.0
1955	4	10	3	6.1	2	6.8	10	16.5
1955	4	11	1	8.7	4	6.4	9	18.4
1955	4	12	1	10.0	16	10.0	3	14.0
1955	4	13	1	5.6	2	9.8	7	27.4
1955	4	14	4	9.8	2	7.4	17	25.3
1955	4	15	6	5.5	2	2.8	12	23.2
1955	4	16	1	8.1	2	5.7	2	13.6
1955	4	17	4	5.0	2	4.1	21	9.6
1955	4	18	4	8.6	2	4.0	5	23.6
1955	4	19	6	9.9	4	2.0	1	14.2
1955	4	20	6	12.7	9	10.4	20	19.9
1955	4	21	12	11.9	1	4.9	6	23.2
1955	4	22	6	8.1	2	7.7	1	24.0
1955	4	23	6	5.9	13	10.5	9	14.3
1955	4	24	6	9.8	13	8.0	17	28.9
1955	4	25	3	11.5	2	6.0	0	.
1955	4	26	6	8.3	4	6.3	1	16.3
1955	4	27	6	9.6	4	3.2	9	9.3
1955	4	28	6	11.2	13	8.9	20	14.9
1955	4	29	6	16.8	2	3.6	0	.
1955	4	30	10	9.2	2	1.8	1	18.0
1955	5	1	10	4.9	2	4.3	14	10.5
1955	5	2	10	8.7	4	5.6	14	22.8
1955	5	3	3	13.8	8	6.2	14	15.2
1955	5	4	1	8.3	1	6.0	2	12.0
1955	5	5	1	4.2	1	2.3	2	25.4
1955	5	6	1	5.7	1	6.6	20	16.8
1955	5	7	1	7.6	1	3.9	6	17.2
1955	5	8	1	6.1	5	6.4	18	21.6
1955	5	9	1	8.4	2	5.5	20	17.2
1955	5	10	1	4.2	1	1.8	2	13.3
1955	5	11	1	3.0	1	1.4	4	12.8
1955	5	12	1	2.9	1	6.9	1	15.7
1955	5	13	4	8.4	2	7.8	1	20.1
1955	5	14	4	7.2	4	8.4	5	15.9
1955	5	15	10	11.5	4	8.6	5	10.8
1955	5	16	16	17.3	0	.	5	13.6
1955	5	17	16	11.3	4	13.2	1	18.0
1955	5	18	16	15.2	0	.	22	29.2
1955	5	19	16	10.5	0	.	6	29.7
1955	5	20	1	5.8	2	16.6	2	18.5
1955	5	21	1	6.7	2	5.1	21	19.3
1955	5	22	1	6.7	2	3.9	9	21.2
1955	5	23	1	6.5	2	2.5	3	21.2
1955	5	24	4	7.3	2	3.4	5	21.1
1955	5	25	1	8.3	2	2.1	5	14.3
1955	5	26	6	7.6	8	13.2	1	21.7
1955	5	27	12	8.2	9	9.0	9	21.8
1955	5	28	1	9.2	0	.	3	20.1
1955	5	29	9	7.3	17	8.0	6	17.6
1955	5	30	6	8.5	5	5.9	1	22.6
1955	5	31	4	9.3	4	5.5	1	10.9
1955	6	1	4	11.9	4	5.0	12	7.0
1955	6	2	4	10.2	4	5.2	12	12.9
1955	6	3	11	9.3	8	7.0	12	21.6
1955	6	4	11	8.2	8	6.5	2	16.0
1955	6	5	11	9.1	0	.	2	4.4
1955	6	6	1	10.1	0	.	6	15.5
1955	6	7	5	12.0	0	.	6	17.2
1955	6	8	5	10.0	0	.	3	9.5
1955	6	9	0	.	0	.	3	8.6
1955	6	10	0	.	19	14.9	3	16.9
1955	6	11	0	.	20	12.4	7	23.4
1955	6	12	9	17.4	0	.	7	24.8
1955	6	13	9	12.8	0	.	11	11.0
1955	6	14	6	9.8	0	.	4	22.2
1955	6	15	1	10.3	16	14.3	4	9.0
1955	6	16	1	8.5	4	6.7	12	10.6
1955	6	17	1	7.7	4	7.5	29	20.2
1955	6	18	6	9.5	13	4.4	20	24.2
1955	6	19	1	7.2	2	8.8	2	12.6
1955	6	20	15	6.4	1	1.3	8	17.7
1955	6	21	15	5.6	1	2.5	8	21.2
1955	6	22	8	7.9	3	1.9	19	16.6
1955	6	23	14	11.6	3	6.6	5	15.9
1955	6	24	14	12.8	0	.	5	4.0
1955	6	25	3	14.7	0	.	5	12.6
1955	6	26	3	11.1	5	14.1	1	19.8
1955	6	27	6	8.3	2	7.1	1	16.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1955	6	28	6	8.6	2	2.6	4	11.4
1955	6	29	6	6.3	4	7.0	4	11.3
1955	6	30	6	3.6	4	4.5	28	19.4
1955	7	1	12	8.0	2	5.1	10	27.7
1955	7	2	6	13.2	2	3.8	1	16.5
1955	7	3	4	9.8	2	1.5	12	17.5
1955	7	4	4	10.3	2	3.5	5	15.3
1955	7	5	4	10.4	2	7.6	1	18.0
1955	7	6	1	10.2	2	7.1	1	22.5
1955	7	7	1	9.6	2	1.7	12	16.0
1955	7	8	1	10.5	2	4.7	29	15.0
1955	7	9	1	12.9	1	6.2	21	19.5
1955	7	10	10	8.0	2	3.9	5	12.0
1955	7	11	16	9.4	4	6.1	1	11.1
1955	7	12	3	9.0	2	6.5	1	9.1
1955	7	13	16	7.8	1	7.6	2	16.0
1955	7	14	1	7.8	3	7.5	6	14.4
1955	7	15	15	10.9	3	4.8	6	22.8
1955	7	16	17	9.3	17	9.7	11	18.9
1955	7	17	17	14.1	10	11.8	0	.
1955	7	18	3	12.8	0	.	1	16.7
1955	7	19	6	16.2	16	8.6	4	18.6
1955	7	20	6	14.3	16	10.9	4	10.5
1955	7	21	1	8.1	2	5.7	12	20.4
1955	7	22	1	10.1	1	6.7	8	8.5
1955	7	23	1	10.8	1	6.2	19	17.4
1955	7	24	1	6.4	1	5.1	13	21.6
1955	7	25	1	8.3	2	8.7	4	15.7
1955	7	26	1	11.4	2	4.7	14	20.4
1955	7	27	4	8.8	2	6.9	1	15.5
1955	7	28	4	9.4	2	5.9	12	17.8
1955	7	29	1	9.3	2	1.9	4	18.0
1955	7	30	1	5.0	2	3.0	2	7.1
1955	7	31	1	5.1	2	7.6	8	9.1
1955	8	1	1	8.3	2	8.6	1	14.6
1955	8	2	1	6.5	2	5.0	12	19.8
1955	8	3	1	6.1	2	3.5	8	25.7
1955	8	4	1	5.4	2	7.1	3	15.7
1955	8	5	1	5.0	1	5.7	27	22.2
1955	8	6	1	4.7	1	2.1	3	12.7
1955	8	7	1	3.6	1	3.0	23	15.9
1955	8	8	1	4.5	2	5.0	4	10.2
1955	8	9	1	3.9	1	6.3	2	13.7
1955	8	10	1	3.0	1	1.8	8	13.6
1955	8	11	1	3.3	1	3.2	4	16.1
1955	8	12	1	5.4	2	9.4	4	9.3
1955	8	13	1	7.8	2	5.5	12	23.3
1955	8	14	1	8.9	2	3.8	29	24.1
1955	8	15	1	10.3	2	5.4	17	31.6
1955	8	16	1	9.8	2	7.1	1	18.6
1955	8	17	1	7.0	2	5.6	10	20.1
1955	8	18	1	4.2	1	7.7	2	8.5
1955	8	19	1	4.1	1	6.9	4	17.2
1955	8	20	1	3.7	1	4.8	2	5.6
1955	8	21	1	4.0	1	2.2	3	12.2
1955	8	22	1	4.6	1	1.0	16	29.8
1955	8	23	1	5.0	1	5.3	1	11.8
1955	8	24	1	5.0	1	3.6	4	24.9
1955	8	25	1	5.2	2	4.7	1	15.2
1955	8	26	1	8.4	2	3.5	9	19.7
1955	8	27	1	8.2	2	2.2	20	27.9
1955	8	28	4	8.6	2	3.0	22	23.6
1955	8	29	1	10.5	7	5.0	22	17.9
1955	8	30	1	13.5	3	2.0	6	11.6
1955	8	31	3	7.8	3	7.7	18	10.1
1955	9	1	16	7.3	1	5.5	4	12.0
1955	9	2	1	8.4	10	7.2	2	20.0
1955	9	3	1	9.1	10	5.7	2	16.7
1955	9	4	1	10.1	1	7.5	8	10.8
1955	9	5	1	6.6	1	2.4	4	18.8
1955	9	6	1	6.8	1	3.0	19	17.1
1955	9	7	1	6.1	1	1.7	5	28.3
1955	9	8	17	6.3	1	0.9	1	18.3
1955	9	9	2	9.1	1	3.9	8	23.0
1955	9	10	2	9.2	1	2.7	8	13.1
1955	9	11	1	5.8	1	4.1	11	18.6
1955	9	12	1	2.5	1	2.9	1	15.6
1955	9	13	1	6.0	1	3.3	12	12.7
1955	9	14	1	8.3	1	6.3	18	17.7
1955	9	15	6	6.4	2	2.7	1	9.0
1955	9	16	6	8.0	2	0.9	4	19.7
1955	9	17	4	6.4	2	0.9	12	16.1
1955	9	18	4	11.8	2	2.3	29	19.4
1955	9	19	4	12.3	1	4.4	3	27.0
1955	9	20	4	10.7	2	7.8	1	12.6
1955	9	21	4	11.6	9	7.9	9	14.8
1955	9	22	1	9.7	2	4.4	9	22.6
1955	9	23	2	10.9	1	4.1	3	20.4
1955	9	24	11	12.9	12	8.6	19	10.1
1955	9	25	7	9.4	12	10.6	0	.
1955	9	26	1	6.6	2	5.5	4	12.5
1955	9	27	1	3.2	1	2.2	2	7.4
1955	9	28	1	4.5	2	4.3	4	11.9
1955	9	29	1	6.6	1	4.3	6	20.3
1955	9	30	1	5.8	1	1.0	19	24.0
1955	10	1	1	4.3	1	0.2	21	13.0
1955	10	2	1	2.6	1	1.8	1	22.8
1955	10	3	1	6.6	1	4.7	99	.
1955	10	4	6	4.7	2	3.4	1	5.7
1955	10	5	6	9.1	2	5.9	20	15.3
1955	10	6	1	8.7	7	7.1	6	14.9
1955	10	7	3	7.2	3	2.6	6	15.1
1955	10	8	3	5.0	5	7.5	4	6.0
1955	10	9	1	6.6	2	5.3	4	11.7
1955	10	10	3	9.1	2	3.1	4	8.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1955	10	11	1	7.9	2	3.9	20	10.4
1955	10	12	1	6.0	1	7.1	6	9.1
1955	10	13	5	9.8	3	1.3	6	9.3
1955	10	14	9	12.0	3	6.8	10	22.6
1955	10	15	1	8.3	17	8.5	3	10.7
1955	10	16	1	10.7	3	9.6	6	22.3
1955	10	17	1	10.1	3	5.7	6	21.6
1955	10	18	1	6.0	1	9.5	18	21.2
1955	10	19	1	3.1	1	3.3	8	19.2
1955	10	20	1	4.0	1	1.6	3	15.3
1955	10	21	1	3.9	1	4.2	4	16.4
1955	10	22	1	6.0	2	5.5	2	11.5
1955	10	23	1	8.1	7	3.8	22	15.0
1955	10	24	1	5.9	3	5.4	10	18.9
1955	10	25	1	2.8	1	1.7	2	11.9
1955	10	26	1	4.2	2	3.3	10	11.5
1955	10	27	1	5.8	2	2.4	3	18.4
1955	10	28	1	7.5	1	8.6	6	13.3
1955	10	29	5	10.1	11	6.3	6	18.8
1955	10	30	1	12.5	5	7.9	18	21.7
1955	10	31	12	5.4	9	5.9	9	23.9
1955	11	1	12	4.4	1	10.8	2	13.0
1955	11	2	1	5.2	7	6.1	2	11.9
1955	11	3	1	2.4	1	4.8	18	18.9
1955	11	4	1	1.6	1	3.1	10	17.5
1955	11	5	1	4.1	1	6.5	29	18.9
1955	11	6	1	8.4	3	8.6	6	7.1
1955	11	7	5	6.8	19	5.5	6	15.8
1955	11	8	1	9.0	3	4.4	10	11.7
1955	11	9	11	11.8	7	11.9	2	7.6
1955	11	10	2	11.0	1	8.2	2	15.3
1955	11	11	0	.	9	6.2	3	13.3
1955	11	12	4	13.5	2	7.6	19	19.4
1955	11	13	4	11.4	2	2.6	19	17.9
1955	11	14	4	11.4	2	4.3	5	17.4
1955	11	15	11	9.1	4	7.6	3	11.4
1955	11	16	2	10.7	0	.	6	12.7
1955	11	17	12	8.0	9	7.1	19	15.3
1955	11	18	1	6.1	9	7.9	1	13.7
1955	11	19	1	4.4	5	6.3	18	10.2
1955	11	20	1	3.8	1	1.4	2	16.0
1955	11	21	1	5.6	2	4.9	1	16.2
1955	11	22	1	6.4	2	4.2	9	8.8
1955	11	23	1	6.8	1	2.5	6	13.4
1955	11	24	1	2.8	1	6.5	21	14.6
1955	11	25	1	2.4	1	4.9	18	9.8
1955	11	26	1	6.0	1	6.9	29	19.9
1955	11	27	5	5.0	3	11.6	6	17.8
1955	11	28	5	5.7	3	4.9	3	17.5
1955	11	29	5	8.5	3	2.5	26	9.7
1955	11	30	1	1.8	1	4.6	4	19.4
1955	12	1	1	6.3	2	7.6	21	18.2
1955	12	2	2	8.7	1	9.4	5	5.3
1955	12	3	11	8.3	6	8.2	5	13.8
1955	12	4	1	5.3	7	10.2	3	23.5
1955	12	5	1	2.5	1	2.0	10	13.5
1955	12	6	1	2.5	1	1.4	1	24.9
1955	12	7	1	6.3	1	4.1	7	12.2
1955	12	8	9	9.6	3	3.4	7	7.6
1955	12	9	9	12.7	5	11.3	1	17.6
1955	12	10	1	11.7	11	14.8	1	16.0
1955	12	11	1	8.0	3	8.5	18	18.1
1955	12	12	1	7.4	5	6.5	10	17.6
1955	12	13	2	8.9	9	11.7	20	15.7
1955	12	14	5	8.6	3	10.7	3	20.8
1955	12	15	1	9.9	3	4.7	6	10.5
1955	12	16	2	3.3	1	1.1	12	18.3
1955	12	17	2	4.5	1	2.1	0	.
1955	12	18	1	3.6	1	1.1	5	21.5
1955	12	19	1	5.6	1	1.1	11	15.5
1955	12	20	3	5.6	1	1.2	1	15.6
1955	12	21	1	4.2	1	3.4	1	14.8
1955	12	22	1	4.6	1	4.6	18	19.7
1955	12	23	1	7.8	2	3.3	10	33.0
1955	12	24	3	9.9	2	5.2	3	22.1
1955	12	25	3	6.6	1	3.6	11	10.8
1955	12	26	1	7.4	1	7.5	1	15.8
1955	12	27	4	5.3	2	2.6	1	18.8
1955	12	28	4	4.0	2	2.6	8	17.2
1955	12	29	17	11.5	1	4.3	19	13.6
1955	12	30	17	12.6	3	3.9	2	13.6
1955	12	31	3	7.4	12	6.9	2	19.9
1956	1	1	3	3.5	16	10.2	28	17.9
1956	1	2	3	3.6	1	10.0	2	13.8
1956	1	3	1	4.4	1	7.0	6	15.6
1956	1	4	1	2.8	1	2.8	18	22.4
1956	1	5	3	4.9	1	5.1	28	22.1
1956	1	6	3	4.5	1	3.5	26	9.9
1956	1	7	3	5.0	2	7.1	1	17.2
1956	1	8	3	6.9	13	7.7	1	10.2
1956	1	9	3	4.3	5	9.5	0	.
1956	1	10	3	4.7	1	6.4	7	24.2
1956	1	11	3	5.4	1	4.5	7	19.0
1956	1	12	3	7.3	1	3.6	5	13.6
1956	1	13	1	4.5	2	7.5	1	14.6
1956	1	14	1	5.3	1	11.1	9	17.5
1956	1	15	1	6.8	3	13.1	3	18.9
1956	1	16	1	6.0	1	5.6	5	9.7
1956	1	17	1	9.6	1	4.5	5	14.1
1956	1	18	1	9.4	1	6.7	1	20.6
1956	1	19	1	10.8	3	6.8	17	13.3
1956	1	20	1	12.1	3	7.4	5	12.0
1956	1	21	1	12.3	3	8.9	5	12.4
1956	1	22	3	7.6	5	12.7	11	19.9
1956	1	23	3	5.6	9	7.2	1	12.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1956	1	24	14	7.9	9	6.8	1	5.9
1956	1	25	14	13.4	9	8.7	1	19.7
1956	1	26	3	15.1	9	5.9	1	16.7
1956	1	27	6	8.7	2	4.6	1	15.1
1956	1	28	12	11.6	2	7.4	9	15.7
1956	1	29	2	6.9	9	9.4	19	12.5
1956	1	30	2	3.7	9	8.1	19	16.2
1956	1	31	2	7.6	0	.	8	16.8
1956	2	1	7	7.4	7	7.8	13	16.0
1956	2	2	7	10.7	7	10.2	2	16.6
1956	2	3	7	9.5	7	10.0	2	4.8
1956	2	4	1	8.0	1	6.8	2	6.2
1956	2	5	2	9.6	1	4.5	10	17.6
1956	2	6	2	11.9	1	3.5	2	18.9
1956	2	7	2	10.9	1	5.5	2	7.7
1956	2	8	7	8.9	7	8.9	13	14.8
1956	2	9	1	9.1	10	7.2	2	5.4
1956	2	10	1	9.4	1	2.6	10	27.3
1956	2	11	11	8.4	1	10.2	17	16.7
1956	2	12	1	10.8	1	6.0	18	17.1
1956	2	13	1	9.2	1	7.8	29	26.8
1956	2	14	2	9.3	9	6.6	19	16.4
1956	2	15	2	8.1	2	5.1	5	8.9
1956	2	16	11	9.8	2	7.0	5	18.5
1956	2	17	11	7.9	2	8.0	0	.
1956	2	18	1	9.7	1	8.3	5	22.8
1956	2	19	6	7.3	1	5.8	7	19.3
1956	2	20	3	4.7	1	5.3	11	23.9
1956	2	21	3	5.1	5	6.5	11	24.6
1956	2	22	3	6.9	5	4.0	1	18.5
1956	2	23	1	10.4	2	7.6	1	8.7
1956	2	24	2	10.9	2	4.1	3	16.2
1956	2	25	2	4.1	1	2.8	6	20.1
1956	2	26	2	5.8	1	1.9	8	12.9
1956	2	27	1	5.4	1	3.8	13	29.5
1956	2	28	1	4.3	1	4.3	10	18.6
1956	2	29	1	4.8	1	3.3	10	12.3
1956	3	1	1	5.9	1	2.0	15	18.4
1956	3	2	1	5.1	1	2.7	15	10.5
1956	3	3	1	3.3	1	2.7	18	4.1
1956	3	4	1	5.2	1	7.0	1	20.7
1956	3	5	1	7.1	2	7.7	17	18.3
1956	3	6	11	8.0	2	11.3	5	20.9
1956	3	7	1	8.9	14	14.4	7	16.7
1956	3	8	1	8.1	1	9.2	10	14.4
1956	3	9	2	6.7	1	3.6	0	.
1956	3	10	2	3.9	1	6.0	3	15.6
1956	3	11	2	2.7	7	4.8	19	8.2
1956	3	12	2	7.0	1	4.3	13	15.5
1956	3	13	2	4.1	1	3.0	21	13.1
1956	3	14	2	4.3	7	4.2	5	13.3
1956	3	15	2	5.8	7	5.6	4	13.5
1956	3	16	2	8.0	3	4.7	2	16.1
1956	3	17	5	7.3	3	6.6	2	18.9
1956	3	18	5	9.2	3	1.5	6	14.8
1956	3	19	1	5.0	17	10.2	4	9.3
1956	3	20	1	3.3	1	6.1	12	11.8
1956	3	21	1	5.2	1	1.1	8	23.7
1956	3	22	3	8.2	1	1.0	1	20.9
1956	3	23	3	6.9	1	3.0	7	18.0
1956	3	24	3	5.1	5	7.6	4	18.2
1956	3	25	1	6.4	1	1.1	21	18.3
1956	3	26	1	5.3	1	7.1	17	21.8
1956	3	27	1	9.6	8	10.9	9	11.2
1956	3	28	1	11.3	14	12.3	3	18.2
1956	3	29	5	8.7	3	3.7	26	13.4
1956	3	30	1	3.3	1	5.1	18	22.5
1956	3	31	4	7.1	2	5.7	1	6.3
1956	4	1	4	3.9	2	2.6	5	19.4
1956	4	2	4	8.5	6	9.6	3	17.3
1956	4	3	11	6.3	15	13.0	9	28.6
1956	4	4	1	7.0	1	2.5	6	10.9
1956	4	5	1	6.8	1	5.8	14	24.7
1956	4	6	1	5.4	1	9.6	3	14.2
1956	4	7	1	8.7	3	7.7	26	14.8
1956	4	8	1	7.4	0	.	5	18.8
1956	4	9	1	6.5	10	8.3	23	16.9
1956	4	10	1	8.1	1	9.3	4	32.7
1956	4	11	17	10.7	1	4.7	8	14.4
1956	4	12	0	.	1	6.1	11	25.6
1956	4	13	1	15.9	1	4.0	2	16.3
1956	4	14	5	12.2	3	9.9	3	12.1
1956	4	15	5	8.9	3	3.9	26	19.7
1956	4	16	5	10.5	3	7.8	26	13.4
1956	4	17	5	11.8	3	7.4	26	13.4
1956	4	18	5	15.0	3	4.7	26	16.2
1956	4	19	5	9.8	3	3.8	23	17.9
1956	4	20	5	9.5	1	8.6	2	13.9
1956	4	21	5	9.4	1	7.1	3	11.3
1956	4	22	5	4.5	3	4.2	19	17.0
1956	4	23	2	8.4	3	4.8	5	10.1
1956	4	24	2	7.0	1	3.0	11	29.6
1956	4	25	2	9.0	1	0.7	3	22.5
1956	4	26	4	10.9	1	3.6	12	23.7
1956	4	27	1	10.9	1	3.9	5	17.1
1956	4	28	1	7.8	12	6.9	5	13.7
1956	4	29	2	7.8	1	3.6	16	21.1
1956	4	30	1	8.2	2	6.0	5	7.5
1956	5	1	1	7.3	2	3.3	5	11.9
1956	5	2	1	7.1	1	4.3	17	21.5
1956	5	3	8	8.8	1	1.9	19	19.5
1956	5	4	8	5.3	1	2.7	11	17.7
1956	5	5	8	8.1	12	3.1	5	8.6
1956	5	6	8	8.4	1	4.1	5	9.9
1956	5	7	17	6.7	1	5.2	5	20.2

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1956	5	8	4	9.4	2	4.8	4	18.1
1956	5	9	4	12.3	12	6.8	5	17.6
1956	5	10	4	8.2	4	7.8	1	8.2
1956	5	11	4	7.4	9	6.4	10	18.0
1956	5	12	4	4.7	2	3.7	3	18.0
1956	5	13	4	9.5	6	4.6	3	12.0
1956	5	14	1	8.3	1	3.7	2	16.4
1956	5	15	5	9.2	3	7.4	6	11.2
1956	5	16	5	9.2	3	4.3	2	2.7
1956	5	17	1	8.2	3	4.7	6	7.6
1956	5	18	1	8.3	1	3.5	25	21.8
1956	5	19	1	12.4	1	6.3	1	19.7
1956	5	20	1	10.7	1	5.4	5	29.3
1956	5	21	1	5.4	1	3.9	0	.
1956	5	22	1	7.7	1	3.4	3	10.6
1956	5	23	1	8.4	1	7.3	5	19.3
1956	5	24	1	7.2	1	5.5	1	9.2
1956	5	25	16	8.1	1	3.8	1	13.9
1956	5	26	1	5.0	1	4.9	14	26.8
1956	5	27	1	9.1	4	11.1	1	10.8
1956	5	28	7	8.3	6	7.9	27	11.8
1956	5	29	4	9.1	2	8.6	29	25.2
1956	5	30	1	10.9	1	3.1	3	10.8
1956	5	31	1	12.2	3	1.9	26	15.4
1956	6	1	3	7.2	17	7.3	4	22.5
1956	6	2	3	6.6	5	11.3	1	23.4
1956	6	3	3	7.2	5	10.9	1	20.6
1956	6	4	3	10.6	5	10.2	1	13.0
1956	6	5	6	8.2	4	8.7	1	7.0
1956	6	6	3	11.3	13	5.8	12	15.2
1956	6	7	3	7.2	2	5.2	2	13.5
1956	6	8	3	4.5	1	3.7	13	15.9
1956	6	9	3	4.3	1	6.8	4	10.8
1956	6	10	3	6.8	2	8.8	4	9.0
1956	6	11	3	9.1	13	7.9	4	14.6
1956	6	12	1	7.6	2	5.1	2	15.3
1956	6	13	1	2.8	2	6.4	8	15.5
1956	6	14	1	4.8	1	8.5	5	10.9
1956	6	15	1	12.0	2	7.1	5	11.5
1956	6	16	6	10.9	4	1.1	1	8.5
1956	6	17	3	10.9	13	7.0	1	20.4
1956	6	18	3	6.2	2	4.4	12	29.2
1956	6	19	3	7.9	2	5.8	4	22.3
1956	6	20	6	10.1	12	6.5	0	.
1956	6	21	3	13.8	4	7.1	9	18.1
1956	6	22	6	9.9	9	6.1	20	17.1
1956	6	23	12	8.7	1	7.1	20	15.3
1956	6	24	6	9.4	5	5.8	7	17.2
1956	6	25	12	8.0	2	4.7	9	17.1
1956	6	26	12	12.6	1	3.4	6	17.3
1956	6	27	12	12.8	1	6.6	6	20.5
1956	6	28	1	8.2	1	3.1	4	22.8
1956	6	29	12	9.9	2	7.3	14	8.9
1956	6	30	12	9.6	2	4.3	9	14.0
1956	7	1	12	9.5	2	5.8	3	7.5
1956	7	2	12	8.5	12	5.4	5	10.0
1956	7	3	12	9.7	2	4.0	5	18.2
1956	7	4	3	7.2	2	5.3	1	21.4
1956	7	5	3	5.7	1	3.4	5	14.0
1956	7	6	1	8.2	5	6.9	1	24.5
1956	7	7	1	8.9	1	7.3	9	16.7
1956	7	8	5	8.7	3	5.4	6	18.1
1956	7	9	5	9.7	3	2.2	6	12.6
1956	7	10	1	5.1	3	7.5	8	25.5
1956	7	11	1	8.1	1	2.2	29	20.7
1956	7	12	2	10.3	1	2.9	3	16.2
1956	7	13	1	8.8	1	8.0	18	11.1
1956	7	14	1	5.5	1	5.7	1	20.0
1956	7	15	3	8.3	1	4.9	20	17.7
1956	7	16	3	12.6	1	2.9	3	27.0
1956	7	17	5	12.6	1	4.7	3	26.8
1956	7	18	7	13.7	3	9.7	3	15.4
1956	7	19	1	14.3	3	6.6	22	29.1
1956	7	20	1	13.2	3	3.6	0	.
1956	7	21	3	8.5	3	4.8	23	16.0
1956	7	22	1	8.7	3	7.7	23	22.9
1956	7	23	1	5.5	3	10.4	2	12.8
1956	7	24	1	4.6	1	4.1	8	26.5
1956	7	25	1	5.8	1	2.3	0	.
1956	7	26	1	9.8	1	2.4	3	24.7
1956	7	27	1	11.4	1	2.9	19	21.8
1956	7	28	1	8.3	1	4.1	5	13.6
1956	7	29	1	6.1	1	7.1	5	19.2
1956	7	30	1	4.0	1	3.8	12	10.1
1956	7	31	1	3.2	1	4.5	19	25.5
1956	8	1	1	7.1	12	5.4	1	9.9
1956	8	2	4	8.5	4	5.4	1	7.9
1956	8	3	10	8.4	4	5.4	1	8.0
1956	8	4	3	8.8	2	3.5	10	30.5
1956	8	5	3	7.3	2	6.3	0	.
1956	8	6	1	2.7	1	2.9	8	16.3
1956	8	7	1	2.6	1	5.6	8	17.6
1956	8	8	1	2.2	1	4.2	22	11.5
1956	8	9	1	5.4	1	1.2	8	18.9
1956	8	10	2	8.1	1	0.8	8	14.8
1956	8	11	17	6.0	1	1.9	13	11.1
1956	8	12	17	6.4	1	1.8	2	17.8
1956	8	13	17	7.0	1	1.5	2	11.0
1956	8	14	1	9.5	1	3.1	8	23.6
1956	8	15	1	6.6	1	4.1	4	16.1
1956	8	16	1	8.3	1	3.3	22	25.4
1956	8	17	0	.	1	4.8	3	21.4
1956	8	18	0	.	1	2.3	3	10.6
1956	8	19	5	12.0	7	7.1	19	8.8
1956	8	20	1	8.9	3	6.7	11	22.3

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1956	8	21	1	7.3	1	6.3	10	6.4
1956	8	22	1	6.9	1	6.8	2	14.5
1956	8	23	1	6.9	3	5.1	6	11.4
1956	8	24	1	2.9	1	6.8	11	22.8
1956	8	25	1	5.6	1	4.9	14	18.8
1956	8	26	1	7.4	12	2.8	12	20.9
1956	8	27	1	9.2	12	3.2	9	21.7
1956	8	28	11	10.3	2	4.5	9	15.5
1956	8	29	11	9.2	2	8.0	20	16.5
1956	8	30	11	9.5	2	10.9	22	22.0
1956	8	31	1	7.9	7	8.9	6	15.3
1956	9	1	1	3.9	1	4.7	2	17.3
1956	9	2	1	7.0	2	3.9	2	22.0
1956	9	3	2	9.6	2	7.3	3	9.1
1956	9	4	1	7.9	2	3.8	5	10.2
1956	9	5	1	7.0	1	3.9	3	15.1
1956	9	6	1	5.6	1	2.2	11	19.3
1956	9	7	1	6.1	1	5.3	11	14.1
1956	9	8	1	7.9	1	5.3	1	15.7
1956	9	9	1	7.8	1	2.2	12	15.8
1956	9	10	17	4.7	1	3.0	24	29.5
1956	9	11	17	4.9	1	3.3	8	20.6
1956	9	12	17	7.7	1	2.4	9	28.5
1956	9	13	2	10.4	1	1.2	3	5.4
1956	9	14	2	7.6	1	1.1	23	18.5
1956	9	15	2	8.0	1	2.5	10	29.5
1956	9	16	2	10.6	1	2.8	22	20.4
1956	9	17	1	9.0	3	5.7	13	22.6
1956	9	18	1	7.4	1	4.9	29	19.7
1956	9	19	1	9.0	3	3.1	7	14.0
1956	9	20	1	7.1	5	10.3	1	11.2
1956	9	21	1	6.9	2	8.5	1	10.4
1956	9	22	1	8.0	2	8.8	20	21.5
1956	9	23	1	6.2	1	3.8	2	19.0
1956	9	24	1	3.2	1	4.0	10	12.3
1956	9	25	1	1.8	1	3.2	0	.
1956	9	26	1	4.1	1	9.0	10	19.0
1956	9	27	1	7.1	2	3.0	12	22.0
1956	9	28	1	4.4	2	3.5	22	33.8
1956	9	29	1	2.3	1	2.5	19	29.5
1956	9	30	1	4.4	1	5.4	4	10.6
1956	10	1	1	3.8	1	4.1	2	8.5
1956	10	2	1	2.8	1	2.1	2	19.2
1956	10	3	1	4.0	1	2.9	29	12.4
1956	10	4	1	3.8	1	2.3	18	17.2
1956	10	5	1	5.1	2	6.0	12	16.2
1956	10	6	1	8.5	3	5.4	6	8.0
1956	10	7	1	5.6	1	4.1	2	12.1
1956	10	8	1	9.6	1	4.6	8	17.6
1956	10	9	1	6.3	1	7.9	11	9.8
1956	10	10	17	6.7	12	3.5	1	13.2
1956	10	11	4	5.9	2	4.8	4	17.0
1956	10	12	4	6.9	2	2.7	4	18.0
1956	10	13	4	7.9	4	7.7	2	17.1
1956	10	14	1	3.9	2	4.0	2	14.6
1956	10	15	1	2.1	1	4.4	10	14.3
1956	10	16	1	3.2	2	8.3	4	8.9
1956	10	17	1	7.1	1	8.5	21	29.5
1956	10	18	3	7.8	2	8.1	1	15.9
1956	10	19	1	7.4	2	4.0	12	13.4
1956	10	20	1	3.8	1	5.1	10	22.5
1956	10	21	1	2.2	2	7.8	2	16.0
1956	10	22	1	2.8	2	6.5	3	13.0
1956	10	23	4	6.0	2	3.5	1	19.7
1956	10	24	6	6.2	4	5.7	1	10.1
1956	10	25	1	6.2	8	7.5	2	20.7
1956	10	26	1	6.1	1	4.1	2	21.2
1956	10	27	4	5.0	2	2.7	5	19.7
1956	10	28	4	5.8	2	1.3	1	23.1
1956	10	29	6	9.5	2	4.9	12	20.3
1956	10	30	6	7.6	2	6.1	18	25.6
1956	10	31	6	6.0	2	2.7	99	.
1956	11	1	6	8.2	4	6.5	9	15.3
1956	11	2	11	7.4	18	10.4	3	14.0
1956	11	3	7	6.8	0	.	9	11.2
1956	11	4	7	7.0	0	.	1	17.0
1956	11	5	7	10.5	0	.	1	31.7
1956	11	6	1	9.0	0	.	15	11.9
1956	11	7	5	7.2	3	4.6	6	14.3
1956	11	8	5	6.8	3	7.6	6	18.5
1956	11	9	1	4.8	3	6.7	15	16.2
1956	11	10	1	2.2	1	3.3	2	12.7
1956	11	11	1	3.9	1	0.8	2	11.2
1956	11	12	1	3.0	1	5.2	6	19.3
1956	11	13	1	5.5	1	2.8	2	8.1
1956	11	14	1	7.2	6	7.1	3	10.0
1956	11	15	1	5.5	7	9.5	7	24.9
1956	11	16	1	7.0	1	7.9	6	33.1
1956	11	17	1	5.6	1	6.3	10	10.1
1956	11	18	2	5.4	9	8.0	20	7.0
1956	11	19	2	8.3	7	7.1	3	17.2
1956	11	20	2	9.3	6	12.5	2	15.6
1956	11	21	5	8.5	3	2.6	6	12.3
1956	11	22	2	9.8	3	2.2	2	18.6
1956	11	23	5	8.7	3	4.0	22	15.8
1956	11	24	5	10.0	3	5.7	2	3.1
1956	11	25	5	8.2	3	4.3	6	18.8
1956	11	26	5	9.6	3	3.4	0	.
1956	11	27	5	9.7	3	7.5	2	16.0
1956	11	28	5	13.2	19	5.0	16	21.2
1956	11	29	5	8.9	3	2.7	2	5.8
1956	11	30	5	6.9	3	0.9	6	17.7
1956	12	1	1	9.9	3	5.9	2	5.2
1956	12	2	1	5.5	1	2.5	2	8.8
1956	12	3	1	2.8	1	1.1	24	20.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1956	12	4	1	9.5	2	3.7	5	15.8
1956	12	5	4	7.5	2	1.3	5	18.6
1956	12	6	4	5.2	2	4.8	5	13.1
1956	12	7	4	6.6	2	7.8	13	17.4
1956	12	8	1	4.4	1	4.8	13	17.6
1956	12	9	1	5.1	1	1.4	2	12.8
1956	12	10	1	6.1	1	0.9	10	17.6
1956	12	11	2	8.0	1	3.1	26	16.0
1956	12	12	1	8.1	1	2.1	5	24.0
1956	12	13	1	5.4	1	0.4	1	22.3
1956	12	14	1	8.0	1	6.3	1	9.4
1956	12	15	1	6.9	1	2.4	24	14.6
1956	12	16	2	6.4	1	1.9	14	19.8
1956	12	17	1	4.2	1	3.4	23	16.0
1956	12	18	1	4.2	1	4.5	4	7.5
1956	12	19	1	4.9	1	5.4	2	11.5
1956	12	20	1	3.2	1	7.5	2	8.8
1956	12	21	1	7.0	2	9.0	17	12.0
1956	12	22	1	6.7	6	6.8	9	17.9
1956	12	23	1	7.3	7	9.2	6	24.1
1956	12	24	5	8.1	3	7.3	6	20.5
1956	12	25	5	8.8	3	2.5	2	13.5
1956	12	26	1	7.9	3	7.0	2	4.3
1956	12	27	5	7.6	3	4.8	2	16.6
1956	12	28	5	4.7	3	2.2	6	20.6
1956	12	29	5	5.6	3	1.4	15	21.8
1956	12	30	1	7.0	1	4.9	2	8.6
1956	12	31	5	7.4	3	7.0	26	23.8
1957	1	1	1	8.2	3	3.4	99	.
1957	1	2	1	5.7	1	6.0	1	15.7
1957	1	3	2	7.3	1	6.0	3	11.9
1957	1	4	2	5.4	12	6.0	19	25.0
1957	1	5	2	8.6	1	4.7	12	15.6
1957	1	6	1	7.3	1	3.0	2	3.8
1957	1	7	1	6.1	1	2.3	18	16.4
1957	1	8	2	7.1	1	4.0	3	19.9
1957	1	9	1	6.1	1	4.2	16	21.0
1957	1	10	1	6.7	1	0.6	4	19.8
1957	1	11	1	9.1	1	0.5	21	21.5
1957	1	12	2	10.3	1	0.8	5	28.2
1957	1	13	2	10.1	1	5.7	8	20.7
1957	1	14	2	3.8	1	0.8	12	25.4
1957	1	15	2	5.2	1	3.3	19	13.7
1957	1	16	2	7.9	3	5.2	2	9.5
1957	1	17	5	8.8	3	2.0	6	17.3
1957	1	18	2	8.7	3	4.1	2	4.3
1957	1	19	1	4.2	1	4.3	4	12.4
1957	1	20	2	5.7	1	3.1	0	.
1957	1	21	4	8.5	2	4.7	5	20.1
1957	1	22	2	4.7	1	3.7	19	14.1
1957	1	23	2	5.8	1	1.7	21	24.3
1957	1	24	2	5.5	1	4.0	5	17.0
1957	1	25	2	1.8	1	3.9	8	21.4
1957	1	26	2	5.4	1	3.5	8	20.6
1957	1	27	2	10.3	1	3.3	2	17.6
1957	1	28	18	8.8	1	8.6	5	19.4
1957	1	29	2	7.4	7	4.1	13	10.3
1957	1	30	2	5.8	1	2.2	2	7.1
1957	1	31	2	4.5	1	0.9	24	25.9
1957	2	1	2	1.7	1	2.0	8	35.8
1957	2	2	2	4.6	1	2.5	13	23.3
1957	2	3	2	3.2	1	2.7	2	16.4
1957	2	4	1	6.5	1	1.9	4	13.1
1957	2	5	1	7.2	1	2.3	2	25.5
1957	2	6	1	7.6	1	2.6	2	13.5
1957	2	7	1	5.5	1	0.8	13	30.2
1957	2	8	1	3.4	1	4.2	1	17.5
1957	2	9	1	3.2	1	2.3	7	25.7
1957	2	10	1	2.8	1	4.5	17	28.3
1957	2	11	1	3.5	2	7.3	4	8.0
1957	2	12	1	4.8	1	3.6	2	7.3
1957	2	13	1	6.2	3	5.5	15	14.6
1957	2	14	1	7.2	1	6.1	4	18.8
1957	2	15	2	7.6	1	5.3	22	18.8
1957	2	16	2	10.7	3	2.2	6	17.1
1957	2	17	2	8.0	1	2.8	29	18.3
1957	2	18	2	7.2	1	6.9	19	12.9
1957	2	19	2	8.4	5	6.1	5	5.3
1957	2	20	2	12.9	2	3.7	5	8.5
1957	2	21	1	9.4	2	6.5	27	21.1
1957	2	22	1	5.4	1	3.2	19	20.1
1957	2	23	1	4.1	1	3.8	1	22.6
1957	2	24	1	4.7	2	7.9	1	21.1
1957	2	25	1	3.5	1	5.7	3	17.1
1957	2	26	1	3.1	1	5.3	7	17.6
1957	2	27	1	5.1	1	5.2	1	12.8
1957	2	28	2	10.3	1	4.8	2	12.8
1957	3	1	2	8.9	3	4.2	6	14.6
1957	3	2	2	7.4	3	3.8	11	23.5
1957	3	3	5	9.6	1	3.4	1	12.8
1957	3	4	5	13.1	1	2.8	5	12.6
1957	3	5	12	7.9	1	5.0	5	10.0
1957	3	6	5	4.8	1	6.4	19	11.6
1957	3	7	5	5.5	3	4.8	13	19.5
1957	3	8	1	6.4	1	5.5	29	14.6
1957	3	9	1	4.6	1	4.3	18	15.1
1957	3	10	1	3.5	2	2.0	1	8.3
1957	3	11	1	4.3	9	11.5	15	18.9
1957	3	12	1	5.8	1	7.7	26	16.8
1957	3	13	12	8.8	2	9.7	5	13.0
1957	3	14	12	9.3	6	15.1	3	13.2
1957	3	15	9	8.8	3	10.7	26	7.2
1957	3	16	13	9.8	1	5.5	5	14.3
1957	3	17	17	10.0	12	4.8	5	6.1
1957	3	18	11	15.2	1	4.9	16	18.3

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1957	3	19	1	6.3	3	3.8	23	20.6
1957	3	20	1	3.8	1	4.8	4	11.3
1957	3	21	1	8.5	2	9.2	1	13.5
1957	3	22	1	13.1	4	8.4	9	15.8
1957	3	23	0	.	0	.	3	15.0
1957	3	24	11	14.5	15	17.7	7	25.6
1957	3	25	11	13.7	0	.	23	34.3
1957	3	26	1	11.9	17	15.4	17	26.7
1957	3	27	1	8.3	0	.	20	8.9
1957	3	28	1	7.7	1	12.2	29	19.0
1957	3	29	1	4.6	1	7.3	11	11.2
1957	3	30	1	5.4	1	2.9	1	13.7
1957	3	31	1	4.0	1	3.9	0	.
1957	4	1	2	11.7	6	8.9	5	9.4
1957	4	2	11	9.5	1	13.8	5	8.5
1957	4	3	11	4.4	2	6.5	1	7.2
1957	4	4	11	6.9	0	.	9	20.2
1957	4	5	2	9.6	11	10.8	6	26.8
1957	4	6	2	2.7	1	8.0	26	18.5
1957	4	7	2	5.4	1	4.2	19	18.4
1957	4	8	2	6.5	1	4.6	6	33.5
1957	4	9	2	11.2	1	1.8	19	16.3
1957	4	10	5	11.8	1	1.9	5	24.2
1957	4	11	12	11.3	1	8.5	19	9.8
1957	4	12	9	10.4	3	9.0	11	13.9
1957	4	13	9	7.2	3	9.4	5	15.0
1957	4	14	3	5.9	5	6.2	11	19.3
1957	4	15	1	8.1	1	3.7	1	11.1
1957	4	16	3	10.8	1	6.3	3	25.9
1957	4	17	3	8.9	9	6.2	5	9.8
1957	4	18	10	8.3	2	1.8	1	13.5
1957	4	19	1	9.2	2	9.9	9	15.4
1957	4	20	4	5.4	12	9.1	26	22.5
1957	4	21	10	8.7	2	3.3	1	13.0
1957	4	22	7	10.9	2	11.5	12	17.2
1957	4	23	4	10.6	18	4.7	1	16.2
1957	4	24	11	9.2	8	10.5	20	10.5
1957	4	25	11	8.2	2	6.5	2	8.1
1957	4	26	11	7.4	8	7.8	6	13.4
1957	4	27	1	8.1	6	5.3	23	24.5
1957	4	28	7	8.5	1	10.7	10	16.1
1957	4	29	16	8.0	0	.	4	19.4
1957	4	30	3	10.0	6	10.5	11	24.6
1957	5	1	3	9.6	4	9.2	1	18.0
1957	5	2	3	8.4	5	11.4	1	12.5
1957	5	3	3	10.9	0	.	1	10.6
1957	5	4	16	12.3	20	12.3	1	18.1
1957	5	5	3	10.7	0	.	11	18.6
1957	5	6	1	12.6	12	12.1	4	10.5
1957	5	7	1	11.4	2	6.2	4	18.1
1957	5	8	17	13.6	1	4.0	3	16.9
1957	5	9	17	10.4	1	5.8	8	25.2
1957	5	10	17	9.6	1	7.2	13	19.4
1957	5	11	7	10.6	6	6.0	5	26.4
1957	5	12	1	10.3	6	6.4	5	13.8
1957	5	13	1	9.5	6	6.0	1	16.4
1957	5	14	1	15.3	0	.	17	14.7
1957	5	15	7	12.6	0	.	5	13.4
1957	5	16	0	.	6	8.2	1	15.0
1957	5	17	3	9.4	7	9.6	17	16.6
1957	5	18	3	8.4	12	5.6	1	21.2
1957	5	19	14	15.0	2	8.6	1	13.6
1957	5	20	0	.	4	11.2	1	8.8
1957	5	21	0	.	8	13.1	9	9.1
1957	5	22	2	7.2	7	6.6	6	14.9
1957	5	23	2	9.7	7	5.1	13	23.5
1957	5	24	1	7.8	12	5.8	4	16.2
1957	5	25	1	7.3	6	11.3	9	9.9
1957	5	26	1	5.1	3	5.8	6	11.5
1957	5	27	1	3.8	1	2.6	10	31.0
1957	5	28	1	4.3	1	1.7	21	13.2
1957	5	29	1	9.1	1	3.3	1	21.3
1957	5	30	0	.	1	5.4	4	27.7
1957	5	31	1	11.3	1	7.9	8	12.7
1957	6	1	1	12.3	1	5.5	19	27.2
1957	6	2	1	10.3	1	2.8	4	11.0
1957	6	3	1	8.7	1	3.4	21	17.4
1957	6	4	1	8.8	1	4.9	1	17.5
1957	6	5	1	10.5	1	4.2	17	16.0
1957	6	6	1	8.6	1	3.3	3	23.4
1957	6	7	1	5.3	1	1.3	27	21.3
1957	6	8	1	4.3	1	5.6	1	20.9
1957	6	9	1	6.3	2	5.1	14	22.8
1957	6	10	1	8.1	2	5.3	5	11.7
1957	6	11	1	4.2	1	5.4	6	18.8
1957	6	12	1	2.2	1	6.9	4	12.2
1957	6	13	1	2.8	2	6.3	20	16.9
1957	6	14	1	8.2	2	9.2	20	13.8
1957	6	15	4	9.4	12	9.1	8	18.1
1957	6	16	1	14.3	4	12.3	27	18.4
1957	6	17	7	12.6	8	3.4	9	9.8
1957	6	18	1	4.0	1	7.0	2	10.2
1957	6	19	1	2.9	1	1.9	2	17.9
1957	6	20	1	4.4	1	4.4	4	23.2
1957	6	21	1	6.3	6	7.8	29	25.8
1957	6	22	1	6.7	6	13.9	3	15.9
1957	6	23	1	3.5	1	5.2	6	11.8
1957	6	24	1	3.4	5	7.5	10	11.8
1957	6	25	1	5.6	0	.	22	19.9
1957	6	26	1	8.8	1	9.3	2	15.9
1957	6	27	12	8.8	1	3.5	2	17.9
1957	6	28	12	6.5	1	6.8	6	11.1
1957	6	29	12	7.3	1	5.5	3	23.2
1957	6	30	1	5.1	1	5.2	17	18.6
1957	7	1	1	5.6	1	7.1	1	22.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1957	7	2	1	6.7	1	5.8	2	6.5
1957	7	3	1	3.9	1	4.3	22	14.2
1957	7	4	1	4.5	1	1.4	2	14.1
1957	7	5	1	3.0	1	5.3	2	10.9
1957	7	6	1	2.1	1	2.0	2	13.1
1957	7	7	1	2.4	1	6.2	20	15.8
1957	7	8	1	2.9	1	1.9	6	9.8
1957	7	9	1	4.3	1	2.8	18	16.2
1957	7	10	1	7.0	1	5.2	1	25.8
1957	7	11	3	5.2	1	8.8	14	17.1
1957	7	12	3	5.4	1	3.3	29	21.3
1957	7	13	3	3.8	1	8.6	26	26.1
1957	7	14	3	2.6	2	10.3	1	11.8
1957	7	15	1	7.6	2	6.0	1	15.2
1957	7	16	1	7.4	2	4.2	12	14.0
1957	7	17	4	5.3	2	4.4	12	11.5
1957	7	18	4	3.8	2	3.4	12	15.1
1957	7	19	4	4.5	2	3.6	5	14.5
1957	7	20	4	5.5	2	2.3	27	24.9
1957	7	21	1	7.8	1	6.1	3	23.9
1957	7	22	16	6.6	1	6.5	7	21.7
1957	7	23	16	8.2	5	5.8	1	11.0
1957	7	24	16	8.5	2	3.9	12	16.6
1957	7	25	1	8.0	1	5.6	4	23.3
1957	7	26	6	10.8	2	6.7	4	10.4
1957	7	27	6	10.3	2	8.5	12	19.6
1957	7	28	1	11.0	2	6.9	20	22.9
1957	7	29	1	7.6	1	7.8	0	.
1957	7	30	1	6.9	1	6.7	0	.
1957	7	31	1	6.5	5	6.2	1	22.3
1957	8	1	1	4.2	2	7.1	12	30.9
1957	8	2	1	5.6	1	4.3	3	17.2
1957	8	3	1	8.1	1	1.1	3	14.5
1957	8	4	9	9.1	1	7.4	11	14.5
1957	8	5	1	10.9	5	5.2	1	22.8
1957	8	6	1	9.1	2	6.7	4	18.5
1957	8	7	1	7.8	2	1.2	2	13.1
1957	8	8	1	6.1	2	6.4	21	13.7
1957	8	9	1	7.0	1	4.1	0	.
1957	8	10	1	11.1	1	6.3	0	.
1957	8	11	3	11.5	12	6.9	5	16.7
1957	8	12	3	7.3	2	5.9	1	6.8
1957	8	13	1	7.8	1	5.7	2	17.2
1957	8	14	1	8.9	1	2.3	15	27.9
1957	8	15	8	6.7	1	1.5	5	19.7
1957	8	16	8	8.1	1	2.3	5	15.6
1957	8	17	8	9.1	1	3.1	8	19.0
1957	8	18	1	7.1	3	6.3	11	16.4
1957	8	19	1	3.7	1	4.2	4	19.6
1957	8	20	1	4.4	5	4.5	1	10.8
1957	8	21	1	4.0	5	5.6	1	12.6
1957	8	22	1	4.2	1	6.5	12	19.2
1957	8	23	1	4.5	1	1.2	22	33.6
1957	8	24	1	6.7	1	4.4	4	21.7
1957	8	25	1	9.0	1	6.2	29	19.7
1957	8	26	1	7.7	1	7.3	5	10.9
1957	8	27	4	7.0	2	2.6	5	13.1
1957	8	28	4	6.1	2	3.2	5	10.9
1957	8	29	4	5.1	2	2.8	1	22.6
1957	8	30	10	4.6	2	7.6	1	9.9
1957	8	31	10	10.0	4	1.4	1	10.2
1957	9	1	1	10.8	2	5.2	20	16.2
1957	9	2	1	9.0	9	12.1	6	13.5
1957	9	3	5	11.2	3	12.7	6	17.0
1957	9	4	0	.	5	6.0	27	25.4
1957	9	5	0	.	1	3.8	5	15.2
1957	9	6	3	12.7	3	1.7	7	16.0
1957	9	7	1	14.0	0	.	18	19.5
1957	9	8	2	14.4	2	8.9	2	21.7
1957	9	9	2	8.8	1	9.7	13	17.4
1957	9	10	2	6.2	1	8.8	2	19.6
1957	9	11	2	5.3	7	4.7	2	5.6
1957	9	12	2	3.9	1	3.1	8	16.9
1957	9	13	2	8.2	7	4.5	19	14.8
1957	9	14	2	9.2	1	6.2	2	13.1
1957	9	15	2	6.3	7	7.1	6	12.0
1957	9	16	2	7.9	1	2.6	11	16.3
1957	9	17	4	8.7	2	6.1	12	16.3
1957	9	18	4	8.5	2	6.1	5	13.0
1957	9	19	2	7.5	6	5.5	3	20.5
1957	9	20	2	7.3	6	6.6	13	24.6
1957	9	21	2	6.4	7	3.9	3	21.5
1957	9	22	2	7.6	1	6.3	2	8.7
1957	9	23	1	11.5	3	5.0	6	29.0
1957	9	24	1	8.2	1	4.0	2	10.4
1957	9	25	1	8.3	1	4.5	5	23.1
1957	9	26	3	6.5	1	8.7	1	16.1
1957	9	27	15	7.7	5	5.7	1	19.1
1957	9	28	1	9.6	5	4.7	4	8.7
1957	9	29	17	10.2	1	3.4	2	10.7
1957	9	30	1	10.2	1	5.6	2	13.6
1957	10	1	1	9.6	1	10.2	18	14.9
1957	10	2	6	12.5	4	12.6	1	14.6
1957	10	3	6	11.3	4	7.4	1	12.8
1957	10	4	0	.	4	7.6	1	6.5
1957	10	5	0	.	13	8.9	1	17.0
1957	10	6	0	.	2	3.0	12	20.8
1957	10	7	0	.	2	2.1	5	16.3
1957	10	8	17	9.2	2	1.8	3	14.8
1957	10	9	17	7.4	1	1.1	19	11.8
1957	10	10	17	9.2	1	6.2	11	21.4
1957	10	11	1	9.7	3	6.7	4	19.5
1957	10	12	3	6.3	1	14.4	1	20.3
1957	10	13	3	8.8	4	10.6	1	17.3
1957	10	14	1	11.0	18	8.9	12	16.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1957	10	15	1	8.0	8	8.7	12	14.7
1957	10	16	1	5.1	1	4.8	6	11.0
1957	10	17	17	10.6	1	6.6	19	17.6
1957	10	18	7	17.8	1	14.8	5	19.6
1957	10	19	17	12.8	12	9.8	5	16.5
1957	10	20	4	14.3	6	7.2	1	28.9
1957	10	21	0	.	6	7.2	21	15.6
1957	10	22	0	.	2	4.8	5	10.6
1957	10	23	8	16.5	1	8.2	3	17.5
1957	10	24	5	11.6	3	5.2	19	17.6
1957	10	25	9	12.8	19	10.3	19	7.5
1957	10	26	9	16.1	0	.	11	15.8
1957	10	27	1	11.2	17	12.4	4	16.1
1957	10	28	7	7.5	1	6.2	25	13.3
1957	10	29	1	7.4	1	7.4	2	17.5
1957	10	30	1	5.0	3	5.4	6	19.5
1957	10	31	1	5.0	1	6.2	2	13.3
1957	11	1	4	8.5	2	5.2	27	22.4
1957	11	2	7	12.9	6	16.9	3	15.5
1957	11	3	7	10.9	0	.	19	19.6
1957	11	4	7	8.0	7	7.1	8	18.9
1957	11	5	7	10.6	3	13.3	13	9.5
1957	11	6	1	10.5	6	9.2	2	10.1
1957	11	7	2	7.0	1	7.4	3	8.8
1957	11	8	2	7.7	3	8.2	6	15.9
1957	11	9	5	6.6	3	1.3	6	14.7
1957	11	10	1	3.9	1	5.3	4	6.1
1957	11	11	1	3.0	2	6.8	4	20.2
1957	11	12	1	4.3	2	5.3	12	26.6
1957	11	13	1	5.8	2	6.8	18	24.1
1957	11	14	1	10.0	13	6.8	17	13.9
1957	11	15	6	8.3	9	15.9	17	16.5
1957	11	16	11	11.6	9	10.9	26	16.9
1957	11	17	11	6.2	8	9.7	5	9.2
1957	11	18	11	6.3	6	9.8	16	23.5
1957	11	19	2	9.1	3	6.5	6	14.6
1957	11	20	2	5.4	3	4.2	6	15.0
1957	11	21	2	5.7	3	8.3	6	16.6
1957	11	22	2	12.1	3	7.5	2	11.6
1957	11	23	5	10.7	1	4.5	2	7.0
1957	11	24	1	6.6	1	4.1	6	34.6
1957	11	25	1	4.0	1	2.1	28	18.5
1957	11	26	1	5.6	1	3.1	28	16.4
1957	11	27	1	7.1	7	5.8	6	18.5
1957	11	28	1	8.0	1	4.3	2	15.2
1957	11	29	5	6.2	7	6.0	6	15.8
1957	11	30	5	5.3	3	4.3	2	15.7
1957	12	1	1	6.3	1	2.1	6	15.2
1957	12	2	1	6.7	1	2.1	21	27.1
1957	12	3	1	6.4	3	6.6	2	29.0
1957	12	4	1	4.7	3	5.3	10	16.4
1957	12	5	1	3.3	1	4.0	28	22.7
1957	12	6	1	5.3	1	2.5	3	17.5
1957	12	7	5	6.5	1	3.7	9	25.6
1957	12	8	5	5.2	3	3.9	2	20.6
1957	12	9	1	7.6	1	4.6	2	7.2
1957	12	10	5	2.8	3	4.2	3	11.1
1957	12	11	5	5.8	3	2.2	18	16.5
1957	12	12	1	5.4	1	7.0	10	18.7
1957	12	13	1	2.8	1	2.8	2	8.7
1957	12	14	1	1.3	1	1.0	10	12.7
1957	12	15	1	4.4	1	1.4	2	13.7
1957	12	16	1	5.5	1	2.0	1	22.8
1957	12	17	3	4.9	2	5.6	1	11.0
1957	12	18	1	6.2	2	5.2	10	20.0
1957	12	19	1	6.3	1	7.1	2	13.2
1957	12	20	1	3.7	1	7.2	10	20.6
1957	12	21	1	2.3	1	3.3	18	12.5
1957	12	22	1	2.9	2	2.0	14	9.5
1957	12	23	1	3.4	1	5.3	6	14.9
1957	12	24	1	3.7	2	5.1	4	9.5
1957	12	25	1	3.4	1	7.5	2	9.8
1957	12	26	1	3.5	5	7.1	18	5.7
1957	12	27	1	4.4	1	8.0	9	21.8
1957	12	28	1	5.8	1	5.2	26	17.3
1957	12	29	1	6.5	1	2.8	7	16.4
1957	12	30	1	8.8	1	1.5	5	9.3
1957	12	31	5	5.6	7	7.9	16	21.0
1958	1	1	5	6.4	3	1.3	18	27.6
1958	1	2	5	8.9	3	1.7	0	.
1958	1	3	5	9.6	3	5.6	1	19.8
1958	1	4	7	8.8	3	8.0	4	8.9
1958	1	5	1	8.6	1	5.2	2	4.0
1958	1	6	5	7.0	3	3.0	3	18.4
1958	1	7	5	10.9	3	3.6	13	19.0
1958	1	8	1	6.4	17	10.6	2	9.1
1958	1	9	1	2.8	1	6.5	2	8.8
1958	1	10	1	3.5	1	2.7	6	18.1
1958	1	11	1	3.7	2	6.5	1	9.6
1958	1	12	1	2.3	1	6.7	25	28.4
1958	1	13	1	3.8	1	8.9	5	16.9
1958	1	14	1	5.3	10	8.2	7	14.2
1958	1	15	1	4.6	1	5.2	28	19.5
1958	1	16	1	6.5	3	6.2	17	7.0
1958	1	17	1	8.1	3	5.0	7	15.9
1958	1	18	5	6.5	1	7.4	9	21.0
1958	1	19	5	9.3	7	5.4	5	16.9
1958	1	20	1	13.5	7	9.6	13	12.7
1958	1	21	5	14.0	1	17.1	0	.
1958	1	22	5	7.3	1	6.6	15	22.5
1958	1	23	1	8.8	10	8.1	4	8.7
1958	1	24	1	4.6	1	5.9	1	20.8
1958	1	25	1	7.8	0	.	9	16.5
1958	1	26	1	12.9	11	8.3	3	22.8
1958	1	27	5	10.4	17	9.8	26	17.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1958	1	28	5	11.8	3	10.0	18	18.7
1958	1	29	5	9.4	3	12.3	26	22.1
1958	1	30	9	8.1	5	9.2	26	10.7
1958	1	31	5	9.4	1	8.7	99	.
1958	2	1	5	9.0	3	5.1	3	20.2
1958	2	2	15	11.1	3	4.1	7	19.3
1958	2	3	15	7.2	3	11.3	1	24.8
1958	2	4	8	11.7	1	2.7	5	15.4
1958	2	5	8	12.1	1	1.3	5	14.0
1958	2	6	5	9.6	1	2.4	19	9.8
1958	2	7	5	8.5	1	6.6	19	18.2
1958	2	8	9	8.3	3	2.6	19	15.4
1958	2	9	1	5.1	3	7.4	11	10.6
1958	2	10	5	6.9	3	3.5	11	18.4
1958	2	11	5	3.8	11	12.1	5	13.7
1958	2	12	5	6.9	3	5.6	26	13.6
1958	2	13	5	7.7	1	4.4	5	9.3
1958	2	14	5	4.5	1	3.9	5	10.2
1958	2	15	5	3.2	3	3.0	5	16.8
1958	2	16	5	5.7	3	1.4	11	18.3
1958	2	17	5	7.6	3	3.5	1	19.6
1958	2	18	15	10.6	3	3.1	5	19.8
1958	2	19	3	9.0	3	4.6	1	16.4
1958	2	20	1	7.8	1	6.8	14	21.1
1958	2	21	1	6.9	1	1.7	26	22.1
1958	2	22	1	6.1	1	6.8	10	5.9
1958	2	23	1	6.3	1	2.0	2	12.3
1958	2	24	1	5.8	1	1.7	6	10.9
1958	2	25	1	4.2	2	5.0	10	19.8
1958	2	26	1	8.4	6	13.1	9	14.4
1958	2	27	11	11.3	0	.	17	16.9
1958	2	28	11	13.4	20	7.5	16	22.5
1958	3	1	11	13.3	0	.	3	11.5
1958	3	2	2	17.3	11	16.5	16	23.6
1958	3	3	18	13.4	1	8.4	3	18.1
1958	3	4	2	12.6	1	5.6	25	28.6
1958	3	5	11	11.1	1	5.3	1	29.2
1958	3	6	4	6.2	2	7.3	5	17.2
1958	3	7	6	10.3	2	4.3	1	9.4
1958	3	8	6	5.0	13	12.3	1	7.1
1958	3	9	6	15.0	0	.	5	12.0
1958	3	10	11	16.3	0	.	5	10.8
1958	3	11	0	.	9	13.5	5	8.6
1958	3	12	0	.	0	.	5	4.9
1958	3	13	0	.	0	.	26	19.9
1958	3	14	9	13.2	3	12.1	3	17.6
1958	3	15	9	9.8	3	11.5	26	17.9
1958	3	16	9	5.9	3	16.7	5	18.0
1958	3	17	1	9.8	0	.	5	15.5
1958	3	18	1	8.6	0	.	5	13.0
1958	3	19	1	6.8	3	9.8	26	18.7
1958	3	20	15	7.5	3	4.9	18	14.6
1958	3	21	15	5.8	5	8.8	1	15.7
1958	3	22	3	9.0	5	7.7	1	15.5
1958	3	23	3	10.2	1	7.1	1	15.8
1958	3	24	3	3.9	9	8.2	1	14.8
1958	3	25	3	7.5	5	10.3	1	14.3
1958	3	26	3	9.8	9	13.1	1	12.4
1958	3	27	1	15.0	12	16.6	5	12.9
1958	3	28	3	9.3	5	7.9	5	17.3
1958	3	29	3	5.7	1	10.2	1	12.6
1958	3	30	3	8.1	5	5.9	1	17.6
1958	3	31	3	5.6	2	6.8	1	10.0
1958	4	1	3	10.7	2	5.9	28	23.3
1958	4	2	3	5.6	2	3.5	1	18.5
1958	4	3	3	12.1	16	10.1	1	12.9
1958	4	4	0	.	18	14.8	1	15.3
1958	4	5	0	.	0	.	9	15.9
1958	4	6	0	.	20	9.5	17	24.7
1958	4	7	0	.	5	10.8	11	22.0
1958	4	8	11	13.4	0	.	5	13.3
1958	4	9	7	15.0	0	.	1	7.3
1958	4	10	11	10.3	0	.	9	23.6
1958	4	11	7	10.0	0	.	3	20.2
1958	4	12	7	9.1	3	12.0	0	.
1958	4	13	1	5.9	10	12.0	4	11.9
1958	4	14	1	5.3	1	11.5	4	8.7
1958	4	15	1	4.4	1	4.0	2	10.8
1958	4	16	1	4.3	1	7.1	4	15.0
1958	4	17	1	4.9	1	5.3	2	14.3
1958	4	18	1	3.3	2	3.3	1	18.2
1958	4	19	1	4.7	1	5.4	2	12.6
1958	4	20	1	5.8	1	1.9	15	20.8
1958	4	21	1	8.5	1	4.6	3	10.1
1958	4	22	2	6.5	9	9.4	5	19.8
1958	4	23	2	8.3	0	.	5	12.9
1958	4	24	2	5.9	1	8.3	26	19.3
1958	4	25	2	6.2	1	10.1	5	9.6
1958	4	26	2	7.3	2	5.9	1	19.1
1958	4	27	2	6.3	1	5.5	12	17.5
1958	4	28	2	6.9	7	5.5	3	7.9
1958	4	29	2	5.0	3	7.4	2	14.6
1958	4	30	2	7.3	1	3.8	2	6.8
1958	5	1	2	8.9	1	2.7	11	13.9
1958	5	2	1	6.6	1	8.7	12	15.0
1958	5	3	1	3.6	1	3.2	3	19.2
1958	5	4	1	3.8	1	4.1	1	19.4
1958	5	5	1	3.0	1	4.4	1	17.5
1958	5	6	1	10.1	3	7.4	1	26.9
1958	5	7	1	9.5	3	10.8	5	13.4
1958	5	8	9	13.9	3	6.4	17	19.4
1958	5	9	1	11.4	3	9.9	10	11.8
1958	5	10	1	5.8	1	2.0	20	22.9
1958	5	11	1	10.0	1	4.5	1	21.7
1958	5	12	10	6.9	4	4.5	1	9.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1958	5	13	3	14.2	4	6.0	12	11.4
1958	5	14	3	9.7	6	4.3	8	9.6
1958	5	15	3	12.0	12	10.0	19	17.2
1958	5	16	1	8.3	2	9.9	4	11.0
1958	5	17	1	7.5	1	11.4	2	9.2
1958	5	18	1	13.1	1	3.6	6	15.7
1958	5	19	8	8.9	3	5.1	8	20.4
1958	5	20	8	10.5	3	4.9	0	.
1958	5	21	8	12.6	1	6.9	14	29.0
1958	5	22	8	12.2	3	7.0	16	17.1
1958	5	23	8	10.3	1	2.4	4	18.7
1958	5	24	17	11.7	1	3.2	3	10.8
1958	5	25	2	12.3	1	5.0	18	17.0
1958	5	26	17	9.3	1	1.7	29	14.6
1958	5	27	17	11.2	1	6.0	26	16.3
1958	5	28	17	8.2	3	5.6	4	10.9
1958	5	29	1	6.1	1	3.6	14	12.1
1958	5	30	1	6.5	1	2.5	9	23.5
1958	5	31	1	6.0	1	3.6	3	17.9
1958	6	1	1	7.1	1	3.7	7	13.2
1958	6	2	1	9.5	2	2.8	1	5.7
1958	6	3	4	9.1	2	3.4	12	20.5
1958	6	4	17	11.9	2	4.4	9	17.9
1958	6	5	17	9.6	1	1.1	19	15.4
1958	6	6	17	8.0	1	4.6	11	26.8
1958	6	7	17	8.4	1	4.3	2	19.2
1958	6	8	1	12.3	1	3.8	5	17.0
1958	6	9	1	9.6	1	7.6	1	13.5
1958	6	10	2	11.0	1	2.5	3	10.0
1958	6	11	2	12.2	1	1.5	11	22.3
1958	6	12	2	16.6	1	4.7	21	14.2
1958	6	13	13	13.6	1	4.7	3	10.9
1958	6	14	1	9.5	1	4.3	5	17.9
1958	6	15	2	9.4	1	6.0	23	20.3
1958	6	16	2	11.9	3	9.1	3	17.7
1958	6	17	2	7.6	3	7.8	6	20.1
1958	6	18	2	7.6	1	5.8	8	15.3
1958	6	19	2	5.4	1	2.2	3	20.4
1958	6	20	2	7.0	1	4.0	19	6.5
1958	6	21	2	9.8	1	4.0	8	23.7
1958	6	22	5	8.0	3	8.3	2	10.8
1958	6	23	5	5.8	3	8.0	6	19.4
1958	6	24	5	9.3	3	9.9	5	16.7
1958	6	25	5	8.1	3	10.5	26	17.3
1958	6	26	9	4.0	3	4.7	6	17.2
1958	6	27	1	6.8	3	7.7	4	12.4
1958	6	28	1	5.2	5	9.0	20	29.6
1958	6	29	4	7.5	2	3.4	14	27.0
1958	6	30	4	8.5	2	1.9	12	15.5
1958	7	1	4	11.2	2	3.3	3	27.7
1958	7	2	1	13.9	2	3.0	5	19.8
1958	7	3	0	.	2	2.9	5	15.9
1958	7	4	0	.	1	11.6	9	19.7
1958	7	5	5	14.1	1	10.9	3	19.4
1958	7	6	2	7.2	1	7.5	3	19.5
1958	7	7	2	7.3	1	3.9	11	16.4
1958	7	8	2	6.3	1	6.7	12	18.7
1958	7	9	1	5.8	1	3.0	5	24.3
1958	7	10	1	6.2	1	2.0	8	14.7
1958	7	11	1	4.5	1	2.9	8	23.5
1958	7	12	1	6.1	1	2.8	4	16.1
1958	7	13	2	5.8	2	7.8	12	16.9
1958	7	14	2	4.2	1	5.0	29	19.0
1958	7	15	2	6.0	1	2.6	19	13.5
1958	7	16	17	9.6	1	2.0	11	23.0
1958	7	17	1	8.8	1	1.7	12	14.3
1958	7	18	1	8.3	1	5.4	19	21.2
1958	7	19	1	5.1	1	6.7	23	24.6
1958	7	20	1	5.0	1	3.9	13	16.1
1958	7	21	1	6.8	1	6.8	2	8.7
1958	7	22	1	8.2	1	5.7	4	11.5
1958	7	23	1	10.5	2	11.7	2	22.7
1958	7	24	1	6.5	1	4.6	2	12.5
1958	7	25	2	10.0	1	1.4	2	12.4
1958	7	26	2	8.1	1	2.2	8	23.1
1958	7	27	2	11.4	1	6.5	22	10.9
1958	7	28	2	8.3	1	1.7	2	13.5
1958	7	29	1	8.4	1	0.8	8	13.8
1958	7	30	1	5.5	1	2.4	22	15.7
1958	7	31	1	3.1	1	3.0	13	13.2
1958	8	1	1	2.8	1	5.3	2	9.1
1958	8	2	1	2.3	1	3.6	2	14.5
1958	8	3	1	3.1	1	5.7	18	20.3
1958	8	4	1	3.4	2	4.0	20	20.8
1958	8	5	1	3.8	1	2.2	2	8.9
1958	8	6	1	6.0	1	0.7	2	10.8
1958	8	7	1	6.2	1	6.9	18	25.0
1958	8	8	1	4.4	1	4.7	1	21.4
1958	8	9	1	5.6	1	6.2	29	26.8
1958	8	10	3	7.0	1	3.9	3	23.3
1958	8	11	1	8.1	1	3.4	22	21.0
1958	8	12	1	6.3	1	3.3	6	17.1
1958	8	13	1	5.1	1	1.2	2	18.1
1958	8	14	1	8.2	1	1.8	25	23.0
1958	8	15	1	9.3	1	4.8	16	18.2
1958	8	16	1	10.6	3	5.8	8	22.1
1958	8	17	1	7.5	3	6.2	18	11.5
1958	8	18	1	3.5	1	4.2	12	18.0
1958	8	19	1	4.4	1	3.3	8	18.4
1958	8	20	1	8.1	1	2.7	3	8.0
1958	8	21	1	9.7	3	6.3	19	18.1
1958	8	22	2	6.2	1	3.0	1	17.9
1958	8	23	2	7.5	1	4.3	29	20.4
1958	8	24	5	8.5	3	3.0	6	16.5
1958	8	25	1	10.6	3	2.9	25	25.2

