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Pacific Northwest Laboratories
Richland, Washington 99352

AEC Research and Development Report

CLIMATOGRAPHY OF THE HANFORD
AREA

JUNE 1972

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ERRATA

CLIMATOGRAPHY OF THE HANFORD AREA

- Page 4.8 Line 3 should read:
 "longer or stippled bars in Figure 14....."
 Line 6 should read:
 "shorter bars of Figure 14....."
- Page 5.1 Last paragraph, 1st sentence should read:
 Wind from 259° to 326° (WNW octant) occurs 42.4 per-
 cent of the time as compared to only 19.8 percent
 from 169° to 281° (SW octant).
- Page 5.2 Table 15, Column 2 heading should read:
 PREV DCN
- Page 5.3 Table 16, Column 1 heading should read:
 DCN NUMBER
- Page 6.4 Line 9 should read:
 "... (beginning hour 1900"
- Page 7.4 Table 28, December, January and February 1957-70
 Dry Bulb Column, 1st line should read:
 <-20
- Page 9.2 3rd sentence, line 4 should read:
 In Richland, about 25 miles SE of the HMS, one
 occurred on January 18, 1953.
- Page 10.1 Last paragraph, 1st sentence should read:
 "Figure 31 shows both a"
- Page 10.47 4th paragraph, line 2 should read:
 "... 259° to 326° (WNW octant) 42.4 percent of ..."

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CLIMATOGRAPHY OF THE HANFORD AREA

W.A. Stone
D.E. Jenne
J.M. Thorp

June 1972

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PACIFIC NORTHWEST LABORATORIES
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I. INTRODUCTION

CLIMATOGRAPHY OF THE HANFORD AREA

Based on records kept at the Hanford Meteorology Station from 1946-1970, and supplemented with precipitation and temperature data taken by U.S. Weather Bureau cooperative observers at a site about 10 miles ENE of the present station location during the period 1912-1944. All times in this document are expressed as Pacific Standard Time.

I. INTRODUCTION

GENERAL

This document brings together and summarizes meteorological observations from the AEC Hanford complex near Richland, Washington. It's issuance is prompted by the heavy demand for updated information contained in an earlier 1959 publication, "A Climatological Study of the Hanford Area."⁽¹⁾ The summaries presented in this volume are far more extensive and comprehensive than were earlier reports, and they have been organized to meet the requirements for both local and national interests.

LOCATION AND DESCRIPTION

The Hanford Meteorology Station (HMS) is on a plateau in South Central Washington (Figure 1-A and 1-B). The plateau slopes downward toward the Columbia River about 10 miles north of the station and about 300 feet lower in elevation. Elevation of the station is 733 feet MSL. The nearest city is Richland, about 25 miles SE.

In the immediate vicinity of the meteorology station are the Rattlesnake Mountains south and southwest, the Yakima Ridge to the west, and the Saddle Mountains northwest and north. The latter come within 20 miles of the station and rise to more than 2500 feet MSL, while the Yakima Ridge and Rattlesnake Mountains come within 10 miles of the station and rise to

FIGURE 1-A
THE HANFORD RESERVATION IN RELATION TO SURROUNDING TERRAIN⁽¹⁾

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FIGURE 1-B
VICINITY MAP

more than 3500 feet. The Cascade Mountains beyond Yakima to the west greatly affect the climate of the Hanford Area, but are not visible from the meteorology station.

Vegetation in the Hanford environs, including the mountainous areas, consists mainly of sagebrush, cheat grass, and other desert plants. There are no trees except in isolated cultivated spots.

HISTORY

The first official climatological observation in the Hanford Area were made by U.S. Weather Bureau* cooperative observers. These observations began April 15, 1912, and continued almost without interruption until March 31, 1943. They consisted of daily maximum and minimum temperatures and total precipitation, including measurements of unmelted snow. Although there were minor changes in observer location, all were along the Columbia River about 10 miles ENE of the present HMS.

After March 1943, and until December 1944, the only official weather observations in the Hanford Area were made by a U.S. Weather Bureau unit near Richland, about 25 miles SE of HMS. These observations covered only the period from December 1, 1943 to May 18, 1944.

The HMS was constructed as part of the Manhattan Project in 1944. Hourly observations on a 24-hour continuous basis began on December 7, 1944, and continued through the year 1970. Original meteorological measurements were concerned mainly with wind and temperature observations from the surface to the top of the 410-foot tower. Before the end of 1946, however, these were expanded to include all of the standard "surface observations" specified by the Weather Bureau.⁽²⁾ Since 1965, four of these hourly observations per day (0400, 1000, 1600, and 2200 PST) have been coded⁽³⁾ and phoned to Seattle for national transmission over Teletype Service C.

* Now the National Weather Service

DESCRIPTION OF HANFORD METEOROLOGICAL STATION (HMS)

The HMS consists of a 410-foot steel tower (Figure 2) with booms spaced at 50-foot intervals and instrumented as shown below.

<u>Instrument</u>	<u>Tower Levels (ft)</u>							
	<u>50</u>	<u>100</u>	<u>150</u>	<u>200</u>	<u>250</u>	<u>300</u>	<u>350</u>	<u>400</u>
Thermohm	X	X	X	X	X	X	X	X
Aerovane	X	X	X	X	X	X	X	X

About 75 feet northwest of the tower is a surface installation consisting of a thermohm, aerovane, and dewcel. Near the meteorology building, about 1500 feet west, is a pyranometer, a precipitation gage, and an instrument shelter which houses the maximum and minimum thermometers. These facilities, plus the recorders and other installation inside the meteorology building, are described in detail by Stone.⁽⁴⁾

OBJECTIVE

Hanford climatological data are applied in a wide variety of problem categories. Frequently, these fall into one or several of the following:

1. Safety Analysis appraisals for planned operational facilities.
2. Design and construction of new or alteration of existing facilities.
3. Assessment of the diffusion climatology of an arid region in relation to determining criteria for reactor siting in the U.S.

One purpose of this document is to present climatological information applicable to each of the above.

FIGURE 2-A
THE 410 FT METEOROLOGY TOWER SHOWING THE
INSTRUMENT BOOMS (AT 50 FT INTERVALS) AND
GUY WIRES

FIGURE 2-B
THE SURFACE INSTRUMENT INSTALLATION

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II. SURFACE TEMPERATURES (°F)

II. SURFACE TEMPERATURES (°F)

Monthly Means

Means, based on observations of daily maximum and minimum temperatures, are listed for the entire period of record in Table 1. At the bottom of each column, both averages and normals are shown. The former are averaged over the entire period of record, while the latter are averaged only for the period from 1941-1970 (30 years). Since observations at Hanford Meteorology Station (HMS) began on January 1, 1945, nearly all of the data used in computing normals are from this location.

A notable feature of the data tabulated in Table 1 is the much greater range and variability of winter temperatures as compared to those of summer. These features are shown below and in Figure 3.

	<u>Monthly Means During Winter</u>		
	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>
Highest of record (M_1)	42.0	42.5	44.5
Lowest of record (M_2)	<u>18.5</u>	<u>12.1</u>	<u>21.4</u>
Range (M_1-M_2)	23.5	30.4	23.1
	<u>Monthly Means During Summer</u>		
	<u>June</u>	<u>July</u>	<u>Aug</u>
Highest of record (M_3)	75.4	81.8	81.5
Lowest of record (M_4)	<u>63.0</u>	<u>72.4</u>	<u>69.8</u>
Range (M_3-M_4)	12.4	9.4	10.7

Another feature of the Table 1 data is that negative departures from the long-period average are significantly greater than positive departures during winter, while in summer the two are more nearly equal, with positive departures higher during July and August, as shown on the following page.

TABLE 1
COMPOSITE RECORD OF MONTHLY AND ANNUAL MEAN TEMPERATURES (°F)
HANFORD TOWNSITE (NEAR) AND HMS: 1912-1970

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1912	---	---	---	---	62.6	71.1	74.8	70.5	62.3	49.1	42.6	35.2	---
1913	25.8	28.2	43.2	54.1	61.4	70.6	76.0	73.7	62.2	49.5	43.0	31.2	51.6
1914	37.4	35.5	46.8	53.7	62.9	65.7	75.2	73.8	60.2	53.4	41.0	22.6	52.4
1915	25.2	38.2	48.2	55.4	60.2	67.2	72.8	77.5	62.4	54.0	37.8	32.4	52.6
1916	16.1 ^(a)	32.4 ^(a)	46.9	53.0	56.8	---	---	73.6	63.8	50.8	35.5	25.4	---
1917	28.4	34.6	43.2	50.5	60.0	66.0	77.4	75.7	66.2	54.3	42.9	41.0	53.4
1918	34.8	36.0	45.3	53.8	58.8	73.4	76.9	72.1	68.5	56.2	40.6	35.6	54.3
1919	31.1	37.1	45.5	54.5	60.8	66.9	76.6	74.4	64.0	49.4	38.8	18.5	51.5
1920	26.8 ^(a)	35.2	46.4	51.5	58.9	67.6	78.6	74.0	63.2	51.8	40.6	37.2	52.6
1921	35.3	38.1	47.6	51.5	63.6	72.5	75.3	75.4	59.8	54.8	40.4	31.4	53.8
1922	19.1	30.7	44.4	52.2	61.3	75.4	78.5	75.3	66.4	54.7	38.4	23.0	51.6
1923	37.0	28.8	46.0	54.8	62.2	67.8	76.6	77.5	68.4	53.7	42.8	33.2	54.1
1924	25.0	43.7	46.9	54.3	68.3	71.2	75.2	73.5	65.5	54.6	39.4	23.8	53.4
1925	34.8	44.4	47.3	56.4	63.8	71.0	79.2	72.8	63.4	50.6	37.6	38.0	54.9
1926	33.9	43.7	49.8	58.9	61.8	72.6	78.7	72.6	58.8	53.6	42.8	27.8	54.6
1927	28.3	40.8	44.6	52.4	58.6	70.0	75.6	72.9	61.5	52.3	44.0	26.2	52.3
1928	28.4	36.2	47.8	51.4	65.6	68.9	77.6	72.0	63.9	52.5	40.8	32.2	53.1
1929	20.0	21.4	46.8	51.8	61.8	67.4	74.6 ^(a)	74.4	62.2	54.2	32.9	34.6	50.2
1930	12.2	39.7	48.6	57.8	61.5	67.8	77.6	75.6	65.2	48.8	38.6	31.3	52.1
1931	35.3	38.2	46.2	54.4	67.0	69.0	78.4	75.4	65.1	52.1	37.4	27.8	53.9
1932	26.4	34.0	46.4	56.0	61.2	72.3	73.0	74.0	65.3	53.4	43.8	30.4	53.0
1933	35.8	26.6 ^(a)	42.6 ^(a)	51.6	56.6	68.4	74.4	73.2	60.4	54.1 ^(a)	41.6	42.0	52.3
1934	39.6	41.8	49.6	59.6	64.4	70.7	74.2	73.6	62.0	55.6	46.0	37.5	56.2
1935	33.1	37.0	43.0	49.5	60.5	67.2	73.4	70.7	66.9	50.7 ^(a)	35.3	32.4	51.6
1936	35.4 ^(a)	21.5	43.8	57.3	66.2	70.3	75.2	73.8	63.0	54.2	31.8	35.6	52.4
1937	13.0	30.5	46.7	51.4	61.5	68.4	77.3	70.7	65.4	56.2	44.9	37.8	52.0
1938	36.7	34.0	45.0	53.0	61.1	71.2	79.0	72.0	70.0	54.0	37.4	33.8	53.9
1939	36.6	34.4	45.9	54.6	63.4	67.2	77.3	75.5	66.7	53.4	39.9	39.0	54.5
1940	32.0	39.6	49.0	54.4	64.6	72.8	76.6	74.0	69.5	57.3	35.6	33.8	54.9
1941	33.4	38.1	47.6	55.4	60.8 ^(a)	68.5 ^(a)	80.0	73.4	61.0	52.2	43.8	36.7	54.2
1942	25.4	37.8	43.2	54.5	60.2	66.8	76.0	76.8	66.8	54.4	38.2	32.0	52.7
1943	22.7	36.2	42.9	---	---	---	---	---	---	---	---	32.8	---
1944	29.4	36.2	41.5	52.9	61.8 ^(a)	---	---	---	---	---	---	---	---
1945	33.9	38.6	42.1	50.3	61.7	67.5	78.0	77.5	64.6	56.4	40.6	32.7	53.6
1946	34.4	39.6	45.5	53.7	64.2	66.9	76.1	76.6	63.5	49.5	35.8	34.8	53.4
1947	27.3	39.9	49.6	56.2	68.8	67.8	75.4	71.8	65.5	53.3	41.2	33.1	54.2
1948	32.0	31.8	42.1	49.3	58.4	72.5	72.8	71.9	64.4	50.9	40.8	26.8	51.1
1949	14.0	31.9	45.1	55.5	67.0	69.4	75.0	74.9	68.1	50.3	45.3	35.1	52.6
1950	12.1	30.7	42.3	49.9	59.0	66.5	75.4	76.4	67.5	51.1	40.7	36.2	50.6
1951	33.0	36.9	40.1	54.1	61.1	69.4	76.7	74.2	66.8	51.5	39.5	27.4	52.6
1952	25.2	36.7	44.1	55.2	62.7	67.1	77.0	74.0	69.0	59.0	34.0	34.8	53.2
1953	42.5	41.2	46.2	51.0	58.0	63.0	75.8	74.0	67.8	55.4	43.4	37.6	54.7
1954	28.9	39.3	41.5	51.4	62.9	65.5	73.9	71.4	65.1	51.4	46.0	34.0	52.6
1955	30.0	35.3	39.4	47.5	57.0	70.2	73.0	75.5	66.4	53.3	31.3	29.4	50.7
1956	31.8	25.6	43.8	56.2	65.3	65.7	78.9	75.3	67.3	52.1	36.6	34.6	52.8
1957	16.5	34.1	44.0	55.2	65.9	70.8	74.3	72.9	69.0	50.7	40.4	38.5	52.7
1958	37.1	44.5	43.5	51.3	68.1	73.9	81.2	79.4	65.6	54.4	40.6	35.2	56.2
1959	32.0	35.5	45.1	54.2	57.5	68.6	77.7	71.8	62.6	53.4	36.4	33.1	52.3
1960	23.3	37.4	45.1	52.6	58.5	70.1	81.8	71.4	67.7	54.5	41.2	29.0	52.7
1961	35.0	43.7	46.1	52.3	60.0	74.0	79.4	80.2	63.8	51.6	35.3	33.7	54.6
1962	29.8	36.6	42.6	55.6	56.9	68.3	76.0	71.9	67.1	52.6	43.2	36.8	53.1
1963	25.4	38.3	46.4	49.8	61.7	69.4	72.4	75.7	71.1	56.0	42.8	30.2	53.3
1964	35.6	38.1	43.8	50.2	59.7	67.7	74.5	69.8	63.0	53.3	38.2	25.4	51.6
1965	32.3	40.5	42.9	54.8	60.5	69.3	76.5	74.7	62.4	57.1	43.1	33.0	53.9
1966	34.0	39.9	45.4	54.6	63.2	66.9	73.3	75.6	68.8	53.4	43.7	38.2	54.8
1967	39.8	43.7	44.3	47.6	60.5	72.5	78.6	81.5	71.7	55.1	41.5	33.1	55.8
1968	35.7	41.8	49.0	51.3	62.4	69.8	79.7	71.5	66.8	50.3	41.7	30.6	54.2
1969	19.8	31.7	45.8	52.2	64.6	75.1	76.0	72.8	67.4	51.0	40.2	34.6	52.6
1970	30.7	40.6	45.0	49.0	61.5	73.6	78.6	76.3	61.8	50.9	39.7	30.8	53.2
AVG	29.4	36.2	45.2	53.2	61.8	69.4	76.4	74.2	65.2	53.1	40.0	32.6	53.1
* NORMAL	29.4	37.4	44.2	52.5	61.7	69.2	76.6	74.6	66.2	53.0	40.2	33.1	53.2

^(a) AVERAGE ADJUSTED FOR ONE OR MORE DAYS OF MISSING DATA

* NORMALS ARE AVERAGES FOR THE PERIOD 1941-1970

— THE HIGHEST AND LOWEST AVERAGES IN EACH COLUMN ARE UNDERScoreD

FIGURE 3
FREQUENCY DISTRIBUTION OF MONTHLY MEAN TEMPERATURES
JANUARY AND JULY 1912-1970

<u>Winter Months</u>	<u>Avg (Table 1)</u>	<u>Greatest Departure from Avg</u>	
		<u>Negative</u>	<u>Positive</u>
Dec	32.6	14.1 (1919)	9.4 (1933)
Jan	29.4	17.3 (1950)	13.1 (1953)
Feb	36.2	14.8 (1929)	8.3 (1958)
<u>Summer Months</u>	<u>Avg (Table 1)</u>	<u>Greatest Departure from Avg</u>	
		<u>Negative</u>	<u>Positive</u>
June	69.4	6.4 (1953)	6.0 (1922)
July	76.4	4.0 (1963)	5.4 (1960)
Aug	74.2	4.4 (1964)	7.3 (1967)

Frequency Distribution of Daily Maxima and Minima: January versus July

Figure 4 is a frequency distribution of the subject temperatures during the period 1956-1970 (15 years).

Days With Maximum Temperatures 100°F or Above, 90°F or Above, and 32°F or Below

The number of days in which the maximum temperature exceeded each of these thresholds is tabulated by month for the entire period of record in Table 2.

The average annual number of days with maximum temperatures $\geq 100^{\circ}\text{F}$ is 13, with 2 occurring in June and the other 11 in July and August. Maximum daily temperatures $\geq 100^{\circ}\text{F}$ have occurred as early as May 5 (1966) and as late as September 9 (1940). The frequency of occurrence, of annual number of days with maximum temperatures $\geq 100^{\circ}\text{F}$ has ranged from 1 (1954 to 32 (1942). The greatest number of consecutive days with maximum temperatures $\geq 100^{\circ}\text{F}$ is 11 (July 13-23, 1938 and August 10-20, 1967).

The average annual number of days with maximum temperatures $\geq 90^{\circ}\text{F}$ is 56, with an annual frequency of occurrence ranging from 37 (1954) to 85 (1938 and 1940). The earliest annual occurrence of such days has varied from April 17 (1936) to July 2 (1953), with an average date of May 18 (Table 3). The latest annual occurrence has varied from

FIGURE 4
FREQUENCY DISTRIBUTION OF DAILY MAXIMUM AND MINIMUM TEMPERATURES
JANUARY AND JULY 1940-1970

TABLE 2
COMPOSITE RECORD OF MONTHLY AND SEASONAL NUMBER OF DAYS WITH MAXIMUM TEMPERATURE (°F) IN RELATION
TO CERTAIN THRESHOLDS
HANFORD TOWNSITE (NEAR) AND HMS: 1912-1970

100 OR ABOVE							90 OR ABOVE							32 OR BELOW								
SEASON	MAY	JUNE	JULY	AUG	SEPT	TOTAL	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL	SEASON	OCT	NOV	DEC	JAN	FEB	MAR	TOTAL
1912	0	6	8	4	0	18	0	4	14	20	14	2	0	54	1912-13	0	0	1	16	13	0	30
1913	0	3	13	7	0	23	0	6	14	22	20	3	0	65	1913-14	0	0	10	0	3	0	13
1914	0	1	10	7	0	18	0	4	9	26	23	2	0	64	1914-15	0	0	19	15	0	0	34
1915	0	0	6	9	0	15	0	1	8	15	29	4	0	57								
1916	0	--	--	7	0	(7)	0	0	--	--	17	1	0	(18)	1915-16	0	0	5	22	6	0	33
1917	0	1	8	2	0	11	0	0	6	24	26	5	0	61	1916-17	0	5	14	10	1	0	30
1918	0	2	6	0	0	8	0	2	19	18	13	7	0	59	1917-18	0	0	1	3	2	0	6
1919	0	0	6	1	0	7	0	1	6	23	20	3	0	53	1918-19	0	0	7	11	0	0	18
1920	0	1	11	5	0	17	0	0	5	26	20	1	0	52	1919-20	0	2	18	17	0	0	37
1921	0	1	7	5	0	13	0	3	13	21	18	0	0	55	1920-21	0	0	1	2	0	0	3
1922	0	4	8	3	0	15	0	3	20	23	18	3	0	67	1921-22	0	3	11	22	5	0	41
1923	0	3	8	6	0	17	0	1	6	23	22	12	0	64	1922-23	0	1	17	2	8	0	28
1924	0	1	8	2	0	11	0	11	7	20	13	11	0	62	1923-24	0	0	4	12	0	0	16
1925	0	5	8	1	0	14	0	0	13	27	19	1	0	60	1924-25	0	2	17	2	0	0	21
1926	0	3	6	0	0	9	4	1	13	26	11	0	0	55	1925-26	0	3	0	3	0	0	6
1927	0	0	4	0	0	4	0	0	4	19	18	0	0	41	1926-27	0	0	14	12	0	0	26
1928	1	1	9	0	0	11	0	6	4	21	14	5	0	50	1927-28	0	0	14	12	0	0	26
1929	0	0	2	3	0	5	0	5	3	17	20	5	0	50	1928-29	0	0	9	26	16	0	51
1930	0	0	9	7	0	16	0	1	5	22	20	3	0	51	1929-30	0	0	5	26	0	0	31
1931	1	3	10	6	0	20	0	9	5	22	22	4	0	52	1930-31	0	0	9	0	0	0	9
1932	0	5	3	7	0	15	0	1	16	16	17	5	0	55	1931-32	0	5	12	16	5	0	38
1933	0	2	6	9	0	17	0	1	8	21	18	1	1	50	1932-33	0	0	12	4	12	0	28
1934	1	1	6	4	0	12	4	8	9	18	23	4	0	66	1933-34	0	0	3	0	0	0	3
1935	0	0	5	0	1	6	0	1	4	17	15	9	0	46	1934-35	0	0	0	6	0	0	6
1936	1	1	7	3	0	12	1	8	12	19	20	5	0	65	1935-36	2	0	11	4	19	0	36
1937	0	2	8	3	0	13	0	2	8	25	15	10	0	60	1936-37	0	4	5	29	7	0	45
1938	0	1	16	3	2	22	0	6	16	26	21	16	0	85	1937-38	0	0	1	0	0	0	1
1939	0	2	14	9	0	25	1	3	6	21	25	9	0	65	1938-39	0	0	3	0	3	0	6
1940	0	6	9	7	1	23	0	9	20	25	24	7	0	85	1939-40	0	0	0	4	1	0	5
1941	0	1	12	6	0	19	0	--	8	29	18	0	0	(55)	1940-41	0	0	3	3	0	0	6
1942	0	2	13	16	1	32	0	1	3	26	23	10	0	63	1941-42	0	0	1	16	0	0	17
1943	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1942-43	0	0	5	20	1	0	26
1944	0	--	--	--	--	--	0	--	--	--	--	--	--	--	1943-44	0	--	10	7	0	0	(17)
1945	0	0	8	4	0	12	0	1	7	22	21	5	0	56	1944-45	--	--	--	12	1	1	(14)
1946	0	0	7	6	0	13	1	0	4	15	18	0	0	38	1945-46	0	2	9	0	0	0	11
1947	1	0	2	0	0	3	0	8	4	17	11	2	0	42	1946-47	0	4	4	14	0	0	22
1948	0	2	0	0	0	2	0	1	9	14	7	7	0	38	1947-48	0	0	6	8	9	0	23
1949	0	1	6	2	1	10	0	8	8	15	18	8	0	57	1948-49	0	0	13	28	8	0	49
1950	0	0	2	3	2	7	0	1	5	20	22	8	0	56	1949-50	0	0	5	24	5	1	35
1951	0	0	8	3	0	11	0	1	8	23	19	5	0	56	1950-51	0	0	2	8	2	0	12
1952	0	0	9	3	0	12	0	2	5	21	17	12	0	57	1951-52	0	0	16	19	0	0	35
1953	0	0	4	4	0	8	0	0	0	21	13	11	0	45	1952-53	0	9	6	1	0	0	16
1954	0	0	1	0	0	1	0	2	3	20	9	3	0	37	1953-54	0	0	2	12	4	0	18
1955	0	2	5	2	2	11	0	0	9	12	19	8	0	48	1954-55	0	0	5	13	2	1	21
1956	0	0	10	5	0	15	0	7	2	22	16	7	0	54	1955-56	0	15	16	7	15	0	53
1957	0	1	1	0	0	2	0	3	8	14	8	6	0	39	1956-57	0	7	10	22	7	0	46
1958	0	6	10	11	0	28	0	8	11	28	25	5	0	77	1957-58	0	0	2	2	0	0	4
1959	0	0	8	1	0	9	0	1	7	21	12	3	0	44	1958-59	0	3	5	8	2	0	18
1960	0	0	16	5	0	21	0	1	12	28	12	5	0	58	1959-60	0	5	7	23	1	2	38
1961	0	7	8	10	0	25	0	1	15	26	24	1	0	67	1960-61	0	0	14	10	0	0	24
1962	0	10	1	0	0	11	0	0	11	17	10	8	0	46	1961-62	0	0	7	12	2	0	21
1963	0	3	0	2	0	5	0	4	7	8	18	11	0	48	1962-63	0	0	3	14	3	0	20
1964	0	0	6	0	0	6	0	0	5	14	10	2	0	41	1963-64	0	1	11	3	0	0	15
1965	0	0	6	5	0	11	0	0	7	20	12	1	0	40	1964-65	0	0	14	5	0	0	19
1966	1	0	2	3	0	6	0	5	2	15	21	7	0	50	1965-66	0	1	8	3	0	0	12
1967	0	2	6	15	0	23	0	2	13	25	27	12	0	79	1966-67	0	0	2	0	0	0	2
1968	0	0	10	3	0	13	1	1	5	22	12	4	0	45	1967-68	0	0	10	4	0	0	14
1969	0	3	3	2	0	8	0	6	17	20	15	7	0	65	1968-69	0	0	7	20	4	0	31
1970	0	9	11	5	0	25	0	2	15	22	19	0	0	58	1969-70	0	3	9	15	0	0	27
AVG	#	2	7	4	#	13	#	3	9	21	18	5	#	56	AVG	#	1	8	10	3	#	22