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1958	8	26	1	3.9	1	4.1	10	9.8
1958	8	27	1	3.5	1	1.4	20	16.6
1958	8	28	1	3.7	1	4.3	17	20.7
1958	8	29	1	5.0	2	6.1	17	19.8
1958	8	30	1	5.2	1	6.1	3	17.1
1958	8	31	1	3.8	1	6.7	0	.
1958	9	1	1	3.3	1	4.8	1	20.4
1958	9	2	1	4.3	2	4.2	12	16.9
1958	9	3	1	4.2	2	6.0	8	14.7
1958	9	4	1	3.8	1	3.5	11	22.3
1958	9	5	1	6.0	2	5.6	1	11.1
1958	9	6	1	5.9	1	2.0	6	18.4
1958	9	7	1	5.7	1	7.1	11	27.8
1958	9	8	1	6.5	1	4.4	4	19.9
1958	9	9	3	6.0	1	5.3	26	15.4
1958	9	10	3	7.3	1	5.2	1	18.1
1958	9	11	17	8.1	1	3.3	4	21.5
1958	9	12	17	7.9	1	5.4	11	27.5
1958	9	13	4	6.2	2	4.3	1	10.8
1958	9	14	1	12.5	2	4.3	2	10.3
1958	9	15	1	7.9	1	4.6	29	19.6
1958	9	16	1	3.8	1	2.9	7	13.6
1958	9	17	1	4.0	5	3.6	18	18.2
1958	9	18	1	4.4	2	3.4	12	14.4
1958	9	19	1	2.9	1	7.3	4	5.3
1958	9	20	1	5.5	2	3.1	2	11.8
1958	9	21	1	4.1	1	1.5	2	12.4
1958	9	22	1	4.3	2	5.7	4	13.3
1958	9	23	4	4.8	2	2.6	14	22.8
1958	9	24	4	7.7	2	2.0	3	14.9
1958	9	25	1	7.4	1	4.2	10	18.3
1958	9	26	1	10.4	1	1.8	2	11.9
1958	9	27	1	10.3	3	6.0	6	19.1
1958	9	28	1	9.4	1	1.1	4	12.0
1958	9	29	2	7.8	1	1.4	3	15.6
1958	9	30	2	6.1	7	7.5	6	11.5
1958	10	1	2	4.8	1	4.4	4	23.1
1958	10	2	2	9.9	1	7.1	4	16.1
1958	10	3	1	9.0	1	5.2	2	3.5
1958	10	4	1	7.0	1	2.1	6	19.4
1958	10	5	1	3.5	1	1.3	1	17.8
1958	10	6	1	2.7	1	2.7	12	18.9
1958	10	7	1	3.5	1	5.4	28	34.1
1958	10	8	1	6.5	1	6.5	10	22.7
1958	10	9	11	10.4	9	9.4	3	20.8
1958	10	10	1	8.5	1	9.0	6	11.0
1958	10	11	1	4.1	1	2.6	11	11.1
1958	10	12	1	5.0	1	2.2	1	13.4
1958	10	13	1	5.2	1	5.6	10	30.1
1958	10	14	1	6.2	1	4.8	24	24.7
1958	10	15	1	4.8	1	4.5	2	3.0
1958	10	16	1	5.5	1	1.5	22	12.6
1958	10	17	1	7.9	1	5.1	6	15.2
1958	10	18	3	1.8	1	7.8	4	18.9
1958	10	19	6	6.6	2	4.0	10	16.5
1958	10	20	1	11.3	2	7.3	9	15.9
1958	10	21	16	13.7	14	5.9	20	22.2
1958	10	22	3	9.1	0	.	15	12.9
1958	10	23	14	10.8	0	.	17	17.9
1958	10	24	3	12.8	5	11.0	6	22.2
1958	10	25	3	8.9	0	.	19	17.3
1958	10	26	16	11.3	11	13.8	17	18.7
1958	10	27	16	12.4	20	14.5	5	13.4
1958	10	28	7	9.6	0	.	16	19.4
1958	10	29	7	12.4	0	.	13	4.9
1958	10	30	3	13.2	0	.	4	16.0
1958	10	31	3	8.0	0	.	10	10.4
1958	11	1	16	11.3	0	.	2	18.6
1958	11	2	1	7.4	10	9.3	2	10.0
1958	11	3	1	3.3	1	6.0	2	6.8
1958	11	4	1	4.4	1	4.6	2	20.2
1958	11	5	5	6.1	1	4.0	6	6.5
1958	11	6	1	6.1	3	4.4	6	23.6
1958	11	7	1	5.3	1	4.3	20	19.6
1958	11	8	1	5.9	1	13.3	6	22.7
1958	11	9	1	6.0	3	9.0	6	4.6
1958	11	10	1	3.7	1	7.7	4	14.3
1958	11	11	1	4.7	1	3.2	2	18.6
1958	11	12	1	4.2	1	4.0	4	8.5
1958	11	13	1	3.9	2	2.2	10	23.0
1958	11	14	1	8.6	2	4.1	8	22.9
1958	11	15	4	3.9	2	2.9	5	9.1
1958	11	16	7	10.2	4	7.1	27	18.3
1958	11	17	7	8.7	8	10.1	3	12.8
1958	11	18	1	7.6	0	.	2	14.9
1958	11	19	1	1.9	1	4.3	2	9.7
1958	11	20	1	2.0	1	0.9	2	14.7
1958	11	21	1	2.5	1	2.3	2	13.2
1958	11	22	1	2.9	1	1.4	4	9.2
1958	11	23	1	3.4	1	0.7	3	13.5
1958	11	24	1	3.6	1	1.6	11	23.6
1958	11	25	2	6.4	1	9.1	3	13.1
1958	11	26	2	3.8	1	5.5	6	16.6
1958	11	27	2	7.0	1	3.3	8	19.3
1958	11	28	5	7.0	3	8.7	2	10.0
1958	11	29	5	8.0	3	4.8	26	22.4
1958	11	30	1	2.5	1	0.5	4	13.4
1958	12	1	1	4.8	1	5.0	0	.
1958	12	2	1	2.9	1	1.8	20	12.7
1958	12	3	1	6.3	1	7.2	10	16.5
1958	12	4	2	4.6	1	7.4	3	15.9
1958	12	5	2	9.6	3	15.0	3	15.0
1958	12	6	12	11.5	1	6.5	19	7.5
1958	12	7	2	10.5	1	3.2	5	19.5
1958	12	8	2	8.4	1	4.6	8	31.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1958	12	9	1	8.3	1	6.2	0	.
1958	12	10	5	4.3	3	6.4	0	.
1958	12	11	5	4.0	3	5.8	5	17.6
1958	12	12	5	7.2	3	3.1	5	7.4
1958	12	13	5	6.6	1	7.8	8	14.8
1958	12	14	5	4.3	3	2.6	13	13.5
1958	12	15	5	6.6	3	4.9	2	14.4
1958	12	16	1	3.7	1	0.9	20	14.3
1958	12	17	1	4.6	1	4.7	10	13.9
1958	12	18	1	4.1	1	2.2	10	22.4
1958	12	19	5	6.6	1	4.1	16	14.3
1958	12	20	5	8.2	3	5.2	18	18.1
1958	12	21	1	3.5	1	3.9	1	14.0
1958	12	22	1	6.3	1	1.3	2	2.4
1958	12	23	1	6.4	1	5.0	6	11.8
1958	12	24	1	4.2	3	6.7	10	19.5
1958	12	25	1	3.7	1	5.2	4	15.3
1958	12	26	1	7.7	1	7.0	4	23.9
1958	12	27	1	2.0	1	3.1	18	17.1
1958	12	28	1	4.3	6	6.6	3	17.7
1958	12	29	1	7.6	7	6.9	23	10.0
1958	12	30	7	9.0	10	10.4	4	10.3
1958	12	31	1	12.0	10	10.9	4	22.2
1959	1	1	11	10.4	1	14.1	2	12.0
1959	1	2	2	5.8	2	6.9	8	22.2
1959	1	3	2	7.9	1	9.6	8	28.0
1959	1	4	2	11.6	1	7.2	13	20.3
1959	1	5	1	10.5	1	1.8	4	22.5
1959	1	6	3	9.5	2	6.1	1	8.3
1959	1	7	3	4.2	1	7.2	17	18.3
1959	1	8	3	4.1	1	5.4	7	19.9
1959	1	9	3	2.6	5	9.0	1	19.9
1959	1	10	3	2.5	5	3.1	1	14.1
1959	1	11	3	3.8	2	9.3	1	19.3
1959	1	12	3	4.0	1	0.9	24	20.3
1959	1	13	1	1.9	2	6.6	28	14.2
1959	1	14	1	7.2	1	5.3	3	9.6
1959	1	15	5	2.6	3	8.9	3	16.4
1959	1	16	5	2.9	3	2.0	26	19.5
1959	1	17	5	2.1	3	2.0	6	32.3
1959	1	18	5	8.5	1	3.8	2	13.8
1959	1	19	2	2.3	1	2.5	8	15.8
1959	1	20	2	4.6	1	5.7	8	13.0
1959	1	21	2	7.4	7	7.2	6	14.7
1959	1	22	5	5.6	3	4.6	6	19.4
1959	1	23	1	5.2	1	4.2	4	14.0
1959	1	24	1	3.5	1	0.7	24	17.4
1959	1	25	1	2.0	1	1.0	5	20.0
1959	1	26	1	4.1	1	2.8	8	19.7
1959	1	27	1	3.2	1	1.9	4	5.5
1959	1	28	1	4.7	1	2.0	14	22.4
1959	1	29	2	7.0	1	5.4	3	10.9
1959	1	30	2	5.7	1	0.8	19	9.8
1959	1	31	2	4.8	1	3.3	5	16.4
1959	2	1	2	10.6	7	9.2	8	32.6
1959	2	2	2	12.7	1	9.1	4	12.9
1959	2	3	2	7.0	7	5.7	2	21.5
1959	2	4	2	4.3	1	4.9	22	18.4
1959	2	5	2	4.7	1	4.9	6	14.4
1959	2	6	2	5.7	1	2.2	4	17.1
1959	2	7	2	8.0	1	2.9	5	16.5
1959	2	8	4	6.6	2	4.0	5	16.2
1959	2	9	4	7.5	2	4.8	5	4.3
1959	2	10	2	9.1	1	7.7	7	17.0
1959	2	11	4	6.1	1	3.9	1	25.4
1959	2	12	1	4.3	2	7.2	21	19.7
1959	2	13	1	3.9	12	6.4	5	23.9
1959	2	14	1	5.2	1	4.9	7	17.7
1959	2	15	1	6.9	2	7.1	4	12.2
1959	2	16	8	7.7	1	0.4	8	16.0
1959	2	17	8	5.3	1	0.4	5	15.3
1959	2	18	8	7.3	1	6.6	19	11.0
1959	2	19	5	5.5	3	3.3	11	22.1
1959	2	20	9	8.6	3	5.4	4	27.1
1959	2	21	1	9.8	1	6.0	0	.
1959	2	22	1	4.7	1	6.9	12	24.0
1959	2	23	1	5.2	3	3.1	6	14.9
1959	2	24	1	6.2	1	3.4	2	14.1
1959	2	25	1	6.3	1	4.7	2	9.9
1959	2	26	1	9.1	1	5.4	20	20.6
1959	2	27	1	9.0	1	5.6	2	10.1
1959	2	28	5	6.6	3	4.4	6	12.1
1959	3	1	1	5.3	1	9.9	2	11.7
1959	3	2	5	8.1	7	5.6	2	16.2
1959	3	3	2	8.8	3	3.6	6	17.2
1959	3	4	5	9.7	7	5.8	9	27.4
1959	3	5	11	8.3	10	15.0	16	31.4
1959	3	6	5	7.6	11	6.2	16	32.8
1959	3	7	5	7.1	1	5.4	10	7.8
1959	3	8	1	6.8	1	6.2	28	25.4
1959	3	9	1	6.7	1	6.0	20	18.3
1959	3	10	2	8.8	1	4.7	0	.
1959	3	11	5	9.3	3	7.6	6	21.9
1959	3	12	1	8.2	3	7.1	10	6.5
1959	3	13	1	7.6	1	4.9	2	11.1
1959	3	14	11	6.9	1	5.3	3	13.4
1959	3	15	2	8.1	3	7.2	6	12.6
1959	3	16	5	5.3	3	2.9	15	10.0
1959	3	17	1	5.8	3	1.8	10	12.7
1959	3	18	1	1.8	2	7.5	4	8.6
1959	3	19	1	3.2	2	6.4	25	20.7
1959	3	20	1	5.2	1	8.1	3	9.6
1959	3	21	1	4.8	3	8.3	18	8.1
1959	3	22	1	2.3	2	5.0	10	20.9
1959	3	23	1	3.3	2	5.9	14	33.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1959	3	24	1	4.7	1	4.1	5	11.0
1959	3	25	1	5.8	6	6.7	5	17.0
1959	3	26	1	5.8	10	11.3	7	21.8
1959	3	27	1	6.9	5	5.1	23	25.9
1959	3	28	1	3.3	2	7.8	4	7.9
1959	3	29	1	3.4	2	4.1	4	12.9
1959	3	30	1	4.6	2	8.4	14	20.3
1959	3	31	1	5.5	1	3.3	3	18.6
1959	4	1	1	3.7	1	5.9	28	24.3
1959	4	2	1	4.4	1	4.7	2	12.4
1959	4	3	1	5.7	3	2.7	6	3.7
1959	4	4	1	2.1	1	2.1	10	17.7
1959	4	5	1	3.1	1	1.7	6	12.4
1959	4	6	1	3.7	1	6.7	1	19.7
1959	4	7	1	11.5	1	5.9	29	22.6
1959	4	8	5	14.5	7	5.4	3	11.5
1959	4	9	5	11.8	7	2.8	5	16.3
1959	4	10	5	8.9	7	4.5	1	19.5
1959	4	11	5	8.2	19	14.8	5	13.5
1959	4	12	9	12.5	19	12.3	13	14.5
1959	4	13	1	8.8	17	4.1	4	14.1
1959	4	14	1	5.7	2	3.5	4	23.0
1959	4	15	4	8.7	2	3.8	14	26.7
1959	4	16	11	8.5	6	8.5	5	14.0
1959	4	17	11	9.2	2	6.7	5	18.6
1959	4	18	2	11.6	12	5.7	5	7.1
1959	4	19	2	11.7	6	7.0	5	9.2
1959	4	20	1	13.7	0	.	16	17.0
1959	4	21	2	8.0	10	9.2	4	19.4
1959	4	22	2	6.9	1	4.7	21	35.4
1959	4	23	2	7.0	1	2.1	24	21.3
1959	4	24	1	8.1	1	6.0	27	14.8
1959	4	25	1	4.1	1	1.9	19	14.6
1959	4	26	1	4.2	1	5.8	1	10.1
1959	4	27	1	2.7	2	3.4	28	17.9
1959	4	28	1	4.5	1	5.7	6	11.9
1959	4	29	1	4.4	1	6.1	6	20.1
1959	4	30	1	2.0	1	4.8	18	16.5
1959	5	1	1	7.9	2	3.5	12	17.6
1959	5	2	4	6.7	4	5.2	14	24.5
1959	5	3	10	7.4	4	5.8	9	11.5
1959	5	4	10	9.3	4	5.0	5	15.2
1959	5	5	4	9.1	4	7.4	9	20.4
1959	5	6	1	7.0	2	7.8	3	9.4
1959	5	7	1	5.0	1	2.8	13	17.8
1959	5	8	1	4.1	1	6.1	4	10.6
1959	5	9	1	7.8	16	6.0	4	11.1
1959	5	10	11	6.1	2	7.4	20	11.0
1959	5	11	1	8.2	9	7.2	2	4.9
1959	5	12	5	15.7	1	1.0	2	12.4
1959	5	13	5	15.3	3	2.5	3	12.1
1959	5	14	8	8.6	3	0.7	5	15.7
1959	5	15	5	11.6	3	3.2	11	17.2
1959	5	16	8	11.9	3	9.1	1	15.0
1959	5	17	3	9.6	12	4.8	1	12.1
1959	5	18	12	6.6	2	6.4	14	20.6
1959	5	19	12	9.0	2	7.2	3	11.6
1959	5	20	4	12.7	2	5.7	5	20.3
1959	5	21	4	13.9	2	6.9	3	14.2
1959	5	22	4	11.3	6	5.8	5	12.7
1959	5	23	4	7.8	1	3.7	13	10.1
1959	5	24	4	6.3	2	3.6	4	4.2
1959	5	25	4	6.3	2	1.8	21	26.0
1959	5	26	4	4.8	2	5.6	9	17.4
1959	5	27	4	3.9	2	2.0	5	14.9
1959	5	28	4	3.9	2	2.8	5	20.1
1959	5	29	4	4.9	2	2.5	5	23.4
1959	5	30	4	6.5	2	1.5	27	12.6
1959	5	31	1	5.4	1	9.2	3	13.4
1959	6	1	1	5.7	1	2.8	6	19.8
1959	6	2	1	5.1	1	5.6	4	23.9
1959	6	3	1	3.0	1	4.1	4	16.1
1959	6	4	1	5.4	1	7.4	20	20.0
1959	6	5	3	4.1	1	3.3	10	16.5
1959	6	6	1	5.8	5	10.0	4	17.8
1959	6	7	3	6.5	2	2.4	12	15.1
1959	6	8	3	6.4	2	1.8	12	21.5
1959	6	9	1	8.5	2	2.6	0	.
1959	6	10	1	9.2	13	6.1	1	22.5
1959	6	11	1	7.8	2	9.0	2	12.4
1959	6	12	3	7.4	1	3.3	26	17.7
1959	6	13	3	5.9	1	8.7	1	26.7
1959	6	14	3	6.1	1	8.5	1	11.5
1959	6	15	1	9.5	2	8.0	12	18.0
1959	6	16	3	11.9	2	7.1	9	15.8
1959	6	17	1	9.0	13	8.9	1	16.5
1959	6	18	1	9.3	1	10.1	12	25.0
1959	6	19	1	8.6	1	4.4	19	16.2
1959	6	20	1	8.9	1	3.5	0	.
1959	6	21	1	5.7	1	1.3	3	14.3
1959	6	22	1	3.4	1	1.1	19	17.3
1959	6	23	1	2.1	1	1.4	1	23.2
1959	6	24	1	2.3	1	2.3	5	23.0
1959	6	25	1	3.5	1	4.8	12	13.2
1959	6	26	1	6.4	2	2.7	1	17.6
1959	6	27	1	10.3	2	5.6	20	18.7
1959	6	28	4	9.2	2	5.6	29	18.6
1959	6	29	1	7.5	2	7.9	19	14.8
1959	6	30	1	4.4	6	8.4	13	13.5
1959	7	1	1	2.9	1	2.8	13	20.4
1959	7	2	1	1.4	1	2.5	4	4.2
1959	7	3	1	2.2	2	3.7	4	17.8
1959	7	4	1	2.3	2	5.7	2	11.5
1959	7	5	1	3.5	1	2.9	6	15.0
1959	7	6	1	6.0	5	4.4	4	13.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1959	7	7	1	7.4	2	1.8	12	15.1
1959	7	8	1	8.2	2	9.0	2	8.8
1959	7	9	1	10.4	1	1.5	2	9.3
1959	7	10	5	6.5	1	5.3	8	19.3
1959	7	11	5	4.3	3	2.3	6	22.9
1959	7	12	1	7.1	3	2.5	11	22.7
1959	7	13	1	6.5	5	3.3	1	14.5
1959	7	14	1	8.4	1	12.0	12	13.8
1959	7	15	1	5.8	1	5.6	4	11.3
1959	7	16	1	4.0	1	5.6	8	19.2
1959	7	17	1	6.5	1	4.1	8	14.3
1959	7	18	5	7.3	3	5.7	6	16.1
1959	7	19	1	9.9	3	2.0	13	9.5
1959	7	20	2	9.5	1	2.9	2	12.1
1959	7	21	1	9.6	1	3.1	4	22.1
1959	7	22	1	7.3	1	4.1	29	17.3
1959	7	23	1	6.4	3	6.7	6	14.8
1959	7	24	1	5.4	3	8.5	18	18.4
1959	7	25	1	6.2	10	11.3	12	22.7
1959	7	26	1	4.1	1	7.0	8	26.3
1959	7	27	1	5.3	16	9.2	14	20.1
1959	7	28	1	8.1	2	5.4	12	25.0
1959	7	29	4	7.9	2	3.9	2	11.3
1959	7	30	1	7.3	1	3.8	8	13.3
1959	7	31	1	6.2	1	3.8	21	19.1
1959	8	1	1	3.6	1	2.6	1	11.2
1959	8	2	1	3.7	1	5.6	4	14.3
1959	8	3	1	3.9	2	5.9	2	10.4
1959	8	4	1	4.4	1	7.9	28	17.4
1959	8	5	1	4.9	2	4.3	29	15.3
1959	8	6	1	5.1	1	2.1	3	9.9
1959	8	7	1	5.0	1	4.1	23	19.3
1959	8	8	1	4.2	1	8.1	13	32.3
1959	8	9	1	4.3	1	6.8	12	20.7
1959	8	10	1	2.3	1	2.0	21	16.0
1959	8	11	1	2.4	1	5.2	12	21.5
1959	8	12	1	3.0	1	4.7	8	18.6
1959	8	13	1	6.3	2	1.8	12	11.7
1959	8	14	1	6.8	1	5.8	2	16.4
1959	8	15	1	6.6	1	6.1	4	7.0
1959	8	16	1	4.3	1	4.5	20	21.4
1959	8	17	1	6.3	1	3.3	14	24.3
1959	8	18	4	6.5	2	3.4	1	15.2
1959	8	19	4	5.0	2	3.8	14	19.3
1959	8	20	4	2.7	2	3.6	14	21.1
1959	8	21	4	5.9	2	1.8	17	22.2
1959	8	22	4	8.4	2	3.2	20	21.4
1959	8	23	1	8.7	2	3.4	2	6.1
1959	8	24	4	8.2	2	5.8	4	16.4
1959	8	25	4	7.5	2	3.3	2	14.5
1959	8	26	4	11.6	2	4.6	4	4.8
1959	8	27	1	7.4	2	2.4	14	20.1
1959	8	28	1	8.1	2	4.0	14	19.5
1959	8	29	1	5.1	2	4.9	9	14.6
1959	8	30	1	3.1	1	4.6	16	9.7
1959	8	31	1	3.6	2	6.6	1	20.3
1959	9	1	1	6.5	2	7.1	9	8.0
1959	9	2	1	5.0	1	11.5	6	18.4
1959	9	3	1	5.1	1	10.2	0	.
1959	9	4	1	6.8	5	7.2	4	12.9
1959	9	5	1	6.7	2	1.7	4	16.7
1959	9	6	1	4.5	2	3.0	2	12.3
1959	9	7	1	3.3	1	6.0	2	13.0
1959	9	8	1	6.0	2	4.3	1	11.4
1959	9	9	1	5.3	1	10.6	2	20.8
1959	9	10	1	6.1	1	3.6	18	20.5
1959	9	11	1	9.7	1	5.4	21	15.1
1959	9	12	3	8.6	1	9.2	5	14.8
1959	9	13	3	9.6	1	8.6	1	14.3
1959	9	14	3	15.0	1	11.7	17	22.2
1959	9	15	12	14.8	3	12.4	5	9.2
1959	9	16	12	13.0	0	.	5	6.3
1959	9	17	3	11.2	0	.	5	12.9
1959	9	18	3	7.7	13	9.7	1	19.3
1959	9	19	1	7.1	2	3.1	1	13.2
1959	9	20	1	5.2	2	2.2	12	21.3
1959	9	21	1	6.1	2	5.1	3	28.9
1959	9	22	4	7.5	2	6.3	9	12.0
1959	9	23	1	6.9	1	7.0	8	17.9
1959	9	24	1	6.5	12	6.8	13	15.1
1959	9	25	11	7.4	8	8.4	1	13.9
1959	9	26	11	6.8	8	9.4	20	11.0
1959	9	27	2	7.2	9	8.6	2	4.3
1959	9	28	2	4.5	7	8.8	2	12.1
1959	9	29	2	5.9	1	6.8	6	17.5
1959	9	30	2	7.8	2	8.5	5	11.5
1959	10	1	18	13.0	6	4.7	23	25.0
1959	10	2	7	11.1	6	3.9	13	16.8
1959	10	3	7	11.0	7	8.8	2	8.2
1959	10	4	1	6.4	6	7.6	2	19.3
1959	10	5	1	3.5	1	7.7	16	27.1
1959	10	6	1	2.9	2	7.2	0	.
1959	10	7	1	4.2	2	2.2	5	14.4
1959	10	8	1	6.0	16	12.6	3	20.9
1959	10	9	1	7.9	9	7.5	18	23.5
1959	10	10	1	7.9	9	8.7	3	17.5
1959	10	11	1	5.9	1	9.3	26	17.5
1959	10	12	1	6.0	1	1.2	5	14.6
1959	10	13	1	7.2	1	4.4	23	15.0
1959	10	14	1	7.6	3	6.0	28	21.2
1959	10	15	1	6.6	1	1.7	20	22.3
1959	10	16	1	7.6	1	2.4	6	20.6
1959	10	17	1	6.0	1	6.7	2	21.2
1959	10	18	1	3.7	1	4.3	10	14.5
1959	10	19	1	3.0	1	1.9	3	24.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1959	10	20	1	3.4	1	2.7	5	9.8
1959	10	21	1	3.5	2	3.6	1	1.8
1959	10	22	1	4.1	1	5.4	10	13.7
1959	10	23	1	7.7	1	8.2	6	18.3
1959	10	24	5	6.6	3	3.8	6	9.7
1959	10	25	1	7.3	5	9.5	17	19.7
1959	10	26	5	6.2	3	7.3	3	11.3
1959	10	27	1	5.2	1	5.8	18	17.3
1959	10	28	1	7.4	1	4.9	1	15.2
1959	10	29	11	8.3	2	4.6	5	7.9
1959	10	30	7	8.2	6	3.9	27	28.6
1959	10	31	7	10.8	1	3.5	99	.
1959	11	1	1	11.9	1	4.5	2	12.0
1959	11	2	1	7.3	1	4.0	10	10.3
1959	11	3	1	6.1	1	2.5	3	21.1
1959	11	4	2	4.6	2	7.8	3	17.4
1959	11	5	2	7.5	7	6.8	6	17.8
1959	11	6	2	9.5	3	2.5	10	11.6
1959	11	7	2	6.9	1	2.4	2	6.1
1959	11	8	2	7.8	3	8.4	25	19.7
1959	11	9	2	9.4	1	6.2	10	14.4
1959	11	10	2	6.5	1	1.7	29	20.4
1959	11	11	2	6.5	1	5.0	6	26.9
1959	11	12	2	4.5	1	4.1	5	19.1
1959	11	13	2	4.9	1	8.3	19	17.8
1959	11	14	2	7.2	1	2.0	18	14.0
1959	11	15	1	10.5	2	3.2	12	22.7
1959	11	16	1	9.1	1	8.0	19	19.2
1959	11	17	5	7.9	3	3.8	2	18.2
1959	11	18	1	2.5	1	0.8	2	6.4
1959	11	19	1	2.5	1	2.7	1	19.3
1959	11	20	1	5.6	1	3.8	28	11.9
1959	11	21	12	7.0	1	3.3	10	18.0
1959	11	22	1	9.3	1	4.9	9	25.3
1959	11	23	1	9.6	1	6.2	15	19.5
1959	11	24	5	7.6	3	4.2	6	19.0
1959	11	25	2	7.3	3	10.3	9	19.8
1959	11	26	5	6.9	7	6.8	22	17.5
1959	11	27	5	2.9	19	10.7	3	19.7
1959	11	28	5	5.3	3	3.3	10	13.2
1959	11	29	1	7.6	3	9.1	2	4.6
1959	11	30	1	7.1	1	8.7	2	6.8
1959	12	1	5	8.1	3	6.2	2	13.1
1959	12	2	1	4.3	3	9.4	2	7.8
1959	12	3	1	2.2	1	5.6	2	2.8
1959	12	4	2	7.6	1	3.6	6	17.2
1959	12	5	5	10.3	3	10.1	6	20.8
1959	12	6	5	9.6	3	3.1	10	24.6
1959	12	7	1	5.4	1	4.2	2	3.3
1959	12	8	1	5.8	1	3.2	2	6.3
1959	12	9	1	4.6	1	3.0	2	23.3
1959	12	10	1	5.9	1	1.7	1	19.2
1959	12	11	3	6.4	1	1.9	17	27.8
1959	12	12	1	4.5	1	6.9	10	23.1
1959	12	13	1	9.2	2	4.1	4	18.1
1959	12	14	7	10.6	1	8.3	13	32.8
1959	12	15	1	5.1	1	1.8	2	4.8
1959	12	16	1	3.3	1	1.9	2	5.7
1959	12	17	1	5.0	1	0.5	8	21.9
1959	12	18	1	6.4	1	1.8	11	11.0
1959	12	19	3	7.9	1	4.2	1	15.4
1959	12	20	1	8.8	3	1.7	1	14.9
1959	12	21	1	9.3	0	.	1	9.4
1959	12	22	3	9.1	7	7.3	1	17.5
1959	12	23	3	10.3	0	.	1	16.2
1959	12	24	3	6.0	5	9.1	1	18.1
1959	12	25	10	9.9	2	7.0	1	9.3
1959	12	26	0	.	8	11.0	9	7.3
1959	12	27	1	16.7	14	15.4	3	13.8
1959	12	28	5	14.8	11	8.7	3	26.5
1959	12	29	1	14.7	11	13.8	3	27.7
1959	12	30	11	10.9	17	5.9	18	14.2
1959	12	31	4	9.3	2	7.7	1	19.8
1960	1	1	4	11.4	6	11.4	27	17.4
1960	1	2	2	4.8	7	8.7	3	19.6
1960	1	3	2	3.8	1	2.6	6	15.4
1960	1	4	2	6.6	1	5.1	2	8.4
1960	1	5	2	7.9	1	7.7	4	15.2
1960	1	6	1	7.7	1	3.8	10	16.5
1960	1	7	1	4.2	1	1.5	15	16.9
1960	1	8	1	6.4	1	1.6	18	15.4
1960	1	9	1	7.7	1	3.3	1	11.9
1960	1	10	1	4.3	1	1.2	13	19.3
1960	1	11	1	6.8	2	1.7	4	16.7
1960	1	12	4	4.5	2	2.3	27	34.8
1960	1	13	1	9.6	2	3.3	3	21.4
1960	1	14	1	10.2	6	7.0	5	18.8
1960	1	15	6	15.8	5	9.8	7	19.2
1960	1	16	11	14.3	12	8.9	5	24.2
1960	1	17	0	.	6	12.6	3	14.9
1960	1	18	0	.	19	7.1	3	14.8
1960	1	19	0	.	3	8.8	6	8.1
1960	1	20	5	16.0	3	8.1	2	14.6
1960	1	21	0	.	0	.	3	10.8
1960	1	22	9	8.8	17	10.4	26	15.0
1960	1	23	1	8.1	1	6.9	0	.
1960	1	24	1	9.4	1	4.9	4	15.3
1960	1	25	2	8.2	1	2.5	6	24.5
1960	1	26	1	6.1	1	1.3	1	22.6
1960	1	27	1	3.0	1	3.6	10	30.7
1960	1	28	1	3.7	1	4.6	17	21.1
1960	1	29	1	4.3	1	5.0	10	8.3
1960	1	30	1	8.7	1	3.6	10	9.6
1960	1	31	3	7.4	6	6.8	99	.
1960	2	1	3	5.3	4	13.3	1	16.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1960	2	2	3	10.2	4	6.7	1	8.6
1960	2	3	3	14.2	8	11.3	1	12.6
1960	2	4	3	16.3	6	12.8	9	27.7
1960	2	5	1	8.8	1	8.0	6	26.7
1960	2	6	5	4.7	3	3.6	6	15.9
1960	2	7	1	3.6	1	7.7	10	6.1
1960	2	8	1	6.5	1	1.0	15	17.7
1960	2	9	1	8.0	1	2.7	5	9.6
1960	2	10	1	8.8	1	5.9	7	16.6
1960	2	11	5	6.5	3	7.9	16	18.9
1960	2	12	1	8.9	3	4.6	18	15.5
1960	2	13	1	6.6	3	11.4	1	13.7
1960	2	14	5	10.4	1	7.6	12	28.3
1960	2	15	1	7.0	1	3.3	10	10.9
1960	2	16	5	7.0	7	6.9	3	20.3
1960	2	17	5	7.2	3	5.6	3	16.0
1960	2	18	2	3.9	3	10.0	26	13.5
1960	2	19	2	8.0	1	8.3	5	17.9
1960	2	20	11	7.8	1	10.5	5	8.8
1960	2	21	2	7.4	3	10.6	7	12.6
1960	2	22	2	9.3	7	9.9	5	8.7
1960	2	23	18	7.2	0	.	5	10.9
1960	2	24	2	12.6	7	17.0	7	20.0
1960	2	25	2	10.0	0	.	5	12.1
1960	2	26	2	7.2	9	15.0	19	16.2
1960	2	27	2	4.9	9	9.1	5	10.9
1960	2	28	2	2.0	7	12.1	19	15.9
1960	2	29	2	5.0	1	7.5	0	.
1960	3	1	2	10.0	1	3.9	5	12.1
1960	3	2	2	8.6	2	3.9	5	9.5
1960	3	3	2	9.0	1	11.4	19	21.6
1960	3	4	1	8.8	3	6.5	11	6.3
1960	3	5	1	4.5	1	5.1	11	17.5
1960	3	6	1	4.6	1	4.6	5	20.0
1960	3	7	1	5.6	1	6.9	1	21.4
1960	3	8	1	5.1	1	7.2	1	8.6
1960	3	9	1	6.6	5	9.2	1	9.3
1960	3	10	1	5.9	9	8.6	1	18.7
1960	3	11	1	4.5	1	11.9	0	.
1960	3	12	1	4.6	1	6.4	5	8.4
1960	3	13	1	4.2	3	7.4	11	18.3
1960	3	14	11	7.6	5	7.7	1	9.8
1960	3	15	11	5.0	2	8.8	4	22.1
1960	3	16	11	9.1	0	.	3	29.7
1960	3	17	5	10.8	11	6.8	6	16.3
1960	3	18	5	4.7	3	3.3	15	19.9
1960	3	19	5	4.5	3	2.5	17	29.0
1960	3	20	5	6.0	3	1.5	23	20.2
1960	3	21	5	10.1	3	5.6	25	25.1
1960	3	22	1	6.7	3	4.5	7	12.5
1960	3	23	1	9.4	1	3.5	3	27.6
1960	3	24	5	8.3	3	2.9	5	18.3
1960	3	25	1	7.2	1	7.1	4	9.0
1960	3	26	1	2.9	1	4.1	4	15.1
1960	3	27	1	2.9	1	2.0	26	24.6
1960	3	28	1	3.5	12	6.7	1	8.8
1960	3	29	1	4.5	6	9.4	9	16.0
1960	3	30	1	3.6	1	7.6	7	12.0
1960	3	31	1	4.2	2	2.5	1	19.7
1960	4	1	11	8.1	16	11.4	9	17.3
1960	4	2	1	14.3	0	.	3	23.9
1960	4	3	5	6.3	3	9.6	15	16.5
1960	4	4	5	4.5	3	1.5	6	14.8
1960	4	5	5	9.3	3	2.3	10	11.1
1960	4	6	1	7.0	1	4.5	6	17.0
1960	4	7	5	4.8	3	5.0	19	14.3
1960	4	8	5	4.8	3	1.4	26	10.3
1960	4	9	5	10.1	3	1.8	11	25.3
1960	4	10	1	5.2	5	5.7	4	13.0
1960	4	11	1	3.8	1	1.8	2	10.8
1960	4	12	1	4.9	12	5.8	5	22.0
1960	4	13	1	5.6	2	5.3	20	15.9
1960	4	14	1	3.5	1	4.7	4	14.1
1960	4	15	1	3.9	2	2.4	20	15.9
1960	4	16	1	5.1	2	6.9	3	16.7
1960	4	17	1	4.7	1	5.8	7	25.9
1960	4	18	1	3.5	5	6.1	1	18.7
1960	4	19	1	5.0	2	5.9	1	14.8
1960	4	20	3	6.2	2	8.0	20	22.3
1960	4	21	12	5.5	2	6.5	2	16.0
1960	4	22	4	9.7	2	2.6	5	11.0
1960	4	23	0	.	2	6.6	5	7.5
1960	4	24	0	.	4	7.0	5	9.3
1960	4	25	0	.	4	6.4	17	18.7
1960	4	26	0	.	9	5.9	26	22.0
1960	4	27	8	10.7	1	5.6	19	20.3
1960	4	28	8	9.9	1	5.5	5	19.6
1960	4	29	0	.	7	4.1	3	9.5
1960	4	30	5	7.1	7	6.6	6	15.9
1960	5	1	5	7.5	1	3.7	2	20.0
1960	5	2	12	10.4	1	0.8	0	.
1960	5	3	12	6.0	1	3.9	1	11.4
1960	5	4	12	12.5	2	3.6	5	13.4
1960	5	5	1	11.3	6	4.5	3	18.4
1960	5	6	1	9.4	10	7.8	16	16.3
1960	5	7	3	5.4	3	3.8	7	14.2
1960	5	8	3	7.4	5	4.1	17	31.8
1960	5	9	3	11.6	17	10.9	17	20.4
1960	5	10	3	10.9	11	5.6	17	18.8
1960	5	11	15	8.7	17	10.9	23	17.9
1960	5	12	15	6.3	17	3.6	4	10.5
1960	5	13	1	7.0	5	7.4	4	17.7
1960	5	14	1	8.2	2	9.5	2	16.9
1960	5	15	1	10.5	2	6.5	2	24.8
1960	5	16	1	7.9	1	7.8	5	35.3

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1960	5	17	12	8.4	2	4.4	7	27.0
1960	5	18	6	9.8	4	4.4	1	11.6
1960	5	19	6	12.4	8	6.0	20	10.9
1960	5	20	6	9.4	8	10.0	10	26.6
1960	5	21	6	13.9	5	9.5	18	20.9
1960	5	22	0	.	5	14.2	17	16.6
1960	5	23	0	.	4	8.8	5	10.7
1960	5	24	10	11.4	4	6.9	1	13.3
1960	5	25	3	7.6	4	9.3	9	3.0
1960	5	26	3	3.9	13	13.7	6	15.7
1960	5	27	3	5.2	5	6.8	6	13.0
1960	5	28	1	6.7	2	8.7	9	29.1
1960	5	29	3	5.6	1	5.6	6	8.9
1960	5	30	1	8.7	5	8.1	10	18.6
1960	5	31	1	8.0	5	9.4	10	13.5
1960	6	1	1	8.6	1	3.5	2	11.7
1960	6	2	1	8.7	1	4.6	2	4.4
1960	6	3	1	9.5	1	1.2	2	8.1
1960	6	4	12	10.7	1	1.0	29	20.7
1960	6	5	1	7.7	1	2.7	19	11.8
1960	6	6	1	6.8	1	5.5	11	20.2
1960	6	7	1	5.7	5	9.6	1	10.2
1960	6	8	1	7.4	2	4.3	12	11.0
1960	6	9	1	7.1	2	6.7	12	16.7
1960	6	10	1	6.8	2	8.3	5	13.3
1960	6	11	1	6.0	12	7.6	23	11.1
1960	6	12	1	6.5	1	8.2	0	.
1960	6	13	1	6.4	10	5.0	13	13.1
1960	6	14	1	7.7	1	6.5	2	21.6
1960	6	15	12	8.2	1	2.5	26	21.4
1960	6	16	1	8.2	1	7.4	7	27.0
1960	6	17	12	6.9	1	7.2	1	31.8
1960	6	18	12	6.9	1	5.1	22	27.7
1960	6	19	1	9.6	1	6.6	1	22.3
1960	6	20	12	7.8	13	8.7	1	11.3
1960	6	21	12	8.5	13	10.0	20	28.0
1960	6	22	12	8.7	9	7.1	14	30.7
1960	6	23	1	7.3	7	10.6	3	12.6
1960	6	24	1	5.4	3	10.0	13	23.1
1960	6	25	1	7.0	5	7.2	4	16.4
1960	6	26	4	6.2	2	1.3	12	17.0
1960	6	27	1	6.8	2	4.3	2	10.0
1960	6	28	1	6.7	1	3.4	2	8.6
1960	6	29	1	6.2	1	0.8	19	14.7
1960	6	30	1	3.5	1	1.5	5	22.8
1960	7	1	1	4.9	1	1.6	4	14.6
1960	7	2	1	8.1	1	2.0	3	19.5
1960	7	3	1	9.6	1	5.3	19	19.3
1960	7	4	5	9.6	1	7.3	19	18.8
1960	7	5	1	10.3	3	8.3	5	16.7
1960	7	6	1	8.0	3	5.5	13	13.2
1960	7	7	1	6.8	1	11.4	4	12.9
1960	7	8	1	5.7	1	8.4	4	12.8
1960	7	9	99	.	99	.	4	15.1
1960	7	10	1	5.9	1	8.7	4	19.0
1960	7	11	3	7.5	1	5.0	21	27.7
1960	7	12	3	9.9	1	3.9	3	9.5
1960	7	13	3	10.3	3	4.9	7	26.3
1960	7	14	3	11.0	1	9.8	4	11.3
1960	7	15	3	8.6	1	6.6	21	20.4
1960	7	16	3	10.4	1	5.1	1	18.1
1960	7	17	3	13.0	3	6.9	22	16.3
1960	7	18	1	13.4	3	4.5	6	23.8
1960	7	19	99	.	99	.	18	16.3
1960	7	20	1	5.9	1	4.4	1	20.9
1960	7	21	1	5.3	1	7.5	21	16.9
1960	7	22	1	5.3	1	5.2	11	18.5
1960	7	23	1	6.0	5	9.8	1	13.9
1960	7	24	1	7.2	2	5.3	12	18.1
1960	7	25	1	6.1	1	6.2	2	11.2
1960	7	26	17	6.8	1	2.5	8	19.0
1960	7	27	17	7.5	1	3.7	13	11.7
1960	7	28	17	10.3	1	4.3	8	16.4
1960	7	29	1	11.4	1	3.6	8	24.6
1960	7	30	1	10.3	3	6.9	6	27.1
1960	7	31	1	5.6	1	5.5	4	5.5
1960	8	1	1	4.4	1	4.5	21	25.6
1960	8	2	1	4.6	1	5.1	25	26.8
1960	8	3	1	4.2	1	1.6	7	24.6
1960	8	4	1	4.5	1	5.1	5	19.4
1960	8	5	1	8.3	1	6.9	1	14.8
1960	8	6	1	12.2	1	5.8	12	12.8
1960	8	7	2	7.3	1	3.6	3	19.1
1960	8	8	2	9.2	1	6.8	3	14.3
1960	8	9	5	11.4	3	6.5	19	22.5
1960	8	10	1	13.7	3	2.2	11	24.2
1960	8	11	1	10.9	3	8.3	2	13.8
1960	8	12	1	9.1	1	5.9	2	13.1
1960	8	13	2	9.9	1	4.3	25	24.5
1960	8	14	1	7.6	1	7.6	11	22.3
1960	8	15	4	7.8	2	9.2	1	8.2
1960	8	16	1	10.4	2	4.4	12	11.4
1960	8	17	1	9.4	8	5.4	2	18.3
1960	8	18	1	4.0	10	5.5	2	10.4
1960	8	19	1	4.4	10	7.9	10	15.1
1960	8	20	1	5.5	5	13.8	20	16.3
1960	8	21	99	.	99	.	11	26.4
1960	8	22	4	11.5	5	10.6	1	16.3
1960	8	23	6	4.9	4	6.3	1	15.2
1960	8	24	6	7.8	2	4.1	13	18.9
1960	8	25	4	6.3	2	4.8	12	15.0
1960	8	26	4	7.8	2	5.5	2	22.8
1960	8	27	4	4.8	2	0.6	12	6.8
1960	8	28	1	4.5	2	4.9	22	11.5
1960	8	29	1	4.8	2	6.4	4	8.3

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1960	8	30	1	5.4	2	5.1	2	13.6
1960	8	31	1	6.8	1	6.6	21	16.8
1960	9	1	6	13.8	2	4.1	1	10.0
1960	9	2	99	.	99	.	1	7.6
1960	9	3	16	10.9	2	7.6	29	24.1
1960	9	4	3	6.5	2	9.0	1	16.0
1960	9	5	1	8.5	2	4.0	10	22.5
1960	9	6	1	7.3	2	3.0	2	17.4
1960	9	7	4	6.8	2	3.4	8	13.7
1960	9	8	1	8.1	2	7.6	3	11.2
1960	9	9	1	7.6	1	5.1	6	19.5
1960	9	10	99	.	99	.	2	10.3
1960	9	11	17	10.4	1	7.3	3	18.3
1960	9	12	5	11.4	3	2.9	2	17.4
1960	9	13	99	.	99	.	13	20.9
1960	9	14	1	7.2	1	5.8	14	19.6
1960	9	15	0	.	0	.	1	8.6
1960	9	16	99	.	99	.	12	23.1
1960	9	17	1	5.0	1	2.2	19	19.5
1960	9	18	99	.	99	.	10	21.9
1960	9	19	99	.	99	.	4	15.7
1960	9	20	1	4.6	2	7.0	1	18.9
1960	9	21	99	.	99	.	29	18.3
1960	9	22	0	.	0	.	16	20.0
1960	9	23	1	4.8	2	4.4	1	19.6
1960	9	24	1	5.8	6	16.8	2	18.0
1960	9	25	1	2.6	1	0.6	2	11.3
1960	9	26	1	3.6	1	2.3	8	8.3
1960	9	27	1	6.1	1	2.6	19	19.4
1960	9	28	2	8.0	1	1.8	3	31.7
1960	9	29	2	7.1	1	7.1	29	20.4
1960	9	30	99	.	99	.	4	21.9
1960	10	1	99	.	99	.	12	12.6
1960	10	2	99	.	99	.	19	7.7
1960	10	3	1	2.4	1	0.8	4	17.1
1960	10	4	1	9.8	1	4.3	4	11.4
1960	10	5	1	7.7	1	4.2	2	6.7
1960	10	6	3	5.9	1	7.1	13	21.9
1960	10	7	3	4.5	2	6.5	4	12.9
1960	10	8	6	7.9	2	6.8	1	17.8
1960	10	9	4	14.0	4	4.0	27	18.6
1960	10	10	7	12.5	6	8.6	8	15.6
1960	10	11	1	11.1	12	8.8	11	29.5
1960	10	12	6	7.6	4	6.2	28	19.1
1960	10	13	6	8.3	2	2.6	2	16.6
1960	10	14	1	9.8	2	9.2	22	15.7
1960	10	15	7	5.5	7	5.8	13	20.4
1960	10	16	7	12.2	1	8.6	2	4.9
1960	10	17	0	.	1	4.4	19	16.0
1960	10	18	5	12.4	1	5.9	3	18.1
1960	10	19	5	4.6	3	5.0	19	18.1
1960	10	20	5	5.9	1	6.5	4	10.0
1960	10	21	1	4.3	1	3.6	4	10.3
1960	10	22	1	4.2	1	1.1	15	16.8
1960	10	23	1	5.9	1	6.7	26	16.3
1960	10	24	1	7.0	5	3.6	4	18.5
1960	10	25	1	6.7	1	4.1	22	16.2
1960	10	26	1	5.0	5	6.6	10	11.4
1960	10	27	1	4.6	2	4.8	2	17.5
1960	10	28	1	5.9	2	4.6	4	22.2
1960	10	29	1	10.2	2	7.1	9	10.1
1960	10	30	1	10.9	14	13.5	3	15.0
1960	10	31	1	10.4	3	14.3	6	19.3
1960	11	1	5	9.4	3	8.7	15	15.5
1960	11	2	1	9.6	3	8.8	6	7.9
1960	11	3	2	7.3	1	3.3	8	15.5
1960	11	4	2	16.1	1	5.9	3	16.3
1960	11	5	1	17.3	3	5.8	2	9.1
1960	11	6	1	15.3	3	1.3	6	20.6
1960	11	7	2	9.4	2	7.9	4	13.6
1960	11	8	2	5.0	1	5.6	3	10.5
1960	11	9	2	6.6	7	4.2	6	15.5
1960	11	10	1	4.4	1	1.7	4	8.1
1960	11	11	1	2.4	1	0.2	18	19.6
1960	11	12	1	5.9	1	4.7	1	9.9
1960	11	13	1	5.8	12	6.3	1	23.6
1960	11	14	4	6.3	2	2.5	1	20.0
1960	11	15	1	7.0	2	3.8	20	20.4
1960	11	16	1	7.5	1	8.0	6	14.0
1960	11	17	1	4.5	1	4.1	2	8.0
1960	11	18	1	2.8	5	4.9	10	8.9
1960	11	19	1	3.0	1	5.7	2	4.4
1960	11	20	1	2.5	1	3.4	10	5.0
1960	11	21	1	1.9	2	3.9	4	18.7
1960	11	22	1	4.4	1	3.2	2	16.9
1960	11	23	1	2.3	1	1.3	4	6.1
1960	11	24	1	5.4	1	2.0	18	25.1
1960	11	25	1	6.2	1	6.5	18	23.5
1960	11	26	1	8.4	2	4.5	3	24.4
1960	11	27	1	12.2	2	2.4	5	4.9
1960	11	28	1	12.4	14	13.8	3	15.9
1960	11	29	15	10.4	3	2.8	26	15.4
1960	11	30	15	4.9	3	4.3	7	15.3
1960	12	1	15	6.6	1	8.3	4	6.4
1960	12	2	1	8.5	2	7.4	4	9.4
1960	12	3	1	8.3	2	2.1	4	21.2
1960	12	4	4	7.7	2	7.1	1	19.7
1960	12	5	11	7.5	8	7.2	3	12.1
1960	12	6	7	9.7	7	8.3	6	16.6
1960	12	7	0	.	7	9.5	6	29.0
1960	12	8	0	.	3	3.9	13	10.8
1960	12	9	0	.	1	9.7	2	13.6
1960	12	10	0	.	0	.	5	14.0
1960	12	11	3	15.8	3	6.4	16	18.1
1960	12	12	1	13.9	3	12.0	10	21.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1960	12	13	1	5.9	1	7.2	2	6.7
1960	12	14	2	10.2	1	3.9	2	6.4
1960	12	15	2	9.0	7	6.0	6	9.4
1960	12	16	5	6.8	3	5.2	2	12.4
1960	12	17	5	5.4	1	6.4	2	10.3
1960	12	18	5	6.4	1	4.1	0	.
1960	12	19	1	5.1	1	2.6	21	20.6
1960	12	20	5	2.6	3	9.5	19	23.8
1960	12	21	5	3.7	3	2.7	8	19.2
1960	12	22	5	4.9	3	3.3	6	9.7
1960	12	23	5	2.7	3	3.6	2	13.6
1960	12	24	1	6.2	3	7.7	2	8.5
1960	12	25	1	7.2	1	1.8	15	30.4
1960	12	26	2	7.8	1	3.7	16	22.3
1960	12	27	2	6.0	7	7.5	8	22.8
1960	12	28	2	13.8	7	6.9	2	13.0
1960	12	29	5	12.5	7	8.8	2	6.1
1960	12	30	1	7.9	1	1.0	15	14.8
1960	12	31	2	5.1	1	0.8	17	17.5
1961	1	1	2	4.9	1	2.6	16	23.1
1961	1	2	5	6.6	1	6.6	0	.
1961	1	3	5	7.4	3	2.2	10	20.4
1961	1	4	1	3.5	1	3.4	2	8.4
1961	1	5	1	2.9	1	3.1	10	13.7
1961	1	6	1	3.6	1	1.5	2	14.6
1961	1	7	1	7.6	3	6.6	26	12.9
1961	1	8	1	4.2	5	5.2	18	17.7
1961	1	9	1	3.1	1	2.2	4	10.7
1961	1	10	1	4.0	1	3.9	2	20.4
1961	1	11	1	5.5	1	4.5	10	11.4
1961	1	12	1	5.4	1	4.3	10	15.1
1961	1	13	1	4.4	1	4.5	25	23.9
1961	1	14	1	7.3	10	10.1	10	20.7
1961	1	15	1	6.3	10	3.9	10	19.0
1961	1	16	1	3.3	1	5.9	2	9.6
1961	1	17	1	3.5	1	1.5	6	17.8
1961	1	18	5	7.1	1	4.6	3	11.6
1961	1	19	5	6.5	3	3.8	6	12.9
1961	1	20	5	10.2	3	5.5	3	12.0
1961	1	21	5	12.1	3	2.3	15	13.9
1961	1	22	5	10.7	3	3.3	0	.
1961	1	23	5	9.6	3	3.2	15	13.5
1961	1	24	5	8.3	3	2.5	5	11.9
1961	1	25	5	14.3	1	3.7	5	22.4
1961	1	26	2	13.3	7	12.8	19	13.4
1961	1	27	2	6.9	3	4.4	2	17.3
1961	1	28	2	5.4	1	4.7	6	18.1
1961	1	29	5	8.5	1	1.8	8	21.8
1961	1	30	1	7.0	1	0.9	4	21.1
1961	1	31	1	5.7	1	1.0	14	33.0
1961	2	1	1	6.1	1	2.4	7	20.4
1961	2	2	1	6.6	3	9.2	1	13.7
1961	2	3	1	6.5	1	11.9	1	23.7
1961	2	4	7	9.8	6	10.9	12	24.4
1961	2	5	7	12.0	0	.	4	25.3
1961	2	6	3	12.4	19	5.2	4	11.7
1961	2	7	16	11.5	0	.	4	8.8
1961	2	8	3	7.2	10	8.4	2	13.9
1961	2	9	3	8.7	1	9.3	15	20.8
1961	2	10	3	8.0	1	7.9	10	17.8
1961	2	11	3	6.2	1	3.3	14	32.3
1961	2	12	1	5.3	2	7.1	1	7.4
1961	2	13	1	2.8	1	6.5	6	9.3
1961	2	14	1	2.4	1	3.7	17	23.2
1961	2	15	1	2.7	1	1.4	18	26.3
1961	2	16	1	5.2	2	2.9	14	21.8
1961	2	17	1	7.6	1	6.7	5	8.5
1961	2	18	11	7.9	6	7.3	16	15.3
1961	2	19	1	8.9	1	2.6	18	11.7
1961	2	20	1	5.0	1	2.7	4	17.8
1961	2	21	1	3.7	1	3.8	10	15.9
1961	2	22	1	4.3	2	6.6	14	15.8
1961	2	23	1	9.1	0	.	3	17.3
1961	2	24	1	4.7	10	6.8	10	31.7
1961	2	25	1	4.1	1	7.6	10	13.1
1961	2	26	1	8.2	1	4.8	6	13.8
1961	2	27	1	7.9	1	2.6	10	18.3
1961	2	28	1	9.3	1	5.5	20	13.4
1961	3	1	1	5.4	1	7.0	10	4.8
1961	3	2	1	6.6	1	4.8	15	25.2
1961	3	3	2	9.4	2	7.9	5	7.7
1961	3	4	4	7.5	2	4.6	1	23.5
1961	3	5	1	5.9	2	4.3	1	14.3
1961	3	6	1	4.5	2	5.3	7	20.6
1961	3	7	1	5.1	2	6.9	1	16.4
1961	3	8	3	9.0	3	8.0	6	23.7
1961	3	9	3	5.7	5	11.1	18	10.1
1961	3	10	1	2.6	2	6.3	12	19.8
1961	3	11	1	3.0	1	2.8	26	22.5
1961	3	12	1	3.1	1	6.4	1	14.9
1961	3	13	1	3.1	10	11.9	28	27.2
1961	3	14	1	8.4	1	2.0	2	21.3
1961	3	15	8	8.3	1	7.3	5	16.4
1961	3	16	3	12.1	0	.	1	13.7
1961	3	17	1	8.3	2	3.9	12	13.1
1961	3	18	99	.	99	.	5	9.2
1961	3	19	3	10.1	0	.	23	21.2
1961	3	20	3	9.1	16	7.4	4	18.9
1961	3	21	1	10.5	0	.	9	30.2
1961	3	22	99	.	99	.	3	23.5
1961	3	23	1	6.5	3	6.0	7	20.9
1961	3	24	1	9.2	5	9.7	1	14.0
1961	3	25	10	7.3	2	5.2	1	10.3
1961	3	26	1	9.9	2	6.2	29	21.9
1961	3	27	11	8.1	2	15.9	3	12.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1961	3	28	11	12.5	7	6.7	3	17.0
1961	3	29	2	16.2	3	9.6	23	19.8
1961	3	30	1	10.1	1	3.9	29	22.1
1961	3	31	5	5.6	1	8.1	26	16.8
1961	4	1	5	5.9	3	2.4	7	18.7
1961	4	2	5	6.3	3	7.3	20	21.0
1961	4	3	1	9.5	3	5.9	6	12.3
1961	4	4	2	8.9	1	9.1	9	16.0
1961	4	5	2	6.2	1	14.4	3	21.1
1961	4	6	2	3.8	3	7.4	19	13.5
1961	4	7	2	7.0	1	6.8	0	.
1961	4	8	11	7.3	7	8.1	1	19.0
1961	4	9	2	7.5	1	9.4	1	22.3
1961	4	10	2	9.8	1	9.2	27	28.3
1961	4	11	11	9.0	7	10.3	5	19.2
1961	4	12	1	10.9	1	6.7	18	16.3
1961	4	13	11	9.4	2	9.0	1	12.3
1961	4	14	11	8.0	0	.	3	15.6
1961	4	15	5	9.5	11	16.8	6	15.3
1961	4	16	5	7.6	11	4.1	26	16.0
1961	4	17	9	12.1	17	4.6	7	16.2
1961	4	18	6	10.2	5	2.0	1	15.8
1961	4	19	6	9.0	13	8.4	1	6.3
1961	4	20	6	5.2	4	5.6	12	9.0
1961	4	21	6	11.2	2	6.5	2	13.0
1961	4	22	17	11.6	1	3.1	8	15.5
1961	4	23	4	7.7	12	9.2	1	22.2
1961	4	24	2	7.7	7	9.1	16	17.7
1961	4	25	0	.	7	7.9	6	23.9
1961	4	26	5	13.3	1	7.6	29	20.3
1961	4	27	5	14.2	1	12.4	3	21.3
1961	4	28	5	12.2	3	5.5	19	10.0
1961	4	29	99	.	99	.	29	29.4
1961	4	30	5	11.9	3	7.5	5	7.4
1961	5	1	9	6.9	3	2.9	5	15.8
1961	5	2	9	5.2	3	10.4	5	21.2
1961	5	3	9	8.2	5	8.4	5	11.4
1961	5	4	4	11.9	4	11.4	1	15.4
1961	5	5	4	6.9	4	5.0	1	4.0
1961	5	6	4	5.9	13	10.3	1	17.6
1961	5	7	1	7.4	2	10.8	12	19.1
1961	5	8	1	6.9	1	5.5	6	14.6
1961	5	9	1	9.0	1	3.5	11	19.7
1961	5	10	1	7.7	1	2.6	1	11.4
1961	5	11	4	4.2	2	0.3	12	17.1
1961	5	12	4	6.6	2	3.9	27	16.9
1961	5	13	7	8.3	6	3.4	5	15.9
1961	5	14	1	9.5	15	9.6	9	15.8
1961	5	15	5	10.6	1	8.5	3	16.8
1961	5	16	2	8.1	1	4.2	5	9.1
1961	5	17	1	11.1	1	6.4	5	13.1
1961	5	18	1	12.3	1	7.5	13	19.0
1961	5	19	16	13.2	7	8.9	12	29.1
1961	5	20	16	8.9	3	14.8	0	.
1961	5	21	3	3.8	0	.	1	9.7
1961	5	22	3	8.2	0	.	1	9.3
1961	5	23	3	9.5	5	14.4	1	26.1
1961	5	24	0	.	1	7.9	14	21.6
1961	5	25	15	11.3	3	4.6	5	19.8
1961	5	26	15	11.5	3	9.9	11	11.6
1961	5	27	3	9.5	1	12.1	14	25.4
1961	5	28	3	11.9	1	8.8	5	18.3
1961	5	29	3	8.9	5	10.2	1	15.5
1961	5	30	10	7.3	2	8.2	4	17.4
1961	5	31	99	.	99	.	20	20.5
1961	6	1	7	15.7	1	4.3	3	17.5
1961	6	2	1	17.5	3	12.0	19	15.9
1961	6	3	16	14.3	0	.	13	21.3
1961	6	4	3	9.8	12	15.3	4	19.7
1961	6	5	3	8.4	0	.	17	28.1
1961	6	6	3	7.7	0	.	1	17.9
1961	6	7	3	6.8	12	14.8	0	.
1961	6	8	3	8.9	1	10.5	17	14.0
1961	6	9	3	10.0	1	10.8	15	25.7
1961	6	10	3	7.1	1	5.0	9	31.1
1961	6	11	3	7.2	1	5.9	4	23.0
1961	6	12	3	10.8	12	4.0	17	15.8
1961	6	13	3	14.8	1	5.3	17	14.2
1961	6	14	3	11.2	3	10.8	5	17.3
1961	6	15	16	12.4	19	8.4	13	20.8
1961	6	16	1	5.3	10	7.5	4	8.8
1961	6	17	1	5.6	10	4.9	4	12.9
1961	6	18	1	9.6	1	6.2	8	17.1
1961	6	19	5	7.4	1	5.5	19	13.6
1961	6	20	1	8.9	3	5.7	21	22.5
1961	6	21	1	7.7	1	6.9	20	22.1
1961	6	22	99	.	99	.	3	8.6
1961	6	23	3	12.4	3	3.1	19	17.8
1961	6	24	5	8.7	3	1.8	5	24.5
1961	6	25	1	9.9	3	2.4	4	19.7
1961	6	26	1	3.4	1	6.8	4	11.8
1961	6	27	1	2.3	1	7.3	2	11.2
1961	6	28	1	4.8	1	7.2	8	16.3
1961	6	29	3	6.1	2	9.4	5	15.7
1961	6	30	1	8.9	2	8.2	0	.
1961	7	1	1	4.6	1	8.1	2	10.8
1961	7	2	1	4.1	1	0.8	6	17.6
1961	7	3	15	5.8	1	6.1	0	.
1961	7	4	15	5.5	1	4.7	1	20.9
1961	7	5	15	8.9	1	7.8	5	18.1
1961	7	6	3	7.0	5	8.1	5	8.0
1961	7	7	3	6.4	5	8.0	1	18.5
1961	7	8	3	8.2	17	6.3	12	34.4
1961	7	9	1	7.9	17	6.4	8	23.9
1961	7	10	1	9.0	1	5.7	8	21.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1961	7	11	2	7.8	1	14.8	22	16.0
1961	7	12	2	9.0	7	17.3	29	19.0
1961	7	13	99	.	99	.	6	21.5
1961	7	14	1	10.4	3	10.9	6	25.7
1961	7	15	9	10.2	3	7.2	15	28.3
1961	7	16	17	8.2	17	9.4	26	19.3
1961	7	17	1	6.5	5	4.7	17	22.8
1961	7	18	1	7.4	1	6.0	29	16.0
1961	7	19	1	10.3	1	4.8	6	21.3
1961	7	20	5	9.3	7	9.5	3	14.7
1961	7	21	11	11.3	0	.	5	17.5
1961	7	22	1	9.9	0	.	1	27.6
1961	7	23	1	5.5	0	.	0	.
1961	7	24	99	.	99	.	6	26.4
1961	7	25	1	5.8	5	6.9	27	27.7
1961	7	26	1	8.6	1	6.5	12	27.3
1961	7	27	1	10.0	1	5.1	21	22.4
1961	7	28	1	10.3	1	3.0	8	22.6
1961	7	29	1	7.3	1	6.2	5	17.8
1961	7	30	1	8.4	1	5.8	5	11.5
1961	7	31	1	9.6	1	3.0	5	18.9
1961	8	1	1	6.7	1	1.2	12	26.1
1961	8	2	1	10.0	1	3.5	2	19.9
1961	8	3	1	13.2	1	8.1	2	15.8
1961	8	4	1	12.7	3	9.0	6	16.7
1961	8	5	1	12.3	3	2.1	18	25.7
1961	8	6	1	7.3	5	13.4	4	22.3
1961	8	7	1	6.5	1	5.2	2	9.4
1961	8	8	1	4.3	1	1.3	13	16.5
1961	8	9	1	6.6	1	5.7	29	15.6
1961	8	10	1	7.3	1	0.9	3	14.4
1961	8	11	1	9.5	1	1.3	19	21.0
1961	8	12	1	10.0	1	6.3	0	.
1961	8	13	1	9.6	3	6.4	4	20.1
1961	8	14	1	9.2	1	9.7	2	19.2
1961	8	15	1	9.9	1	9.1	0	.
1961	8	16	17	8.4	12	10.4	4	14.4
1961	8	17	17	7.9	2	5.0	12	17.7
1961	8	18	99	.	99	.	8	21.9
1961	8	19	17	8.8	1	4.7	11	19.6
1961	8	20	17	8.6	3	5.5	4	19.1
1961	8	21	17	11.6	3	5.8	12	6.4
1961	8	22	9	10.2	3	2.2	4	24.3
1961	8	23	1	6.7	3	9.1	4	9.9
1961	8	24	1	5.9	1	8.3	4	19.6
1961	8	25	1	9.3	3	6.6	2	18.9
1961	8	26	1	8.7	5	7.2	9	25.7
1961	8	27	1	6.8	2	9.0	20	25.9
1961	8	28	99	.	99	.	2	19.7
1961	8	29	99	.	99	.	4	10.8
1961	8	30	1	6.2	2	7.4	25	17.9
1961	8	31	1	5.3	2	3.3	10	15.3
1961	9	1	6	7.2	2	5.6	10	18.9
1961	9	2	6	7.2	2	5.6	29	20.0
1961	9	3	11	7.1	6	5.9	6	19.1
1961	9	4	1	5.4	6	5.2	2	21.3
1961	9	5	1	5.0	6	13.6	18	15.5
1961	9	6	1	5.7	9	9.3	20	26.2
1961	9	7	4	4.0	2	2.9	21	16.3
1961	9	8	4	5.8	2	2.7	12	21.7
1961	9	9	4	6.0	2	6.0	2	15.8
1961	9	10	4	6.8	2	4.7	3	20.9
1961	9	11	2	9.5	2	6.5	19	11.2
1961	9	12	0	.	2	6.4	5	13.5
1961	9	13	8	16.1	7	10.1	16	21.4
1961	9	14	8	8.8	7	7.3	6	18.5
1961	9	15	8	9.0	3	7.2	11	21.3
1961	9	16	17	7.9	1	4.8	4	8.2
1961	9	17	4	7.9	2	8.0	4	11.7
1961	9	18	4	8.6	2	4.9	4	10.5
1961	9	19	11	9.9	6	7.0	29	25.1
1961	9	20	11	8.1	2	8.0	4	12.8
1961	9	21	2	8.7	2	8.1	29	14.1
1961	9	22	4	8.3	2	4.1	22	20.7
1961	9	23	99	.	99	.	21	24.7
1961	9	24	2	8.8	7	7.3	13	13.9
1961	9	25	1	7.1	1	4.0	10	9.5
1961	9	26	1	9.5	2	5.9	2	15.1
1961	9	27	1	4.9	1	4.0	6	15.2
1961	9	28	1	6.1	1	2.3	4	19.7
1961	9	29	4	9.0	2	2.1	12	18.4
1961	9	30	2	8.6	1	8.4	6	10.7
1961	10	1	2	7.3	7	3.6	22	30.4
1961	10	2	1	9.0	3	7.1	2	11.6
1961	10	3	1	9.0	3	3.3	2	15.6
1961	10	4	1	6.8	1	7.9	2	4.6
1961	10	5	1	3.0	1	3.1	2	4.3
1961	10	6	1	7.0	2	2.7	4	16.6
1961	10	7	4	5.8	2	1.7	3	23.2
1961	10	8	4	7.2	2	3.0	5	12.4
1961	10	9	1	10.0	6	8.2	0	.
1961	10	10	1	8.2	4	8.3	4	16.6
1961	10	11	1	4.0	2	8.2	15	12.3
1961	10	12	1	3.1	2	2.6	5	17.5
1961	10	13	1	6.8	1	6.4	17	24.0
1961	10	14	1	13.5	3	3.4	13	12.3
1961	10	15	16	9.9	3	5.8	10	14.0
1961	10	16	1	4.6	1	5.4	2	5.5
1961	10	17	1	8.9	2	6.5	29	22.3
1961	10	18	1	9.7	1	3.4	16	27.8
1961	10	19	1	8.6	3	5.6	18	16.3
1961	10	20	17	7.8	2	9.6	1	27.0
1961	10	21	17	7.7	2	7.6	5	16.4
1961	10	22	4	8.6	4	6.9	12	14.6
1961	10	23	1	5.6	1	8.3	2	6.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1961	10	24	1	3.2	2	5.9	2	13.9
1961	10	25	1	3.8	1	5.6	6	3.5
1961	10	26	3	6.9	5	4.1	18	13.3
1961	10	27	6	3.2	2	5.5	1	9.6
1961	10	28	11	8.3	2	6.8	9	29.4
1961	10	29	11	15.6	6	6.7	3	12.9
1961	10	30	0	.	1	9.6	2	9.5
1961	10	31	0	.	1	6.1	2	12.9
1961	11	1	11	13.0	1	7.4	10	13.6
1961	11	2	11	5.9	8	5.4	3	13.8
1961	11	3	12	10.9	9	13.4	2	10.8
1961	11	4	2	8.6	7	5.3	2	11.7
1961	11	5	7	9.1	7	5.1	6	11.6
1961	11	6	1	8.6	1	10.7	4	12.8
1961	11	7	1	9.8	1	4.6	6	12.8
1961	11	8	1	9.3	3	6.0	13	14.9
1961	11	9	1	6.3	1	9.0	28	27.7
1961	11	10	3	5.9	10	11.7	4	13.3
1961	11	11	1	4.2	2	3.8	2	7.1
1961	11	12	11	8.2	2	10.5	3	9.6
1961	11	13	7	6.0	7	5.8	13	12.4
1961	11	14	1	10.0	1	7.3	2	8.1
1961	11	15	2	7.5	2	7.1	8	18.3
1961	11	16	7	15.4	7	5.9	16	24.0
1961	11	17	1	9.6	3	8.2	0	.
1961	11	18	1	8.2	0	.	4	8.8
1961	11	19	1	9.4	13	8.6	4	11.5
1961	11	20	99	.	99	.	4	14.3
1961	11	21	99	.	99	.	1	10.9
1961	11	22	99	.	99	.	10	12.3
1961	11	23	99	.	99	.	15	27.5
1961	11	24	99	.	99	.	4	19.5
1961	11	25	99	.	99	.	14	17.8
1961	11	26	99	.	99	.	3	18.2
1961	11	27	99	.	99	.	23	18.7
1961	11	28	1	2.8	1	4.7	4	15.9
1961	11	29	1	7.5	1	4.3	5	31.1
1961	11	30	1	7.8	2	2.6	1	7.1
1961	12	1	1	6.7	2	6.3	18	33.1
1961	12	2	1	7.2	1	5.4	5	17.2
1961	12	3	1	6.9	2	1.3	1	8.1
1961	12	4	1	5.7	1	10.3	6	9.3
1961	12	5	1	8.2	1	3.1	10	18.4
1961	12	6	2	6.2	1	5.9	6	11.8
1961	12	7	2	5.8	1	9.6	6	16.2
1961	12	8	2	10.1	1	6.5	21	22.0
1961	12	9	18	10.3	8	5.6	27	19.1
1961	12	10	99	.	99	.	6	16.7
1961	12	11	99	.	99	.	8	28.2
1961	12	12	99	.	99	.	6	14.1
1961	12	13	99	.	99	.	4	7.5
1961	12	14	2	8.5	1	5.0	7	21.6
1961	12	15	4	9.7	2	5.2	4	14.7
1961	12	16	11	8.2	2	5.4	4	17.1
1961	12	17	1	8.6	2	8.3	24	27.6
1961	12	18	11	6.7	2	4.4	5	18.8
1961	12	19	1	5.8	1	15.1	7	21.6
1961	12	20	1	4.2	1	5.4	1	21.2
1961	12	21	1	4.5	5	3.5	1	18.1
1961	12	22	1	9.0	0	.	9	17.5
1961	12	23	1	11.0	3	9.2	7	24.2
1961	12	24	1	8.3	17	5.9	10	15.9
1961	12	25	1	6.7	2	9.5	4	23.1
1961	12	26	1	9.2	1	5.5	6	20.5
1961	12	27	5	7.9	3	7.7	6	15.4
1961	12	28	5	8.1	3	4.8	6	14.0
1961	12	29	5	8.7	3	4.6	15	31.6
1961	12	30	5	8.4	3	3.3	2	14.9
1961	12	31	99	.	99	.	6	16.5
1962	1	1	99	.	99	.	2	6.1
1962	1	2	99	.	99	.	2	4.9
1962	1	3	1	3.9	1	3.1	15	15.0
1962	1	4	5	8.3	1	7.2	9	12.1
1962	1	5	5	8.7	3	12.9	16	16.8
1962	1	6	11	10.5	10	9.8	20	22.7
1962	1	7	5	10.6	3	7.5	6	14.1
1962	1	8	2	11.2	3	8.8	3	11.6
1962	1	9	5	12.8	11	6.7	3	13.3
1962	1	10	5	9.5	19	0.0	13	11.3
1962	1	11	2	10.2	1	6.8	2	4.9
1962	1	12	2	5.5	1	6.1	10	29.5
1962	1	13	2	7.1	2	6.5	9	15.6
1962	1	14	2	6.4	1	5.9	19	26.7
1962	1	15	2	3.4	1	1.8	0	.
1962	1	16	2	6.5	1	2.3	15	21.5
1962	1	17	2	8.6	1	1.2	8	16.0
1962	1	18	2	6.1	1	4.7	19	20.5
1962	1	19	2	6.4	1	12.5	27	29.5
1962	1	20	2	7.5	1	7.1	21	33.3
1962	1	21	2	14.6	1	10.3	8	25.2
1962	1	22	18	14.2	7	3.5	2	8.6
1962	1	23	2	13.4	1	3.4	2	15.0
1962	1	24	1	11.9	1	2.3	2	3.2
1962	1	25	1	7.8	1	0.8	10	18.0
1962	1	26	1	5.2	1	3.7	6	25.2
1962	1	27	1	4.2	1	1.6	24	22.8
1962	1	28	1	7.7	3	7.4	28	15.8
1962	1	29	1	9.7	1	5.8	15	17.7
1962	1	30	5	6.9	3	3.9	0	.
1962	1	31	5	7.9	3	6.6	15	21.3
1962	2	1	5	7.5	3	3.5	28	20.5
1962	2	2	1	5.1	1	5.7	2	6.8
1962	2	3	1	3.8	1	2.1	15	18.5
1962	2	4	1	9.5	1	2.9	3	15.4
1962	2	5	5	5.3	3	7.6	19	14.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1962	2	6	5	5.0	3	2.9	11	14.2
1962	2	7	8	8.2	1	5.4	5	18.6
1962	2	8	8	6.6	1	2.8	1	11.6
1962	2	9	8	8.2	1	4.7	7	15.0
1962	2	10	1	7.5	1	4.4	1	11.8
1962	2	11	1	9.2	1	2.1	14	18.6
1962	2	12	3	10.5	1	6.8	1	10.6
1962	2	13	1	9.1	2	6.8	9	13.7
1962	2	14	1	4.8	1	3.5	11	29.8
1962	2	15	1	7.2	1	5.0	17	21.0
1962	2	16	1	7.9	1	3.7	5	11.5
1962	2	17	1	5.4	1	6.1	5	10.0
1962	2	18	2	9.0	10	11.3	1	23.7
1962	2	19	2	6.8	1	6.6	26	16.3
1962	2	20	2	11.0	1	2.0	5	4.2
1962	2	21	2	8.4	1	4.9	5	16.7
1962	2	22	2	7.3	1	4.1	17	16.1
1962	2	23	2	4.1	1	5.9	5	8.0
1962	2	24	2	6.1	2	6.6	5	14.1
1962	2	25	2	11.0	2	3.4	5	14.8
1962	2	26	18	10.5	2	4.8	19	11.3
1962	2	27	2	11.1	2	7.7	19	12.1
1962	2	28	2	5.7	1	2.8	11	4.9
1962	3	1	2	13.4	1	3.1	1	22.5
1962	3	2	12	13.3	2	3.3	1	10.8
1962	3	3	11	14.5	2	6.8	1	17.1
1962	3	4	0	.	0	.	17	21.1
1962	3	5	15	11.8	17	9.3	7	25.4
1962	3	6	99	.	99	.	1	18.2
1962	3	7	4	11.6	0	.	1	14.2
1962	3	8	11	12.3	10	8.7	12	24.0
1962	3	9	2	11.3	2	11.3	5	21.1
1962	3	10	4	8.9	4	6.9	5	5.8
1962	3	11	11	8.2	18	13.7	9	19.4
1962	3	12	0	.	0	.	3	15.0
1962	3	13	5	9.5	11	17.2	6	14.4
1962	3	14	2	13.5	11	8.0	6	17.1
1962	3	15	1	13.8	11	0.0	10	29.0
1962	3	16	9	10.5	3	6.1	11	16.2
1962	3	17	17	11.0	1	6.9	1	26.2
1962	3	18	1	10.8	1	7.3	4	17.2
1962	3	19	1	6.9	1	2.1	15	24.2
1962	3	20	1	9.4	1	4.5	5	15.4
1962	3	21	1	8.2	2	9.0	1	16.1
1962	3	22	6	8.8	2	6.7	1	16.8
1962	3	23	1	11.7	2	4.4	5	15.9
1962	3	24	1	10.8	16	14.7	1	17.2
1962	3	25	1	7.0	1	8.8	10	16.6
1962	3	26	1	4.3	1	3.5	10	18.4
1962	3	27	1	3.0	1	5.8	1	17.1
1962	3	28	1	11.4	2	9.2	9	15.4
1962	3	29	2	11.3	7	5.2	3	15.2
1962	3	30	5	9.3	7	9.5	6	17.5
1962	3	31	5	8.5	3	12.1	3	13.1
1962	4	1	5	7.9	11	4.5	16	27.3
1962	4	2	5	11.5	3	3.2	11	20.8
1962	4	3	1	9.9	1	3.9	12	17.3
1962	4	4	1	6.1	7	14.5	4	27.5
1962	4	5	1	6.2	10	11.3	20	22.5
1962	4	6	1	6.4	1	5.3	6	26.6
1962	4	7	2	8.0	1	4.1	14	24.7
1962	4	8	2	7.2	1	11.9	3	19.1
1962	4	9	2	6.5	1	10.1	26	15.3
1962	4	10	2	7.5	1	2.0	5	21.1
1962	4	11	5	7.5	1	3.1	16	19.1
1962	4	12	5	4.3	3	8.4	16	22.1
1962	4	13	5	5.2	3	1.9	26	21.3
1962	4	14	5	10.5	3	1.9	5	13.7
1962	4	15	3	4.4	3	7.2	1	21.4
1962	4	16	3	6.4	5	8.7	12	5.9
1962	4	17	3	8.7	1	5.8	8	14.6
1962	4	18	1	8.7	3	4.4	19	17.4
1962	4	19	3	7.9	3	5.8	1	20.2
1962	4	20	1	5.1	5	10.3	12	18.7
1962	4	21	1	5.4	6	7.1	9	14.2
1962	4	22	1	6.2	1	4.6	6	10.1
1962	4	23	1	4.9	1	6.2	10	11.0
1962	4	24	3	6.0	1	3.8	4	21.8
1962	4	25	1	5.0	2	8.0	14	18.5
1962	4	26	1	6.0	2	5.9	9	14.9
1962	4	27	1	4.9	2	6.2	17	16.3
1962	4	28	6	6.8	2	3.9	1	13.5
1962	4	29	6	6.0	4	10.7	28	21.2
1962	4	30	1	10.0	8	7.9	2	18.1
1962	5	1	1	7.1	1	4.5	2	28.1
1962	5	2	1	5.4	1	5.2	10	7.9
1962	5	3	1	4.3	1	8.8	29	11.5
1962	5	4	1	3.3	2	9.3	1	17.5
1962	5	5	1	2.2	2	6.7	29	14.7
1962	5	6	1	1.5	1	1.8	5	17.6
1962	5	7	1	2.3	1	2.8	1	10.8
1962	5	8	1	4.7	1	1.0	5	14.3
1962	5	9	99	.	99	.	1	3.7
1962	5	10	99	.	99	.	1	19.1
1962	5	11	99	.	99	.	1	13.4
1962	5	12	4	8.9	2	1.8	1	19.3
1962	5	13	4	5.8	2	6.8	9	22.5
1962	5	14	4	7.3	4	9.9	5	15.7
1962	5	15	4	11.1	4	5.3	5	18.2
1962	5	16	4	11.2	4	7.3	5	23.9
1962	5	17	6	11.9	4	6.4	14	18.6
1962	5	18	4	6.2	8	9.4	8	27.0
1962	5	19	4	9.7	2	12.3	17	16.4
1962	5	20	4	6.8	0	.	5	15.1
1962	5	21	7	11.5	4	10.7	27	19.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1962	5	22	11	11.5	8	5.7	9	0.0
1962	5	23	2	12.0	7	13.8	6	14.8
1962	5	24	13	8.8	1	6.6	19	13.8
1962	5	25	13	10.6	12	6.7	5	15.7
1962	5	26	4	10.7	12	6.8	5	12.2
1962	5	27	4	12.9	12	9.7	5	18.7
1962	5	28	1	15.4	4	9.4	1	9.5
1962	5	29	6	12.3	8	12.7	17	14.3
1962	5	30	14	8.7	9	9.0	17	21.9
1962	5	31	12	9.3	1	7.8	26	16.5
1962	6	1	99	.	99	.	5	17.9
1962	6	2	3	9.1	16	10.1	1	14.5
1962	6	3	6	7.2	16	9.3	1	12.7
1962	6	4	6	5.2	4	8.9	1	6.3
1962	6	5	6	8.3	13	6.6	1	35.8
1962	6	6	0	.	4	9.3	9	26.5
1962	6	7	0	.	8	12.0	9	20.8
1962	6	8	6	10.3	8	9.7	28	19.2
1962	6	9	6	8.6	16	7.2	4	16.7
1962	6	10	6	8.2	13	7.5	17	22.3
1962	6	11	6	12.6	0	.	17	17.4
1962	6	12	0	.	13	8.6	1	22.4
1962	6	13	4	11.4	13	9.1	1	17.4
1962	6	14	4	10.9	2	6.7	12	23.7
1962	6	15	4	13.1	6	9.2	21	16.4
1962	6	16	1	15.4	6	11.2	14	25.3
1962	6	17	1	8.2	6	13.8	9	25.5
1962	6	18	1	4.4	1	4.6	6	13.3
1962	6	19	1	4.1	1	3.5	26	18.1
1962	6	20	1	4.1	1	4.0	13	14.6
1962	6	21	1	4.5	1	1.5	2	9.2
1962	6	22	1	1.6	1	0.7	2	5.8
1962	6	23	1	3.8	1	1.0	2	21.9
1962	6	24	3	7.5	1	2.0	0	.
1962	6	25	3	3.9	1	7.4	18	24.3
1962	6	26	3	6.1	5	7.6	4	18.5
1962	6	27	1	8.6	2	8.7	4	11.4
1962	6	28	1	5.7	2	3.3	2	19.0
1962	6	29	1	4.4	1	2.4	8	11.2
1962	6	30	1	6.4	12	5.2	1	17.7
1962	7	1	6	7.8	2	6.7	1	1.9
1962	7	2	6	7.5	13	4.7	1	19.4
1962	7	3	4	8.9	2	3.6	22	18.8
1962	7	4	1	7.6	2	3.3	12	19.0
1962	7	5	1	6.6	2	5.8	13	25.6
1962	7	6	1	7.6	2	3.8	14	21.1
1962	7	7	1	5.8	2	3.1	9	17.7
1962	7	8	1	6.6	1	2.3	6	10.3
1962	7	9	1	4.9	1	1.9	4	14.8
1962	7	10	1	5.1	1	2.0	8	7.2
1962	7	11	1	7.1	1	0.3	8	14.7
1962	7	12	1	10.6	1	2.1	21	18.9
1962	7	13	99	.	99	.	5	12.7
1962	7	14	6	10.3	12	10.7	9	23.8
1962	7	15	6	8.7	9	0.0	17	13.9
1962	7	16	6	8.6	9	4.8	5	20.0
1962	7	17	12	10.4	5	6.1	5	23.9
1962	7	18	12	14.4	5	4.3	1	12.6
1962	7	19	12	10.9	2	7.3	1	19.8
1962	7	20	1	7.5	1	3.8	6	13.3
1962	7	21	99	.	99	.	6	18.5
1962	7	22	5	9.2	1	6.8	3	17.9
1962	7	23	5	7.9	3	6.3	6	23.2
1962	7	24	99	.	99	.	6	17.2
1962	7	25	5	6.5	3	2.5	26	14.3
1962	7	26	5	9.4	3	6.0	13	19.2
1962	7	27	1	7.5	1	2.8	2	15.3
1962	7	28	1	6.5	1	3.0	22	20.6
1962	7	29	1	11.5	1	3.6	29	13.4
1962	7	30	8	13.9	1	1.9	13	14.8
1962	7	31	1	10.2	1	2.9	8	13.8
1962	8	1	1	8.9	1	10.2	13	5.8
1962	8	2	1	10.2	1	6.4	4	13.8
1962	8	3	2	13.6	1	3.4	14	24.0
1962	8	4	1	11.3	1	4.9	1	21.1
1962	8	5	1	5.9	2	6.6	28	14.5
1962	8	6	1	8.6	2	7.3	20	15.0
1962	8	7	9	12.2	1	4.7	17	17.6
1962	8	8	1	7.1	1	5.9	17	18.3
1962	8	9	1	8.1	5	7.1	12	23.9
1962	8	10	1	4.5	2	6.2	12	11.8
1962	8	11	3	4.7	1	5.3	3	24.6
1962	8	12	3	3.6	1	5.5	26	12.3
1962	8	13	3	4.8	5	3.1	23	31.7
1962	8	14	1	8.7	1	4.6	12	17.3
1962	8	15	1	10.4	1	2.6	8	14.2
1962	8	16	1	11.6	3	6.3	11	25.0
1962	8	17	1	7.8	1	5.5	18	30.3
1962	8	18	1	5.9	5	7.8	1	18.5
1962	8	19	1	5.2	1	5.1	2	20.3
1962	8	20	1	6.0	1	1.8	6	16.0
1962	8	21	1	6.9	1	7.8	10	19.2
1962	8	22	4	6.3	2	3.4	12	12.7
1962	8	23	1	10.8	2	4.6	2	15.4
1962	8	24	1	5.9	1	8.4	13	14.5
1962	8	25	1	3.3	1	6.4	2	16.2
1962	8	26	99	.	99	.	4	13.9
1962	8	27	4	9.8	2	4.9	14	16.6
1962	8	28	2	10.3	2	4.1	2	10.6
1962	8	29	2	6.4	2	7.5	8	11.3
1962	8	30	2	6.9	2	6.6	27	22.3
1962	8	31	2	9.0	1	7.6	6	25.8
1962	9	1	99	.	99	.	13	12.8
1962	9	2	2	10.9	1	6.9	21	23.3
1962	9	3	2	7.2	1	6.7	8	15.3

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1962	9	4	2	6.1	7	4.5	19	14.2
1962	9	5	2	9.7	3	6.2	11	29.9
1962	9	6	1	8.3	1	4.5	4	7.9
1962	9	7	2	6.7	1	3.7	14	15.3
1962	9	8	11	7.3	2	7.5	3	12.9
1962	9	9	11	8.6	8	12.2	6	23.2
1962	9	10	1	6.4	9	12.2	18	11.9
1962	9	11	1	6.4	2	6.6	10	20.6
1962	9	12	1	6.6	2	2.1	2	16.0
1962	9	13	1	5.6	1	6.0	22	14.2
1962	9	14	1	4.9	1	2.3	8	10.7
1962	9	15	99	.	99	.	1	17.2
1962	9	16	99	.	99	.	22	20.3
1962	9	17	1	7.2	1	6.6	6	19.4
1962	9	18	1	9.0	3	6.7	26	15.8
1962	9	19	5	9.2	3	2.7	5	11.3
1962	9	20	1	10.7	3	7.7	1	26.1
1962	9	21	1	8.2	1	10.7	21	13.6
1962	9	22	1	7.1	5	12.6	1	22.8
1962	9	23	1	5.4	2	10.5	4	20.8
1962	9	24	1	11.1	1	10.0	3	10.9
1962	9	25	1	14.2	3	10.4	13	15.5
1962	9	26	3	8.7	3	5.0	7	19.0
1962	9	27	3	5.8	5	12.8	18	22.1
1962	9	28	3	5.2	13	12.5	4	17.3
1962	9	29	3	7.5	13	5.2	4	16.2
1962	9	30	3	11.0	0	.	20	15.5
1962	10	1	3	9.7	0	.	23	17.9
1962	10	2	3	11.9	0	.	13	21.1
1962	10	3	6	16.5	0	.	18	14.3
1962	10	4	16	10.3	0	.	1	20.0
1962	10	5	3	11.6	13	16.4	1	15.5
1962	10	6	3	8.0	4	12.5	9	15.5
1962	10	7	3	7.9	13	0.0	17	21.8
1962	10	8	3	6.4	5	10.6	10	7.3
1962	10	9	3	4.9	1	7.5	4	18.9
1962	10	10	3	5.3	2	6.1	99	.
1962	10	11	3	6.2	2	4.1	3	12.0
1962	10	12	3	4.9	2	7.8	1	19.1
1962	10	13	3	5.5	2	6.2	1	15.0
1962	10	14	99	.	99	.	1	19.4
1962	10	15	4	5.1	2	4.5	29	21.0
1962	10	16	7	11.9	7	7.0	6	14.9
1962	10	17	7	13.4	1	3.7	2	5.4
1962	10	18	99	.	99	.	2	5.7
1962	10	19	1	11.9	1	3.1	3	14.9
1962	10	20	1	9.4	1	5.4	13	20.0
1962	10	21	1	7.7	1	4.9	2	17.1
1962	10	22	1	10.6	1	3.8	3	14.7
1962	10	23	5	9.1	3	3.0	6	13.2
1962	10	24	5	5.7	3	3.9	3	17.7
1962	10	25	5	4.1	3	1.3	18	33.9
1962	10	26	5	9.0	3	2.3	4	10.9
1962	10	27	5	12.8	1	6.9	2	13.2
1962	10	28	99	.	99	.	6	21.8
1962	10	29	1	12.2	1	11.6	2	4.9
1962	10	30	5	10.6	3	1.2	6	10.6
1962	10	31	5	12.1	3	6.4	20	31.0
1962	11	1	5	9.7	3	7.9	3	7.1
1962	11	2	5	6.9	3	6.7	16	18.8
1962	11	3	5	10.0	3	5.2	10	18.6
1962	11	4	5	8.2	3	1.5	7	10.2
1962	11	5	1	4.9	5	8.7	4	14.0
1962	11	6	1	4.6	1	7.5	2	7.3
1962	11	7	1	7.4	3	5.8	6	8.5
1962	11	8	1	6.4	17	8.3	4	11.1
1962	11	9	1	3.5	1	4.8	4	11.6
1962	11	10	1	3.0	2	8.6	1	8.8
1962	11	11	1	5.6	1	12.0	28	19.2
1962	11	12	1	4.8	1	3.5	2	14.3
1962	11	13	1	2.7	1	3.6	1	13.9
1962	11	14	1	4.4	1	4.8	9	20.6
1962	11	15	1	3.7	1	3.7	5	12.3
1962	11	16	1	5.2	1	4.6	16	18.6
1962	11	17	11	6.9	1	5.4	16	35.5
1962	11	18	11	10.0	1	6.2	5	22.2
1962	11	19	1	8.3	1	6.3	10	6.3
1962	11	20	1	4.3	1	1.9	2	5.6
1962	11	21	1	7.5	1	2.3	2	10.5
1962	11	22	1	4.8	1	8.5	6	22.9
1962	11	23	1	2.2	1	1.5	22	9.4
1962	11	24	1	3.4	1	0.8	4	6.5
1962	11	25	1	5.0	1	7.5	4	11.1
1962	11	26	1	5.3	2	6.3	4	7.1
1962	11	27	1	5.1	2	3.9	4	14.5
1962	11	28	3	7.9	2	3.0	14	21.8
1962	11	29	1	8.7	2	0.0	1	19.3
1962	11	30	1	9.1	2	4.2	4	18.8
1962	12	1	1	9.2	2	4.1	4	14.1
1962	12	2	1	6.2	2	6.8	4	17.3
1962	12	3	1	4.0	2	2.1	10	21.1
1962	12	4	5	8.5	1	6.5	6	11.5
1962	12	5	5	6.2	3	4.0	6	12.2
1962	12	6	5	12.2	3	8.1	10	20.6
1962	12	7	5	11.0	3	12.4	6	15.7
1962	12	8	5	6.5	3	3.0	6	14.8
1962	12	9	5	6.5	3	2.9	6	19.1
1962	12	10	5	5.3	3	3.5	3	14.5
1962	12	11	5	7.1	3	4.0	19	9.9
1962	12	12	5	9.9	3	2.5	4	10.2
1962	12	13	5	9.8	3	2.6	15	18.4
1962	12	14	1	7.3	1	3.9	4	19.4
1962	12	15	3	7.2	3	3.5	10	31.2
1962	12	16	1	5.3	1	3.5	10	11.3
1962	12	17	1	5.0	1	2.1	10	35.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1962	12	18	1	9.4	1	2.7	17	25.4
1962	12	19	1	3.7	1	2.6	5	15.1
1962	12	20	1	7.5	1	2.3	1	16.0
1962	12	21	2	10.2	1	7.8	4	11.8
1962	12	22	2	4.6	1	4.7	3	5.9
1962	12	23	2	4.0	1	5.0	19	16.9
1962	12	24	2	7.1	7	5.5	8	24.3
1962	12	25	2	7.3	7	3.7	6	18.9
1962	12	26	2	6.5	1	5.3	4	13.4
1962	12	27	2	8.6	1	2.6	10	20.7
1962	12	28	1	5.1	1	2.6	2	24.6
1962	12	29	1	4.5	1	2.2	6	33.7
1962	12	30	1	3.4	1	3.8	4	34.6
1962	12	31	1	2.8	1	3.5	1	9.4
1963	1	1	1	4.7	1	3.1	28	13.1
1963	1	2	1	4.9	1	6.1	10	14.7
1963	1	3	1	7.0	1	4.9	18	16.3
1963	1	4	7	7.9	6	8.5	9	16.2
1963	1	5	7	12.7	3	11.2	2	26.9
1963	1	6	2	16.0	3	9.4	2	6.1
1963	1	7	1	14.9	3	4.2	2	14.4
1963	1	8	1	10.2	1	2.8	15	15.3
1963	1	9	2	6.7	1	2.7	26	25.0
1963	1	10	2	5.5	2	8.1	5	19.6
1963	1	11	2	9.0	8	12.4	16	15.2
1963	1	12	2	9.4	14	16.5	6	21.0
1963	1	13	2	9.2	3	9.4	2	10.8
1963	1	14	2	5.7	3	8.9	6	23.7
1963	1	15	2	3.8	1	8.4	8	21.7
1963	1	16	2	3.6	1	4.7	2	9.3
1963	1	17	2	5.2	1	2.2	21	19.6
1963	1	18	2	6.1	1	2.6	5	18.8
1963	1	19	2	9.2	7	3.1	13	15.2
1963	1	20	2	8.1	3	4.3	15	18.9
1963	1	21	2	7.3	1	7.0	28	22.9
1963	1	22	2	7.2	1	2.2	19	20.6
1963	1	23	2	7.2	3	4.1	8	17.8
1963	1	24	2	4.6	1	7.2	8	19.5
1963	1	25	2	4.0	1	4.5	8	17.9
1963	1	26	2	4.3	7	6.3	19	14.6
1963	1	27	2	3.8	3	4.6	13	16.2
1963	1	28	2	6.1	1	5.8	12	15.7
1963	1	29	2	7.6	1	4.0	8	16.3
1963	1	30	2	9.7	1	2.0	13	16.8
1963	1	31	1	5.3	1	0.7	4	4.0
1963	2	1	1	3.8	2	5.9	14	11.2
1963	2	2	1	4.2	1	1.4	19	8.6
1963	2	3	1	2.6	1	2.8	1	22.4
1963	2	4	1	3.4	1	2.3	28	27.2
1963	2	5	3	6.7	1	7.2	10	9.3
1963	2	6	3	4.4	3	4.3	26	24.1
1963	2	7	3	13.6	3	9.4	17	24.7
1963	2	8	0	.	3	3.7	9	14.4
1963	2	9	0	.	3	7.3	5	8.4
1963	2	10	0	.	11	13.8	5	9.0
1963	2	11	0	.	19	10.7	19	12.5
1963	2	12	5	14.8	19	3.3	6	12.4
1963	2	13	99	.	99	.	3	20.6
1963	2	14	5	5.3	3	1.4	7	11.4
1963	2	15	5	6.8	3	6.2	1	18.8
1963	2	16	2	7.2	1	4.6	4	12.6
1963	2	17	2	9.4	1	3.6	21	24.7
1963	2	18	1	7.7	1	1.5	7	19.9
1963	2	19	5	4.4	1	5.3	20	29.8
1963	2	20	5	3.7	3	6.8	3	12.8
1963	2	21	5	3.8	3	1.9	19	7.7
1963	2	22	5	4.7	3	1.9	25	20.8
1963	2	23	5	8.0	3	7.5	22	21.0
1963	2	24	99	.	99	.	25	15.3
1963	2	25	5	2.4	3	4.1	16	0.0
1963	2	26	5	7.9	3	3.8	4	0.0
1963	2	27	5	6.2	1	7.6	3	25.0
1963	2	28	5	6.0	1	8.2	4	21.7
1963	3	1	2	8.1	1	1.6	2	20.3
1963	3	2	2	3.0	1	1.4	99	.
1963	3	3	2	7.5	1	5.5	27	15.2
1963	3	4	2	11.3	7	8.1	16	12.8
1963	3	5	2	6.5	10	3.6	2	15.0
1963	3	6	2	5.6	3	4.7	6	9.5
1963	3	7	2	3.9	1	9.5	6	14.4
1963	3	8	2	3.3	1	5.4	6	28.1
1963	3	9	2	4.7	1	6.1	0	.
1963	3	10	2	6.3	1	4.2	1	21.5
1963	3	11	2	8.0	1	6.7	1	22.1
1963	3	12	2	5.6	6	7.4	5	12.8
1963	3	13	2	8.2	1	5.9	23	16.3
1963	3	14	17	7.8	1	4.9	18	18.3
1963	3	15	4	5.4	2	3.3	1	11.9
1963	3	16	4	8.9	6	5.1	9	19.6
1963	3	17	4	7.9	1	8.3	7	14.5
1963	3	18	1	8.7	2	7.4	1	8.3
1963	3	19	1	5.2	10	9.5	3	27.5
1963	3	20	1	6.5	3	3.0	26	14.6
1963	3	21	15	9.3	3	7.3	18	14.7
1963	3	22	1	9.4	1	7.0	4	6.9
1963	3	23	3	7.4	2	2.3	4	9.4
1963	3	24	1	10.8	2	2.8	17	19.3
1963	3	25	1	8.8	1	6.0	3	19.4
1963	3	26	17	9.0	1	6.6	6	29.3
1963	3	27	1	3.5	1	1.1	10	20.4
1963	3	28	3	4.4	2	7.8	1	18.0
1963	3	29	3	5.7	2	4.4	2	15.4
1963	3	30	1	5.4	2	6.6	18	22.4
1963	3	31	4	7.6	2	1.9	99	.
1963	4	1	4	3.0	2	3.0	5	8.2

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1963	4	2	4	8.8	4	5.3	5	16.6
1963	4	3	1	5.3	14	12.2	15	17.2
1963	4	4	1	3.5	1	4.7	10	11.6
1963	4	5	1	3.8	1	1.3	4	10.6
1963	4	6	1	5.3	1	5.9	18	19.2
1963	4	7	15	11.3	9	7.1	1	17.8
1963	4	8	9	15.0	9	7.1	17	16.3
1963	4	9	13	13.3	5	12.2	5	12.7
1963	4	10	3	14.9	9	15.4	5	10.5
1963	4	11	3	12.5	9	6.9	5	14.4
1963	4	12	15	5.9	3	13.1	18	24.6
1963	4	13	15	0.0	3	7.1	18	23.3
1963	4	14	15	5.6	5	10.0	4	17.8
1963	4	15	6	15.4	2	12.1	1	12.5
1963	4	16	2	16.9	4	13.4	20	16.6
1963	4	17	0	.	12	7.8	3	18.5
1963	4	18	12	14.3	12	5.4	21	23.3
1963	4	19	12	12.4	7	6.9	15	12.4
1963	4	20	13	9.0	1	6.2	3	24.9
1963	4	21	13	0.0	1	14.8	5	15.3
1963	4	22	13	7.7	12	13.5	16	18.4
1963	4	23	1	10.9	1	9.0	18	19.1
1963	4	24	1	8.2	1	6.3	4	19.6
1963	4	25	9	11.4	9	10.9	1	18.9
1963	4	26	10	9.3	5	10.9	5	17.1
1963	4	27	3	13.2	0	.	1	13.8
1963	4	28	7	12.5	0	.	9	14.2
1963	4	29	3	11.2	10	10.0	3	14.6
1963	4	30	3	8.6	3	6.7	23	17.7
1963	5	1	1	5.0	2	6.6	4	8.3
1963	5	2	12	7.2	2	3.4	2	15.8
1963	5	3	1	7.5	1	4.1	21	9.5
1963	5	4	3	11.8	1	4.0	5	10.8
1963	5	5	15	9.5	1	1.6	5	20.8
1963	5	6	3	6.1	1	4.4	1	21.6
1963	5	7	1	6.6	1	5.1	4	17.7
1963	5	8	1	8.4	2	5.1	20	25.8
1963	5	9	3	12.7	2	5.1	5	17.4
1963	5	10	1	10.5	1	6.1	16	18.3
1963	5	11	10	11.4	12	7.1	5	15.9
1963	5	12	4	11.9	4	5.5	1	14.1
1963	5	13	1	10.9	9	4.9	6	20.3
1963	5	14	3	8.2	5	7.8	19	19.2
1963	5	15	1	3.6	1	6.1	12	17.5
1963	5	16	1	3.8	1	6.0	22	24.2
1963	5	17	5	10.3	1	5.3	6	14.8
1963	5	18	5	9.8	3	8.0	3	19.9
1963	5	19	5	6.7	3	7.2	6	18.3
1963	5	20	5	11.6	1	10.0	3	18.8
1963	5	21	5	11.7	3	4.4	26	12.9
1963	5	22	5	9.5	3	2.2	11	11.0
1963	5	23	1	10.8	3	5.6	1	33.1
1963	5	24	1	5.1	1	7.4	4	9.8
1963	5	25	1	5.4	1	8.2	1	21.6
1963	5	26	1	4.6	6	11.3	9	23.8
1963	5	27	1	5.8	10	6.6	3	17.5
1963	5	28	1	8.8	1	5.3	16	20.7
1963	5	29	1	5.4	1	4.2	11	20.3
1963	5	30	1	4.9	1	8.3	4	11.3
1963	5	31	1	5.0	6	7.3	1	15.3
1963	6	1	1	7.8	2	6.3	12	10.8
1963	6	2	1	9.3	2	4.8	5	27.8
1963	6	3	10	14.9	4	4.0	5	17.3
1963	6	4	16	11.5	4	4.1	1	15.4
1963	6	5	6	9.7	4	0.0	14	26.5
1963	6	6	4	16.5	4	9.6	9	19.1
1963	6	7	4	14.4	2	4.7	27	20.2
1963	6	8	11	16.6	2	2.1	22	21.1
1963	6	9	11	12.2	2	5.2	17	12.2
1963	6	10	11	16.0	7	10.1	17	15.9
1963	6	11	0	.	1	5.2	7	17.9
1963	6	12	1	14.0	1	2.9	1	23.0
1963	6	13	1	11.1	1	1.5	3	26.2
1963	6	14	1	7.9	1	3.3	27	13.8
1963	6	15	1	8.0	1	7.5	3	17.6
1963	6	16	1	7.8	3	9.4	99	.
1963	6	17	1	8.2	1	6.3	10	16.3
1963	6	18	1	5.4	1	3.6	10	22.4
1963	6	19	1	6.4	1	7.3	17	22.6
1963	6	20	9	8.5	5	7.1	1	16.1
1963	6	21	6	7.6	13	9.0	1	10.6
1963	6	22	4	7.8	4	8.2	1	15.4
1963	6	23	4	4.5	2	4.1	12	8.3
1963	6	24	10	9.1	4	4.8	1	15.4
1963	6	25	6	7.8	2	3.8	12	23.1
1963	6	26	1	6.6	2	3.0	2	20.8
1963	6	27	1	10.9	2	5.6	4	20.5
1963	6	28	4	8.4	2	5.4	12	16.4
1963	6	29	4	7.0	2	6.1	14	18.4
1963	6	30	4	9.4	2	2.5	20	23.7
1963	7	1	17	12.1	2	7.2	8	12.7
1963	7	2	15	11.6	1	3.7	11	12.5
1963	7	3	15	10.6	1	4.4	1	13.5
1963	7	4	3	7.1	5	8.2	1	8.1
1963	7	5	3	4.9	1	8.9	12	11.4
1963	7	6	3	7.6	1	7.1	5	27.6
1963	7	7	3	10.3	5	4.5	17	22.7
1963	7	8	9	15.2	5	4.8	1	13.9
1963	7	9	9	15.6	5	8.5	1	12.8
1963	7	10	6	14.3	13	8.8	1	19.2
1963	7	11	1	13.5	2	4.4	12	19.1
1963	7	12	1	8.8	2	5.5	2	11.5
1963	7	13	1	3.9	1	1.9	2	15.6
1963	7	14	1	4.7	1	7.4	26	17.4
1963	7	15	1	5.1	5	6.4	1	24.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1963	7	16	1	5.7	2	4.0	12	12.8
1963	7	17	1	6.8	1	3.2	2	11.9
1963	7	18	1	4.3	1	6.4	2	23.9
1963	7	19	1	3.9	1	3.1	22	10.7
1963	7	20	1	6.1	5	5.0	13	19.0
1963	7	21	99	.	99	.	4	13.9
1963	7	22	3	8.3	5	2.8	1	20.1
1963	7	23	3	10.9	13	10.1	12	12.6
1963	7	24	1	10.6	2	7.1	12	24.0
1963	7	25	4	6.1	2	4.8	12	10.4
1963	7	26	4	8.9	2	2.5	12	13.3
1963	7	27	1	5.1	2	6.7	3	24.7
1963	7	28	1	6.7	1	6.3	0	.
1963	7	29	1	4.5	1	5.3	0	.
1963	7	30	1	5.9	2	7.6	12	10.0
1963	7	31	1	5.7	1	3.2	22	16.4
1963	8	1	17	5.1	1	6.4	12	25.3
1963	8	2	17	7.2	1	4.8	29	19.3
1963	8	3	17	4.1	1	1.8	6	14.2
1963	8	4	17	6.5	1	1.7	4	11.8
1963	8	5	1	7.4	1	2.7	2	16.1
1963	8	6	1	7.6	1	3.9	8	19.0
1963	8	7	1	9.1	1	5.6	13	17.8
1963	8	8	1	9.5	1	3.0	29	23.4
1963	8	9	1	6.9	3	6.4	5	21.1
1963	8	10	1	11.0	1	8.9	1	22.9
1963	8	11	17	11.1	1	4.1	12	19.6
1963	8	12	8	9.1	1	7.2	3	10.3
1963	8	13	8	10.5	3	4.7	16	19.1
1963	8	14	1	9.5	1	8.5	11	13.6
1963	8	15	1	7.3	1	5.5	1	12.9
1963	8	16	1	7.9	1	2.5	9	15.0
1963	8	17	17	7.7	1	6.8	16	27.8
1963	8	18	17	8.3	1	1.8	4	19.4
1963	8	19	1	8.6	1	9.2	2	15.7
1963	8	20	1	5.2	5	7.0	4	13.1
1963	8	21	1	7.4	2	4.4	12	22.9
1963	8	22	4	8.5	2	3.0	9	29.8
1963	8	23	4	10.3	2	4.5	17	15.1
1963	8	24	4	12.8	2	5.8	1	20.3
1963	8	25	10	15.6	2	7.6	1	5.6
1963	8	26	1	13.1	2	3.3	1	12.5
1963	8	27	1	9.8	2	3.5	2	19.0
1963	8	28	1	10.1	1	2.2	3	18.5
1963	8	29	17	11.5	1	5.1	3	15.1
1963	8	30	8	15.1	1	6.8	19	17.7
1963	8	31	1	12.1	1	7.9	11	20.1
1963	9	1	1	7.7	12	7.3	4	16.7
1963	9	2	1	7.1	1	4.6	9	23.2
1963	9	3	1	9.8	1	2.9	17	18.8
1963	9	4	1	8.0	1	4.5	4	25.5
1963	9	5	1	6.7	1	5.3	4	12.1
1963	9	6	1	6.9	1	2.3	2	18.2
1963	9	7	1	7.6	1	7.2	23	23.2
1963	9	8	1	8.5	1	7.8	8	21.6
1963	9	9	1	12.2	1	10.3	23	19.6
1963	9	10	1	12.0	1	10.0	1	14.8
1963	9	11	8	14.7	1	7.0	15	23.8
1963	9	12	15	8.7	1	6.0	7	13.7
1963	9	13	1	6.1	5	7.4	4	16.6
1963	9	14	1	8.8	2	5.8	4	10.1
1963	9	15	1	6.7	2	4.0	8	20.7
1963	9	16	4	6.5	2	4.6	1	17.6
1963	9	17	4	4.6	2	1.2	14	24.5
1963	9	18	4	10.6	2	4.4	5	25.7
1963	9	19	1	7.8	1	2.8	27	19.9
1963	9	20	1	9.9	1	2.7	19	19.8
1963	9	21	3	7.1	0	.	5	18.2
1963	9	22	3	5.3	4	8.3	1	14.1
1963	9	23	3	6.3	13	5.6	1	11.5
1963	9	24	3	7.4	1	6.1	2	14.4
1963	9	25	1	6.8	10	6.9	2	17.5
1963	9	26	1	6.8	1	6.5	10	13.9
1963	9	27	17	12.4	1	5.2	15	17.4
1963	9	28	8	12.5	3	8.3	3	9.9
1963	9	29	1	12.9	3	3.4	13	25.3
1963	9	30	1	5.0	1	3.8	10	14.2
1963	10	1	1	4.9	1	3.0	2	0.0
1963	10	2	1	5.3	1	3.2	2	12.3
1963	10	3	1	5.4	5	6.6	10	16.7
1963	10	4	1	6.9	2	7.6	4	7.1
1963	10	5	17	8.7	2	4.6	14	0.0
1963	10	6	17	4.8	2	6.4	3	19.9
1963	10	7	1	6.7	1	1.5	6	15.9
1963	10	8	3	5.5	1	5.1	2	13.8
1963	10	9	3	6.4	1	6.7	4	22.0
1963	10	10	3	8.0	1	4.4	3	17.0
1963	10	11	3	5.0	1	14.9	23	16.4
1963	10	12	16	8.3	2	7.1	4	21.6
1963	10	13	3	5.9	2	11.1	4	12.4
1963	10	14	3	6.8	8	7.1	12	18.9
1963	10	15	3	10.3	10	16.8	14	32.6
1963	10	16	16	0.0	14	16.8	10	32.8
1963	10	17	16	4.9	10	11.2	13	16.2
1963	10	18	16	8.6	5	8.5	4	9.3
1963	10	19	3	10.6	2	5.4	8	8.3
1963	10	20	3	5.3	6	8.1	5	9.4
1963	10	21	3	7.6	2	6.9	1	15.0
1963	10	22	3	6.1	2	8.1	4	10.0
1963	10	23	1	5.9	2	5.3	4	5.3
1963	10	24	1	8.3	2	2.9	2	8.2
1963	10	25	1	3.4	2	6.7	10	11.9
1963	10	26	1	3.3	1	4.5	2	8.0
1963	10	27	1	6.0	1	2.7	2	18.4
1963	10	28	3	5.8	3	8.1	18	21.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1963	10	29	1	4.3	5	5.7	4	17.6
1963	10	30	1	1.8	1	4.5	12	20.3
1963	10	31	1	7.3	1	2.6	22	18.5
1963	11	1	5	9.5	3	0.9	6	14.0
1963	11	2	1	6.4	5	3.3	10	9.5
1963	11	3	1	5.7	1	5.3	2	14.8
1963	11	4	3	6.8	1	4.0	4	5.9
1963	11	5	1	7.4	1	4.0	20	19.6
1963	11	6	1	6.0	1	6.5	18	20.7
1963	11	7	1	9.3	2	3.5	1	9.3
1963	11	8	3	9.4	2	3.9	1	20.7
1963	11	9	3	7.4	9	9.0	20	16.0
1963	11	10	3	8.8	1	7.3	6	11.4
1963	11	11	5	12.3	1	9.1	6	16.2
1963	11	12	3	11.3	3	2.4	6	13.5
1963	11	13	3	8.7	3	7.3	7	18.3
1963	11	14	3	6.6	1	9.3	4	12.7
1963	11	15	1	6.7	5	7.8	4	16.2
1963	11	16	1	6.9	2	1.1	20	29.2
1963	11	17	1	5.1	1	7.4	6	25.7
1963	11	18	1	4.0	2	4.9	4	19.4
1963	11	19	1	4.4	1	7.0	11	26.9
1963	11	20	1	6.1	2	4.3	0	.
1963	11	21	1	9.3	2	3.3	5	0.0
1963	11	22	1	7.8	2	9.2	3	16.3
1963	11	23	1	3.2	1	1.3	26	25.2
1963	11	24	1	5.8	1	5.4	1	5.3
1963	11	25	7	7.6	10	10.5	13	32.1
1963	11	26	1	5.1	1	6.7	2	11.9
1963	11	27	1	2.0	1	4.9	10	14.9
1963	11	28	1	4.4	1	4.6	6	11.6
1963	11	29	5	6.1	3	5.8	6	15.5
1963	11	30	5	7.6	3	0.5	6	22.0
1963	12	1	5	3.6	3	6.0	3	24.8
1963	12	2	5	5.1	3	1.7	2	16.5
1963	12	3	5	5.3	3	1.8	2	16.6
1963	12	4	5	7.2	3	1.1	2	14.6
1963	12	5	1	5.5	1	5.3	2	3.7
1963	12	6	1	2.6	1	3.1	2	19.3
1963	12	7	5	9.1	7	10.6	3	17.5
1963	12	8	9	12.8	11	3.1	3	23.3
1963	12	9	2	9.0	5	10.9	26	16.7
1963	12	10	18	3.8	7	4.6	5	8.9
1963	12	11	18	7.5	7	6.7	13	6.1
1963	12	12	18	9.5	7	11.0	29	25.1
1963	12	13	2	12.9	3	14.4	3	21.1
1963	12	14	2	9.8	3	3.9	26	0.0
1963	12	15	5	5.1	3	3.2	11	14.6
1963	12	16	5	8.3	1	7.4	11	18.3
1963	12	17	5	7.8	1	2.5	8	22.0
1963	12	18	5	8.7	3	7.2	19	30.3
1963	12	19	5	12.5	3	8.5	5	11.8
1963	12	20	12	8.1	3	8.3	11	13.2
1963	12	21	5	10.5	3	5.5	5	13.9
1963	12	22	5	7.5	3	12.0	4	13.2
1963	12	23	1	6.2	3	8.0	4	12.9
1963	12	24	1	4.6	1	3.2	2	12.0
1963	12	25	1	2.9	1	2.5	28	22.5
1963	12	26	1	5.6	1	3.3	6	22.4
1963	12	27	5	4.1	1	5.4	6	27.3
1963	12	28	5	2.3	3	6.5	24	26.2
1963	12	29	5	0.0	3	3.0	16	23.4
1963	12	30	5	4.5	3	3.4	4	9.9
1963	12	31	1	7.3	3	7.6	4	8.8
1964	1	1	1	3.6	1	3.2	2	5.2
1964	1	2	1	3.6	1	3.8	20	15.6
1964	1	3	1	6.2	1	6.9	6	10.0
1964	1	4	2	7.3	1	2.8	2	14.6
1964	1	5	1	8.1	1	4.5	22	15.9
1964	1	6	11	8.8	1	4.8	10	10.9
1964	1	7	11	6.5	1	6.4	12	14.0
1964	1	8	11	8.5	6	7.6	3	11.5
1964	1	9	1	9.7	3	9.2	6	18.2
1964	1	10	2	6.0	1	7.0	0	.
1964	1	11	2	10.7	7	15.8	16	16.6
1964	1	12	0	.	19	7.6	23	12.6
1964	1	13	1	11.0	3	7.3	10	9.9
1964	1	14	1	9.7	5	9.3	10	13.3
1964	1	15	1	8.7	1	4.9	2	9.4
1964	1	16	1	3.6	1	4.8	10	16.2
1964	1	17	1	3.2	1	5.1	20	13.8
1964	1	18	1	4.6	1	8.7	1	24.9
1964	1	19	1	5.6	2	8.1	28	18.3
1964	1	20	1	3.7	1	4.5	10	13.4
1964	1	21	1	7.1	2	6.1	11	24.4
1964	1	22	4	4.9	2	2.2	17	23.6
1964	1	23	1	7.5	12	7.2	5	8.7
1964	1	24	1	10.5	0	.	17	18.0
1964	1	25	5	6.5	3	6.7	15	14.4
1964	1	26	5	7.6	1	8.9	6	24.4
1964	1	27	1	7.9	3	3.7	26	19.3
1964	1	28	1	6.2	1	4.9	4	4.5
1964	1	29	1	3.1	1	4.9	18	17.8
1964	1	30	1	3.9	2	5.0	4	16.7
1964	1	31	1	5.0	1	2.1	2	14.1
1964	2	1	1	8.6	5	9.6	10	23.3
1964	2	2	7	8.2	7	9.3	27	18.6
1964	2	3	7	5.3	0	.	13	9.6
1964	2	4	1	8.8	10	11.5	2	8.8
1964	2	5	2	7.0	1	5.0	20	17.9
1964	2	6	2	12.2	7	7.6	3	15.9
1964	2	7	2	11.2	3	5.6	6	23.5
1964	2	8	2	9.5	3	5.6	15	28.5
1964	2	9	5	6.0	3	5.0	28	23.3
1964	2	10	9	8.8	3	3.4	23	23.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1964	2	11	1	8.4	1	7.4	4	7.1
1964	2	12	1	8.2	7	3.7	22	22.5
1964	2	13	2	6.4	1	10.0	13	28.7
1964	2	14	11	9.8	6	6.7	8	22.9
1964	2	15	2	8.7	10	8.2	18	14.6
1964	2	16	11	8.1	2	7.1	4	14.7
1964	2	17	11	5.7	1	6.7	10	21.2
1964	2	18	11	10.5	3	12.6	3	16.5
1964	2	19	2	10.7	3	4.4	17	21.0
1964	2	20	2	14.2	19	5.4	16	21.1
1964	2	21	2	10.5	19	3.5	13	12.8
1964	2	22	2	9.1	3	14.1	3	21.5
1964	2	23	2	9.5	3	7.8	23	24.3
1964	2	24	2	4.0	1	1.5	14	17.3
1964	2	25	2	4.0	7	4.5	19	22.9
1964	2	26	2	5.5	3	6.1	13	24.8
1964	2	27	2	8.9	7	6.6	2	4.2
1964	2	28	1	8.3	3	6.1	10	10.5
1964	2	29	1	6.3	1	4.1	2	10.3
1964	3	1	1	3.3	1	2.0	10	4.7
1964	3	2	2	7.5	1	4.6	0	.
1964	3	3	11	10.1	6	4.9	27	26.1
1964	3	4	1	9.6	1	6.4	26	19.6
1964	3	5	2	4.2	1	4.6	17	31.0
1964	3	6	2	5.6	6	7.4	5	19.8
1964	3	7	2	7.4	1	4.0	19	12.4
1964	3	8	7	10.5	6	5.7	1	16.4
1964	3	9	2	8.4	1	2.4	18	17.8
1964	3	10	1	6.2	1	5.9	99	.
1964	3	11	1	3.2	1	2.9	18	14.6
1964	3	12	1	5.7	5	7.1	1	18.8
1964	3	13	11	9.3	2	4.3	20	15.8
1964	3	14	1	7.1	7	5.6	6	9.0
1964	3	15	2	9.4	1	7.7	10	11.2
1964	3	16	7	11.0	1	7.3	6	11.8
1964	3	17	1	11.6	3	5.8	7	8.1
1964	3	18	11	10.0	1	5.3	1	10.1
1964	3	19	11	8.3	2	8.8	9	15.2
1964	3	20	1	10.6	10	5.9	3	23.3
1964	3	21	2	9.4	1	3.0	11	22.3
1964	3	22	4	8.0	2	2.0	5	14.8
1964	3	23	0	.	2	9.0	5	17.3
1964	3	24	13	7.6	2	8.9	26	18.0
1964	3	25	11	9.1	1	9.5	5	12.8
1964	3	26	2	6.1	1	10.6	7	13.2
1964	3	27	2	4.5	1	4.4	27	18.2
1964	3	28	99	.	99	.	6	15.8
1964	3	29	5	7.2	3	1.7	26	16.3
1964	3	30	5	10.4	3	3.6	4	10.0
1964	3	31	1	9.1	3	4.4	18	21.5
1964	4	1	1	7.2	1	5.5	1	10.3
1964	4	2	11	9.2	0	.	9	14.7
1964	4	3	11	16.7	0	.	27	14.9
1964	4	4	11	14.5	6	13.3	1	21.1
1964	4	5	4	14.0	18	4.4	1	7.5
1964	4	6	2	12.6	14	9.8	3	12.4
1964	4	7	2	9.2	3	6.3	3	18.2
1964	4	8	1	10.6	3	5.1	13	13.6
1964	4	9	1	6.1	1	2.1	99	.
1964	4	10	1	4.0	1	4.1	4	8.1
1964	4	11	1	2.8	1	6.3	2	17.9
1964	4	12	1	5.7	2	4.6	9	11.2
1964	4	13	11	8.4	0	.	6	18.8
1964	4	14	1	8.1	3	4.3	6	12.3
1964	4	15	1	3.7	1	2.7	4	12.9
1964	4	16	1	5.9	2	3.3	14	11.1
1964	4	17	4	7.3	2	4.8	3	8.2
1964	4	18	17	7.2	1	5.4	27	24.5
1964	4	19	4	9.7	1	3.8	13	22.4
1964	4	20	4	7.8	6	8.3	1	17.4
1964	4	21	11	7.7	6	15.2	3	17.2
1964	4	22	2	10.3	5	9.3	7	17.5
1964	4	23	4	7.8	2	7.1	1	17.3
1964	4	24	4	6.9	4	6.6	1	8.1
1964	4	25	11	12.5	0	.	1	15.3
1964	4	26	11	8.3	18	4.4	1	7.1
1964	4	27	6	13.7	0	.	9	10.5
1964	4	28	16	16.7	0	.	6	16.3
1964	4	29	3	8.0	17	7.9	99	.
1964	4	30	3	11.1	20	13.6	7	17.3
1964	5	1	6	13.7	0	.	1	16.9
1964	5	2	6	14.9	0	.	1	13.2
1964	5	3	0	.	18	16.2	1	15.6
1964	5	4	0	.	8	14.7	28	20.5
1964	5	5	0	.	4	8.3	1	13.9
1964	5	6	0	.	8	2.6	20	14.2
1964	5	7	13	13.3	2	13.3	2	9.2
1964	5	8	11	8.5	6	13.1	22	20.3
1964	5	9	1	9.1	3	8.4	6	11.3
1964	5	10	1	4.7	1	2.6	2	7.6
1964	5	11	1	5.2	1	7.4	3	10.2
1964	5	12	1	3.5	10	7.3	7	23.3
1964	5	13	3	5.5	5	4.8	18	21.2
1964	5	14	1	6.0	2	5.7	12	18.8
1964	5	15	1	3.4	1	3.1	8	20.7
1964	5	16	1	6.7	1	1.2	8	15.6
1964	5	17	3	3.6	12	6.1	1	9.6
1964	5	18	3	5.3	1	6.8	20	14.3
1964	5	19	3	5.6	1	2.9	26	21.1
1964	5	20	3	7.0	1	10.1	1	15.8
1964	5	21	1	8.1	2	4.4	4	16.8
1964	5	22	4	8.4	2	2.1	2	24.3
1964	5	23	1	7.8	2	1.7	2	21.8
1964	5	24	1	9.4	1	4.3	18	19.0
1964	5	25	4	8.8	2	3.6	20	19.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1964	5	26	0	.	1	2.6	8	17.2
1964	5	27	0	.	1	8.3	5	13.7
1964	5	28	8	13.3	12	13.7	5	9.4
1964	5	29	0	.	7	11.4	5	4.8
1964	5	30	0	.	7	10.0	5	12.8
1964	5	31	0	.	1	6.3	26	30.5
1964	6	1	8	16.2	3	5.3	19	24.1
1964	6	2	8	11.3	3	1.3	18	33.1
1964	6	3	5	11.7	3	5.5	17	28.6
1964	6	4	3	9.9	1	6.7	13	22.1
1964	6	5	1	7.5	1	5.9	4	18.9
1964	6	6	3	6.4	1	4.6	14	13.6
1964	6	7	4	10.1	2	8.3	1	15.4
1964	6	8	4	13.4	6	11.7	9	24.4
1964	6	9	0	.	7	6.0	3	9.4
1964	6	10	17	10.0	12	9.3	11	21.5
1964	6	11	4	10.2	2	6.5	1	16.7
1964	6	12	7	12.5	9	12.3	2	9.6
1964	6	13	1	7.0	1	4.3	3	17.8
1964	6	14	1	7.8	6	7.3	3	28.9
1964	6	15	1	10.3	1	7.2	7	20.7
1964	6	16	3	8.3	2	7.8	1	13.3
1964	6	17	1	9.6	2	3.6	1	12.3
1964	6	18	4	10.0	4	7.5	9	11.6
1964	6	19	1	9.2	9	9.9	15	21.9
1964	6	20	1	8.0	2	10.0	22	12.4
1964	6	21	1	7.8	2	8.7	27	26.0
1964	6	22	1	9.1	8	6.3	22	16.5
1964	6	23	1	5.7	1	7.2	99	.
1964	6	24	1	3.8	1	3.8	10	13.8
1964	6	25	1	4.2	1	3.9	2	15.7
1964	6	26	1	9.7	1	4.5	4	32.3
1964	6	27	3	10.3	2	10.3	1	14.5
1964	6	28	10	11.0	2	9.4	12	20.0
1964	6	29	1	9.6	2	3.1	2	12.1
1964	6	30	1	5.0	1	7.5	21	12.3
1964	7	1	1	6.9	1	5.8	22	24.3
1964	7	2	1	6.5	1	1.1	19	16.5
1964	7	3	1	7.1	5	6.1	16	19.9
1964	7	4	1	9.9	5	5.4	1	17.5
1964	7	5	1	9.4	2	6.8	12	10.8
1964	7	6	3	9.3	2	6.4	20	16.8
1964	7	7	3	6.9	1	3.4	29	23.5
1964	7	8	3	9.6	3	10.9	3	26.9
1964	7	9	14	11.2	5	13.8	1	17.6
1964	7	10	14	12.5	5	8.9	9	17.0
1964	7	11	16	11.0	3	9.0	9	25.5
1964	7	12	16	10.3	11	9.3	23	20.3
1964	7	13	9	15.8	17	6.5	4	25.3
1964	7	14	1	8.6	17	5.4	28	24.0
1964	7	15	3	4.5	2	9.5	28	18.0
1964	7	16	3	6.7	2	5.8	20	25.5
1964	7	17	3	8.2	1	7.5	2	10.3
1964	7	18	3	7.1	12	10.2	18	29.6
1964	7	19	3	10.0	2	4.1	1	15.2
1964	7	20	3	7.4	1	4.3	8	9.5
1964	7	21	3	6.8	1	7.9	1	20.0
1964	7	22	1	8.8	2	9.4	12	19.1
1964	7	23	1	7.3	2	6.2	12	17.5
1964	7	24	1	8.9	1	7.9	2	14.8
1964	7	25	1	6.4	1	1.1	8	14.4
1964	7	26	1	5.6	1	1.6	1	27.7
1964	7	27	1	5.3	1	2.4	12	24.5
1964	7	28	1	5.7	1	0.9	3	9.7
1964	7	29	1	6.7	1	2.9	11	15.6
1964	7	30	1	9.4	1	6.5	1	4.9
1964	7	31	99	.	99	.	1	9.3
1964	8	1	6	10.8	2	6.4	1	22.0
1964	8	2	1	11.0	2	3.7	2	12.5
1964	8	3	1	8.0	1	8.7	2	14.8
1964	8	4	1	7.4	1	5.8	7	17.4
1964	8	5	1	7.8	2	8.1	1	17.6
1964	8	6	1	9.0	1	4.3	8	19.5
1964	8	7	1	8.3	1	3.1	6	19.4
1964	8	8	3	8.2	1	7.0	1	21.3
1964	8	9	1	5.5	1	2.4	1	12.2
1964	8	10	1	8.6	1	4.5	20	13.5
1964	8	11	5	10.6	3	5.0	3	15.4
1964	8	12	5	10.6	3	2.5	26	15.8
1964	8	13	1	6.7	3	7.8	11	26.7
1964	8	14	1	2.5	5	6.7	1	21.8
1964	8	15	1	7.2	1	4.4	12	12.0
1964	8	16	3	11.4	1	3.7	5	26.3
1964	8	17	3	12.9	1	5.1	17	15.4
1964	8	18	9	10.3	5	7.6	1	20.7
1964	8	19	11	13.9	5	8.6	1	11.7
1964	8	20	11	8.7	0	.	9	12.6
1964	8	21	11	10.8	0	.	9	19.9
1964	8	22	2	12.9	11	9.4	3	23.4
1964	8	23	2	7.7	1	8.2	6	18.9
1964	8	24	2	8.9	1	2.7	8	12.6
1964	8	25	1	7.3	1	4.5	6	26.3
1964	8	26	1	9.3	1	6.9	4	9.2
1964	8	27	1	8.7	2	4.8	12	19.5
1964	8	28	12	10.5	9	9.5	15	19.7
1964	8	29	1	11.4	12	8.6	12	27.2
1964	8	30	4	13.4	9	3.8	15	24.2
1964	8	31	4	8.0	2	4.4	1	15.7
1964	9	1	4	4.1	2	4.5	1	10.6
1964	9	2	4	4.8	4	5.9	28	21.4
1964	9	3	4	14.1	2	6.2	2	8.2
1964	9	4	17	9.8	1	1.4	2	18.2
1964	9	5	2	9.4	1	2.5	4	16.6
1964	9	6	4	10.0	2	6.4	8	19.6
1964	9	7	4	9.5	2	5.2	21	16.2