GREATEST AND LEAST SEASONAL TOTALS ARE UNDERScoreD

() INDICATES AN INCOMPLETE SEASONAL TOTAL

DENOTES AN AVERAGE OF LESS THAN ONE-HALF DAY

TABLE 3
COMPOSITE RECORD OF MONTHLY AND SEASONAL NUMBER OF DAYS WITH
MINIMUM TEMPERATURE (°F) IN RELATION TO CERTAIN THRESHOLDS
HANFORD TOWNSITE (NEAR) AND HMS: 1912-1970

SEASON	32 OR BELOW										0 OR BELOW				
	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	TOTAL	NOV	DEC	JAN	FEB	TOTAL
1912-13	0	9	15	27	30	26	21	8	2	138	0	0	2	4	6
1913-14	0	10	12	31	23	22	19	9	1	127	0	0	0	0	0
1914-15	0	3	19	30	31	22	17	6	0	128	0	2	2	0	4
1915-16	0	7	24	26	28	22	11	6	3	127	0	0	11	0	11
1916-17	0	12	21	30	29	24	22	3	0	141	0	1	0	0	1
1917-18	0	9	14	19	27	22	15	4	0	110	0	0	0	0	0
1918-19	0	3	19	23	25	22	11	7	0	110	0	0	0	0	0
1919-20	0	9	22	29	28	26	13	4	0	131	0	14	0	0	14
1920-21	0	2	18	23	28	15	13	6	0	105	0	0	0	0	0
1921-22	3	4	20	23	31	26	17	3	1	128	0	0	6	0	6
1922-23	0	4	13	26	23	25	16	1	0	108	0	7	0	0	7
1923-24	0	6	19	28	29	15	16	6	0	119	0	1	3	0	4
1924-25	0	0	17	26	29	9	9	0	0	90	0	8	0	0	8
1925-26	0	5	23	18	27	16	12	1	0	102	0	0	0	0	0
1926-27	4	4	12	28	27	17	17	8	0	117	0	0	3	0	3
1927-28	0	1	11	29	29	28	9	6	2	115	0	0	0	0	0
1928-29	0	3	17	29	31	26	19	8	0	133	0	0	5	9	14
1929-30	0	7	27	21	31	18	10	1	1	116	0	0	13	0	13
1930-31	0	11	22	27	23	21	12	4	0	120	0	0	0	0	0
1931-32	0	3	17	30	31	20	9	2	0	112	0	0	0	4	4
1932-33	0	3	8	24	24	24	22	8	1	114	0	5	0	4	9
1933-34	4	5	16	14	25	21	17	2	0	104	0	0	0	0	0
1934-35	0	2	8	19	23	22	21	15	0	110	0	0	1	0	1
1935-36	0	10	20	27	22	27	19	4	0	129	1	0	0	7	8
1936-37	2	9	30	26	31	22	13	5	0	138	0	0	10	3	13
1937-38	0	0	7	18	25	27	15	12	3	107	0	0	0	0	0
1938-39	0	9	26	27	26	26	17	8	0	139	0	0	0	0	0
1939-40	0	8	28	25	27	17	15	2	0	122	0	0	0	0	0
1940-41	0	2	25	23	28	25	23	5	0	131	0	0	0	0	0
1941-42	1	1	18	23	27	19	25	8	2	124	0	0	4	0	4
1942-43	0	8	19	28	31	19	18	--	--	(123)	0	0	4	0	4
1943-44	0	--	--	26	31	28	25	7	1	(118)	0	0	0	0	0
1944-45	0	--	--	--	27	18	12	6	0	(63)	0	0	0	0	0
1945-46	0	5	14	25	27	20	10	2	0	103	0	0	0	0	0
1946-47	0	8	23	24	27	19	6	1	0	108	0	0	1	0	1
1947-48	0	0	11	26	25	24	21	7	1	115	0	0	0	0	0
1948-49	0	8	15	30	31	25	11	4	1	125	0	2	9	0	11
1949-50	0	10	4	25	30	22	18	4	0	113	0	0	14	4	18
1950-51	0	0	13	--	26	25	21	2	0	106	0	0	0	0	0
1951-52	0	6	19	26	31	24	20	6	0	132	0	0	0	0	0
1952-53	0	0	25	19	9	15	12	4	0	84	0	0	0	0	0
1953-54	0	1	14	22	23	16	19	4	1	100	0	0	2	0	2
1954-55	0	6	6	26	30	25	22	10	1	126	0	0	0	0	0
1955-56	0	1	22	28	25	26	14	2	0	118	1	0	2	3	6
1956-57	0	3	18	21	31	23	11	0	0	107	0	0	12	1	13
1957-58	0	2	17	16	19	5	16	0	0	75	0	0	0	0	0
1958-59	0	4	14	24	25	24	14	2	1	108	0	0	2	0	2
1959-60	0	2	24	26	31	21	10	4	0	118	0	0	1	0	1
1960-61	0	4	15	29	23	10	7	5	0	93	0	0	0	0	0
1961-62	0	7	28	26	27	17	19	0	1	125	0	0	1	0	1
1962-63	0	0	5	17	27	17	11	2	0	87	0	0	2	0	2
1963-64	0	5	8	31	26	26	16	4	0	116	0	0	0	0	0
1964-65	0	5	13	29	25	18	19	1	1	111	0	2	0	0	2
1965-66	0	1	8	25	26	22	13	3	0	98	0	0	0	0	0
1966-67	0	3	11	18	20	17	18	9	0	96	0	0	0	0	0
1967-68	0	1	17	25	23	13	6	5	0	90	0	0	0	0	0
1968-69	0	3	8	24	30	25	15	1	0	106	0	4	5	1	10
1969-70	0	5	19	21	28	13	16	7	1	110	0	0	0	0	0
AVG	#	5	17	25	27	21	15	5	#	115	#	1	2	1	4

AN UNDERSCORED FIGURE DENOTES EITHER A RECORD HIGH OR LOW FOR THAT MONTH OR SEASON

() INDICATES AN INCOMPLETE SEASONAL TOTAL

DENOTES AN AVERAGE OF LESS THAN ONE-HALF DAY

August 23 (1927 and 1941) to October 6 (1953), with an average date of September 14. The greatest number of consecutive days with maximum temperatures $\geq 90^{\circ}\text{F}$ is 37 (July 19-August 24, 1942).

The average seasonal number of days with maximum temperature of $\leq 32^{\circ}\text{F}$ is 22 with 1 occurring in November and the other 21 during the months of December through February. The earliest seasonal occurrence of a day with maximum temperature $\leq 32^{\circ}\text{F}$ has been October 30 (1935) and the latest, March 11 (1950). The frequency of occurrence, of seasonal number of days with maximum temperatures $\leq 32^{\circ}\text{F}$ has ranged from 1 (winter of 1937-1938) to 53 (winter of 1955-1956). The greatest number of consecutive days with maximum temperatures $\leq 32^{\circ}\text{F}$ is 29 (January 5-February 2, 1937).

Days with Minimum Temperatures 32°F or Below and 0°F or Below

The number of days on which the minimum temperature was $\leq 32^{\circ}\text{F}$ or was $\leq 0^{\circ}\text{F}$ is tabulated by months for the entire period of record in Table 3.

The average seasonal number of days with minimum temperatures $\leq 32^{\circ}\text{F}$ is 115. The frequency of occurrence of seasonal number of days with minimum temperatures $\leq 32^{\circ}\text{F}$ has varied from 74 (winter of 1957-58) to 141 (winter of 1916-1917).

The first minimum temperature $\leq 32^{\circ}\text{F}$ has occurred as early as September 11 (1921) and as late as November 12 (1962). The average date is October 16 (Table 4). The last date in spring for minimum temperatures $\leq 32^{\circ}\text{F}$ has varied from March 19 (1958) to May 14 (1916 and 1955), with an average date of April 23. The probability (P) based on Table 4, of one or more days with minimum temperatures $\leq 32^{\circ}\text{F}$ after specified spring dates, or before specified fall dates, is tabulated below.

<u>p (%)</u>	<u>After</u>	<u>p (%)</u>	<u>Before</u>
95	March 30	5	Sept 21
90	April 5	10	Sept 27
75	April 17	25	Oct 8
50	April 24	50	Oct 17
25	May 2	75	Oct 25
10	May 5	90	Oct 31
5	May 9	95	Nov 4

TABLE 4
COMPOSITE RECORD OF ANNUAL FIRST AND LAST
DATES WITH EXTREME TEMPERATURE ($^{\circ}$ F) IN RELATION
TO CERTAIN THRESHOLDS
HANFORD TOWNSITE (NEAR) AND HMS 1912-1970

YEAR	MAXIMUM 90 OR ABOVE		MINIMUM 32 OR BELOW		NO. DAYS FREE OF FREEZING
	FIRST IN SPRING	LAST IN SUMMER	LAST IN SPRING	FIRST IN FALL	
1912	MAY 8	SEPT 13	APRIL 26	OCT 7	163
1913	MAY 7	SEPT 17	MAY 2	OCT 5	155
1914	MAY 13	SEPT 2	MAY 5	OCT 22	169
1915	MAY 7	SEPT 18	APRIL 24	OCT 6	164
1916	-----	SEPT 1	<u>MAY 14</u>	OCT 1	139
1917	JUNE 8	SEPT 20	APRIL 22	OCT 17	177
1918	MAY 3	SEPT 18	APRIL 17	OCT 24	189
1919	MAY 21	SEPT 16	APRIL 20	OCT 8	170
1920	JUNE 3	SEPT 3	APRIL 30	OCT 19	171
1921	MAY 24	AUG 30	APRIL 29	<u>SEPT 11</u>	134
1922	MAY 13	SEPT 12	MAY 8	OCT 27	171
1923	MAY 8	SEPT 14	APRIL 7	OCT 24	199
1924	MAY 9	SEPT 14	APRIL 25	NOV 5	193
1925	JUNE 17	SEPT 3	MARCH 28	OCT 13	198
1926	APRIL 26	AUG 25	APRIL 3	SEPT 23	173
1927	JUNE 5	<u>AUG 23</u>	APRIL 20	OCT 29	191
1928	MAY 19	SEPT 5	MAY 2	OCT 12	162
1929	MAY 19	SEPT 16	APRIL 24	OCT 23	181
1930	MAY 27	SEPT 17	MAY 6	OCT 10	156
1931	MAY 11	SEPT 4	APRIL 27	OCT 7	162
1932	MAY 17	SEPT 14	APRIL 19	OCT 23	186
1933	MAY 29	<u>OCT 6</u>	MAY 5	SEPT 23	140
1934	APRIL 19	<u>SEPT 6</u>	APRIL 3	OCT 15	194
1935	MAY 21	SEPT 10	APRIL 30	OCT 9	161
1936	<u>APRIL 17</u>	SEPT 24	APRIL 4	SEPT 14	162
1937	MAY 2	SEPT 18	APRIL 28	NOV 3	188
1938	MAY 23	SEPT 23	MAY 7	OCT 17	162
1939	APRIL 28	SEPT 22	APRIL 20	OCT 6	168
1940	MAY 9	SEPT 11	APRIL 23	OCT 27	186
1941	MAY 23	<u>AUG 23</u>	APRIL 20	SEPT 20	152
1942	MAY 21	SEPT 27	MAY 2	OCT 12	162
1943	-----	-----	-----	-----	---
1944	MAY 5	-----	MAY 3	-----	---
1945	MAY 30	SEPT 14	APRIL 10	OCT 18	190
1946	APRIL 25	AUG 24	APRIL 7	OCT 11	186
1947	MAY 6	SEPT 12	APRIL 7	NOV 4	208
1948	MAY 26	SEPT 13	MAY 2	OCT 17	167
1949	MAY 8	SEPT 27	MAY 3	OCT 8	157
1950	MAY 26	SEPT 23	APRIL 27	NOV 8	194
1951	MAY 22	SEPT 19	APRIL 21	OCT 15	176
1952	MAY 24	SEPT 26	APRIL 29	NOV 1	185
1953	<u>JULY 2</u>	SEPT 15	APRIL 15	OCT 24	191
1954	MAY 17	SEPT 10	MAY 1	OCT 1	152
1955	JUNE 6	SEPT 10	<u>MAY 14</u>	OCT 31	169
1956	MAY 16	SEPT 19	APRIL 6	OCT 22	198
1957	MAY 29	SEPT 15	MARCH 26	OCT 22	210
1958	MAY 18	SEPT 10	<u>MARCH 19</u>	OCT 21	215
1959	MAY 13	SEPT 13	<u>MAY 5</u>	OCT 30	177
1960	MAY 10	SEPT 18	APRIL 21	OCT 11	172
1961	MAY 25	SEPT 4	APRIL 19	OCT 20	183
1962	JUNE 8	SEPT 26	MAY 4	<u>NOV 12</u>	191
1963	MAY 20	SEPT 29	APRIL 16	OCT 25	191
1964	JUNE 23	SEPT 24	APRIL 19	OCT 16	179
1965	MAY 28	SEPT 1	MAY 5	OCT 16	163
1966	MAY 3	SEPT 22	APRIL 19	OCT 14	177
1967	MAY 20	SEPT 28	APRIL 27	OCT 26	181
1968	APRIL 29	SEPT 9	APRIL 22	OCT 21	181
1969	MAY 9	SEPT 12	APRIL 26	OCT 13	169
1970	MAY 16	AUG 31	MAY 11	OCT 7	148
AVG	MAY 18	SEPT 14	APR 23	OCT 16	175