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1964	9	8	4	6.7	2	4.0	5	13.4
1964	9	9	4	5.5	2	1.1	9	19.4
1964	9	10	1	11.4	1	3.9	3	15.2
1964	9	11	1	9.7	1	0.8	8	18.7
1964	9	12	1	8.3	1	6.1	13	16.3
1964	9	13	1	5.7	1	4.3	4	20.2
1964	9	14	1	4.4	1	4.2	5	10.7
1964	9	15	1	4.7	1	4.6	1	10.4
1964	9	16	1	4.4	1	5.8	4	16.3
1964	9	17	1	5.4	1	15.0	10	14.7
1964	9	18	1	9.7	13	5.6	12	16.8
1964	9	19	1	8.4	2	8.0	22	5.8
1964	9	20	1	8.3	2	4.6	13	19.4
1964	9	21	11	7.5	2	6.2	27	13.3
1964	9	22	11	9.2	1	8.8	2	13.3
1964	9	23	2	11.8	3	11.1	6	9.4
1964	9	24	2	13.0	3	5.8	6	8.9
1964	9	25	2	7.6	1	1.7	4	19.8
1964	9	26	2	8.2	1	10.3	3	10.9
1964	9	27	2	8.8	1	5.1	2	22.9
1964	9	28	1	4.5	1	2.4	21	19.1
1964	9	29	1	4.1	1	0.5	5	12.8
1964	9	30	1	4.1	1	6.7	1	12.6
1964	10	1	1	5.0	2	1.9	2	15.5
1964	10	2	1	4.6	1	2.0	2	11.6
1964	10	3	1	5.3	1	1.9	2	8.4
1964	10	4	5	9.6	1	7.7	6	11.8
1964	10	5	5	7.9	3	4.0	6	13.6
1964	10	6	5	7.3	3	2.0	13	13.7
1964	10	7	5	9.3	1	8.2	20	20.5
1964	10	8	5	8.5	3	0.6	7	16.6
1964	10	9	9	8.8	3	5.6	1	25.6
1964	10	10	1	7.7	5	7.3	4	18.9
1964	10	11	16	15.1	7	4.5	2	12.5
1964	10	12	3	9.6	3	11.0	2	21.1
1964	10	13	3	8.1	3	15.7	4	10.1
1964	10	14	3	6.8	16	12.5	4	7.0
1964	10	15	1	5.8	2	6.0	4	11.8
1964	10	16	1	5.2	2	1.8	2	8.3
1964	10	17	1	5.2	1	6.9	22	10.0
1964	10	18	5	6.6	7	5.0	22	17.9
1964	10	19	5	4.8	3	2.1	6	10.3
1964	10	20	5	9.0	3	6.6	2	1.7
1964	10	21	5	6.4	3	4.0	15	26.1
1964	10	22	5	11.6	3	9.4	5	15.7
1964	10	23	1	6.3	0	.	4	13.5
1964	10	24	1	4.2	1	11.2	4	9.9
1964	10	25	1	3.1	1	10.8	2	11.2
1964	10	26	1	2.9	2	8.9	21	11.9
1964	10	27	1	6.5	2	5.7	20	16.4
1964	10	28	1	4.0	1	0.5	0	.
1964	10	29	1	5.9	1	3.1	13	18.3
1964	10	30	1	4.7	12	5.7	1	14.7
1964	10	31	1	7.2	6	7.4	22	27.4
1964	11	1	3	5.5	16	5.9	1	23.8
1964	11	2	3	6.8	2	5.4	12	18.1
1964	11	3	3	9.3	8	8.5	3	14.9
1964	11	4	3	7.8	1	5.3	18	20.4
1964	11	5	1	9.3	2	12.8	4	11.1
1964	11	6	1	5.6	1	4.9	2	12.3
1964	11	7	1	3.6	1	7.0	2	12.2
1964	11	8	1	5.0	2	8.5	21	19.4
1964	11	9	1	6.9	1	5.4	0	.
1964	11	10	6	10.2	2	4.3	1	5.8
1964	11	11	6	7.1	2	9.5	17	18.5
1964	11	12	12	6.0	9	8.5	15	24.6
1964	11	13	12	10.8	9	7.5	14	26.8
1964	11	14	4	10.2	4	6.8	9	15.5
1964	11	15	0	.	8	10.1	0	.
1964	11	16	7	17.5	7	9.7	13	12.3
1964	11	17	0	.	1	8.6	8	17.6
1964	11	18	2	11.8	1	5.6	19	9.2
1964	11	19	2	12.1	7	7.4	6	20.1
1964	11	20	5	9.7	3	5.3	3	12.5
1964	11	21	5	6.9	3	1.8	2	24.3
1964	11	22	1	5.6	1	8.2	2	9.5
1964	11	23	1	2.9	12	7.8	0	.
1964	11	24	1	1.7	1	3.1	10	11.4
1964	11	25	1	2.9	1	4.3	29	22.7
1964	11	26	1	6.6	1	3.8	11	14.5
1964	11	27	6	8.5	2	6.9	1	18.2
1964	11	28	1	7.7	9	10.7	26	5.5
1964	11	29	5	5.5	1	8.6	5	13.8
1964	11	30	1	5.4	1	6.9	4	23.2
1964	12	1	1	4.8	1	1.7	5	17.9
1964	12	2	2	7.7	1	4.5	5	7.5
1964	12	3	5	9.8	7	7.3	5	8.9
1964	12	4	1	9.7	7	5.6	7	24.5
1964	12	5	5	8.6	3	5.8	1	26.1
1964	12	6	5	5.4	3	9.7	2	7.8
1964	12	7	5	8.8	3	4.5	2	10.1
1964	12	8	1	9.5	17	7.8	10	20.1
1964	12	9	1	6.6	2	3.6	4	10.3
1964	12	10	1	6.2	2	6.1	4	16.3
1964	12	11	1	6.9	9	8.5	10	13.3
1964	12	12	11	7.8	2	11.3	2	19.4
1964	12	13	2	11.7	1	11.5	15	13.4
1964	12	14	1	9.6	3	7.2	26	20.5
1964	12	15	2	9.0	2	8.9	1	13.4
1964	12	16	2	4.1	9	4.1	3	13.5
1964	12	17	2	4.1	7	6.5	19	19.7
1964	12	18	1	6.1	1	1.6	4	6.3
1964	12	19	1	6.7	1	7.4	0	.
1964	12	20	1	3.6	1	5.9	11	27.5
1964	12	21	1	3.4	1	4.5	0	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1964	12	22	1	2.2	1	1.7	0	.
1964	12	23	1	1.5	1	3.8	17	19.4
1964	12	24	1	2.8	1	3.0	26	16.5
1964	12	25	1	5.9	1	4.1	27	21.6
1964	12	26	1	3.1	1	0.8	11	4.5
1964	12	27	3	5.4	2	5.5	1	9.7
1964	12	28	6	7.0	13	8.0	1	6.2
1964	12	29	6	5.7	2	4.3	0	.
1964	12	30	1	9.7	2	7.3	26	22.4
1964	12	31	4	6.5	2	3.1	1	13.3
1965	1	1	1	7.0	2	4.5	1	23.8
1965	1	2	1	6.4	5	6.9	18	14.2
1965	1	3	3	10.1	2	4.7	18	35.4
1965	1	4	6	6.6	2	3.6	14	12.5
1965	1	5	1	5.6	1	3.6	11	14.3
1965	1	6	1	6.8	1	8.0	0	.
1965	1	7	4	5.0	2	2.0	14	31.2
1965	1	8	1	5.8	2	9.0	3	9.4
1965	1	9	1	6.0	1	1.5	8	17.8
1965	1	10	1	6.1	1	2.3	21	24.5
1965	1	11	2	5.8	1	1.5	8	21.3
1965	1	12	2	9.6	1	3.0	8	6.0
1965	1	13	5	8.9	3	4.1	0	.
1965	1	14	5	6.2	3	4.8	1	18.8
1965	1	15	5	8.0	3	3.2	16	15.4
1965	1	16	5	15.7	3	5.0	4	14.7
1965	1	17	5	9.4	3	4.6	6	21.3
1965	1	18	5	7.2	3	4.4	13	21.5
1965	1	19	5	7.0	3	6.6	6	17.6
1965	1	20	1	8.5	3	9.3	10	14.7
1965	1	21	1	5.2	1	6.2	25	15.3
1965	1	22	1	6.3	12	4.0	5	16.3
1965	1	23	1	10.3	16	13.6	7	21.8
1965	1	24	1	4.0	1	4.2	11	32.4
1965	1	25	1	7.9	1	7.3	3	15.8
1965	1	26	2	10.7	1	3.3	6	19.5
1965	1	27	5	8.9	1	4.9	15	14.4
1965	1	28	5	7.6	3	5.0	19	20.3
1965	1	29	5	7.4	3	4.9	21	23.7
1965	1	30	5	6.3	3	7.2	19	10.4
1965	1	31	2	7.0	1	4.4	14	26.8
1965	2	1	2	4.4	3	5.9	19	7.2
1965	2	2	5	5.8	1	5.0	8	8.4
1965	2	3	5	4.6	1	6.0	8	11.9
1965	2	4	1	2.8	1	4.7	4	8.5
1965	2	5	1	2.8	1	0.7	10	30.5
1965	2	6	4	6.1	2	3.6	1	14.3
1965	2	7	7	10.7	6	9.9	19	16.9
1965	2	8	1	8.5	1	2.8	10	19.4
1965	2	9	11	6.0	2	6.3	1	18.6
1965	2	10	11	9.0	1	6.3	3	15.3
1965	2	11	2	9.3	6	2.5	23	15.6
1965	2	12	2	9.6	3	9.7	17	23.1
1965	2	13	11	10.4	3	10.3	10	12.4
1965	2	14	2	5.3	1	2.3	2	12.5
1965	2	15	11	8.6	1	4.6	19	24.9
1965	2	16	1	7.4	1	2.8	4	8.9
1965	2	17	1	8.2	1	4.8	15	15.5
1965	2	18	1	8.8	1	7.2	15	16.2
1965	2	19	1	4.6	1	6.2	10	10.1
1965	2	20	1	7.7	1	3.0	29	11.8
1965	2	21	2	7.1	3	7.7	19	16.1
1965	2	22	2	5.6	1	5.8	5	10.5
1965	2	23	11	7.3	7	5.0	5	13.0
1965	2	24	5	6.9	7	6.2	0	.
1965	2	25	5	5.1	3	2.6	6	28.6
1965	2	26	1	3.4	3	10.6	10	6.1
1965	2	27	1	2.1	1	2.0	24	16.9
1965	2	28	11	8.0	2	2.7	9	11.9
1965	3	1	7	11.2	8	9.4	3	11.9
1965	3	2	7	12.2	0	.	3	18.9
1965	3	3	0	.	0	.	3	25.4
1965	3	4	0	.	19	11.7	16	24.3
1965	3	5	0	.	19	8.7	3	22.1
1965	3	6	0	.	3	7.0	3	20.1
1965	3	7	2	17.3	3	10.6	2	19.7
1965	3	8	18	14.4	3	4.4	3	15.3
1965	3	9	18	12.0	3	5.4	16	17.7
1965	3	10	18	11.9	3	10.9	0	.
1965	3	11	18	11.3	3	7.7	0	.
1965	3	12	18	8.0	3	11.6	27	14.5
1965	3	13	2	8.5	7	7.4	0	.
1965	3	14	2	7.5	3	9.8	0	.
1965	3	15	2	7.3	1	4.1	26	15.4
1965	3	16	2	6.3	1	2.1	5	7.7
1965	3	17	2	4.2	1	10.5	3	13.1
1965	3	18	2	4.5	3	14.8	6	18.2
1965	3	19	2	4.8	7	10.0	19	12.1
1965	3	20	2	8.2	3	9.8	0	.
1965	3	21	2	5.7	3	7.8	4	16.1
1965	3	22	2	5.4	1	3.0	5	10.2
1965	3	23	2	5.5	1	6.9	19	11.7
1965	3	24	2	7.8	1	11.0	27	33.8
1965	3	25	2	12.5	9	8.7	5	25.4
1965	3	26	12	11.9	9	5.1	5	27.0
1965	3	27	12	9.7	1	7.6	5	12.6
1965	3	28	12	8.2	2	7.0	5	8.9
1965	3	29	1	5.3	1	1.5	5	14.4
1965	3	30	17	12.4	1	1.1	1	14.1
1965	3	31	1	8.4	1	1.8	1	8.2
1965	4	1	0	.	1	7.7	5	23.6
1965	4	2	4	12.5	0	.	1	7.7
1965	4	3	4	13.1	8	6.5	12	8.3
1965	4	4	7	7.8	7	11.7	5	20.2
1965	4	5	4	8.9	4	12.5	5	14.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1965	4	6	4	11.7	13	14.1	17	21.0
1965	4	7	6	14.4	5	7.7	0	.
1965	4	8	10	12.2	2	6.0	17	25.8
1965	4	9	10	10.6	2	5.7	1	15.5
1965	4	10	4	12.0	4	6.7	1	11.5
1965	4	11	18	16.1	0	.	3	15.8
1965	4	12	0	.	3	5.5	6	15.2
1965	4	13	1	13.8	0	.	4	17.8
1965	4	14	17	17.3	7	11.6	29	26.5
1965	4	15	8	13.5	3	4.0	3	17.7
1965	4	16	2	9.5	1	0.9	8	20.1
1965	4	17	1	5.6	1	2.5	16	30.1
1965	4	18	1	5.2	1	2.3	8	24.9
1965	4	19	1	4.4	1	1.0	25	26.9
1965	4	20	1	2.5	1	0.7	4	30.0
1965	4	21	1	2.0	1	1.6	7	15.5
1965	4	22	1	3.5	1	3.3	5	20.7
1965	4	23	1	3.7	1	6.7	5	9.4
1965	4	24	1	4.1	1	9.4	23	20.8
1965	4	25	7	10.2	7	8.2	27	27.1
1965	4	26	5	7.3	7	9.1	3	13.0
1965	4	27	5	10.2	3	4.8	23	13.7
1965	4	28	1	8.2	17	8.8	4	11.0
1965	4	29	1	4.1	1	6.1	2	5.4
1965	4	30	1	3.4	1	3.8	18	17.7
1965	5	1	1	5.5	2	6.2	1	30.7
1965	5	2	4	3.9	2	2.0	3	19.8
1965	5	3	1	8.4	2	6.5	23	16.7
1965	5	4	6	7.3	2	4.0	1	17.1
1965	5	5	6	7.1	4	3.3	12	10.4
1965	5	6	4	9.6	8	12.9	22	17.8
1965	5	7	4	11.4	8	10.1	29	13.3
1965	5	8	7	11.2	6	10.4	3	13.7
1965	5	9	7	8.6	0	.	3	20.2
1965	5	10	7	9.5	7	10.2	6	11.3
1965	5	11	1	6.6	1	9.8	2	7.7
1965	5	12	1	4.9	1	4.3	18	15.4
1965	5	13	1	3.5	1	10.4	19	23.3
1965	5	14	1	6.6	6	6.0	6	17.5
1965	5	15	1	9.4	6	11.3	3	21.2
1965	5	16	1	5.1	1	6.5	18	11.5
1965	5	17	1	5.6	2	3.9	10	26.9
1965	5	18	1	2.7	1	4.0	2	18.0
1965	5	19	1	3.1	1	1.7	11	18.6
1965	5	20	1	4.2	2	3.7	1	8.6
1965	5	21	1	8.2	1	6.7	6	10.7
1965	5	22	4	8.0	12	4.1	5	10.9
1965	5	23	4	12.1	4	3.3	5	14.7
1965	5	24	4	17.2	18	6.8	1	11.6
1965	5	25	11	11.1	8	4.5	20	13.5
1965	5	26	11	14.6	8	13.5	3	16.3
1965	5	27	5	5.1	7	7.9	6	11.7
1965	5	28	5	8.6	3	2.0	6	22.1
1965	5	29	1	9.6	3	4.6	2	18.7
1965	5	30	1	9.9	5	6.4	99	.
1965	5	31	4	11.4	2	7.6	1	9.3
1965	6	1	4	12.2	2	2.6	5	21.1
1965	6	2	7	12.7	2	10.1	9	23.1
1965	6	3	7	13.6	2	9.9	4	19.9
1965	6	4	7	7.0	6	7.1	12	19.6
1965	6	5	11	9.4	6	6.2	3	13.3
1965	6	6	1	10.9	9	17.8	10	30.2
1965	6	7	1	12.3	2	7.3	29	13.6
1965	6	8	99	.	99	.	2	15.0
1965	6	9	0	.	1	5.9	8	9.7
1965	6	10	3	15.3	0	.	0	.
1965	6	11	3	9.1	6	12.2	21	16.8
1965	6	12	3	7.5	12	11.3	1	15.4
1965	6	13	3	8.6	4	8.9	1	5.8
1965	6	14	6	12.1	13	10.6	1	11.4
1965	6	15	6	14.2	0	.	1	11.9
1965	6	16	0	.	0	.	1	13.3
1965	6	17	0	.	0	.	1	10.1
1965	6	18	6	15.4	4	11.2	4	13.1
1965	6	19	4	12.6	2	3.1	2	12.4
1965	6	20	1	8.6	1	3.8	2	9.2
1965	6	21	1	9.7	1	2.2	2	7.3
1965	6	22	1	9.3	1	5.2	8	20.6
1965	6	23	1	11.5	1	0.8	26	27.0
1965	6	24	3	6.0	12	6.2	1	20.4
1965	6	25	10	10.2	4	3.0	1	7.6
1965	6	26	6	12.4	4	6.6	1	7.5
1965	6	27	6	13.6	8	8.3	20	18.4
1965	6	28	1	11.9	12	5.7	25	20.8
1965	6	29	1	10.0	12	7.0	5	12.5
1965	6	30	1	8.6	5	8.1	16	33.2
1965	7	1	1	5.6	1	6.0	12	17.7
1965	7	2	1	6.8	1	4.5	6	13.1
1965	7	3	1	4.8	1	3.8	2	16.4
1965	7	4	1	5.8	1	2.9	25	18.9
1965	7	5	1	6.7	1	7.8	16	15.5
1965	7	6	1	4.2	1	5.2	2	20.8
1965	7	7	1	7.9	1	3.4	99	.
1965	7	8	2	14.3	1	4.4	29	25.0
1965	7	9	2	12.7	1	4.0	3	25.2
1965	7	10	1	10.8	1	5.2	11	18.9
1965	7	11	17	7.9	2	8.9	1	6.8
1965	7	12	1	8.0	2	0.7	12	8.0
1965	7	13	1	6.6	1	5.6	2	11.6
1965	7	14	1	6.0	1	1.9	6	25.4
1965	7	15	1	3.6	1	2.3	4	9.2
1965	7	16	1	3.9	1	2.5	20	19.0
1965	7	17	1	8.7	1	2.7	17	17.0
1965	7	18	1	9.7	5	3.5	1	12.0
1965	7	19	6	8.2	5	9.3	1	8.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1965	7	20	1	10.8	2	5.1	1	12.5
1965	7	21	4	7.3	2	3.2	4	18.8
1965	7	22	4	8.6	2	5.6	2	28.5
1965	7	23	4	11.1	2	4.0	22	18.8
1965	7	24	1	9.7	1	1.9	6	14.3
1965	7	25	1	11.5	1	3.8	8	17.6
1965	7	26	0	.	1	5.1	24	16.1
1965	7	27	3	11.7	3	8.7	11	28.3
1965	7	28	0	.	3	7.9	18	19.9
1965	7	29	0	.	3	9.9	0	.
1965	7	30	0	.	1	8.0	29	14.3
1965	7	31	7	16.2	3	2.2	6	13.4
1965	8	1	5	10.6	3	3.3	6	9.9
1965	8	2	5	9.9	3	3.6	4	31.5
1965	8	3	1	8.5	3	7.5	24	28.3
1965	8	4	1	8.5	1	9.0	4	17.4
1965	8	5	3	14.2	12	8.1	2	14.2
1965	8	6	1	9.5	7	8.0	3	18.8
1965	8	7	1	8.8	10	9.7	22	17.2
1965	8	8	1	9.6	3	6.7	13	21.9
1965	8	9	9	11.5	3	3.2	26	13.5
1965	8	10	17	7.8	1	10.1	4	17.6
1965	8	11	1	7.6	1	5.5	2	9.8
1965	8	12	1	11.6	1	4.5	2	24.5
1965	8	13	1	6.2	2	8.0	2	11.1
1965	8	14	1	9.0	6	8.1	2	8.8
1965	8	15	1	10.1	1	7.5	8	21.4
1965	8	16	2	10.9	1	4.3	12	22.5
1965	8	17	2	10.5	1	1.3	3	9.5
1965	8	18	1	13.6	1	3.4	3	22.6
1965	8	19	1	10.1	1	8.8	11	27.2
1965	8	20	1	8.3	1	8.8	21	19.0
1965	8	21	1	11.1	1	7.8	5	17.9
1965	8	22	8	9.5	12	8.8	11	12.6
1965	8	23	1	10.2	12	5.1	4	11.3
1965	8	24	1	5.2	1	8.4	14	19.3
1965	8	25	1	6.3	1	2.9	20	19.5
1965	8	26	12	6.0	1	2.7	3	21.2
1965	8	27	12	6.9	1	1.8	26	15.3
1965	8	28	12	11.3	5	2.5	11	24.9
1965	8	29	4	15.7	2	6.2	1	17.0
1965	8	30	11	16.5	2	7.0	20	22.2
1965	8	31	1	10.4	7	5.6	2	20.3
1965	9	1	1	7.4	3	5.2	2	17.1
1965	9	2	1	8.8	1	5.3	12	20.6
1965	9	3	2	7.0	1	4.9	21	10.6
1965	9	4	2	8.6	2	5.7	9	12.5
1965	9	5	2	9.2	1	4.7	19	19.7
1965	9	6	4	6.2	2	3.0	1	20.5
1965	9	7	4	9.8	1	6.9	13	14.8
1965	9	8	4	7.2	12	7.2	4	13.2
1965	9	9	2	10.2	2	6.7	29	15.0
1965	9	10	2	8.8	1	1.9	19	16.3
1965	9	11	1	9.4	2	5.3	1	17.1
1965	9	12	4	7.6	2	2.9	27	16.6
1965	9	13	1	7.5	1	3.3	16	25.9
1965	9	14	1	8.8	1	5.3	9	6.2
1965	9	15	2	9.0	1	5.8	3	28.8
1965	9	16	18	11.1	2	6.7	27	13.3
1965	9	17	18	13.1	4	7.3	27	32.3
1965	9	18	4	14.2	4	8.0	0	.
1965	9	19	4	10.7	6	5.9	13	8.4
1965	9	20	2	12.0	6	4.3	22	21.1
1965	9	21	2	9.5	6	6.3	10	23.3
1965	9	22	2	6.4	7	9.4	29	16.3
1965	9	23	2	4.7	7	6.6	6	16.0
1965	9	24	2	5.4	3	8.3	2	9.5
1965	9	25	2	4.5	1	2.1	8	21.1
1965	9	26	2	4.4	1	2.2	11	14.6
1965	9	27	4	7.8	1	6.4	5	21.8
1965	9	28	4	9.8	12	2.0	5	11.3
1965	9	29	7	7.2	8	10.5	27	14.8
1965	9	30	1	8.3	7	10.3	6	11.8
1965	10	1	1	3.8	1	7.7	2	13.4
1965	10	2	1	5.6	1	1.4	2	15.6
1965	10	3	1	7.0	1	3.8	11	16.8
1965	10	4	3	6.3	1	4.3	1	6.9
1965	10	5	3	3.9	5	3.9	4	10.8
1965	10	6	1	8.0	1	12.9	2	13.6
1965	10	7	5	8.5	3	11.9	6	13.0
1965	10	8	5	9.2	3	3.4	6	5.2
1965	10	9	1	5.7	17	9.6	10	27.9
1965	10	10	1	4.7	1	1.5	22	16.3
1965	10	11	5	4.8	3	6.9	6	14.8
1965	10	12	5	10.4	3	4.3	25	13.3
1965	10	13	1	4.8	1	2.0	1	18.4
1965	10	14	1	4.5	1	0.8	4	29.2
1965	10	15	6	8.1	2	8.3	1	13.4
1965	10	16	16	11.3	4	6.9	12	7.9
1965	10	17	1	8.9	2	4.6	4	21.6
1965	10	18	1	5.4	6	9.3	12	20.8
1965	10	19	1	7.6	16	8.8	1	24.2
1965	10	20	1	6.4	10	7.5	6	10.0
1965	10	21	1	8.9	3	7.6	99	.
1965	10	22	5	13.0	10	9.4	2	11.2
1965	10	23	5	8.3	3	1.6	6	18.2
1965	10	24	1	7.2	3	6.8	4	17.6
1965	10	25	1	6.5	1	4.4	6	13.6
1965	10	26	1	8.1	1	8.1	2	15.3
1965	10	27	1	8.6	1	9.4	0	.
1965	10	28	1	7.0	3	10.2	4	16.3
1965	10	29	1	4.0	1	2.3	2	6.4
1965	10	30	99	.	99	.	2	6.2
1965	10	31	1	5.3	1	4.0	6	6.1
1965	11	1	1	4.2	1	4.3	10	12.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1965	11	2	1	3.5	1	6.9	10	9.2
1965	11	3	1	5.8	1	3.3	6	21.3
1965	11	4	1	2.5	1	4.5	18	17.0
1965	11	5	1	2.3	1	2.9	2	11.3
1965	11	6	1	4.2	1	2.6	5	17.8
1965	11	7	8	11.1	1	3.1	5	19.7
1965	11	8	8	7.1	1	6.2	26	18.3
1965	11	9	1	7.9	1	4.4	21	22.4
1965	11	10	1	4.7	1	3.3	21	24.8
1965	11	11	1	6.2	1	4.4	1	9.2
1965	11	12	2	8.9	1	8.3	3	17.8
1965	11	13	2	10.7	1	5.2	8	21.3
1965	11	14	17	8.5	1	1.3	4	20.3
1965	11	15	1	8.9	1	3.9	14	20.8
1965	11	16	1	7.3	1	8.9	6	17.4
1965	11	17	15	5.4	1	10.6	11	17.5
1965	11	18	15	6.9	1	2.9	21	16.1
1965	11	19	1	6.9	1	2.4	24	22.4
1965	11	20	1	7.7	1	1.1	10	24.5
1965	11	21	12	8.1	1	1.5	10	12.7
1965	11	22	12	5.9	1	3.5	6	21.7
1965	11	23	15	11.3	1	5.0	5	32.9
1965	11	24	15	15.7	1	6.5	5	23.4
1965	11	25	4	9.4	2	7.3	5	7.0
1965	11	26	12	10.6	8	6.5	9	17.9
1965	11	27	5	8.4	3	11.0	6	17.0
1965	11	28	5	4.8	3	6.6	6	11.9
1965	11	29	5	7.5	3	5.8	6	22.7
1965	11	30	1	8.4	3	8.9	4	12.5
1965	12	1	1	5.5	1	2.7	2	13.1
1965	12	2	1	3.5	1	5.7	10	10.9
1965	12	3	1	4.8	3	5.9	6	8.2
1965	12	4	1	5.2	1	6.5	10	6.8
1965	12	5	1	6.6	1	4.1	6	9.5
1965	12	6	3	6.3	3	9.3	13	22.1
1965	12	7	1	4.7	1	1.3	2	13.9
1965	12	8	1	4.0	1	4.2	10	12.4
1965	12	9	1	7.3	1	5.3	0	.
1965	12	10	1	10.2	2	7.3	1	10.2
1965	12	11	1	8.5	8	12.0	9	15.3
1965	12	12	11	13.3	0	.	3	22.3
1965	12	13	11	14.5	0	.	3	18.7
1965	12	14	11	13.9	0	.	3	11.8
1965	12	15	2	11.3	7	5.4	0	.
1965	12	16	2	11.2	7	5.7	0	.
1965	12	17	1	9.0	1	3.9	2	8.8
1965	12	18	1	9.3	3	8.2	2	18.4
1965	12	19	1	9.4	1	8.2	2	15.0
1965	12	20	1	6.3	3	4.6	2	16.2
1965	12	21	1	3.7	1	2.6	2	7.6
1965	12	22	4	8.4	2	5.4	0	.
1965	12	23	1	9.7	2	7.8	5	20.0
1965	12	24	3	7.8	1	11.3	7	14.1
1965	12	25	3	8.5	5	7.4	0	.
1965	12	26	1	9.6	2	5.3	29	20.9
1965	12	27	1	5.4	1	1.6	11	17.4
1965	12	28	15	9.4	1	3.6	1	20.5
1965	12	29	1	10.6	2	2.0	14	17.0
1965	12	30	1	9.6	2	2.2	5	19.1
1965	12	31	4	8.5	2	6.9	99	.
1966	1	1	1	7.1	2	2.6	1	12.3
1966	1	2	1	7.2	16	13.3	7	27.1
1966	1	3	1	4.4	5	7.1	0	.
1966	1	4	1	8.1	2	5.5	11	28.7
1966	1	5	1	8.9	2	4.7	17	25.9
1966	1	6	1	5.6	1	0.8	7	17.3
1966	1	7	1	5.8	3	4.7	7	5.6
1966	1	8	1	2.9	1	4.8	4	16.5
1966	1	9	1	3.4	2	7.7	9	22.2
1966	1	10	1	4.7	1	4.8	26	18.4
1966	1	11	1	3.1	1	4.9	1	7.4
1966	1	12	1	5.6	1	6.9	0	.
1966	1	13	1	6.8	1	7.1	0	.
1966	1	14	1	6.6	1	5.7	1	21.6
1966	1	15	11	9.8	7	9.4	5	15.2
1966	1	16	11	16.7	19	10.9	5	13.2
1966	1	17	11	16.2	19	6.4	0	.
1966	1	18	11	16.6	17	2.4	10	18.2
1966	1	19	11	13.8	2	9.7	8	24.6
1966	1	20	11	11.8	2	7.9	5	12.3
1966	1	21	2	8.7	1	11.5	5	25.0
1966	1	22	2	4.6	1	3.3	5	21.3
1966	1	23	2	6.1	1	3.1	5	12.0
1966	1	24	5	9.1	1	3.6	5	11.0
1966	1	25	5	9.5	7	8.8	1	10.9
1966	1	26	1	10.3	1	5.4	21	27.7
1966	1	27	5	13.3	1	5.2	19	16.1
1966	1	28	5	8.0	1	9.1	5	7.4
1966	1	29	9	8.4	3	4.2	11	13.4
1966	1	30	9	6.9	3	6.4	11	16.8
1966	1	31	1	9.3	3	12.7	5	7.9
1966	2	1	1	12.4	3	9.9	5	22.6
1966	2	2	5	8.9	1	11.6	19	30.3
1966	2	3	5	9.6	3	8.9	26	19.7
1966	2	4	1	7.4	3	4.0	18	13.9
1966	2	5	1	3.8	1	1.7	4	16.8
1966	2	6	1	4.9	1	5.6	4	19.0
1966	2	7	4	6.2	12	5.2	5	15.1
1966	2	8	4	9.3	2	5.2	1	15.6
1966	2	9	11	6.1	8	4.3	9	32.0
1966	2	10	11	4.7	7	9.7	3	21.3
1966	2	11	11	8.5	7	9.0	10	16.6
1966	2	12	2	4.6	1	2.8	2	15.4
1966	2	13	2	5.5	1	5.1	16	16.4
1966	2	14	2	3.8	1	2.7	14	31.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1966	2	15	2	4.9	1	5.1	8	28.7
1966	2	16	2	5.3	7	5.9	6	16.9
1966	2	17	99	.	99	.	24	18.3
1966	2	18	2	8.4	1	1.5	5	15.3
1966	2	19	1	9.0	1	5.8	5	16.1
1966	2	20	1	11.2	3	12.6	5	16.8
1966	2	21	5	10.4	3	5.5	5	17.6
1966	2	22	15	14.0	19	4.5	1	24.7
1966	2	23	3	6.8	0	.	4	8.2
1966	2	24	3	7.0	3	10.9	4	21.1
1966	2	25	9	9.5	5	15.4	7	17.5
1966	2	26	1	11.4	4	9.3	1	16.0
1966	2	27	1	7.5	2	5.1	4	12.7
1966	2	28	1	5.2	1	8.8	2	4.9
1966	3	1	12	6.9	1	4.9	8	21.9
1966	3	2	4	11.5	2	8.1	5	10.5
1966	3	3	0	.	18	11.7	3	15.2
1966	3	4	0	.	0	.	3	14.4
1966	3	5	5	10.9	11	4.2	3	20.2
1966	3	6	3	8.2	3	8.0	7	15.5
1966	3	7	3	4.7	5	3.9	4	21.8
1966	3	8	1	5.5	1	4.5	4	13.6
1966	3	9	3	5.4	1	2.7	99	.
1966	3	10	1	8.7	2	6.2	1	10.6
1966	3	11	1	6.0	2	8.1	20	22.4
1966	3	12	1	3.9	1	3.1	6	22.0
1966	3	13	1	6.9	1	3.9	4	16.3
1966	3	14	3	2.4	1	8.3	1	11.2
1966	3	15	3	2.5	2	4.4	1	8.5
1966	3	16	3	8.7	2	3.0	1	15.3
1966	3	17	12	11.0	4	8.2	20	15.2
1966	3	18	3	9.6	0	.	6	12.2
1966	3	19	9	5.2	5	8.4	18	17.0
1966	3	20	1	6.3	2	4.2	20	19.3
1966	3	21	1	8.8	2	2.5	21	19.2
1966	3	22	1	10.0	6	3.0	3	8.5
1966	3	23	5	7.8	0	.	26	25.5
1966	3	24	5	12.3	3	2.5	18	18.0
1966	3	25	5	12.9	3	9.3	9	19.7
1966	3	26	5	7.7	3	2.1	17	27.4
1966	3	27	5	8.6	3	1.1	1	10.8
1966	3	28	5	9.2	3	2.7	4	17.3
1966	3	29	5	8.8	3	3.2	6	14.0
1966	3	30	5	11.6	3	3.0	10	30.5
1966	3	31	1	8.1	1	3.8	2	8.2
1966	4	1	5	7.1	3	2.2	6	3.9
1966	4	2	2	10.1	1	8.5	9	29.4
1966	4	3	2	11.6	3	12.4	3	8.8
1966	4	4	5	10.4	19	8.5	3	12.8
1966	4	5	2	14.0	19	7.4	6	7.3
1966	4	6	5	9.5	3	5.3	6	13.5
1966	4	7	5	9.6	3	5.2	3	13.9
1966	4	8	2	8.0	3	6.5	26	17.2
1966	4	9	99	.	99	.	18	25.1
1966	4	10	1	5.6	5	6.9	1	9.8
1966	4	11	1	9.3	5	8.8	1	10.5
1966	4	12	6	9.1	13	9.8	1	8.4
1966	4	13	3	12.1	13	5.7	1	9.6
1966	4	14	1	7.7	1	9.6	0	.
1966	4	15	1	6.8	3	9.8	1	21.8
1966	4	16	2	9.7	1	8.2	27	21.5
1966	4	17	2	6.9	2	4.1	3	18.5
1966	4	18	2	9.7	2	2.4	19	20.5
1966	4	19	2	11.2	2	7.0	3	15.3
1966	4	20	2	8.6	8	8.3	18	26.8
1966	4	21	2	8.3	1	2.5	4	16.3
1966	4	22	7	9.1	2	8.8	1	16.5
1966	4	23	7	7.8	6	10.0	4	23.6
1966	4	24	1	7.2	1	1.4	6	18.2
1966	4	25	1	4.9	1	1.1	7	22.4
1966	4	26	1	8.5	2	7.3	5	17.5
1966	4	27	11	11.0	4	9.5	9	12.9
1966	4	28	1	10.6	9	9.7	29	24.1
1966	4	29	1	8.2	1	5.4	8	17.7
1966	4	30	1	3.8	1	1.5	11	22.9
1966	5	1	1	5.5	1	1.3	1	12.1
1966	5	2	1	9.5	1	3.4	21	26.3
1966	5	3	1	9.3	3	8.0	11	24.0
1966	5	4	1	8.6	1	3.0	4	11.4
1966	5	5	1	13.6	1	4.9	6	21.2
1966	5	6	8	12.9	1	10.2	7	17.6
1966	5	7	8	11.7	1	6.5	1	26.9
1966	5	8	0	.	3	8.7	5	12.4
1966	5	9	0	.	3	2.0	5	21.7
1966	5	10	0	.	1	6.8	1	11.8
1966	5	11	0	.	0	.	5	12.6
1966	5	12	6	9.6	9	16.8	5	21.3
1966	5	13	6	8.8	9	7.6	1	22.8
1966	5	14	6	6.2	9	6.2	1	10.9
1966	5	15	6	5.4	2	6.0	9	12.9
1966	5	16	6	7.0	9	8.5	10	19.6
1966	5	17	1	7.5	2	7.6	22	19.0
1966	5	18	5	11.7	1	9.2	6	15.1
1966	5	19	11	17.0	3	9.4	6	11.2
1966	5	20	99	.	99	.	4	18.4
1966	5	21	1	7.1	1	4.8	4	8.4
1966	5	22	4	10.0	2	5.2	4	16.6
1966	5	23	1	10.8	8	8.5	2	9.5
1966	5	24	1	5.7	1	2.4	2	5.3
1966	5	25	1	6.5	1	3.6	2	13.7
1966	5	26	1	11.3	1	8.4	2	18.6
1966	5	27	0	.	3	12.8	7	9.5
1966	5	28	0	.	3	12.5	7	15.2
1966	5	29	0	.	5	13.9	1	18.5
1966	5	30	0	.	17	16.1	1	18.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1966	5	31	0	.	5	17.0	1	13.3
1966	6	1	17	10.9	4	10.2	12	18.4
1966	6	2	4	14.8	2	3.4	29	20.7
1966	6	3	1	10.7	12	6.3	5	16.4
1966	6	4	1	8.9	2	2.9	9	17.2
1966	6	5	1	10.2	2	6.0	9	13.6
1966	6	6	1	13.6	1	8.7	6	11.6
1966	6	7	8	11.4	1	4.5	3	32.2
1966	6	8	1	8.5	1	6.9	5	10.5
1966	6	9	3	8.4	1	3.8	23	23.1
1966	6	10	3	6.1	2	3.9	4	11.5
1966	6	11	1	8.0	2	2.6	12	17.9
1966	6	12	12	8.3	2	8.5	2	8.0
1966	6	13	99	.	99	.	6	14.2
1966	6	14	1	7.6	1	9.5	6	20.8
1966	6	15	5	10.3	1	9.1	3	11.2
1966	6	16	1	11.6	3	4.3	19	16.0
1966	6	17	3	11.2	3	5.0	13	24.2
1966	6	18	3	7.0	1	8.4	10	8.9
1966	6	19	3	4.9	1	3.2	2	13.0
1966	6	20	3	3.4	5	8.7	14	20.9
1966	6	21	3	6.5	2	5.9	12	12.4
1966	6	22	3	8.5	4	5.3	12	21.2
1966	6	23	6	8.6	2	7.0	12	21.6
1966	6	24	1	11.2	2	2.8	21	17.8
1966	6	25	1	8.9	2	2.8	20	21.7
1966	6	26	3	7.6	1	5.8	4	35.4
1966	6	27	3	6.1	2	4.5	4	9.8
1966	6	28	3	4.4	1	7.5	4	10.3
1966	6	29	3	7.6	2	11.8	12	26.8
1966	6	30	1	11.3	2	7.0	12	17.9
1966	7	1	4	12.7	2	5.8	12	16.3
1966	7	2	4	9.4	2	8.5	14	27.2
1966	7	3	6	11.2	4	11.4	17	19.8
1966	7	4	4	8.6	2	6.1	1	13.8
1966	7	5	2	10.2	1	4.0	2	10.5
1966	7	6	2	9.7	1	3.8	19	21.0
1966	7	7	17	7.8	1	4.0	4	26.8
1966	7	8	4	11.0	1	4.8	4	11.6
1966	7	9	4	12.2	1	3.6	2	3.8
1966	7	10	4	10.5	2	6.1	4	11.3
1966	7	11	4	7.7	2	4.5	2	9.1
1966	7	12	4	8.3	2	7.5	3	18.6
1966	7	13	4	9.0	2	6.3	5	14.1
1966	7	14	17	13.5	1	7.1	5	21.3
1966	7	15	15	15.2	2	7.9	1	12.3
1966	7	16	3	6.7	1	6.7	4	5.5
1966	7	17	3	7.3	2	6.7	2	11.5
1966	7	18	3	7.5	1	2.0	3	24.6
1966	7	19	1	7.8	1	6.2	7	13.9
1966	7	20	1	10.5	5	5.3	1	11.5
1966	7	21	1	9.0	2	9.3	12	10.9
1966	7	22	1	6.0	1	5.2	8	8.8
1966	7	23	1	7.5	1	2.1	8	19.7
1966	7	24	1	11.3	1	3.9	4	23.6
1966	7	25	1	10.2	12	6.8	14	23.6
1966	7	26	4	9.2	2	5.2	9	10.8
1966	7	27	99	.	99	.	22	25.4
1966	7	28	1	4.9	1	1.2	16	30.0
1966	7	29	1	3.0	1	2.6	13	17.2
1966	7	30	1	3.5	1	3.9	4	17.4
1966	7	31	1	3.3	1	3.1	14	17.3
1966	8	1	1	3.9	1	0.5	3	11.9
1966	8	2	1	4.2	1	5.6	13	22.7
1966	8	3	1	2.3	1	4.8	2	17.4
1966	8	4	1	3.2	1	3.7	29	26.5
1966	8	5	1	8.0	1	5.7	14	19.6
1966	8	6	1	9.0	1	4.1	9	22.4
1966	8	7	5	9.8	1	8.4	3	10.2
1966	8	8	1	10.9	3	13.2	26	18.9
1966	8	9	11	12.5	9	14.7	5	9.0
1966	8	10	1	12.2	3	14.3	23	22.5
1966	8	11	11	15.9	5	6.1	1	16.6
1966	8	12	1	10.2	2	7.7	12	11.6
1966	8	13	1	8.4	2	10.5	1	33.0
1966	8	14	1	5.2	1	6.4	0	.
1966	8	15	1	4.8	1	4.4	2	20.9
1966	8	16	1	4.1	1	2.3	2	16.9
1966	8	17	1	5.3	1	7.0	29	8.9
1966	8	18	1	5.4	1	2.1	19	18.5
1966	8	19	1	6.6	1	5.3	5	15.3
1966	8	20	1	9.1	2	5.0	27	18.3
1966	8	21	1	10.2	7	10.5	3	9.4
1966	8	22	2	11.6	7	12.8	26	17.3
1966	8	23	17	11.3	3	7.1	19	14.0
1966	8	24	17	9.6	3	2.9	13	16.9
1966	8	25	1	9.3	3	7.0	2	11.8
1966	8	26	1	4.0	1	5.7	4	12.0
1966	8	27	1	7.5	2	10.2	4	22.7
1966	8	28	1	9.4	2	4.5	10	21.1
1966	8	29	1	8.5	1	8.8	0	.
1966	8	30	10	10.3	4	11.5	1	10.5
1966	8	31	4	12.2	2	4.7	12	11.9
1966	9	1	1	10.2	6	7.7	8	10.9
1966	9	2	1	11.9	2	6.5	22	17.1
1966	9	3	1	9.2	1	8.6	22	14.3
1966	9	4	1	12.2	1	7.1	6	13.0
1966	9	5	1	11.4	3	2.8	6	14.3
1966	9	6	3	7.2	3	7.6	18	16.0
1966	9	7	3	5.5	2	11.5	4	5.5
1966	9	8	3	4.7	2	10.6	4	12.9
1966	9	9	3	4.6	1	8.2	14	14.5
1966	9	10	3	7.5	1	10.3	1	17.9
1966	9	11	4	11.7	2	8.9	1	11.5
1966	9	12	4	9.7	2	8.0	12	18.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1966	9	13	0	.	6	11.0	8	24.3
1966	9	14	0	.	12	16.6	0	.
1966	9	15	3	12.9	0	.	4	32.9
1966	9	16	3	10.4	0	.	4	22.7
1966	9	17	3	6.2	10	13.4	4	22.3
1966	9	18	3	10.1	0	.	18	22.3
1966	9	19	16	7.4	17	8.3	1	26.4
1966	9	20	0	.	0	.	13	17.9
1966	9	21	1	13.2	10	9.4	22	18.4
1966	9	22	1	13.3	3	6.1	6	11.3
1966	9	23	1	10.5	3	6.2	6	29.4
1966	9	24	1	8.3	1	4.6	5	30.5
1966	9	25	1	6.2	1	6.1	5	17.7
1966	9	26	1	6.1	1	2.5	12	15.4
1966	9	27	5	9.8	1	5.9	19	22.9
1966	9	28	1	15.4	1	5.6	2	6.0
1966	9	29	2	16.1	3	7.6	6	17.3
1966	9	30	2	13.8	3	6.9	3	16.6
1966	10	1	2	11.4	3	5.5	99	.
1966	10	2	2	8.3	1	3.9	99	.
1966	10	3	2	13.3	6	11.1	3	12.9
1966	10	4	5	13.5	7	8.6	99	.
1966	10	5	1	7.9	3	6.1	13	16.7
1966	10	6	1	4.6	1	7.4	2	10.7
1966	10	7	1	3.8	1	5.9	25	21.2
1966	10	8	1	5.5	1	4.9	99	.
1966	10	9	1	9.1	1	5.0	2	10.1
1966	10	10	1	9.9	3	4.6	99	.
1966	10	11	1	4.0	1	6.1	25	21.8
1966	10	12	1	5.3	2	6.1	9	20.0
1966	10	13	4	8.4	2	2.5	99	.
1966	10	14	1	7.2	6	3.7	99	.
1966	10	15	1	8.6	3	17.8	26	31.3
1966	10	16	1	7.6	1	5.7	13	19.6
1966	10	17	1	7.0	1	5.5	4	16.5
1966	10	18	1	8.0	1	6.8	22	13.5
1966	10	19	1	5.2	3	6.2	10	8.2
1966	10	20	1	4.1	1	8.0	4	8.3
1966	10	21	1	5.8	2	1.5	12	24.8
1966	10	22	1	7.3	1	9.3	6	11.6
1966	10	23	1	9.9	1	6.7	2	10.8
1966	10	24	1	7.7	3	1.8	2	23.8
1966	10	25	1	4.3	1	7.1	2	6.9
1966	10	26	1	2.5	1	5.7	4	15.8
1966	10	27	1	2.6	1	4.6	15	13.0
1966	10	28	1	2.8	1	1.5	3	8.0
1966	10	29	1	5.2	1	3.3	23	20.9
1966	10	30	1	4.0	1	2.6	2	12.9
1966	10	31	5	6.2	3	6.3	6	14.6
1966	11	1	5	2.9	3	5.1	3	19.7
1966	11	2	5	11.5	3	2.9	1	22.1
1966	11	3	2	9.7	3	6.6	0	.
1966	11	4	2	10.6	3	8.0	6	23.1
1966	11	5	2	8.4	3	7.2	4	10.2
1966	11	6	2	7.7	1	4.9	21	15.0
1966	11	7	4	10.1	2	4.7	5	11.8
1966	11	8	2	8.8	2	4.8	5	10.3
1966	11	9	11	7.5	6	5.3	23	5.6
1966	11	10	2	6.8	1	2.3	2	19.5
1966	11	11	1	4.1	1	2.5	16	23.7
1966	11	12	1	1.1	1	0.6	11	17.3
1966	11	13	1	3.3	1	1.8	29	24.3
1966	11	14	3	5.8	1	3.3	11	21.9
1966	11	15	3	5.3	1	5.4	1	16.0
1966	11	16	3	5.9	1	4.4	17	19.5
1966	11	17	1	8.5	1	5.4	17	19.1
1966	11	18	1	7.4	1	1.6	19	19.7
1966	11	19	15	6.7	1	2.5	4	7.7
1966	11	20	3	7.5	5	5.1	18	18.7
1966	11	21	4	7.9	2	1.6	4	11.0
1966	11	22	4	3.9	2	1.6	29	11.9
1966	11	23	4	7.4	1	6.9	16	14.0
1966	11	24	4	9.1	2	8.0	13	21.3
1966	11	25	1	6.6	1	2.2	10	13.3
1966	11	26	1	4.3	1	6.7	2	23.9
1966	11	27	1	4.6	10	7.7	7	31.4
1966	11	28	1	7.8	3	7.1	18	19.0
1966	11	29	1	7.2	0	.	27	31.5
1966	11	30	5	11.8	1	2.3	19	13.0
1966	12	1	8	8.6	1	8.1	8	13.5
1966	12	2	9	6.7	3	9.4	11	8.5
1966	12	3	3	2.9	2	9.0	1	20.8
1966	12	4	1	7.6	2	3.2	12	16.0
1966	12	5	1	4.6	2	5.2	1	21.5
1966	12	6	1	7.2	9	9.6	29	16.8
1966	12	7	6	6.4	2	3.1	21	20.1
1966	12	8	11	8.1	2	4.5	17	18.3
1966	12	9	1	11.6	0	.	3	14.9
1966	12	10	1	7.3	1	6.3	18	14.5
1966	12	11	1	8.1	1	5.0	4	12.2
1966	12	12	1	4.5	10	7.2	10	12.7
1966	12	13	1	3.6	1	3.5	28	28.3
1966	12	14	1	5.6	5	8.7	1	16.7
1966	12	15	1	4.7	1	7.6	2	10.6
1966	12	16	1	4.0	1	4.0	2	13.4
1966	12	17	1	5.5	1	2.6	15	19.4
1966	12	18	1	6.2	1	4.9	28	18.1
1966	12	19	1	6.2	1	4.8	2	13.3
1966	12	20	1	6.3	1	6.8	0	.
1966	12	21	1	8.7	1	6.4	7	11.4
1966	12	22	5	8.0	3	11.2	16	14.6
1966	12	23	3	9.8	3	5.2	10	13.6
1966	12	24	9	9.3	3	6.0	7	9.6
1966	12	25	2	14.0	5	9.0	7	15.7
1966	12	26	2	12.7	12	10.5	5	10.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1966	12	27	11	7.4	6	8.8	5	17.7
1966	12	28	11	8.2	0	.	16	27.1
1966	12	29	2	9.4	3	5.4	10	22.3
1966	12	30	11	7.8	1	8.7	28	22.8
1966	12	31	11	7.8	7	4.0	20	22.5
1967	1	1	2	6.6	1	4.6	10	13.6
1967	1	2	11	9.3	7	3.9	2	22.4
1967	1	3	1	8.5	3	8.3	10	12.0
1967	1	4	1	9.7	3	8.1	15	21.3
1967	1	5	2	7.3	1	5.2	1	24.5
1967	1	6	11	5.5	6	5.8	9	19.6
1967	1	7	11	7.8	19	3.5	3	27.8
1967	1	8	1	10.9	3	10.0	10	11.0
1967	1	9	5	4.7	3	7.6	2	10.3
1967	1	10	5	5.5	3	0.9	6	13.8
1967	1	11	1	2.6	1	3.9	10	11.4
1967	1	12	1	2.6	1	0.5	2	7.5
1967	1	13	1	7.6	1	1.2	2	19.5
1967	1	14	5	8.9	1	6.8	3	20.2
1967	1	15	1	7.9	3	4.7	18	13.3
1967	1	16	2	3.1	1	2.2	3	15.5
1967	1	17	2	3.2	1	7.4	19	13.0
1967	1	18	2	8.0	1	2.4	4	9.1
1967	1	19	1	3.9	1	1.4	24	22.0
1967	1	20	1	2.2	1	4.7	1	22.6
1967	1	21	1	3.0	1	3.8	18	21.6
1967	1	22	1	7.1	2	2.0	14	22.0
1967	1	23	1	8.9	2	3.5	19	20.1
1967	1	24	1	13.3	2	5.8	5	17.0
1967	1	25	1	6.1	1	8.8	5	14.9
1967	1	26	1	5.1	1	5.0	23	18.4
1967	1	27	1	5.4	1	8.6	0	.
1967	1	28	1	4.0	1	5.4	7	15.8
1967	1	29	1	4.3	1	2.7	1	13.2
1967	1	30	1	3.1	2	8.0	1	17.2
1967	1	31	1	2.2	1	2.5	19	23.1
1967	2	1	1	3.3	1	3.1	5	12.0
1967	2	2	1	5.2	1	2.0	10	19.8
1967	2	3	1	7.5	1	1.7	2	10.4
1967	2	4	1	9.0	3	6.6	6	16.8
1967	2	5	2	8.1	1	6.6	16	13.4
1967	2	6	2	8.6	3	5.3	4	21.7
1967	2	7	2	8.2	3	12.4	12	30.1
1967	2	8	2	8.6	3	7.1	10	19.1
1967	2	9	2	9.7	1	5.3	20	16.4
1967	2	10	2	5.3	1	7.7	26	17.0
1967	2	11	5	6.3	3	6.1	26	24.5
1967	2	12	1	4.0	1	3.7	4	12.7
1967	2	13	1	1.9	1	1.5	10	16.8
1967	2	14	1	6.8	1	4.4	5	19.2
1967	2	15	2	7.6	1	7.1	16	12.4
1967	2	16	2	5.5	1	1.4	11	24.0
1967	2	17	2	6.7	1	4.2	5	10.5
1967	2	18	2	5.2	1	7.3	1	14.0
1967	2	19	2	5.4	1	4.0	27	16.6
1967	2	20	99	.	99	.	6	22.3
1967	2	21	2	6.8	1	2.4	2	19.1
1967	2	22	5	7.8	7	7.6	6	8.1
1967	2	23	5	4.4	3	1.6	3	13.9
1967	2	24	5	8.8	3	3.0	11	9.1
1967	2	25	1	10.2	3	10.1	4	13.4
1967	2	26	1	10.7	1	7.5	12	7.7
1967	2	27	5	6.9	3	4.2	6	10.1
1967	2	28	1	5.2	3	3.4	10	13.8
1967	3	1	1	2.7	1	4.0	4	13.8
1967	3	2	2	4.5	1	2.4	8	24.5
1967	3	3	2	3.6	1	3.6	5	14.8
1967	3	4	2	7.7	1	2.4	12	19.6
1967	3	5	2	7.5	7	2.3	19	15.4
1967	3	6	2	4.9	1	5.5	15	12.8
1967	3	7	2	4.7	7	6.1	19	17.3
1967	3	8	2	8.1	1	2.4	4	5.0
1967	3	9	1	5.7	1	2.2	14	16.2
1967	3	10	1	7.8	2	3.9	5	21.8
1967	3	11	1	10.8	1	6.7	5	9.9
1967	3	12	4	10.4	2	3.2	5	12.7
1967	3	13	4	10.0	2	6.0	5	9.5
1967	3	14	1	9.8	1	6.4	5	9.7
1967	3	15	1	9.2	1	0.9	11	17.1
1967	3	16	15	9.6	1	2.4	5	19.5
1967	3	17	3	6.4	3	7.0	11	14.5
1967	3	18	1	5.1	1	3.5	1	28.0
1967	3	19	1	7.2	2	7.1	1	19.2
1967	3	20	99	.	99	.	0	.
1967	3	21	1	2.5	1	5.3	18	17.4
1967	3	22	1	5.6	1	1.9	10	26.3
1967	3	23	3	5.1	5	5.9	1	19.9
1967	3	24	6	7.9	2	3.0	12	16.4
1967	3	25	1	4.1	2	2.1	22	25.2
1967	3	26	1	4.7	2	2.1	7	24.5
1967	3	27	1	2.9	2	5.9	8	23.2
1967	3	28	1	3.1	2	6.7	1	19.3
1967	3	29	4	6.6	2	2.4	1	6.9
1967	3	30	4	4.8	4	3.6	9	14.0
1967	3	31	4	10.0	8	8.5	29	16.5
1967	4	1	4	8.5	2	7.3	5	14.7
1967	4	2	4	11.9	1	6.6	3	12.1
1967	4	3	17	9.5	1	4.3	18	25.7
1967	4	4	17	8.6	1	3.5	2	20.2
1967	4	5	4	6.4	12	6.7	5	13.2
1967	4	6	17	4.9	1	4.6	16	14.9
1967	4	7	4	8.2	1	4.0	4	12.2
1967	4	8	1	4.8	2	2.9	1	18.1
1967	4	9	1	4.8	1	4.8	3	13.9
1967	4	10	1	10.1	12	6.3	1	19.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1967	4	11	4	6.6	2	5.3	1	10.3
1967	4	12	16	14.0	2	4.0	12	13.7
1967	4	13	6	10.1	18	14.5	1	16.4
1967	4	14	6	11.0	16	12.5	9	22.8
1967	4	15	4	7.9	2	8.3	25	13.6
1967	4	16	6	5.8	2	4.0	9	12.1
1967	4	17	9	16.3	9	7.6	26	15.1
1967	4	18	4	10.8	2	4.7	5	18.5
1967	4	19	4	12.8	2	5.7	1	17.6
1967	4	20	4	11.5	4	7.9	9	15.1
1967	4	21	13	7.8	7	11.4	3	14.0
1967	4	22	13	11.4	1	10.3	26	9.8
1967	4	23	9	10.8	1	9.8	5	7.0
1967	4	24	1	9.6	1	16.3	11	20.7
1967	4	25	1	9.2	12	7.9	5	13.9
1967	4	26	9	9.9	1	10.2	7	28.8
1967	4	27	8	9.2	5	6.8	11	16.4
1967	4	28	8	16.0	12	5.4	1	18.8
1967	4	29	99	.	99	.	5	12.2
1967	4	30	0	.	6	14.8	9	14.8
1967	5	1	0	.	14	0.0	9	23.1
1967	5	2	0	.	7	8.2	6	16.8
1967	5	3	2	6.2	1	6.2	8	16.9
1967	5	4	2	4.3	1	2.8	11	21.1
1967	5	5	2	11.4	1	5.1	8	27.8
1967	5	6	11	12.7	1	4.2	4	11.2
1967	5	7	2	10.2	1	5.5	2	4.6
1967	5	8	2	11.3	3	5.2	6	6.7
1967	5	9	2	12.8	1	4.0	5	31.0
1967	5	10	17	11.0	1	5.8	5	13.6
1967	5	11	13	9.7	1	5.3	16	15.4
1967	5	12	1	9.6	2	7.4	5	24.9
1967	5	13	1	11.2	1	7.1	19	28.4
1967	5	14	5	10.6	7	4.6	6	18.2
1967	5	15	5	5.2	3	2.7	6	24.6
1967	5	16	1	5.8	3	5.3	6	18.0
1967	5	17	1	2.7	1	6.2	10	0.0
1967	5	18	1	3.5	1	1.4	29	17.4
1967	5	19	1	7.4	1	6.4	6	17.1
1967	5	20	5	7.8	1	8.1	0	.
1967	5	21	1	8.9	3	3.4	1	25.9
1967	5	22	1	4.3	1	4.6	4	9.6
1967	5	23	1	3.2	1	2.3	2	26.2
1967	5	24	1	3.3	1	7.0	1	8.1
1967	5	25	1	9.1	2	2.4	12	12.8
1967	5	26	1	7.0	2	6.3	22	14.3
1967	5	27	3	10.0	12	6.1	23	24.7
1967	5	28	3	7.0	1	8.4	1	13.5
1967	5	29	6	9.6	0	.	1	10.3
1967	5	30	6	17.9	18	15.6	1	13.0
1967	5	31	0	.	0	.	5	13.3
1967	6	1	0	.	0	.	5	21.8
1967	6	2	4	11.0	2	13.3	4	15.8
1967	6	3	4	8.5	2	2.3	4	9.5
1967	6	4	4	11.7	2	6.6	8	12.2
1967	6	5	4	11.3	1	7.2	1	28.7
1967	6	6	4	7.4	1	7.8	5	22.3
1967	6	7	4	4.6	6	9.5	5	18.3
1967	6	8	4	5.0	9	13.5	27	22.8
1967	6	9	4	6.5	12	7.8	3	22.8
1967	6	10	4	8.4	2	7.5	17	20.1
1967	6	11	11	8.7	4	8.9	17	20.8
1967	6	12	4	6.2	4	9.3	27	19.2
1967	6	13	4	4.4	4	8.4	12	22.2
1967	6	14	7	7.5	8	11.2	9	18.9
1967	6	15	7	10.1	6	2.2	3	10.3
1967	6	16	1	11.7	7	7.6	17	27.1
1967	6	17	0	.	12	6.2	17	23.7
1967	6	18	1	13.5	2	2.8	1	5.9
1967	6	19	1	10.9	1	9.7	12	16.2
1967	6	20	1	10.3	1	4.2	2	11.5
1967	6	21	8	10.1	1	6.5	6	18.2
1967	6	22	2	13.0	1	3.1	8	13.5
1967	6	23	2	8.9	1	4.5	8	14.8
1967	6	24	2	9.0	1	7.5	22	22.0
1967	6	25	1	5.8	1	7.4	4	23.9
1967	6	26	1	4.9	1	6.5	4	8.9
1967	6	27	1	4.0	1	8.0	4	9.8
1967	6	28	1	6.5	1	10.8	20	22.7
1967	6	29	1	4.7	1	4.1	2	5.4
1967	6	30	1	7.3	1	2.1	2	9.4
1967	7	1	1	11.3	1	2.0	6	25.6
1967	7	2	5	10.0	3	4.9	26	16.4
1967	7	3	1	9.4	3	3.0	26	14.6
1967	7	4	1	6.0	3	7.0	18	24.8
1967	7	5	1	3.7	5	7.4	4	15.0
1967	7	6	1	3.9	1	6.4	4	11.6
1967	7	7	99	.	99	.	12	18.5
1967	7	8	1	4.6	2	6.8	4	17.4
1967	7	9	1	6.0	2	3.7	10	18.9
1967	7	10	1	4.9	2	8.8	2	15.1
1967	7	11	1	13.0	1	1.9	6	17.9
1967	7	12	3	13.1	3	6.8	26	13.7
1967	7	13	3	11.7	3	3.5	26	17.2
1967	7	14	1	10.5	17	7.1	13	25.1
1967	7	15	1	6.7	1	5.8	2	20.6
1967	7	16	1	7.5	3	6.1	0	.
1967	7	17	3	6.8	1	7.9	18	18.2
1967	7	18	3	4.3	5	2.5	10	25.2
1967	7	19	3	4.7	5	6.7	4	12.9
1967	7	20	1	5.8	2	8.9	4	8.5
1967	7	21	1	5.9	2	7.8	4	14.6
1967	7	22	17	7.5	2	7.3	2	15.1
1967	7	23	1	9.1	1	2.7	2	8.0
1967	7	24	1	8.7	1	6.5	15	28.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1967	7	25	17	8.8	1	4.8	29	22.5
1967	7	26	1	6.8	1	2.3	8	20.6
1967	7	27	1	4.6	1	1.8	22	26.1
1967	7	28	1	5.0	1	4.2	2	12.1
1967	7	29	1	5.4	1	4.6	2	24.7
1967	7	30	1	3.4	1	2.7	17	17.0
1967	7	31	1	2.8	1	4.9	1	17.2
1967	8	1	1	4.7	1	8.4	20	8.0
1967	8	2	1	6.5	1	2.4	2	8.7
1967	8	3	1	7.4	1	7.9	6	17.1
1967	8	4	1	3.8	1	4.8	11	19.9
1967	8	5	1	5.8	1	2.7	4	14.3
1967	8	6	1	4.8	1	1.3	3	27.2
1967	8	7	1	3.6	1	7.8	18	25.0
1967	8	8	1	6.0	1	1.5	3	13.0
1967	8	9	1	10.0	1	5.2	16	25.8
1967	8	10	16	10.0	3	2.4	13	27.1
1967	8	11	3	8.9	17	7.3	4	9.9
1967	8	12	1	10.3	1	10.3	4	6.8
1967	8	13	1	10.5	10	5.2	2	15.2
1967	8	14	1	12.6	10	8.6	2	6.6
1967	8	15	7	11.6	10	8.5	2	9.6
1967	8	16	1	12.4	10	6.6	29	25.4
1967	8	17	1	13.0	1	6.6	26	21.4
1967	8	18	5	10.4	3	4.5	16	18.9
1967	8	19	5	8.6	3	5.8	2	19.3
1967	8	20	1	9.7	3	6.2	14	25.0
1967	8	21	1	10.5	3	8.5	7	20.1
1967	8	22	1	8.7	5	8.4	1	8.9
1967	8	23	1	6.5	10	9.2	4	13.5
1967	8	24	1	8.1	2	10.9	4	15.9
1967	8	25	1	8.8	1	5.7	8	9.0
1967	8	26	1	6.7	1	6.8	19	25.3
1967	8	27	1	5.2	3	12.5	4	15.2
1967	8	28	3	13.4	1	5.3	2	12.7
1967	8	29	3	15.9	1	2.2	3	8.4
1967	8	30	3	15.6	3	4.0	7	30.4
1967	8	31	3	8.3	3	6.1	11	18.0
1967	9	1	16	8.1	0	.	4	15.1
1967	9	2	16	10.1	13	8.9	4	12.4
1967	9	3	16	8.0	10	12.0	12	10.8
1967	9	4	16	9.5	10	1.9	4	13.8
1967	9	5	3	6.9	10	8.8	1	29.5
1967	9	6	16	7.7	16	14.6	4	10.6
1967	9	7	1	5.7	2	10.8	2	11.7
1967	9	8	1	5.1	1	3.7	8	21.3
1967	9	9	1	6.1	1	6.6	7	15.9
1967	9	10	3	4.7	2	4.9	4	15.1
1967	9	11	6	6.4	2	6.1	4	13.3
1967	9	12	1	15.0	4	9.5	12	14.3
1967	9	13	7	9.3	0	.	20	11.7
1967	9	14	7	7.6	14	11.2	20	12.8
1967	9	15	99	.	99	.	29	23.1
1967	9	16	0	.	0	.	5	12.6
1967	9	17	0	.	0	.	0	.
1967	9	18	7	10.0	0	.	5	22.1
1967	9	19	7	7.0	6	17.5	13	9.2
1967	9	20	7	9.6	1	9.6	2	3.9
1967	9	21	1	8.0	3	6.4	6	11.7
1967	9	22	1	6.9	5	7.1	4	12.2
1967	9	23	1	7.7	1	3.5	8	20.3
1967	9	24	99	.	99	.	4	8.1
1967	9	25	99	.	99	.	20	21.3
1967	9	26	5	13.3	7	4.6	3	5.8
1967	9	27	5	10.3	3	3.7	13	12.2
1967	9	28	1	16.4	3	6.2	10	12.6
1967	9	29	3	10.5	17	7.3	4	13.4
1967	9	30	3	5.3	5	6.9	18	22.4
1967	10	1	3	6.6	2	1.6	20	17.9
1967	10	2	1	7.7	2	2.9	25	18.4
1967	10	3	3	9.2	2	3.6	1	14.9
1967	10	4	1	7.4	2	4.4	29	23.0
1967	10	5	3	8.9	1	7.0	5	16.4
1967	10	6	1	8.8	2	6.0	1	16.5
1967	10	7	1	11.5	7	15.3	9	19.1
1967	10	8	5	9.7	3	6.6	17	30.6
1967	10	9	5	7.5	3	5.4	26	15.3
1967	10	10	3	12.4	3	4.5	23	22.0
1967	10	11	3	6.5	5	10.9	4	13.4
1967	10	12	1	4.8	2	5.0	12	17.6
1967	10	13	1	3.3	1	7.3	2	10.0
1967	10	14	1	6.1	1	2.2	2	13.9
1967	10	15	1	5.4	7	5.1	22	12.0
1967	10	16	1	4.1	1	4.3	13	19.3
1967	10	17	1	5.4	1	2.9	6	14.7
1967	10	18	1	6.8	3	3.0	18	19.8
1967	10	19	1	5.2	5	9.4	10	21.0
1967	10	20	1	4.2	1	5.1	6	12.7
1967	10	21	1	2.7	1	4.7	10	16.9
1967	10	22	1	5.3	2	1.1	10	19.5
1967	10	23	1	6.6	2	2.3	4	13.3
1967	10	24	1	7.0	7	9.2	2	13.3
1967	10	25	1	7.8	3	7.3	26	16.7
1967	10	26	5	6.4	1	7.5	3	19.2
1967	10	27	5	9.0	3	3.0	18	24.2
1967	10	28	1	6.1	5	4.4	10	20.4
1967	10	29	11	8.5	8	12.2	22	19.8
1967	10	30	1	11.9	7	9.0	2	15.3
1967	10	31	1	5.8	1	4.3	10	17.4
1967	11	1	2	9.8	1	2.5	22	18.4
1967	11	2	2	6.7	7	5.6	3	10.3
1967	11	3	2	6.0	3	8.7	6	12.6
1967	11	4	2	6.9	3	5.5	19	16.1
1967	11	5	5	3.1	3	3.2	2	15.2
1967	11	6	5	3.4	3	0.8	6	21.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1967	11	7	1	5.8	3	4.4	10	12.0
1967	11	8	1	3.1	1	2.0	2	4.0
1967	11	9	1	1.6	1	4.4	18	16.8
1967	11	10	1	3.3	2	4.9	28	19.1
1967	11	11	1	2.4	1	2.8	2	9.3
1967	11	12	1	8.7	1	3.8	6	18.8
1967	11	13	8	9.9	1	5.9	22	23.5
1967	11	14	8	8.1	3	3.7	26	11.2
1967	11	15	1	4.3	1	7.8	4	13.2
1967	11	16	1	6.2	1	1.7	2	2.9
1967	11	17	99	.	99	.	2	11.7
1967	11	18	2	9.8	3	6.1	6	13.3
1967	11	19	17	7.7	1	3.9	5	11.9
1967	11	20	2	11.7	1	2.9	4	16.6
1967	11	21	2	9.0	7	4.9	3	9.3
1967	11	22	2	9.5	3	4.9	10	12.1
1967	11	23	11	9.6	1	9.1	2	10.6
1967	11	24	11	9.5	1	8.2	2	16.3
1967	11	25	2	8.9	1	6.4	2	10.4
1967	11	26	2	8.8	1	7.3	2	18.4
1967	11	27	99	.	99	.	6	17.0
1967	11	28	1	8.8	1	4.1	11	11.7
1967	11	29	1	4.6	1	3.0	1	11.4
1967	11	30	1	6.7	2	7.6	1	14.5
1967	12	1	1	8.1	2	2.8	12	15.8
1967	12	2	3	5.6	1	6.4	0	.
1967	12	3	3	6.1	1	4.8	10	8.9
1967	12	4	3	6.5	2	3.0	10	18.0
1967	12	5	3	7.5	2	3.4	18	15.4
1967	12	6	3	7.2	4	9.4	9	14.2
1967	12	7	6	9.1	13	16.6	17	21.6
1967	12	8	11	9.0	4	11.1	9	22.7
1967	12	9	11	9.5	15	17.0	23	20.2
1967	12	10	1	12.6	10	11.5	28	18.5
1967	12	11	2	11.0	1	4.4	2	14.9
1967	12	12	2	7.9	1	11.7	6	16.6
1967	12	13	18	0.0	7	11.1	8	19.9
1967	12	14	18	15.1	7	8.0	8	20.6
1967	12	15	0	.	1	11.7	2	16.7
1967	12	16	11	12.0	2	7.5	4	4.4
1967	12	17	11	7.2	18	11.3	9	10.9
1967	12	18	13	13.7	9	11.8	2	8.9
1967	12	19	13	10.1	2	5.9	8	8.7
1967	12	20	4	6.6	2	6.1	5	14.4
1967	12	21	11	8.2	8	5.2	6	13.6
1967	12	22	5	5.4	3	5.4	6	18.1
1967	12	23	1	3.6	1	2.0	2	17.9
1967	12	24	1	9.0	1	1.8	2	8.6
1967	12	25	2	6.1	3	7.6	6	12.8
1967	12	26	2	5.2	1	5.9	21	22.2
1967	12	27	2	5.3	7	9.3	4	13.9
1967	12	28	2	5.1	3	8.3	27	33.3
1967	12	29	2	6.9	1	4.3	2	10.4
1967	12	30	2	8.5	1	5.1	3	14.0
1967	12	31	2	5.8	3	6.7	18	11.7
1968	1	1	2	3.3	1	0.6	14	26.8
1968	1	2	2	3.3	1	2.3	5	18.5
1968	1	3	2	5.3	1	3.4	0	.
1968	1	4	2	6.5	3	3.8	0	.
1968	1	5	2	4.9	1	0.5	3	22.7
1968	1	6	2	6.8	1	3.4	19	20.6
1968	1	7	1	8.6	1	4.1	11	15.8
1968	1	8	1	4.9	1	6.1	1	6.1
1968	1	9	1	5.6	1	2.7	26	20.2
1968	1	10	1	9.4	2	5.6	1	13.2
1968	1	11	1	9.6	2	5.7	12	7.5
1968	1	12	1	6.7	10	13.4	24	29.3
1968	1	13	3	9.5	3	10.8	18	20.5
1968	1	14	3	9.3	3	6.5	7	21.2
1968	1	15	3	4.0	17	5.5	18	15.6
1968	1	16	3	2.3	5	7.5	4	9.2
1968	1	17	1	8.1	2	1.6	2	18.4
1968	1	18	1	4.8	1	6.3	2	16.3
1968	1	19	1	3.1	1	3.6	2	10.7
1968	1	20	1	4.4	1	4.6	2	8.2
1968	1	21	1	5.3	1	5.2	2	12.8
1968	1	22	7	11.1	1	8.1	3	13.9
1968	1	23	5	9.6	3	2.5	10	25.4
1968	1	24	1	8.9	3	4.6	2	12.9
1968	1	25	1	10.1	1	3.6	2	8.3
1968	1	26	4	13.1	2	4.6	5	14.9
1968	1	27	4	5.5	2	1.7	5	7.8
1968	1	28	4	5.1	2	1.0	5	11.1
1968	1	29	4	7.5	2	3.1	19	15.0
1968	1	30	1	4.4	2	5.3	1	22.8
1968	1	31	1	3.8	2	2.7	14	20.4
1968	2	1	1	3.0	1	8.5	7	8.4
1968	2	2	1	3.4	1	9.6	18	14.6
1968	2	3	1	5.1	1	6.4	4	27.1
1968	2	4	1	6.8	10	5.3	18	29.3
1968	2	5	1	7.8	10	10.9	4	18.7
1968	2	6	1	11.7	3	7.1	3	15.4
1968	2	7	5	14.7	3	4.6	0	.
1968	2	8	5	12.6	3	7.3	3	29.4
1968	2	9	5	13.8	3	3.1	7	19.0
1968	2	10	0	.	3	4.1	17	18.5
1968	2	11	0	.	3	4.1	17	22.8
1968	2	12	0	.	0	.	5	12.6
1968	2	13	0	.	0	.	19	16.2
1968	2	14	2	14.0	12	5.3	8	17.1
1968	2	15	2	9.4	3	12.4	6	8.9
1968	2	16	5	12.4	1	4.1	3	17.7
1968	2	17	5	4.9	3	4.5	8	16.3
1968	2	18	5	4.5	3	6.3	11	18.1
1968	2	19	5	5.6	1	4.2	24	10.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1968	2	20	5	4.8	3	5.5	5	13.4
1968	2	21	5	6.6	3	2.8	11	11.3
1968	2	22	5	5.8	3	3.1	5	14.7
1968	2	23	5	8.5	3	5.1	11	24.1
1968	2	24	99	.	99	.	1	14.0
1968	2	25	5	4.1	3	5.3	2	18.8
1968	2	26	5	6.0	3	0.9	6	16.8
1968	2	27	5	7.3	3	6.0	3	15.3
1968	2	28	5	10.0	19	8.5	16	18.6
1968	2	29	5	11.0	19	8.2	13	19.3
1968	3	1	5	9.9	3	3.8	15	15.7
1968	3	2	0	.	3	11.4	16	13.6
1968	3	3	1	13.5	3	9.8	4	17.6
1968	3	4	1	6.3	1	5.4	15	20.1
1968	3	5	1	9.3	3	2.3	26	31.8
1968	3	6	3	4.5	5	6.6	1	14.2
1968	3	7	3	8.1	2	2.6	4	14.4
1968	3	8	1	7.5	2	6.2	9	17.4
1968	3	9	1	7.0	1	3.0	3	14.9
1968	3	10	5	12.9	1	5.0	5	17.5
1968	3	11	5	9.7	1	4.8	5	16.8
1968	3	12	8	14.4	3	7.6	11	21.1
1968	3	13	8	9.1	1	8.8	11	20.2
1968	3	14	1	4.4	2	5.0	1	11.8
1968	3	15	1	2.6	1	1.1	2	8.0
1968	3	16	1	3.0	1	2.7	18	14.9
1968	3	17	1	6.7	2	4.0	1	13.8
1968	3	18	4	11.5	8	8.6	9	14.9
1968	3	19	7	11.0	7	14.8	3	12.5
1968	3	20	0	.	7	6.1	3	17.5
1968	3	21	5	10.7	0	.	7	17.9
1968	3	22	5	11.3	11	4.6	23	12.7
1968	3	23	3	12.1	17	8.4	10	8.6
1968	3	24	1	3.6	1	5.6	10	22.0
1968	3	25	1	2.8	1	3.5	2	8.8
1968	3	26	1	5.5	12	8.7	4	28.6
1968	3	27	1	6.1	8	10.7	10	17.6
1968	3	28	1	3.3	1	3.5	2	3.6
1968	3	29	1	2.7	1	0.4	2	22.8
1968	3	30	1	2.9	2	5.7	12	28.4
1968	3	31	1	4.6	1	1.1	19	13.7
1968	4	1	1	8.3	1	1.0	21	13.5
1968	4	2	1	11.0	12	6.8	5	8.8
1968	4	3	7	11.4	6	4.9	5	19.4
1968	4	4	1	9.4	3	3.4	6	24.6
1968	4	5	1	6.4	1	3.8	4	7.4
1968	4	6	11	8.9	2	2.6	12	8.8
1968	4	7	11	6.8	8	5.6	9	20.1
1968	4	8	2	8.4	7	7.9	6	8.9
1968	4	9	1	8.1	7	6.5	2	13.3
1968	4	10	1	5.6	3	4.1	10	10.3
1968	4	11	1	4.9	1	5.7	4	10.1
1968	4	12	4	7.6	2	2.0	3	23.6
1968	4	13	1	6.3	2	3.0	27	12.6
1968	4	14	1	3.4	1	7.4	6	22.0
1968	4	15	1	4.4	1	3.3	4	5.6
1968	4	16	4	5.2	2	0.8	29	19.7
1968	4	17	4	8.7	2	5.3	3	11.3
1968	4	18	1	9.6	6	5.3	23	6.5
1968	4	19	4	6.5	4	4.6	1	9.7
1968	4	20	4	9.6	13	11.5	9	17.8
1968	4	21	4	14.7	2	10.7	3	21.7
1968	4	22	7	11.1	6	9.9	22	16.5
1968	4	23	1	7.0	10	8.0	6	18.2
1968	4	24	1	10.8	3	8.1	26	22.9
1968	4	25	11	7.1	1	5.5	0	.
1968	4	26	2	7.3	1	5.1	0	.
1968	4	27	7	10.4	7	6.3	3	16.0
1968	4	28	1	7.4	10	11.8	10	18.3
1968	4	29	1	7.4	3	7.2	2	14.9
1968	4	30	1	5.8	1	7.3	10	12.8
1968	5	1	1	5.0	5	6.8	28	26.5
1968	5	2	1	5.3	2	7.6	9	24.1
1968	5	3	1	7.1	1	3.0	3	11.5
1968	5	4	9	5.8	3	3.2	26	18.2
1968	5	5	17	10.8	5	3.6	1	17.4
1968	5	6	4	7.4	4	3.8	1	6.3
1968	5	7	1	12.1	8	6.5	20	19.4
1968	5	8	1	14.1	7	13.3	29	20.9
1968	5	9	8	10.7	1	2.0	19	20.5
1968	5	10	2	12.0	1	6.6	8	23.8
1968	5	11	2	8.5	1	7.8	23	35.5
1968	5	12	4	9.6	2	8.6	4	23.2
1968	5	13	4	3.2	4	4.3	1	10.3
1968	5	14	4	8.0	13	6.6	20	18.1
1968	5	15	4	10.3	2	8.5	3	15.2
1968	5	16	2	9.4	0	.	6	14.6
1968	5	17	5	7.3	0	.	6	16.1
1968	5	18	5	9.5	11	8.3	3	7.9
1968	5	19	5	13.5	11	9.7	26	14.1
1968	5	20	3	10.5	3	3.6	11	19.4
1968	5	21	3	7.9	3	8.9	5	27.4
1968	5	22	3	10.7	0	.	1	16.4
1968	5	23	3	10.9	0	.	5	10.3
1968	5	24	3	9.6	0	.	5	15.8
1968	5	25	3	7.8	0	.	1	11.6
1968	5	26	3	11.6	0	.	16	18.7
1968	5	27	14	14.4	11	16.4	3	27.1
1968	5	28	3	10.4	17	15.0	6	15.7
1968	5	29	3	6.6	17	7.4	17	22.8
1968	5	30	3	9.6	5	4.3	9	31.5
1968	5	31	3	10.8	2	6.5	20	15.3
1968	6	1	3	7.7	1	3.3	6	18.3
1968	6	2	3	6.0	1	8.8	18	16.6
1968	6	3	3	6.4	5	5.0	20	18.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1968	6	4	1	4.7	2	2.5	8	13.4
1968	6	5	4	8.8	2	3.9	5	13.6
1968	6	6	10	8.5	2	4.2	5	13.4
1968	6	7	10	6.9	4	2.1	5	18.5
1968	6	8	10	11.9	4	3.1	5	19.5
1968	6	9	10	14.0	4	6.8	17	13.8
1968	6	10	10	14.0	4	6.8	9	7.2
1968	6	11	3	6.3	1	8.4	6	14.4
1968	6	12	3	7.4	5	2.4	10	28.6
1968	6	13	1	6.8	2	4.8	2	16.0
1968	6	14	1	6.4	1	3.1	6	27.1
1968	6	15	1	4.6	1	1.9	8	18.8
1968	6	16	1	3.1	1	2.6	13	13.0
1968	6	17	1	2.9	1	4.1	4	12.4
1968	6	18	1	4.2	1	0.8	8	20.9
1968	6	19	1	3.3	1	3.2	18	15.6
1968	6	20	99	.	99	.	1	21.0
1968	6	21	1	4.1	1	3.6	2	16.1
1968	6	22	1	7.0	1	1.3	4	15.9
1968	6	23	1	11.1	1	3.0	5	19.8
1968	6	24	1	12.2	1	7.1	5	17.0
1968	6	25	1	14.2	7	12.2	16	19.7
1968	6	26	1	11.1	11	3.5	23	19.4
1968	6	27	1	9.8	17	4.9	10	14.8
1968	6	28	12	7.9	5	9.5	20	14.4
1968	6	29	12	12.9	2	4.7	22	35.9
1968	6	30	1	14.2	8	7.3	3	23.1
1968	7	1	1	11.2	7	7.4	6	19.7
1968	7	2	1	9.7	1	7.9	13	13.4
1968	7	3	1	10.3	1	7.3	4	15.3
1968	7	4	5	10.4	1	6.1	0	.
1968	7	5	1	7.8	1	10.8	4	35.8
1968	7	6	1	5.2	1	9.0	4	12.4
1968	7	7	1	6.5	1	4.5	4	24.1
1968	7	8	1	6.9	1	4.1	29	16.9
1968	7	9	1	7.1	1	3.2	18	19.5
1968	7	10	1	6.3	1	7.3	4	7.8
1968	7	11	1	6.1	1	9.7	25	21.1
1968	7	12	1	6.0	12	11.6	1	14.0
1968	7	13	1	5.6	2	3.4	12	23.6
1968	7	14	1	4.8	2	5.4	4	18.5
1968	7	15	1	5.6	2	5.0	21	17.4
1968	7	16	1	5.3	2	5.5	9	15.2
1968	7	17	1	2.7	2	5.5	3	12.1
1968	7	18	1	3.3	1	2.5	3	13.9
1968	7	19	1	3.9	1	1.2	11	21.9
1968	7	20	1	3.7	2	8.3	4	19.5
1968	7	21	1	4.5	1	3.5	2	13.4
1968	7	22	1	3.8	1	1.9	8	22.9
1968	7	23	1	4.4	1	3.0	9	16.0
1968	7	24	1	4.8	1	0.6	8	27.7
1968	7	25	1	4.9	1	1.4	13	18.6
1968	7	26	1	6.8	1	3.4	8	13.6
1968	7	27	1	9.2	1	3.5	19	20.4
1968	7	28	1	11.6	1	6.5	11	22.9
1968	7	29	1	9.4	1	2.1	4	15.5
1968	7	30	2	6.5	1	2.9	29	13.2
1968	7	31	2	6.6	1	4.0	6	11.4
1968	8	1	2	8.5	1	2.4	4	16.2
1968	8	2	1	10.1	1	3.0	2	11.4
1968	8	3	1	7.3	1	5.3	21	22.3
1968	8	4	1	4.6	1	7.1	1	16.4
1968	8	5	1	4.6	2	6.5	4	29.9
1968	8	6	1	5.2	2	6.9	17	21.1
1968	8	7	1	5.9	1	5.4	9	19.0
1968	8	8	1	7.4	1	3.8	16	34.2
1968	8	9	1	10.5	1	4.0	3	15.4
1968	8	10	1	10.6	1	6.0	19	15.2
1968	8	11	1	3.8	1	2.3	4	15.1
1968	8	12	1	5.0	1	1.6	2	9.0
1968	8	13	1	8.0	1	1.3	8	23.0
1968	8	14	1	7.8	12	2.7	11	17.4
1968	8	15	1	8.8	2	8.9	1	18.1
1968	8	16	1	9.2	12	10.9	29	21.3
1968	8	17	1	6.5	12	4.7	11	16.0
1968	8	18	6	7.2	2	7.3	1	9.9
1968	8	19	12	11.4	2	5.9	20	14.0
1968	8	20	4	8.3	2	5.4	0	.
1968	8	21	4	5.1	2	3.6	1	9.9
1968	8	22	10	7.8	2	1.5	2	24.8
1968	8	23	3	9.3	2	7.5	9	13.1
1968	8	24	3	7.4	1	8.6	15	18.6
1968	8	25	3	7.3	1	8.4	18	11.5
1968	8	26	3	6.5	5	1.8	1	9.3
1968	8	27	3	6.3	5	8.2	1	9.4
1968	8	28	1	8.1	2	8.5	12	15.4
1968	8	29	11	10.4	8	16.8	12	18.6
1968	8	30	1	10.0	10	13.1	2	11.5
1968	8	31	1	11.6	3	10.3	6	14.3
1968	9	1	1	10.7	3	5.5	18	12.8
1968	9	2	11	11.5	5	9.4	9	26.4
1968	9	3	11	9.3	2	7.9	20	22.8
1968	9	4	2	12.1	8	15.6	2	12.1
1968	9	5	2	8.3	7	7.4	2	12.0
1968	9	6	1	6.8	1	4.0	2	19.3
1968	9	7	1	4.8	1	1.0	4	19.8
1968	9	8	1	4.8	1	6.8	3	21.6
1968	9	9	1	6.9	3	3.9	23	27.7
1968	9	10	3	7.1	3	8.1	18	21.1
1968	9	11	3	4.6	5	9.8	4	13.4
1968	9	12	3	6.4	13	8.8	4	7.7
1968	9	13	3	7.4	2	3.3	4	14.4
1968	9	14	3	8.7	2	3.4	4	13.4
1968	9	15	6	7.0	4	7.9	4	18.0
1968	9	16	11	5.4	8	5.1	2	15.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1968	9	17	11	8.5	0	.	6	24.4
1968	9	18	1	8.9	16	12.7	10	27.8
1968	9	19	6	11.2	0	.	9	17.2
1968	9	20	4	9.9	13	12.9	5	20.8
1968	9	21	4	10.1	4	4.5	1	21.9
1968	9	22	6	12.3	4	6.2	1	24.5
1968	9	23	1	8.9	2	8.7	2	5.9
1968	9	24	1	8.8	1	5.3	2	9.3
1968	9	25	1	7.1	1	6.3	2	10.0
1968	9	26	1	4.7	1	3.9	2	14.3
1968	9	27	1	8.3	1	3.5	18	23.0
1968	9	28	7	10.2	7	6.9	27	14.3
1968	9	29	7	8.3	1	14.2	13	10.2
1968	9	30	1	5.4	1	10.5	4	12.3
1968	10	1	1	5.0	1	4.4	2	18.1
1968	10	2	1	10.8	1	2.6	3	14.3
1968	10	3	5	9.7	3	4.7	6	11.6
1968	10	4	1	7.7	3	6.9	18	19.1
1968	10	5	1	6.2	2	9.0	12	12.2
1968	10	6	1	7.3	1	4.8	10	16.3
1968	10	7	1	8.5	2	6.7	14	30.0
1968	10	8	1	8.1	2	4.6	9	21.8
1968	10	9	1	8.1	9	12.0	3	18.5
1968	10	10	12	6.5	1	5.3	4	16.9
1968	10	11	3	7.9	2	5.9	2	21.7
1968	10	12	3	6.9	2	5.1	4	21.8
1968	10	13	1	8.0	2	2.1	4	15.1
1968	10	14	1	6.5	2	1.6	21	14.0
1968	10	15	6	7.9	2	3.7	1	26.5
1968	10	16	7	12.7	8	3.9	9	20.8
1968	10	17	1	12.8	15	17.0	3	23.8
1968	10	18	1	11.3	0	.	0	.
1968	10	19	1	5.2	1	9.4	2	18.7
1968	10	20	1	2.2	1	4.4	4	13.8
1968	10	21	1	4.4	2	3.0	20	22.6
1968	10	22	1	4.3	1	5.2	6	11.0
1968	10	23	5	7.2	3	6.8	3	15.6
1968	10	24	5	7.3	3	2.0	10	20.9
1968	10	25	99	.	99	.	2	22.2
1968	10	26	1	5.5	1	5.8	20	13.0
1968	10	27	5	6.0	3	4.3	6	8.3
1968	10	28	5	9.2	3	1.8	6	25.5
1968	10	29	1	7.1	3	5.7	10	14.2
1968	10	30	1	4.5	5	8.1	1	17.7
1968	10	31	1	7.1	2	2.8	22	17.9
1968	11	1	1	9.4	1	9.8	6	8.2
1968	11	2	1	5.2	1	3.4	0	.
1968	11	3	1	4.5	1	2.8	4	9.0
1968	11	4	3	8.7	12	4.6	5	19.7
1968	11	5	1	8.6	1	6.8	5	17.3
1968	11	6	5	9.7	7	4.4	16	14.9
1968	11	7	5	10.4	3	13.2	7	14.2
1968	11	8	5	10.5	3	7.3	7	15.9
1968	11	9	5	9.0	3	12.3	1	12.8
1968	11	10	5	6.3	11	8.8	16	20.8
1968	11	11	9	8.6	3	4.5	18	9.5
1968	11	12	9	6.0	5	3.8	1	18.1
1968	11	13	1	8.9	2	3.6	12	19.0
1968	11	14	1	10.0	2	4.9	13	20.0
1968	11	15	12	10.0	2	7.2	18	17.7
1968	11	16	12	12.2	2	10.9	9	21.0
1968	11	17	5	7.3	14	15.5	3	13.5
1968	11	18	5	3.3	11	4.5	6	18.3
1968	11	19	5	4.6	3	2.7	6	25.0
1968	11	20	1	6.2	3	3.4	10	13.9
1968	11	21	1	4.1	1	1.2	2	10.0
1968	11	22	1	2.0	1	2.0	10	11.3
1968	11	23	1	2.8	1	2.5	6	13.2
1968	11	24	1	6.4	1	5.1	6	12.1
1968	11	25	1	8.6	1	7.3	1	21.2
1968	11	26	7	7.1	1	6.0	16	25.5
1968	11	27	1	6.4	1	4.6	2	16.3
1968	11	28	7	8.4	7	8.2	3	22.9
1968	11	29	1	7.6	3	7.5	99	.
1968	11	30	1	3.3	2	5.3	4	10.4
1968	12	1	11	9.2	2	8.1	12	23.1
1968	12	2	11	3.6	1	14.2	9	17.5
1968	12	3	1	7.9	10	10.5	10	20.3
1968	12	4	1	5.9	1	5.0	2	10.3
1968	12	5	12	8.3	3	8.8	6	15.0
1968	12	6	1	8.2	1	7.5	3	22.1
1968	12	7	9	8.3	3	3.9	18	12.9
1968	12	8	1	6.3	5	6.8	1	15.3
1968	12	9	3	3.0	1	3.1	1	20.7
1968	12	10	3	5.2	1	4.8	18	20.9
1968	12	11	1	4.8	2	6.3	14	15.1
1968	12	12	1	9.3	6	6.9	3	13.2
1968	12	13	5	13.7	11	5.0	26	20.7
1968	12	14	99	.	99	.	18	13.1
1968	12	15	3	4.1	5	7.8	4	19.4
1968	12	16	1	7.0	5	3.8	1	23.3
1968	12	17	1	13.0	12	14.8	1	14.7
1968	12	18	11	10.4	0	.	1	22.3
1968	12	19	0	.	0	.	17	19.8
1968	12	20	13	11.0	0	.	19	14.5
1968	12	21	11	10.5	8	9.1	5	22.0
1968	12	22	1	12.5	0	.	3	15.4
1968	12	23	5	7.6	3	6.1	26	11.4
1968	12	24	8	6.6	1	5.0	11	19.8
1968	12	25	1	9.4	1	4.3	1	18.8
1968	12	26	4	8.4	2	6.1	1	12.5
1968	12	27	1	16.6	16	14.7	5	20.8
1968	12	28	12	13.0	13	7.9	17	22.8
1968	12	29	12	10.0	2	8.5	3	31.8
1968	12	30	12	12.0	2	10.7	16	33.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1968	12	31	5	9.0	3	11.0	6	20.1
1969	1	1	1	5.9	1	7.9	4	27.5
1969	1	2	1	5.9	1	1.9	5	25.9
1969	1	3	5	4.3	3	2.1	19	11.6
1969	1	4	5	6.4	3	1.9	4	13.4
1969	1	5	1	7.0	1	6.0	2	21.4
1969	1	6	5	6.6	3	7.3	6	21.3
1969	1	7	99	.	99	.	18	23.3
1969	1	8	2	6.9	1	6.9	9	14.3
1969	1	9	12	8.2	3	13.2	26	8.4
1969	1	10	12	6.1	5	6.0	5	17.9
1969	1	11	9	9.0	5	3.5	11	18.9
1969	1	12	12	10.0	5	5.4	1	17.6
1969	1	13	3	6.6	5	4.6	1	24.9
1969	1	14	3	9.7	2	9.0	1	7.4
1969	1	15	6	5.0	2	6.9	1	16.7
1969	1	16	6	6.7	2	5.0	3	24.5
1969	1	17	1	5.0	2	5.1	11	19.0
1969	1	18	1	5.1	1	3.9	3	18.9
1969	1	19	1	4.3	1	5.5	11	23.6
1969	1	20	1	5.5	2	3.2	5	10.9
1969	1	21	1	7.5	2	5.8	5	16.4
1969	1	22	4	6.2	2	3.1	5	8.5
1969	1	23	2	8.0	2	5.3	3	21.2
1969	1	24	2	6.5	0	.	26	12.4
1969	1	25	9	10.2	5	8.9	26	16.5
1969	1	26	1	12.5	1	5.6	5	16.7
1969	1	27	4	9.3	2	2.8	1	18.3
1969	1	28	4	5.3	2	1.9	5	10.5
1969	1	29	4	5.7	2	5.0	5	5.6
1969	1	30	4	9.9	2	8.7	26	11.3
1969	1	31	1	10.2	2	7.5	12	20.5
1969	2	1	11	10.4	2	7.2	14	24.3
1969	2	2	11	8.5	1	6.8	0	.
1969	2	3	1	5.9	3	5.3	10	19.2
1969	2	4	1	4.7	1	3.3	18	16.3
1969	2	5	3	8.3	12	6.5	1	9.0
1969	2	6	1	8.9	2	10.0	1	23.2
1969	2	7	1	6.6	1	7.0	5	9.2
1969	2	8	3	4.5	1	6.3	7	18.2
1969	2	9	3	5.4	5	3.5	10	17.1
1969	2	10	3	11.1	1	3.8	2	11.8
1969	2	11	15	10.2	3	2.4	26	5.4
1969	2	12	9	6.5	3	5.3	11	17.1
1969	2	13	1	11.2	5	9.0	1	13.6
1969	2	14	3	9.1	4	8.3	1	4.0
1969	2	15	3	8.1	2	6.5	1	12.9
1969	2	16	3	7.1	2	8.9	5	13.0
1969	2	17	9	10.4	3	8.4	5	15.5
1969	2	18	1	13.9	3	6.2	19	14.1
1969	2	19	1	17.4	1	6.8	5	16.1
1969	2	20	7	13.0	0	.	5	12.2
1969	2	21	0	.	8	5.6	5	13.6
1969	2	22	3	13.6	13	10.3	5	14.9
1969	2	23	3	16.2	13	7.9	5	13.0
1969	2	24	15	13.7	5	5.8	5	15.4
1969	2	25	99	.	99	.	1	17.2
1969	2	26	0	.	13	10.3	1	7.2
1969	2	27	0	.	4	10.9	1	18.8
1969	2	28	0	.	13	10.9	23	31.4
1969	3	1	0	.	2	5.9	5	17.4
1969	3	2	14	16.7	0	.	5	7.9
1969	3	3	9	15.2	0	.	5	14.9
1969	3	4	11	13.8	0	.	5	17.1
1969	3	5	11	6.9	0	.	1	12.6
1969	3	6	2	11.0	3	5.6	5	14.1
1969	3	7	0	.	0	.	5	10.0
1969	3	8	0	.	0	.	3	12.4
1969	3	9	0	.	0	.	3	12.6
1969	3	10	0	.	19	12.1	19	16.4
1969	3	11	5	11.8	3	9.0	2	18.3
1969	3	12	2	14.0	0	.	3	18.8
1969	3	13	0	.	11	17.5	3	16.6
1969	3	14	7	10.6	3	9.5	13	24.1
1969	3	15	1	6.8	1	6.0	18	18.5
1969	3	16	1	4.2	1	4.6	10	10.8
1969	3	17	1	2.2	1	1.3	10	20.7
1969	3	18	1	1.9	1	2.9	15	20.1
1969	3	19	1	4.4	1	5.2	9	15.5
1969	3	20	2	7.5	1	7.6	6	16.9
1969	3	21	1	11.2	1	7.9	4	15.8
1969	3	22	1	8.3	1	3.6	12	15.9
1969	3	23	2	7.8	1	6.1	0	.
1969	3	24	2	12.7	0	.	3	16.5
1969	3	25	2	11.4	11	11.6	17	21.0
1969	3	26	2	10.9	3	7.1	0	.
1969	3	27	2	6.8	3	7.3	15	22.6
1969	3	28	2	6.3	1	3.7	3	15.5
1969	3	29	5	6.0	3	6.7	11	13.4
1969	3	30	5	6.6	3	4.4	11	6.3
1969	3	31	1	4.6	1	3.3	4	14.2
1969	4	1	1	5.6	1	2.3	9	20.7
1969	4	2	1	6.0	1	2.0	18	17.6
1969	4	3	99	.	99	.	1	12.8
1969	4	4	3	5.5	1	6.2	3	17.2
1969	4	5	15	8.0	1	5.5	18	13.5
1969	4	6	3	10.7	12	4.5	1	25.8
1969	4	7	1	15.3	4	14.1	1	16.1
1969	4	8	3	14.1	0	.	9	7.0
1969	4	9	3	11.5	7	13.3	3	18.1
1969	4	10	5	16.2	3	8.1	6	23.0
1969	4	11	1	9.5	1	7.2	1	19.6
1969	4	12	1	8.0	1	10.0	12	10.9
1969	4	13	3	6.9	12	7.5	4	18.5
1969	4	14	1	9.7	13	9.8	12	17.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1969	4	15	11	9.6	8	14.4	27	9.8
1969	4	16	7	8.4	6	5.8	3	12.4
1969	4	17	1	7.4	10	11.1	23	17.4
1969	4	18	1	9.2	0	.	1	25.0
1969	4	19	3	9.7	2	11.9	10	14.5
1969	4	20	1	6.3	2	4.1	2	10.7
1969	4	21	3	9.6	1	6.1	6	8.7
1969	4	22	3	6.3	3	7.8	7	15.1
1969	4	23	3	8.6	17	12.5	1	22.1
1969	4	24	3	7.4	0	.	1	15.5
1969	4	25	12	14.3	4	7.8	9	13.1
1969	4	26	0	.	0	.	9	17.7
1969	4	27	1	16.3	14	9.4	3	15.2
1969	4	28	1	6.9	3	3.5	7	19.7
1969	4	29	1	7.2	5	4.1	1	16.9
1969	4	30	1	6.5	12	9.8	1	11.4
1969	5	1	1	7.6	2	8.3	12	11.9
1969	5	2	1	7.9	1	5.4	25	29.6
1969	5	3	4	10.3	12	5.6	1	17.1
1969	5	4	10	14.8	2	7.1	5	18.5
1969	5	5	7	12.7	0	.	12	17.1
1969	5	6	7	12.1	1	8.0	22	19.2
1969	5	7	0	.	1	7.0	8	10.9
1969	5	8	5	9.3	7	8.4	6	7.0
1969	5	9	5	3.7	3	1.6	6	10.4
1969	5	10	5	3.0	3	1.6	6	14.7
1969	5	11	5	4.7	3	0.7	26	18.9
1969	5	12	5	7.1	3	3.4	4	15.1
1969	5	13	1	3.2	1	5.8	1	14.8
1969	5	14	1	4.9	1	5.6	4	16.4
1969	5	15	1	7.1	2	3.7	14	16.9
1969	5	16	1	9.3	6	6.6	3	12.2
1969	5	17	1	9.0	1	1.8	16	29.3
1969	5	18	1	7.2	1	2.6	1	32.7
1969	5	19	1	6.3	1	1.5	5	23.0
1969	5	20	1	7.2	1	1.7	5	13.3
1969	5	21	1	10.5	1	3.4	5	21.1
1969	5	22	1	8.8	1	1.9	13	26.9
1969	5	23	8	14.7	1	3.0	4	17.5
1969	5	24	8	10.5	1	5.3	18	25.2
1969	5	25	3	6.5	1	4.9	1	13.1
1969	5	26	3	3.6	5	8.8	4	8.2
1969	5	27	3	5.4	2	6.4	14	13.0
1969	5	28	1	8.3	2	2.4	20	14.3
1969	5	29	1	3.3	1	3.8	19	22.0
1969	5	30	1	3.5	1	7.9	1	10.6
1969	5	31	7	10.5	2	12.8	3	15.4
1969	6	1	11	12.3	7	9.2	6	18.8
1969	6	2	5	8.0	3	2.5	6	18.6
1969	6	3	5	7.6	3	4.1	13	20.6
1969	6	4	1	6.4	3	6.4	2	17.1
1969	6	5	1	7.6	1	5.5	2	19.6
1969	6	6	8	10.2	1	2.5	7	27.2
1969	6	7	8	6.9	1	2.9	5	13.7
1969	6	8	17	9.7	3	11.6	5	25.4
1969	6	9	17	12.1	1	8.1	11	27.1
1969	6	10	2	10.7	1	4.0	5	24.6
1969	6	11	2	13.0	6	7.7	22	17.8
1969	6	12	0	.	1	6.0	3	21.9
1969	6	13	0	.	1	6.4	8	17.6
1969	6	14	8	14.7	1	4.8	19	26.1
1969	6	15	0	.	1	5.0	0	.
1969	6	16	0	.	7	6.3	8	18.5
1969	6	17	2	13.0	7	8.5	3	18.9
1969	6	18	2	8.2	3	10.3	2	10.3
1969	6	19	2	9.0	1	3.8	15	22.3
1969	6	20	1	8.2	1	1.8	11	8.9
1969	6	21	99	.	99	.	1	17.6
1969	6	22	1	4.8	1	3.4	28	22.7
1969	6	23	1	3.7	1	3.3	0	.
1969	6	24	1	8.1	2	7.0	1	15.3
1969	6	25	6	11.6	8	10.1	9	17.6
1969	6	26	6	14.5	0	.	9	16.9
1969	6	27	2	11.9	9	9.1	15	13.6
1969	6	28	4	6.9	12	7.0	5	14.8
1969	6	29	4	7.9	2	5.7	9	13.2
1969	6	30	1	6.7	1	4.0	6	20.4
1969	7	1	1	6.0	1	1.9	4	23.7
1969	7	2	1	3.8	1	1.4	8	28.1
1969	7	3	1	4.4	1	6.0	4	22.0
1969	7	4	1	8.5	1	7.4	3	20.0
1969	7	5	4	9.9	12	5.2	5	12.4
1969	7	6	4	6.3	12	5.1	5	14.4
1969	7	7	4	6.8	2	5.1	1	7.2
1969	7	8	1	10.5	2	3.6	12	23.1
1969	7	9	1	8.6	1	3.2	2	8.9
1969	7	10	1	8.8	1	1.2	2	20.7
1969	7	11	1	8.9	1	6.0	10	6.9
1969	7	12	1	7.4	2	9.1	2	12.4
1969	7	13	1	6.4	2	3.6	2	11.4
1969	7	14	1	4.9	2	4.7	8	30.7
1969	7	15	1	3.9	2	3.1	22	22.2
1969	7	16	1	5.2	2	6.3	8	11.9
1969	7	17	1	4.7	1	7.0	8	23.5
1969	7	18	1	5.5	1	4.4	27	14.2
1969	7	19	1	6.4	1	0.6	3	16.6
1969	7	20	1	6.5	1	1.6	7	16.4
1969	7	21	1	7.7	1	4.7	1	15.5
1969	7	22	1	7.4	1	2.9	20	19.0
1969	7	23	1	4.8	1	0.8	2	15.4
1969	7	24	1	4.2	1	1.9	8	21.9
1969	7	25	1	9.2	1	5.2	18	22.9
1969	7	26	1	10.2	1	8.2	20	13.1
1969	7	27	1	8.1	3	4.4	6	9.4
1969	7	28	1	8.1	17	5.8	7	26.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1969	7	29	1	5.6	5	5.7	0	.
1969	7	30	1	3.2	1	4.3	29	16.6
1969	7	31	1	2.7	1	2.6	6	16.0
1969	8	1	1	3.3	1	4.8	8	21.7
1969	8	2	99	.	99	.	4	14.3
1969	8	3	99	.	99	.	4	11.8
1969	8	4	1	5.6	1	3.6	21	18.7
1969	8	5	1	8.0	5	2.8	1	25.7
1969	8	6	1	8.4	2	4.2	20	20.0
1969	8	7	1	8.4	1	4.9	2	11.4
1969	8	8	1	6.0	1	5.3	2	18.2
1969	8	9	1	8.5	3	6.8	6	19.3
1969	8	10	99	.	99	.	10	11.4
1969	8	11	1	7.4	5	7.7	4	17.6
1969	8	12	1	8.4	2	2.9	4	16.3
1969	8	13	1	8.2	2	7.1	29	13.1
1969	8	14	3	8.8	1	2.4	2	17.6
1969	8	15	3	11.6	1	4.9	2	25.1
1969	8	16	6	14.2	5	7.4	4	21.5
1969	8	17	6	14.0	1	4.8	29	23.8
1969	8	18	6	10.1	1	5.0	0	.
1969	8	19	6	9.7	5	8.0	1	13.6
1969	8	20	3	8.1	5	8.6	1	8.4
1969	8	21	3	7.9	5	13.4	4	15.1
1969	8	22	3	10.9	16	11.5	12	32.1
1969	8	23	1	9.1	10	12.1	21	17.1
1969	8	24	3	7.1	10	8.5	1	26.3
1969	8	25	3	5.5	0	.	1	13.3
1969	8	26	3	6.5	2	10.5	12	19.4
1969	8	27	1	5.4	2	5.8	4	9.6
1969	8	28	1	5.7	2	6.4	14	15.5
1969	8	29	4	6.0	2	2.4	14	20.9
1969	8	30	1	7.1	2	4.5	2	14.2
1969	8	31	1	5.5	1	5.0	8	19.7
1969	9	1	1	4.1	1	3.9	1	19.5
1969	9	2	1	3.5	1	4.4	1	19.2
1969	9	3	1	10.8	2	12.7	1	12.3
1969	9	4	11	15.6	13	6.7	1	12.0
1969	9	5	6	10.4	13	4.5	28	25.2
1969	9	6	12	17.5	2	6.4	17	25.9
1969	9	7	1	11.0	1	3.9	3	18.8
1969	9	8	1	8.9	3	4.7	5	19.5
1969	9	9	1	11.1	3	4.2	11	19.6
1969	9	10	1	11.1	3	10.3	21	18.3
1969	9	11	1	8.5	3	8.5	13	10.7
1969	9	12	1	4.3	1	9.6	4	21.3
1969	9	13	1	4.1	12	10.5	10	20.3
1969	9	14	1	6.7	2	4.4	20	13.4
1969	9	15	1	8.5	2	2.8	3	13.9
1969	9	16	1	5.3	1	2.3	16	18.9
1969	9	17	3	4.2	1	1.7	5	19.9
1969	9	18	3	5.7	1	5.0	1	9.5
1969	9	19	1	7.3	2	9.3	4	10.8
1969	9	20	4	6.5	2	2.5	4	17.8
1969	9	21	1	7.6	2	4.4	14	16.1
1969	9	22	3	8.4	2	5.7	29	22.3
1969	9	23	1	3.7	1	1.6	18	13.6
1969	9	24	1	3.1	1	7.5	1	11.9
1969	9	25	1	3.7	1	4.8	20	12.5
1969	9	26	1	3.5	1	4.2	15	24.8
1969	9	27	1	4.2	1	3.8	11	22.0
1969	9	28	1	3.0	1	6.4	1	7.8
1969	9	29	1	3.3	1	1.0	29	14.9
1969	9	30	1	5.5	1	5.1	1	16.3
1969	10	1	1	7.3	2	6.9	9	22.7
1969	10	2	6	9.4	2	4.5	17	31.6
1969	10	3	11	10.6	4	5.7	9	14.0
1969	10	4	7	12.3	8	9.4	9	22.4
1969	10	5	7	13.7	8	4.6	20	30.0
1969	10	6	0	.	7	7.7	2	3.7
1969	10	7	5	8.5	7	8.1	2	7.9
1969	10	8	1	10.9	1	8.1	4	15.3
1969	10	9	12	6.6	2	6.3	20	21.4
1969	10	10	12	9.8	7	9.7	3	26.9
1969	10	11	18	12.1	7	5.0	3	9.1
1969	10	12	0	.	0	.	5	20.0
1969	10	13	0	.	0	.	6	21.0
1969	10	14	8	12.9	7	5.6	2	12.0
1969	10	15	0	.	7	4.5	3	18.8
1969	10	16	8	8.6	3	9.6	6	15.1
1969	10	17	2	8.8	1	9.0	8	21.7
1969	10	18	2	11.9	1	11.8	8	18.7
1969	10	19	7	13.4	6	6.7	0	.
1969	10	20	1	10.5	1	3.7	6	13.6
1969	10	21	1	11.9	1	3.0	15	18.9
1969	10	22	1	10.5	1	8.2	11	16.1
1969	10	23	1	3.3	1	7.2	1	13.4
1969	10	24	1	6.6	1	10.4	14	17.4
1969	10	25	1	9.6	2	7.0	3	19.6
1969	10	26	8	9.8	1	4.0	19	14.1
1969	10	27	1	11.3	3	4.3	19	21.4
1969	10	28	1	7.7	12	10.9	21	31.5
1969	10	29	7	7.6	6	11.3	12	11.8
1969	10	30	1	8.6	15	4.6	12	18.3
1969	10	31	1	13.7	10	9.9	22	17.3
1969	11	1	5	5.9	11	14.5	3	9.6
1969	11	2	5	11.7	19	7.8	16	25.6
1969	11	3	1	15.2	11	8.2	13	10.9
1969	11	4	1	7.9	0	.	2	16.7
1969	11	5	1	8.1	5	7.4	4	11.5
1969	11	6	1	8.7	2	4.7	4	22.2
1969	11	7	3	8.9	2	3.7	1	16.3
1969	11	8	6	13.9	2	4.9	28	9.9
1969	11	9	4	13.4	2	2.1	10	20.8
1969	11	10	4	17.6	1	11.2	2	7.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1969	11	11	2	14.9	1	6.6	2	15.3
1969	11	12	2	9.8	3	6.9	15	18.7
1969	11	13	5	9.0	3	7.3	3	16.0
1969	11	14	5	11.3	3	5.1	6	7.6
1969	11	15	1	8.2	3	5.7	6	21.3
1969	11	16	1	7.5	2	6.5	21	20.2
1969	11	17	99	.	99	.	3	9.9
1969	11	18	1	10.5	7	12.1	6	14.9
1969	11	19	5	2.9	3	3.2	15	12.5
1969	11	20	1	7.4	3	4.8	4	27.5
1969	11	21	1	1.9	1	2.8	10	14.2
1969	11	22	99	.	99	.	22	19.1
1969	11	23	1	2.9	1	3.9	10	17.7
1969	11	24	1	3.9	1	5.9	2	11.8
1969	11	25	1	3.8	1	2.0	6	11.7
1969	11	26	5	7.3	1	5.3	3	14.3
1969	11	27	1	10.4	3	3.9	13	10.1
1969	11	28	5	10.5	1	7.9	2	5.3
1969	11	29	5	11.5	3	2.8	13	19.2
1969	11	30	1	15.1	3	5.0	6	12.2
1969	12	1	1	13.9	3	7.4	2	17.0
1969	12	2	1	15.0	1	7.1	6	10.5
1969	12	3	9	13.6	3	4.6	6	26.2
1969	12	4	1	8.9	5	7.3	1	14.3
1969	12	5	7	13.4	8	10.2	12	10.3
1969	12	6	11	14.8	0	.	20	13.1
1969	12	7	5	12.9	0	.	3	15.7
1969	12	8	14	11.8	11	12.7	26	16.8
1969	12	9	14	10.6	0	.	14	24.5
1969	12	10	14	10.6	0	.	0	.
1969	12	11	3	12.9	3	8.3	6	30.2
1969	12	12	3	6.9	1	5.9	10	8.3
1969	12	13	3	9.5	1	2.0	15	13.5
1969	12	14	3	8.8	3	4.0	7	17.8
1969	12	15	3	9.0	5	3.8	1	25.4
1969	12	16	3	14.9	1	4.0	2	13.7
1969	12	17	99	.	99	.	4	11.6
1969	12	18	8	12.6	1	6.1	6	12.4
1969	12	19	5	13.0	3	2.7	19	11.6
1969	12	20	5	10.2	1	3.7	4	14.9
1969	12	21	1	9.7	3	5.8	26	17.4
1969	12	22	1	8.3	1	4.5	1	15.2
1969	12	23	1	8.0	3	10.9	7	19.8
1969	12	24	1	7.5	1	5.3	1	21.8
1969	12	25	1	6.7	3	6.9	6	18.9
1969	12	26	2	9.2	1	11.3	11	24.3
1969	12	27	11	7.9	12	15.5	27	18.8
1969	12	28	7	10.2	14	16.4	27	18.0
1969	12	29	11	11.3	7	5.9	10	22.4
1969	12	30	11	8.5	7	9.5	20	18.2
1969	12	31	2	14.3	11	16.3	20	17.5
1970	1	1	2	16.0	19	11.2	3	13.1
1970	1	2	2	10.3	11	6.7	15	25.8
1970	1	3	2	7.4	3	7.0	15	10.5
1970	1	4	2	8.3	1	10.2	8	13.8
1970	1	5	5	7.5	7	5.1	8	15.0
1970	1	6	5	4.4	3	7.9	6	13.7
1970	1	7	5	12.3	11	8.2	3	11.0
1970	1	8	9	11.1	11	7.6	26	14.0
1970	1	9	9	5.2	17	7.5	18	5.4
1970	1	10	1	4.9	5	5.3	1	11.3
1970	1	11	1	6.9	1	9.9	22	33.0
1970	1	12	1	6.3	1	2.4	11	22.5
1970	1	13	1	6.1	1	1.6	5	20.1
1970	1	14	1	3.9	1	1.4	0	.
1970	1	15	1	4.4	1	4.8	5	14.8
1970	1	16	1	6.6	1	0.7	8	31.0
1970	1	17	1	4.6	1	0.4	5	17.0
1970	1	18	5	5.7	1	2.8	11	14.7
1970	1	19	5	4.3	3	4.7	21	23.4
1970	1	20	5	4.5	3	3.2	5	17.2
1970	1	21	5	6.7	3	3.2	4	15.8
1970	1	22	5	5.9	1	4.6	25	15.8
1970	1	23	1	6.5	1	6.6	4	12.8
1970	1	24	1	4.0	1	1.5	4	17.5
1970	1	25	1	2.4	1	2.8	6	33.8
1970	1	26	1	2.8	1	2.7	2	15.6
1970	1	27	1	2.5	1	2.4	4	10.3
1970	1	28	1	7.0	6	8.5	3	12.3
1970	1	29	2	8.4	3	8.8	6	20.3
1970	1	30	1	8.0	3	4.6	2	5.8
1970	1	31	1	5.3	1	5.5	2	15.0
1970	2	1	2	8.4	1	5.3	15	16.3
1970	2	2	5	5.8	7	7.3	19	20.6
1970	2	3	5	8.4	3	1.0	4	12.2
1970	2	4	2	7.1	1	4.0	20	15.1
1970	2	5	1	4.8	1	5.2	4	15.1
1970	2	6	1	5.7	1	3.0	4	7.3
1970	2	7	5	7.1	1	7.6	0	.
1970	2	8	5	9.6	3	4.1	6	15.6
1970	2	9	0	.	3	7.5	2	16.5
1970	2	10	5	16.6	3	7.2	17	19.0
1970	2	11	5	11.9	3	3.7	16	17.1
1970	2	12	8	9.4	3	6.0	5	25.6
1970	2	13	2	7.9	1	7.2	5	14.8
1970	2	14	5	9.1	1	2.9	1	15.4
1970	2	15	1	6.6	1	4.6	11	19.1
1970	2	16	1	5.3	1	0.6	4	12.4
1970	2	17	1	2.6	1	2.5	14	20.1
1970	2	18	1	8.9	7	4.5	16	12.0
1970	2	19	5	4.5	3	8.1	6	20.1
1970	2	20	5	11.5	3	3.8	2	8.0
1970	2	21	1	9.9	1	5.1	2	10.1
1970	2	22	1	11.6	1	9.9	6	17.7
1970	2	23	1	11.3	1	8.3	2	25.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1970	2	24	8	14.8	7	11.8	3	5.8
1970	2	25	2	11.3	3	3.9	23	19.2
1970	2	26	2	8.6	3	5.1	6	18.9
1970	2	27	2	5.3	1	5.7	19	22.7
1970	2	28	2	7.4	1	2.9	5	10.3
1970	3	1	4	8.4	1	4.4	5	10.5
1970	3	2	4	3.5	2	4.9	1	14.7
1970	3	3	4	11.3	13	8.3	9	17.8
1970	3	4	1	9.2	1	8.0	13	17.3
1970	3	5	1	10.3	1	4.3	12	8.3
1970	3	6	5	9.6	1	3.3	2	30.8
1970	3	7	1	7.4	1	3.7	18	21.6
1970	3	8	1	10.0	1	2.6	5	18.9
1970	3	9	12	8.2	1	4.6	5	5.4
1970	3	10	12	14.2	1	9.2	5	9.9
1970	3	11	12	15.6	0	.	5	13.0
1970	3	12	14	15.0	0	.	19	16.4
1970	3	13	5	11.7	3	8.1	26	9.8
1970	3	14	5	8.6	3	4.8	26	9.6
1970	3	15	5	8.1	0	.	5	15.1
1970	3	16	1	9.3	3	5.7	4	17.1
1970	3	17	11	6.3	13	5.3	12	19.1
1970	3	18	7	13.9	0	.	27	15.5
1970	3	19	7	7.2	0	.	22	22.5
1970	3	20	7	12.5	19	11.0	6	16.5
1970	3	21	99	.	99	.	17	26.3
1970	3	22	2	10.5	10	11.1	6	28.2
1970	3	23	1	10.7	3	11.5	2	18.2
1970	3	24	2	7.2	1	8.6	15	33.0
1970	3	25	2	6.9	7	6.3	3	11.6
1970	3	26	2	7.8	3	7.4	17	22.7
1970	3	27	2	9.3	7	5.8	19	15.0
1970	3	28	2	5.1	1	6.9	1	18.7
1970	3	29	2	8.3	1	2.0	1	14.8
1970	3	30	2	6.6	1	5.8	5	20.5
1970	3	31	2	6.5	1	4.5	19	14.9
1970	4	1	99	.	99	.	13	20.3
1970	4	2	2	4.5	1	9.5	15	25.9
1970	4	3	99	.	99	.	19	19.3
1970	4	4	1	5.0	1	7.3	10	5.0
1970	4	5	1	5.1	1	2.3	20	14.4
1970	4	6	1	5.7	3	4.9	18	17.2
1970	4	7	1	4.9	2	6.4	4	14.8
1970	4	8	1	4.3	1	5.6	2	14.7
1970	4	9	1	6.2	1	4.8	6	23.4
1970	4	10	1	4.9	1	6.1	1	15.3
1970	4	11	12	7.4	2	7.1	9	20.5
1970	4	12	11	12.2	8	14.5	9	12.7
1970	4	13	0	.	0	.	17	24.7
1970	4	14	0	.	0	.	5	10.6
1970	4	15	4	11.7	4	6.8	5	17.7
1970	4	16	2	17.5	0	.	3	26.6
1970	4	17	4	14.6	1	7.3	19	14.8
1970	4	18	1	14.0	4	11.7	5	16.8
1970	4	19	6	12.2	8	15.4	9	21.8
1970	4	20	9	15.7	0	.	3	18.3
1970	4	21	0	.	0	.	15	24.0
1970	4	22	99	.	99	.	9	19.9
1970	4	23	1	8.6	1	10.4	2	15.0
1970	4	24	1	6.7	1	5.1	10	9.5
1970	4	25	1	6.0	2	5.3	10	14.8
1970	4	26	6	9.7	2	2.3	12	22.1
1970	4	27	4	7.7	2	3.0	5	13.9
1970	4	28	4	9.7	4	6.0	9	20.1
1970	4	29	11	10.4	8	6.5	9	13.4
1970	4	30	11	6.9	6	10.0	29	18.4
1970	5	1	11	7.6	7	7.1	6	10.1
1970	5	2	1	8.5	3	8.1	2	11.1
1970	5	3	99	.	99	.	2	6.5
1970	5	4	1	6.7	1	3.0	26	32.9
1970	5	5	1	5.5	1	8.8	7	16.7
1970	5	6	1	6.0	1	6.6	1	17.8
1970	5	7	1	4.9	2	7.8	12	17.7
1970	5	8	1	7.4	6	8.5	9	14.6
1970	5	9	6	10.6	0	.	17	9.1
1970	5	10	12	10.9	9	8.3	17	10.6
1970	5	11	12	16.8	4	10.4	17	21.1
1970	5	12	3	11.4	2	5.0	5	13.2
1970	5	13	3	10.5	2	6.1	5	17.9
1970	5	14	1	11.8	8	7.6	9	18.2
1970	5	15	1	10.8	7	12.4	6	13.2
1970	5	16	1	9.8	3	0.7	6	15.8
1970	5	17	1	2.4	1	8.1	10	9.0
1970	5	18	1	3.1	1	4.9	29	13.8
1970	5	19	1	4.7	1	5.6	5	9.2
1970	5	20	99	.	99	.	1	11.5
1970	5	21	1	10.2	2	6.2	5	15.1
1970	5	22	1	6.1	12	5.0	5	16.0
1970	5	23	1	5.2	12	7.3	1	20.0
1970	5	24	1	11.5	1	6.8	20	23.1
1970	5	25	1	11.2	1	6.5	6	9.6
1970	5	26	1	9.6	1	8.0	26	18.6
1970	5	27	1	5.9	1	4.7	1	13.2
1970	5	28	6	8.0	2	3.1	1	6.4
1970	5	29	1	7.3	2	2.7	12	22.6
1970	5	30	1	5.7	2	2.0	27	21.9
1970	5	31	7	8.9	6	8.1	3	12.5
1970	6	1	7	13.1	7	8.7	6	12.7
1970	6	2	5	16.5	19	10.7	6	23.0
1970	6	3	3	17.9	19	6.1	13	9.6
1970	6	4	16	13.9	0	.	0	.
1970	6	5	0	.	0	.	13	26.3
1970	6	6	7	12.5	10	8.8	8	27.6
1970	6	7	1	7.2	12	7.6	10	17.9
1970	6	8	3	5.2	2	3.4	4	14.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1970	6	9	3	6.3	2	6.8	14	18.0
1970	6	10	6	6.5	4	4.8	9	21.4
1970	6	11	6	9.0	18	10.0	9	15.9
1970	6	12	0	.	0	.	9	9.6
1970	6	13	0	.	0	.	5	22.2
1970	6	14	4	12.1	4	4.7	1	8.5
1970	6	15	4	6.6	4	6.0	28	16.6
1970	6	16	4	8.6	2	7.8	2	18.7
1970	6	17	1	7.3	1	5.8	2	12.7
1970	6	18	1	9.7	1	3.4	6	14.2
1970	6	19	1	9.6	1	9.9	2	23.4
1970	6	20	1	8.8	3	6.1	22	4.7
1970	6	21	1	6.9	3	6.6	11	29.9
1970	6	22	1	4.6	1	5.6	4	10.6
1970	6	23	1	5.4	1	3.6	2	10.9
1970	6	24	1	8.2	1	5.0	7	14.8
1970	6	25	1	6.6	1	2.3	20	10.0
1970	6	26	1	7.6	1	7.0	6	22.7
1970	6	27	3	5.9	1	6.0	4	9.3
1970	6	28	1	9.9	2	4.1	4	23.0
1970	6	29	10	11.8	2	4.2	0	.
1970	6	30	6	8.8	4	1.9	28	21.5
1970	7	1	3	13.4	2	2.7	10	21.2
1970	7	2	1	13.0	1	3.5	2	8.4
1970	7	3	1	12.8	3	6.8	6	14.4
1970	7	4	1	9.4	3	3.0	6	27.1
1970	7	5	99	.	99	.	4	10.0
1970	7	6	1	3.3	1	1.7	2	7.0
1970	7	7	1	9.0	1	3.0	2	8.4
1970	7	8	1	5.5	3	9.5	6	26.1
1970	7	9	1	5.5	0	.	4	17.1
1970	7	10	3	5.9	1	11.2	28	24.7
1970	7	11	3	7.4	5	7.8	28	15.8
1970	7	12	1	5.8	2	5.7	20	11.4
1970	7	13	1	3.4	2	7.2	2	15.9
1970	7	14	1	3.1	1	4.7	3	21.3
1970	7	15	1	4.3	1	5.5	6	6.0
1970	7	16	1	5.5	1	2.6	2	11.7
1970	7	17	99	.	99	.	25	16.3
1970	7	18	3	9.1	1	0.9	9	8.2
1970	7	19	3	9.7	3	3.3	16	19.1
1970	7	20	1	8.3	3	5.4	11	17.3
1970	7	21	1	9.4	5	3.1	4	10.3
1970	7	22	1	9.8	2	6.7	4	11.7
1970	7	23	1	8.6	2	6.0	12	9.5
1970	7	24	1	6.7	2	9.8	4	14.6
1970	7	25	1	6.3	2	6.3	4	5.9
1970	7	26	1	5.5	2	4.9	2	10.9
1970	7	27	1	8.6	1	8.1	24	16.1
1970	7	28	17	9.4	2	10.2	1	13.8
1970	7	29	1	7.6	2	6.6	28	21.2
1970	7	30	1	7.1	2	5.1	2	10.4
1970	7	31	1	7.6	1	3.1	22	12.8
1970	8	1	1	6.9	1	1.2	2	17.5
1970	8	2	1	9.6	1	2.4	8	6.5
1970	8	3	1	6.0	1	8.1	16	15.7
1970	8	4	1	7.9	1	2.1	4	21.9
1970	8	5	3	6.7	1	6.7	1	25.3
1970	8	6	3	4.7	12	5.9	1	10.3
1970	8	7	3	7.4	1	7.3	28	25.2
1970	8	8	6	10.3	5	5.6	0	.
1970	8	9	1	9.4	13	11.8	22	23.9
1970	8	10	1	6.4	1	9.0	13	7.1
1970	8	11	1	5.9	1	6.5	4	15.7
1970	8	12	1	3.6	1	4.8	2	15.4
1970	8	13	1	3.8	1	10.7	4	8.0
1970	8	14	1	5.6	2	5.1	2	17.0
1970	8	15	1	8.8	1	4.4	29	16.3
1970	8	16	1	5.9	1	5.2	18	13.1
1970	8	17	1	7.7	2	9.2	1	20.2
1970	8	18	1	6.9	2	8.5	2	12.4
1970	8	19	1	6.8	1	1.9	22	13.1
1970	8	20	1	7.9	1	3.7	19	25.7
1970	8	21	1	7.9	1	3.7	12	17.0
1970	8	22	1	9.7	3	6.7	6	9.1
1970	8	23	1	7.7	1	8.7	0	.
1970	8	24	1	5.9	1	4.5	4	19.8
1970	8	25	1	4.3	1	3.8	21	21.0
1970	8	26	1	3.8	1	8.5	1	14.5
1970	8	27	1	3.7	1	2.1	8	20.7
1970	8	28	1	3.8	1	3.4	21	27.4
1970	8	29	1	6.8	1	4.6	12	23.7
1970	8	30	1	7.6	1	1.8	19	16.3
1970	8	31	1	6.2	1	3.6	1	16.4
1970	9	1	1	3.8	12	7.7	1	10.2
1970	9	2	99	.	99	.	20	16.0
1970	9	3	1	6.6	1	5.3	6	19.1
1970	9	4	6	11.3	5	4.8	0	.
1970	9	5	4	11.2	2	4.3	1	12.8
1970	9	6	1	11.7	2	5.1	2	19.2
1970	9	7	1	5.3	2	7.9	2	11.2
1970	9	8	1	5.0	2	5.2	4	18.0
1970	9	9	1	7.1	2	7.0	22	13.9
1970	9	10	99	.	99	.	6	13.6
1970	9	11	2	6.4	1	3.4	8	31.3
1970	9	12	2	6.0	1	7.5	3	8.7
1970	9	13	2	7.9	2	6.2	19	22.7
1970	9	14	4	6.6	2	2.8	5	21.2
1970	9	15	7	9.1	2	7.9	13	16.7
1970	9	16	1	5.2	6	7.0	4	15.3
1970	9	17	1	3.8	1	5.1	4	13.6
1970	9	18	1	2.7	1	2.4	10	4.1
1970	9	19	1	5.5	2	2.1	4	17.8
1970	9	20	4	6.7	2	1.4	12	24.0
1970	9	21	11	9.6	2	8.1	29	25.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1970	9	22	99	.	99	.	6	22.8
1970	9	23	11	11.5	2	4.9	10	20.9
1970	9	24	11	11.0	2	7.7	27	21.9
1970	9	25	1	11.5	6	10.5	22	12.6
1970	9	26	99	.	99	.	6	13.8
1970	9	27	5	9.1	3	4.1	2	14.1
1970	9	28	1	10.3	3	5.1	10	17.3
1970	9	29	1	10.1	1	11.4	2	8.6
1970	9	30	1	10.5	1	13.8	13	21.5
1970	10	1	7	13.6	1	9.1	2	6.4
1970	10	2	2	13.1	3	8.1	6	14.2
1970	10	3	1	14.6	3	3.3	6	19.6
1970	10	4	1	8.0	1	5.7	4	13.0
1970	10	5	4	9.9	2	5.6	20	22.8
1970	10	6	4	8.3	2	4.6	29	14.9
1970	10	7	2	9.9	2	6.1	22	18.6
1970	10	8	11	8.6	6	9.7	3	16.4
1970	10	9	11	9.1	0	.	17	24.3
1970	10	10	11	8.1	1	9.8	8	19.3
1970	10	11	1	8.9	6	10.0	4	12.3
1970	10	12	2	7.3	1	2.3	2	24.6
1970	10	13	2	7.8	2	7.4	3	9.7
1970	10	14	2	7.3	7	3.8	19	12.9
1970	10	15	5	10.4	3	6.3	13	12.7
1970	10	16	1	7.5	3	13.0	4	8.4
1970	10	17	1	6.0	10	9.9	2	12.2
1970	10	18	1	6.5	10	9.8	18	15.1
1970	10	19	3	6.4	2	8.0	4	8.6
1970	10	20	99	.	99	.	4	17.5
1970	10	21	3	7.4	13	7.3	1	11.5
1970	10	22	3	12.4	13	6.3	1	23.1
1970	10	23	6	6.0	2	9.8	28	13.1
1970	10	24	6	4.0	2	5.7	1	13.8
1970	10	25	6	3.8	4	8.2	28	14.1
1970	10	26	0	.	8	10.9	0	.
1970	10	27	0	.	0	.	20	23.4
1970	10	28	0	.	0	.	15	21.9
1970	10	29	0	.	11	13.6	20	12.7
1970	10	30	0	.	11	10.5	3	13.6
1970	10	31	0	.	11	9.5	26	19.7
1970	11	1	0	.	11	12.8	3	13.4
1970	11	2	0	.	0	.	3	8.8
1970	11	3	0	.	20	9.7	3	18.2
1970	11	4	0	.	20	7.6	6	14.1
1970	11	5	3	9.3	5	9.4	6	27.2
1970	11	6	8	6.4	1	5.3	15	10.9
1970	11	7	1	5.2	1	6.1	0	.
1970	11	8	1	6.6	6	3.0	9	21.3
1970	11	9	1	3.2	10	6.4	0	.
1970	11	10	1	5.5	1	1.8	15	25.0
1970	11	11	1	7.0	1	6.6	7	27.1
1970	11	12	1	6.9	1	4.3	1	16.2
1970	11	13	5	9.3	3	11.3	16	19.0
1970	11	14	5	9.2	19	5.1	13	13.9
1970	11	15	1	7.2	3	7.9	2	10.6
1970	11	16	1	3.5	1	2.4	10	18.9
1970	11	17	1	4.6	1	2.1	20	15.0
1970	11	18	2	4.4	1	4.3	2	18.1
1970	11	19	2	7.9	1	5.8	28	24.0
1970	11	20	1	7.8	1	7.3	6	23.4
1970	11	21	1	7.4	1	6.4	0	.
1970	11	22	5	9.7	1	6.8	6	16.3
1970	11	23	5	6.1	3	3.0	19	14.9
1970	11	24	1	5.0	1	8.6	4	10.6
1970	11	25	1	5.7	1	6.2	29	21.5
1970	11	26	1	8.3	1	5.4	8	16.9
1970	11	27	4	10.0	2	5.9	5	15.2
1970	11	28	99	.	99	.	1	13.3
1970	11	29	1	7.7	1	2.1	2	7.9
1970	11	30	1	7.3	2	3.7	1	9.7
1970	12	1	1	7.3	9	5.9	15	19.7
1970	12	2	1	6.6	1	4.1	11	17.6
1970	12	3	1	5.1	2	6.2	17	15.9
1970	12	4	1	2.9	2	8.7	1	21.7
1970	12	5	1	4.4	1	5.1	26	16.2
1970	12	6	99	.	99	.	1	19.8
1970	12	7	1	2.5	1	2.2	1	20.3
1970	12	8	1	1.5	1	4.2	17	20.9
1970	12	9	1	3.2	1	2.3	26	13.8
1970	12	10	1	4.2	6	4.7	5	14.4
1970	12	11	1	4.2	10	6.6	10	22.3
1970	12	12	1	6.3	1	13.0	20	19.1
1970	12	13	99	.	99	.	15	18.0
1970	12	14	1	6.2	1	5.8	7	19.1
1970	12	15	1	7.6	2	6.0	1	13.0
1970	12	16	99	.	99	.	18	25.1
1970	12	17	4	7.9	2	8.2	5	14.6
1970	12	18	4	6.9	2	8.1	5	10.5
1970	12	19	2	7.3	1	3.3	26	19.2
1970	12	20	2	7.0	1	1.2	11	15.6
1970	12	21	4	8.0	1	5.6	1	14.1
1970	12	22	2	4.8	2	7.0	17	20.9
1970	12	23	2	4.2	3	9.9	6	12.7
1970	12	24	2	4.2	1	6.7	2	9.1
1970	12	25	2	6.5	3	1.6	10	20.7
1970	12	26	1	5.8	1	6.2	2	14.4
1970	12	27	9	5.9	3	12.0	7	7.0
1970	12	28	1	7.7	5	4.9	1	16.2
1970	12	29	1	6.2	5	5.0	10	18.6
1970	12	30	1	8.9	1	11.3	28	11.9
1970	12	31	1	6.6	1	8.0	10	5.5
1971	1	1	1	8.3	1	6.1	2	13.4
1971	1	2	2	11.1	1	4.3	8	23.7
1971	1	3	18	11.7	6	6.8	3	22.1
1971	1	4	18	12.1	7	15.0	6	19.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1971	1	5	99	.	99	.	6	16.3
1971	1	6	18	10.1	19	9.8	10	24.4
1971	1	7	18	14.6	19	12.4	4	9.7
1971	1	8	11	9.3	3	14.4	4	17.6
1971	1	9	1	8.6	1	3.6	14	30.7
1971	1	10	1	4.0	1	1.1	11	21.8
1971	1	11	1	8.7	1	2.5	5	14.9
1971	1	12	1	10.4	12	6.2	11	15.7
1971	1	13	4	8.3	2	2.7	1	15.8
1971	1	14	1	4.8	9	7.9	26	21.4
1971	1	15	3	6.7	1	5.7	11	9.3
1971	1	16	1	7.6	1	4.0	1	14.3
1971	1	17	1	8.5	3	7.4	7	25.0
1971	1	18	5	6.3	3	1.4	16	16.7
1971	1	19	1	9.2	3	4.0	10	18.4
1971	1	20	1	3.1	1	6.4	4	14.0
1971	1	21	2	7.1	1	2.4	2	11.8
1971	1	22	2	5.0	1	2.1	2	6.8
1971	1	23	2	6.7	1	2.0	2	15.7
1971	1	24	1	6.3	1	0.3	24	12.5
1971	1	25	1	6.2	1	1.4	9	27.4
1971	1	26	5	6.9	3	4.0	26	19.3
1971	1	27	5	6.6	3	4.8	4	26.4
1971	1	28	5	7.4	3	3.0	25	22.7
1971	1	29	1	10.3	1	4.5	15	15.3
1971	1	30	5	8.3	3	5.3	8	17.5
1971	1	31	5	6.2	3	3.6	8	16.1
1971	2	1	5	7.0	3	3.0	11	12.7
1971	2	2	1	6.5	1	2.1	1	18.5
1971	2	3	11	6.4	2	4.3	5	15.5
1971	2	4	11	7.6	2	8.1	7	22.6
1971	2	5	2	6.0	3	11.2	3	16.7
1971	2	6	2	7.3	7	7.6	19	16.0
1971	2	7	5	9.0	7	15.9	19	18.3
1971	2	8	5	6.0	3	5.3	8	24.3
1971	2	9	5	6.9	3	3.6	2	5.6
1971	2	10	1	6.7	1	5.6	2	21.0
1971	2	11	5	5.3	1	6.4	3	14.9
1971	2	12	5	5.5	3	2.7	16	17.8
1971	2	13	1	7.2	1	9.0	4	14.4
1971	2	14	1	4.5	1	5.2	2	7.4
1971	2	15	1	3.3	5	4.1	10	17.6
1971	2	16	1	2.9	2	5.1	2	15.6
1971	2	17	1	8.6	1	1.6	2	14.6
1971	2	18	1	6.6	2	7.8	5	5.8
1971	2	19	11	9.5	16	8.2	17	28.6
1971	2	20	7	11.7	0	.	3	21.6
1971	2	21	7	11.3	0	.	23	15.8
1971	2	22	11	11.6	0	.	16	28.9
1971	2	23	11	10.1	0	.	6	19.7
1971	2	24	1	7.3	1	8.3	10	6.6
1971	2	25	12	9.0	2	3.8	4	14.9
1971	2	26	11	8.1	8	3.6	3	19.9
1971	2	27	2	11.9	5	15.6	6	11.7
1971	2	28	2	9.1	9	11.1	11	18.2
1971	3	1	11	9.2	0	.	5	9.7
1971	3	2	5	11.1	7	14.3	23	5.8
1971	3	3	1	10.2	17	6.7	10	8.5
1971	3	4	1	9.0	5	10.5	4	12.5
1971	3	5	12	9.2	9	8.7	3	16.7
1971	3	6	5	11.1	7	13.6	3	19.6
1971	3	7	9	9.6	3	5.0	7	17.5
1971	3	8	9	12.2	3	8.3	7	26.4
1971	3	9	1	6.2	1	1.8	1	10.1
1971	3	10	1	8.2	1	6.1	1	25.7
1971	3	11	1	8.8	1	4.8	4	18.9
1971	3	12	3	4.5	1	3.8	10	16.6
1971	3	13	3	7.9	2	4.5	1	11.7
1971	3	14	3	9.5	8	7.2	9	18.0
1971	3	15	12	8.5	3	11.8	17	25.7
1971	3	16	2	8.7	3	10.0	6	25.0
1971	3	17	2	7.0	1	5.7	8	26.2
1971	3	18	2	8.0	7	4.4	22	16.5
1971	3	19	5	10.8	3	6.8	6	17.2
1971	3	20	5	14.3	3	7.8	15	29.4
1971	3	21	12	10.0	1	2.1	3	11.2
1971	3	22	5	6.0	1	6.3	19	9.6
1971	3	23	5	7.1	3	5.5	5	10.3
1971	3	24	1	3.8	1	6.2	1	19.6
1971	3	25	1	2.5	1	4.4	1	12.3
1971	3	26	1	3.9	1	4.1	1	34.8
1971	3	27	1	2.1	2	4.9	1	14.7
1971	3	28	99	.	99	.	6	16.0
1971	3	29	1	4.0	3	5.9	6	25.7
1971	3	30	1	2.3	1	3.8	1	19.9
1971	3	31	1	3.5	2	2.3	9	10.2
1971	4	1	1	7.1	7	10.5	6	16.7
1971	4	2	9	7.9	3	3.5	26	13.8
1971	4	3	5	4.7	3	6.5	3	22.9
1971	4	4	5	6.5	3	6.8	19	17.9
1971	4	5	1	11.2	19	11.5	13	8.8
1971	4	6	3	7.1	10	9.2	10	9.9
1971	4	7	3	3.9	5	3.6	10	15.1
1971	4	8	3	5.4	2	4.5	22	14.2
1971	4	9	3	4.9	1	4.4	18	11.7
1971	4	10	3	5.4	2	5.2	4	10.0
1971	4	11	1	5.1	2	2.5	2	14.1
1971	4	12	1	5.9	1	4.5	3	20.0
1971	4	13	1	7.3	1	7.6	6	22.4
1971	4	14	1	8.0	1	7.0	4	14.1
1971	4	15	1	7.5	2	8.1	4	15.7
1971	4	16	1	9.8	2	7.6	20	11.4
1971	4	17	4	10.3	2	3.2	11	24.5
1971	4	18	10	14.2	4	4.6	1	13.4
1971	4	19	16	11.5	0	.	5	18.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1971	4	20	3	16.0	0	.	5	8.6
1971	4	21	14	13.5	0	.	5	19.7
1971	4	22	14	13.2	0	.	5	7.7
1971	4	23	14	13.0	0	.	26	12.8
1971	4	24	0	.	0	.	5	16.3
1971	4	25	18	17.3	0	.	5	10.0
1971	4	26	18	14.2	0	.	5	4.9
1971	4	27	11	12.8	8	8.5	17	23.2
1971	4	28	12	12.1	3	13.4	26	15.6
1971	4	29	3	11.7	1	2.8	1	14.7
1971	4	30	3	9.0	1	4.5	29	25.9
1971	5	1	9	7.6	3	6.9	26	11.3
1971	5	2	9	14.0	3	7.4	23	24.0
1971	5	3	1	16.8	3	12.4	1	34.2
1971	5	4	1	14.0	1	7.1	21	25.1
1971	5	5	11	8.4	0	.	5	23.4
1971	5	6	4	16.7	0	.	27	17.0
1971	5	7	7	10.6	10	11.7	3	19.9
1971	5	8	1	11.4	5	12.2	13	21.2
1971	5	9	99	.	99	.	12	16.0
1971	5	10	7	7.1	15	7.3	3	14.0
1971	5	11	7	16.4	3	11.2	16	15.5
1971	5	12	3	15.6	3	5.2	13	17.5
1971	5	13	3	7.9	3	13.7	18	6.9
1971	5	14	1	8.3	2	7.1	10	19.9
1971	5	15	1	5.2	1	3.9	2	8.0
1971	5	16	1	6.0	1	5.8	4	18.0
1971	5	17	1	13.9	6	9.8	9	22.6
1971	5	18	1	11.9	6	5.6	3	14.7
1971	5	19	1	10.0	14	10.7	6	16.9
1971	5	20	2	6.7	5	9.0	26	28.0
1971	5	21	13	14.0	12	7.5	5	14.9
1971	5	22	7	12.6	6	11.7	5	16.6
1971	5	23	7	9.8	6	9.9	9	9.4
1971	5	24	1	12.8	11	8.6	3	30.2
1971	5	25	9	0.0	3	6.0	26	16.6
1971	5	26	99	.	99	.	11	26.5
1971	5	27	99	.	99	.	4	20.6
1971	5	28	16	13.5	0	.	4	19.8
1971	5	29	1	12.3	6	8.5	21	17.4
1971	5	30	0	.	0	.	5	11.1
1971	5	31	13	14.4	0	.	5	17.2
1971	6	1	4	11.6	0	.	16	24.6
1971	6	2	4	11.6	12	6.4	13	20.2
1971	6	3	4	14.6	12	2.3	4	22.2
1971	6	4	10	8.5	4	2.0	1	10.9
1971	6	5	3	14.6	8	12.4	20	9.4
1971	6	6	1	9.7	12	11.3	29	22.2
1971	6	7	1	7.3	1	8.4	3	17.7
1971	6	8	1	8.1	12	8.3	5	18.8
1971	6	9	1	8.5	2	8.1	1	4.6
1971	6	10	6	9.5	2	3.4	12	20.6
1971	6	11	16	14.2	2	2.8	12	18.6
1971	6	12	3	7.8	2	3.6	2	10.3
1971	6	13	3	4.3	5	10.8	6	24.3
1971	6	14	3	10.6	13	8.7	17	25.4
1971	6	15	1	12.1	13	8.0	0	.
1971	6	16	1	9.2	2	4.9	10	29.5
1971	6	17	1	6.4	2	3.4	2	9.6
1971	6	18	1	5.8	1	5.4	8	11.1
1971	6	19	3	7.5	2	4.2	9	16.5
1971	6	20	3	7.4	1	0.6	3	20.0
1971	6	21	3	9.1	1	1.1	2	13.8
1971	6	22	3	12.1	1	3.4	6	16.8
1971	6	23	3	8.6	1	3.1	21	26.2
1971	6	24	1	7.7	1	3.9	9	16.3
1971	6	25	1	9.3	1	5.8	1	18.1
1971	6	26	1	8.8	2	3.8	1	18.4
1971	6	27	4	9.2	2	1.9	12	14.8
1971	6	28	4	6.3	2	0.8	8	10.6
1971	6	29	1	6.4	2	2.4	22	24.0
1971	6	30	1	4.5	2	7.5	6	15.9
1971	7	1	1	4.1	1	5.0	18	19.2
1971	7	2	1	4.5	2	5.6	4	15.8
1971	7	3	1	6.1	2	2.3	12	8.0
1971	7	4	1	4.5	2	6.3	2	8.2
1971	7	5	1	6.0	1	2.6	2	10.7
1971	7	6	1	6.8	5	8.1	21	18.4
1971	7	7	1	6.9	2	1.8	20	16.1
1971	7	8	1	9.7	1	4.9	8	15.5
1971	7	9	1	11.1	1	4.5	21	11.4
1971	7	10	3	7.2	1	7.9	5	15.6
1971	7	11	1	8.6	5	8.2	1	9.6
1971	7	12	1	8.5	2	4.7	2	17.7
1971	7	13	17	10.7	1	2.8	8	19.9
1971	7	14	1	10.3	1	1.3	2	11.4
1971	7	15	1	8.8	3	5.9	2	14.6
1971	7	16	1	8.2	1	6.0	26	19.6
1971	7	17	1	10.6	1	4.9	27	26.9
1971	7	18	5	11.6	3	6.7	3	9.5
1971	7	19	5	11.6	3	2.0	6	14.9
1971	7	20	1	8.7	3	4.5	13	15.2
1971	7	21	1	8.2	1	3.3	2	15.9
1971	7	22	1	9.9	1	5.0	8	20.4
1971	7	23	2	9.3	1	7.1	6	29.6
1971	7	24	2	9.1	1	3.3	20	26.3
1971	7	25	2	7.3	1	1.4	29	21.8
1971	7	26	2	7.5	3	6.4	6	12.2
1971	7	27	99	.	99	.	2	17.1
1971	7	28	2	12.3	1	6.9	6	19.7
1971	7	29	2	12.1	3	6.1	19	13.7
1971	7	30	17	14.9	3	1.8	13	8.9
1971	7	31	2	13.0	3	7.0	8	14.4
1971	8	1	5	11.4	3	8.2	25	32.2
1971	8	2	9	11.9	3	4.1	5	19.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1971	8	3	3	9.6	3	6.1	1	17.1
1971	8	4	3	6.7	17	8.5	1	9.3
1971	8	5	3	11.9	10	15.9	4	20.4
1971	8	6	1	17.5	10	16.3	4	19.7
1971	8	7	17	12.7	15	9.4	4	8.1
1971	8	8	17	12.1	10	8.1	4	12.4
1971	8	9	17	13.8	1	8.0	2	6.6
1971	8	10	5	13.8	1	7.2	6	15.8
1971	8	11	5	12.3	3	5.6	13	16.1
1971	8	12	1	7.9	1	5.0	25	19.3
1971	8	13	1	6.3	1	4.3	14	21.4
1971	8	14	1	7.8	1	4.7	7	24.8
1971	8	15	1	6.7	2	12.4	4	16.5
1971	8	16	1	6.5	2	9.2	4	25.2
1971	8	17	1	4.5	2	6.7	1	20.6
1971	8	18	1	3.9	1	5.9	8	15.2
1971	8	19	1	6.6	1	1.8	8	12.8
1971	8	20	3	8.1	1	3.3	4	14.8
1971	8	21	3	7.2	1	4.5	10	15.8
1971	8	22	3	9.9	1	13.1	17	17.3
1971	8	23	16	8.3	2	11.1	12	25.1
1971	8	24	16	8.4	1	8.1	2	17.5
1971	8	25	1	8.6	3	13.4	6	27.8
1971	8	26	1	7.6	17	6.6	0	.
1971	8	27	1	5.6	0	.	4	24.6
1971	8	28	1	7.1	1	9.8	1	24.8
1971	8	29	1	9.5	6	8.9	21	14.1
1971	8	30	3	6.6	12	3.1	5	15.7
1971	8	31	3	7.7	9	13.0	1	8.1
1971	9	1	6	9.7	13	6.5	4	19.8
1971	9	2	1	7.8	2	2.2	4	9.9
1971	9	3	1	10.7	2	4.3	12	16.8
1971	9	4	3	10.2	8	6.7	9	19.0
1971	9	5	3	7.6	0	.	20	28.5
1971	9	6	1	9.1	1	10.4	10	16.6
1971	9	7	1	5.8	2	3.5	2	17.3
1971	9	8	1	3.7	6	8.6	13	18.4
1971	9	9	1	6.0	16	6.7	10	19.3
1971	9	10	3	5.5	1	2.3	6	19.4
1971	9	11	3	6.9	5	3.5	18	18.0
1971	9	12	1	7.1	1	8.2	2	13.5
1971	9	13	1	5.3	1	2.7	2	7.3
1971	9	14	2	11.9	1	2.6	22	18.7
1971	9	15	2	8.8	1	4.0	2	16.3
1971	9	16	2	7.1	7	7.3	3	20.6
1971	9	17	2	8.2	7	8.8	19	18.2
1971	9	18	2	10.3	0	.	13	0.0
1971	9	19	2	6.4	7	8.5	2	14.7
1971	9	20	2	3.7	1	4.4	3	24.5
1971	9	21	2	5.3	7	5.9	19	20.2
1971	9	22	2	9.3	7	4.2	13	12.5
1971	9	23	1	9.2	1	5.9	11	33.7
1971	9	24	1	8.1	1	7.0	1	21.3
1971	9	25	6	9.3	2	5.9	1	8.8
1971	9	26	4	9.0	2	7.0	1	9.8
1971	9	27	4	7.8	2	2.9	12	19.3
1971	9	28	6	7.6	2	4.2	22	17.6
1971	9	29	4	6.5	2	4.2	11	21.6
1971	9	30	4	0.0	2	4.8	1	18.6
1971	10	1	4	6.0	6	10.5	5	25.3
1971	10	2	7	8.0	8	7.5	9	12.5
1971	10	3	1	9.4	14	10.7	15	18.0
1971	10	4	99	.	99	.	2	8.4
1971	10	5	1	10.2	3	6.7	6	8.9
1971	10	6	1	9.7	3	2.9	6	15.0
1971	10	7	1	14.6	1	8.2	2	20.8
1971	10	8	5	8.9	3	8.6	6	15.2
1971	10	9	5	12.3	3	6.3	6	10.7
1971	10	10	5	10.4	3	8.8	2	9.0
1971	10	11	1	9.1	3	4.6	6	12.3
1971	10	12	1	6.4	1	2.7	29	21.6
1971	10	13	1	4.6	1	2.6	10	9.3
1971	10	14	1	8.2	2	5.5	29	12.1
1971	10	15	4	7.9	2	4.1	5	11.2
1971	10	16	4	8.6	2	2.8	5	5.8
1971	10	17	4	11.0	2	6.2	1	13.7
1971	10	18	6	10.6	18	8.2	1	11.2
1971	10	19	1	8.9	8	8.2	2	10.3
1971	10	20	1	7.4	2	5.7	10	14.6
1971	10	21	1	7.1	2	2.2	22	24.8
1971	10	22	1	5.7	1	8.8	23	11.2
1971	10	23	1	12.7	16	5.2	4	21.1
1971	10	24	4	9.6	13	7.0	1	18.9
1971	10	25	1	12.0	2	3.7	4	19.0
1971	10	26	1	8.9	2	4.4	4	7.5
1971	10	27	2	9.3	2	8.3	3	10.8
1971	10	28	4	9.9	2	5.7	8	16.7
1971	10	29	4	12.0	6	6.1	5	21.4
1971	10	30	4	7.5	8	7.9	1	23.3
1971	10	31	4	9.1	1	8.8	2	12.1
1971	11	1	1	7.0	2	6.4	28	17.8
1971	11	2	1	7.1	1	8.1	2	14.0
1971	11	3	1	6.7	3	6.2	6	11.9
1971	11	4	1	4.8	1	4.1	10	10.7
1971	11	5	2	8.1	1	9.5	29	17.2
1971	11	6	5	6.3	7	8.9	6	18.9
1971	11	7	1	3.9	3	6.1	18	15.5
1971	11	8	1	3.3	1	4.8	12	14.1
1971	11	9	3	4.4	1	4.3	10	14.1
1971	11	10	15	5.4	1	5.6	10	10.3
1971	11	11	1	6.1	1	1.4	4	24.7
1971	11	12	1	5.1	1	1.3	28	24.2
1971	11	13	1	6.4	2	7.8	1	5.6
1971	11	14	4	7.4	13	12.6	9	20.9
1971	11	15	11	13.5	2	6.9	8	19.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1971	11	16	7	10.8	2	7.5	5	19.6
1971	11	17	11	7.1	8	6.5	9	22.9
1971	11	18	11	7.2	6	9.1	6	16.5
1971	11	19	2	13.1	3	8.8	2	10.2
1971	11	20	5	11.0	1	7.2	15	13.3
1971	11	21	1	10.2	3	4.0	7	14.8
1971	11	22	1	7.2	1	10.6	1	20.9
1971	11	23	1	8.9	1	6.9	2	9.0
1971	11	24	1	7.1	1	6.1	21	27.1
1971	11	25	1	5.5	1	4.5	1	17.0
1971	11	26	1	5.8	1	5.0	3	29.9
1971	11	27	1	6.9	1	3.2	5	24.5
1971	11	28	1	7.6	1	4.5	5	17.9
1971	11	29	2	11.1	1	12.8	7	13.6
1971	11	30	1	10.3	3	6.0	1	20.3
1971	12	1	1	9.2	3	8.5	13	20.1
1971	12	2	3	6.8	1	9.9	4	9.2
1971	12	3	6	6.5	4	7.8	4	15.9
1971	12	4	11	3.6	8	7.3	12	11.5
1971	12	5	11	6.4	2	9.8	4	10.0
1971	12	6	2	6.2	1	6.7	14	18.0
1971	12	7	11	10.5	2	5.7	3	16.2
1971	12	8	11	8.2	6	6.0	23	10.7
1971	12	9	1	7.8	1	8.0	10	10.6
1971	12	10	11	11.5	2	6.2	20	27.6
1971	12	11	11	12.7	1	7.4	8	15.4
1971	12	12	6	11.9	1	5.9	24	26.8
1971	12	13	11	10.5	2	9.0	5	11.9
1971	12	14	11	9.9	2	7.2	1	16.3
1971	12	15	2	12.7	2	3.8	0	.
1971	12	16	11	9.9	7	10.9	6	20.9
1971	12	17	1	7.6	3	8.1	10	29.8
1971	12	18	2	8.1	1	1.4	4	16.9
1971	12	19	2	8.4	1	0.8	22	29.8
1971	12	20	1	6.2	1	1.7	2	11.1
1971	12	21	1	1.9	1	0.5	11	12.9
1971	12	22	1	7.7	1	4.6	1	14.8
1971	12	23	3	8.9	2	4.6	14	19.5
1971	12	24	1	10.8	1	1.6	99	.
1971	12	25	17	11.6	1	5.9	14	29.8
1971	12	26	17	8.0	1	4.7	5	12.8
1971	12	27	4	10.2	6	6.6	22	21.1
1971	12	28	2	10.4	1	3.1	2	21.2
1971	12	29	1	7.6	12	4.1	0	.
1971	12	30	11	8.5	7	6.5	0	.
1971	12	31	99	.	99	.	2	7.5
1972	1	1	2	9.5	1	2.8	2	4.2
1972	1	2	2	5.6	1	5.2	15	21.5
1972	1	3	2	5.9	7	3.7	19	15.5
1972	1	4	2	6.9	7	5.5	10	15.5
1972	1	5	2	7.8	1	2.5	2	9.1
1972	1	6	1	6.7	1	3.2	2	7.0
1972	1	7	1	2.4	1	1.9	18	16.5
1972	1	8	1	5.0	2	4.1	28	19.0
1972	1	9	1	8.4	1	2.4	10	15.5
1972	1	10	11	9.4	1	6.7	20	25.1
1972	1	11	11	10.7	1	5.3	18	12.7
1972	1	12	2	8.4	1	6.1	9	14.4
1972	1	13	2	6.1	1	4.5	3	14.0
1972	1	14	2	6.5	7	11.2	19	5.4
1972	1	15	5	7.4	3	2.0	4	12.6
1972	1	16	1	2.9	1	1.9	4	9.7
1972	1	17	1	2.9	1	2.8	10	13.1
1972	1	18	1	2.3	1	4.4	3	13.7
1972	1	19	1	2.3	1	0.4	11	13.8
1972	1	20	1	2.2	1	1.0	5	23.7
1972	1	21	1	1.3	1	3.8	1	18.2
1972	1	22	1	2.0	1	3.4	26	16.4
1972	1	23	1	3.2	1	2.6	5	23.1
1972	1	24	1	7.5	2	7.4	3	13.7
1972	1	25	2	7.2	1	1.6	11	14.8
1972	1	26	8	11.8	1	4.6	5	22.3
1972	1	27	17	11.7	12	4.0	8	21.5
1972	1	28	2	2.4	1	3.3	4	19.3
1972	1	29	2	2.4	1	4.8	2	17.7
1972	1	30	2	5.4	3	5.0	2	8.9
1972	1	31	2	3.8	1	1.5	6	16.4
1972	2	1	2	3.3	1	7.0	5	12.6
1972	2	2	2	7.5	7	6.5	22	17.4
1972	2	3	5	6.5	3	7.4	6	12.6
1972	2	4	5	8.3	3	5.2	26	19.8
1972	2	5	1	5.1	1	0.8	5	19.4
1972	2	6	1	7.3	1	3.2	16	17.8
1972	2	7	5	5.7	3	5.1	11	18.1
1972	2	8	5	9.2	3	5.2	5	16.9
1972	2	9	5	7.7	3	12.1	1	19.4
1972	2	10	99	.	99	.	13	20.9
1972	2	11	1	4.5	1	8.5	4	10.0
1972	2	12	1	4.5	1	2.8	2	4.8
1972	2	13	1	4.0	1	4.3	10	4.7
1972	2	14	1	5.8	1	2.6	3	14.6
1972	2	15	1	10.1	1	6.9	7	11.3
1972	2	16	1	6.3	1	4.6	1	19.2
1972	2	17	1	5.9	1	8.2	3	23.8
1972	2	18	1	6.2	3	5.3	26	10.9
1972	2	19	1	6.6	3	6.0	1	19.2
1972	2	20	1	4.5	1	3.4	1	12.0
1972	2	21	1	4.3	1	0.8	3	7.1
1972	2	22	1	4.7	1	2.5	11	17.5
1972	2	23	1	5.2	1	2.9	5	17.8
1972	2	24	1	5.6	1	1.8	0	.
1972	2	25	1	3.9	1	1.8	5	15.8
1972	2	26	1	1.9	1	0.9	11	20.1
1972	2	27	1	2.0	1	0.6	24	20.5
1972	2	28	1	2.0	1	0.5	24	21.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1972	2	29	1	2.2	1	3.8	5	17.7
1972	3	1	1	5.1	1	7.2	16	16.3
1972	3	2	1	4.6	1	1.0	11	16.1
1972	3	3	1	4.5	1	2.4	5	18.9
1972	3	4	1	6.9	1	8.4	26	21.0
1972	3	5	1	5.3	3	6.0	11	11.6
1972	3	6	1	2.6	1	2.4	28	20.4
1972	3	7	1	7.2	1	5.2	3	15.7
1972	3	8	1	6.9	3	7.5	11	15.8
1972	3	9	1	8.1	3	6.3	11	16.6
1972	3	10	1	4.0	1	3.6	1	11.2
1972	3	11	1	2.1	1	2.7	0	.
1972	3	12	1	4.6	1	3.0	1	24.3
1972	3	13	1	5.8	17	12.2	23	25.4
1972	3	14	1	5.7	1	8.9	12	15.0
1972	3	15	1	8.5	1	6.9	2	4.4
1972	3	16	5	6.7	3	2.8	6	8.8
1972	3	17	5	4.8	3	3.4	17	18.8
1972	3	18	1	5.2	3	5.5	10	16.0
1972	3	19	1	3.2	1	5.5	1	19.0
1972	3	20	1	3.5	2	10.1	9	14.4
1972	3	21	1	6.9	1	5.4	3	26.8
1972	3	22	15	7.4	3	6.8	7	11.5
1972	3	23	3	4.9	5	8.2	1	17.3
1972	3	24	12	9.2	12	10.7	1	5.7
1972	3	25	9	9.7	5	5.1	1	13.8
1972	3	26	13	11.3	9	11.9	5	17.3
1972	3	27	13	13.2	8	11.6	9	21.1
1972	3	28	2	10.2	0	.	5	25.6
1972	3	29	11	13.6	0	.	0	.
1972	3	30	11	12.4	0	.	26	22.8
1972	3	31	11	14.1	11	4.4	6	19.8
1972	4	1	1	11.3	3	3.3	18	7.9
1972	4	2	1	8.4	5	7.4	12	21.3
1972	4	3	1	8.2	1	4.1	8	18.1
1972	4	4	1	8.1	1	3.1	8	18.6
1972	4	5	15	7.8	1	4.8	18	25.0
1972	4	6	3	4.1	1	6.6	1	12.9
1972	4	7	3	4.6	5	4.1	1	18.3
1972	4	8	3	2.9	5	7.7	1	14.1
1972	4	9	3	6.4	2	6.9	4	16.9
1972	4	10	1	7.9	1	4.0	21	28.0
1972	4	11	1	8.9	1	6.9	1	11.1
1972	4	12	6	9.8	2	3.6	1	5.2
1972	4	13	4	10.8	1	11.0	17	25.5
1972	4	14	11	9.1	6	6.4	22	28.6
1972	4	15	1	4.4	1	7.0	2	16.0
1972	4	16	1	3.5	1	7.4	6	21.8
1972	4	17	4	5.4	2	1.9	12	20.1
1972	4	18	4	4.8	2	2.6	27	16.9
1972	4	19	7	9.1	6	6.8	16	22.7
1972	4	20	1	7.3	2	12.3	23	26.8
1972	4	21	1	5.5	16	3.9	28	25.4
1972	4	22	1	8.4	5	12.4	17	13.9
1972	4	23	3	8.4	3	16.8	17	21.3
1972	4	24	9	7.3	3	10.0	18	29.7
1972	4	25	6	11.5	0	.	1	13.4
1972	4	26	7	11.5	0	.	12	8.5
1972	4	27	3	10.5	15	8.3	12	24.3
1972	4	28	3	9.8	0	.	1	19.0
1972	4	29	6	11.2	0	.	1	11.6
1972	4	30	6	9.9	4	8.9	9	22.4
1972	5	1	1	10.7	0	.	9	16.7
1972	5	2	1	7.3	11	9.6	3	19.2
1972	5	3	1	5.7	1	6.9	26	18.1
1972	5	4	1	10.1	1	4.4	0	.
1972	5	5	8	15.0	1	2.9	5	20.3
1972	5	6	8	12.0	1	3.0	5	16.2
1972	5	7	8	10.6	1	5.4	5	12.9
1972	5	8	8	7.2	1	4.3	5	17.6
1972	5	9	1	10.8	1	11.9	27	24.6
1972	5	10	7	9.8	12	6.0	21	26.4
1972	5	11	7	9.3	4	5.9	1	12.8
1972	5	12	99	.	99	.	12	14.5
1972	5	13	1	9.5	0	.	3	22.6
1972	5	14	1	6.1	3	8.3	6	31.2
1972	5	15	1	4.0	17	10.4	2	21.2
1972	5	16	1	5.2	5	9.0	28	26.2
1972	5	17	1	8.3	2	12.2	14	20.3
1972	5	18	4	6.9	4	7.2	1	13.8
1972	5	19	4	14.3	4	8.8	27	25.1
1972	5	20	0	.	12	9.1	5	13.2
1972	5	21	10	11.4	4	9.2	1	9.1
1972	5	22	6	8.3	4	6.0	28	15.5
1972	5	23	6	7.4	4	13.3	20	15.4
1972	5	24	0	.	13	6.9	27	32.0
1972	5	25	16	12.6	13	7.9	27	21.9
1972	5	26	7	15.6	4	11.9	9	23.0
1972	5	27	0	.	2	16.6	9	24.0
1972	5	28	0	.	7	11.1	3	12.1
1972	5	29	8	17.8	0	.	3	20.2
1972	5	30	3	14.2	3	3.4	23	17.5
1972	5	31	3	10.1	3	5.2	4	9.4
1972	6	1	1	6.2	1	10.0	10	15.1
1972	6	2	1	3.8	1	3.5	2	10.9
1972	6	3	1	4.2	1	2.4	3	20.4
1972	6	4	1	7.2	1	6.8	1	18.6
1972	6	5	1	8.9	1	3.8	2	16.2
1972	6	6	16	8.7	1	6.8	10	25.5
1972	6	7	3	7.7	12	7.3	4	13.0
1972	6	8	3	10.1	12	6.7	14	24.4
1972	6	9	15	14.9	12	9.0	17	17.6
1972	6	10	3	13.6	5	15.1	1	8.5
1972	6	11	3	9.1	12	6.9	4	11.6
1972	6	12	0	.	5	10.2	0	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1972	6	13	0	.	2	4.3	20	17.3
1972	6	14	1	9.1	1	3.9	2	15.5
1972	6	15	1	8.1	1	1.9	26	8.2
1972	6	16	1	8.0	1	5.1	1	15.4
1972	6	17	1	7.4	2	7.9	4	15.6
1972	6	18	4	10.8	2	2.4	12	14.4
1972	6	19	2	9.2	1	7.2	3	8.1
1972	6	20	2	8.4	1	7.1	19	23.8
1972	6	21	2	12.0	5	9.4	5	35.3
1972	6	22	17	14.2	5	11.9	1	15.6
1972	6	23	0	.	13	10.6	1	13.1
1972	6	24	0	.	13	13.7	1	14.0
1972	6	25	6	10.4	13	8.4	1	19.1
1972	6	26	6	10.1	13	4.4	28	20.6
1972	6	27	1	11.2	2	10.5	2	8.6
1972	6	28	1	8.1	1	8.6	2	9.2
1972	6	29	1	6.4	1	9.7	2	10.8
1972	6	30	1	8.2	1	1.7	2	14.4
1972	7	1	12	14.8	1	3.4	3	11.4
1972	7	2	2	10.7	1	6.2	3	10.8
1972	7	3	5	10.6	0	.	3	17.5
1972	7	4	5	8.4	3	7.7	19	19.6
1972	7	5	5	9.0	3	11.9	11	25.1
1972	7	6	5	12.6	1	6.3	14	34.9
1972	7	7	99	.	99	.	1	25.0
1972	7	8	3	5.5	1	2.5	14	23.0
1972	7	9	1	6.9	5	5.6	0	.
1972	7	10	99	.	99	.	12	20.4
1972	7	11	1	6.4	2	5.2	2	14.6
1972	7	12	1	5.4	1	0.9	22	23.9
1972	7	13	1	3.2	1	1.9	10	14.2
1972	7	14	1	7.7	1	1.0	2	17.5
1972	7	15	2	7.3	1	3.6	6	17.0
1972	7	16	2	7.3	1	2.3	2	12.1
1972	7	17	2	11.5	1	4.5	8	15.8
1972	7	18	2	9.6	1	3.8	8	15.1
1972	7	19	2	12.7	2	3.7	12	17.4
1972	7	20	0	.	2	6.1	8	8.4
1972	7	21	4	5.0	4	5.0	1	13.1
1972	7	22	4	6.2	2	2.2	20	34.8
1972	7	23	1	9.1	1	4.1	2	14.2
1972	7	24	1	9.9	1	1.3	26	14.5
1972	7	25	1	8.9	1	4.5	1	17.2
1972	7	26	1	7.8	1	1.4	1	23.8
1972	7	27	1	4.9	1	1.9	1	14.8
1972	7	28	1	4.0	1	3.9	13	20.0
1972	7	29	1	2.9	1	5.3	2	12.7
1972	7	30	1	4.2	1	3.4	8	13.3
1972	7	31	1	3.7	1	2.0	8	18.3
1972	8	1	1	3.3	1	2.3	12	35.5
1972	8	2	1	5.6	1	1.5	3	8.6
1972	8	3	1	3.8	1	2.0	23	17.5
1972	8	4	1	3.2	1	2.7	4	13.5
1972	8	5	1	6.0	1	2.1	21	16.3
1972	8	6	1	12.3	3	7.2	3	17.3
1972	8	7	5	11.2	3	6.5	6	33.6
1972	8	8	5	10.9	3	2.8	26	23.4
1972	8	9	1	6.6	3	5.1	10	18.4
1972	8	10	1	3.4	1	2.4	4	12.7
1972	8	11	1	5.0	1	2.4	4	26.0
1972	8	12	1	7.2	1	6.5	1	18.4
1972	8	13	17	7.8	1	10.2	14	16.5
1972	8	14	17	10.3	12	9.2	1	14.7
1972	8	15	4	13.0	2	3.6	1	8.2
1972	8	16	99	.	99	.	0	.
1972	8	17	17	12.4	12	5.7	8	20.4
1972	8	18	99	.	99	.	9	32.4
1972	8	19	10	15.5	4	11.1	1	15.7
1972	8	20	17	15.3	2	3.4	2	18.5
1972	8	21	1	10.8	7	7.0	3	13.6
1972	8	22	1	6.9	5	13.2	16	28.0
1972	8	23	1	14.7	0	.	27	14.0
1972	8	24	1	12.7	0	.	3	27.9
1972	8	25	16	7.8	0	.	16	24.8
1972	8	26	7	7.5	3	9.2	13	21.7
1972	8	27	7	9.6	3	11.3	2	14.9
1972	8	28	1	8.7	1	9.1	0	.
1972	8	29	1	4.8	1	6.8	10	9.4
1972	8	30	1	5.7	2	6.5	2	15.2
1972	8	31	99	.	99	.	8	14.5
1972	9	1	2	9.3	1	2.2	19	10.3
1972	9	2	17	9.5	1	0.9	13	25.4
1972	9	3	99	.	99	.	4	19.9
1972	9	4	1	11.3	1	3.5	8	12.2
1972	9	5	1	11.8	1	1.3	4	11.0
1972	9	6	1	8.8	2	5.1	14	17.9
1972	9	7	1	3.9	1	5.9	22	13.9
1972	9	8	1	3.2	1	2.2	11	18.2
1972	9	9	1	7.5	2	5.8	1	13.9
1972	9	10	4	4.1	2	1.3	2	18.2
1972	9	11	4	5.7	12	6.8	8	19.9
1972	9	12	4	7.1	2	7.1	12	19.5
1972	9	13	17	10.0	1	4.1	3	10.2
1972	9	14	1	10.6	1	2.9	2	14.5
1972	9	15	1	10.8	1	1.1	25	21.4
1972	9	16	1	8.2	1	1.5	2	13.3
1972	9	17	1	6.1	1	2.2	28	32.6
1972	9	18	1	5.2	1	5.0	7	22.4
1972	9	19	10	10.3	2	3.2	1	6.7
1972	9	20	1	6.9	2	2.9	2	9.1
1972	9	21	1	4.3	1	1.1	0	.
1972	9	22	1	4.6	2	3.6	1	14.2
1972	9	23	1	5.8	2	2.5	14	30.0
1972	9	24	4	7.3	2	3.1	3	19.0
1972	9	25	4	7.0	2	4.2	5	12.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1972	9	26	99	.	99	.	26	23.4
1972	9	27	4	4.5	2	1.3	1	9.2
1972	9	28	4	8.7	2	4.3	29	18.4
1972	9	29	2	8.5	7	4.0	6	19.8
1972	9	30	1	6.7	1	6.4	2	5.4
1972	10	1	1	5.0	1	1.8	2	13.6
1972	10	2	16	8.8	1	2.1	9	8.6
1972	10	3	1	9.9	1	9.2	13	26.3
1972	10	4	99	.	99	.	8	16.7
1972	10	5	99	.	99	.	27	16.5
1972	10	6	99	.	99	.	13	17.3
1972	10	7	99	.	99	.	2	3.1
1972	10	8	99	.	99	.	26	12.2
1972	10	9	1	4.3	1	4.4	1	14.0
1972	10	10	4	5.7	2	2.3	12	19.7
1972	10	11	17	7.2	1	6.1	3	13.5
1972	10	12	17	7.1	1	1.8	13	6.3
1972	10	13	99	.	99	.	2	10.0
1972	10	14	17	7.9	1	2.8	19	13.5
1972	10	15	17	7.3	1	2.7	4	12.8
1972	10	16	2	11.3	1	4.3	6	16.1
1972	10	17	2	11.1	1	5.8	5	18.5
1972	10	18	99	.	99	.	5	10.5
1972	10	19	17	14.3	3	9.4	4	15.5
1972	10	20	7	9.3	6	9.9	4	15.9
1972	10	21	1	6.4	6	5.9	21	12.5
1972	10	22	99	.	99	.	16	17.9
1972	10	23	11	9.4	1	10.5	7	18.7
1972	10	24	7	9.5	7	15.3	13	31.8
1972	10	25	1	8.5	1	3.7	2	13.2
1972	10	26	2	7.5	2	5.8	25	23.2
1972	10	27	4	8.4	2	2.5	3	18.8
1972	10	28	99	.	99	.	26	27.7
1972	10	29	2	6.7	2	3.0	27	14.7
1972	10	30	7	5.6	6	8.4	27	24.6
1972	10	31	7	4.2	6	6.2	13	7.3
1972	11	1	1	6.3	6	4.0	28	24.8
1972	11	2	1	5.0	10	7.5	17	14.5
1972	11	3	1	3.1	1	4.0	10	18.4
1972	11	4	1	2.7	1	4.9	18	11.4
1972	11	5	1	4.0	2	4.8	1	8.5
1972	11	6	99	.	99	.	0	.
1972	11	7	1	5.1	1	5.4	7	12.8
1972	11	8	1	9.6	2	5.8	1	9.4
1972	11	9	1	8.7	6	5.9	9	18.6
1972	11	10	1	6.8	1	3.3	0	.
1972	11	11	12	15.4	12	4.9	5	7.4
1972	11	12	1	16.5	12	7.0	5	3.5
1972	11	13	1	14.9	0	.	5	20.3
1972	11	14	1	11.2	5	8.6	18	23.6
1972	11	15	99	.	99	.	1	14.7
1972	11	16	17	10.9	1	4.6	8	13.7
1972	11	17	1	12.0	1	4.5	11	14.8
1972	11	18	1	7.2	1	4.5	1	22.4
1972	11	19	1	7.1	1	3.6	1	21.8
1972	11	20	5	10.1	12	10.2	5	17.0
1972	11	21	1	13.0	19	12.0	23	15.4
1972	11	22	7	11.8	3	5.3	2	13.1
1972	11	23	1	6.3	10	9.9	2	8.2
1972	11	24	1	7.4	2	4.1	2	12.0
1972	11	25	5	10.7	7	13.1	6	15.7
1972	11	26	2	9.5	3	10.0	15	18.4
1972	11	27	2	5.9	3	6.0	6	17.8
1972	11	28	2	3.7	1	5.4	6	14.0
1972	11	29	2	5.9	1	5.4	2	14.2
1972	11	30	2	7.8	10	8.5	2	14.8
1972	12	1	2	7.3	1	3.6	24	20.3
1972	12	2	2	6.2	1	0.4	0	.
1972	12	3	2	4.6	1	1.4	19	22.0
1972	12	4	2	4.1	1	5.1	27	27.5
1972	12	5	2	9.4	6	7.0	19	22.4
1972	12	6	2	5.9	1	1.9	19	21.5
1972	12	7	2	8.1	1	5.7	21	25.8
1972	12	8	2	10.5	2	5.4	5	21.4
1972	12	9	2	6.9	1	9.0	19	26.8
1972	12	10	99	.	99	.	13	14.9
1972	12	11	2	10.0	1	3.2	4	12.9
1972	12	12	2	6.1	2	7.8	3	27.6
1972	12	13	2	7.4	1	3.9	25	29.4
1972	12	14	1	5.9	1	3.5	4	13.6
1972	12	15	1	4.8	1	5.7	6	7.0
1972	12	16	5	8.7	3	2.7	18	8.1
1972	12	17	1	4.4	1	2.3	4	8.0
1972	12	18	1	2.0	1	2.6	28	22.7
1972	12	19	1	1.7	1	3.3	18	11.0
1972	12	20	1	5.1	1	3.7	9	11.6
1972	12	21	1	3.3	1	5.0	18	12.9
1972	12	22	1	1.6	1	2.4	14	17.7
1972	12	23	1	3.5	1	6.0	3	10.9
1972	12	24	1	1.5	1	6.4	1	21.6
1972	12	25	1	6.7	1	4.5	3	25.3
1972	12	26	1	5.1	1	9.7	10	6.8
1972	12	27	1	1.9	1	0.7	15	17.4
1972	12	28	1	6.8	12	6.8	1	11.1
1972	12	29	7	8.3	6	11.3	9	16.3
1972	12	30	11	8.3	0	.	17	21.4
1972	12	31	11	10.5	0	.	3	18.8
1973	1	1	11	13.2	7	8.4	6	15.5
1973	1	2	2	13.2	1	7.3	10	8.8
1973	1	3	2	8.9	2	2.8	3	18.0
1973	1	4	2	6.7	1	9.3	19	14.6
1973	1	5	2	4.3	1	5.9	5	18.0
1973	1	6	2	5.3	1	7.8	5	16.0
1973	1	7	2	7.6	9	10.6	5	4.7
1973	1	8	2	8.4	7	15.7	19	17.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1973	1	9	8	10.1	3	4.8	8	18.4
1973	1	10	5	8.7	7	8.6	2	9.7
1973	1	11	5	5.3	3	2.5	2	11.7
1973	1	12	1	2.8	1	2.0	10	10.7
1973	1	13	1	2.7	1	2.9	2	9.3
1973	1	14	1	3.5	1	3.5	2	11.8
1973	1	15	1	3.4	1	5.4	10	7.3
1973	1	16	1	5.0	2	6.1	10	16.4
1973	1	17	3	7.1	2	1.6	14	24.0
1973	1	18	3	5.7	2	9.2	15	21.8
1973	1	19	1	7.7	5	7.2	7	15.7
1973	1	20	7	10.1	6	11.2	12	20.1
1973	1	21	11	9.4	16	10.3	28	26.8
1973	1	22	99	.	99	.	6	20.0
1973	1	23	0	.	0	.	2	11.3
1973	1	24	1	6.1	1	10.8	2	9.0
1973	1	25	1	3.9	2	6.9	2	12.3
1973	1	26	1	8.4	2	3.1	3	16.7
1973	1	27	1	9.4	6	10.3	3	8.9
1973	1	28	1	9.4	3	7.3	6	26.9
1973	1	29	8	9.3	3	6.0	10	17.0
1973	1	30	1	5.8	1	8.3	1	11.1
1973	1	31	1	8.6	2	5.9	1	10.1
1973	2	1	1	10.3	6	15.2	22	16.6
1973	2	2	1	8.9	3	4.1	6	16.5
1973	2	3	17	8.9	1	4.5	2	18.9
1973	2	4	1	8.2	1	3.9	7	27.4
1973	2	5	8	13.3	1	6.9	27	23.3
1973	2	6	8	8.8	1	1.7	19	12.8
1973	2	7	8	6.3	7	4.8	19	15.9
1973	2	8	5	9.2	3	2.8	6	23.0
1973	2	9	5	9.9	3	7.0	26	25.9
1973	2	10	1	6.6	1	1.8	1	11.9
1973	2	11	1	4.3	2	6.6	1	20.5
1973	2	12	1	3.2	2	3.1	5	19.5
1973	2	13	1	4.8	6	9.5	5	15.6
1973	2	14	1	6.5	10	7.2	5	19.5
1973	2	15	5	6.6	3	3.5	7	14.0
1973	2	16	5	9.3	3	4.9	4	22.7
1973	2	17	1	7.5	3	5.2	4	12.3
1973	2	18	1	8.3	1	9.4	2	12.0
1973	2	19	2	6.6	7	4.0	3	22.6
1973	2	20	5	10.5	1	3.8	15	14.0
1973	2	21	5	13.6	3	2.8	13	14.6
1973	2	22	1	14.4	3	7.7	6	10.6
1973	2	23	99	.	99	.	17	9.8
1973	2	24	1	4.8	1	2.5	1	20.8
1973	2	25	1	4.7	1	3.9	1	21.4
1973	2	26	1	5.1	1	3.2	1	11.3
1973	2	27	1	6.0	1	5.3	1	23.2
1973	2	28	1	3.6	1	4.1	1	14.0
1973	3	1	1	3.2	1	3.3	1	20.8
1973	3	2	1	3.1	2	2.3	1	19.7
1973	3	3	1	4.6	1	7.4	8	21.6
1973	3	4	4	8.0	12	6.6	1	17.3
1973	3	5	1	10.2	4	5.7	1	6.4
1973	3	6	4	6.9	8	0.0	12	14.8
1973	3	7	1	7.6	1	9.2	6	15.6
1973	3	8	4	11.8	7	7.1	5	8.6
1973	3	9	11	9.8	2	3.3	1	17.4
1973	3	10	1	7.0	2	5.3	4	18.3
1973	3	11	4	7.6	16	9.6	7	22.9
1973	3	12	4	12.5	2	4.1	17	32.7
1973	3	13	4	7.1	2	7.6	1	16.0
1973	3	14	11	5.0	0	.	9	11.7
1973	3	15	1	8.8	1	5.4	6	18.6
1973	3	16	1	6.5	3	9.1	7	18.1
1973	3	17	9	6.9	5	6.6	18	16.5
1973	3	18	3	7.9	5	10.8	1	18.0
1973	3	19	3	5.8	2	13.7	1	24.8
1973	3	20	16	8.6	5	3.1	1	18.2
1973	3	21	6	12.5	0	.	1	11.0
1973	3	22	7	10.1	18	10.9	1	12.7
1973	3	23	7	0.0	0	.	27	17.6
1973	3	24	7	8.1	15	9.2	22	14.7
1973	3	25	17	16.3	10	14.3	16	23.6
1973	3	26	2	15.2	10	15.3	0	.
1973	3	27	11	8.9	2	2.6	29	22.2
1973	3	28	11	9.3	6	5.2	5	16.2
1973	3	29	7	6.3	6	8.9	5	19.7
1973	3	30	1	10.0	2	8.2	1	18.8
1973	3	31	6	13.7	0	.	0	.
1973	4	1	9	17.7	0	.	17	23.0
1973	4	2	11	11.3	19	10.6	3	11.0
1973	4	3	5	10.7	19	3.5	3	12.4
1973	4	4	5	14.8	19	5.4	6	24.9
1973	4	5	1	13.3	1	4.3	2	7.8
1973	4	6	2	7.0	1	2.7	17	22.7
1973	4	7	5	9.4	7	4.1	3	18.2
1973	4	8	5	9.0	7	12.5	17	16.9
1973	4	9	5	6.5	11	9.4	16	21.8
1973	4	10	5	4.8	3	2.6	0	.
1973	4	11	5	4.4	3	1.6	15	26.3
1973	4	12	9	7.7	3	5.1	7	15.2
1973	4	13	1	7.5	1	8.7	4	10.9
1973	4	14	1	7.7	2	1.6	14	14.5
1973	4	15	1	6.6	6	7.6	3	18.7
1973	4	16	1	5.3	1	8.8	18	17.2
1973	4	17	1	6.2	1	4.9	14	16.6
1973	4	18	11	8.2	2	3.1	1	14.4
1973	4	19	11	7.0	18	2.3	9	14.7
1973	4	20	11	13.4	0	.	9	14.1
1973	4	21	11	11.8	8	9.5	29	13.9
1973	4	22	11	11.5	1	3.9	6	15.2
1973	4	23	11	9.9	1	1.3	17	18.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1973	4	24	11	7.8	1	2.8	5	12.9
1973	4	25	5	7.6	1	2.2	5	12.2
1973	4	26	5	10.0	7	8.1	16	24.0
1973	4	27	9	11.3	3	4.4	18	10.8
1973	4	28	2	10.9	5	5.0	1	12.8
1973	4	29	2	10.1	1	6.9	5	18.3
1973	4	30	0	.	12	7.2	5	10.3
1973	5	1	7	14.3	6	9.2	16	20.1
1973	5	2	12	13.3	1	13.0	7	26.8
1973	5	3	9	5.8	3	11.0	18	13.0
1973	5	4	1	12.8	5	5.3	1	12.7
1973	5	5	16	12.0	2	4.5	1	13.6
1973	5	6	1	10.4	6	10.8	9	23.3
1973	5	7	1	11.9	1	10.3	22	28.7
1973	5	8	3	7.7	1	6.8	6	23.0
1973	5	9	12	7.9	9	4.4	20	19.5
1973	5	10	12	5.2	9	5.8	6	17.8
1973	5	11	5	13.4	1	8.6	3	18.4
1973	5	12	5	14.7	3	2.0	6	18.4
1973	5	13	5	14.4	3	2.9	26	18.8
1973	5	14	0	.	19	8.3	11	20.9
1973	5	15	5	10.1	3	9.7	2	13.5
1973	5	16	5	5.7	3	1.7	6	16.8
1973	5	17	5	8.4	3	3.2	2	8.6
1973	5	18	1	7.6	3	4.6	2	12.5
1973	5	19	1	5.0	3	6.7	16	21.7
1973	5	20	1	7.7	5	2.5	1	15.0
1973	5	21	1	13.1	13	8.5	9	9.4
1973	5	22	3	10.8	9	13.6	20	28.3
1973	5	23	3	9.8	9	14.7	17	4.4
1973	5	24	14	7.2	0	.	17	16.5
1973	5	25	14	0.0	0	.	17	17.3
1973	5	26	14	5.2	0	.	9	17.2
1973	5	27	14	13.5	0	.	3	17.7
1973	5	28	5	13.3	0	.	3	24.8
1973	5	29	5	7.1	3	11.9	3	21.9
1973	5	30	1	12.3	3	10.9	6	18.0
1973	5	31	0	.	1	6.6	18	19.7
1973	6	1	6	16.8	2	10.0	1	13.7
1973	6	2	6	10.1	4	5.3	1	13.3
1973	6	3	11	10.2	13	13.9	20	0.0
1973	6	4	1	11.2	8	11.7	2	8.0
1973	6	5	1	6.5	1	6.5	2	5.9
1973	6	6	1	7.9	1	2.6	2	13.5
1973	6	7	1	6.4	1	2.3	28	34.3
1973	6	8	1	7.6	1	2.1	2	7.6
1973	6	9	1	6.7	1	7.0	4	18.5
1973	6	10	1	8.2	2	2.7	25	31.1
1973	6	11	0	.	2	6.5	22	21.5
1973	6	12	3	11.1	1	1.5	19	17.5
1973	6	13	1	14.5	1	5.4	1	25.6
1973	6	14	10	14.3	12	8.9	1	10.3
1973	6	15	10	16.2	4	1.2	28	22.7
1973	6	16	6	6.1	4	6.7	28	26.3
1973	6	17	12	8.9	13	5.1	0	.
1973	6	18	12	10.4	8	12.8	20	14.6
1973	6	19	14	14.7	14	15.7	15	18.9
1973	6	20	5	10.1	7	11.1	6	12.4
1973	6	21	99	.	99	.	6	6.7
1973	6	22	3	7.9	3	4.9	13	27.2
1973	6	23	3	3.8	3	8.6	4	14.5
1973	6	24	3	4.2	5	6.7	4	11.6
1973	6	25	3	8.4	1	7.8	2	16.7
1973	6	26	3	13.0	1	3.8	29	23.1
1973	6	27	3	15.4	3	6.8	6	17.9
1973	6	28	9	8.3	3	7.1	26	9.7
1973	6	29	9	6.5	5	6.7	7	14.3
1973	6	30	1	9.5	5	1.6	5	35.6
1973	7	1	1	8.2	2	8.1	12	20.0
1973	7	2	1	8.1	2	6.4	2	15.9
1973	7	3	1	6.8	1	1.0	2	11.9
1973	7	4	3	6.8	1	4.0	6	27.9
1973	7	5	1	4.3	5	6.8	4	10.0
1973	7	6	1	6.0	2	8.0	4	19.6
1973	7	7	1	6.6	2	2.8	2	9.5
1973	7	8	1	6.5	1	7.4	8	20.8
1973	7	9	3	7.1	1	4.7	29	21.4
1973	7	10	3	7.1	1	4.7	7	20.3
1973	7	11	1	4.7	5	8.0	4	18.3
1973	7	12	1	6.6	1	4.7	2	9.4
1973	7	13	1	12.9	1	3.2	8	21.8
1973	7	14	1	12.9	1	7.1	6	17.3
1973	7	15	1	11.6	1	3.6	13	20.5
1973	7	16	1	10.9	1	5.1	4	16.2
1973	7	17	1	10.3	1	4.5	2	17.8
1973	7	18	1	6.1	1	2.6	8	18.1
1973	7	19	1	5.9	1	2.8	5	10.2
1973	7	20	3	7.5	1	8.3	5	25.4
1973	7	21	6	11.4	13	12.5	23	22.0
1973	7	22	0	.	4	9.6	1	6.3
1973	7	23	3	11.7	4	9.7	1	0.0
1973	7	24	3	8.1	9	8.6	9	16.1
1973	7	25	3	13.1	1	5.6	6	10.1
1973	7	26	5	8.7	3	8.2	6	14.2
1973	7	27	5	10.0	1	10.4	26	20.3
1973	7	28	5	11.0	1	6.5	0	.
1973	7	29	1	11.0	1	1.6	29	0.0
1973	7	30	1	9.5	3	8.5	26	21.3
1973	7	31	1	8.7	3	4.6	7	15.0
1973	8	1	1	9.6	3	3.2	23	30.5
1973	8	2	1	8.6	3	5.6	4	21.0
1973	8	3	1	7.9	1	9.3	4	25.1
1973	8	4	1	9.9	1	3.1	4	22.5
1973	8	5	4	13.3	2	4.2	4	18.3
1973	8	6	2	15.0	2	6.3	20	20.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1973	8	7	1	12.6	2	6.7	0	.
1973	8	8	1	9.6	2	16.4	20	16.8
1973	8	9	1	8.1	1	1.6	6	13.8
1973	8	10	1	7.5	3	7.0	6	23.8
1973	8	11	1	7.8	1	6.1	8	20.3
1973	8	12	1	6.8	1	1.8	3	16.7
1973	8	13	1	4.9	1	7.3	18	20.8
1973	8	14	1	5.5	1	9.1	4	16.6
1973	8	15	1	4.4	1	3.4	2	16.3
1973	8	16	1	6.1	5	4.7	4	23.3
1973	8	17	1	8.7	5	5.0	1	18.5
1973	8	18	1	12.5	13	12.2	14	21.8
1973	8	19	1	8.4	2	9.0	8	19.0
1973	8	20	1	8.3	1	3.9	11	18.8
1973	8	21	17	10.1	1	5.8	1	8.8
1973	8	22	1	9.9	1	7.6	21	22.5
1973	8	23	1	8.2	12	8.0	1	26.2
1973	8	24	6	8.5	2	7.1	1	10.7
1973	8	25	99	.	99	.	0	.
1973	8	26	4	11.7	2	1.8	2	24.0
1973	8	27	4	9.5	2	3.6	4	12.4
1973	8	28	1	11.4	2	3.0	2	12.5
1973	8	29	1	6.8	2	8.3	2	9.3
1973	8	30	1	5.8	2	5.9	4	15.4
1973	8	31	4	7.1	2	4.9	14	21.1
1973	9	1	4	9.2	4	4.8	29	19.4
1973	9	2	1	9.6	8	13.3	3	18.5
1973	9	3	1	11.1	8	6.0	28	22.5
1973	9	4	1	9.5	7	11.6	2	5.7
1973	9	5	1	10.1	1	5.8	2	17.5
1973	9	6	1	10.0	1	9.6	11	11.3
1973	9	7	1	9.1	12	3.0	1	16.9
1973	9	8	16	10.5	4	4.1	1	13.5
1973	9	9	7	8.6	0	.	13	11.5
1973	9	10	1	8.5	1	10.3	8	12.4
1973	9	11	1	4.6	1	10.2	8	25.0
1973	9	12	1	7.7	1	6.5	18	23.3
1973	9	13	1	9.3	1	6.7	9	27.2
1973	9	14	99	.	99	.	26	24.3
1973	9	15	2	11.0	1	6.0	3	15.3
1973	9	16	1	11.4	1	7.2	8	21.9
1973	9	17	1	9.5	1	6.8	6	23.9
1973	9	18	1	9.3	1	3.2	4	9.9
1973	9	19	8	9.1	1	2.4	3	31.3
1973	9	20	12	8.1	1	4.8	1	19.2
1973	9	21	1	6.0	2	6.3	1	14.0
1973	9	22	1	6.7	9	7.2	26	15.2
1973	9	23	3	6.6	2	6.6	1	13.4
1973	9	24	6	4.2	4	5.6	1	6.8
1973	9	25	11	8.9	2	6.7	2	8.4
1973	9	26	7	7.2	6	4.1	22	0.0
1973	9	27	1	6.7	6	10.0	13	14.0
1973	9	28	1	8.8	15	8.7	22	12.4
1973	9	29	1	6.1	10	9.8	23	14.4
1973	9	30	1	6.5	10	8.6	4	15.1
1973	10	1	17	6.9	16	8.2	12	32.2
1973	10	2	99	.	99	.	27	24.0
1973	10	3	1	6.0	2	5.5	22	19.2
1973	10	4	1	2.7	1	1.6	2	13.9
1973	10	5	1	1.9	1	3.2	4	6.6
1973	10	6	1	5.0	2	2.1	12	26.8
1973	10	7	6	7.8	2	3.6	1	12.5
1973	10	8	4	7.2	2	5.3	12	13.5
1973	10	9	4	6.4	4	6.1	9	18.3
1973	10	10	11	7.7	8	6.8	3	22.8
1973	10	11	11	7.9	18	11.8	5	29.1
1973	10	12	6	9.3	8	7.8	10	14.5
1973	10	13	1	6.0	1	2.3	2	7.7
1973	10	14	1	5.5	1	0.9	2	6.5
1973	10	15	1	7.4	1	0.6	8	15.2
1973	10	16	1	7.4	1	5.9	11	19.0
1973	10	17	1	5.9	1	3.0	2	8.6
1973	10	18	1	4.6	1	3.4	10	8.9
1973	10	19	1	5.1	1	2.0	6	21.0
1973	10	20	3	4.2	1	4.9	4	9.4
1973	10	21	3	3.1	2	3.2	4	18.6
1973	10	22	3	4.9	2	9.3	14	26.5
1973	10	23	3	5.9	2	4.7	1	17.9
1973	10	24	1	6.9	2	6.0	9	13.8
1973	10	25	1	4.1	1	6.3	6	13.8
1973	10	26	1	6.3	1	8.5	3	18.5
1973	10	27	5	13.4	3	13.3	17	34.0
1973	10	28	1	7.9	11	7.3	23	19.1
1973	10	29	1	9.6	5	16.8	2	29.8
1973	10	30	11	9.1	1	7.8	2	9.2
1973	10	31	2	9.2	1	7.0	6	15.4
1973	11	1	2	6.8	9	10.7	3	16.3
1973	11	2	2	6.9	9	8.2	3	10.2
1973	11	3	13	12.1	9	8.2	19	12.5
1973	11	4	12	8.4	2	7.6	5	11.1
1973	11	5	12	5.3	5	7.8	11	6.8
1973	11	6	12	5.5	5	5.4	21	19.5
1973	11	7	12	4.9	1	5.8	29	18.6
1973	11	8	99	.	99	.	8	12.7
1973	11	9	15	6.8	3	9.7	11	0.0
1973	11	10	3	4.7	1	5.5	4	18.3
1973	11	11	1	5.2	1	2.3	4	17.5
1973	11	12	1	5.8	1	4.7	18	24.9
1973	11	13	6	6.3	2	4.0	28	22.7
1973	11	14	6	6.0	2	7.2	5	19.8
1973	11	15	12	8.0	1	8.1	7	15.0
1973	11	16	1	9.2	5	2.5	18	16.9
1973	11	17	1	6.7	2	3.6	1	8.0
1973	11	18	1	8.7	1	7.2	0	.
1973	11	19	7	11.8	2	4.2	5	13.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1973	11	20	1	10.3	6	9.5	16	28.1
1973	11	21	6	8.6	13	5.2	17	12.3
1973	11	22	13	11.9	2	7.3	2	10.8
1973	11	23	11	12.1	2	7.6	8	13.1
1973	11	24	11	8.8	2	9.9	7	26.9
1973	11	25	11	9.1	2	2.4	18	16.1
1973	11	26	11	6.5	8	6.4	1	13.3
1973	11	27	1	10.3	6	11.4	6	16.4
1973	11	28	1	7.4	3	4.7	6	25.7
1973	11	29	1	4.1	1	3.4	2	15.6
1973	11	30	15	6.4	1	2.6	26	22.9
1973	12	1	1	8.9	2	5.9	1	12.8
1973	12	2	1	5.8	2	2.4	9	15.9
1973	12	3	1	5.6	1	7.7	6	15.8
1973	12	4	1	9.5	6	8.9	16	16.6
1973	12	5	5	7.8	11	5.6	16	26.2
1973	12	6	1	7.0	3	6.6	10	16.1
1973	12	7	1	2.7	1	3.1	4	6.0
1973	12	8	1	5.4	1	8.2	20	11.8
1973	12	9	5	5.8	3	8.5	6	11.0
1973	12	10	5	4.5	3	2.3	10	23.8
1973	12	11	1	4.9	1	2.9	28	13.9
1973	12	12	3	10.5	1	4.6	17	18.5
1973	12	13	99	.	99	.	7	11.1
1973	12	14	12	5.7	1	1.9	5	16.1
1973	12	15	5	7.6	3	6.1	7	14.1
1973	12	16	5	12.3	3	2.6	18	18.5
1973	12	17	1	6.6	1	3.8	1	11.7
1973	12	18	5	3.5	1	8.6	5	10.8
1973	12	19	5	6.6	3	11.1	19	22.4
1973	12	20	5	10.7	3	1.3	10	11.0
1973	12	21	15	5.8	5	10.0	10	12.3
1973	12	22	1	7.5	1	2.6	25	30.2
1973	12	23	11	10.2	12	9.1	1	18.6
1973	12	24	7	10.5	15	0.0	27	24.8
1973	12	25	11	7.0	16	13.9	17	30.4
1973	12	26	2	10.4	8	12.0	9	20.8
1973	12	27	5	11.6	9	16.5	18	25.5
1973	12	28	1	8.8	1	6.1	29	21.1
1973	12	29	2	8.3	1	7.0	26	18.5
1973	12	30	2	5.9	1	1.8	5	15.0
1973	12	31	2	5.3	7	2.8	19	13.3
1974	1	1	2	6.3	7	3.8	19	33.3
1974	1	2	2	9.1	7	5.3	12	25.9
1974	1	3	2	10.2	1	4.0	2	9.4
1974	1	4	2	12.5	1	3.2	2	11.3
1974	1	5	2	11.8	1	4.5	99	.
1974	1	6	2	5.5	1	3.4	2	10.6
1974	1	7	2	4.1	1	2.7	25	27.7
1974	1	8	2	5.1	1	3.6	12	20.2
1974	1	9	2	5.1	1	3.2	0	.
1974	1	10	2	4.9	1	6.0	5	16.6
1974	1	11	2	5.1	1	4.2	13	16.3
1974	1	12	1	2.4	1	2.1	4	9.0
1974	1	13	1	0.0	1	1.4	4	16.0
1974	1	14	1	2.1	1	1.8	24	27.9
1974	1	15	1	3.5	1	1.4	18	13.4
1974	1	16	1	6.3	1	2.1	18	26.1
1974	1	17	3	5.3	2	3.7	1	15.4
1974	1	18	3	5.1	1	3.3	24	26.2
1974	1	19	1	3.0	2	3.0	10	13.8
1974	1	20	1	2.9	2	9.2	22	21.8
1974	1	21	1	8.1	2	7.5	3	25.9
1974	1	22	11	8.2	1	6.3	6	31.0
1974	1	23	2	6.8	1	4.6	15	0.0
1974	1	24	1	9.3	1	4.7	10	20.4
1974	1	25	1	7.1	1	1.5	18	19.0
1974	1	26	11	7.7	6	5.4	9	22.9
1974	1	27	11	7.4	1	4.4	6	26.7
1974	1	28	2	7.9	1	1.5	24	18.7
1974	1	29	1	5.7	1	1.9	99	.
1974	1	30	1	3.9	1	2.9	14	22.1
1974	1	31	1	3.9	1	1.0	11	24.6
1974	2	1	1	4.5	1	1.1	1	14.3
1974	2	2	1	8.3	1	2.7	17	18.6
1974	2	3	5	7.5	1	6.3	7	0.0
1974	2	4	99	.	99	.	1	12.3
1974	2	5	2	3.8	1	5.6	5	15.3
1974	2	6	2	7.6	1	7.1	23	18.8
1974	2	7	2	9.0	7	8.0	3	21.8
1974	2	8	5	11.1	3	7.1	2	17.5
1974	2	9	2	9.6	3	3.6	10	21.3
1974	2	10	5	9.7	3	3.9	6	17.0
1974	2	11	1	3.4	1	5.0	2	6.4
1974	2	12	1	4.6	1	3.1	17	21.9
1974	2	13	1	6.1	1	0.9	7	16.9
1974	2	14	1	4.2	1	5.5	1	14.4
1974	2	15	1	4.3	1	2.8	12	21.1
1974	2	16	1	4.7	1	6.1	2	27.9
1974	2	17	99	.	99	.	12	20.0
1974	2	18	1	5.7	1	3.7	22	10.5
1974	2	19	1	6.4	1	3.0	18	21.9
1974	2	20	1	9.8	1	5.8	9	16.4
1974	2	21	3	8.5	7	6.9	16	25.5
1974	2	22	9	8.8	3	9.2	7	15.3
1974	2	23	5	8.6	3	15.7	16	18.7
1974	2	24	5	6.7	11	5.5	13	20.4
1974	2	25	3	7.6	3	4.7	10	9.5
1974	2	26	1	3.5	1	4.5	4	20.1
1974	2	27	1	3.4	1	6.5	14	21.7
1974	2	28	1	6.5	1	3.9	26	19.2
1974	3	1	1	7.5	1	6.3	1	13.2
1974	3	2	6	10.4	2	4.0	14	26.1
1974	3	3	4	5.6	2	3.6	6	18.8
1974	3	4	11	9.4	1	5.0	2	13.2