THE EXTREMES IN EACH COLUMN ARE UNDERScoreD

There is an average of 4 days per winter season when the daily minimum temperature is $\leq 0^{\circ}\text{F}$. However, nearly half of all winters are free of such days. There were 18 days in January-February 1950, and 13 days for the same months in 1957, with daily minimum temperatures $\leq 0^{\circ}\text{F}$. During these periods there were 4 (1950) and 2 (1957) consecutive days with minimum temperatures $\leq -20^{\circ}\text{F}$.

There are 10 days of record when the daily maximum temperature was $\leq 0^{\circ}\text{F}$. These days are tabulated below.

<u>Date</u>	<u>Max Temp</u>	<u>Date</u>	<u>Max Temp</u>
1. Dec 12, 1919	0	6. Feb 1, 1950	-3
2. Dec 13, 1919	-3	7. Feb 2, 1950	0
3. Dec 14, 1919	-3	8. Jan 27, 1957	0
4. Feb 9, 1929	-1	9. Dec 29, 1968	-2
5. Jan 31, 1950	-2	10. Dec 30, 1968	-2

Monthly Extremes of Daily Maximum and Minimum Temperatures

These are tabulated in Table 5. As in Table 1, a feature of the Table 5 data is the greater range of temperatures during winter than in summer. December temperatures, for example, cover a range of 95 degrees (from -27 to $+68$) while July temperatures cover a range of 74 degrees (from 41 to 115). Daily minimum temperatures have covered a range of 80 degrees in December while in July the range has covered 41 degrees (from 41 to 82).

Occasionally there are lower temperatures in summer than in winter. In January, for example, the temperature climbed to 66 on the 20th in 1968. On the other hand, the high of July 2, 1966 was only 59. On January 1, 1921, the lowest temperature was 51 as compared to 41 on July 5, 1935.

TABLE 5
MONTHLY EXTREMES OF DAILY MAXIMUM AND MINIMUM TEMPERATURES AND DAILY
TEMPERATURE RANGES - HANFORD TOWNSITE (NEAR) AND HMS
BASED ON PERIOD OF RECORD 1912-1970

MONTH	DAILY MAXIMUM TEMPERATURE				DAILY MINIMUM TEMPERATURE				DAILY TEMPERATURE RANGE *			
	RECORD HIGHEST		RECORD LOWEST		RECORD HIGHEST		RECORD LOWEST		GREATEST		LEAST	
	°F	DATE	°F	DATE	°F	DATE	°F	DATE	°F	DATE	°F	DATE
JAN	66	20, 1968	-2	31, 1950	51	1, 1921	-23	17, 1916#	42	25, 1962	1	13, 1952#
FEB	71	12, 1924	-3	1, 1950	55	26, 1932	-23	3, 1950#	42	1, 1947	2	9, 1954#
MAR	83	25, 1960	24	3, 1960	54	9, 1942	6	5, 1955	41	30, 1945#	2	6, 1957
APR	95	22, 1934#	41	7, 1945	60	21, 1956	12	1, 1935	47	16, 1954#	8	7, 1953#
MAY	103	26, 1936#	49	8, 1918	70	19, 1956	28	1, 1954	48	11, 1946	6	24, 1962
JUNE	110	25, 1912	56	18, 1938#	81	30, 1924	33	9, 1933	45	25, 1970	8	28, 1946#
JULY	115	27, 1939	59	2, 1966	82	30, 1925	41	5, 1935	44	9, 1952	7	2, 1966
AUG	113	4, 1961	63	25, 1920	81	4, 1961	40	18, 1918	43	31, 1955#	10	20, 1959#
SEPT	102	2, 1950	52	23, 1934#	72	7, 1955	25	23, 1926	44	6, 1962	10	27, 1955#
OCT	90	6, 1933	31	30, 1935	60	27, 1937#	6	31, 1935	43	11, 1946#	3	20, 1947
NOV	73	5, 1934	14	13, 1955#	52	24, 1927#	-1	14, 1955	36	24, 1970	1	26, 1952
DEC	68	22, 1933	-3	13, 1919#	53	20, 1933	-27	12, 1919	37	3, 1956	1	27, 1947#
ANN	115	JULY 27, 1939	-3	FEB. 1, 1950#	82	JULY 30, 1925	-27	DEC. 12, 1919	48	MAY 11, 1946	1	NUMEROUS DATES

* STATISTICS TABULATED FOR THE DAILY TEMPERATURE RANGE ARE BASED ONLY ON THE PERIOD OF RECORD 1945-1970

DENOTES ALSO ON EARLIER DATES

The Annual Course of Temperature

Figure 5 is a graph of each day's normal and extreme maximum/minimum temperatures. There is a larger departure of the extremes from the means during winter than during summer. In summer, both extremes are nearly equidistant from the mean. In winter, there is a larger departure of both extremes, with the low extremes departing more from normal than the high extremes. This is particularly true in the graph of daily minimum temperatures.

Record Cold Temperatures

The periods of December 1-17, 1919 (18 days duration), January 24-February 5, 1950 (13 days duration) and January 12-February 3, 1957 (23 days duration) were record-breaking cold periods. These three periods accounted for 7 of 10 days of record with a daily maximum temperature of $\leq 0^{\circ}\text{F}$ and for 9 of 16 days of record with a minimum temperature of $\leq -20^{\circ}\text{F}$. Some comparative statistics are tabulated below.

Number of Days with Maximum Temperatures

	<u>Dec</u> <u>1919</u>	<u>Jan-Feb</u> <u>1950</u>	<u>Jan-Feb</u> <u>1957</u>
32°F or below (all consecutive in each case)	18	13	23
15°F or below	7	10	7
0°F or below	3	3	1

Number of Days with Minimum Temperatures

0°F or below (all consecutive in each case)	14	11	7
-10°F or below	6	6	5
-20°F or below	3	4	2
<u>Extreme Lows</u>	-27°F	-23°F	-22°F

FIGURE 5
NORMAL⁽¹⁾ AND EXTREME⁽²⁾ DAILY TEMPERATURES AT HANFORD⁽³⁾

Statistics tabulated below are for the January-February, 1950 and 1957 periods of cold temperatures. Comparative statistics are not available for December 1919.

Number of Hourly Observations with Temperatures Equal
to or Less than Values Indicated (°F)

<u>Dates</u>	<u>Temperature Classification</u>			
	<u>≤ +10</u>	<u>≤ 0</u>	<u>≤ -10</u>	<u>≤ -20</u>
Jan 28- Feb 4, 1950	163 (117)	135 (93)	55 (16)	6 (3)
Jan 15- Feb 3, 1957	272 (136)	120 (44)	40 (16)	7 (2)

() Indicates greatest number of consecutive hours

Other periods of cold temperatures are tabulated below. These periods together with those of 1919, 1950 and 1957 account for all 16 days of record with a minimum temperature of ≤ -20°F.

<u>From</u>	<u>To</u>	<u>Total</u>	<u>Number of Days</u>			
			<u>Maximum 32 or Below</u>	<u>Minimum 0 or Below</u>	<u>Minimum -20 or Below</u>	<u>Extreme Low (°F)</u>
Dec 30, 1915	Jan 20, 1916	22	20	11	2	-23
Jan 6, 1930	Jan 31, 1930	26	25	13	3	-22
Jan 5, 1937	Feb 2, 1937	29	29	12	2	-23

For additional information on extended periods of below normal temperatures see Appendix II, pages A.II.1 to A.II.3.

Unseasonable Cold Periods

Two of the most unseasonable cold periods occurred during the year 1935. Lows of 12°F and 14°F were recorded, respectively, on April 1 and 2 of that year. A low of 10°F was recorded on October 29, followed by a low of 0°F on November 2.

The period of November 11-23, 1955 was the most prolonged period of cold temperatures for that month. During this period of time there were:

1. 12 consecutive days with maximum of 32 or below,
2. 5 consecutive days with maximum 20 or below,
3. 12 consecutive days with minimum 20 or below,
4. 5 consecutive days with minimum 10 or below.

The extreme low during this period was -1, recorded on November 14.

Prolonged Periods with Above Normal Temperatures

The two most unseasonable periods of heating occurred in 1958 and 1971. Statistics for these periods are as follows:

	<u>July 5 to Aug 26, 1958</u>	<u>July 13 to Aug 21, 1971</u>
Total days duration	53	40
Number of days with max 90 or above	50	39
Number of days with max 100 or above	21	27
Number of nights with min 70 or above	13	16
Number of nights with min below 60	7	5
Average daily max	97.9	103.2
Average daily min	65.8	69.3
Mean temperature	81.8	86.2
Extreme high	107 (July 28)	112 (Aug 9)
Extreme low	55 (Aug 5)	56 (July 13- Aug 15)

Mean Temperatures Plus 10- and 15-Year Moving Averages

Figures 6 through 10 show mean temperatures from selected months and seasons. They also show 10 and 15 year moving averages. The period of record is 1912-1970, and would be a 59 year record if complete. Although there are some gaps in the record, it has remarkable continuity considering that it was compiled entirely by cooperative observers until HMS became operative in December 1944.

FIGURE 6
MEAN ANNUAL TEMPERATURE (1913-1970)
+ 10 AND 15-YEAR MOVING AVERAGES

FIGURE 7
MEAN WINTER TEMPERATURES AND 15-YEAR MOVING AVERAGES

FIGURE 8
MEAN SUMMER TEMPERATURES AND 15-YEAR MOVING AVERAGES

FIGURE 9
MEAN MARCH TEMPERATURES AND 15 YEAR MOVING AVERAGES
FOR PERIOD 1912-70

FIGURE 10
MEAN SEPTEMBER TEMPERATURES AND 15 YEAR MOVING AVERAGES
FOR PERIOD 1912-70

The mean annual, mean winter, and mean summer temperature have all been rising since 1957. In each case, at the end of 1970, the 15-year moving average was either near or above previous highs.

March temperatures exhibited a falling trend from 1934 to 1956, and then leveled off before beginning a rise after 1965. As of 1970, however, the 15-year moving average was still considerably below the high point reached in 1934.

September temperatures on the other hand, reached a low point in 1934, and then started a steady rise to a new high in 1963. Since then there has been no perceptible trend, with the 15-year moving average remaining a little below the 1963 high at the end of 1970.