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1974	3	5	1	6.7	1	0.4	10	10.5
1974	3	6	1	4.9	2	4.4	29	16.5
1974	3	7	4	8.3	2	3.8	5	7.4
1974	3	8	10	9.6	2	1.7	1	14.2
1974	3	9	1	9.0	1	5.1	3	25.8
1974	3	10	3	7.1	12	9.2	1	18.1
1974	3	11	99	.	99	.	17	19.7
1974	3	12	3	0.0	5	5.6	7	22.8
1974	3	13	3	5.8	5	6.8	1	5.8
1974	3	14	1	6.5	9	6.0	20	14.7
1974	3	15	5	6.7	3	11.1	3	9.9
1974	3	16	1	6.4	3	1.7	7	11.8
1974	3	17	1	5.1	1	7.1	1	16.1
1974	3	18	2	5.3	1	2.5	3	6.3
1974	3	19	2	4.5	1	0.6	27	20.6
1974	3	20	2	4.8	1	3.9	22	18.8
1974	3	21	2	4.0	1	6.7	6	20.3
1974	3	22	2	5.4	1	2.4	3	10.7
1974	3	23	2	5.1	7	6.1	19	12.3
1974	3	24	5	7.9	3	6.2	4	17.5
1974	3	25	5	8.6	1	2.6	21	19.2
1974	3	26	1	5.8	1	1.7	11	13.6
1974	3	27	1	6.1	1	5.9	1	14.5
1974	3	28	3	5.2	2	7.8	1	10.1
1974	3	29	1	4.8	1	5.9	20	21.9
1974	3	30	1	5.5	1	7.9	26	16.0
1974	3	31	1	3.5	1	6.8	1	16.3
1974	4	1	1	5.4	2	8.7	17	27.4
1974	4	2	1	6.4	1	9.5	5	15.7
1974	4	3	99	.	99	.	16	19.6
1974	4	4	5	6.8	3	5.8	6	21.4
1974	4	5	1	6.8	3	7.0	18	24.5
1974	4	6	1	5.1	1	3.1	14	20.7
1974	4	7	1	6.2	1	6.3	16	15.1
1974	4	8	1	4.6	1	3.5	10	21.5
1974	4	9	1	6.9	1	5.4	1	35.0
1974	4	10	7	10.2	6	15.5	5	14.0
1974	4	11	11	10.3	15	13.3	9	15.3
1974	4	12	11	8.6	0	.	9	17.6
1974	4	13	7	15.0	0	.	3	8.6
1974	4	14	5	8.7	3	8.5	6	16.8
1974	4	15	1	11.0	11	8.0	6	20.4
1974	4	16	1	5.5	10	13.9	4	15.6
1974	4	17	1	3.5	1	2.6	14	22.9
1974	4	18	1	6.3	1	2.7	1	18.0
1974	4	19	1	8.0	2	5.3	1	15.8
1974	4	20	7	8.6	6	10.6	9	22.1
1974	4	21	1	7.8	0	.	17	24.7
1974	4	22	9	5.7	3	8.2	26	16.6
1974	4	23	17	6.9	5	7.9	18	22.6
1974	4	24	17	3.7	1	7.8	4	18.5
1974	4	25	17	6.5	12	8.1	1	21.5
1974	4	26	4	9.8	4	6.9	1	9.8
1974	4	27	4	9.0	4	5.4	14	26.6
1974	4	28	7	7.3	6	11.3	3	18.1
1974	4	29	7	6.9	1	5.7	22	12.7
1974	4	30	1	5.7	1	4.9	6	13.2
1974	5	1	1	3.4	1	4.9	1	12.7
1974	5	2	1	4.3	2	5.3	29	19.7
1974	5	3	1	5.5	1	0.5	19	15.6
1974	5	4	1	7.1	1	2.9	12	23.3
1974	5	5	1	7.9	3	3.6	17	16.7
1974	5	6	1	12.0	3	8.1	1	13.1
1974	5	7	1	8.5	1	6.2	1	13.7
1974	5	8	1	8.8	5	10.6	17	22.9
1974	5	9	12	7.5	5	7.5	1	14.3
1974	5	10	12	4.9	2	7.1	1	10.3
1974	5	11	12	5.3	9	5.5	15	25.9
1974	5	12	12	5.3	5	9.3	26	6.6
1974	5	13	12	5.7	2	7.7	9	18.2
1974	5	14	12	3.9	9	10.3	3	20.8
1974	5	15	12	0.0	1	7.9	4	23.6
1974	5	16	12	6.4	2	5.9	9	20.8
1974	5	17	4	13.2	2	3.4	5	4.4
1974	5	18	4	7.6	2	2.7	5	10.5
1974	5	19	10	0.0	4	6.1	1	13.1
1974	5	20	10	10.6	4	4.4	9	14.6
1974	5	21	3	12.9	8	7.3	15	24.1
1974	5	22	3	10.3	9	13.1	15	23.5
1974	5	23	1	9.8	1	8.4	26	19.4
1974	5	24	1	7.3	1	4.9	7	26.2
1974	5	25	1	5.0	1	3.2	0	.
1974	5	26	1	5.6	1	6.5	28	22.7
1974	5	27	1	5.7	5	5.0	1	24.8
1974	5	28	1	5.3	2	7.0	9	16.7
1974	5	29	1	5.7	1	5.2	3	25.3
1974	5	30	1	6.1	1	6.6	3	18.4
1974	5	31	1	4.8	1	1.5	6	14.1
1974	6	1	1	3.3	1	0.9	13	14.2
1974	6	2	1	2.8	1	0.9	10	9.1
1974	6	3	1	3.1	1	4.4	4	12.2
1974	6	4	1	4.6	2	5.2	4	11.9
1974	6	5	1	9.1	2	3.4	20	23.3
1974	6	6	11	8.3	2	6.0	2	12.7
1974	6	7	11	5.9	8	9.6	3	28.2
1974	6	8	11	5.2	6	9.2	3	19.5
1974	6	9	1	12.6	0	.	3	24.8
1974	6	10	5	8.9	3	8.2	6	16.2
1974	6	11	5	7.3	3	3.2	6	10.6
1974	6	12	5	6.9	3	3.7	2	20.6
1974	6	13	1	6.8	3	6.9	4	14.2
1974	6	14	15	9.2	1	3.2	29	18.4
1974	6	15	15	8.3	3	1.8	26	9.6
1974	6	16	9	15.7	3	3.5	7	18.1
1974	6	17	0	.	3	3.8	0	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1974	6	18	1	14.7	1	5.6	2	22.0
1974	6	19	1	9.8	1	1.9	99	.
1974	6	20	1	9.0	1	3.8	14	17.6
1974	6	21	3	7.0	1	4.5	3	12.9
1974	6	22	3	4.9	3	5.6	16	19.3
1974	6	23	3	4.6	17	9.3	1	21.6
1974	6	24	3	7.8	17	2.9	4	22.4
1974	6	25	3	7.6	17	0.0	4	18.7
1974	6	26	3	5.1	5	8.7	4	12.7
1974	6	27	3	5.2	2	10.0	4	18.0
1974	6	28	1	6.1	2	10.3	12	18.7
1974	6	29	1	3.9	1	2.8	2	10.6
1974	6	30	1	3.6	1	1.8	2	12.6
1974	7	1	1	4.1	1	2.1	4	17.9
1974	7	2	1	6.1	2	3.3	3	23.8
1974	7	3	1	5.6	2	4.7	3	18.3
1974	7	4	1	3.4	1	5.0	10	22.3
1974	7	5	1	2.9	1	7.4	4	14.5
1974	7	6	1	7.8	2	2.6	12	17.3
1974	7	7	10	9.8	2	5.1	99	.
1974	7	8	3	9.7	2	3.0	14	10.0
1974	7	9	3	12.9	2	10.4	17	23.2
1974	7	10	3	10.9	13	14.0	1	7.5
1974	7	11	3	8.8	4	8.9	1	5.9
1974	7	12	3	10.1	2	4.9	13	23.1
1974	7	13	3	11.8	2	7.0	2	16.4
1974	7	14	3	8.1	1	3.8	8	21.2
1974	7	15	3	6.3	1	9.6	11	18.3
1974	7	16	3	6.4	12	9.0	4	16.3
1974	7	17	3	7.5	2	7.9	4	19.8
1974	7	18	3	8.5	1	6.9	25	17.5
1974	7	19	3	8.9	12	9.7	7	18.4
1974	7	20	1	10.7	5	12.3	1	20.7
1974	7	21	1	5.4	1	8.4	22	11.3
1974	7	22	1	6.3	1	3.1	6	32.8
1974	7	23	1	7.1	1	6.3	1	21.8
1974	7	24	1	8.3	1	2.8	2	18.0
1974	7	25	1	6.5	1	4.3	2	5.3
1974	7	26	1	4.1	1	2.2	8	15.0
1974	7	27	1	5.8	1	1.2	8	12.7
1974	7	28	1	8.6	1	3.9	8	17.3
1974	7	29	5	10.5	3	4.2	6	13.4
1974	7	30	5	14.4	3	4.2	26	22.1
1974	7	31	0	.	1	6.6	5	27.4
1974	8	1	0	.	3	8.3	3	13.7
1974	8	2	5	10.6	3	6.6	3	9.3
1974	8	3	5	11.9	11	6.4	26	25.4
1974	8	4	9	12.9	3	4.5	11	24.6
1974	8	5	1	9.4	3	3.2	4	21.0
1974	8	6	1	11.0	1	16.0	4	7.5
1974	8	7	4	16.0	13	4.9	1	19.0
1974	8	8	11	11.6	13	6.0	1	9.8
1974	8	9	11	10.0	13	13.0	12	11.9
1974	8	10	11	9.7	2	11.9	22	13.8
1974	8	11	2	8.7	9	10.7	2	15.4
1974	8	12	17	8.1	1	3.3	29	18.5
1974	8	13	17	6.0	2	5.1	5	17.3
1974	8	14	17	7.0	2	2.6	1	11.6
1974	8	15	17	6.2	2	2.7	2	17.2
1974	8	16	17	6.8	1	0.6	2	10.3
1974	8	17	17	8.2	1	1.1	2	8.4
1974	8	18	99	.	99	.	2	15.2
1974	8	19	1	6.9	1	5.4	21	19.2
1974	8	20	1	6.4	2	3.2	9	17.5
1974	8	21	1	6.1	2	4.8	3	29.0
1974	8	22	1	3.8	1	3.3	26	20.4
1974	8	23	1	4.6	1	4.6	1	15.5
1974	8	24	1	6.9	1	8.1	1	18.6
1974	8	25	1	8.0	1	7.5	2	14.3
1974	8	26	1	11.0	1	2.5	8	12.5
1974	8	27	2	8.9	1	2.4	8	13.1
1974	8	28	2	8.7	1	2.5	27	22.3
1974	8	29	2	8.0	1	3.5	8	23.5
1974	8	30	2	7.6	1	2.6	29	10.4
1974	8	31	2	8.9	1	2.0	19	18.2
1974	9	1	2	9.8	1	2.5	5	18.9
1974	9	2	2	10.9	7	7.0	19	10.4
1974	9	3	17	11.3	3	2.8	4	17.4
1974	9	4	1	6.6	3	8.2	4	6.3
1974	9	5	1	4.1	1	9.6	14	22.4
1974	9	6	1	2.3	1	4.6	21	23.5
1974	9	7	1	2.3	1	3.2	29	16.1
1974	9	8	1	3.5	1	2.0	8	22.1
1974	9	9	1	2.7	1	2.2	5	17.8
1974	9	10	1	5.1	2	5.6	1	9.5
1974	9	11	2	9.0	2	7.2	3	8.2
1974	9	12	2	8.0	7	10.1	3	20.3
1974	9	13	2	8.4	7	2.2	2	19.5
1974	9	14	1	10.7	1	5.0	2	5.7
1974	9	15	1	10.8	1	8.5	2	21.8
1974	9	16	7	10.2	7	11.2	2	4.0
1974	9	17	1	9.2	3	10.9	6	13.8
1974	9	18	1	9.4	1	4.3	2	4.9
1974	9	19	2	13.3	1	2.8	3	7.9
1974	9	20	5	12.4	7	5.6	3	15.1
1974	9	21	5	10.7	3	4.9	19	21.1
1974	9	22	5	12.1	3	2.8	4	17.6
1974	9	23	17	14.6	1	3.7	4	12.3
1974	9	24	2	14.0	1	6.6	2	11.8
1974	9	25	1	10.9	1	6.8	2	18.7
1974	9	26	1	10.0	1	3.3	10	14.5
1974	9	27	2	9.6	6	6.8	3	9.0
1974	9	28	1	6.5	1	5.5	6	32.2
1974	9	29	1	4.3	1	2.5	3	22.3
1974	9	30	1	5.0	1	2.2	19	16.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1974	10	1	1	7.5	3	4.3	5	11.9
1974	10	2	1	7.4	3	8.9	4	11.2
1974	10	3	1	4.2	2	6.3	4	12.9
1974	10	4	4	6.4	2	3.9	9	24.9
1974	10	5	4	7.9	2	3.3	3	15.6
1974	10	6	2	12.3	1	5.9	6	24.7
1974	10	7	1	9.6	1	3.6	4	12.5
1974	10	8	1	8.3	1	5.6	2	11.4
1974	10	9	1	5.4	1	10.3	4	14.0
1974	10	10	1	4.8	2	4.1	10	21.7
1974	10	11	7	5.8	1	7.1	3	16.8
1974	10	12	1	5.4	1	6.9	23	0.0
1974	10	13	1	9.2	1	5.3	2	9.4
1974	10	14	1	11.2	7	6.0	6	7.8
1974	10	15	99	.	99	.	10	10.1
1974	10	16	1	6.4	1	7.5	2	14.6
1974	10	17	1	6.3	1	4.2	6	22.6
1974	10	18	5	9.4	3	3.6	16	15.7
1974	10	19	5	10.7	3	3.5	17	24.2
1974	10	20	99	.	99	.	1	13.1
1974	10	21	7	10.3	2	4.1	12	20.0
1974	10	22	7	8.4	6	8.8	8	13.0
1974	10	23	1	9.8	12	7.3	4	18.5
1974	10	24	7	8.4	6	11.8	8	13.0
1974	10	25	1	13.9	12	17.2	13	11.8
1974	10	26	16	9.6	12	10.1	10	7.9
1974	10	27	3	7.3	2	9.0	12	21.2
1974	10	28	1	11.4	12	8.3	14	20.8
1974	10	29	16	12.0	18	9.6	5	13.0
1974	10	30	7	11.7	0	.	27	24.6
1974	10	31	1	14.1	6	14.9	21	26.4
1974	11	1	4	11.9	0	.	17	16.7
1974	11	2	7	6.2	0	.	19	23.0
1974	11	3	7	6.0	7	7.5	22	24.8
1974	11	4	1	13.3	19	12.4	6	17.5
1974	11	5	1	10.1	11	14.0	13	13.1
1974	11	6	1	8.3	0	.	4	7.7
1974	11	7	1	3.8	2	8.4	4	12.1
1974	11	8	1	5.7	2	2.8	4	16.0
1974	11	9	1	5.9	6	7.5	8	20.4
1974	11	10	1	7.5	2	4.6	28	24.1
1974	11	11	5	8.1	3	13.2	6	14.3
1974	11	12	9	12.5	3	4.8	6	15.3
1974	11	13	5	6.4	3	6.8	3	7.1
1974	11	14	2	10.7	3	3.3	6	10.3
1974	11	15	2	9.0	3	6.2	2	12.7
1974	11	16	1	5.6	3	5.5	2	14.8
1974	11	17	1	2.7	1	3.4	2	6.5
1974	11	18	1	3.1	12	7.0	4	9.2
1974	11	19	1	5.6	2	8.9	17	23.6
1974	11	20	1	6.3	3	9.5	6	24.7
1974	11	21	1	4.0	5	6.5	10	14.1
1974	11	22	1	2.8	2	3.4	8	28.8
1974	11	23	1	3.8	6	6.7	22	12.1
1974	11	24	1	5.0	1	5.1	6	21.2
1974	11	25	99	.	99	.	18	18.1
1974	11	26	1	5.4	1	11.1	2	15.0
1974	11	27	5	7.5	3	4.4	6	10.9
1974	11	28	5	5.7	3	8.8	3	14.7
1974	11	29	5	12.3	19	9.8	23	15.2
1974	11	30	1	14.4	11	10.0	23	15.0
1974	12	1	1	10.8	17	8.0	13	16.0
1974	12	2	99	.	99	.	11	26.8
1974	12	3	3	5.2	1	6.8	18	20.1
1974	12	4	3	6.6	1	4.7	4	15.5
1974	12	5	1	5.7	2	5.7	1	9.5
1974	12	6	1	4.6	1	5.1	2	10.6
1974	12	7	5	4.0	7	6.4	3	8.6
1974	12	8	5	8.5	3	5.3	10	24.2
1974	12	9	1	7.0	17	13.4	2	9.2
1974	12	10	1	3.9	1	1.9	2	6.3
1974	12	11	1	6.3	1	1.3	10	24.6
1974	12	12	1	6.1	1	3.3	9	17.1
1974	12	13	1	7.8	1	5.8	1	22.1
1974	12	14	11	6.8	6	7.6	1	25.6
1974	12	15	11	8.7	0	.	17	24.2
1974	12	16	5	5.4	11	5.5	6	15.9
1974	12	17	5	13.0	3	8.0	10	14.4
1974	12	18	1	8.8	1	11.6	20	18.5
1974	12	19	11	10.5	3	14.3	15	18.6
1974	12	20	5	11.4	10	14.4	10	17.7
1974	12	21	1	7.8	3	9.0	18	13.5
1974	12	22	2	6.5	9	13.3	9	18.3
1974	12	23	2	10.7	7	9.5	3	14.9
1974	12	24	7	6.9	7	6.8	13	24.4
1974	12	25	1	7.9	3	5.4	2	13.5
1974	12	26	1	7.3	1	5.7	99	.
1974	12	27	1	3.1	1	5.6	10	7.7
1974	12	28	4	6.9	2	2.3	2	5.8
1974	12	29	1	8.1	1	5.6	2	18.9
1974	12	30	1	6.6	1	5.5	4	13.7
1974	12	31	7	5.9	7	5.0	2	14.8
1975	1	1	1	8.6	3	4.0	10	17.3
1975	1	2	7	5.8	6	6.8	12	14.6
1975	1	3	1	6.4	3	8.2	2	17.5
1975	1	4	1	5.8	1	4.8	10	19.7
1975	1	5	1	4.7	1	7.3	28	19.6
1975	1	6	1	5.8	5	11.8	10	20.5
1975	1	7	1	7.5	2	7.1	1	19.4
1975	1	8	1	6.3	9	10.2	18	16.7
1975	1	9	11	4.7	2	6.0	9	18.6
1975	1	10	11	4.8	8	7.9	3	13.9
1975	1	11	11	12.2	0	.	6	12.9
1975	1	12	5	8.8	3	9.1	2	16.0
1975	1	13	1	6.7	3	6.1	0	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1975	1	14	99	.	99	.	2	23.2
1975	1	15	99	.	99	.	0	.
1975	1	16	1	7.4	1	5.3	0	.
1975	1	17	1	5.5	1	3.3	4	10.0
1975	1	18	2	8.5	1	5.0	15	9.7
1975	1	19	5	5.6	3	7.3	23	22.3
1975	1	20	2	7.5	1	2.2	10	12.2
1975	1	21	2	7.4	7	3.0	3	16.2
1975	1	22	1	6.5	1	4.6	4	7.8
1975	1	23	1	3.8	1	0.8	10	15.2
1975	1	24	1	6.0	1	3.0	20	10.6
1975	1	25	5	9.2	3	9.7	6	24.2
1975	1	26	2	4.5	1	11.3	26	23.9
1975	1	27	2	5.5	1	5.2	8	29.4
1975	1	28	4	8.3	12	6.6	1	24.4
1975	1	29	2	7.2	1	4.6	6	22.3
1975	1	30	1	9.2	1	6.4	12	23.6
1975	1	31	1	7.6	12	4.8	11	14.4
1975	2	1	1	8.6	12	6.5	5	18.7
1975	2	2	1	9.0	1	5.4	11	22.8
1975	2	3	1	10.9	2	3.4	1	17.1
1975	2	4	1	16.0	2	3.4	5	13.5
1975	2	5	8	17.0	1	8.2	19	14.8
1975	2	6	5	8.1	7	9.1	6	10.5
1975	2	7	5	8.5	1	2.1	8	20.4
1975	2	8	2	7.1	1	2.8	19	16.0
1975	2	9	1	6.2	1	3.6	4	11.7
1975	2	10	1	5.1	1	2.6	1	18.3
1975	2	11	1	7.1	1	4.6	17	15.1
1975	2	12	1	8.1	1	1.5	11	16.4
1975	2	13	1	6.9	1	6.4	1	21.7
1975	2	14	1	5.7	1	3.9	5	7.8
1975	2	15	1	7.9	1	8.0	99	.
1975	2	16	11	7.7	12	8.3	1	19.0
1975	2	17	11	7.4	6	7.7	27	26.5
1975	2	18	1	7.0	7	9.2	6	17.8
1975	2	19	1	5.1	1	4.7	2	8.4
1975	2	20	1	6.0	1	8.6	4	4.3
1975	2	21	11	9.5	8	5.5	20	16.5
1975	2	22	7	11.6	7	8.7	6	12.8
1975	2	23	5	12.2	19	11.2	6	23.8
1975	2	24	1	9.3	17	7.4	6	23.4
1975	2	25	5	5.4	3	9.2	6	7.4
1975	2	26	5	3.8	3	4.9	6	9.0
1975	2	27	5	5.5	1	6.0	25	16.0
1975	2	28	99	.	99	.	6	18.4
1975	3	1	9	11.0	3	1.2	26	19.6
1975	3	2	9	5.4	3	6.1	5	14.3
1975	3	3	9	7.7	3	6.1	11	27.4
1975	3	4	2	7.9	1	4.1	4	18.0
1975	3	5	1	8.1	1	4.6	5	31.8
1975	3	6	1	10.2	1	2.6	5	14.1
1975	3	7	8	9.1	1	2.0	3	20.4
1975	3	8	1	6.8	1	9.1	11	6.3
1975	3	9	1	8.3	1	3.2	5	11.9
1975	3	10	2	4.7	1	1.6	5	14.7
1975	3	11	2	10.8	1	5.2	12	17.6
1975	3	12	2	10.4	7	5.0	6	15.4
1975	3	13	1	6.1	1	6.1	4	9.9
1975	3	14	1	4.7	1	5.8	4	11.8
1975	3	15	1	2.6	1	3.7	4	16.5
1975	3	16	1	3.5	2	7.7	4	18.8
1975	3	17	1	6.3	2	3.4	12	13.3
1975	3	18	1	2.8	1	4.9	2	18.7
1975	3	19	1	2.1	1	2.3	17	13.6
1975	3	20	1	2.2	2	6.9	17	20.5
1975	3	21	1	6.1	2	3.3	9	19.3
1975	3	22	12	6.1	1	7.1	5	23.6
1975	3	23	1	9.8	6	11.3	17	20.6
1975	3	24	99	.	99	.	17	15.4
1975	3	25	9	12.3	17	6.0	5	24.3
1975	3	26	11	8.8	4	4.8	1	15.7
1975	3	27	18	15.2	18	7.8	27	16.0
1975	3	28	18	7.3	14	13.1	3	21.6
1975	3	29	2	11.0	7	5.5	6	9.3
1975	3	30	2	9.9	3	2.4	10	24.3
1975	3	31	2	5.6	1	2.8	3	15.2
1975	4	1	99	.	99	.	19	15.4
1975	4	2	12	7.4	7	9.1	23	21.8
1975	4	3	9	6.7	1	8.3	18	17.6
1975	4	4	12	13.5	5	8.9	5	17.5
1975	4	5	4	10.9	2	6.1	5	15.5
1975	4	6	4	8.9	2	5.6	1	14.3
1975	4	7	4	17.8	4	5.7	1	12.5
1975	4	8	0	.	18	9.9	1	9.1
1975	4	9	0	.	0	.	1	15.8
1975	4	10	0	.	0	.	5	13.1
1975	4	11	0	.	19	8.1	19	22.0
1975	4	12	0	.	19	10.3	0	.
1975	4	13	11	8.9	0	.	1	19.9
1975	4	14	17	13.6	0	.	1	16.5
1975	4	15	17	7.5	1	8.0	5	17.7
1975	4	16	4	9.0	1	6.3	1	16.8
1975	4	17	4	9.5	2	6.3	9	8.4
1975	4	18	11	9.0	7	8.6	3	9.6
1975	4	19	99	.	99	.	6	12.2
1975	4	20	1	6.7	5	9.6	0	.
1975	4	21	1	4.1	1	7.8	4	20.8
1975	4	22	1	6.6	2	5.2	1	16.9
1975	4	23	3	4.8	1	7.9	7	16.9
1975	4	24	3	5.8	1	8.4	7	21.6
1975	4	25	4	11.2	5	13.9	1	14.4
1975	4	26	16	12.0	4	6.6	1	9.6
1975	4	27	6	10.9	4	3.9	1	4.8
1975	4	28	6	11.4	18	15.2	9	5.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1975	4	29	0	.	0	.	9	19.1
1975	4	30	0	.	0	.	3	20.4
1975	5	1	12	15.1	9	11.0	25	25.4
1975	5	2	12	10.5	1	6.8	12	21.4
1975	5	3	12	7.2	1	4.6	18	10.0
1975	5	4	13	11.5	5	7.9	5	25.0
1975	5	5	6	14.6	0	.	5	15.9
1975	5	6	6	15.1	0	.	9	19.8
1975	5	7	0	.	0	.	1	16.6
1975	5	8	0	.	0	.	5	15.4
1975	5	9	0	.	0	.	5	13.3
1975	5	10	0	.	1	14.9	3	20.3
1975	5	11	3	12.1	3	7.8	26	25.6
1975	5	12	1	8.5	0	.	13	29.8
1975	5	13	1	6.1	1	8.8	2	16.4
1975	5	14	1	5.5	1	5.5	26	20.8
1975	5	15	1	4.6	1	8.2	18	18.2
1975	5	16	99	.	99	.	1	9.6
1975	5	17	99	.	99	.	2	17.3
1975	5	18	99	.	99	.	2	17.8
1975	5	19	99	.	99	.	20	13.6
1975	5	20	4	5.8	2	7.2	3	17.9
1975	5	21	4	12.6	4	9.5	3	13.6
1975	5	22	11	12.7	4	4.2	5	13.1
1975	5	23	6	7.5	4	9.5	1	20.5
1975	5	24	6	15.3	13	9.4	10	11.6
1975	5	25	1	15.9	2	6.7	20	21.3
1975	5	26	1	7.7	2	9.3	2	11.0
1975	5	27	99	.	99	.	4	25.4
1975	5	28	7	14.7	6.	7.9	27	20.4
1975	5	29	11	10.2	6	9.8	3	14.7
1975	5	30	5	8.2	1	7.5	6	14.6
1975	5	31	5	3.3	7	8.0	3	16.2
1975	6	1	5	5.0	1	9.2	6	11.1
1975	6	2	1	5.4	1	4.9	4	15.3
1975	6	3	1	7.5	1	3.5	25	20.8
1975	6	4	1	6.4	1	6.1	20	12.5
1975	6	5	1	5.6	1	3.8	15	15.4
1975	6	6	1	5.4	1	4.4	26	17.6
1975	6	7	1	4.5	5	5.9	27	20.9
1975	6	8	11	9.1	2	4.7	27	15.2
1975	6	9	7	10.6	8	6.0	9	7.5
1975	6	10	11	10.2	8	6.0	20	14.8
1975	6	11	1	7.0	10	12.0	6	21.6
1975	6	12	1	9.4	3	7.9	6	12.8
1975	6	13	1	9.0	1	2.5	2	7.8
1975	6	14	1	11.0	1	3.0	22	17.6
1975	6	15	12	12.6	1	9.5	6	19.1
1975	6	16	12	10.1	9	6.8	29	17.5
1975	6	17	2	12.0	9	7.9	3	21.2
1975	6	18	13	12.0	2	11.7	5	10.4
1975	6	19	4	14.1	4	6.6	1	19.4
1975	6	20	4	11.4	4	5.8	1	11.0
1975	6	21	4	9.7	2	7.6	2	14.4
1975	6	22	1	9.8	8	4.4	2	9.2
1975	6	23	6	12.8	2	6.8	0	.
1975	6	24	10	12.0	2	6.4	1	15.4
1975	6	25	6	8.7	4	4.6	1	11.2
1975	6	26	6	5.2	4	9.2	28	18.9
1975	6	27	6	11.3	2	3.8	4	14.0
1975	6	28	0	.	13	7.1	1	18.4
1975	6	29	4	10.7	2	5.9	12	13.7
1975	6	30	4	7.6	2	1.8	12	15.3
1975	7	1	4	11.2	2	4.4	21	14.9
1975	7	2	10	12.3	2	6.4	5	21.8
1975	7	3	10	11.3	12	10.0	11	18.0
1975	7	4	17	13.3	1	8.1	4	19.0
1975	7	5	17	8.1	1	6.4	2	9.1
1975	7	6	17	5.1	3	7.9	6	15.1
1975	7	7	17	8.0	1	8.8	8	21.3
1975	7	8	8	12.1	1	8.1	8	21.6
1975	7	9	8	10.4	1	7.0	8	19.8
1975	7	10	5	11.9	3	1.8	19	20.0
1975	7	11	5	9.3	3	2.1	6	17.0
1975	7	12	5	12.9	3	5.9	13	17.1
1975	7	13	1	14.2	3	8.4	4	8.8
1975	7	14	1	8.4	0	.	4	13.4
1975	7	15	1	7.6	2	8.4	4	13.8
1975	7	16	1	9.4	2	4.3	4	20.2
1975	7	17	1	10.0	2	3.9	4	14.0
1975	7	18	1	5.5	2	2.8	2	3.7
1975	7	19	1	3.5	1	0.5	2	11.6
1975	7	20	1	3.0	1	3.2	6	21.1
1975	7	21	1	2.6	1	2.6	2	12.3
1975	7	22	1	4.4	1	4.0	21	26.9
1975	7	23	1	9.9	1	2.4	3	13.7
1975	7	24	1	8.0	1	6.7	6	9.2
1975	7	25	1	5.2	1	4.6	99	.
1975	7	26	1	5.6	1	2.9	2	6.7
1975	7	27	1	4.0	1	3.9	2	21.8
1975	7	28	1	4.5	1	7.5	4	10.0
1975	7	29	4	8.2	2	7.8	4	10.4
1975	7	30	4	5.9	4	6.1	12	14.8
1975	7	31	4	7.7	4	6.8	12	14.5
1975	8	1	1	6.6	2	4.3	29	17.1
1975	8	2	1	5.4	1	5.0	2	15.0
1975	8	3	1	3.4	1	4.8	2	6.1
1975	8	4	1	4.0	1	0.5	3	15.0
1975	8	5	1	4.2	1	3.2	5	20.2
1975	8	6	1	4.5	5	5.6	1	14.2
1975	8	7	1	4.0	2	6.8	4	14.1
1975	8	8	1	4.1	2	3.4	2	15.4
1975	8	9	1	3.2	1	5.6	2	14.8
1975	8	10	1	2.8	1	1.4	2	22.6
1975	8	11	1	4.0	1	2.6	12	11.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1975	8	12	1	6.9	1	3.8	29	15.7
1975	8	13	1	7.2	1	2.9	8	16.1
1975	8	14	1	9.3	1	6.1	8	25.4
1975	8	15	1	10.0	1	2.8	13	9.4
1975	8	16	12	9.3	1	1.5	8	13.1
1975	8	17	12	6.7	1	2.4	11	26.1
1975	8	18	12	8.0	1	2.8	5	17.2
1975	8	19	4	12.1	1	6.2	5	13.7
1975	8	20	10	13.1	2	2.9	1	10.1
1975	8	21	1	11.3	2	6.6	0	.
1975	8	22	6	8.8	2	4.6	1	10.2
1975	8	23	1	9.7	2	3.4	10	14.8
1975	8	24	4	8.9	2	1.2	2	10.6
1975	8	25	2	7.5	1	5.0	2	5.6
1975	8	26	1	3.6	1	1.5	8	14.3
1975	8	27	1	6.8	1	3.3	1	16.2
1975	8	28	3	7.4	12	10.2	1	8.3
1975	8	29	6	7.8	13	3.0	28	22.3
1975	8	30	1	7.8	2	7.8	13	16.1
1975	8	31	1	7.1	2	4.8	12	23.7
1975	9	1	1	6.4	1	5.8	3	12.1
1975	9	2	1	7.8	2	2.7	1	12.1
1975	9	3	1	5.1	1	5.5	2	19.1
1975	9	4	1	5.2	1	2.7	8	18.9
1975	9	5	1	7.8	1	4.0	6	19.9
1975	9	6	1	6.6	1	4.3	10	16.6
1975	9	7	1	6.5	1	4.5	26	16.9
1975	9	8	1	8.6	1	7.7	1	10.8
1975	9	9	1	10.1	1	5.1	12	9.8
1975	9	10	17	12.5	1	2.8	8	17.5
1975	9	11	2	9.0	1	3.6	3	10.8
1975	9	12	2	9.5	3	4.5	19	21.7
1975	9	13	2	14.6	3	8.1	18	30.0
1975	9	14	1	6.0	1	5.7	4	8.8
1975	9	15	1	8.1	1	4.3	14	21.5
1975	9	16	1	6.5	5	5.3	1	18.1
1975	9	17	2	10.3	13	4.9	12	17.3
1975	9	18	2	5.4	9	11.1	29	16.2
1975	9	19	2	10.1	0	.	6	22.3
1975	9	20	2	11.4	3	11.1	6	16.3
1975	9	21	2	15.9	19	5.5	6	9.4
1975	9	22	5	11.6	3	5.4	2	11.3
1975	9	23	5	9.0	3	4.9	6	21.3
1975	9	24	1	10.3	3	8.6	13	13.7
1975	9	25	1	10.0	17	10.8	4	10.7
1975	9	26	1	10.4	1	16.8	12	20.0
1975	9	27	1	8.2	0	.	29	15.5
1975	9	28	1	6.2	10	5.8	28	27.4
1975	9	29	1	7.6	1	12.3	99	.
1975	9	30	5	9.7	7	4.3	6	16.9
1975	10	1	5	9.5	3	3.1	0	.
1975	10	2	3	10.1	3	6.7	4	9.0
1975	10	3	3	4.8	1	4.8	10	26.5
1975	10	4	1	4.8	2	6.7	4	11.7
1975	10	5	1	3.3	1	1.9	2	6.1
1975	10	6	99	.	99	.	1	21.6
1975	10	7	4	8.5	2	4.0	14	16.3
1975	10	8	3	9.3	4	3.9	99	.
1975	10	9	3	7.1	9	10.9	2	13.6
1975	10	10	9	10.0	5	5.7	11	18.3
1975	10	11	17	6.5	2	7.1	1	15.7
1975	10	12	4	5.6	2	2.5	12	13.1
1975	10	13	1	9.8	12	9.3	5	19.0
1975	10	14	7	8.2	8	4.9	9	21.2
1975	10	15	1	4.5	1	4.3	6	14.8
1975	10	16	1	6.5	1	2.3	20	23.7
1975	10	17	3	6.5	3	10.3	10	22.6
1975	10	18	1	7.8	5	9.3	4	7.2
1975	10	19	1	8.2	0	.	2	14.2
1975	10	20	1	3.3	1	2.2	2	1.9
1975	10	21	1	3.1	1	1.1	2	11.1
1975	10	22	4	9.5	2	5.0	8	22.7
1975	10	23	4	10.2	2	5.5	3	13.8
1975	10	24	11	6.9	8	2.9	3	15.6
1975	10	25	1	5.7	1	2.1	2	20.3
1975	10	26	1	4.7	2	6.0	4	9.6
1975	10	27	1	5.0	2	5.5	29	13.9
1975	10	28	1	2.6	1	6.7	11	21.6
1975	10	29	1	2.6	1	2.8	18	16.4
1975	10	30	1	3.8	1	5.5	4	11.7
1975	10	31	1	6.4	1	6.1	29	23.1
1975	11	1	1	5.0	1	5.0	10	17.5
1975	11	2	1	2.8	1	4.5	2	17.6
1975	11	3	1	3.6	1	2.5	2	11.3
1975	11	4	1	5.3	1	6.7	2	9.8
1975	11	5	3	6.9	2	8.0	10	5.9
1975	11	6	3	5.0	2	4.2	4	8.5
1975	11	7	1	3.2	2	5.9	2	17.1
1975	11	8	1	3.9	1	6.5	6	28.8
1975	11	9	1	5.7	2	4.0	23	27.1
1975	11	10	1	6.9	9	8.6	26	19.8
1975	11	11	1	6.4	2	9.3	9	7.2
1975	11	12	5	8.8	3	5.3	6	12.1
1975	11	13	3	9.1	3	3.4	10	9.8
1975	11	14	99	.	99	.	4	11.3
1975	11	15	99	.	99	.	10	26.0
1975	11	16	1	6.2	2	3.4	2	10.5
1975	11	17	1	5.9	2	1.5	8	16.6
1975	11	18	10	14.3	2	3.5	27	12.6
1975	11	19	1	14.6	6	4.6	3	10.0
1975	11	20	1	11.1	0	.	3	22.3
1975	11	21	5	5.4	3	11.5	6	17.4
1975	11	22	1	4.9	1	4.0	24	27.0
1975	11	23	1	7.0	1	1.9	21	30.2
1975	11	24	2	9.4	3	6.9	7	18.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1975	11	25	2	7.8	3	16.7	27	18.1
1975	11	26	2	6.8	10	10.7	4	24.0
1975	11	27	2	6.2	2	10.4	5	21.1
1975	11	28	4	6.9	2	3.4	5	20.1
1975	11	29	4	6.3	8	7.8	9	21.9
1975	11	30	11	6.4	7	11.8	6	6.6
1975	12	1	1	6.2	1	3.1	4	13.8
1975	12	2	1	3.6	1	2.3	24	10.1
1975	12	3	1	1.5	1	1.2	1	18.8
1975	12	4	1	2.7	1	6.6	10	15.1
1975	12	5	1	3.0	2	5.4	8	21.3
1975	12	6	1	2.1	1	1.0	18	25.2
1975	12	7	1	2.5	1	1.3	4	7.1
1975	12	8	1	5.3	1	8.3	28	27.0
1975	12	9	1	5.8	3	7.7	2	17.3
1975	12	10	1	3.2	1	0.9	24	19.7
1975	12	11	1	3.6	1	0.9	5	14.3
1975	12	12	1	7.7	1	5.2	1	19.0
1975	12	13	4	6.7	2	1.9	5	22.0
1975	12	14	11	8.4	6	4.3	3	15.4
1975	12	15	2	5.7	1	2.9	10	11.9
1975	12	16	2	4.7	1	5.3	99	.
1975	12	17	2	9.3	3	6.8	19	6.0
1975	12	18	5	9.2	3	1.8	2	12.3
1975	12	19	5	10.2	3	7.6	2	6.1
1975	12	20	1	13.4	3	3.2	0	.
1975	12	21	1	9.0	1	7.4	4	11.5
1975	12	22	1	5.7	1	12.3	3	30.3
1975	12	23	1	6.2	1	6.2	10	21.9
1975	12	24	1	8.5	7	8.7	10	33.4
1975	12	25	5	5.3	3	5.6	20	18.8
1975	12	26	5	8.6	3	7.2	0	.
1975	12	27	1	8.0	1	9.4	4	15.6
1975	12	28	11	10.6	0	.	2	16.7
1975	12	29	1	10.4	10	11.0	2	4.1
1975	12	30	2	9.2	1	6.5	10	23.1
1975	12	31	18	11.4	0	.	5	16.0
1976	1	1	18	10.4	0	.	9	16.6
1976	1	2	2	10.6	7	11.2	3	17.1
1976	1	3	2	6.4	3	6.1	6	13.0
1976	1	4	5	7.4	3	8.4	4	12.6
1976	1	5	1	5.6	1	2.1	21	20.6
1976	1	6	12	9.8	1	4.0	3	17.5
1976	1	7	5	7.9	1	5.6	19	16.9
1976	1	8	5	8.4	3	2.7	11	20.1
1976	1	9	1	6.7	1	6.5	4	19.8
1976	1	10	1	3.7	1	4.8	12	13.1
1976	1	11	1	2.7	1	4.9	10	6.4
1976	1	12	1	5.0	1	4.7	2	14.2
1976	1	13	1	6.4	1	2.5	22	17.6
1976	1	14	1	4.7	1	4.6	2	26.3
1976	1	15	1	6.0	1	3.7	28	20.9
1976	1	16	5	4.7	3	3.0	6	24.6
1976	1	17	5	8.4	3	1.4	4	17.2
1976	1	18	2	6.9	1	5.4	4	20.8
1976	1	19	2	9.6	7	6.6	6	16.8
1976	1	20	5	11.6	3	5.8	2	2.8
1976	1	21	5	6.7	3	3.8	6	15.4
1976	1	22	1	6.4	3	7.2	10	17.6
1976	1	23	1	4.7	1	0.5	28	19.7
1976	1	24	2	5.3	1	2.9	6	25.7
1976	1	25	2	6.5	7	9.3	3	10.5
1976	1	26	5	7.5	3	11.0	26	20.3
1976	1	27	1	6.3	3	2.1	10	11.3
1976	1	28	1	5.9	1	6.2	2	11.9
1976	1	29	1	6.6	1	6.6	10	14.1
1976	1	30	5	8.8	3	7.9	0	.
1976	1	31	5	6.9	3	6.4	2	5.6
1976	2	1	5	6.8	3	0.9	6	27.8
1976	2	2	2	10.0	3	1.1	22	11.4
1976	2	3	2	4.6	1	3.2	3	17.3
1976	2	4	2	6.5	1	3.7	5	15.2
1976	2	5	2	12.9	1	6.1	8	27.9
1976	2	6	2	14.1	3	7.5	2	19.9
1976	2	7	2	13.3	1	4.3	2	1.1
1976	2	8	1	5.1	3	6.3	10	15.2
1976	2	9	1	5.3	1	5.9	2	5.6
1976	2	10	1	7.2	1	3.7	3	16.1
1976	2	11	1	4.7	1	2.1	10	10.7
1976	2	12	1	3.6	1	1.2	15	15.8
1976	2	13	1	2.6	1	1.2	24	28.4
1976	2	14	1	2.9	2	6.8	1	14.0
1976	2	15	1	4.1	1	4.6	15	18.2
1976	2	16	1	4.2	1	5.7	28	17.0
1976	2	17	1	5.0	1	7.6	9	18.2
1976	2	18	1	3.8	1	6.4	17	25.5
1976	2	19	1	5.6	1	6.8	15	20.4
1976	2	20	1	5.2	1	5.5	5	22.7
1976	2	21	1	7.0	10	8.3	16	25.6
1976	2	22	1	5.6	3	3.4	10	22.0
1976	2	23	1	2.2	1	1.7	2	10.3
1976	2	24	1	2.9	2	5.9	10	11.3
1976	2	25	1	3.9	1	7.0	0	.
1976	2	26	1	4.2	1	3.1	26	31.1
1976	2	27	1	3.7	1	2.7	17	18.1
1976	2	28	1	2.8	1	4.1	5	24.8
1976	2	29	1	4.9	1	3.4	5	9.2
1976	3	1	12	12.6	2	2.9	5	11.9
1976	3	2	4	12.3	2	3.5	5	16.9
1976	3	3	4	8.4	2	5.1	0	.
1976	3	4	2	10.2	6	4.4	5	19.9
1976	3	5	2	7.5	7	3.4	6	15.5
1976	3	6	2	8.1	1	5.0	2	2.1
1976	3	7	2	6.4	1	4.8	19	14.7
1976	3	8	2	8.1	1	6.9	1	19.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1976	3	9	2	10.1	1	2.5	17	13.6
1976	3	10	1	8.8	1	2.3	7	20.1
1976	3	11	2	8.8	1	6.5	5	18.8
1976	3	12	1	8.9	10	9.4	3	19.6
1976	3	13	2	7.5	1	3.4	10	11.2
1976	3	14	2	4.2	1	1.1	6	24.6
1976	3	15	2	6.8	1	3.5	29	26.3
1976	3	16	5	3.8	3	2.5	15	32.3
1976	3	17	1	6.0	3	5.1	10	11.2
1976	3	18	1	2.5	1	1.6	10	9.8
1976	3	19	1	2.8	2	4.9	25	17.8
1976	3	20	1	5.5	6	8.6	15	15.9
1976	3	21	5	5.2	1	5.8	6	29.8
1976	3	22	1	3.3	1	5.5	4	10.1
1976	3	23	1	2.3	2	7.1	4	16.2
1976	3	24	1	2.6	1	6.3	15	35.6
1976	3	25	1	3.1	1	7.1	1	14.5
1976	3	26	1	3.9	6	9.4	0	.
1976	3	27	1	7.2	1	6.9	10	23.2
1976	3	28	11	7.2	2	2.9	12	10.6
1976	3	29	11	9.9	8	6.3	3	24.2
1976	3	30	1	9.7	0	.	6	15.6
1976	3	31	9	9.2	3	10.4	18	11.9
1976	4	1	1	6.4	5	10.0	4	27.6
1976	4	2	1	4.5	12	9.1	3	15.0
1976	4	3	1	6.9	1	4.7	16	27.6
1976	4	4	1	7.5	1	6.1	13	17.0
1976	4	5	3	8.9	1	5.3	11	24.9
1976	4	6	3	7.6	12	13.6	5	23.4
1976	4	7	15	8.7	0	.	1	17.6
1976	4	8	3	10.2	0	.	1	27.5
1976	4	9	3	7.9	12	7.7	4	10.9
1976	4	10	15	10.0	12	11.0	17	18.8
1976	4	11	3	11.6	5	11.0	99	.
1976	4	12	10	12.9	12	8.6	4	15.1
1976	4	13	4	9.8	4	7.9	1	15.0
1976	4	14	16	12.1	2	3.4	2	8.4
1976	4	15	4	8.3	2	4.3	4	17.6
1976	4	16	7	17.0	18	5.7	9	20.4
1976	4	17	6	12.9	8	6.1	9	18.0
1976	4	18	6	9.6	8	4.6	0	.
1976	4	19	1	9.3	2	7.5	8	26.5
1976	4	20	1	7.0	1	10.0	0	.
1976	4	21	1	5.0	2	8.3	17	21.4
1976	4	22	1	5.2	1	6.6	5	18.1
1976	4	23	3	7.8	2	4.6	9	17.3
1976	4	24	3	5.0	1	15.4	7	18.9
1976	4	25	9	11.7	17	8.7	7	21.4
1976	4	26	0	.	0	.	5	10.9
1976	4	27	0	.	0	.	5	5.7
1976	4	28	0	.	0	.	5	9.6
1976	4	29	0	.	1	5.6	99	.
1976	4	30	5	12.3	7	7.6	6	16.0
1976	5	1	5	7.5	3	4.5	6	11.0
1976	5	2	5	6.5	3	3.1	26	17.0
1976	5	3	5	9.9	3	2.0	11	18.5
1976	5	4	1	8.8	1	3.9	4	11.7
1976	5	5	2	12.8	1	5.2	3	9.7
1976	5	6	11	16.9	7	8.7	5	16.9
1976	5	7	1	12.4	3	6.6	13	20.6
1976	5	8	1	5.9	1	8.9	4	9.6
1976	5	9	1	10.6	1	10.4	2	17.3
1976	5	10	3	8.0	1	9.0	6	22.9
1976	5	11	1	9.3	5	3.3	1	20.0
1976	5	12	1	9.8	0	.	20	12.6
1976	5	13	1	7.0	10	8.4	6	22.7
1976	5	14	1	5.6	5	12.8	2	20.3
1976	5	15	1	8.6	2	12.7	22	14.2
1976	5	16	3	8.8	10	6.1	6	25.6
1976	5	17	3	6.6	5	10.7	18	8.6
1976	5	18	1	5.7	5	5.9	1	22.9
1976	5	19	1	5.4	1	8.7	12	14.4
1976	5	20	3	8.7	12	5.0	5	18.0
1976	5	21	3	6.5	2	11.3	17	22.5
1976	5	22	3	8.0	0	.	5	15.7
1976	5	23	3	9.6	0	.	5	19.3
1976	5	24	3	9.6	5	15.1	1	18.9
1976	5	25	14	15.0	13	10.9	1	15.5
1976	5	26	3	13.8	0	.	20	16.9
1976	5	27	3	6.8	1	9.4	4	17.9
1976	5	28	6	8.8	5	8.1	1	17.4
1976	5	29	6	10.6	13	9.4	27	20.3
1976	5	30	3	8.9	13	10.6	0	.
1976	5	31	3	8.8	13	13.5	17	20.4
1976	6	1	3	10.3	13	7.3	1	18.4
1976	6	2	3	11.4	13	8.0	1	10.7
1976	6	3	4	13.1	13	10.2	12	21.2
1976	6	4	4	11.5	13	9.7	12	16.6
1976	6	5	4	12.6	4	11.1	12	18.3
1976	6	6	17	10.5	2	5.9	1	32.6
1976	6	7	17	9.5	2	4.4	21	19.8
1976	6	8	17	14.3	12	8.4	14	25.2
1976	6	9	4	15.6	2	2.9	4	15.5
1976	6	10	10	11.3	2	6.3	2	18.2
1976	6	11	6	8.7	2	5.7	99	.
1976	6	12	6	4.9	8	6.7	20	8.8
1976	6	13	1	10.5	2	7.9	2	8.8
1976	6	14	1	8.7	6	11.2	22	19.8
1976	6	15	1	6.4	7	11.2	6	15.5
1976	6	16	2	5.9	1	3.4	2	33.6
1976	6	17	7	9.6	6	6.6	3	15.8
1976	6	18	1	6.4	7	3.9	6	10.2
1976	6	19	1	4.9	3	6.4	10	19.7
1976	6	20	1	3.6	5	6.1	4	13.6
1976	6	21	1	4.9	2	7.3	8	11.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1976	6	22	1	7.1	2	10.5	5	12.1
1976	6	23	11	13.0	13	17.8	9	15.7
1976	6	24	6	9.8	13	11.4	20	11.9
1976	6	25	12	11.0	9	6.5	10	18.6
1976	6	26	12	10.1	2	8.4	20	22.2
1976	6	27	1	14.3	9	9.6	2	18.5
1976	6	28	3	11.1	1	3.5	29	20.8
1976	6	29	3	8.0	3	5.3	26	22.8
1976	6	30	3	8.2	17	9.0	11	15.3
1976	7	1	3	8.0	0	.	1	13.8
1976	7	2	3	7.9	0	.	1	11.6
1976	7	3	3	6.1	13	8.7	1	13.1
1976	7	4	3	3.8	13	13.6	1	25.7
1976	7	5	3	6.7	2	13.8	4	19.4
1976	7	6	3	7.0	1	3.9	8	11.9
1976	7	7	3	3.7	1	3.2	11	9.6
1976	7	8	3	3.8	5	5.8	4	17.0
1976	7	9	1	6.8	1	6.4	2	14.7
1976	7	10	1	6.8	2	6.2	25	22.9
1976	7	11	1	9.4	1	5.6	5	14.9
1976	7	12	1	8.8	2	8.4	1	7.4
1976	7	13	1	6.4	2	2.3	20	13.1
1976	7	14	1	6.4	1	6.4	2	10.3
1976	7	15	1	10.1	1	1.8	3	17.5
1976	7	16	1	9.9	3	6.5	8	28.6
1976	7	17	1	6.1	3	6.7	4	15.5
1976	7	18	1	3.3	1	4.2	4	8.7
1976	7	19	1	4.6	2	6.2	2	21.2
1976	7	20	1	5.9	1	3.6	3	15.0
1976	7	21	1	6.0	12	6.3	23	16.4
1976	7	22	1	7.5	1	7.4	99	.
1976	7	23	3	9.6	1	2.6	6	20.3
1976	7	24	1	6.5	1	6.6	18	22.6
1976	7	25	1	6.2	1	5.4	12	19.0
1976	7	26	1	6.1	1	3.4	2	33.2
1976	7	27	1	10.3	2	8.2	0	.
1976	7	28	1	15.0	1	8.3	0	.
1976	7	29	2	16.2	1	2.8	14	31.7
1976	7	30	8	14.5	1	2.5	3	14.0
1976	7	31	0	.	1	4.7	5	14.8
1976	8	1	8	12.6	3	8.2	5	11.0
1976	8	2	0	.	3	12.3	11	8.9
1976	8	3	1	16.7	12	6.7	99	.
1976	8	4	8	7.4	12	6.5	14	15.0
1976	8	5	8	8.4	7	12.3	3	15.9
1976	8	6	17	4.6	1	11.9	11	21.8
1976	8	7	17	6.1	5	10.1	4	13.2
1976	8	8	17	8.3	2	7.1	1	15.8
1976	8	9	1	7.0	2	1.4	12	11.8
1976	8	10	1	9.5	2	5.9	2	7.8
1976	8	11	1	6.6	1	4.5	29	13.9
1976	8	12	1	7.3	1	1.4	26	22.8
1976	8	13	3	7.7	1	6.4	7	15.5
1976	8	14	9	11.9	5	10.0	1	14.6
1976	8	15	3	14.5	0	.	1	13.5
1976	8	16	6	11.0	4	6.3	1	8.7
1976	8	17	10	11.0	4	9.2	1	15.0
1976	8	18	4	8.5	2	5.9	4	15.9
1976	8	19	4	9.4	2	4.2	4	11.3
1976	8	20	1	10.4	2	3.3	4	4.7
1976	8	21	1	8.0	2	8.5	2	11.6
1976	8	22	3	8.9	1	7.4	1	28.3
1976	8	23	3	7.5	2	13.2	1	9.1
1976	8	24	3	8.3	16	11.4	29	18.3
1976	8	25	1	8.1	2	13.4	0	.
1976	8	26	1	4.7	2	7.7	4	23.0
1976	8	27	1	4.6	2	9.4	2	8.0
1976	8	28	1	3.6	1	1.1	6	12.0
1976	8	29	1	3.9	1	2.2	1	15.6
1976	8	30	1	7.3	1	4.4	12	16.6
1976	8	31	1	10.2	1	9.1	17	22.8
1976	9	1	1	6.6	1	7.2	16	30.0
1976	9	2	1	4.2	1	4.1	4	13.3
1976	9	3	1	4.6	1	1.0	2	13.1
1976	9	4	1	4.7	1	0.5	0	.
1976	9	5	1	6.6	1	3.4	4	15.3
1976	9	6	1	9.6	2	8.9	4	9.4
1976	9	7	4	9.2	2	7.9	2	11.5
1976	9	8	1	10.9	2	6.9	22	13.4
1976	9	9	1	7.5	1	5.2	13	14.0
1976	9	10	1	5.6	1	8.7	4	11.1
1976	9	11	1	3.0	1	4.3	4	14.8
1976	9	12	1	3.1	2	4.7	14	14.2
1976	9	13	3	7.6	1	8.4	3	22.1
1976	9	14	1	5.8	1	3.7	7	24.5
1976	9	15	16	10.3	1	9.7	1	15.9
1976	9	16	16	7.1	0	.	4	21.0
1976	9	17	1	7.7	2	8.9	4	7.6
1976	9	18	1	7.0	1	11.7	8	19.9
1976	9	19	17	13.8	7	10.3	3	8.3
1976	9	20	8	10.3	3	9.0	6	8.5
1976	9	21	5	11.6	3	3.0	6	17.0
1976	9	22	5	10.5	3	8.3	15	22.9
1976	9	23	5	11.3	1	7.5	16	21.2
1976	9	24	5	13.1	1	5.8	21	21.8
1976	9	25	5	14.2	1	6.6	12	18.3
1976	9	26	5	11.3	7	4.4	99	.
1976	9	27	5	14.9	3	11.3	23	16.9
1976	9	28	1	11.7	0	.	4	16.1
1976	9	29	16	11.9	10	9.1	10	12.3
1976	9	30	1	9.0	1	4.9	2	3.0
1976	10	1	1	6.3	1	3.3	22	30.3
1976	10	2	1	5.6	12	9.3	1	19.8
1976	10	3	1	8.1	2	6.8	1	20.3
1976	10	4	11	10.2	2	10.2	2	11.3

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1976	10	5	1	9.5	1	3.9	2	16.7
1976	10	6	5	7.2	7	5.4	3	17.8
1976	10	7	5	11.5	3	11.2	23	10.3
1976	10	8	5	8.5	3	7.6	2	5.3
1976	10	9	1	7.1	3	3.4	10	23.2
1976	10	10	1	2.7	1	6.9	10	12.3
1976	10	11	1	3.4	1	3.4	2	12.7
1976	10	12	1	5.6	1	2.7	2	16.4
1976	10	13	1	6.6	1	5.9	6	11.7
1976	10	14	1	8.3	1	2.0	20	12.8
1976	10	15	2	8.1	1	8.3	3	18.3
1976	10	16	2	7.5	3	4.8	11	14.1
1976	10	17	2	5.7	1	8.3	5	26.2
1976	10	18	2	7.5	7	2.6	27	20.2
1976	10	19	2	9.0	3	8.7	13	14.5
1976	10	20	2	8.6	1	9.5	2	9.1
1976	10	21	2	7.1	3	3.3	6	9.7
1976	10	22	2	7.3	1	3.0	21	18.0
1976	10	23	1	7.8	1	1.7	5	8.7
1976	10	24	1	4.3	1	0.5	16	20.7
1976	10	25	1	8.4	1	2.2	7	20.8
1976	10	26	5	10.9	3	10.7	5	12.1
1976	10	27	7	11.4	19	6.6	4	10.1
1976	10	28	1	5.9	10	9.3	2	10.0
1976	10	29	1	3.4	1	8.0	2	6.3
1976	10	30	1	5.2	1	4.3	22	10.6
1976	10	31	1	6.4	1	6.6	18	11.1
1976	11	1	1	3.1	1	4.9	10	16.6
1976	11	2	1	5.4	1	1.7	2	14.7
1976	11	3	5	3.7	3	1.6	6	8.8
1976	11	4	5	11.8	11	7.6	13	14.1
1976	11	5	1	6.4	1	10.3	2	6.9
1976	11	6	1	7.8	1	2.9	3	12.0
1976	11	7	5	8.0	3	1.0	18	17.4
1976	11	8	1	7.3	1	7.5	2	19.4
1976	11	9	5	5.4	3	5.2	6	12.8
1976	11	10	5	6.6	3	4.3	3	15.2
1976	11	11	5	11.1	3	5.8	19	9.1
1976	11	12	0	.	19	10.5	19	20.5
1976	11	13	3	17.3	0	.	4	16.9
1976	11	14	5	14.0	7	7.9	4	9.3
1976	11	15	5	13.7	3	8.1	2	20.5
1976	11	16	1	10.0	0	.	2	6.0
1976	11	17	1	7.2	3	4.8	2	6.1
1976	11	18	1	4.2	1	1.4	2	4.0
1976	11	19	1	4.6	1	3.0	6	18.0
1976	11	20	5	5.0	1	8.6	22	22.7
1976	11	21	5	5.0	3	4.8	6	11.0
1976	11	22	5	5.3	3	3.1	26	16.3
1976	11	23	5	8.1	3	4.0	10	20.9
1976	11	24	1	6.1	3	6.9	2	8.3
1976	11	25	2	7.3	1	0.8	2	16.6
1976	11	26	2	6.3	1	6.4	3	8.2
1976	11	27	18	8.4	7	5.6	6	15.3
1976	11	28	2	10.2	3	12.0	2	13.9
1976	11	29	2	10.2	3	5.1	15	18.9
1976	11	30	5	9.6	3	3.2	2	8.5
1976	12	1	5	7.6	3	6.7	6	19.2
1976	12	2	2	11.1	3	2.4	28	27.2
1976	12	3	2	5.8	1	6.4	20	17.4
1976	12	4	2	4.8	1	4.0	8	14.3
1976	12	5	2	6.1	1	3.8	5	23.4
1976	12	6	2	6.3	7	5.5	99	.
1976	12	7	2	7.5	1	6.5	21	30.8
1976	12	8	1	7.5	3	6.6	4	26.7
1976	12	9	1	7.0	1	4.0	1	11.6
1976	12	10	1	9.7	1	4.2	6	25.7
1976	12	11	1	6.5	1	1.7	2	10.3
1976	12	12	1	7.5	1	4.2	6	22.2
1976	12	13	1	3.1	1	3.8	4	6.4
1976	12	14	1	3.3	1	1.6	2	5.6
1976	12	15	1	5.6	1	3.7	2	6.7
1976	12	16	1	5.4	3	7.5	2	9.3
1976	12	17	1	3.7	1	4.3	10	11.8
1976	12	18	1	5.1	1	6.3	2	12.0
1976	12	19	1	10.0	1	4.7	3	4.9
1976	12	20	5	7.0	3	0.7	26	22.3
1976	12	21	5	8.3	1	8.4	4	14.5
1976	12	22	5	7.5	3	7.3	6	15.6
1976	12	23	2	7.2	3	3.6	10	13.9
1976	12	24	1	9.6	1	1.8	2	16.9
1976	12	25	5	6.1	1	5.7	2	16.6
1976	12	26	1	7.2	3	3.8	6	31.5
1976	12	27	1	7.3	1	1.2	15	18.6
1976	12	28	5	3.5	3	4.9	6	20.6
1976	12	29	0	.	3	2.9	6	18.4
1976	12	30	0	.	3	11.8	99	.
1976	12	31	0	.	0	.	5	16.0
1977	1	1	0	.	0	.	19	17.1
1977	1	2	1	9.4	2	14.1	21	26.3
1977	1	3	2	4.5	1	9.3	5	24.1
1977	1	4	2	4.3	12	7.7	5	13.8
1977	1	5	2	11.6	1	10.6	13	14.4
1977	1	6	2	8.7	7	9.0	2	20.1
1977	1	7	2	7.5	1	4.5	15	15.3
1977	1	8	2	7.2	7	5.4	19	12.9
1977	1	9	2	6.4	7	7.2	0	.
1977	1	10	2	7.2	3	5.0	6	29.9
1977	1	11	2	4.4	1	7.9	2	17.0
1977	1	12	1	10.6	1	4.4	4	18.3
1977	1	13	1	12.5	1	1.1	1	20.3
1977	1	14	5	9.3	1	2.9	3	27.0
1977	1	15	5	5.3	3	8.5	3	14.8
1977	1	16	5	4.6	3	3.0	13	30.7
1977	1	17	5	4.9	3	5.3	26	21.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1977	1	18	5	10.8	11	6.5	18	18.1
1977	1	19	5	7.2	1	9.5	2	9.2
1977	1	20	5	7.9	3	5.0	6	13.6
1977	1	21	1	9.1	3	1.3	18	14.8
1977	1	22	1	8.4	1	4.4	12	13.0
1977	1	23	5	11.4	1	4.1	2	6.0
1977	1	24	2	6.2	3	5.2	6	14.1
1977	1	25	2	6.9	3	3.9	2	12.7
1977	1	26	2	8.3	3	4.7	6	15.0
1977	1	27	2	10.5	3	7.1	15	9.9
1977	1	28	5	9.1	3	3.8	19	13.3
1977	1	29	5	8.4	3	2.3	6	14.3
1977	1	30	5	5.0	3	3.2	19	15.1
1977	1	31	5	7.4	3	1.2	6	23.2
1977	2	1	2	9.1	3	6.2	13	35.1
1977	2	2	5	11.1	7	5.0	2	18.0
1977	2	3	5	7.2	3	5.6	6	15.9
1977	2	4	5	4.8	3	3.1	3	14.9
1977	2	5	5	3.8	3	3.2	7	18.5
1977	2	6	5	2.7	3	2.3	23	23.4
1977	2	7	5	6.7	3	4.3	4	8.9
1977	2	8	1	7.0	3	5.2	2	6.5
1977	2	9	1	3.6	1	4.3	2	15.8
1977	2	10	1	3.5	1	2.5	2	12.6
1977	2	11	1	5.9	1	2.7	2	12.2
1977	2	12	5	5.2	3	7.6	6	8.0
1977	2	13	5	3.9	3	3.0	15	13.5
1977	2	14	5	1.7	3	2.9	3	21.9
1977	2	15	5	3.7	3	4.1	23	17.5
1977	2	16	5	5.5	3	4.2	2	18.3
1977	2	17	1	5.9	3	5.2	2	16.1
1977	2	18	5	3.4	3	5.6	15	21.4
1977	2	19	5	3.7	3	2.7	6	7.7
1977	2	20	5	9.9	3	0.7	10	30.1
1977	2	21	3	8.0	1	6.8	4	18.0
1977	2	22	1	4.4	12	4.8	17	17.1
1977	2	23	1	8.6	15	9.7	9	13.8
1977	2	24	2	10.9	0	.	3	19.7
1977	2	25	11	10.0	0	.	6	11.4
1977	2	26	11	9.5	1	7.5	15	23.8
1977	2	27	5	6.1	3	8.6	6	25.5
1977	2	28	9	6.9	3	3.9	24	22.3
1977	3	1	2	9.3	3	7.6	11	12.0
1977	3	2	11	7.0	6	15.8	5	16.0
1977	3	3	11	0.0	0	.	9	21.4
1977	3	4	11	10.2	11	14.4	3	20.6
1977	3	5	5	10.6	3	11.6	6	7.6
1977	3	6	1	6.5	3	6.1	10	7.9
1977	3	7	1	4.2	1	6.6	4	10.4
1977	3	8	1	2.5	1	7.2	4	10.6
1977	3	9	1	3.7	1	4.9	10	13.8
1977	3	10	11	5.2	4	9.0	9	16.2
1977	3	11	7	14.9	15	4.1	3	15.9
1977	3	12	6	14.9	0	.	17	25.6
1977	3	13	9	15.8	0	.	17	14.5
1977	3	14	4	6.5	2	4.9	12	18.9
1977	3	15	4	7.9	2	7.0	6	6.9
1977	3	16	17	11.3	1	3.6	99	.
1977	3	17	2	9.0	2	8.8	99	.
1977	3	18	2	6.3	1	8.8	99	.
1977	3	19	2	5.1	1	5.8	99	.
1977	3	20	2	6.2	1	2.3	99	.
1977	3	21	1	7.5	1	4.7	13	23.6
1977	3	22	1	4.3	1	2.9	15	18.9
1977	3	23	1	3.6	1	4.2	11	20.1
1977	3	24	1	7.6	2	6.8	1	5.7
1977	3	25	4	8.7	2	3.5	1	17.6
1977	3	26	11	13.1	2	2.3	1	17.9
1977	3	27	11	10.5	2	5.1	10	11.8
1977	3	28	11	6.7	4	8.3	9	11.8
1977	3	29	11	10.6	0	.	3	17.1
1977	3	30	2	10.1	14	7.6	3	12.2
1977	3	31	4	10.9	1	6.7	4	15.1
1977	4	1	2	9.7	2	5.9	12	16.2
1977	4	2	2	7.9	6	6.8	3	12.3
1977	4	3	2	8.0	7	4.5	5	23.2
1977	4	4	2	9.9	7	10.9	3	18.1
1977	4	5	5	6.5	3	2.5	6	11.4
1977	4	6	5	4.6	3	2.0	2	18.0
1977	4	7	5	10.1	3	8.0	26	18.0
1977	4	8	3	8.1	1	10.8	1	13.8
1977	4	9	1	9.1	5	8.0	4	18.0
1977	4	10	1	7.4	2	1.8	8	20.6
1977	4	11	1	6.1	2	4.4	0	.
1977	4	12	7	8.1	6	3.5	22	22.1
1977	4	13	1	7.9	12	8.0	18	12.9
1977	4	14	16	13.1	4	4.9	1	7.6
1977	4	15	3	12.6	2	14.0	12	16.0
1977	4	16	3	8.6	2	11.2	1	13.7
1977	4	17	1	8.7	2	6.9	20	20.8
1977	4	18	1	7.0	2	3.4	22	12.4
1977	4	19	1	7.1	2	3.8	27	17.5
1977	4	20	1	10.0	2	3.4	22	18.6
1977	4	21	1	12.2	2	7.0	6	26.0
1977	4	22	3	11.4	1	4.7	1	20.3
1977	4	23	15	13.3	1	6.2	26	20.5
1977	4	24	15	13.6	3	1.4	16	22.3
1977	4	25	15	15.5	3	5.3	13	21.2
1977	4	26	3	13.8	3	4.2	10	15.5
1977	4	27	15	9.9	1	4.0	17	20.1
1977	4	28	99	.	99	.	16	22.0
1977	4	29	1	8.5	1	1.9	4	7.7
1977	4	30	1	9.1	1	7.1	4	14.4
1977	5	1	1	11.6	1	5.9	8	10.0
1977	5	2	1	9.4	12	3.2	1	22.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1977	5	3	3	8.1	2	4.7	1	11.7
1977	5	4	6	5.7	4	1.2	1	11.1
1977	5	5	12	12.3	9	10.6	17	33.9
1977	5	6	13	16.4	12	0.0	5	5.5
1977	5	7	0	.	12	3.6	5	19.6
1977	5	8	0	.	5	9.7	1	10.0
1977	5	9	16	10.1	5	10.7	1	8.3
1977	5	10	16	13.6	0	.	1	14.6
1977	5	11	10	15.2	4	10.0	4	17.4
1977	5	12	10	10.6	4	9.0	4	14.8
1977	5	13	10	11.7	4	10.9	4	14.4
1977	5	14	6	11.1	4	8.8	12	14.8
1977	5	15	4	8.8	18	4.8	12	18.4
1977	5	16	4	6.6	4	3.9	0	.
1977	5	17	4	8.2	4	1.9	9	24.4
1977	5	18	10	9.7	4	1.8	5	20.2
1977	5	19	10	14.5	4	4.2	9	17.2
1977	5	20	7	13.4	8	8.4	99	.
1977	5	21	1	5.8	6	6.6	22	16.4
1977	5	22	1	8.2	16	9.7	0	.
1977	5	23	3	9.2	2	5.2	0	.
1977	5	24	10	6.0	4	5.8	1	8.8
1977	5	25	10	13.6	4	3.6	1	8.2
1977	5	26	6	13.2	4	6.5	1	20.8
1977	5	27	6	8.9	4	6.5	4	17.3
1977	5	28	6	8.7	13	10.6	20	11.8
1977	5	29	0	.	13	7.5	23	20.6
1977	5	30	14	12.0	13	8.5	9	24.1
1977	5	31	3	6.7	1	6.0	6	0.0
1977	6	1	3	7.1	3	3.9	26	9.0
1977	6	2	3	6.9	5	2.8	1	17.4
1977	6	3	3	7.7	2	5.2	12	12.8
1977	6	4	3	8.2	1	4.0	0	.
1977	6	5	1	10.3	1	2.0	3	18.8
1977	6	6	3	12.7	3	5.5	16	20.3
1977	6	7	1	11.0	3	4.8	10	21.3
1977	6	8	1	8.4	3	6.3	7	12.2
1977	6	9	1	6.2	5	5.4	1	13.1
1977	6	10	4	8.8	2	2.9	12	15.0
1977	6	11	1	6.8	1	7.6	3	12.0
1977	6	12	1	5.1	2	6.8	5	12.0
1977	6	13	1	6.4	2	7.5	5	10.5
1977	6	14	1	8.9	2	5.9	1	13.6
1977	6	15	1	7.6	2	1.7	1	14.5
1977	6	16	1	7.2	2	4.9	29	18.5
1977	6	17	1	8.3	1	5.2	29	22.5
1977	6	18	1	7.9	1	5.6	6	13.1
1977	6	19	1	10.5	1	6.7	26	14.1
1977	6	20	1	11.0	3	13.9	5	16.2
1977	6	21	16	12.8	12	8.6	1	10.0
1977	6	22	1	8.5	2	10.0	4	18.1
1977	6	23	1	10.3	1	4.9	2	14.7
1977	6	24	1	8.8	1	2.1	6	23.9
1977	6	25	1	4.1	1	6.1	10	15.1
1977	6	26	1	2.7	1	5.7	2	8.0
1977	6	27	1	3.1	1	4.0	2	16.3
1977	6	28	1	4.1	1	2.7	6	14.9
1977	6	29	1	7.1	1	5.0	2	20.8
1977	6	30	1	5.7	1	6.7	6	14.6
1977	7	1	1	4.3	1	5.0	6	19.1
1977	7	2	1	3.7	2	8.7	4	12.5
1977	7	3	1	5.9	2	2.4	2	9.3
1977	7	4	10	11.5	2	2.6	12	13.6
1977	7	5	10	11.3	2	3.9	20	20.6
1977	7	6	1	8.4	2	3.0	2	24.9
1977	7	7	1	5.3	2	5.2	3	18.4
1977	7	8	1	3.9	1	0.9	19	15.0
1977	7	9	1	2.9	1	4.6	1	21.4
1977	7	10	1	4.0	2	2.1	1	9.1
1977	7	11	1	6.5	2	11.9	29	14.6
1977	7	12	99	.	99	.	6	29.1
1977	7	13	0	.	0	.	12	13.0
1977	7	14	0	.	0	.	29	17.8
1977	7	15	0	.	0	.	4	21.5
1977	7	16	1	4.5	1	5.0	99	.
1977	7	17	1	4.7	2	7.7	1	20.6
1977	7	18	1	6.5	2	4.2	4	14.6
1977	7	19	1	6.6	2	3.1	2	23.7
1977	7	20	1	5.3	1	8.2	8	9.8
1977	7	21	3	8.1	1	5.8	23	22.1
1977	7	22	1	7.0	1	10.0	4	16.1
1977	7	23	1	5.9	1	7.0	21	17.1
1977	7	24	1	12.6	1	4.0	3	7.3
1977	7	25	1	13.0	1	11.9	16	15.5
1977	7	26	1	10.5	1	3.9	11	26.5
1977	7	27	1	7.5	1	1.9	2	20.8
1977	7	28	1	5.8	1	1.8	2	14.9
1977	7	29	1	5.7	1	3.4	7	21.8
1977	7	30	1	4.8	1	4.7	20	9.1
1977	7	31	1	7.0	1	3.5	6	10.3
1977	8	1	1	8.4	1	4.2	2	18.5
1977	8	2	2	10.7	1	4.0	8	17.8
1977	8	3	2	8.8	1	1.3	8	10.6
1977	8	4	2	6.3	1	0.7	29	13.8
1977	8	5	2	8.4	1	1.6	8	12.7
1977	8	6	1	8.4	1	3.1	4	18.9
1977	8	7	1	6.0	1	1.7	8	18.1
1977	8	8	1	7.3	1	1.1	22	25.9
1977	8	9	1	9.6	1	3.8	29	19.2
1977	8	10	0	.	1	3.5	6	21.7
1977	8	11	2	12.5	1	4.4	2	18.1
1977	8	12	2	11.4	1	2.7	2	11.2
1977	8	13	2	9.7	1	2.5	8	14.5
1977	8	14	2	10.6	1	0.6	11	17.7
1977	8	15	1	11.3	1	2.3	12	20.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1977	8	16	2	13.3	1	1.2	19	19.1
1977	8	17	2	12.2	1	5.9	19	10.7
1977	8	18	2	10.0	1	5.4	21	17.6
1977	8	19	17	10.4	3	6.6	12	27.1
1977	8	20	2	12.9	1	3.9	29	14.7
1977	8	21	1	11.4	1	4.2	6	13.1
1977	8	22	1	6.6	1	1.4	8	20.5
1977	8	23	1	5.3	1	0.5	21	22.7
1977	8	24	99	.	99	.	1	20.0
1977	8	25	99	.	99	.	12	18.1
1977	8	26	4	6.0	2	1.4	12	14.6
1977	8	27	1	5.4	2	3.3	22	15.9
1977	8	28	1	4.0	2	9.7	6	15.1
1977	8	29	1	3.3	2	6.3	4	12.5
1977	8	30	1	6.5	2	3.0	2	20.9
1977	8	31	1	5.6	2	3.9	22	15.8
1977	9	1	1	4.3	2	2.0	5	24.8
1977	9	2	1	3.4	1	4.1	8	19.2
1977	9	3	1	3.7	1	4.7	1	17.2
1977	9	4	1	5.1	1	1.7	3	23.3
1977	9	5	1	3.7	1	3.0	17	21.9
1977	9	6	1	2.6	1	1.7	27	20.7
1977	9	7	1	1.9	1	1.4	1	11.0
1977	9	8	1	3.3	2	4.4	12	18.5
1977	9	9	1	5.5	1	2.6	6	10.4
1977	9	10	1	5.1	1	0.6	8	23.1
1977	9	11	1	8.5	1	0.5	8	15.7
1977	9	12	2	9.9	1	1.6	22	21.6
1977	9	13	1	9.0	1	5.4	6	20.9
1977	9	14	1	6.0	1	2.2	4	11.6
1977	9	15	4	7.1	2	3.8	1	13.8
1977	9	16	4	6.2	2	3.6	1	29.1
1977	9	17	3	8.7	2	3.6	5	23.9
1977	9	18	3	8.7	1	9.2	3	19.6
1977	9	19	3	6.9	1	5.2	7	17.1
1977	9	20	1	8.1	5	9.0	1	9.9
1977	9	21	4	7.6	2	6.1	9	16.2
1977	9	22	6	9.1	13	8.5	1	28.5
1977	9	23	6	0.0	4	5.9	1	12.1
1977	9	24	6	7.8	9	11.2	17	15.4
1977	9	25	99	.	99	.	15	20.1
1977	9	26	9	9.6	1	9.9	6	19.9
1977	9	27	1	7.6	1	5.2	6	21.2
1977	9	28	17	6.6	1	2.3	12	32.1
1977	9	29	1	5.4	1	3.8	5	6.7
1977	9	30	1	8.3	9	10.5	5	13.1
1977	10	1	1	8.5	0	.	16	10.5
1977	10	2	9	9.4	17	11.8	23	11.3
1977	10	3	1	6.6	2	8.3	1	31.9
1977	10	4	1	7.4	2	4.3	8	18.9
1977	10	5	12	8.1	1	3.4	19	18.8
1977	10	6	1	4.8	1	3.3	11	15.5
1977	10	7	1	4.7	2	7.0	1	7.0
1977	10	8	1	6.7	3	11.5	6	18.7
1977	10	9	2	7.5	1	6.2	2	14.1
1977	10	10	2	8.3	1	8.3	3	13.1
1977	10	11	5	6.6	3	4.5	6	7.4
1977	10	12	1	7.3	3	2.0	2	15.4
1977	10	13	99	.	99	.	2	10.0
1977	10	14	1	6.8	1	2.3	8	18.9
1977	10	15	1	9.8	3	1.5	6	19.6
1977	10	16	1	7.1	17	8.0	4	10.8
1977	10	17	1	6.6	1	6.0	2	10.4
1977	10	18	1	6.5	3	3.7	6	8.2
1977	10	19	1	3.7	1	8.1	4	9.5
1977	10	20	1	3.8	2	7.5	29	20.9
1977	10	21	1	6.7	1	5.9	3	17.9
1977	10	22	16	9.9	1	3.8	23	14.0
1977	10	23	3	5.3	10	12.5	99	.
1977	10	24	3	7.1	16	9.5	13	18.7
1977	10	25	1	3.6	1	9.3	99	.
1977	10	26	1	2.1	1	4.0	2	11.2
1977	10	27	3	7.3	1	2.7	13	21.5
1977	10	28	3	5.0	2	5.4	1	12.7
1977	10	29	3	6.0	2	2.8	1	15.6
1977	10	30	6	5.8	4	4.9	12	15.7
1977	10	31	6	7.3	2	9.6	2	7.6
1977	11	1	1	6.2	6	8.1	2	9.6
1977	11	2	1	3.4	2	7.2	10	7.8
1977	11	3	1	2.2	1	5.1	2	11.6
1977	11	4	1	5.2	2	3.9	1	19.2
1977	11	5	4	8.6	2	2.5	1	16.1
1977	11	6	16	12.4	2	4.9	1	13.3
1977	11	7	1	10.6	2	6.8	13	25.2
1977	11	8	11	6.9	2	6.6	22	11.3
1977	11	9	1	7.9	15	15.0	6	17.4
1977	11	10	5	5.9	3	3.7	6	9.5
1977	11	11	1	9.3	3	1.6	26	22.0
1977	11	12	3	4.8	5	4.6	4	16.3
1977	11	13	99	.	99	.	4	10.8
1977	11	14	1	6.3	1	10.8	10	17.2
1977	11	15	1	7.3	1	11.1	99	.
1977	11	16	12	9.1	9	11.4	2	13.5
1977	11	17	2	11.7	3	10.4	6	7.6
1977	11	18	2	7.4	9	6.1	19	21.9
1977	11	19	4	8.6	2	3.7	5	11.6
1977	11	20	4	10.0	8	5.7	3	8.1
1977	11	21	1	7.7	1	7.1	6	20.2
1977	11	22	1	3.5	1	4.2	1	26.8
1977	11	23	1	4.5	1	4.3	3	20.5
1977	11	24	1	4.3	1	0.4	13	31.6
1977	11	25	5	4.1	3	6.4	13	26.9
1977	11	26	1	6.0	1	6.8	4	11.0
1977	11	27	1	6.2	1	6.4	22	22.7
1977	11	28	1	7.2	1	2.1	4	21.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1977	11	29	1	4.4	1	3.3	10	7.9
1977	11	30	11	6.8	1	7.1	20	14.6
1977	12	1	11	8.3	3	15.4	6	11.1
1977	12	2	5	8.6	3	9.9	25	19.4
1977	12	3	1	5.2	1	4.4	24	22.1
1977	12	4	1	7.3	1	3.6	1	23.8
1977	12	5	2	9.8	1	8.3	99	.
1977	12	6	1	8.9	3	8.5	26	12.1
1977	12	7	1	7.2	1	3.6	5	20.5
1977	12	8	2	7.7	1	6.7	3	13.4
1977	12	9	5	7.7	3	8.0	19	13.2
1977	12	10	1	3.1	1	1.8	11	17.2
1977	12	11	1	2.0	1	1.7	1	12.8
1977	12	12	1	2.3	1	4.3	28	21.8
1977	12	13	1	4.2	1	2.1	10	34.1
1977	12	14	1	5.6	1	3.3	10	16.1
1977	12	15	3	3.6	1	6.8	1	21.1
1977	12	16	3	10.5	8	7.8	9	12.8
1977	12	17	3	11.7	0	.	9	20.1
1977	12	18	14	10.1	13	14.2	17	21.0
1977	12	19	12	15.9	0	.	3	25.7
1977	12	20	5	9.5	11	6.4	6	12.9
1977	12	21	15	14.9	3	5.1	6	11.1
1977	12	22	1	10.6	1	1.3	2	26.2
1977	12	23	2	7.7	1	0.5	2	23.2
1977	12	24	2	4.3	1	2.5	22	12.7
1977	12	25	2	5.7	3	1.5	6	10.7
1977	12	26	2	4.8	3	3.0	3	15.2
1977	12	27	2	5.9	3	5.9	2	18.3
1977	12	28	2	7.9	3	4.7	2	10.3
1977	12	29	2	5.0	1	2.6	3	19.4
1977	12	30	2	3.6	1	0.5	5	13.4
1977	12	31	2	4.2	1	3.8	5	16.2
1978	1	1	2	6.6	3	5.5	13	20.7
1978	1	2	5	8.0	3	3.0	2	11.5
1978	1	3	1	7.5	1	1.8	2	18.6
1978	1	4	1	5.6	1	0.8	5	9.7
1978	1	5	1	5.4	1	2.2	1	28.4
1978	1	6	1	1.9	1	2.8	1	20.9
1978	1	7	1	8.7	1	6.0	3	8.5
1978	1	8	5	7.0	3	2.3	26	15.5
1978	1	9	5	12.4	3	5.8	5	15.3
1978	1	10	8	12.4	3	3.6	11	8.8
1978	1	11	1	13.4	12	11.8	99	.
1978	1	12	1	8.1	1	6.8	1	15.4
1978	1	13	5	6.8	3	6.0	16	16.7
1978	1	14	8	12.6	3	8.1	0	.
1978	1	15	8	5.0	3	6.8	5	9.4
1978	1	16	8	10.2	1	6.3	11	11.9
1978	1	17	1	8.6	1	2.5	1	21.8
1978	1	18	5	7.5	1	5.6	5	10.1
1978	1	19	1	9.9	3	5.8	11	10.9
1978	1	20	7	10.7	3	10.8	99	.
1978	1	21	1	6.9	3	5.9	4	10.8
1978	1	22	1	2.8	1	6.1	4	5.8
1978	1	23	2	11.1	2	8.2	2	15.5
1978	1	24	5	10.5	7	6.9	2	11.0
1978	1	25	5	9.1	7	14.3	3	10.2
1978	1	26	0	.	11	8.0	26	16.8
1978	1	27	5	8.2	3	11.8	26	9.0
1978	1	28	5	7.5	3	9.3	19	10.3
1978	1	29	5	10.1	17	14.5	11	11.2
1978	1	30	1	8.0	1	5.5	8	12.0
1978	1	31	1	7.4	1	2.4	99	.
1978	2	1	1	5.2	1	1.0	27	27.9
1978	2	2	1	3.5	1	0.8	99	.
1978	2	3	1	2.2	1	2.4	1	12.5
1978	2	4	99	.	99	.	5	22.9
1978	2	5	3	8.3	3	3.3	18	26.0
1978	2	6	3	7.8	0	.	1	11.5
1978	2	7	14	10.8	0	.	1	13.9
1978	2	8	14	7.9	0	.	1	15.8
1978	2	9	14	12.2	0	.	11	20.6
1978	2	10	0	.	5	7.3	5	16.5
1978	2	11	0	.	1	15.5	5	5.6
1978	2	12	0	.	0	.	5	3.2
1978	2	13	14	17.1	0	.	3	23.0
1978	2	14	0	.	3	6.8	19	17.2
1978	2	15	12	12.1	3	8.5	19	14.8
1978	2	16	5	9.3	3	10.0	19	9.4
1978	2	17	5	6.2	3	6.5	2	28.1
1978	2	18	5	3.6	3	5.8	10	17.1
1978	2	19	5	2.4	3	10.6	2	12.2
1978	2	20	5	4.0	11	5.7	16	19.0
1978	2	21	5	6.4	3	5.4	2	19.9
1978	2	22	5	4.3	3	6.3	2	7.7
1978	2	23	5	7.2	3	2.9	6	19.1
1978	2	24	2	8.6	1	2.4	3	16.9
1978	2	25	2	5.3	3	7.0	26	13.1
1978	2	26	2	4.9	1	5.2	11	17.3
1978	2	27	2	6.2	1	2.4	5	7.2
1978	2	28	2	5.8	1	4.1	5	7.9
1978	3	1	1	11.3	1	6.1	11	20.0
1978	3	2	0	.	1	2.1	5	12.8
1978	3	3	5	10.6	3	3.3	19	9.8
1978	3	4	1	7.8	1	5.7	11	13.6
1978	3	5	1	2.8	1	0.9	1	29.8
1978	3	6	1	6.5	1	2.0	5	5.7
1978	3	7	3	10.3	1	9.1	1	23.6
1978	3	8	1	4.4	10	6.6	10	10.8
1978	3	9	1	4.4	1	1.3	25	20.4
1978	3	10	1	6.8	1	1.9	22	25.6
1978	3	11	2	5.4	1	5.5	6	23.6
1978	3	12	2	11.7	1	3.5	5	11.8
1978	3	13	1	5.8	6	5.6	5	18.4