Freeze-Thaw Cycles

A day with a freeze-thaw cycle is one in which the maximum temperature is above freezing and the minimum temperature below. Table 6 summarizes these data for the entire period of record. November and March contain nearly as many freeze-thaw cycles as the three winter months.

Degree Days

The degree day is the unit most commonly used for measuring the amount of fuel consumed in artificial heating of buildings. The degree day concept assumes that, if the mean outdoor temperature for a particular day is 65°F, or above, no artificial heating is required and the number of degree days is zero. If the daily mean drops below this base, however, the fuel consumed to maintain an inside temperature of 70°F varies almost directly with the number of degree days, which is simply 65 degrees minus the mean temperature.

Table 7 shows selective degree day data for the period 1945-1970. The heating season is assumed to run from July 1 through June 30.

Vertical Temperature Profiles

Refer to Section X, page 10.1.

TABLE 6
FREEZE-THAW CYCLES
DAYS ON WHICH MAXIMUM WAS ABOVE 32°F AND MINIMUM 32°F OR BELOW
1912-1970

	<u>AVERAGE NUMBER OF CYCLES</u>	<u>MAXIMUM NUMBER OF CYCLES</u>	<u>MINIMUM NUMBER OF CYCLES</u>
JANUARY	16	27 1946+	2 1937
FEBRUARY	18	28 1944+	5 1924
MARCH	16	25 1944+	6 1968+
APRIL	5	15 1935	0 1962+
MAY	#	3 1938+	0 1969+
JUNE	0	0 ----	0 ----
JULY	0	0 ----	0 ----
AUGUST	0	0 ----	0 ----
SEPTEMBER	#	4 1933	0 1970+
OCTOBER	5	12 1916	0 1962+
NOVEMBER	16	28 1961+	4 1949
DECEMBER	<u>17</u>	<u>26</u> 1912	<u>9</u> 1924+
ANNUAL	93	168	26

DENOTES AN AVERAGE OF LESS THAN ONE-HALF DAY

+ ALSO IN EARLIER YEARS

TABLE 7
DEGREE DAY DATA FOR THE PERIOD 1945-1970
(BASE 65°F)

MONTH	NORMAL MONTHLY	HIGHEST MONTHLY	YEAR	LOWEST MONTHLY	YEAR	HIGHEST DAILY	DATE	LOWEST DAILY	DATE
JAN	1094	1640	1950	694	1953	77	31, 1950	9	20, 1968
FEB	778	1147	1956	576	1958	78	1, 1950	7	20, 1961
MAR	642	794	1955	476	1947	49	4, 1955	3	25, 1960+
APR	381	522	1955	266	1947	27	4, 1948	0	-----
MAY	153	255	1962	36	1947	22	1, 1954	0	-----
JUNE	34	90	1953	3	1958	15	11, 1956	0	-----
JULY	3	22	1955	0	1970+	9	2, 1966	0	-----
AUG	5	32	1960	0	1970+	8	30, 1964	0	-----
SEPT	67	122	1970	13	1967	17	24, 1958	0	-----
OCT	373	479	1946	200	1952	28	23, 1957	0	-----
NOV	746	1008	1955	567	1954	56	14, 1955	4	23, 1959
DEC	991	1224	1964	822	1957	73	30, 1968	13	15, 1959
		(HS)	(S)	(LS)	(S)		FEB. 1,		
SEASON	5267	6045	1949-50	4599	1966-67	78	1950	0	-----

+ ALSO ON EARLIER DATES

HS HIGHEST SEASONAL TOTAL

LS LOWEST SEASONAL TOTAL

S SEASON OF OCCURRENCE

Persistence of Temperature Inversions

Refer to Section X, page 10.12.

Extreme Temperature Probability

Refer to Section XI, page 11.1.

Wahluke Slope Temperature Study

In 1969 Washington State University's Irrigated Agricultural Research and Extension Center at Prosser, Washington, made a temperature study of the Wahluke Slope* based on thermograph records supplied by HMS.

Appendix III contains the results of that study.

* The Wahluke Slope temperature recording station is across the Columbia River about 20 miles NW of HMS (Figure 1-B)

III. SUBSOIL TEMPERATURES (°F)

III. SUBSOIL TEMPERATURES (°F)

Subsoil temperatures at the Hanford Meteorology Station are measured in the natural soil of the area with the vegetation cover removed. The soil is sandy and is mixed with some large gravel.

Hourly subsoil temperature observations have been recorded at approximately the 1/2-inch depth since 1944 and at the 15- and 36-inch depths since 1952. From 1944 to 1952 the 1/2-inch sensor was a nickel thermohm but was replaced with a copper thermohm in 1952. At the same time, copper thermohms were installed at the 15- and 36-inch depths.

The average subsoil temperatures, the average monthly extremes, and the absolute extremes are presented in Table 8. Soil temperature cross-overs are shown in Figures 11 and 12, while the 36-inch soil temperature versus the 36-inch air temperature crossover is shown in Figure 12. It is interesting to note that the average monthly 1/2- and 15-inch soil temperatures are higher in all months than the monthly average 36-inch air temperature. From about mid-April through mid-July the average 36-inch air temperature rises slightly above the 36-inch soil temperature.

Extreme Value Analysis of Minimum Soil Temperatures

Refer to Section XI, page 11.1.

TABLE 8
SUBSOIL TEMPERATURE DATA

HIGH AND LOW EXTREMES OF AVERAGE MONTHLY SUBSOIL TEMPERATURES *																
AVERAGE MONTHLY SUBSOIL TEMPERATURES *				0.5 INCH				15 INCHES				36 INCHES				
				HIGHEST MONTHLY		LOWEST MONTHLY		HIGHEST MONTHLY		LOWEST MONTHLY		HIGHEST MONTHLY		LOWEST MONTHLY		
				AVG	YEAR	AVG	YEAR	AVG	YEAR	AVG	YEAR	AVG	YEAR	AVG	YEAR	
JAN	31.1	36.3	42.3	39.4	1967	16.3	1949	41.3	1967	31.5	1957	46.5	1968	38.5	1957	
FEB	38.5	39.0	42.0	44.7	1967	30.6	1950	44.9	1967	29.6	1957	46.9	1967	33.5	1957	
MAR	48.1	46.2	46.1	54.0	1968	42.4	1955	52.6	1968	40.3	1955	51.7	1968	41.8	1955	
APR	59.9	54.7	52.8	66.0	1966	53.2	1970+	60.8	1966	48.7	1955	57.4	1966	47.3	1955	
MAY	72.9	64.7	60.5	83.6	1947	65.2	1959	70.4	1966	58.8	1955	64.3	1968	54.8	1955	
JUNE	81.7	74.7	69.0	87.8	1948	74.2	1953	84.5	1966	67.2	1953	73.4	1969	64.0	1953	
JULY	91.2	81.6	75.9	96.2	1968	84.0	1955	88.1	1967	75.4	1955	81.2	1967	70.9	1955	
AUG	87.4	81.8	78.9	94.2	1967	81.6	1960	89.2	1967	77.3	1954	83.9	1967	74.6	1954	
SEPT	74.8	74.5	74.9	81.0	1967	67.0	1959	82.2	1967	68.8	1959	81.4	1967	71.0	1959	
OCT	56.7	62.4	66.8	62.3	1965	51.7	1946	66.6	1967	57.9	1957	72.3	1967	62.9	1959	
NOV	41.3	48.6	56.0	46.2	1949	34.5	1952	53.1	1967	45.4	1961	61.3	1967	52.6	1959+	
DEC	33.9	39.5	47.0	39.4	1969	29.0	1951	42.4	1966	37.7	1960	51.4	1967	44.9	1969	
ANNUAL	59.9	58.7	59.4	62.8	1967	57.3	1959	63.0	1967	56.1	1957	63.2	1967	57.6	1957	
ABSOLUTE HIGH AND LOW SUBSOIL TEMPERATURES																
				HIGH		LOW		HIGH		LOW		HIGH		LOW		
				149.0	1946	-3.0	1949	93.0	1967	22.0	1957	85.3	1967	32.0	1957	

* 0.5 INCH PERIOD OF RECORD 1945-1970
15 INCH AND 36 INCH PERIOD OF RECORD 1952-1970

FIGURE II
SEASONAL AND DIURNAL VARIATION OF SUBSOIL TEMPERATURES 1955-1970

FIGURE II (CONTD)

FIGURE 12
AVERAGE MONTHLY SUBSOIL AND AIR TEMPERATURES

IV. PRECIPITATION

IV. PRECIPITATION

Monthly and Annual Totals

Precipitation data for the entire period of record are tabulated by months in Table 9 and shown graphically in Figure 13. The three months, November through January, contribute 42 percent to the annual total of 6.25 inches, while the three months, July through September, contribute only 10 percent. The feature of Figure 13 is the progressive monthly increase from July, the driest month, to a maximum in January, followed by a sharp drop to a secondary minimum in March, and then rising again to a secondary maximum in June.

Frequency Distribution of Daily Totals

These data, based on the period 1946-1970, are tabulated by months in Table 10. Although precipitation occurs on 132 days a year, only on 24 of these is the total 0.10 inch or more.

Total Time with Precipitation Observed

The time during which precipitation is observed, regardless of form, character, or intensity has been logged for the entire period of record at HMS. A summary of statistics for this period is given in Table 11. Although November ranks with December and January with respect to precipitation amounts, it has notably less time with precipitation observed. Also, the secondary minimum occurs in April rather than March and there is no significant increase during May and June, as is the case of precipitation amounts.

Precipitation - Percent of Days Statistics and Monthly Intensity Factors

The differences noted above suggest that there are precipitation parameters, other than monthly and annual totals, which are worth considering in the precipitation regime. Figures 14 and 15 depict some of these.

As in the case of total monthly amounts, the percentage of days in which measurable precipitation occurs is lowest in July and increases