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1978	3	14	2	7.2	1	2.4	17	32.6
1978	3	15	5	4.1	1	4.9	3	27.7
1978	3	16	5	2.2	3	4.2	6	12.5
1978	3	17	5	9.0	3	1.4	10	20.7
1978	3	18	1	6.2	1	1.2	2	5.8
1978	3	19	1	7.3	1	2.9	11	15.2
1978	3	20	1	6.0	1	1.9	2	12.9
1978	3	21	1	6.2	1	4.9	2	12.8
1978	3	22	1	6.2	1	1.8	19	19.5
1978	3	23	1	5.6	1	5.5	5	9.7
1978	3	24	1	4.7	1	8.7	1	10.5
1978	3	25	1	6.8	10	3.8	1	17.9
1978	3	26	1	3.5	1	6.3	10	11.7
1978	3	27	1	3.7	1	2.8	29	22.3
1978	3	28	1	4.7	1	3.1	26	16.4
1978	3	29	1	3.9	1	4.6	1	17.3
1978	3	30	1	4.3	1	3.3	14	16.4
1978	3	31	1	6.9	1	3.4	9	16.1
1978	4	1	1	4.8	1	4.9	26	17.3
1978	4	2	1	8.7	2	6.1	1	3.5
1978	4	3	1	5.3	2	1.9	12	15.9
1978	4	4	1	6.7	1	2.5	26	18.6
1978	4	5	1	4.9	2	5.3	1	5.0
1978	4	6	4	6.8	2	7.0	20	24.6
1978	4	7	4	8.1	1	5.2	5	4.7
1978	4	8	4	11.2	2	5.7	1	7.2
1978	4	9	7	6.3	2	9.0	12	18.4
1978	4	10	7	12.3	7	8.1	6	12.7
1978	4	11	2	10.1	3	4.2	10	20.4
1978	4	12	2	7.6	1	5.1	2	20.2
1978	4	13	12	9.8	1	3.5	8	17.1
1978	4	14	12	15.6	1	4.8	5	15.2
1978	4	15	15	12.6	5	8.1	5	11.0
1978	4	16	3	9.7	12	10.2	1	16.9
1978	4	17	3	8.4	4	2.6	1	4.3
1978	4	18	0	.	0	.	3	16.5
1978	4	19	9	11.6	3	5.8	26	21.7
1978	4	20	9	8.8	3	10.3	0	.
1978	4	21	1	9.0	5	12.7	1	22.8
1978	4	22	1	6.5	4	8.4	1	11.2
1978	4	23	1	7.2	0	.	9	20.7
1978	4	24	1	11.6	11	15.0	17	13.2
1978	4	25	3	14.1	17	13.0	1	30.3
1978	4	26	1	12.5	12	8.1	5	22.8
1978	4	27	3	9.8	12	8.2	1	12.1
1978	4	28	3	7.3	12	16.3	1	15.7
1978	4	29	3	9.7	0	.	17	19.7
1978	4	30	3	10.1	0	.	1	16.1
1978	5	1	16	13.0	0	.	5	13.6
1978	5	2	11	15.4	0	.	1	27.2
1978	5	3	11	8.5	2	12.0	1	22.7
1978	5	4	11	10.4	0	.	27	19.3
1978	5	5	0	.	0	.	27	15.2
1978	5	6	7	14.3	0	.	5	12.1
1978	5	7	7	5.8	0	.	9	16.3
1978	5	8	1	11.6	14	3.4	3	17.8
1978	5	9	1	7.7	3	2.4	6	10.9
1978	5	10	1	3.0	1	4.7	4	7.8
1978	5	11	1	2.6	1	5.9	15	21.6
1978	5	12	1	2.7	1	6.2	3	23.6
1978	5	13	1	5.4	17	11.9	0	.
1978	5	14	3	2.9	5	5.2	18	15.8
1978	5	15	3	8.2	5	8.9	1	13.7
1978	5	16	16	16.0	0	.	1	14.6
1978	5	17	7	12.3	0	.	12	15.4
1978	5	18	7	6.7	0	.	9	22.5
1978	5	19	7	8.2	6	10.0	3	17.5
1978	5	20	1	5.5	1	6.4	6	24.5
1978	5	21	1	5.8	2	7.0	4	19.1
1978	5	22	1	11.0	2	6.5	1	17.0
1978	5	23	4	8.7	13	10.6	99	.
1978	5	24	4	6.8	4	2.4	99	.
1978	5	25	10	7.0	4	4.0	1	29.8
1978	5	26	10	9.5	2	6.4	12	21.6
1978	5	27	1	10.3	2	3.5	22	18.4
1978	5	28	1	6.7	2	10.4	99	.
1978	5	29	1	9.6	13	6.4	17	27.4
1978	5	30	0	.	13	15.3	3	19.4
1978	5	31	7	16.1	0	.	3	20.2
1978	6	1	8	16.1	7	6.1	3	18.8
1978	6	2	5	11.7	7	3.9	0	.
1978	6	3	5	12.9	3	8.9	13	20.9
1978	6	4	1	14.0	3	10.8	6	14.8
1978	6	5	1	10.9	7	14.3	13	15.3
1978	6	6	1	12.0	1	6.0	15	14.9
1978	6	7	1	8.3	1	3.0	3	26.3
1978	6	8	1	5.3	1	5.4	15	25.4
1978	6	9	1	1.8	1	2.7	10	19.5
1978	6	10	1	3.8	2	2.3	20	24.8
1978	6	11	1	5.1	2	6.8	3	22.3
1978	6	12	1	6.2	1	1.5	26	29.0
1978	6	13	1	6.4	1	5.5	1	10.8
1978	6	14	17	7.9	5	8.0	1	10.2
1978	6	15	4	5.3	2	3.1	12	9.5
1978	6	16	4	5.5	2	3.7	2	11.6
1978	6	17	1	6.5	1	6.5	22	8.4
1978	6	18	1	7.2	1	3.0	4	16.5
1978	6	19	4	8.2	2	2.3	12	22.1
1978	6	20	1	7.1	1	5.9	6	13.8
1978	6	21	1	6.0	1	3.1	4	15.7
1978	6	22	17	7.1	5	7.0	1	10.4
1978	6	23	17	5.3	1	6.6	12	10.9
1978	6	24	1	6.4	2	6.1	1	20.3
1978	6	25	4	5.8	2	3.2	9	10.7
1978	6	26	4	6.3	1	12.1	6	27.7

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1978	6	27	4	8.5	1	5.1	2	20.3
1978	6	28	1	8.0	1	4.4	4	20.5
1978	6	29	1	10.2	12	4.9	1	16.4
1978	6	30	3	9.8	2	6.5	1	9.4
1978	7	1	3	9.6	2	7.6	9	17.8
1978	7	2	3	8.0	5	6.5	0	.
1978	7	3	1	6.8	12	6.8	12	27.3
1978	7	4	1	7.3	2	4.7	12	13.2
1978	7	5	1	7.8	2	3.4	2	18.0
1978	7	6	1	8.3	6	5.6	8	15.4
1978	7	7	1	8.5	1	6.3	19	22.8
1978	7	8	1	8.5	1	5.2	21	23.0
1978	7	9	1	8.8	1	1.1	3	14.3
1978	7	10	17	6.6	1	6.4	11	11.3
1978	7	11	17	7.7	2	8.5	4	13.0
1978	7	12	4	7.5	2	5.7	2	16.2
1978	7	13	1	4.4	1	0.9	6	24.5
1978	7	14	1	2.6	1	0.8	2	5.8
1978	7	15	1	2.8	1	1.7	13	15.1
1978	7	16	1	3.0	1	3.8	4	13.0
1978	7	17	1	4.2	2	3.7	12	18.0
1978	7	18	1	9.1	1	5.1	8	14.1
1978	7	19	2	9.7	1	5.0	3	18.0
1978	7	20	2	9.1	1	5.8	8	21.5
1978	7	21	2	8.8	1	6.0	3	23.7
1978	7	22	1	8.6	1	5.9	22	25.5
1978	7	23	1	6.4	1	1.0	4	13.2
1978	7	24	1	7.4	1	1.7	4	4.5
1978	7	25	1	4.9	1	0.5	2	5.0
1978	7	26	1	4.5	1	3.7	6	13.0
1978	7	27	1	3.6	1	6.8	18	12.6
1978	7	28	1	4.5	1	0.9	29	19.3
1978	7	29	1	10.1	1	1.8	16	14.1
1978	7	30	8	17.4	1	2.5	8	22.0
1978	7	31	1	9.6	1	1.8	8	15.1
1978	8	1	5	14.7	1	2.0	8	14.6
1978	8	2	5	12.1	1	2.3	8	13.5
1978	8	3	5	10.1	1	6.9	8	14.0
1978	8	4	1	8.4	1	9.8	13	19.6
1978	8	5	1	5.6	1	6.4	99	.
1978	8	6	1	5.8	1	3.6	4	18.4
1978	8	7	1	7.6	1	6.1	2	7.3
1978	8	8	1	9.6	1	4.9	8	18.0
1978	8	9	1	6.6	1	4.4	13	20.4
1978	8	10	1	3.4	1	1.8	4	6.9
1978	8	11	1	4.6	1	7.3	4	11.3
1978	8	12	1	5.8	1	6.8	4	15.3
1978	8	13	4	5.1	2	3.6	1	15.1
1978	8	14	4	6.5	2	2.9	29	16.8
1978	8	15	1	5.8	2	9.5	2	19.7
1978	8	16	4	9.8	5	6.8	15	28.1
1978	8	17	4	4.6	2	2.5	20	16.1
1978	8	18	1	6.6	2	9.5	2	14.8
1978	8	19	1	3.9	1	3.1	6	31.8
1978	8	20	1	7.1	2	4.6	14	20.9
1978	8	21	1	7.2	2	5.0	14	11.5
1978	8	22	1	6.5	2	6.4	1	16.7
1978	8	23	3	8.5	2	1.5	1	15.5
1978	8	24	3	6.8	2	2.7	1	20.2
1978	8	25	3	5.3	2	7.1	1	11.4
1978	8	26	3	6.4	2	3.9	9	9.3
1978	8	27	1	5.9	2	6.2	22	11.4
1978	8	28	1	6.1	1	1.0	6	13.4
1978	8	29	1	6.5	1	2.7	6	21.4
1978	8	30	1	5.2	1	3.0	11	20.6
1978	8	31	1	5.6	1	4.5	4	14.3
1978	9	1	3	6.9	2	4.7	10	20.7
1978	9	2	3	5.7	1	2.1	99	.
1978	9	3	3	6.1	1	8.2	99	.
1978	9	4	3	9.5	1	10.9	10	24.6
1978	9	5	17	12.6	2	10.9	14	17.6
1978	9	6	17	12.4	2	8.5	99	.
1978	9	7	10	13.4	12	8.3	1	18.9
1978	9	8	3	9.1	4	6.6	1	13.9
1978	9	9	3	8.0	2	1.8	10	24.0
1978	9	10	3	7.7	2	4.1	1	17.7
1978	9	11	12	10.0	4	8.0	17	17.4
1978	9	12	0	.	0	.	17	16.3
1978	9	13	6	12.1	8	8.9	9	19.7
1978	9	14	0	.	0	.	6	11.5
1978	9	15	1	8.8	1	1.4	25	23.9
1978	9	16	1	9.4	2	5.4	20	13.3
1978	9	17	6	11.1	2	2.3	12	27.4
1978	9	18	4	4.9	4	6.1	27	12.1
1978	9	19	7	12.7	8	7.8	2	16.1
1978	9	20	1	8.7	6	5.3	6	16.0
1978	9	21	1	5.8	1	7.1	10	13.7
1978	9	22	3	5.5	2	6.4	4	6.2
1978	9	23	1	4.8	1	6.6	4	12.9
1978	9	24	1	5.8	1	1.5	19	15.0
1978	9	25	1	5.7	1	3.5	4	14.5
1978	9	26	1	10.1	1	2.9	2	13.0
1978	9	27	1	6.8	1	4.9	11	22.0
1978	9	28	1	3.4	1	2.9	99	.
1978	9	29	1	3.5	1	2.9	9	22.3
1978	9	30	1	2.4	1	6.3	6	21.9
1978	10	1	1	4.5	1	6.6	4	19.3
1978	10	2	1	8.2	1	8.2	2	17.5
1978	10	3	1	9.7	3	6.3	6	6.0
1978	10	4	2	10.3	1	5.5	2	18.6
1978	10	5	5	8.8	3	4.2	6	9.1
1978	10	6	5	6.8	3	2.2	6	14.6
1978	10	7	1	7.3	3	2.0	18	21.4
1978	10	8	1	6.2	1	2.5	4	14.2
1978	10	9	1	6.1	3	6.8	25	33.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1978	10	10	1	5.5	10	8.1	4	16.1
1978	10	11	1	6.8	1	3.4	2	2.3
1978	10	12	2	7.6	1	2.2	3	23.3
1978	10	13	2	9.4	3	6.9	6	12.4
1978	10	14	5	9.9	3	3.2	13	14.0
1978	10	15	5	8.2	3	2.2	3	16.6
1978	10	16	1	8.0	3	4.9	4	24.3
1978	10	17	1	10.4	1	3.2	21	12.8
1978	10	18	7	11.1	1	7.2	13	12.8
1978	10	19	1	7.0	3	10.1	2	11.6
1978	10	20	1	3.2	1	4.4	2	7.9
1978	10	21	1	3.8	2	6.3	29	18.3
1978	10	22	1	6.1	1	4.7	3	13.9
1978	10	23	1	5.5	1	2.9	10	9.7
1978	10	24	1	7.5	1	2.8	2	13.4
1978	10	25	2	9.6	7	3.6	6	17.5
1978	10	26	1	6.3	1	6.4	99	.
1978	10	27	1	2.7	1	1.2	6	12.5
1978	10	28	1	1.5	1	0.8	1	13.7
1978	10	29	1	3.9	2	6.4	1	17.0
1978	10	30	1	6.3	2	4.4	99	.
1978	10	31	1	7.3	1	3.2	13	10.5
1978	11	1	99	.	99	.	2	10.9
1978	11	2	16	7.0	1	8.1	10	14.8
1978	11	3	1	3.3	1	8.8	2	6.9
1978	11	4	1	3.6	1	6.1	18	12.5
1978	11	5	1	5.2	1	5.9	2	11.3
1978	11	6	1	4.5	1	2.2	13	15.1
1978	11	7	1	4.0	1	6.8	2	12.0
1978	11	8	1	3.1	1	3.0	2	3.3
1978	11	9	2	6.7	1	6.1	3	15.2
1978	11	10	2	9.4	2	4.1	3	14.2
1978	11	11	4	6.5	12	4.3	5	23.1
1978	11	12	4	4.4	4	6.8	5	19.9
1978	11	13	4	8.3	8	5.2	3	18.7
1978	11	14	1	10.4	7	4.4	2	17.6
1978	11	15	1	5.0	1	5.6	2	19.5
1978	11	16	1	4.6	6	9.4	1	19.3
1978	11	17	1	6.9	1	8.8	6	25.9
1978	11	18	2	6.5	1	4.0	3	6.5
1978	11	19	2	5.6	1	1.4	5	14.6
1978	11	20	17	7.6	1	1.6	0	.
1978	11	21	17	6.9	1	1.8	11	24.8
1978	11	22	4	8.3	1	4.5	1	20.5
1978	11	23	2	10.1	1	2.7	99	.
1978	11	24	1	8.1	1	1.4	2	18.1
1978	11	25	1	9.8	1	3.4	5	9.5
1978	11	26	2	7.2	1	5.9	5	22.7
1978	11	27	5	8.4	7	7.2	3	22.7
1978	11	28	2	7.1	1	3.7	99	.
1978	11	29	2	6.5	1	3.1	15	17.4
1978	11	30	2	7.0	1	2.3	8	20.4
1978	12	1	2	2.8	1	2.4	8	23.2
1978	12	2	2	7.9	12	7.3	5	22.4
1978	12	3	11	5.1	6	9.3	13	9.7
1978	12	4	2	7.9	1	4.6	2	1.9
1978	12	5	2	3.1	1	2.2	3	23.6
1978	12	6	18	5.9	1	7.1	19	13.5
1978	12	7	18	5.5	6	5.7	13	22.3
1978	12	8	2	14.1	7	5.2	2	6.6
1978	12	9	5	7.7	3	3.3	2	20.3
1978	12	10	1	5.7	1	5.2	2	10.0
1978	12	11	1	2.6	1	3.4	10	13.5
1978	12	12	1	3.1	1	1.5	2	12.7
1978	12	13	1	7.4	1	4.8	6	11.8
1978	12	14	1	5.9	1	1.8	10	10.8
1978	12	15	1	5.9	1	1.3	2	9.3
1978	12	16	1	4.1	1	2.1	2	13.8
1978	12	17	1	10.4	1	2.2	4	17.4
1978	12	18	4	8.1	2	7.2	1	16.1
1978	12	19	4	5.3	2	2.9	1	15.6
1978	12	20	11	9.1	7	3.2	6	19.5
1978	12	21	2	8.5	1	5.2	2	13.3
1978	12	22	2	7.0	1	2.8	6	17.9
1978	12	23	11	7.8	1	4.2	3	18.7
1978	12	24	2	10.9	1	6.8	18	23.3
1978	12	25	2	7.1	1	6.5	0	.
1978	12	26	2	7.6	1	8.3	6	4.3
1978	12	27	2	7.6	1	3.2	21	20.2
1978	12	28	0	.	2	2.5	5	13.8
1978	12	29	0	.	2	9.2	3	20.9
1978	12	30	0	.	2	7.3	8	26.7
1978	12	31	2	15.1	2	7.2	27	34.7
1979	1	1	2	11.8	7	5.0	22	21.6
1979	1	2	5	7.6	3	1.4	2	14.1
1979	1	3	5	10.9	1	5.6	2	10.6
1979	1	4	2	10.3	1	5.8	8	8.8
1979	1	5	2	9.4	1	5.0	13	16.3
1979	1	6	2	10.5	1	2.9	2	11.7
1979	1	7	2	9.6	7	2.8	22	17.9
1979	1	8	5	7.4	3	4.2	2	3.5
1979	1	9	5	7.2	1	5.3	6	21.7
1979	1	10	5	6.1	1	4.5	11	12.3
1979	1	11	5	8.7	1	1.3	1	18.4
1979	1	12	1	8.1	1	1.1	5	5.3
1979	1	13	2	8.8	1	3.3	16	19.5
1979	1	14	2	6.9	1	4.7	6	19.7
1979	1	15	2	7.0	1	1.8	21	12.6
1979	1	16	1	10.7	1	1.7	1	10.1
1979	1	17	1	8.4	1	3.9	10	23.8
1979	1	18	1	7.4	12	7.1	1	18.1
1979	1	19	1	6.3	6	9.6	12	23.3
1979	1	20	5	8.0	10	10.5	6	22.3
1979	1	21	2	9.2	3	7.8	6	18.7
1979	1	22	2	6.8	1	2.9	3	19.2

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1979	1	23	5	8.4	7	7.3	16	24.0
1979	1	24	9	13.8	3	8.0	0	.
1979	1	25	4	9.5	2	4.5	27	21.1
1979	1	26	11	5.1	6	7.8	5	19.4
1979	1	27	11	8.6	10	15.6	16	18.1
1979	1	28	2	15.8	0	.	99	.
1979	1	29	2	11.5	8	12.6	19	14.6
1979	1	30	2	6.6	7	4.9	3	26.0
1979	1	31	2	5.9	1	11.1	6	23.4
1979	2	1	2	6.3	1	6.9	1	26.5
1979	2	2	2	7.2	1	7.2	5	27.1
1979	2	3	2	8.1	1	4.8	15	18.3
1979	2	4	2	9.5	1	5.2	19	17.5
1979	2	5	1	10.1	1	4.1	10	14.6
1979	2	6	1	8.0	1	1.6	17	17.7
1979	2	7	1	7.2	1	5.2	7	15.9
1979	2	8	1	5.3	3	6.8	16	17.2
1979	2	9	1	4.2	1	5.8	11	28.4
1979	2	10	1	2.0	1	3.3	1	9.7
1979	2	11	1	1.5	1	0.7	5	14.2
1979	2	12	1	1.8	1	1.7	7	23.5
1979	2	13	1	2.4	1	2.2	1	18.8
1979	2	14	1	2.5	1	4.3	17	22.0
1979	2	15	1	3.7	1	3.6	3	14.9
1979	2	16	1	6.0	1	2.9	11	16.2
1979	2	17	1	5.3	1	6.3	1	8.9
1979	2	18	1	3.0	1	5.5	4	17.1
1979	2	19	1	1.9	1	5.8	4	17.2
1979	2	20	1	3.2	2	5.1	5	22.9
1979	2	21	1	3.8	1	4.5	26	15.9
1979	2	22	1	7.1	2	3.3	5	14.4
1979	2	23	1	6.9	1	7.5	26	11.8
1979	2	24	1	2.8	1	5.3	5	13.7
1979	2	25	1	3.2	1	2.5	18	19.2
1979	2	26	1	2.6	1	4.4	4	13.8
1979	2	27	1	3.7	6	7.3	5	24.1
1979	2	28	1	4.2	2	8.0	7	17.8
1979	3	1	4	6.3	2	4.0	5	19.5
1979	3	2	1	7.3	2	2.5	5	16.7
1979	3	3	1	6.0	6	3.6	16	18.3
1979	3	4	1	10.1	11	7.5	23	35.5
1979	3	5	1	7.4	3	6.0	10	15.5
1979	3	6	5	5.6	3	4.8	15	16.2
1979	3	7	1	7.7	3	3.2	7	8.6
1979	3	8	5	11.2	1	4.7	20	16.1
1979	3	9	5	9.3	7	3.8	3	11.8
1979	3	10	5	9.6	3	2.7	6	20.6
1979	3	11	1	8.5	3	6.2	15	12.0
1979	3	12	1	5.4	1	3.2	10	18.0
1979	3	13	1	11.0	1	4.0	3	12.8
1979	3	14	5	9.0	3	4.6	6	20.4
1979	3	15	1	7.2	1	9.4	4	9.2
1979	3	16	4	8.0	2	5.1	4	18.3
1979	3	17	4	10.0	4	6.6	12	15.5
1979	3	18	4	9.0	8	8.7	99	.
1979	3	19	0	.	8	8.6	3	19.0
1979	3	20	0	.	0	.	19	27.3
1979	3	21	4	16.9	2	14.1	5	27.7
1979	3	22	2	12.8	6	0.0	22	27.5
1979	3	23	2	9.0	7	10.1	16	23.5
1979	3	24	2	8.9	3	5.8	7	16.2
1979	3	25	2	6.2	1	8.6	17	13.3
1979	3	26	2	6.7	1	1.8	5	12.7
1979	3	27	17	7.6	1	2.7	1	24.7
1979	3	28	4	7.1	1	5.7	5	27.4
1979	3	29	4	6.2	2	2.8	1	7.7
1979	3	30	4	8.0	2	6.8	3	16.9
1979	3	31	2	7.9	2	5.7	5	12.0
1979	4	1	2	8.0	2	4.8	5	8.5
1979	4	2	2	7.4	1	7.3	7	17.7
1979	4	3	2	6.7	1	2.9	5	21.1
1979	4	4	2	5.8	1	3.8	28	24.6
1979	4	5	2	8.4	1	5.6	3	18.6
1979	4	6	1	5.7	1	5.5	11	20.1
1979	4	7	1	4.0	1	2.6	1	7.0
1979	4	8	1	6.2	1	7.3	7	20.3
1979	4	9	1	10.1	5	4.4	1	19.5
1979	4	10	11	9.3	12	8.6	1	11.4
1979	4	11	11	7.2	18	0.0	1	14.6
1979	4	12	6	15.4	0	.	9	10.7
1979	4	13	12	9.7	9	12.9	15	16.2
1979	4	14	12	6.5	9	10.1	6	14.0
1979	4	15	3	9.7	5	6.2	8	33.2
1979	4	16	3	7.4	5	8.0	5	13.7
1979	4	17	10	10.6	2	8.5	1	11.4
1979	4	18	10	6.4	4	3.8	1	6.1
1979	4	19	10	9.1	4	3.2	12	0.0
1979	4	20	1	13.1	2	4.3	22	13.4
1979	4	21	17	13.0	1	5.8	8	24.1
1979	4	22	17	9.1	1	2.3	5	16.4
1979	4	23	17	5.2	2	6.4	5	15.7
1979	4	24	4	6.8	2	2.6	27	18.1
1979	4	25	2	7.2	1	6.3	3	19.5
1979	4	26	2	7.9	1	4.4	6	23.3
1979	4	27	2	9.4	3	3.1	26	26.2
1979	4	28	2	10.5	3	4.9	27	21.8
1979	4	29	5	7.3	3	7.7	3	31.3
1979	4	30	5	9.5	1	6.9	5	26.9
1979	5	1	1	11.0	1	1.6	1	20.1
1979	5	2	1	13.7	1	3.4	5	9.9
1979	5	3	5	13.3	1	3.0	26	22.9
1979	5	4	99	.	99	.	18	16.3
1979	5	5	1	6.6	1	0.5	14	21.4
1979	5	6	12	7.7	2	5.2	1	9.7
1979	5	7	6	10.8	8	8.8	17	18.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1979	5	8	4	9.7	8	11.8	5	21.9
1979	5	9	4	14.9	6	10.7	5	9.7
1979	5	10	6	13.1	8	3.3	17	23.3
1979	5	11	1	13.2	6	17.3	15	15.5
1979	5	12	1	11.3	1	3.9	2	7.3
1979	5	13	1	9.6	1	3.4	2	10.3
1979	5	14	1	6.7	1	4.6	3	18.4
1979	5	15	1	5.4	1	6.5	11	22.7
1979	5	16	1	6.8	1	5.6	1	15.2
1979	5	17	1	11.1	2	2.9	29	16.1
1979	5	18	1	10.9	1	3.9	25	18.0
1979	5	19	1	9.9	1	1.9	3	30.4
1979	5	20	1	6.8	1	2.3	5	18.6
1979	5	21	1	5.4	1	1.9	1	19.3
1979	5	22	1	11.3	1	2.6	9	18.3
1979	5	23	3	8.3	3	1.9	7	27.5
1979	5	24	1	11.6	3	2.8	1	24.9
1979	5	25	1	13.5	17	9.9	12	21.6
1979	5	26	3	9.3	3	2.8	6	17.8
1979	5	27	1	10.9	17	6.7	23	34.8
1979	5	28	6	12.9	5	10.6	12	20.8
1979	5	29	4	12.7	13	9.4	9	16.3
1979	5	30	7	13.0	2	7.8	3	11.3
1979	5	31	7	10.7	8	10.0	6	16.5
1979	6	1	7	12.2	1	7.4	2	11.8
1979	6	2	1	8.3	1	2.9	2	7.5
1979	6	3	1	5.3	1	2.3	2	9.9
1979	6	4	1	5.7	1	1.9	15	27.6
1979	6	5	1	4.8	1	2.0	1	21.5
1979	6	6	1	7.8	2	3.4	2	14.8
1979	6	7	2	8.8	2	5.9	22	13.3
1979	6	8	7	10.0	6	6.7	19	20.7
1979	6	9	1	6.2	6	4.9	22	13.3
1979	6	10	1	2.7	1	4.7	6	8.7
1979	6	11	1	4.2	1	3.9	18	20.3
1979	6	12	1	5.1	1	5.3	28	20.6
1979	6	13	1	6.0	5	6.7	4	9.0
1979	6	14	1	4.7	2	2.8	2	16.6
1979	6	15	1	4.4	2	3.4	8	15.0
1979	6	16	1	7.1	2	4.5	5	13.5
1979	6	17	4	5.5	12	5.2	5	10.8
1979	6	18	4	6.2	4	7.2	1	11.3
1979	6	19	4	7.3	8	8.2	12	13.1
1979	6	20	1	4.6	9	10.5	20	18.5
1979	6	21	1	3.1	1	5.1	26	18.4
1979	6	22	1	2.5	1	5.0	17	19.3
1979	6	23	1	2.6	1	3.6	1	19.6
1979	6	24	1	4.4	1	6.2	4	17.4
1979	6	25	1	5.4	1	4.0	4	20.9
1979	6	26	1	7.0	1	0.5	8	13.2
1979	6	27	1	4.3	1	1.6	8	29.9
1979	6	28	1	5.3	1	1.8	2	15.1
1979	6	29	1	6.8	1	7.0	6	13.9
1979	6	30	9	10.8	5	5.1	18	21.7
1979	7	1	6	11.3	5	8.7	1	14.5
1979	7	2	6	13.1	13	13.7	1	9.1
1979	7	3	6	14.5	5	10.4	9	9.1
1979	7	4	3	15.3	5	12.7	7	20.8
1979	7	5	3	12.8	5	5.0	1	14.0
1979	7	6	3	10.3	2	8.4	99	.
1979	7	7	3	4.3	2	8.8	4	5.8
1979	7	8	3	3.1	5	5.5	4	16.0
1979	7	9	3	3.9	1	7.5	2	12.6
1979	7	10	3	2.9	5	7.0	4	22.7
1979	7	11	3	4.7	2	7.8	12	22.6
1979	7	12	3	10.2	2	4.3	12	20.5
1979	7	13	1	7.3	2	4.1	20	28.9
1979	7	14	1	7.3	1	3.4	2	11.5
1979	7	15	1	8.0	1	1.2	8	20.5
1979	7	16	1	5.8	1	2.3	11	30.9
1979	7	17	1	8.4	1	6.3	13	19.7
1979	7	18	1	10.0	3	8.3	8	21.4
1979	7	19	1	9.7	3	6.2	99	.
1979	7	20	1	8.0	1	6.8	4	11.1
1979	7	21	1	7.2	1	6.8	14	20.8
1979	7	22	1	6.4	1	9.7	1	7.4
1979	7	23	1	7.8	1	10.2	12	20.4
1979	7	24	1	9.1	1	4.9	3	10.8
1979	7	25	1	5.3	1	2.1	3	20.1
1979	7	26	1	5.2	1	1.1	0	.
1979	7	27	1	5.1	1	0.4	8	16.6
1979	7	28	1	4.5	1	1.3	13	19.5
1979	7	29	1	5.1	1	3.2	9	31.0
1979	7	30	1	5.5	1	1.3	3	9.4
1979	7	31	1	3.2	1	3.5	13	22.3
1979	8	1	1	3.2	1	4.9	4	19.5
1979	8	2	1	4.2	1	1.8	2	13.2
1979	8	3	1	3.2	1	1.3	14	23.9
1979	8	4	1	3.5	1	2.6	5	27.2
1979	8	5	1	5.0	1	2.8	5	24.0
1979	8	6	1	5.1	1	7.1	12	13.7
1979	8	7	1	6.1	1	4.3	8	11.6
1979	8	8	1	4.1	1	3.5	5	25.9
1979	8	9	1	4.5	1	2.0	29	11.8
1979	8	10	1	6.3	1	2.4	3	16.5
1979	8	11	1	7.2	1	4.4	4	14.8
1979	8	12	1	9.7	1	1.2	29	22.1
1979	8	13	8	7.9	1	2.3	3	20.3
1979	8	14	8	9.2	1	6.8	5	13.0
1979	8	15	1	11.4	1	8.0	1	18.6
1979	8	16	1	12.3	2	7.0	4	8.1
1979	8	17	1	10.9	1	0.9	2	7.3
1979	8	18	17	9.7	1	5.2	2	20.3
1979	8	19	17	8.8	12	6.8	1	30.2
1979	8	20	17	7.0	12	12.4	17	20.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1979	8	21	17	9.7	8	14.6	22	32.2
1979	8	22	17	7.6	1	5.9	3	15.9
1979	8	23	17	9.2	3	5.9	26	15.8
1979	8	24	17	11.3	1	7.0	8	20.9
1979	8	25	17	12.5	1	2.8	8	0.0
1979	8	26	17	9.8	1	3.5	8	15.3
1979	8	27	17	7.6	1	2.4	13	18.8
1979	8	28	17	8.3	1	2.2	2	12.8
1979	8	29	1	9.6	1	1.5	2	20.5
1979	8	30	1	4.6	1	4.9	1	16.4
1979	8	31	1	4.7	12	5.9	28	20.8
1979	9	1	3	6.7	1	4.8	2	11.8
1979	9	2	3	6.1	1	2.8	26	10.0
1979	9	3	3	7.5	1	5.0	1	14.2
1979	9	4	1	8.8	2	5.6	14	25.1
1979	9	5	3	9.6	1	5.8	29	16.3
1979	9	6	3	8.0	1	2.1	26	14.2
1979	9	7	3	5.3	1	3.0	7	29.6
1979	9	8	3	5.3	1	2.9	1	22.9
1979	9	9	1	6.1	1	8.5	14	13.8
1979	9	10	1	5.6	2	6.5	9	19.3
1979	9	11	1	9.3	2	3.4	29	32.7
1979	9	12	1	11.0	1	5.7	22	14.8
1979	9	13	5	10.3	7	3.6	6	16.4
1979	9	14	1	11.3	3	7.3	13	7.9
1979	9	15	1	7.4	3	11.0	10	7.9
1979	9	16	1	5.8	1	6.9	4	8.4
1979	9	17	1	5.9	1	5.8	2	7.2
1979	9	18	1	5.8	1	5.5	19	23.7
1979	9	19	1	4.5	1	3.0	4	18.6
1979	9	20	1	6.0	1	3.5	3	12.9
1979	9	21	1	5.1	1	3.9	18	17.7
1979	9	22	1	3.9	1	2.2	1	21.0
1979	9	23	1	4.2	1	1.4	12	12.4
1979	9	24	1	6.6	1	1.6	8	12.9
1979	9	25	1	5.5	1	6.1	8	18.3
1979	9	26	1	1.9	1	7.7	4	15.0
1979	9	27	1	3.8	1	8.0	20	25.3
1979	9	28	1	4.6	1	4.9	18	20.0
1979	9	29	1	4.1	1	3.9	2	14.3
1979	9	30	1	6.0	1	1.4	2	13.6
1979	10	1	1	5.1	1	5.5	6	11.1
1979	10	2	1	8.8	1	4.0	20	25.5
1979	10	3	5	8.2	7	7.8	6	11.5
1979	10	4	1	12.0	3	2.0	13	19.6
1979	10	5	2	11.7	1	9.5	2	10.4
1979	10	6	2	10.9	3	3.9	6	14.7
1979	10	7	1	8.7	1	7.5	15	14.4
1979	10	8	2	10.5	1	1.9	3	8.8
1979	10	9	2	12.8	3	4.8	6	15.7
1979	10	10	2	15.4	3	2.4	2	7.2
1979	10	11	5	10.8	3	3.7	15	17.0
1979	10	12	5	8.7	3	2.9	26	12.3
1979	10	13	1	10.4	3	1.1	18	20.2
1979	10	14	1	4.8	1	5.6	4	12.4
1979	10	15	1	6.1	1	5.1	28	21.6
1979	10	16	1	2.6	1	4.5	22	10.2
1979	10	17	1	2.3	1	4.5	23	27.1
1979	10	18	1	5.3	2	1.6	12	16.6
1979	10	19	1	6.3	2	2.1	4	23.5
1979	10	20	4	7.4	2	2.3	29	24.0
1979	10	21	1	8.7	2	5.6	3	9.7
1979	10	22	3	4.8	1	11.4	7	24.7
1979	10	23	3	5.3	5	9.4	7	23.8
1979	10	24	15	5.7	1	4.4	17	0.0
1979	10	25	3	3.5	5	6.9	18	19.9
1979	10	26	3	4.5	1	7.9	1	11.7
1979	10	27	1	6.2	1	1.7	2	20.5
1979	10	28	1	4.8	1	3.9	20	18.9
1979	10	29	11	9.4	2	7.3	27	19.8
1979	10	30	11	6.5	6	7.7	9	24.6
1979	10	31	11	10.0	15	11.8	3	13.3
1979	11	1	2	10.4	7	9.8	6	9.7
1979	11	2	5	9.7	3	7.8	2	11.7
1979	11	3	1	8.1	1	4.2	2	27.0
1979	11	4	1	6.9	1	4.0	5	18.4
1979	11	5	2	10.7	1	5.4	5	25.0
1979	11	6	17	8.8	1	3.8	13	27.3
1979	11	7	17	13.9	1	1.7	29	24.2
1979	11	8	2	6.3	1	4.3	0	.
1979	11	9	2	4.6	7	4.4	3	13.8
1979	11	10	2	4.3	7	6.2	99	.
1979	11	11	2	3.0	1	5.7	12	10.5
1979	11	12	2	5.7	7	9.0	2	7.7
1979	11	13	5	5.6	3	5.9	15	22.5
1979	11	14	5	10.5	3	8.2	2	8.7
1979	11	15	1	12.2	3	5.2	15	22.7
1979	11	16	1	4.4	1	5.4	2	5.3
1979	11	17	1	5.3	2	8.0	10	7.8
1979	11	18	6	6.1	2	3.8	20	18.6
1979	11	19	1	10.2	2	4.6	2	18.5
1979	11	20	7	10.0	6	5.6	19	19.1
1979	11	21	3	17.4	0	.	16	17.3
1979	11	22	3	15.8	0	.	6	28.1
1979	11	23	14	10.0	0	.	15	21.5
1979	11	24	12	12.2	3	11.6	15	17.0
1979	11	25	12	6.0	1	6.8	2	31.4
1979	11	26	12	9.1	9	12.7	17	18.3
1979	11	27	5	13.9	0	.	3	18.3
1979	11	28	5	11.8	11	8.5	6	12.8
1979	11	29	5	8.0	3	4.9	6	6.5
1979	11	30	5	6.6	3	3.8	15	17.6
1979	12	1	5	10.1	3	8.3	0	.
1979	12	2	1	3.4	5	11.1	4	4.0
1979	12	3	1	2.0	1	0.7	2	5.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1979	12	4	1	2.9	1	1.8	4	13.2
1979	12	5	2	5.3	1	3.5	6	14.6
1979	12	6	2	6.6	3	8.1	2	10.4
1979	12	7	2	7.1	1	7.0	6	13.3
1979	12	8	1	6.1	1	3.7	4	3.2
1979	12	9	1	3.1	1	2.0	10	19.9
1979	12	10	1	7.6	1	5.0	14	13.7
1979	12	11	11	10.4	1	7.9	3	15.1
1979	12	12	1	7.8	1	5.0	10	12.9
1979	12	13	1	4.9	1	2.0	6	19.5
1979	12	14	1	2.9	1	1.5	4	13.3
1979	12	15	1	7.5	1	2.4	15	30.3
1979	12	16	1	7.5	1	4.9	13	18.5
1979	12	17	1	5.5	1	3.4	4	5.7
1979	12	18	1	5.3	1	2.4	10	14.5
1979	12	19	1	4.9	1	3.7	10	13.2
1979	12	20	3	4.8	2	2.7	4	9.3
1979	12	21	3	7.2	2	3.7	4	14.8
1979	12	22	6	11.8	2	10.9	1	23.9
1979	12	23	3	7.0	16	10.8	3	11.1
1979	12	24	3	7.4	5	10.8	7	19.1
1979	12	25	1	6.0	2	7.5	10	17.6
1979	12	26	1	6.8	1	2.0	2	10.5
1979	12	27	7	9.8	7	12.8	13	12.4
1979	12	28	3	10.0	15	16.7	13	13.3
1979	12	29	3	12.8	15	12.3	4	12.0
1979	12	30	15	10.5	10	0.0	2	13.2
1979	12	31	3	7.6	10	6.5	24	28.6
1980	1	1	1	6.9	1	4.2	15	16.4
1980	1	2	1	8.8	3	2.5	7	15.9
1980	1	3	1	6.3	1	13.2	4	21.4
1980	1	4	1	9.4	1	13.3	9	25.4
1980	1	5	2	10.3	5	9.1	7	26.9
1980	1	6	2	4.8	1	8.7	9	13.0
1980	1	7	2	2.5	1	7.5	6	18.6
1980	1	8	2	4.0	1	1.1	8	12.4
1980	1	9	1	5.5	1	3.0	11	14.7
1980	1	10	1	4.3	2	1.9	1	12.8
1980	1	11	1	2.4	1	5.8	6	9.8
1980	1	12	1	3.4	1	2.3	18	20.5
1980	1	13	1	4.6	1	4.4	20	20.3
1980	1	14	1	4.0	1	3.8	1	13.6
1980	1	15	3	6.2	2	4.1	1	12.2
1980	1	16	1	6.1	1	9.2	16	23.3
1980	1	17	1	6.1	5	6.0	18	17.5
1980	1	18	7	11.5	2	5.2	27	18.0
1980	1	19	7	9.7	1	4.9	19	20.4
1980	1	20	7	11.0	1	8.1	13	24.5
1980	1	21	2	13.6	1	5.6	2	5.4
1980	1	22	5	9.2	3	3.8	6	14.1
1980	1	23	5	10.0	3	1.6	2	21.0
1980	1	24	2	9.6	1	6.6	15	17.3
1980	1	25	2	11.4	3	12.9	3	13.8
1980	1	26	2	5.8	9	4.5	19	15.0
1980	1	27	2	3.8	9	4.8	5	19.8
1980	1	28	2	3.7	9	4.7	19	20.1
1980	1	29	2	7.6	9	8.0	5	18.0
1980	1	30	1	3.9	1	4.7	5	23.1
1980	1	31	1	7.8	3	6.1	0	.
1980	2	1	1	6.6	3	6.5	1	16.0
1980	2	2	5	9.3	3	2.4	1	7.3
1980	2	3	3	9.0	3	5.0	1	9.7
1980	2	4	1	9.0	1	6.1	12	14.1
1980	2	5	5	4.6	3	6.6	22	19.2
1980	2	6	5	7.7	3	4.4	7	30.9
1980	2	7	5	11.5	3	7.8	5	7.6
1980	2	8	11	13.9	19	9.7	23	26.4
1980	2	9	2	9.9	3	6.8	2	16.5
1980	2	10	2	10.3	3	9.0	2	14.2
1980	2	11	2	14.9	3	4.7	6	14.7
1980	2	12	2	9.9	1	5.5	4	12.0
1980	2	13	0	.	1	3.6	5	14.7
1980	2	14	8	14.6	1	2.8	5	16.6
1980	2	15	8	7.7	1	2.9	19	21.3
1980	2	16	5	8.6	3	1.5	19	9.4
1980	2	17	1	6.6	3	6.6	4	23.3
1980	2	18	1	4.3	1	2.1	4	14.8
1980	2	19	1	3.2	1	2.6	1	25.1
1980	2	20	1	3.6	1	4.3	5	14.5
1980	2	21	1	4.3	2	10.8	1	22.8
1980	2	22	1	2.5	1	3.6	3	17.7
1980	2	23	1	7.1	1	1.7	2	31.5
1980	2	24	5	5.8	1	7.2	15	15.7
1980	2	25	5	4.8	3	0.0	23	21.6
1980	2	26	5	7.8	3	7.0	2	8.8
1980	2	27	1	10.8	3	5.1	7	19.7
1980	2	28	8	7.8	3	6.2	7	17.3
1980	2	29	5	8.5	3	7.1	5	5.8
1980	3	1	1	11.5	3	5.7	11	24.7
1980	3	2	17	8.2	1	6.4	4	9.4
1980	3	3	1	7.8	1	2.8	5	26.1
1980	3	4	2	8.1	1	2.3	5	23.6
1980	3	5	2	3.9	1	2.1	8	22.0
1980	3	6	2	7.7	1	1.1	21	20.1
1980	3	7	2	6.4	1	2.2	1	27.4
1980	3	8	2	5.2	1	1.0	6	22.2
1980	3	9	2	6.5	1	3.1	2	6.4
1980	3	10	1	9.0	1	5.4	26	20.0
1980	3	11	1	3.8	1	3.6	1	18.8
1980	3	12	1	3.6	2	6.6	1	8.3
1980	3	13	1	3.7	1	6.4	18	29.4
1980	3	14	1	2.5	1	1.9	18	21.6
1980	3	15	1	5.6	2	2.6	1	5.5
1980	3	16	1	6.6	2	3.8	3	13.6
1980	3	17	1	6.7	1	6.8	6	18.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1980	3	18	2	10.9	1	2.3	1	19.8
1980	3	19	1	10.0	2	7.0	20	15.8
1980	3	20	99	.	99	.	6	10.4
1980	3	21	2	6.5	1	7.9	26	25.7
1980	3	22	11	12.7	1	4.6	5	15.9
1980	3	23	11	7.8	1	4.9	1	16.1
1980	3	24	1	9.4	5	9.7	7	27.9
1980	3	25	11	7.8	2	5.5	5	21.5
1980	3	26	11	9.0	2	5.4	1	13.1
1980	3	27	1	8.3	2	6.5	1	27.0
1980	3	28	7	9.6	6	6.1	16	20.1
1980	3	29	1	8.8	10	10.5	23	17.9
1980	3	30	99	.	99	.	0	.
1980	3	31	11	7.2	0	.	5	17.4
1980	4	1	99	.	99	.	5	15.9
1980	4	2	7	11.1	6	11.2	5	12.9
1980	4	3	1	14.1	10	16.3	16	22.9
1980	4	4	1	9.8	3	6.0	6	21.0
1980	4	5	1	5.8	1	5.7	18	21.1
1980	4	6	1	4.7	1	7.2	1	20.7
1980	4	7	1	5.3	12	11.9	17	18.7
1980	4	8	1	10.9	10	16.9	17	24.2
1980	4	9	3	6.9	17	5.7	7	24.9
1980	4	10	1	10.1	5	10.8	17	16.6
1980	4	11	5	8.0	7	10.9	3	7.7
1980	4	12	5	5.7	3	6.0	6	18.9
1980	4	13	5	13.7	19	5.8	13	22.0
1980	4	14	1	14.2	10	13.6	0	.
1980	4	15	5	8.7	3	5.6	7	12.4
1980	4	16	1	8.9	1	5.3	2	19.9
1980	4	17	3	6.4	10	7.9	10	29.2
1980	4	18	3	5.7	1	6.2	4	10.7
1980	4	19	3	4.0	1	3.1	4	27.2
1980	4	20	3	5.3	1	6.9	10	12.8
1980	4	21	16	9.6	2	9.9	4	22.5
1980	4	22	16	9.6	6	9.7	3	20.2
1980	4	23	3	12.6	0	.	5	13.4
1980	4	24	3	12.8	0	.	5	18.8
1980	4	25	14	16.0	20	13.1	5	12.9
1980	4	26	0	.	20	6.4	5	17.5
1980	4	27	16	10.0	20	0.0	18	23.6
1980	4	28	16	10.5	20	12.0	18	17.2
1980	4	29	16	13.6	20	14.3	1	23.1
1980	4	30	16	14.7	20	7.1	27	11.2
1980	5	1	16	11.2	0	.	27	19.4
1980	5	2	99	.	99	.	18	18.2
1980	5	3	3	13.2	0	.	0	.
1980	5	4	3	15.3	10	4.8	8	13.9
1980	5	5	15	11.6	1	9.6	3	19.5
1980	5	6	5	11.8	3	6.7	26	10.7
1980	5	7	5	9.3	3	2.5	5	15.0
1980	5	8	3	9.9	3	4.3	11	12.2
1980	5	9	12	7.5	1	5.0	1	18.4
1980	5	10	13	7.0	7	7.4	3	20.3
1980	5	11	13	11.6	7	8.5	19	8.2
1980	5	12	0	.	7	11.1	5	12.9
1980	5	13	9	12.9	3	12.2	7	28.8
1980	5	14	1	16.4	3	11.3	5	19.5
1980	5	15	7	13.7	12	10.7	5	18.9
1980	5	16	7	12.5	18	11.4	1	18.1
1980	5	17	1	10.5	15	17.7	99	.
1980	5	18	1	5.4	3	10.1	17	26.0
1980	5	19	16	8.1	10	11.4	10	13.3
1980	5	20	3	8.9	10	4.4	4	13.9
1980	5	21	99	.	99	.	4	7.0
1980	5	22	3	8.9	16	11.9	4	9.9
1980	5	23	4	14.8	0	.	1	20.6
1980	5	24	0	.	4	13.1	1	15.4
1980	5	25	0	.	4	15.6	1	13.8
1980	5	26	10	15.9	4	4.2	1	10.9
1980	5	27	10	7.5	4	4.1	1	19.0
1980	5	28	4	6.0	2	5.4	12	20.6
1980	5	29	4	4.3	2	2.1	22	17.6
1980	5	30	4	10.5	1	7.9	3	14.1
1980	5	31	4	8.4	2	6.7	5	17.0
1980	6	1	4	9.5	2	6.9	28	26.4
1980	6	2	4	8.8	12	4.0	0	.
1980	6	3	99	.	99	.	1	18.1
1980	6	4	4	7.2	2	5.5	1	6.5
1980	6	5	99	.	99	.	12	12.4
1980	6	6	4	11.7	2	3.1	3	7.8
1980	6	7	8	5.6	1	4.8	3	10.0
1980	6	8	8	4.4	3	9.4	8	18.1
1980	6	9	9	7.8	3	5.8	6	15.9
1980	6	10	9	6.1	3	12.4	23	33.8
1980	6	11	17	9.2	5	6.0	1	20.5
1980	6	12	4	7.7	2	2.9	12	18.7
1980	6	13	1	9.1	1	7.3	25	25.5
1980	6	14	1	11.4	1	3.6	5	17.1
1980	6	15	1	10.6	7	10.5	16	17.4
1980	6	16	1	10.3	3	11.6	13	16.2
1980	6	17	1	11.4	1	4.0	25	16.3
1980	6	18	1	9.7	1	2.9	5	19.3
1980	6	19	1	9.1	1	8.0	16	13.4
1980	6	20	1	6.6	1	2.3	4	15.2
1980	6	21	1	5.1	1	1.5	4	11.4
1980	6	22	1	6.1	1	2.9	4	22.6
1980	6	23	3	6.4	5	9.1	4	17.1
1980	6	24	3	10.7	2	2.7	20	22.8
1980	6	25	8	15.7	1	4.4	29	14.0
1980	6	26	1	9.0	12	7.6	5	16.9
1980	6	27	1	6.1	2	3.5	9	14.6
1980	6	28	1	8.1	1	6.6	20	17.1
1980	6	29	1	6.8	1	7.4	6	9.0
1980	6	30	1	6.4	1	5.6	2	24.5

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1980	7	1	1	6.0	1	2.1	22	12.3
1980	7	2	1	6.2	1	3.2	4	19.9
1980	7	3	1	6.3	1	4.7	4	23.0
1980	7	4	1	6.6	1	7.0	28	19.6
1980	7	5	1	7.4	5	7.0	0	.
1980	7	6	4	8.1	2	4.4	12	16.5
1980	7	7	1	8.8	1	3.0	8	14.5
1980	7	8	1	7.7	1	6.1	0	.
1980	7	9	1	6.3	1	2.7	2	12.7
1980	7	10	1	6.5	1	5.2	2	15.9
1980	7	11	17	9.4	2	6.3	20	15.0
1980	7	12	4	6.1	2	7.7	8	27.4
1980	7	13	4	5.8	2	2.6	12	16.3
1980	7	14	1	7.8	2	2.5	2	23.4
1980	7	15	1	5.4	2	4.5	15	26.6
1980	7	16	1	4.6	1	5.9	2	17.0
1980	7	17	99	.	99	.	12	25.8
1980	7	18	1	6.3	1	5.9	22	12.5
1980	7	19	1	5.5	2	5.9	21	15.4
1980	7	20	1	3.9	1	3.5	3	0.0
1980	7	21	1	6.8	1	4.2	19	24.1
1980	7	22	1	5.8	3	4.7	13	25.2
1980	7	23	1	2.9	1	6.2	4	10.0
1980	7	24	1	3.4	1	4.1	2	14.8
1980	7	25	1	3.1	1	1.4	3	27.7
1980	7	26	1	3.4	1	1.5	13	22.5
1980	7	27	1	3.4	1	1.9	2	10.3
1980	7	28	1	3.7	1	1.3	2	14.2
1980	7	29	1	3.8	1	5.1	4	19.6
1980	7	30	1	2.8	1	2.5	22	11.6
1980	7	31	1	4.0	1	1.0	2	13.6
1980	8	1	1	6.6	1	0.9	2	18.0
1980	8	2	1	8.3	1	2.3	3	27.7
1980	8	3	2	13.1	5	6.7	1	25.4
1980	8	4	2	14.9	9	10.7	20	5.7
1980	8	5	99	.	99	.	2	18.0
1980	8	6	12	13.3	2	4.8	21	16.7
1980	8	7	99	.	99	.	9	21.8
1980	8	8	1	6.8	1	3.0	3	16.3
1980	8	9	1	5.4	1	4.8	21	28.2
1980	8	10	99	.	99	.	3	16.2
1980	8	11	99	.	99	.	6	20.6
1980	8	12	1	4.6	1	1.4	0	.
1980	8	13	1	4.4	1	1.5	3	15.0
1980	8	14	1	6.4	1	2.1	5	8.5
1980	8	15	1	8.7	1	11.5	1	9.4
1980	8	16	4	8.2	2	7.7	1	7.9
1980	8	17	1	10.6	2	6.8	28	21.9
1980	8	18	4	7.0	2	3.3	4	11.2
1980	8	19	4	7.1	2	2.6	12	16.3
1980	8	20	1	8.1	2	6.9	20	19.4
1980	8	21	1	8.5	1	6.3	2	13.0
1980	8	22	1	12.0	1	3.0	8	14.8
1980	8	23	4	10.6	2	5.3	4	17.2
1980	8	24	1	8.1	2	4.2	4	13.8
1980	8	25	1	6.0	2	2.4	29	12.0
1980	8	26	1	4.8	2	7.7	24	26.1
1980	8	27	1	5.5	2	5.6	18	18.5
1980	8	28	4	6.8	2	3.0	1	18.7
1980	8	29	1	6.7	2	0.7	12	15.4
1980	8	30	1	8.3	1	5.0	8	16.1
1980	8	31	1	9.8	2	4.3	22	25.1
1980	9	1	1	8.2	2	9.5	6	23.3
1980	9	2	99	.	99	.	10	10.4
1980	9	3	1	6.1	2	0.8	12	15.1
1980	9	4	1	5.1	1	2.7	2	10.1
1980	9	5	1	4.9	1	0.8	2	10.8
1980	9	6	1	5.6	1	3.1	4	15.0
1980	9	7	1	8.2	12	8.7	10	17.8
1980	9	8	7	10.5	2	4.4	8	20.1
1980	9	9	1	11.9	1	6.7	19	18.4
1980	9	10	1	5.7	1	7.2	4	13.5
1980	9	11	1	2.7	12	4.2	14	18.1
1980	9	12	1	6.4	1	9.0	9	8.0
1980	9	13	4	8.0	12	9.1	26	22.2
1980	9	14	17	8.8	1	4.7	5	17.0
1980	9	15	17	13.6	1	6.6	20	22.5
1980	9	16	99	.	99	.	6	22.8
1980	9	17	2	6.9	1	1.7	14	29.0
1980	9	18	1	6.2	1	0.0	7	27.0
1980	9	19	1	3.3	2	4.2	1	6.3
1980	9	20	1	5.4	2	7.2	28	25.8
1980	9	21	4	5.7	2	2.1	2	30.2
1980	9	22	1	7.4	1	2.7	6	9.9
1980	9	23	99	.	99	.	4	18.2
1980	9	24	2	6.7	1	1.5	29	19.8
1980	9	25	1	8.4	1	5.2	26	25.4
1980	9	26	1	5.1	1	1.7	4	11.1
1980	9	27	99	.	99	.	11	25.9
1980	9	28	1	5.6	1	3.0	1	13.6
1980	9	29	1	7.1	1	3.2	25	20.0
1980	9	30	1	3.6	1	3.6	10	9.0
1980	10	1	1	8.3	1	1.3	6	15.5
1980	10	2	5	5.3	3	2.5	6	13.7
1980	10	3	5	3.9	3	1.9	2	10.8
1980	10	4	5	7.7	3	1.3	28	20.2
1980	10	5	5	11.1	3	4.8	2	17.4
1980	10	6	1	9.5	3	5.3	2	17.1
1980	10	7	1	8.7	1	5.0	2	2.7
1980	10	8	1	5.3	1	5.8	6	24.1
1980	10	9	1	5.0	1	7.1	20	11.0
1980	10	10	5	12.2	1	7.1	6	13.5
1980	10	11	15	9.4	3	3.0	26	13.7
1980	10	12	3	6.7	1	7.6	1	22.3
1980	10	13	3	9.9	12	9.0	1	8.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1980	10	14	4	10.4	2	7.1	1	13.8
1980	10	15	18	14.2	12	7.4	5	12.2
1980	10	16	7	13.6	6	17.1	9	15.5
1980	10	17	99	.	99	.	15	15.0
1980	10	18	5	7.0	3	8.3	6	11.7
1980	10	19	5	5.3	3	2.9	2	8.4
1980	10	20	1	7.5	1	5.8	2	10.1
1980	10	21	1	5.9	1	2.7	15	26.0
1980	10	22	1	10.9	1	8.8	9	18.4
1980	10	23	0	.	7	11.6	9	12.9
1980	10	24	5	14.8	7	12.3	6	9.3
1980	10	25	12	9.4	3	2.7	26	6.9
1980	10	26	12	8.9	1	9.5	11	17.8
1980	10	27	5	13.7	7	17.2	5	22.1
1980	10	28	5	5.9	3	8.2	6	11.5
1980	10	29	1	9.4	3	4.7	10	17.4
1980	10	30	1	6.4	1	2.2	2	4.7
1980	10	31	1	6.5	1	2.9	2	20.1
1980	11	1	1	5.0	1	3.4	18	15.1
1980	11	2	1	2.9	1	3.5	10	15.0
1980	11	3	1	7.1	1	3.5	2	11.5
1980	11	4	5	6.8	3	3.5	6	13.3
1980	11	5	1	8.1	3	4.1	2	15.5
1980	11	6	1	5.3	1	2.6	15	16.5
1980	11	7	1	5.0	1	1.6	7	31.1
1980	11	8	1	2.9	1	4.1	28	13.7
1980	11	9	1	4.5	1	5.9	15	18.6
1980	11	10	1	5.2	5	7.4	1	12.7
1980	11	11	1	6.3	2	7.3	1	14.1
1980	11	12	1	6.4	2	2.3	12	20.2
1980	11	13	99	.	99	.	3	14.4
1980	11	14	1	6.1	7	8.5	13	20.0
1980	11	15	7	7.0	7	15.1	27	35.3
1980	11	16	1	10.4	7	9.1	2	23.0
1980	11	17	1	6.8	3	11.3	10	14.2
1980	11	18	1	4.8	1	4.7	2	5.6
1980	11	19	1	4.1	1	1.6	2	7.2
1980	11	20	1	4.8	1	4.0	2	11.9
1980	11	21	1	2.4	1	4.9	99	.
1980	11	22	1	3.8	2	3.6	2	11.9
1980	11	23	1	3.8	1	3.7	6	18.9
1980	11	24	1	8.5	1	7.1	8	33.8
1980	11	25	1	6.0	1	5.9	10	15.2
1980	11	26	1	9.5	1	4.3	2	8.5
1980	11	27	5	12.3	3	11.1	6	29.1
1980	11	28	5	8.0	1	10.8	2	16.3
1980	11	29	1	6.0	1	7.3	6	18.8
1980	11	30	1	4.3	1	2.5	29	29.1
1980	12	1	1	4.4	1	4.8	3	17.9
1980	12	2	1	5.4	1	5.2	11	11.6
1980	12	3	1	6.9	1	3.8	1	12.3
1980	12	4	1	11.7	2	3.3	1	17.6
1980	12	5	4	9.0	2	4.3	5	23.6
1980	12	6	4	6.5	2	3.2	5	12.4
1980	12	7	4	10.6	2	3.4	5	13.8
1980	12	8	1	10.8	1	5.9	6	22.6
1980	12	9	2	10.7	1	6.6	22	20.2
1980	12	10	99	.	99	.	24	18.2
1980	12	11	1	4.8	1	5.3	28	15.5
1980	12	12	1	4.7	1	0.7	2	13.2
1980	12	13	1	7.5	1	6.3	13	18.4
1980	12	14	5	8.3	1	7.2	22	33.8
1980	12	15	5	6.4	3	2.8	20	20.7
1980	12	16	1	11.9	3	1.3	28	22.7
1980	12	17	1	7.3	1	3.0	2	9.1
1980	12	18	2	9.5	1	1.8	8	15.9
1980	12	19	2	8.3	1	5.5	19	10.2
1980	12	20	1	6.7	1	3.9	11	11.6
1980	12	21	1	2.7	1	1.8	99	.
1980	12	22	1	1.6	1	0.9	14	21.3
1980	12	23	1	7.5	1	2.0	3	16.1
1980	12	24	5	5.5	3	3.9	19	18.3
1980	12	25	1	4.7	1	5.1	4	6.9
1980	12	26	1	4.7	3	6.2	7	17.8
1980	12	27	1	2.8	1	4.7	4	8.3
1980	12	28	1	1.9	1	1.9	25	18.9
1980	12	29	1	4.6	1	7.8	23	22.6
1980	12	30	99	.	99	.	20	16.0
1980	12	31	99	.	99	.	6	12.2
1981	1	1	5	9.9	3	5.2	26	19.1
1981	1	2	5	9.0	3	8.6	14	29.1
1981	1	3	5	6.9	3	5.3	16	15.9
1981	1	4	5	7.5	3	4.0	1	8.0
1981	1	5	5	10.7	1	5.5	12	16.7
1981	1	6	5	5.8	3	6.8	3	16.0
1981	1	7	5	5.7	3	6.5	28	34.9
1981	1	8	5	7.8	3	7.0	21	27.6
1981	1	9	99	.	99	.	16	21.6
1981	1	10	5	7.1	3	5.7	21	27.8
1981	1	11	5	10.2	3	3.0	13	14.4
1981	1	12	5	11.4	3	1.5	2	4.3
1981	1	13	5	6.9	3	1.6	6	24.9
1981	1	14	5	7.1	3	1.0	6	17.9
1981	1	15	5	10.9	3	3.0	16	19.8
1981	1	16	0	.	3	10.3	13	22.2
1981	1	17	3	9.0	0	.	4	25.4
1981	1	18	3	9.7	2	8.9	2	13.2
1981	1	19	3	12.2	7	13.5	15	19.1
1981	1	20	3	17.5	19	7.8	22	18.3
1981	1	21	99	.	99	.	2	14.3
1981	1	22	15	8.4	3	7.8	6	19.2
1981	1	23	15	9.7	3	9.0	2	19.2
1981	1	24	1	4.3	2	7.9	28	18.3
1981	1	25	1	13.7	6	10.4	15	23.0
1981	1	26	5	9.5	1	7.0	26	18.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1981	1	27	99	.	99	.	6	24.1
1981	1	28	9	6.4	3	3.3	26	20.4
1981	1	29	9	9.5	0	.	5	19.9
1981	1	30	1	11.7	5	12.3	1	24.9
1981	1	31	0	.	6	3.9	12	16.1
1981	2	1	99	.	99	.	3	10.7
1981	2	2	99	.	99	.	6	9.1
1981	2	3	99	.	99	.	6	24.0
1981	2	4	99	.	99	.	13	11.5
1981	2	5	99	.	99	.	2	8.8
1981	2	6	99	.	99	.	2	25.6
1981	2	7	99	.	99	.	3	8.7
1981	2	8	2	4.5	3	6.7	0	.
1981	2	9	2	3.3	1	1.2	19	20.1
1981	2	10	2	4.4	1	5.6	16	19.1
1981	2	11	2	6.6	3	5.8	0	.
1981	2	12	1	4.8	1	1.9	21	21.4
1981	2	13	1	4.4	1	2.0	4	10.5
1981	2	14	1	2.4	1	3.2	10	18.4
1981	2	15	1	3.2	2	5.6	2	9.3
1981	2	16	1	2.5	1	1.3	2	14.2
1981	2	17	1	3.5	2	5.5	4	11.7
1981	2	18	1	4.5	1	4.5	10	20.1
1981	2	19	1	4.5	1	5.8	2	18.0
1981	2	20	1	5.7	2	9.2	12	22.9
1981	2	21	1	9.3	8	11.8	22	22.5
1981	2	22	1	10.9	10	11.8	6	16.0
1981	2	23	9	8.7	3	6.6	6	11.7
1981	2	24	9	10.0	1	5.9	26	11.4
1981	2	25	17	11.0	12	6.1	5	8.8
1981	2	26	10	11.8	2	5.4	1	8.7
1981	2	27	1	13.5	2	9.3	9	7.3
1981	2	28	8	10.5	1	2.2	6	11.2
1981	3	1	2	13.6	1	4.1	19	25.6
1981	3	2	1	10.1	3	5.9	23	23.2
1981	3	3	1	5.7	1	3.2	12	13.0
1981	3	4	1	12.5	1	13.6	5	17.8
1981	3	5	0	.	3	7.8	7	14.8
1981	3	6	0	.	0	.	5	8.3
1981	3	7	3	6.6	0	.	5	10.5
1981	3	8	3	12.8	1	7.8	1	34.4
1981	3	9	5	10.2	3	1.9	3	17.5
1981	3	10	5	10.4	3	5.8	19	24.6
1981	3	11	5	13.0	3	7.7	2	19.4
1981	3	12	8	10.2	1	8.6	6	13.5
1981	3	13	5	8.6	3	5.7	19	22.3
1981	3	14	1	7.7	1	4.0	2	16.1
1981	3	15	5	9.6	3	4.7	6	17.1
1981	3	16	1	10.0	3	4.4	10	10.5
1981	3	17	5	8.3	3	15.6	17	22.5
1981	3	18	5	12.7	3	7.6	3	11.3
1981	3	19	0	.	17	12.6	6	14.5
1981	3	20	99	.	99	.	5	20.2
1981	3	21	0	.	0	.	5	16.8
1981	3	22	3	8.8	1	2.9	11	21.0
1981	3	23	1	6.7	1	3.4	0	.
1981	3	24	1	7.3	1	5.4	1	20.0
1981	3	25	1	5.6	1	3.1	14	32.8
1981	3	26	17	8.5	5	7.8	5	21.3
1981	3	27	7	8.9	2	14.6	27	21.7
1981	3	28	7	4.1	6	3.1	12	11.8
1981	3	29	1	6.9	15	11.7	28	23.1
1981	3	30	1	6.0	5	9.0	17	17.8
1981	3	31	1	4.3	8	7.9	28	20.5
1981	4	1	99	.	99	.	6	23.8
1981	4	2	4	7.5	2	4.3	20	19.0
1981	4	3	11	8.0	2	6.4	5	21.6
1981	4	4	11	8.1	1	7.6	3	26.4
1981	4	5	1	5.9	3	5.4	6	26.1
1981	4	6	1	6.9	2	8.4	10	17.1
1981	4	7	1	6.7	2	6.4	2	16.3
1981	4	8	1	4.6	1	7.0	22	11.0
1981	4	9	1	3.8	1	3.2	4	11.0
1981	4	10	1	5.1	2	4.2	0	.
1981	4	11	1	6.2	2	4.1	5	14.4
1981	4	12	1	4.1	2	3.0	1	8.5
1981	4	13	1	3.1	2	3.5	3	8.2
1981	4	14	1	3.7	1	1.3	19	21.6
1981	4	15	1	5.2	1	4.3	4	12.0
1981	4	16	1	3.0	1	7.9	4	14.4
1981	4	17	1	2.8	1	0.5	3	20.5
1981	4	18	1	7.2	1	2.7	1	25.3
1981	4	19	1	8.8	1	6.6	5	6.8
1981	4	20	1	7.9	12	6.2	1	12.0
1981	4	21	1	6.9	2	5.2	1	23.0
1981	4	22	99	.	99	.	9	26.9
1981	4	23	1	10.2	3	3.8	6	20.6
1981	4	24	3	9.3	3	7.8	18	12.9
1981	4	25	1	6.1	5	3.4	1	16.1
1981	4	26	1	7.2	2	6.8	5	22.3
1981	4	27	1	5.9	2	5.5	9	11.0
1981	4	28	1	6.9	1	0.8	0	.
1981	4	29	1	9.5	1	5.1	15	22.4
1981	4	30	5	10.7	1	7.1	3	16.6
1981	5	1	1	6.8	3	3.5	18	13.7
1981	5	2	1	3.1	1	7.0	4	16.8
1981	5	3	1	6.5	2	2.4	29	20.8
1981	5	4	1	10.1	2	6.7	3	18.1
1981	5	5	17	11.1	12	4.9	5	18.8
1981	5	6	17	12.7	12	4.4	5	20.8
1981	5	7	17	15.5	12	9.3	1	19.4
1981	5	8	1	11.0	6	9.5	14	18.7
1981	5	9	1	8.1	1	8.1	16	17.5
1981	5	10	1	6.8	1	1.6	0	.
1981	5	11	1	11.5	2	14.7	5	18.9