TABLE 9
COMPOSITE RECORD OF MONTHLY AND ANNUAL PRECIPITATION (INCHES)
HANFORD TOWNSITE (NEAR) AND HMS: 1912-1970

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
1912	---	---	---	---	0.93	0.22	0.09	0.93	0.04	0.55	1.19	0.46	(4.41)
1913	1.39	0.16	0.05	0.16	0.61	1.11	0	T	0.03	1.42	0.75	0.76	5.44
1914	1.12	1.15	T	0.54	0.60	0.29	0.73	0	0.32	1.75	0.58	0.74	7.82
1915	0.65	0.61	0.58	0.39	0.90	0.76	0.21	T	T	0.20	1.56	1.10	6.96
1916	0.69	1.54	0.55	0.77	0.01	---	---	0	0.02	0	1.20	0.87	(5.65)
1917	1.00	0.28	0.31	0.72	0.57	0.09	T	0	0.07	0	0.81	0.50	4.35
1918	0.63	0.50	0.22	0	0.34	0.68	0.28	0.38	0.15	0.54	0.69	0.49	4.90
1919	1.04	1.09	0.38	0.32	0.64	0	T	T	0.74	0.21	0.88	1.00	6.30
1920	1.46	T	T	0.78	0.05	0.69	T	1.18	0.75	0.51	0.99	1.22	7.63
1921	0.36	1.25	T	0.60	0.33	0.12	T	0.14	0.06	0.29	1.61	0.69	5.45
1922	0.37	0.45	0.26	0.14	T	0.65	0	0.26	0.26	0.72	0.28	1.03	4.42
1923	0.37	0.40	0.05	0.85	0.27	1.11	0.33	T	0.43	1.03	0.06	0.56	5.46
1924	1.02	0.78	0.10	0.01	T	0.14	0.37	0.17	0.83	0.77	1.36	1.16	6.71
1925	0.66	0.70	0.06	0.80	0.87	0.34	0	T	0.49	0.07	0.96	0.66	5.61
1926	0.93	0.57	0.08	0.04	0.26	0.80	0	0.10	0.30	0.40	3.05	0.78	7.31
1927	1.29	0.77	0.45	0.03	0.09	T	T	0.29	1.14	0.62	1.26	0.40	6.34
1928	1.34	0.09	0.63	0.71	0.12	0.12	0.08	0.15	0.05	0.01	0.49	1.33	5.58
1929	1.37	0.07	0.02	0.05	0.25	0.89	T	0.07	0.15	0.07	T	0.84	3.78
1930	0.58	0.78	0.14	0.24	0.43	0.09	T	0.06	0.40	0.04	0.32	0.30	3.38
1931	1.35	0.17	0.99	0.11	0	0.51	0.19	0	0.16	0.47	1.15	2.53	7.63
1932	1.52	0.15	0.63	0.96	0.29	0.06	0.03	0.10	T	0.77	0.65	0.24	6.40
1933	0.86	0.50	0.43	0	1.06	0.17	0.10	0.13	0.44	0.59	0.48	1.20	5.96
1934	0.41	0.10	0.57	0.29	1.56	0.12	0	0.45	0.71	0.74	1.05	0.50	6.50
1935	0.41	0.31	0.05	0.08	0.13	0.37	0.46	0	0.05	0.39	0.30	0.87	3.42
1936	1.54	0.65	0	0.35	0.33	0.50	0.04	0.01	0.28	0.06	T	0.98	4.74
1937	0.80	0.63	0.76	0.73	0.01	1.09	0.24	0.06	0.16	0.39	1.84	1.08	7.79
1938	0.35	0.77	1.15	0.18	0.11	1.78	0.06	0.14	0.02	0.79	0.67	0.71	6.73
1939	0.59	0.80	0.52	T	0.07	0.07	0	0.28	0.11	0.25	T	1.69	4.38
1940	0.84	3.08	0.47	0.26	0.28	0.11	0.34	0	0.88	2.03	1.45	1.52	11.26
1941	1.82	0.65	0.16	0.31	0.83	1.16	0.08	0.59	0.57	0.41	0.46	0.40	7.44
1942	0.46	0.47	0	0.20	1.02	1.28	0.02	0	T	0.54	1.34	1.19	6.52
1943	0.40	0.37	0.33	---	---	---	---	---	---	---	---	0.23	(1.33)
1944	0.39	0.56	0.03	0.77	---	---	---	---	---	---	---	---	(1.75)
1945	---	---	---	---	---	---	---	---	---	---	---	---	---
1946	---	---	---	---	---	---	0.15	0.35	0.52	0.65	0.66	0.11	(2.44)
1947	0.32	0.27	0.42	0.70	0.02	1.07	0.71	0.68	1.34	2.20	0.81	0.75	9.29
1948	1.36	0.69	0.07	0.95	1.71	1.47	0.40	0.39	0.16	0.45	0.95	1.11	9.71
1949	0.13	0.68	1.12	0.02	0.16	0.01	0.01	0.03	0.23	0.10	1.47	0.16	4.12
1950	1.80	1.06	0.87	0.47	0.27	2.92	0.07	T	0.01	2.46	0.55	0.97	11.45
1951	0.84	0.51	0.46	0.53	0.43	1.38	0.37	0.15	0.10	0.71	0.82	0.70	7.00
1952	0.65	0.50	0.06	0.13	0.58	1.07	T	0.08	0.08	0.04	0.20	0.77	4.16
1953	2.16	0.25	0.17	0.77	0.28	0.55	T	0.96	0.13	0.20	0.96	0.49	6.92
1954	1.48	0.28	0.59	0.07	0.41	0.10	0.22	0.42	0.51	0.42	0.86	0.35	5.71
1955	0.56	0.22	0.17	0.40	0.59	0.28	0.57	0	0.77	0.40	1.54	2.03	7.53
1956	1.71	0.56	0.10	T	0.22	0.86	T	0.38	0.01	1.03	0.15	0.58	5.60
1957	0.48	0.23	1.86	0.38	0.82	0.47	0.05	0.02	0.34	2.72	0.39	0.53	8.29
1958	1.74	1.48	0.46	0.64	0.74	0.81	0.02	T	0.05	0.19	0.77	1.84	8.74
1959	2.05	1.17	0.40	0.20	0.50	0.23	T	0.03	1.26	0.56	0.41	0.26	7.07
1960	0.51	0.58	0.67	0.53	0.71	0.14	T	0.26	0.23	0.23	0.92	0.64	5.42
1961	0.33	2.10	1.02	0.48	0.80	0.42	0.15	0.09	T	0.07	0.49	0.88	6.83
1962	0.13	0.90	0.14	0.34	1.35	0.12	T	0.50	0.38	0.95	0.62	0.60	6.03
1963	0.95	0.69	0.53	1.17	0.43	0.28	0.31	0.01	0.02	0.04	0.74	1.14	6.31
1964	0.37	0.01	0.03	0.11	0.04	0.90	0.04	0.24	0.09	0.28	0.94	2.34	5.39
1965	0.93	0.14	0.03	0.09	0.15	0.49	0.11	0.03	0.11	0.01	1.17	0.39	3.15
1966	0.68	0.03	0.39	0.03	0.05	0.43	0.81	T	0.27	0.39	2.25	0.60	5.93
1967	0.32	T	0.14	0.90	0.56	0.57	T	T	0.05	0.13	0.16	0.43	3.26
1968	0.88	0.58	0.02	0.01	0.06	0.19	0.04	0.51	0.25	0.93	1.23	1.25	5.95
1969	1.24	0.54	0.10	1.22	0.51	0.75	T	T	0.48	0.10	0.13	1.29	6.36
1970	2.47	0.75	0.27	0.45	0.54	0.25	0.01	T	0.03	0.24	0.71	0.61	6.33
AVG	0.93	0.62	0.36	0.40	0.45	0.57	0.14	0.19	0.30	0.58	0.85	0.86	6.25
* NORMAL	0.97	0.58	0.38	0.44	0.53	0.70	0.15	0.21	0.30	0.61	0.80	0.81	6.48

THE HIGHEST, AND IF MEASURABLE, THE LOWEST TOTALS IN EACH COLUMN
ARE UNDERSCORED

T DENOTES A TRACE, AN AMOUNT TOO SMALL TO MEASURE

() DENOTES AN INCOMPLETE ANNUAL TOTAL

* NORMALS ARE AVERAGES FOR THE PERIOD 1941-1970

FIGURE 13
AVERAGE MONTHLY PRECIPITATION AMOUNTS
BASED ON THE PERIOD 1912-1970

TABLE 10
AVERAGE NUMBER OF DAYS WITH PRECIPITATION
OF SPECIFIED AMOUNT
1956 THROUGH 1970

MONTH	TRACE OR MORE	0.01 INCH OR MORE	0.10 INCH OR MORE	0.25 INCH OR MORE	0.50 INCH OR MORE	1.00 INCH OR MORE
JAN	17	9	3	1	#	0
FEB	12	7	2	1	#	0
MAR	11	6	2	#	0	0
APR	11	5	2	#	#	0
MAY	10	5	2	1	#	0
JUNE	10	5	2	1	#	#
JULY	4	2	1	#	0	0
AUG	6	2	1	#	#	0
SEPT	7	3	1	#	#	0
OCT	11	6	2	1	#	#
NOV	15	8	3	1	#	0
DEC	18	10	3	1	#	0
ANNUAL	132	68	24	7	1*	#

* ALTHOUGH THE NUMBER OF DAYS WITH 0.50 INCH OR MORE AVERAGES LESS THAN 0.5 DAYS FOR ANY ONE MONTH, 29 SUCH DAYS HAVE BEEN RECORDED DURING 25 YEARS OF RECORD FOR AN AVERAGE ANNUAL NUMBER OF 1.

USED TO DENOTE AN AVERAGE OF LESS THAN 1/2 DAY

TABLE 11
MONTHLY AND ANNUAL AVERAGES AND EXTREMES IN TOTAL
TIME WITH PRECIPITATION OBSERVED
1946-1970

MONTH	AVERAGES		GREATEST			LEAST		
	NO. OF HOURS	% OF TIME	NO. OF HOURS	% OF TIME	YEAR	NO. OF HOURS	% OF TIME	YEAR
JAN	96.4	13.0	212.0	28.5	1969	29.2	3.9	1949
FEB	56.7	8.4	106.8	15.9	1958	4.7	0.7	1967
MAR	37.1	5.0	135.2	18.2	1957	7.3	1.0	1968
APR	31.5	4.4	69.2	9.6	1953	1.8	0.2	1956
MAY	34.9	4.7	89.9	12.1	1948	4.8	0.6	1947
JUNE	33.4	4.6	80.8	11.2	1950	3.2	0.4	1949
JULY	9.6	1.3	38.2	5.1	1966	1.0	0.1	1958
AUG	13.5	1.8	61.7	8.3	1968	0.0	0.0	1955
SEPT	17.0	2.4	52.2	7.2	1959	1.3	0.2	1950
OCT	38.8	5.2	119.9	16.1	1947	3.6	0.5	1952
NOV	68.1	9.6	132.2	18.4	1955	21.4	3.0	1957
DEC	93.8	12.6	179.6	24.1	1963	31.5	4.2	1946
ANNUAL AVG	44.2	6.1	738.0 *	8.4	1950	355.4 *	4.1	1949

* ANNUAL EXTREMES

FIGURE 14
PRECIPITATION - PERCENT OF DAYS
STATISTICS BASED ON THE PERIOD 1946-1970

FIGURE 15
AVERAGE MONTHLY PRECIPITATION INTENSITY FACTORS (I)
BASED ON THE PERIOD 1946-1970

progressively to a maximum in December and January (Figure 14, top portion). During the period January through June, however, the trend of the *longer or stippled* light bars in Figure 14 is different than those depicting precipitation amounts (Figure 13). This divergence suggests that precipitation increases in intensity during the February-June period as shown by the *shorter* solid bars of Figure 14 and also by the bar diagram of Figure 15 which introduces the concept of a precipitation intensity factor. This diagram bears little resemblance to Figure 13 which depicts the monthly amounts.

Rainfall Intensity Duration and Frequency Probability

Refer to Section XI, page 11.1.

Prolonged Wet Periods

The table below contains statistics on some of the most notable "wet" periods of record (1946-1970). During two of these, precipitation was mostly in the form of snow. All occurred during the "wet" cycle depicted in Figure 16.

Period	Number of Days			Total Amount (Inches)	
	Precip. 1 or More	Greatest Consec.	Measurable Precip.	Water Equiv.	Snowfall
Oct 7-Nov 4, 1947	23 out of 29	10	17	2.21	0
Jan 3-28, 1950	21 out of 26	10	15	1.80	23.4
Nov 15-Dec 19, 1950	29 out of 34	12	20	1.37	4.7
Nov 16-Dec 22, 1955	31 out of 37	15	18	2.23	18.3

Prolonged Dry Periods

Since the HMS is in a region of low precipitation, there are many periods of extensive dryness. Every month except December and January has been without measurable precipitation at least once during the 1912-1970 period of record. In July this has occurred 21 times, and in August 19 times (Table 9). In 1919 there were three consecutive months (June-August) with no measurable precipitation. Actually, this period ran from

FIGURE 16
TOTAL ANNUAL PRECIPITATION (1913-1970) AND 10 AND 15 YEAR
MOVING AVERAGES

4.9

BNWL-1605

May 23 to September 1 (101 days), which is the record length of period with no measurable precipitation. Some longer periods with very little precipitation are listed below.

<u>Year</u>	<u>From</u>	<u>To</u>	<u>Number of Days</u>	<u>Total Precip. (Inches)</u>
1917	May 29	Nov 1	157	0.16
1927	April 1	Aug 26	148	0.14
1968	Feb 24	Aug 13	172	0.32

HMS versus Richland

During the period July 1946, to December 1970, precipitation was measured at the project headquarters City of Richland, about 25 miles SE of HMS and situated on the Columbia River. Table 12 compares this record with that at HMS during the same period. Although the two places may be affected much differently by individual storms, there is not a great deal of difference in the overall averages. HMS, however, being about 400 feet higher in elevation, does get more snow (13.6 inches seasonal average as compared to 10.8 inches for Richland). However, during the heavy snowfall winter of 1955-1956, Richland got 41.6 inches as compared to 38.5 inches for HMS. Richland's record for 24 hours, 8.0 inches on December 1, 1955,* also exceeds the HMS record of 7.1 inches on January 16, 1954.

Snowfall

Snowfall, which also includes sleet (now called ice pellets) accounts for about 40 percent of all precipitation during the months December through February (Table 13). Snow also falls occasionally during November, but infrequently in March and rarely in October (Table 14). Table 14 shows a wide variation in seasonal amounts (from 0.3 inches during the 1957-1958 winter to 43.6 inches during the winter of 1915-1916).

* This 8-inch fall actually occurred during a period of only 6-1/2 hours.