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1981	5	12	1	12.1	0	.	27	13.8
1981	5	13	1	8.4	3	16.2	16	23.1
1981	5	14	1	7.8	5	13.1	0	.
1981	5	15	1	16.6	0	.	5	18.2
1981	5	16	7	17.1	0	.	5	11.9
1981	5	17	3	8.5	0	.	5	11.7
1981	5	18	3	11.3	0	.	23	28.9
1981	5	19	0	.	17	15.1	18	24.1
1981	5	20	10	9.4	2	13.6	4	16.7
1981	5	21	3	14.1	4	8.1	4	14.4
1981	5	22	3	15.6	8	11.2	9	19.7
1981	5	23	3	14.0	14	6.9	3	19.2
1981	5	24	3	9.5	0	.	17	20.2
1981	5	25	3	6.0	3	10.9	26	18.0
1981	5	26	3	10.3	5	9.0	5	26.7
1981	5	27	0	.	1	5.5	12	22.6
1981	5	28	0	.	1	2.9	20	18.0
1981	5	29	0	.	1	4.5	3	17.9
1981	5	30	1	9.5	1	4.9	0	.
1981	5	31	1	8.5	1	5.1	1	14.9
1981	6	1	1	8.3	1	6.5	14	18.9
1981	6	2	3	6.0	1	8.1	0	.
1981	6	3	3	7.0	5	4.7	23	30.3
1981	6	4	1	10.5	2	5.5	2	17.8
1981	6	5	1	9.5	1	2.7	2	7.4
1981	6	6	3	7.9	1	2.8	18	16.0
1981	6	7	3	7.4	1	6.1	20	9.1
1981	6	8	12	8.7	1	2.9	15	24.5
1981	6	9	12	7.3	1	2.5	22	20.4
1981	6	10	99	.	99	.	6	17.6
1981	6	11	1	11.5	1	2.6	8	21.4
1981	6	12	11	12.9	18	13.9	5	25.1
1981	6	13	9	13.8	9	6.6	9	9.8
1981	6	14	1	9.9	8	10.8	9	15.6
1981	6	15	1	7.3	8	9.3	6	19.5
1981	6	16	1	2.5	1	4.8	6	20.4
1981	6	17	99	.	99	.	20	18.2
1981	6	18	1	3.6	1	2.3	2	15.8
1981	6	19	1	2.6	1	1.3	4	13.0
1981	6	20	1	2.5	1	2.2	28	28.1
1981	6	21	1	4.0	1	5.1	9	16.2
1981	6	22	1	4.3	1	6.3	6	21.0
1981	6	23	1	3.7	1	6.9	1	13.3
1981	6	24	1	3.8	1	2.7	22	22.4
1981	6	25	1	4.6	1	3.6	6	20.1
1981	6	26	1	2.5	1	4.8	4	20.4
1981	6	27	1	4.4	2	7.9	12	12.2
1981	6	28	1	4.6	2	2.9	29	21.6
1981	6	29	1	3.4	1	2.8	22	29.1
1981	6	30	1	4.4	1	5.8	4	17.7
1981	7	1	1	8.7	2	8.5	1	17.4
1981	7	2	16	10.9	2	7.4	12	18.5
1981	7	3	1	7.1	1	2.9	22	18.0
1981	7	4	1	6.3	10	9.7	13	20.9
1981	7	5	1	5.5	10	5.3	0	.
1981	7	6	1	8.2	2	12.8	10	15.3
1981	7	7	1	11.7	2	7.8	4	5.6
1981	7	8	6	12.9	2	6.5	2	12.5
1981	7	9	1	5.1	1	7.5	13	15.2
1981	7	10	1	10.2	2	8.7	21	16.8
1981	7	11	4	9.4	2	6.9	12	24.0
1981	7	12	1	10.3	2	8.5	8	21.1
1981	7	13	1	9.5	12	3.3	7	29.6
1981	7	14	1	8.4	2	4.9	9	9.5
1981	7	15	1	10.1	2	7.5	9	15.5
1981	7	16	17	8.3	1	3.7	29	25.3
1981	7	17	17	7.2	1	1.5	8	24.7
1981	7	18	1	7.6	1	4.4	8	23.1
1981	7	19	1	5.2	1	6.6	2	17.6
1981	7	20	1	4.8	1	5.3	15	27.3
1981	7	21	1	5.8	1	7.7	16	25.6
1981	7	22	1	5.8	1	8.7	12	14.5
1981	7	23	1	4.3	1	6.6	12	16.9
1981	7	24	1	6.4	1	1.9	29	11.8
1981	7	25	99	.	99	.	3	19.9
1981	7	26	2	9.3	1	4.6	16	19.9
1981	7	27	1	5.5	1	5.4	13	23.8
1981	7	28	1	4.7	1	2.8	13	15.9
1981	7	29	1	5.3	1	5.0	4	5.5
1981	7	30	1	4.9	2	5.8	14	17.0
1981	7	31	1	4.1	2	4.7	29	15.9
1981	8	1	1	3.9	1	5.4	21	15.8
1981	8	2	1	2.1	1	2.7	12	23.5
1981	8	3	1	3.7	1	3.3	12	22.9
1981	8	4	1	5.8	1	7.3	1	22.6
1981	8	5	1	8.1	1	4.4	9	17.9
1981	8	6	1	10.8	1	6.4	3	12.7
1981	8	7	5	5.1	3	1.8	6	7.7
1981	8	8	5	8.1	3	1.9	6	17.1
1981	8	9	5	10.2	3	4.6	3	13.4
1981	8	10	17	17.9	3	5.8	6	17.5
1981	8	11	2	13.4	3	5.4	2	7.4
1981	8	12	1	10.0	1	10.3	14	28.7
1981	8	13	1	6.0	6	8.0	0	.
1981	8	14	1	6.6	1	5.9	24	12.8
1981	8	15	1	6.3	1	4.9	7	11.1
1981	8	16	1	6.9	3	5.3	16	25.2
1981	8	17	1	7.8	1	7.5	4	19.0
1981	8	18	1	9.2	1	4.3	1	20.4
1981	8	19	3	9.4	1	6.8	4	13.9
1981	8	20	3	6.8	5	3.4	1	17.2
1981	8	21	3	7.3	5	4.8	12	18.6
1981	8	22	3	6.3	2	8.5	12	16.2
1981	8	23	3	5.2	0	.	29	24.4
1981	8	24	3	8.4	0	.	1	21.0

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1981	8	25	3	11.1	0	.	1	25.2
1981	8	26	3	10.7	3	6.8	5	17.4
1981	8	27	3	13.1	0	.	16	20.9
1981	8	28	17	15.8	0	.	23	27.5
1981	8	29	1	5.3	5	8.8	4	13.5
1981	8	30	1	4.4	2	6.8	1	21.5
1981	8	31	1	4.0	2	6.2	22	16.7
1981	9	1	1	4.2	1	2.9	18	7.6
1981	9	2	1	7.1	2	3.2	12	24.7
1981	9	3	1	4.2	1	7.0	8	12.5
1981	9	4	1	4.2	2	7.1	1	17.9
1981	9	5	1	6.6	2	3.0	1	9.6
1981	9	6	7	5.6	2	6.2	12	10.9
1981	9	7	1	11.4	7	8.3	6	10.2
1981	9	8	1	13.0	3	7.6	6	18.6
1981	9	9	1	5.8	3	10.5	2	3.5
1981	9	10	1	5.0	1	6.6	2	11.8
1981	9	11	1	5.1	1	4.6	2	14.9
1981	9	12	1	3.7	1	6.3	2	10.7
1981	9	13	1	3.3	1	5.0	8	24.1
1981	9	14	5	14.0	1	2.3	3	22.3
1981	9	15	5	9.5	3	5.3	3	19.1
1981	9	16	5	12.5	3	5.9	7	22.9
1981	9	17	3	17.2	19	8.4	13	15.0
1981	9	18	3	11.2	3	8.9	4	13.8
1981	9	19	3	9.2	3	10.4	18	12.3
1981	9	20	3	8.9	5	7.3	17	30.9
1981	9	21	3	8.4	5	5.7	7	28.7
1981	9	22	3	8.8	5	10.2	1	7.1
1981	9	23	1	4.9	2	1.4	12	4.3
1981	9	24	1	3.8	2	3.8	21	16.5
1981	9	25	1	5.2	2	1.9	1	10.3
1981	9	26	1	6.7	2	7.3	20	17.4
1981	9	27	1	7.1	1	4.3	6	21.3
1981	9	28	1	5.5	1	4.4	1	13.9
1981	9	29	1	6.4	1	6.7	1	16.1
1981	9	30	1	9.0	2	4.5	9	11.8
1981	10	1	99	.	99	.	7	27.1
1981	10	2	1	9.2	5	2.5	10	21.3
1981	10	3	6	8.1	2	6.1	12	9.3
1981	10	4	99	.	99	.	9	17.8
1981	10	5	99	.	99	.	3	14.3
1981	10	6	99	.	99	.	6	25.9
1981	10	7	99	.	99	.	1	21.0
1981	10	8	99	.	99	.	1	8.1
1981	10	9	99	.	99	.	1	20.0
1981	10	10	99	.	99	.	10	20.8
1981	10	11	4	8.5	2	4.6	1	13.0
1981	10	12	4	5.1	4	2.8	12	14.6
1981	10	13	4	6.6	2	6.1	12	20.9
1981	10	14	4	9.2	6	5.0	22	15.8
1981	10	15	7	10.6	7	7.2	13	25.0
1981	10	16	7	8.2	6	10.5	4	18.8
1981	10	17	7	9.8	7	7.3	2	18.8
1981	10	18	5	8.0	3	1.7	6	7.0
1981	10	19	1	9.2	1	5.8	2	4.6
1981	10	20	2	6.3	1	0.3	3	10.7
1981	10	21	2	6.8	1	2.1	19	22.6
1981	10	22	2	5.3	1	5.7	8	20.3
1981	10	23	2	4.8	3	1.5	13	20.3
1981	10	24	2	4.3	1	4.8	12	17.9
1981	10	25	2	7.0	7	6.0	24	33.0
1981	10	26	1	1.5	1	3.3	4	10.9
1981	10	27	3	5.3	1	3.2	7	21.8
1981	10	28	3	5.6	2	3.1	1	9.1
1981	10	29	6	6.3	2	6.9	1	6.4
1981	10	30	3	13.0	4	7.4	20	12.5
1981	10	31	1	8.3	6	6.1	2	9.4
1981	11	1	1	7.2	10	4.2	2	16.6
1981	11	2	1	9.5	10	8.3	23	21.2
1981	11	3	1	8.8	10	7.7	4	17.3
1981	11	4	1	4.9	10	7.7	20	18.0
1981	11	5	99	.	99	.	6	11.0
1981	11	6	1	6.7	3	8.4	99	.
1981	11	7	1	4.1	1	6.3	2	10.7
1981	11	8	1	5.7	1	4.6	3	19.1
1981	11	9	1	10.0	1	7.0	4	12.2
1981	11	10	1	11.6	1	6.4	2	14.3
1981	11	11	3	7.4	1	7.6	10	9.3
1981	11	12	3	3.2	1	7.9	4	4.5
1981	11	13	3	3.2	2	6.0	4	10.3
1981	11	14	99	.	99	.	4	20.1
1981	11	15	3	4.7	2	6.4	20	17.9
1981	11	16	3	6.0	1	7.3	99	.
1981	11	17	3	4.8	1	5.3	26	21.1
1981	11	18	1	7.1	1	6.5	9	16.2
1981	11	19	3	9.5	3	10.8	16	21.7
1981	11	20	3	9.5	3	5.5	7	17.0
1981	11	21	3	4.1	3	9.0	10	12.9
1981	11	22	3	4.7	5	5.6	4	16.2
1981	11	23	1	6.2	1	11.6	20	27.4
1981	11	24	99	.	99	.	4	18.3
1981	11	25	1	9.3	2	5.4	12	20.2
1981	11	26	2	8.2	8	13.3	3	24.1
1981	11	27	13	8.8	1	5.2	19	16.6
1981	11	28	4	13.9	1	4.0	13	21.0
1981	11	29	1	6.5	1	5.7	4	10.2
1981	11	30	1	7.1	2	6.6	12	16.6
1981	12	1	1	9.7	10	7.0	6	23.9
1981	12	2	1	6.9	3	8.8	10	22.0
1981	12	3	1	6.4	1	8.1	20	18.8
1981	12	4	1	6.8	1	6.4	2	17.3
1981	12	5	3	6.9	1	3.4	4	13.7
1981	12	6	3	7.0	1	4.7	10	14.2
1981	12	7	1	8.3	1	1.8	15	24.1

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1981	12	8	1	7.8	1	6.4	26	14.8
1981	12	9	15	4.2	1	7.1	11	17.1
1981	12	10	3	3.9	5	2.1	1	11.2
1981	12	11	1	6.9	2	9.2	12	19.2
1981	12	12	1	8.2	2	7.6	8	22.3
1981	12	13	1	8.8	1	3.1	8	28.0
1981	12	14	1	9.1	1	2.6	11	19.5
1981	12	15	12	8.3	1	6.3	11	24.6
1981	12	16	5	5.6	1	11.1	5	8.8
1981	12	17	5	6.0	3	5.1	23	31.5
1981	12	18	5	10.3	3	4.6	7	27.5
1981	12	19	3	5.4	3	6.5	4	11.6
1981	12	20	1	5.6	5	10.2	4	7.0
1981	12	21	1	7.8	1	5.2	2	10.0
1981	12	22	2	6.9	1	7.7	3	20.9
1981	12	23	2	7.0	7	7.1	2	15.8
1981	12	24	2	7.5	1	3.3	2	6.9
1981	12	25	2	5.9	1	1.3	4	24.5
1981	12	26	2	7.0	1	4.4	28	23.3
1981	12	27	2	6.5	1	7.6	3	20.2
1981	12	28	99	.	99	.	26	18.3
1981	12	29	1	6.3	1	1.3	8	27.2
1981	12	30	1	5.3	1	3.0	1	20.3
1981	12	31	1	5.0	1	5.9	3	16.5
1982	1	1	1	5.4	1	3.0	5	18.8
1982	1	2	4	5.7	2	2.5	5	19.1
1982	1	3	1	5.9	2	6.6	11	22.3
1982	1	4	1	6.7	5	13.2	17	20.9
1982	1	5	1	7.7	2	7.9	27	31.1
1982	1	6	2	6.5	1	4.8	19	18.3
1982	1	7	2	8.3	1	4.5	2	21.0
1982	1	8	2	10.7	1	2.9	15	19.2
1982	1	9	5	6.9	3	3.2	3	20.9
1982	1	10	5	9.6	3	5.5	19	10.7
1982	1	11	99	.	99	.	26	11.9
1982	1	12	2	4.9	1	4.4	5	11.9
1982	1	13	99	.	99	.	0	.
1982	1	14	2	7.6	3	5.4	10	18.4
1982	1	15	2	5.5	1	3.0	3	13.8
1982	1	16	5	7.1	3	6.1	19	22.4
1982	1	17	99	.	99	.	4	15.3
1982	1	18	99	.	99	.	1	10.2
1982	1	19	2	10.1	1	2.7	5	12.6
1982	1	20	13	14.2	1	6.9	5	8.5
1982	1	21	13	13.7	1	6.8	5	7.8
1982	1	22	11	6.9	2	9.4	5	7.9
1982	1	23	5	8.9	3	10.9	26	10.4
1982	1	24	1	7.3	1	9.7	18	18.9
1982	1	25	1	5.8	3	5.2	7	24.0
1982	1	26	1	3.4	1	4.7	4	18.1
1982	1	27	1	3.2	2	6.2	2	9.7
1982	1	28	1	7.1	1	1.0	8	24.6
1982	1	29	1	8.3	1	3.4	5	27.2
1982	1	30	99	.	99	.	16	17.8
1982	1	31	2	7.1	1	2.6	1	31.1
1982	2	1	2	6.0	1	5.4	99	.
1982	2	2	2	7.1	1	6.2	5	16.7
1982	2	3	2	7.0	7	4.7	19	20.3
1982	2	4	2	7.6	7	2.8	19	20.1
1982	2	5	2	4.7	7	0.0	13	18.3
1982	2	6	2	4.3	3	4.8	2	4.5
1982	2	7	2	4.4	1	1.5	2	16.7
1982	2	8	2	4.7	1	4.4	8	15.2
1982	2	9	2	0.0	1	5.5	13	21.8
1982	2	10	2	5.2	1	4.1	2	17.0
1982	2	11	1	2.9	1	0.9	0	.
1982	2	12	1	1.8	1	0.7	24	22.1
1982	2	13	1	2.7	1	1.8	24	16.0
1982	2	14	1	0.8	1	1.2	28	17.3
1982	2	15	1	2.1	1	3.6	24	0.0
1982	2	16	3	4.9	1	5.7	1	14.4
1982	2	17	1	5.1	1	5.1	28	11.6
1982	2	18	1	6.7	1	2.4	2	9.6
1982	2	19	1	4.1	1	3.5	10	4.5
1982	2	20	1	4.8	1	3.5	6	16.3
1982	2	21	1	4.2	5	6.1	10	11.5
1982	2	22	1	2.8	1	5.7	21	27.5
1982	2	23	99	.	99	.	5	8.9
1982	2	24	1	2.1	1	3.9	16	20.8
1982	2	25	1	2.2	1	0.9	5	21.4
1982	2	26	1	5.3	1	3.0	14	28.3
1982	2	27	1	3.9	1	5.0	1	12.2
1982	2	28	1	4.9	1	3.0	12	10.5
1982	3	1	15	7.3	1	1.8	11	17.8
1982	3	2	1	5.4	1	2.0	5	9.5
1982	3	3	1	4.3	1	3.0	5	14.7
1982	3	4	2	4.9	1	3.7	19	24.1
1982	3	5	2	5.1	7	7.6	13	16.1
1982	3	6	2	4.8	1	4.0	3	23.6
1982	3	7	99	.	99	.	11	31.6
1982	3	8	2	5.8	1	6.1	5	15.4
1982	3	9	1	5.2	1	0.9	4	13.2
1982	3	10	1	3.9	1	1.0	2	22.0
1982	3	11	1	4.2	1	2.7	18	13.0
1982	3	12	1	4.8	2	2.2	12	13.0
1982	3	13	99	.	99	.	2	16.3
1982	3	14	1	4.0	1	4.1	1	15.7
1982	3	15	1	5.8	2	2.8	1	8.5
1982	3	16	17	8.5	2	9.9	3	20.7
1982	3	17	4	7.0	2	3.8	5	15.0
1982	3	18	4	7.9	2	5.6	5	7.1
1982	3	19	4	6.7	4	11.1	5	13.8
1982	3	20	2	11.0	14	13.8	3	20.1
1982	3	21	2	4.3	3	4.8	6	5.2
1982	3	22	99	.	99	.	13	19.6

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1982	3	23	2	4.2	1	2.7	2	4.4
1982	3	24	2	8.7	1	4.4	3	14.5
1982	3	25	1	8.5	3	5.9	26	25.6
1982	3	26	3	6.2	3	3.7	5	19.0
1982	3	27	3	4.4	5	5.8	1	9.6
1982	3	28	1	7.6	2	5.1	4	12.0
1982	3	29	4	7.3	2	3.9	1	9.9
1982	3	30	6	9.0	8	10.9	20	17.0
1982	3	31	1	7.7	1	5.5	6	17.0
1982	4	1	1	8.8	12	7.7	1	20.5
1982	4	2	1	9.5	2	5.8	9	13.7
1982	4	3	9	7.4	5	12.9	26	9.5
1982	4	4	1	6.3	1	3.3	5	5.6
1982	4	5	2	7.4	1	4.5	5	17.6
1982	4	6	2	6.9	1	8.8	5	22.2
1982	4	7	2	6.9	1	6.7	5	17.4
1982	4	8	2	3.9	7	3.0	13	14.1
1982	4	9	2	4.1	3	10.7	2	16.9
1982	4	10	1	5.5	1	7.4	6	26.0
1982	4	11	1	3.7	1	4.8	10	16.3
1982	4	12	3	4.2	1	3.4	28	19.4
1982	4	13	3	2.5	1	5.3	18	12.9
1982	4	14	1	6.0	2	6.3	4	14.4
1982	4	15	1	5.7	2	0.9	9	24.3
1982	4	16	1	6.0	2	3.6	3	17.1
1982	4	17	1	4.8	1	3.6	6	23.3
1982	4	18	1	5.1	1	6.2	1	17.8
1982	4	19	2	10.8	7	14.6	3	18.2
1982	4	20	5	7.3	3	11.3	3	21.3
1982	4	21	5	9.3	3	8.1	2	15.6
1982	4	22	1	8.1	3	7.0	4	13.4
1982	4	23	1	4.6	1	6.9	4	11.1
1982	4	24	1	4.7	2	11.1	2	17.8
1982	4	25	1	4.3	1	5.5	3	11.1
1982	4	26	1	3.0	1	1.5	16	23.4
1982	4	27	1	7.0	1	2.9	1	20.2
1982	4	28	3	5.3	1	6.1	4	18.8
1982	4	29	1	6.5	13	6.3	4	21.1
1982	4	30	1	6.9	1	6.0	13	15.0
1982	5	1	3	5.6	1	2.6	4	22.7
1982	5	2	3	7.6	5	5.0	1	15.6
1982	5	3	1	10.7	5	8.5	4	14.5
1982	5	4	1	13.3	2	5.4	20	16.3
1982	5	5	11	17.4	2	6.9	22	14.1
1982	5	6	11	11.8	6	10.1	2	9.7
1982	5	7	2	5.8	1	2.0	2	17.6
1982	5	8	2	6.3	1	3.9	5	11.2
1982	5	9	4	2.8	2	1.9	5	12.4
1982	5	10	4	2.5	4	7.0	9	15.6
1982	5	11	99	.	99	.	3	26.3
1982	5	12	7	6.7	4	4.8	1	15.1
1982	5	13	7	11.0	8	11.0	9	14.9
1982	5	14	3	10.5	18	12.7	9	15.6
1982	5	15	3	9.9	0	.	17	14.6
1982	5	16	3	7.9	0	.	17	13.6
1982	5	17	3	8.9	8	6.0	1	30.7
1982	5	18	6	10.7	9	10.1	14	28.3
1982	5	19	3	12.9	12	9.4	17	24.3
1982	5	20	16	9.7	12	11.6	9	17.9
1982	5	21	16	6.5	10	10.1	9	34.5
1982	5	22	99	.	99	.	23	27.1
1982	5	23	1	11.2	2	9.4	1	19.6
1982	5	24	7	9.5	7	16.4	22	19.1
1982	5	25	1	9.6	15	12.3	13	16.3
1982	5	26	1	13.8	16	0.0	0	.
1982	5	27	4	8.9	13	9.0	5	28.2
1982	5	28	4	7.1	4	5.1	9	23.5
1982	5	29	4	6.8	2	10.4	3	18.8
1982	5	30	4	12.0	2	10.1	3	13.9
1982	5	31	17	10.2	1	6.9	6	11.0
1982	6	1	1	8.3	1	4.0	26	20.6
1982	6	2	2	7.7	1	7.4	5	5.4
1982	6	3	17	7.6	1	4.7	13	21.6
1982	6	4	17	7.5	1	8.8	4	6.3
1982	6	5	4	4.3	2	4.0	4	19.3
1982	6	6	4	3.8	4	6.3	12	9.2
1982	6	7	4	6.2	2	6.8	6	22.0
1982	6	8	1	7.3	2	3.6	27	21.3
1982	6	9	1	7.6	2	15.2	3	31.7
1982	6	10	1	5.1	1	1.8	6	22.1
1982	6	11	1	4.5	1	2.6	21	20.8
1982	6	12	1	9.3	3	7.7	11	11.8
1982	6	13	12	13.1	3	8.1	11	20.7
1982	6	14	1	12.8	1	6.3	5	23.1
1982	6	15	5	11.3	7	9.7	16	16.8
1982	6	16	5	9.6	1	4.2	15	35.8
1982	6	17	5	9.0	1	4.0	3	8.6
1982	6	18	5	9.3	7	4.8	16	20.2
1982	6	19	5	7.3	3	4.5	2	18.4
1982	6	20	5	9.5	3	4.2	6	12.0
1982	6	21	1	10.1	3	2.3	26	17.8
1982	6	22	1	7.7	3	3.2	1	21.4
1982	6	23	1	6.7	1	5.2	12	13.7
1982	6	24	1	9.4	1	2.1	8	18.2
1982	6	25	1	10.3	1	2.7	11	23.0
1982	6	26	1	10.7	1	5.0	12	24.6
1982	6	27	99	.	99	.	21	23.2
1982	6	28	1	11.3	1	3.0	5	19.5
1982	6	29	8	16.6	1	2.5	5	8.6
1982	6	30	16	15.8	1	7.3	5	15.6
1982	7	1	3	8.8	12	5.3	1	11.3
1982	7	2	3	10.4	2	6.9	28	19.1
1982	7	3	3	8.8	5	7.8	10	17.0
1982	7	4	99	.	99	.	4	27.1
1982	7	5	99	.	99	.	12	20.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1982	7	6	99	.	99	.	2	6.3
1982	7	7	99	.	99	.	6	17.8
1982	7	8	99	.	99	.	8	19.6
1982	7	9	99	.	99	.	22	17.9
1982	7	10	99	.	99	.	22	11.4
1982	7	11	1	5.9	3	5.4	6	7.3
1982	7	12	1	4.2	1	3.6	2	12.2
1982	7	13	99	.	99	.	5	16.6
1982	7	14	99	.	99	.	1	9.7
1982	7	15	4	8.6	2	6.7	1	13.4
1982	7	16	4	5.9	2	1.9	12	19.8
1982	7	17	4	9.1	2	5.5	2	14.6
1982	7	18	1	9.2	1	2.0	0	.
1982	7	19	1	5.9	1	1.8	28	19.6
1982	7	20	1	3.5	1	6.3	2	24.1
1982	7	21	1	5.8	1	5.7	21	25.1
1982	7	22	1	7.2	5	4.9	7	26.5
1982	7	23	1	11.7	2	8.2	12	17.2
1982	7	24	17	10.4	1	7.3	2	15.6
1982	7	25	17	7.3	1	4.5	8	15.1
1982	7	26	17	7.3	1	2.0	5	20.8
1982	7	27	99	.	99	.	3	12.8
1982	7	28	99	.	99	.	0	.
1982	7	29	99	.	99	.	8	16.8
1982	7	30	99	.	99	.	13	13.3
1982	7	31	1	5.7	1	4.2	2	7.8
1982	8	1	1	3.0	1	2.9	1	23.5
1982	8	2	1	5.0	2	7.8	1	14.2
1982	8	3	1	7.6	2	2.2	20	31.4
1982	8	4	3	7.4	2	4.6	9	17.3
1982	8	5	3	6.8	1	7.8	9	27.6
1982	8	6	1	8.1	1	5.0	9	33.8
1982	8	7	3	14.6	1	3.0	29	21.5
1982	8	8	8	12.2	1	5.8	26	22.6
1982	8	9	9	10.9	3	6.3	26	8.8
1982	8	10	99	.	99	.	11	17.5
1982	8	11	6	10.3	5	0.0	1	19.6
1982	8	12	99	.	99	.	4	18.0
1982	8	13	99	.	99	.	4	18.1
1982	8	14	1	9.9	2	5.4	4	12.9
1982	8	15	99	.	99	.	8	18.2
1982	8	16	3	12.0	1	5.3	21	21.7
1982	8	17	99	.	99	.	4	31.6
1982	8	18	1	6.8	1	5.7	4	15.1
1982	8	19	1	7.9	1	1.6	8	22.1
1982	8	20	1	8.0	1	3.0	3	27.9
1982	8	21	99	.	99	.	4	19.5
1982	8	22	17	7.6	1	1.1	3	23.8
1982	8	23	17	9.1	1	0.6	8	21.8
1982	8	24	99	.	99	.	3	15.1
1982	8	25	1	9.5	1	2.2	8	25.5
1982	8	26	1	8.7	1	2.8	8	21.8
1982	8	27	1	7.9	1	1.9	11	17.6
1982	8	28	1	5.6	1	3.0	1	10.2
1982	8	29	1	5.5	1	2.1	12	19.3
1982	8	30	1	6.5	1	3.5	5	29.8
1982	8	31	1	6.0	2	5.2	9	17.5
1982	9	1	1	5.9	1	1.0	2	17.0
1982	9	2	1	7.4	1	7.1	6	8.5
1982	9	3	1	5.6	3	6.9	2	33.4
1982	9	4	1	4.1	1	3.7	21	17.0
1982	9	5	1	3.1	1	3.3	3	22.2
1982	9	6	1	3.0	1	0.9	1	15.3
1982	9	7	1	4.8	1	1.9	4	14.0
1982	9	8	1	4.8	1	6.7	4	7.5
1982	9	9	1	4.8	1	9.6	4	9.2
1982	9	10	1	8.0	2	9.3	20	28.6
1982	9	11	4	10.6	2	3.2	22	12.5
1982	9	12	4	9.1	2	3.8	22	17.8
1982	9	13	2	9.4	6	7.2	3	10.8
1982	9	14	2	10.1	12	12.8	5	16.3
1982	9	15	4	9.3	1	12.1	13	18.6
1982	9	16	2	12.7	1	4.9	12	19.9
1982	9	17	17	12.3	7	3.9	3	21.8
1982	9	18	8	10.1	1	7.3	2	15.2
1982	9	19	8	8.0	3	6.9	3	11.9
1982	9	20	8	15.8	3	7.6	11	18.7
1982	9	21	17	9.2	17	8.4	4	15.3
1982	9	22	17	7.7	5	13.3	4	11.8
1982	9	23	1	8.1	1	4.4	29	18.3
1982	9	24	15	11.1	3	1.2	26	20.8
1982	9	25	1	8.0	17	7.4	4	15.6
1982	9	26	17	7.1	1	6.9	21	10.3
1982	9	27	4	10.4	2	8.9	5	15.1
1982	9	28	4	10.4	4	3.8	1	17.4
1982	9	29	4	8.6	8	6.0	29	14.0
1982	9	30	7	9.4	6	6.6	8	14.8
1982	10	1	7	9.8	4	7.3	5	17.4
1982	10	2	1	5.4	8	5.1	2	18.0
1982	10	3	1	1.4	1	4.1	4	13.9
1982	10	4	1	3.5	2	2.4	29	20.9
1982	10	5	1	7.3	2	2.5	5	10.2
1982	10	6	3	6.6	8	5.4	17	25.7
1982	10	7	6	6.2	9	8.8	18	25.9
1982	10	8	11	7.9	4	5.3	9	13.0
1982	10	9	7	11.7	0	.	9	15.5
1982	10	10	7	11.4	11	15.8	3	14.9
1982	10	11	11	10.8	0	.	6	19.1
1982	10	12	11	15.6	19	10.1	6	21.0
1982	10	13	0	.	19	2.5	2	16.4
1982	10	14	5	15.8	3	10.1	2	6.5
1982	10	15	1	12.5	3	5.4	6	12.6
1982	10	16	1	5.4	3	11.7	18	15.5
1982	10	17	1	6.9	2	8.7	28	22.8
1982	10	18	1	5.9	2	6.0	3	16.8

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1982	10	19	1	8.6	7	7.9	3	11.7
1982	10	20	1	3.6	1	8.2	6	16.8
1982	10	21	1	5.5	1	5.0	4	7.5
1982	10	22	3	2.4	1	5.0	4	12.7
1982	10	23	3	2.5	5	7.3	4	14.2
1982	10	24	3	4.2	1	6.4	4	11.3
1982	10	25	3	4.0	2	3.0	1	15.0
1982	10	26	3	6.4	2	3.6	4	13.4
1982	10	27	6	9.6	4	4.2	12	7.7
1982	10	28	1	9.6	8	3.6	2	13.6
1982	10	29	1	7.0	1	6.8	2	5.5
1982	10	30	1	5.3	1	0.9	2	12.8
1982	10	31	1	3.3	1	3.8	2	20.1
1982	11	1	1	5.7	2	7.0	22	14.6
1982	11	2	5	9.3	7	7.4	3	15.7
1982	11	3	5	6.1	3	11.1	6	10.2
1982	11	4	9	10.3	11	4.2	26	9.6
1982	11	5	9	9.4	3	9.4	18	16.0
1982	11	6	1	4.0	1	4.5	4	7.7
1982	11	7	99	.	99	.	29	17.0
1982	11	8	4	6.4	2	7.5	5	10.2
1982	11	9	4	5.3	2	5.7	5	17.3
1982	11	10	4	8.5	2	8.9	13	17.0
1982	11	11	1	11.8	6	6.9	29	28.7
1982	11	12	99	.	99	.	6	13.8
1982	11	13	2	4.5	1	2.1	12	24.5
1982	11	14	1	8.6	3	6.9	13	19.7
1982	11	15	1	2.3	1	1.1	4	16.3
1982	11	16	1	1.1	1	1.0	2	18.6
1982	11	17	99	.	99	.	1	16.6
1982	11	18	1	6.0	2	2.2	1	23.8
1982	11	19	1	6.1	2	4.6	1	12.8
1982	11	20	1	9.3	8	8.3	29	21.7
1982	11	21	1	9.5	1	6.7	8	10.1
1982	11	22	2	9.6	1	8.0	27	22.2
1982	11	23	2	7.3	7	3.2	6	24.5
1982	11	24	99	.	99	.	2	10.7
1982	11	25	1	10.0	1	4.6	21	21.1
1982	11	26	1	6.2	1	3.0	16	25.9
1982	11	27	1	4.4	1	4.1	4	10.3
1982	11	28	1	3.7	10	10.3	28	0.0
1982	11	29	1	3.5	2	6.1	10	16.2
1982	11	30	6	8.3	2	2.7	1	16.0
1982	12	1	4	9.1	4	5.5	1	19.2
1982	12	2	99	.	99	.	9	10.3
1982	12	3	1	6.5	1	5.8	2	14.4
1982	12	4	1	2.7	1	7.6	28	13.0
1982	12	5	1	5.9	1	9.6	3	22.8
1982	12	6	1	6.3	1	1.1	8	29.1
1982	12	7	2	7.5	1	2.5	19	19.8
1982	12	8	1	15.1	1	3.7	19	14.6
1982	12	9	1	14.0	1	1.3	4	9.6
1982	12	10	2	14.3	1	2.6	3	13.2
1982	12	11	5	4.5	3	6.9	19	20.3
1982	12	12	1	5.4	3	4.4	4	12.9
1982	12	13	1	2.4	1	3.8	14	13.3
1982	12	14	3	11.5	1	8.0	9	15.1
1982	12	15	3	7.8	1	8.0	18	10.0
1982	12	16	3	3.2	5	8.4	10	16.6
1982	12	17	3	4.0	1	4.5	4	8.6
1982	12	18	1	5.3	1	5.9	2	11.2
1982	12	19	1	4.4	1	8.9	6	20.4
1982	12	20	1	7.0	3	10.8	18	13.4
1982	12	21	3	3.8	1	2.7	1	17.0
1982	12	22	3	3.9	2	5.8	1	18.1
1982	12	23	1	6.5	2	2.0	1	24.8
1982	12	24	7	5.4	15	8.8	3	15.9
1982	12	25	7	8.4	10	10.5	6	23.1
1982	12	26	1	6.9	2	5.7	10	4.4
1982	12	27	2	11.7	2	4.2	3	14.1
1982	12	28	2	5.1	7	6.4	6	15.5
1982	12	29	2	7.4	7	7.6	2	18.6
1982	12	30	2	9.7	7	4.5	2	13.0
1982	12	31	5	10.4	3	7.3	2	7.3
1983	1	1	5	8.3	1	3.6	99	.
1983	1	2	1	7.1	3	4.6	99	.
1983	1	3	1	2.8	1	3.8	99	.
1983	1	4	1	2.9	1	2.3	99	.
1983	1	5	1	2.6	1	2.0	99	.
1983	1	6	1	2.1	1	1.7	99	.
1983	1	7	1	4.3	1	3.8	99	.
1983	1	8	1	3.8	1	4.7	99	.
1983	1	9	1	8.6	6	10.8	99	.
1983	1	10	1	8.9	10	8.2	99	.
1983	1	11	5	5.8	3	3.4	99	.
1983	1	12	1	4.5	1	4.9	99	.
1983	1	13	1	2.3	1	2.7	99	.
1983	1	14	1	6.9	3	3.3	99	.
1983	1	15	1	8.9	3	7.0	99	.
1983	1	16	5	10.3	3	4.1	99	.
1983	1	17	3	11.4	3	6.7	99	.
1983	1	18	3	6.1	0	.	99	.
1983	1	19	3	5.1	1	11.9	99	.
1983	1	20	0	.	8	14.1	99	.
1983	1	21	3	13.3	2	12.7	99	.
1983	1	22	3	15.8	2	10.4	99	.
1983	1	23	3	11.7	5	12.0	99	.
1983	1	24	3	10.4	1	3.1	99	.
1983	1	25	5	10.8	1	3.9	99	.
1983	1	26	3	11.8	3	6.6	99	.
1983	1	27	3	6.4	1	3.3	99	.
1983	1	28	1	10.3	2	5.8	99	.
1983	1	29	3	7.6	1	6.7	99	.
1983	1	30	3	8.8	3	8.7	99	.
1983	1	31	3	13.8	12	13.1	99	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1983	2	1	1	16.6	6	5.4	99	.
1983	2	2	17	17.8	10	9.4	99	.
1983	2	3	5	11.3	3	9.2	99	.
1983	2	4	1	10.2	1	5.3	99	.
1983	2	5	99	.	99	.	99	.
1983	2	6	1	5.7	1	7.1	99	.
1983	2	7	1	4.3	1	4.4	99	.
1983	2	8	1	4.8	1	3.1	99	.
1983	2	9	3	6.1	1	2.5	99	.
1983	2	10	1	6.1	1	1.8	99	.
1983	2	11	3	10.1	1	5.6	99	.
1983	2	12	3	3.8	1	7.0	99	.
1983	2	13	1	4.6	1	3.9	99	.
1983	2	14	1	9.6	1	6.1	99	.
1983	2	15	1	7.0	1	2.8	99	.
1983	2	16	1	7.0	1	3.1	99	.
1983	2	17	1	7.2	1	3.9	99	.
1983	2	18	99	.	99	.	99	.
1983	2	19	1	8.8	1	9.1	99	.
1983	2	20	1	7.4	1	7.8	99	.
1983	2	21	1	7.1	1	6.1	99	.
1983	2	22	1	9.1	1	1.1	99	.
1983	2	23	15	9.9	1	4.7	99	.
1983	2	24	3	9.2	3	0.8	99	.
1983	2	25	3	4.8	17	8.9	99	.
1983	2	26	3	7.6	2	4.2	99	.
1983	2	27	1	8.1	2	4.8	99	.
1983	2	28	1	7.1	2	4.9	99	.
1983	3	1	17	10.2	1	4.2	99	.
1983	3	2	15	12.5	1	3.3	99	.
1983	3	3	10	10.0	2	4.9	99	.
1983	3	4	7	12.5	4	13.2	99	.
1983	3	5	1	16.1	18	12.5	99	.
1983	3	6	3	13.5	0	.	99	.
1983	3	7	3	11.0	11	15.1	99	.
1983	3	8	5	11.0	3	9.3	99	.
1983	3	9	3	8.8	3	3.5	99	.
1983	3	10	3	6.4	17	5.5	99	.
1983	3	11	3	5.5	5	9.5	99	.
1983	3	12	99	.	99	.	99	.
1983	3	13	3	4.8	1	4.4	99	.
1983	3	14	3	5.6	1	7.6	99	.
1983	3	15	1	11.4	2	5.0	99	.
1983	3	16	0	.	6	3.0	99	.
1983	3	17	8	12.2	6	5.7	99	.
1983	3	18	4	12.3	2	4.9	99	.
1983	3	19	0	.	2	5.7	99	.
1983	3	20	5	16.6	7	12.7	99	.
1983	3	21	5	11.5	3	10.8	99	.
1983	3	22	1	10.2	1	10.6	99	.
1983	3	23	1	9.1	1	3.0	99	.
1983	3	24	1	7.8	1	3.5	99	.
1983	3	25	1	8.2	6	9.0	99	.
1983	3	26	1	11.4	6	5.1	99	.
1983	3	27	1	9.7	10	14.3	99	.
1983	3	28	3	7.3	1	16.3	99	.
1983	3	29	3	6.0	2	8.3	99	.
1983	3	30	3	5.2	1	5.4	99	.
1983	3	31	1	5.9	1	7.2	99	.
1983	4	1	5	10.8	3	9.4	99	.
1983	4	2	9	11.5	3	12.7	99	.
1983	4	3	2	15.5	0	.	99	.
1983	4	4	18	14.9	0	.	99	.
1983	4	5	7	11.1	0	.	99	.
1983	4	6	7	6.5	0	.	99	.
1983	4	7	11	8.7	0	.	99	.
1983	4	8	11	8.3	0	.	99	.
1983	4	9	99	.	99	.	99	.
1983	4	10	99	.	99	.	99	.
1983	4	11	99	.	99	.	99	.
1983	4	12	99	.	99	.	99	.
1983	4	13	99	.	99	.	99	.
1983	4	14	99	.	99	.	99	.
1983	4	15	99	.	99	.	99	.
1983	4	16	99	.	99	.	99	.
1983	4	17	99	.	99	.	99	.
1983	4	18	99	.	99	.	99	.
1983	4	19	99	.	99	.	99	.
1983	4	20	99	.	99	.	99	.
1983	4	21	99	.	99	.	99	.
1983	4	22	99	.	99	.	99	.
1983	4	23	99	.	99	.	99	.
1983	4	24	99	.	99	.	99	.
1983	4	25	99	.	99	.	99	.
1983	4	26	99	.	99	.	99	.
1983	4	27	99	.	99	.	99	.
1983	4	28	99	.	99	.	99	.
1983	4	29	99	.	99	.	99	.
1983	4	30	99	.	99	.	99	.
1983	5	1	4	7.9	6	2.5	99	.
1983	5	2	2	7.4	10	12.7	99	.
1983	5	3	1	8.0	10	8.3	99	.
1983	5	4	1	4.5	1	4.1	99	.
1983	5	5	1	5.5	1	4.2	99	.
1983	5	6	1	8.6	12	6.2	99	.
1983	5	7	3	4.0	10	11.8	99	.
1983	5	8	1	7.8	5	3.8	99	.
1983	5	9	4	6.8	4	6.2	99	.
1983	5	10	4	7.9	4	5.9	99	.
1983	5	11	7	11.5	2	8.8	99	.
1983	5	12	4	10.9	4	8.2	99	.
1983	5	13	4	10.0	8	9.2	99	.
1983	5	14	99	.	99	.	99	.
1983	5	15	2	4.0	1	3.1	99	.
1983	5	16	2	9.4	1	4.7	99	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1983	5	17	11	9.6	7	13.6	99	.
1983	5	18	11	7.9	10	10.9	99	.
1983	5	19	2	9.4	7	11.0	99	.
1983	5	20	11	10.3	7	6.8	99	.
1983	5	21	2	9.2	1	3.0	99	.
1983	5	22	1	10.0	1	4.7	99	.
1983	5	23	1	6.8	1	6.9	99	.
1983	5	24	1	4.4	1	1.9	99	.
1983	5	25	99	.	99	.	99	.
1983	5	26	1	4.9	3	7.1	99	.
1983	5	27	3	12.5	1	6.1	99	.
1983	5	28	0	.	3	6.6	99	.
1983	5	29	0	.	3	4.1	99	.
1983	5	30	0	.	11	9.8	99	.
1983	5	31	0	.	11	12.4	99	.
1983	6	1	0	.	1	4.9	99	.
1983	6	2	12	8.5	1	5.0	99	.
1983	6	3	12	9.4	1	2.5	99	.
1983	6	4	12	10.0	1	2.3	99	.
1983	6	5	12	13.3	1	5.3	99	.
1983	6	6	5	8.3	3	5.0	99	.
1983	6	7	1	8.4	1	9.7	99	.
1983	6	8	1	4.0	1	2.3	99	.
1983	6	9	1	4.0	1	1.9	99	.
1983	6	10	1	5.5	2	8.0	99	.
1983	6	11	1	8.4	16	8.2	99	.
1983	6	12	1	14.3	4	4.0	99	.
1983	6	13	99	.	99	.	99	.
1983	6	14	3	10.4	0	.	99	.
1983	6	15	1	9.3	1	8.8	99	.
1983	6	16	1	10.5	1	8.3	99	.
1983	6	17	3	2.7	5	12.8	99	.
1983	6	18	99	.	99	.	99	.
1983	6	19	99	.	99	.	99	.
1983	6	20	99	.	99	.	99	.
1983	6	21	1	14.9	2	0.8	99	.
1983	6	22	3	10.8	2	1.3	99	.
1983	6	23	1	12.7	2	7.5	99	.
1983	6	24	10	14.0	12	9.5	99	.
1983	6	25	1	12.3	2	6.9	99	.
1983	6	26	1	10.7	6	6.5	99	.
1983	6	27	3	10.1	12	10.2	99	.
1983	6	28	3	7.4	12	17.6	99	.
1983	6	29	3	8.2	16	13.9	99	.
1983	6	30	3	7.3	9	6.4	99	.
1983	7	1	3	6.5	2	6.0	99	.
1983	7	2	3	11.1	2	3.0	99	.
1983	7	3	1	10.4	2	5.6	99	.
1983	7	4	1	11.3	1	6.0	99	.
1983	7	5	3	8.1	1	3.9	99	.
1983	7	6	3	6.0	1	5.3	99	.
1983	7	7	3	11.3	2	10.2	99	.
1983	7	8	3	12.1	12	7.2	99	.
1983	7	9	10	9.9	2	12.6	99	.
1983	7	10	1	7.7	2	5.1	99	.
1983	7	11	1	5.5	2	6.7	99	.
1983	7	12	1	4.8	1	5.3	99	.
1983	7	13	1	7.0	2	5.7	99	.
1983	7	14	1	10.0	16	10.3	99	.
1983	7	15	4	10.5	13	7.7	99	.
1983	7	16	99	.	99	.	99	.
1983	7	17	4	13.3	2	1.6	99	.
1983	7	18	4	14.5	2	3.8	99	.
1983	7	19	10	13.8	1	5.9	99	.
1983	7	20	99	.	99	.	99	.
1983	7	21	3	7.3	2	4.3	99	.
1983	7	22	3	9.2	1	7.8	99	.
1983	7	23	1	8.4	1	4.5	99	.
1983	7	24	3	8.4	1	5.7	99	.
1983	7	25	3	10.0	5	3.6	99	.
1983	7	26	6	10.0	2	6.9	99	.
1983	7	27	1	7.3	2	2.5	99	.
1983	7	28	1	5.2	2	5.7	99	.
1983	7	29	1	6.5	1	4.2	99	.
1983	7	30	16	11.4	1	4.3	99	.
1983	7	31	1	10.0	1	6.8	99	.
1983	8	1	1	8.3	5	9.3	99	.
1983	8	2	3	5.2	1	6.5	99	.
1983	8	3	3	4.6	1	6.5	99	.
1983	8	4	3	7.2	5	10.8	99	.
1983	8	5	1	10.9	1	8.4	99	.
1983	8	6	1	8.9	1	7.5	99	.
1983	8	7	1	7.3	10	7.9	99	.
1983	8	8	1	8.6	1	5.8	99	.
1983	8	9	17	8.4	1	3.3	99	.
1983	8	10	1	10.7	1	4.7	99	.
1983	8	11	16	12.3	5	8.5	99	.
1983	8	12	1	9.3	2	8.9	99	.
1983	8	13	1	5.4	1	5.3	99	.
1983	8	14	1	5.0	1	10.1	99	.
1983	8	15	1	5.8	1	6.8	99	.
1983	8	16	1	5.4	1	6.2	99	.
1983	8	17	1	6.3	1	3.8	99	.
1983	8	18	99	.	99	.	99	.
1983	8	19	1	8.1	1	8.2	99	.
1983	8	20	99	.	99	.	99	.
1983	8	21	1	7.1	1	6.3	99	.
1983	8	22	1	5.5	1	4.9	99	.
1983	8	23	1	6.0	12	5.0	99	.
1983	8	24	1	8.4	2	3.8	99	.
1983	8	25	1	8.8	2	3.1	99	.
1983	8	26	1	7.6	2	6.4	99	.
1983	8	27	1	6.1	1	5.8	99	.
1983	8	28	3	6.8	1	5.6	99	.
1983	8	29	1	12.1	1	7.0	99	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1983	8	30	17	12.7	1	3.8	99	.
1983	8	31	17	11.2	1	7.3	99	.
1983	9	1	1	9.5	1	5.4	99	.
1983	9	2	1	7.7	2	7.6	99	.
1983	9	3	99	.	99	.	99	.
1983	9	4	99	.	99	.	99	.
1983	9	5	1	8.4	2	4.9	99	.
1983	9	6	99	.	99	.	99	.
1983	9	7	1	5.0	5	8.0	99	.
1983	9	8	99	.	99	.	99	.
1983	9	9	1	5.9	2	2.1	99	.
1983	9	10	1	4.1	2	5.7	99	.
1983	9	11	1	3.5	1	3.0	99	.
1983	9	12	1	4.0	1	1.4	99	.
1983	9	13	1	3.8	1	2.1	99	.
1983	9	14	99	.	99	.	99	.
1983	9	15	1	7.4	1	6.4	99	.
1983	9	16	1	6.1	5	9.9	99	.
1983	9	17	1	6.7	2	6.1	99	.
1983	9	18	1	10.2	1	5.3	99	.
1983	9	19	2	10.2	2	6.2	99	.
1983	9	20	2	6.3	7	3.6	99	.
1983	9	21	2	10.2	3	5.3	99	.
1983	9	22	5	10.7	3	1.4	99	.
1983	9	23	1	6.7	3	6.0	99	.
1983	9	24	1	4.2	1	2.8	99	.
1983	9	25	1	5.6	1	3.3	99	.
1983	9	26	1	6.8	1	5.0	99	.
1983	9	27	4	9.1	2	4.5	99	.
1983	9	28	99	.	99	.	99	.
1983	9	29	4	6.4	2	2.4	99	.
1983	9	30	4	6.3	2	2.3	99	.
1983	10	1	4	6.7	2	1.8	99	.
1983	10	2	4	8.2	2	3.6	99	.
1983	10	3	1	10.9	1	10.3	99	.
1983	10	4	1	5.7	1	7.7	99	.
1983	10	5	1	3.1	1	1.2	99	.
1983	10	6	1	3.3	1	0.6	99	.
1983	10	7	1	2.6	1	1.6	99	.
1983	10	8	1	2.7	1	1.3	99	.
1983	10	9	1	7.3	2	7.5	99	.
1983	10	10	1	8.5	2	3.4	99	.
1983	10	11	2	7.9	7	9.1	99	.
1983	10	12	5	10.6	3	12.1	99	.
1983	10	13	2	11.2	11	6.4	99	.
1983	10	14	99	.	99	.	99	.
1983	10	15	1	6.7	8	6.2	99	.
1983	10	16	1	3.3	1	5.7	99	.
1983	10	17	1	4.3	1	2.5	99	.
1983	10	18	1	6.0	12	4.4	99	.
1983	10	19	3	7.6	1	14.7	99	.
1983	10	20	1	7.5	2	12.3	99	.
1983	10	21	3	7.9	2	11.3	99	.
1983	10	22	99	.	99	.	99	.
1983	10	23	1	4.6	5	10.9	99	.
1983	10	24	1	5.7	2	7.8	99	.
1983	10	25	99	.	99	.	99	.
1983	10	26	1	5.4	3	6.5	99	.
1983	10	27	1	3.2	1	4.0	99	.
1983	10	28	1	4.7	1	2.6	99	.
1983	10	29	1	6.4	1	4.2	99	.
1983	10	30	3	5.7	1	6.6	99	.
1983	10	31	3	5.4	2	6.0	99	.
1983	11	1	3	5.8	1	7.5	99	.
1983	11	2	3	6.3	12	4.6	99	.
1983	11	3	3	4.6	5	9.1	99	.
1983	11	4	3	4.8	5	7.2	99	.
1983	11	5	1	6.0	2	3.9	99	.
1983	11	6	1	2.9	1	2.4	99	.
1983	11	7	1	2.3	2	4.9	99	.
1983	11	8	1	9.8	12	7.9	99	.
1983	11	9	3	9.5	6	10.2	99	.
1983	11	10	15	9.1	1	3.1	99	.
1983	11	11	3	4.3	5	7.2	99	.
1983	11	12	99	.	99	.	99	.
1983	11	13	3	7.2	1	4.7	99	.
1983	11	14	1	5.7	1	2.2	99	.
1983	11	15	3	8.9	3	5.3	99	.
1983	11	16	3	4.6	3	7.9	99	.
1983	11	17	3	3.2	1	10.1	99	.
1983	11	18	12	7.3	2	6.1	99	.
1983	11	19	12	13.3	8	7.0	99	.
1983	11	20	12	11.3	9	14.1	99	.
1983	11	21	13	8.2	9	12.1	99	.
1983	11	22	11	10.2	8	9.7	99	.
1983	11	23	11	14.1	8	3.2	99	.
1983	11	24	12	10.4	3	9.9	99	.
1983	11	25	13	11.2	1	5.8	99	.
1983	11	26	11	9.2	0	.	99	.
1983	11	27	11	5.6	0	.	99	.
1983	11	28	0	.	0	.	99	.
1983	11	29	5	12.5	0	.	99	.
1983	11	30	2	6.7	3	11.6	99	.
1983	12	1	1	10.2	1	2.3	99	.
1983	12	2	1	4.8	1	3.7	99	.
1983	12	3	1	3.6	2	4.9	99	.
1983	12	4	1	6.4	2	5.8	99	.
1983	12	5	2	6.3	1	6.7	99	.
1983	12	6	1	8.5	1	6.6	99	.
1983	12	7	1	7.8	1	7.0	99	.
1983	12	8	1	5.5	1	1.3	99	.
1983	12	9	1	4.5	1	0.8	99	.
1983	12	10	1	4.6	1	4.9	99	.
1983	12	11	1	4.5	1	7.0	99	.
1983	12	12	1	3.4	1	5.7	99	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1983	12	13	1	5.9	1	11.8	99	.
1983	12	14	2	10.4	10	8.8	99	.
1983	12	15	2	7.7	3	8.9	99	.
1983	12	16	2	4.3	1	2.5	99	.
1983	12	17	2	3.7	1	3.1	99	.
1983	12	18	2	4.3	1	5.5	99	.
1983	12	19	2	3.5	1	7.2	99	.
1983	12	20	2	5.1	12	10.3	99	.
1983	12	21	2	9.1	8	8.1	99	.
1983	12	22	0	.	1	9.4	99	.
1983	12	23	0	.	9	6.1	99	.
1983	12	24	99	.	99	.	99	.
1983	12	25	8	12.0	3	2.5	99	.
1983	12	26	1	8.4	1	2.8	99	.
1983	12	27	2	3.7	1	1.0	99	.
1983	12	28	2	6.7	7	3.1	99	.
1983	12	29	5	4.3	3	1.1	99	.
1983	12	30	1	4.4	1	4.6	99	.
1983	12	31	1	3.6	1	2.0	99	.
1984	1	1	7	7.5	7	4.0	99	.
1984	1	2	1	6.9	3	9.0	99	.
1984	1	3	1	7.0	1	0.9	99	.
1984	1	4	99	.	99	.	99	.
1984	1	5	1	6.2	1	2.0	99	.
1984	1	6	1	6.8	3	5.1	99	.
1984	1	7	1	6.5	1	4.0	99	.
1984	1	8	1	4.6	1	1.9	99	.
1984	1	9	5	7.0	1	3.2	99	.
1984	1	10	99	.	99	.	99	.
1984	1	11	1	6.8	1	3.6	99	.
1984	1	12	2	6.8	7	6.1	99	.
1984	1	13	18	10.9	1	5.6	99	.
1984	1	14	2	15.6	0	.	99	.
1984	1	15	2	6.4	7	8.5	99	.
1984	1	16	2	5.0	1	3.2	99	.
1984	1	17	2	4.5	7	3.4	99	.
1984	1	18	2	3.7	7	4.9	99	.
1984	1	19	2	5.0	3	7.8	99	.
1984	1	20	5	6.8	3	2.1	99	.
1984	1	21	2	6.4	1	3.2	99	.
1984	1	22	1	6.4	1	2.6	99	.
1984	1	23	11	7.5	6	10.9	99	.
1984	1	24	1	8.0	1	3.7	99	.
1984	1	25	1	6.3	1	2.9	99	.
1984	1	26	1	9.7	1	3.7	99	.
1984	1	27	1	12.2	1	7.2	99	.
1984	1	28	2	12.3	3	4.2	99	.
1984	1	29	2	8.6	1	8.3	99	.
1984	1	30	5	10.4	3	2.0	99	.
1984	1	31	1	7.2	3	3.5	99	.
1984	2	1	1	6.2	1	3.4	99	.
1984	2	2	1	10.2	7	4.0	99	.
1984	2	3	99	.	99	.	99	.
1984	2	4	5	8.8	3	4.8	99	.
1984	2	5	5	8.2	3	2.8	99	.
1984	2	6	5	8.0	3	2.6	99	.
1984	2	7	1	7.8	1	11.7	99	.
1984	2	8	3	8.7	0	.	99	.
1984	2	9	1	7.4	10	8.6	99	.
1984	2	10	1	3.9	2	9.4	99	.
1984	2	11	1	4.1	6	4.5	99	.
1984	2	12	1	8.9	8	16.0	99	.
1984	2	13	3	6.2	0	.	99	.
1984	2	14	1	5.9	1	3.8	99	.
1984	2	15	3	7.2	8	13.8	99	.
1984	2	16	1	8.5	16	5.6	99	.
1984	2	17	1	11.6	13	13.6	99	.
1984	2	18	99	.	99	.	99	.
1984	2	19	5	9.9	3	8.0	99	.
1984	2	20	1	8.7	3	6.1	99	.
1984	2	21	1	3.1	1	4.6	99	.
1984	2	22	1	3.9	2	4.3	99	.
1984	2	23	1	4.7	1	6.3	99	.
1984	2	24	1	7.3	1	5.4	99	.
1984	2	25	1	10.8	1	6.4	99	.
1984	2	26	5	7.4	1	10.5	99	.
1984	2	27	5	8.6	3	14.1	99	.
1984	2	28	9	12.1	3	5.1	99	.
1984	2	29	3	10.8	3	9.4	99	.
1984	3	1	1	7.8	3	5.9	99	.
1984	3	2	1	5.3	3	5.7	99	.
1984	3	3	1	11.3	1	3.5	99	.
1984	3	4	2	9.2	1	5.1	99	.
1984	3	5	5	8.9	3	9.0	99	.
1984	3	6	5	6.1	3	6.2	99	.
1984	3	7	5	4.5	3	7.9	99	.
1984	3	8	5	5.5	3	2.6	99	.
1984	3	9	5	6.8	3	4.9	99	.
1984	3	10	5	8.6	1	7.4	99	.
1984	3	11	5	7.3	1	5.0	99	.
1984	3	12	1	5.4	1	2.0	99	.
1984	3	13	1	5.2	1	2.6	99	.
1984	3	14	1	3.4	1	5.7	99	.
1984	3	15	1	3.6	1	6.0	99	.
1984	3	16	1	4.1	1	4.3	99	.
1984	3	17	1	4.0	6	8.1	99	.
1984	3	18	1	8.9	0	.	99	.
1984	3	19	1	8.5	10	8.4	99	.
1984	3	20	1	8.4	3	12.3	99	.
1984	3	21	5	9.9	3	6.8	99	.
1984	3	22	5	7.6	3	12.0	99	.
1984	3	23	1	7.3	1	9.8	99	.
1984	3	24	1	9.5	5	9.7	99	.
1984	3	25	11	11.0	2	6.7	99	.
1984	3	26	11	7.0	4	10.1	99	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1984	3	27	5	17.1	8	14.7	99	.
1984	3	28	0	.	11	9.1	99	.
1984	3	29	5	15.9	0	.	99	.
1984	3	30	5	16.0	0	.	99	.
1984	3	31	2	16.1	0	.	99	.
1984	4	1	11	15.8	12	10.8	99	.
1984	4	2	7	10.2	0	.	99	.
1984	4	3	99	.	99	.	99	.
1984	4	4	1	10.8	10	9.5	99	.
1984	4	5	1	9.1	17	9.9	99	.
1984	4	6	1	9.4	5	4.4	99	.
1984	4	7	3	7.5	2	6.5	99	.
1984	4	8	1	8.5	16	3.6	99	.
1984	4	9	3	9.0	13	8.7	99	.
1984	4	10	6	8.6	13	7.0	99	.
1984	4	11	6	10.3	4	9.0	99	.
1984	4	12	3	10.6	0	.	99	.
1984	4	13	14	14.2	11	16.9	99	.
1984	4	14	3	13.9	11	3.2	99	.
1984	4	15	3	13.5	11	7.3	99	.
1984	4	16	3	12.4	11	12.1	99	.
1984	4	17	3	9.2	0	.	99	.
1984	4	18	3	3.8	0	.	99	.
1984	4	19	3	12.3	0	.	99	.
1984	4	20	14	17.5	0	.	99	.
1984	4	21	99	.	99	.	99	.
1984	4	22	16	16.0	0	.	99	.
1984	4	23	1	9.9	17	5.9	99	.
1984	4	24	1	7.8	5	13.4	99	.
1984	4	25	11	11.1	2	9.3	99	.
1984	4	26	18	16.2	18	13.0	99	.
1984	4	27	0	.	8	17.0	99	.
1984	4	28	18	9.7	9	13.7	99	.
1984	4	29	12	13.3	6	6.5	99	.
1984	4	30	12	4.9	3	13.9	99	.
1984	5	1	12	4.3	5	11.5	99	.
1984	5	2	12	5.7	9	8.8	99	.
1984	5	3	12	6.4	1	7.5	99	.
1984	5	4	12	4.4	1	5.1	99	.
1984	5	5	12	2.3	1	4.4	99	.
1984	5	6	12	8.4	2	7.8	99	.
1984	5	7	0	.	1	11.5	99	.
1984	5	8	5	14.2	3	7.7	99	.
1984	5	9	12	9.5	5	6.8	99	.
1984	5	10	1	6.4	1	6.0	99	.
1984	5	11	1	7.1	1	3.2	99	.
1984	5	12	1	5.9	1	3.4	99	.
1984	5	13	1	7.0	1	2.5	99	.
1984	5	14	9	8.6	5	8.4	99	.
1984	5	15	10	10.6	5	7.0	99	.
1984	5	16	3	9.4	4	6.5	99	.
1984	5	17	3	10.5	2	5.4	99	.
1984	5	18	1	7.4	1	4.8	99	.
1984	5	19	1	7.2	1	1.4	99	.
1984	5	20	1	4.7	5	6.7	99	.
1984	5	21	1	4.8	2	2.8	99	.
1984	5	22	1	7.0	1	3.5	99	.
1984	5	23	1	5.3	1	2.9	99	.
1984	5	24	1	5.1	2	5.1	99	.
1984	5	25	12	4.6	1	6.9	99	.
1984	5	26	12	5.9	1	3.8	99	.
1984	5	27	1	7.6	1	6.6	99	.
1984	5	28	1	9.3	3	10.7	99	.
1984	5	29	1	9.8	3	6.8	99	.
1984	5	30	1	8.4	17	8.1	99	.
1984	5	31	1	7.8	5	4.8	99	.
1984	6	1	1	10.2	2	4.1	99	.
1984	6	2	1	9.2	2	7.5	99	.
1984	6	3	1	5.9	1	4.3	99	.
1984	6	4	6	8.4	2	5.7	99	.
1984	6	5	6	9.1	2	9.0	99	.
1984	6	6	6	9.8	4	4.6	99	.
1984	6	7	6	9.8	8	10.3	99	.
1984	6	8	12	6.5	9	8.0	99	.
1984	6	9	2	13.5	6	8.9	99	.
1984	6	10	1	12.2	12	11.1	99	.
1984	6	11	1	11.0	12	6.0	99	.
1984	6	12	4	8.3	2	8.5	99	.
1984	6	13	4	9.5	1	5.8	99	.
1984	6	14	99	.	99	.	99	.
1984	6	15	16	8.0	2	4.2	99	.
1984	6	16	1	6.0	2	2.4	99	.
1984	6	17	1	4.1	2	2.2	99	.
1984	6	18	1	4.8	1	3.9	99	.
1984	6	19	1	7.0	2	6.0	99	.
1984	6	20	1	10.4	2	4.6	99	.
1984	6	21	10	8.6	2	4.3	99	.
1984	6	22	1	7.7	2	3.5	99	.
1984	6	23	1	5.0	1	3.4	99	.
1984	6	24	1	4.0	1	4.7	99	.
1984	6	25	1	5.0	1	4.1	99	.
1984	6	26	1	6.0	1	1.2	99	.
1984	6	27	3	9.1	3	9.5	99	.
1984	6	28	3	6.7	3	4.8	99	.
1984	6	29	3	9.1	17	3.8	99	.
1984	6	30	6	13.4	13	9.6	99	.
1984	7	1	1	10.0	2	9.9	99	.
1984	7	2	1	6.5	1	6.8	99	.
1984	7	3	1	7.1	1	0.6	99	.
1984	7	4	1	9.4	1	1.2	99	.
1984	7	5	12	10.1	1	4.0	99	.
1984	7	6	9	10.2	3	9.2	99	.
1984	7	7	99	.	99	.	99	.
1984	7	8	1	5.9	2	4.3	99	.
1984	7	9	1	3.7	2	5.8	99	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1984	7	10	1	2.4	1	3.6	99	.
1984	7	11	99	.	99	.	99	.
1984	7	12	1	3.4	1	2.9	99	.
1984	7	13	1	3.9	1	4.8	99	.
1984	7	14	1	5.0	1	5.9	99	.
1984	7	15	1	6.3	1	1.8	99	.
1984	7	16	1	8.2	1	3.5	99	.
1984	7	17	1	7.2	3	2.6	99	.
1984	7	18	1	3.7	1	7.6	99	.
1984	7	19	1	2.5	1	2.5	99	.
1984	7	20	1	4.8	1	4.0	99	.
1984	7	21	4	9.8	2	5.5	99	.
1984	7	22	4	8.2	2	3.7	99	.
1984	7	23	0	.	12	6.9	99	.
1984	7	24	0	.	1	4.4	99	.
1984	7	25	8	16.7	1	2.9	99	.
1984	7	26	3	11.3	3	3.4	99	.
1984	7	27	3	9.4	3	2.4	99	.
1984	7	28	3	7.3	17	9.2	99	.
1984	7	29	3	8.6	5	10.7	99	.
1984	7	30	3	8.2	1	7.9	99	.
1984	7	31	3	8.3	1	3.4	99	.
1984	8	1	3	8.1	1	4.4	99	.
1984	8	2	3	6.7	12	6.7	99	.
1984	8	3	0	.	12	14.7	99	.
1984	8	4	1	14.3	1	11.0	99	.
1984	8	5	3	9.3	1	6.2	99	.
1984	8	6	3	6.7	1	7.1	99	.
1984	8	7	1	5.8	1	6.6	99	.
1984	8	8	99	.	99	.	99	.
1984	8	9	1	6.3	1	7.5	99	.
1984	8	10	1	7.1	1	6.7	99	.
1984	8	11	1	9.5	5	8.9	99	.
1984	8	12	1	9.6	10	16.8	99	.
1984	8	13	1	10.0	5	9.6	99	.
1984	8	14	1	8.3	2	7.6	99	.
1984	8	15	1	6.1	1	3.8	99	.
1984	8	16	1	8.9	1	4.7	99	.
1984	8	17	1	6.9	1	3.6	99	.
1984	8	18	1	5.5	1	7.1	99	.
1984	8	19	1	5.7	5	3.9	99	.
1984	8	20	1	5.4	2	4.1	99	.
1984	8	21	1	7.0	1	2.9	99	.
1984	8	22	1	6.4	1	8.7	99	.
1984	8	23	1	7.1	5	4.2	99	.
1984	8	24	4	9.7	2	7.0	99	.
1984	8	25	4	7.3	2	6.1	99	.
1984	8	26	4	11.9	1	7.8	99	.
1984	8	27	1	8.9	1	7.1	99	.
1984	8	28	1	8.4	2	8.1	99	.
1984	8	29	1	6.3	1	5.8	99	.
1984	8	30	1	4.0	1	0.7	99	.
1984	8	31	1	3.0	1	1.8	99	.
1984	9	1	1	1.9	2	4.5	99	.
1984	9	2	1	3.1	1	3.3	99	.
1984	9	3	1	6.0	1	1.3	99	.
1984	9	4	3	6.9	3	5.3	99	.
1984	9	5	3	5.5	1	8.1	99	.
1984	9	6	1	4.5	5	6.3	99	.
1984	9	7	99	.	99	.	99	.
1984	9	8	99	.	99	.	99	.
1984	9	9	1	7.8	1	5.0	99	.
1984	9	10	1	6.0	1	4.8	99	.
1984	9	11	1	4.8	1	5.6	99	.
1984	9	12	1	5.1	2	1.4	99	.
1984	9	13	1	6.1	1	2.9	99	.
1984	9	14	1	9.1	1	2.1	99	.
1984	9	15	1	7.6	3	6.5	99	.
1984	9	16	1	5.8	1	5.8	99	.
1984	9	17	1	4.6	1	4.2	99	.
1984	9	18	1	3.9	1	5.2	99	.
1984	9	19	1	3.7	1	3.6	99	.
1984	9	20	1	4.4	1	2.1	99	.
1984	9	21	4	8.6	2	2.0	99	.
1984	9	22	4	11.0	2	5.6	99	.
1984	9	23	4	7.6	2	4.2	99	.
1984	9	24	4	5.5	2	1.7	99	.
1984	9	25	1	10.4	2	9.4	99	.
1984	9	26	99	.	99	.	99	.
1984	9	27	99	.	99	.	99	.
1984	9	28	5	5.7	7	7.1	99	.
1984	9	29	99	.	99	.	99	.
1984	9	30	1	7.3	3	4.9	99	.
1984	10	1	1	8.0	1	6.0	99	.
1984	10	2	1	7.0	1	3.9	99	.
1984	10	3	1	5.7	1	5.9	99	.
1984	10	4	1	5.3	12	10.2	99	.
1984	10	5	3	9.2	16	9.7	99	.
1984	10	6	3	9.4	6	13.7	99	.
1984	10	7	3	7.5	10	12.2	99	.
1984	10	8	3	5.5	11	8.6	99	.
1984	10	9	3	6.1	0	.	99	.
1984	10	10	3	7.0	0	.	99	.
1984	10	11	3	9.0	13	12.6	99	.
1984	10	12	3	8.3	4	3.6	99	.
1984	10	13	99	.	99	.	99	.
1984	10	14	6	10.3	2	4.6	99	.
1984	10	15	11	6.1	8	14.9	99	.
1984	10	16	11	14.6	0	.	99	.
1984	10	17	0	.	13	16.2	99	.
1984	10	18	0	.	8	6.0	99	.
1984	10	19	11	14.8	0	.	99	.
1984	10	20	11	8.2	0	.	99	.
1984	10	21	99	.	99	.	99	.
1984	10	22	2	6.9	7	4.4	99	.

YEAR	MONTH	DAY	B5TYPE	B5KS	S5TYPE	S5KS	SMTYPE	SMKS
1984	10	23	11	9.9	7	8.7	99	.
1984	10	24	11	9.7	1	5.8	99	.
1984	10	25	1	9.6	1	9.3	99	.
1984	10	26	1	8.0	2	2.4	99	.
1984	10	27	4	6.7	2	3.1	99	.
1984	10	28	99	.	99	.	99	.
1984	10	29	99	.	99	.	99	.
1984	10	30	99	.	99	.	99	.
1984	10	31	99	.	99	.	99	.
1984	11	1	99	.	99	.	99	.
1984	11	2	99	.	99	.	99	.
1984	11	3	1	3.4	2	2.6	99	.
1984	11	4	1	3.8	1	4.4	99	.
1984	11	5	1	4.7	1	5.7	99	.
1984	11	6	1	2.7	1	4.1	99	.
1984	11	7	1	3.1	2	6.4	99	.
1984	11	8	1	5.0	2	7.2	99	.
1984	11	9	1	3.9	6	5.5	99	.
1984	11	10	1	4.9	1	10.9	99	.
1984	11	11	1	5.6	1	5.1	99	.
1984	11	12	15	5.5	1	5.6	99	.
1984	11	13	1	7.0	2	8.8	99	.
1984	11	14	99	.	99	.	99	.
1984	11	15	99	.	99	.	99	.
1984	11	16	99	.	99	.	99	.
1984	11	17	1	5.4	1	3.0	99	.
1984	11	18	1	7.2	1	5.9	99	.
1984	11	19	1	11.1	3	10.4	99	.
1984	11	20	1	6.8	1	6.1	99	.
1984	11	21	1	10.1	2	5.3	99	.
1984	11	22	16	9.6	1	4.1	99	.
1984	11	23	16	8.6	1	4.8	99	.
1984	11	24	1	9.5	2	3.5	99	.
1984	11	25	4	7.4	4	5.3	99	.
1984	11	26	7	12.4	8	6.1	99	.
1984	11	27	3	12.7	14	15.1	99	.
1984	11	28	1	6.8	5	6.0	99	.
1984	11	29	1	6.8	1	3.3	99	.
1984	11	30	1	8.9	1	10.7	99	.
1984	12	1	99	.	99	.	99	.
1984	12	2	1	8.6	7	10.5	99	.
1984	12	3	2	8.5	3	9.7	99	.
1984	12	4	5	10.9	3	8.2	99	.
1984	12	5	2	11.7	7	4.3	99	.
1984	12	6	5	12.3	3	2.7	99	.
1984	12	7	1	2.8	1	2.7	99	.
1984	12	8	1	4.6	1	1.8	99	.
1984	12	9	1	4.4	1	5.5	99	.
1984	12	10	1	6.9	1	8.3	99	.
1984	12	11	4	7.5	2	1.5	99	.
1984	12	12	2	7.8	1	4.4	99	.
1984	12	13	11	7.1	6	7.3	99	.
1984	12	14	7	10.0	6	7.7	99	.
1984	12	15	4	5.7	2	3.7	99	.
1984	12	16	4	4.7	2	8.1	99	.
1984	12	17	4	7.6	2	4.8	99	.
1984	12	18	4	9.7	1	5.5	99	.
1984	12	19	2	7.6	1	1.5	99	.
1984	12	20	1	7.4	1	2.2	99	.
1984	12	21	1	7.3	1	10.3	99	.
1984	12	22	2	5.8	1	1.3	99	.
1984	12	23	2	5.0	1	0.3	99	.
1984	12	24	2	5.6	1	2.6	99	.
1984	12	25	2	9.0	1	0.9	99	.
1984	12	26	4	7.9	1	6.3	99	.
1984	12	27	99	.	99	.	99	.
1984	12	28	4	8.1	2	2.1	99	.
1984	12	29	1	5.6	2	6.7	99	.
1984	12	30	1	5.5	1	1.3	99	.
1984	12	31	2	7.2	1	3.5	99	.