TABLE 12
MONTHLY AND ANNUAL AVERAGES AND EXTREMES OF PRECIPITATION:
HMS VS RICHLAND JULY 1946 THROUGH DEC 1970

	AVERAGES		EXTREMES							
			HMS				RICHLAND			
	HMS	RICHLAND	GREATEST	YEAR	LEAST	YEAR	GREATEST	YEAR	LEAST	YEAR
JAN	1.00	1.06	2.47	1970	0.13	1962+	3.02	1970	0.10	1947
FEB	0.59	0.70	2.10	1961	T	1967	1.48	1963	T	1967
MAR	0.42	0.51	1.86	1957	0.02	1968	1.98	1957	0.04	1964
APR	0.44	0.40	1.22	1969	T	1956	1.16	1969	T	1968+
MAY	0.50	0.53	1.71	1948	0.02	1947	2.07	1945	0.01	1966
JUNE	0.66	0.60	2.92	1950	0.01	1949	2.64	1948	T	1949
JULY	0.16	0.18	0.81	1966	T	1969+	0.93	1948	0	1967+
AUG	0.21	0.18	0.96	1953	0	1955	0.92	1968	0	1969+
SEPT	0.30	0.24	1.34	1947	T	1961	1.12	1959	0	1953
OCT	0.62	0.62	2.72	1957	0.01	1965	2.41	1947	0.02	1965
NOV	0.80	0.84	2.25	1966	0.13	1969	2.17	1966	0.11	1956
DEC	0.83	0.95	2.34	1964	0.11	1946	2.55	1964	0.13	1946
ANNUAL	6.53	6.81	11.45	1950	3.26	1967	11.35	1948	3.12	1967

+ ALSO ON EARLIER YEARS

TABLE 13
MISCELLANEOUS SNOWFALL STATISTICS
1946 THROUGH 1970

	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>SEASON</u>
AVERAGE NUMBER OF DAYS WITH DEPTH AT 0400 PST							
1" OR MORE	0	1	5	10	5	#	21
3" OR MORE	0	1	2	5	3	0	11
6" OR MORE	0	0	1	3	1	0	5
12" OR MORE	0	0	#	#	0	0	#
RECORD GREATEST NUMBER OF DAYS WITH DEPTH AT 0400 PST							
1" OR MORE	0	(1955) 11	(1964+) 17	(1969) 31	(1950) 17	(1951) 3	(1955-56) 54
3" OR MORE	0	(1955) 10	(1955) 14	(1969) 23	(1950) 16	0	(1949-50) 38
6" OR MORE	0	0	(1964) 12	(1965) 23	(1969+) 8	0	(1949-50) 23
12" OR MORE	0	0	(1964) 4	(1969) 1	0	0	(1964-65) 4
RECORD GREATEST DEPTH	(1957) 0.3	(1946) 5.1	(1964) 12.1	(1969) 12.0	(1969) 10.0	(1957) 2.3	(DEC 1964) 12.1
GREATEST IN 24 HOURS	(1957) 0.3	(1955) 4.8	(1965) 5.4	(1954) 7.1	(1959) 5.2	(1957+) 2.2	(JAN. 1954) 7.1
AVERAGE % OF WATER EQUIVALENT OF ALL PRECIPITATION	2	14	46	48	29	14	26

() DENOTES YEAR OF OCCURRENCE
+ DENOTES ALSO IN EARLIER YEARS
DENOTES LESS THAN 1/2 DAY

TABLE 14
COMPOSITE RECORD OF MONTHLY AND SEASONAL SNOWFALL:
HANFORD TOWNSITE (NEAR) AND HMS: 1912-1970

SEASON	OCT	NOV	DEC	JAN	FEB	MAR	APR	TOTAL	FIRST SEASONAL (1)		LAST SEASONAL (1)	
									DATE	AMOUNT	DATE	AMOUNT
1912-13	0	0	0	12.0	2.5	0.4	0	14.9				
1913-14	0	0	7.6	T	T	0	0	7.6				
1914-15	0	T	1.5	4.0	0	0	0	5.5				
1915-16	0	0	7.0	9.6	<u>26.0</u>	1.0	0	<u>43.6</u>				
1916-17	0	T	8.5	2.2	2.8	0	0	13.5				
1917-18	0	0	1.0	2.2	0	0	0	3.2				
1918-19	0	T	1.2	5.0	3.0	0	0	9.2				
1919-20	0	2.0	7.0	14.0	T	0	T	23.0				
1920-21	0	0	4.0	2.0	4.0	0	0	10.0				
1921-22	0	12.2	4.5	4.1	3.0	0	0	23.8				
1922-23	0	0	8.5	0	4.0	0	0	12.5				
1923-24	0	0	2.0	4.0	0	0	0	6.0				
1924-25	0	3.0	7.0	6.0	0	0	0	16.0				
1925-26	0	3.0	0.5	2.0	0	0	0	5.5				
1926-27	0	5.5	6.0	9.8	0	0	T	21.3				
1927-28	0	0	7.0	2.9	0.2	0	0	10.1				
1928-29	0	0	2.5	11.5	0.8	0	0	14.8				
1929-30	0	2.3	3.5	6.6	3.0	0	0	15.4				
1930-31	0	3.2	0.5	T	0	T	0	3.7				
1931-32	0	0	7.7	13.9	1.5	0.2	0	23.3				
1932-33	0	0	2.5	6.9	8.3	0	0	17.7				
1933-34	0	0	6.2	T	0	0	0	6.2				
1934-35	0	0	T	2.8	0.8	0	0	3.6				
1935-36	T	0.2	T	3.2	5.4	0	0	8.8				
1936-37	0	0	0.3	12.5	4.2	T	0	17.2				
1937-38	0	T	0.2	T	6.2	0	0	6.4				
1938-39	0	0	0.2	0.5	1.8	0	0	2.5				
1939-40	0	0	0	7.1	2.0	0	0	9.1				
1940-41	0	8.2	0	1.5	T	0	0	9.7				
1941-42	0	1.0	0	3.0	1.0	0	0	5.0				
1942-43	0	4.0	8.5	6.0	0.5	0	0	19.0				
1943-44	0	0	0.7	3.3	0.4	0	0	4.4				
1944-45	-	---	---	---	---	-	-	---	NOV 29		FEB 18	
1945-46	-	---	---	---	---	-	-	---	NOV 6		FEB 5	
1946-47	T	7.2	0.5	3.3	T	T	0	11.0	NOV 17	0.2	JAN 31	2.2
1947-48	0	T	3.0	2.6	5.5	0.1	T	11.2	DEC 3	0.1	MAR 9	0.1
1948-49	0	1.7	8.1	1.8	6.9	T	0	18.5	NOV 18	1.7	MAR 15	T(2)
1949-50	T	0	0.7	<u>23.4</u>	3.1	1.5	T	28.7	DEC 16	0.2	MAR 13	0.3
1950-51	0	0.8	2.9	5.3	5.3	<u>4.2</u>	0	18.5	NOV 30	0.8	MAR 12	1.7
1951-52	0	0.5	4.4	7.5	3.1	T	0	15.5	NOV 25	0.5	FEB 19	3.0
1952-53	0	T	3.1	2.7	0	T	0	5.8	DEC 1	0.2	JAN 2	2.7
1953-54	0	0	1.0	14.3	1.6	T	0	16.9	DEC 8	1.0	FEB 11	1.6
1954-55	0	0	1.8	6.0	2.4	0.7	T	10.9	DEC 4	1.8	MAR 25	0.7
1955-56	0	<u>12.7</u>	13.4	10.2	2.2	T	0	38.5	NOV 2	0.2	FEB 23	0.1
1956-57	T	0.1	2.5	7.9	1.4	4.0	T	15.9	NOV 18	T	MAR 6	1.7
1957-58	<u>0.3</u>	0	T	T	0	T	0	<u>0.3</u>	OCT 22	0.3	#	
1958-59	0	T	0.9	4.5	12.7	0	0	18.1	NOV 14	T(2)	FEB 19	1.2
1959-60	0	0.3	1.0	5.9	T	1.5	0	8.7	NOV 14	0.1	MAR 5	1.5
1960-61	0	0	3.3	1.9	0	1.6	0	6.8	DEC 10	0.1	MAR 5	1.6
1961-62	0	0.5	6.1	0.4	2.4	0.9	0	10.3	NOV 23	0.1	MAR 9	0.1
1962-63	0	T	T	7.1	0.6	0	0	7.7	JAN 30	0.1	FEB 1	6.1
1963-64	0	T	6.4	2.9	T	T	T	9.3	DEC 8	4.3	JAN 24	1.5
1964-65	0	0.1	<u>19.1</u>	6.6	T	T	0	25.8	NOV 22	T(2)	MAR 26	T(2)
1965-66	0	T	6.9	2.6	T	T	0	9.5	DEC 23	0.6	MAR 21	T(2)
1966-67	0	0.4	2.8	0.1	0	0	0	3.3	NOV 11	0.4	JAN 26	0.1
1967-68	0	0	5.7	4.5	0.3	0	T	10.5	DEC 6	T(2)	FEB 17	0.3
1968-69	0	T	9.7	15.9	2.1	0	0	27.7	DEC 19	0.1	FEB 25	T(2)
1969-70	0	T	2.7	6.6	T	0.2	0	9.5	DEC 6	T(2)	MAR 1	0.2
AVERAGES	T	1.2	3.7	5.2	2.3	0.3	T	12.7	NOV 29		FEB 23	
* NORMAL	T	1.1	4.1	5.3	1.8	0.5	T	12.8				

THE HIGHEST MONTHLY AND THE HIGHEST AND LOWEST SEASONAL TABLES ARE UNDERSCORED

(1) AMOUNTING TO 0.01 INCH OR MORE (MELTED) OR 0.1 INCH (UNMELTED)

(2) MELTED AS IT FELL

(T) DENOTES A TRACE, AN AMOUNT TOO SMALL TO MEASURE

(#) THE FIRST SNOWFALL WAS THE ONLY SNOWFALL

Snow does not often accumulate to a depth of 6 inches on the ground. Table 13 shows an average of 5 such days. This is the result of averaging many winters when there were no days with 6 inches on the ground with seasons like 1964-1965 in which there were 35, 32 of which were consecutive. Figure 17 shows that there have been only 6 winters in 25 winters of record in which the maximum depth of snow on the ground was 6 inches or more.

Moving Averages

On Figures 16 and 18 is superimposed a 15-year moving average. This line is obtained by connecting points representing the average for the past 15 years. Figure 16 also shows a 10-year moving average.

Total annual precipitation exhibited a well-defined upward trend from 1936 to 1951. Since 1951 the 15-year moving average has fallen steadily but as of 1970 was still a little above the 1936 low.

The 15-year moving average of total seasonal snowfall reached high points of nearly equal magnitude in the 1929-1930 and 1956-1957 winters. Between these two maxima there was a minimum in the 1947-1948 winter. Although the current trend is downward, it is still above this minimum.

FIGURE 17

GREATEST DEPTH OF SNOW ON GROUND DURING 24 OF 25 WINTERS OF RECORD AT HANFORD
1946 - 47 THROUGH 1969 - 70

FIGURE 18
TOTAL SEASONAL SNOWFALL AND 15 YEAR MOVING AVERAGES
FOR PERIOD 1913-71

4.16

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V. 50-FOOT WIND

V. 50-FOOT WINDGeneral

At the end of each nominal hour (as from 0100 to 0200 PST) both wind speed and direction for the past hour are determined and recorded. The speed is the visual average of one hour of strip chart. The direction is that which the observer considers most representative for the same one-hour time interval. In case the wind is so variable that no direction can be considered representative, V (variable) is recorded. In case of a calm wind (little or no movement of the direction pen for one hour) the direction is recorded Cm (calm) and the speed 0. In some of the following tables, directions will be number-coded as specified below.

1. NNE	5. ESE	9. SSW	13. WNW	17. V (variable)
2. NE	6. SE	10. SW	14. NW	18. Cm (calm)
3. ENE	7. SSE	11. WSW	15. NNW	
4. E	8. S	12. W	16. N	

Monthly and Annual Prevailing Directions, Average Speeds, and Peak Gusts

Table 15 shows either WNW or NW prevailing in every month with June having the highest average speed and December the lowest. There is greater variability in the average speeds of winter than in those of summer. In January, for example, the highest average for the month is more than 3 times the lowest. In July, on the other hand, the highest average is only 1.4 times the lowest.

Wind from 259° to 326° occurs 42.4 percent of the time as compared to only 19.8 percent for the SW octant (Table 16). Nevertheless, the latter octant accounts for 88.9 percent of hourly average speeds above 31 mph as compared to only 6.8 percent for the former.

TABLE 15
MONTHLY AND ANNUAL PREVAILING DIRECTIONS, AVERAGE SPEEDS,
AND PEAK GUSTS: 1945-1970

MONTH	PREV DEN	AVG SPEED	HIGHEST AVG	YEAR	LOWEST AVG	YEAR	PEAK GUST		
							SPEED	DEN	YEAR
JAN	NW	6.4	9.6 *	1953	3.1	1955	65 **	S	1967
FEB	NW	7.0	9.4	1961	4.6	1963	63	SW	1965
MAR	WNW	8.4	10.7	1964	5.9	1958	70	SW	1956
APR	WNW	9.0	11.1	1959	7.4	1958	60	WSW	1969
MAY	WNW	8.8	10.5	1965+	5.8	1957	71	SSW	1948
JUNE	WNW	9.2	10.7	1949	7.7	1950+	72	SW	1957
JULY	WNW	8.6	9.6	1963	6.8	1955	55	WSW	1968
AUG	WNW	8.0	9.1	1946	6.0	1956	66	SW	1961
SEPT	WNW	7.5	9.2	1961	5.4	1957	65	SSW	1953
OCT	WNW	6.7	9.1	1946	4.4	1952	63	SSW	1950
NOV	NW	6.2	7.9	1945	2.9	1956	64	SSW	1949
DEC	NW	6.0	8.3	1968	3.9	1963+	71	SW	1955
YEAR	WNW	7.6	8.3	1968+	6.3	1957	72 **	SW	JUNE 1957

* THE AVERAGE SPEED FOR JANUARY, 1972, WAS 10.3 MPH

** ON JANUARY 11, 1972, A NEW ALL-TIME RECORD PEAK GUST
OF 80 MPH WAS ESTABLISHED

TABLE 16
MONTHLY AND ANNUAL FREQUENCY DISTRIBUTION (%) OF HOURLY PREVAILING WIND
DIRECTIONS AND AVERAGE SPEEDS
50-FT LEVEL: 1955-70

DEN NUMBER *	J	F	M	A	M	J	J	A	S	O	N	D	Y
01	3.4	4.4	4.5	3.2	3.1	3.6	3.8	3.4	4.9	3.5	3.4	2.5	3.7
02	2.9	3.5	3.5	3.2	3.7	3.7	3.8	2.9	4.6	3.6	2.6	2.3	3.4
03	1.9	1.9	1.7	2.0	2.3	2.0	2.0	2.0	2.4	2.3	2.3	1.9	2.0
04	2.4	2.1	2.0	2.3	2.4	2.2	2.5	2.4	2.9	2.8	2.5	2.3	2.4
05	2.8	2.2	2.3	2.0	2.2	2.2	2.3	2.7	2.8	3.3	3.1	2.8	2.6
06	4.7	3.4	3.7	3.1	3.3	2.8	2.9	3.4	3.9	5.1	4.4	4.2	3.7
07	3.1	2.7	2.8	2.5	2.7	2.1	1.9	2.4	2.7	3.4	3.3	3.4	2.8
08	3.6	2.9	3.8	3.2	2.8	2.6	2.5	2.5	2.8	3.5	4.2	3.5	3.2
09	4.9	4.2	5.4	4.7	3.3	3.0	2.5	3.2	3.4	4.5	5.2	4.4	4.1
10	6.7	7.5	9.9	9.5	6.4	6.5	6.3	6.4	6.0	7.4	7.4	7.1	7.2
11	6.0	7.4	10.4	11.2	9.8	8.5	8.4	8.6	8.8	9.2	7.1	6.8	8.5
12	6.1	9.3	9.6	11.8	11.4	11.2	9.9	11.3	11.0	10.7	8.4	6.9	9.8
13	14.2	15.4	14.4	16.6	18.1	19.6	19.5	18.3	14.7	13.2	13.4	14.8	16.0
14	19.5	18.4	13.7	14.3	17.2	18.9	18.9	17.4	14.8	12.9	15.1	18.2	16.6
15	6.4	5.8	5.0	3.7	3.6	3.5	3.5	3.9	4.9	5.4	7.0	6.3	4.9
16	4.6	5.0	5.1	4.2	3.9	3.9	4.5	4.4	5.6	4.7	4.6	4.2	4.5
17	1.4	1.5	1.5	2.1	3.2	3.3	4.4	4.2	2.6	1.8	1.4	1.6	2.4
18	5.4	2.4	0.7	0.4	0.6	0.4	0.4	0.6	1.2	2.7	4.6	6.8	2.2
SUM	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SPEED CLASS (MPH)	J	F	M	A	M	J	J	A	S	O	N	D	Y
0-3	38.8	30.8	20.0	16.8	16.6	11.7	15.0	18.9	23.6	32.1	39.7	41.4	25.4
4-7	30.2	31.0	32.6	31.6	33.3	34.6	37.8	38.2	36.8	34.0	30.1	29.2	33.3
8-12	19.5	23.9	26.1	26.6	27.9	28.1	26.2	25.6	23.8	21.3	18.9	18.9	23.9
13-18	7.6	9.3	13.5	16.2	15.1	17.4	14.2	12.3	10.9	8.3	7.5	6.7	11.6
19-24	2.7	3.2	5.4	6.6	6.0	6.8	5.8	4.2	4.1	3.3	2.7	2.5	4.4
25-31	1.0	1.4	2.0	2.0	1.0	1.4	1.0	0.8	0.8	0.9	0.9	1.1	1.2
32-38	0.2	0.3	0.4	0.2	0.1	#	#	#	#	0.1	0.2	0.2	0.2
39-46	#	0.1	#	0	0	0	0	0	0	#	#	#	#
>46	0 **	0	#	0	0	0	0	0	0	0	0	#	#
SUM	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* SEE TEXT FOR EXPLANATION OF DIRECTION CODE

** THE HIGHEST HOURLY AVERAGE SPEED ON JANUARY 11, 1972, WAS 51 MPH. THIS WAS THE FIRST JANUARY INSTANCE OF A SPEED IN THE 46 MPH CLASS

DENOTES LESS THAN 0.05%

June versus December

The average speed for June is approximately 1.5 times that for December. Nevertheless:

- December has had 5 times as many cases of hourly average speeds exceeding 31 mph (29 for December versus 6 for June during the 1955-1970 period of record).
- December has had 5 cases of hourly average speeds in the 39-46 mph class and 1 in which the speed exceed 46 mph. June, during the same period of record (1955-1970), recorded no cases in either category.

December is subject to winds at least as strong as any that occur in June. However, December is also characterized by light winds. For example:

- December has more than 3 times the total cases of hourly average speed in the 1-3 mph class (4121 versus 1310 during the period 1955-1970).
- December has 22 times as many cases of calm (zero speed for one hour). The number comparison is 810 for December versus 37 for June during the period 1955-1970.
- During a longer period (1949-1970) December had 223 days in which the peak gust failed to exceed 12 mph. June, during the same period, had only 3 such days (1 each in 1950, 1953, and 1962).

The chart of hourly average speeds shows little diurnal range for December versus a large range for June (Figure 19).

December also has little diurnal variation in wind from the WNW and NW. In June this variation is large (Table 17 and Figure 20).

Seasonal and Diurnal Variation in Speed

The above comparisons between June and December were made because these months correspond, respectively, to those of highest and lowest average speed. Actually, July, although it has a lower average speed than June, has the largest diurnal range of any month (from 5.2 to 13.2 mph).

FIGURE 19
HOURLY AVERAGE WIND SPEEDS: JUNE VS DECEMBER, 1955-1970

TABLE 17
SEASONAL AND DIURNAL VARIATION IN THE PERCENTAGE OF WIND FROM
WNW AND NW
50-FT LEVEL: 1955-70

HOUR BEGINNING (PST)	J	F	M	A	M	J	J	A	S	O	N	D	Y
00	37.9	35.1	41.9	41.1	51.0	56.6	63.1	56.4	46.2	34.7	31.7	38.5	44.6
01	37.9	35.4	36.7	37.1	45.8	53.3	59.4	53.8	42.1	32.6	33.7	34.6	42.0
02	36.0	36.5	37.5	37.3	42.7	47.7	52.4	46.4	41.9	31.2	31.5	35.1	39.7
03	34.5	38.9	37.9	31.9	38.5	41.6	47.8	40.3	36.9	31.3	32.1	34.8	37.5
04	38.1	39.1	35.9	30.4	37.9	37.9	45.8	36.5	34.3	28.8	30.8	35.5	35.9
05	37.0	35.2	32.2	33.3	36.5	41.2	46.1	36.5	36.6	30.0	28.7	33.4	35.6
06	33.3	37.6	33.0	35.9	47.2	41.0	56.6	49.2	34.4	30.8	29.8	34.0	39.5
07	31.0	38.0	35.2	36.5	45.9	41.4	49.8	51.6	38.1	29.0	28.8	33.0	38.4
08	36.3	39.4	34.3	33.5	33.5	30.6	27.7	32.5	28.7	30.9	30.6	32.8	32.3
09	35.3	40.2	25.6	23.3	24.6	20.6	15.3	17.7	18.8	22.6	30.2	30.8	25.2
10	31.1	33.4	17.9	19.8	14.1	16.9	9.0	13.5	14.2	20.2	27.3	31.7	20.6
11	27.9	29.2	13.1	16.5	13.7	16.3	10.4	12.3	11.0	14.7	22.3	28.5	17.9
12	26.9	27.2	14.3	15.4	14.3	11.6	8.8	9.7	11.6	11.7	21.5	26.1	16.5
13	23.1	23.0	13.6	15.0	15.5	16.6	9.7	9.0	11.5	12.3	17.9	26.2	16.0
14	22.8	22.1	15.7	16.5	18.2	18.6	13.3	14.1	12.7	14.1	20.2	27.6	18.0
15	27.5	22.5	16.3	21.2	21.0	22.1	16.2	17.3	14.4	16.0	23.5	32.7	20.9
16	34.1	26.1	19.2	25.0	28.3	29.0	23.8	23.9	18.4	23.6	27.7	32.0	25.9
17	34.2	34.0	21.8	27.7	32.9	36.8	27.5	27.6	24.2	28.2	29.6	31.8	29.6
18	34.6	37.6	26.0	31.7	41.5	44.1	37.7	35.5	29.3	30.0	30.4	34.0	34.3
19	36.5	35.4	32.4	38.0	47.6	51.8	49.8	44.5	33.3	26.2	28.9	35.4	38.3
20	37.1	32.3	30.6	43.7	48.4	57.5	59.1	53.3	39.6	27.0	30.5	38.3	41.7
21	38.7	37.6	31.8	45.9	50.2	58.3	62.5	58.0	40.7	31.6	30.4	34.4	43.5
22	37.5	38.0	32.9	42.0	49.8	61.1	65.5	59.5	44.4	34.2	31.4	34.9	44.4
23	38.3	37.4	38.5	40.1	47.4	59.2	64.5	57.0	43.3	36.1	31.9	36.1	44.2
AVG	33.7	33.8	28.1	30.9	35.3	38.5	48.4	35.7	29.5	26.1	28.5	33.0	32.6

FIGURE 20
PERCENTAGE OF 50-FT. WIND FROM WNW AND NW: JUNE VS DECEMBER, 1955-1970

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The comparative figures for June are from 6.5 to 13.0 mph (Table 18). Figure 21 shows the seasonal and diurnal variation of speed in greater detail.

Seasonal and Diurnal Variation in Direction

WNW and NW, in the aggregate, account for 32.6 percent of all hourly prevailing directions at HMS. The percentage is highest in July (48.4) and lowest in October (26.1). The extreme range in percentages is from a high of 65.5 between hours 22 and 23 in July to a low of 8.8 between hours 12 and 13 of the same month (Table 17 and Figure 22).

Although WNW and NW are more frequently observed, most hourly average wind speeds above 31 mph and most cases of blowing dust occur with the wind from the SW octant. Table 19 and Figure 23 show the seasonal and diurnal variation in these directions.

Wind from the E octant occurs least often (7.0 percent of the time) and has the lowest average speed (4.0 mph). There is little seasonal or diurnal variation in this statistic.

Wind Conditions During Precipitation

Computer analysis of 50-foot level wind direction and speed recorded at the time of hourly observations of precipitation is tabulated below.

TABLE 20
PERCENTAGE OF WIND FROM VARIOUS DIRECTIONS DURING
HOURLY OBSERVATIONS OF PRECIPITATION: 1960-1970

Season	Direction Class (see text)									Total
	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	18	
Winter (D,J,F)	3.1	3.4	6.6	5.9	4.0	5.9	45.9	8.3	16.9	100.0
Spring (M,A,M)	3.8	4.2	8.4	8.4	14.5	18.8	29.4	8.1	4.4	100.0
Summer (J,J,A)	2.5	2.9	5.2	5.5	18.2	30.4	26.4	3.5	5.4	100.0
Fall (S,O,N)	2.4	4.3	8.2	8.2	10.1	11.9	30.3	10.4	14.2	100.0
Annual	3.0	3.7	7.2	6.8	8.9	12.4	37.2	8.2	12.6	100.0

TABLE 18
MONTHLY AND ANNUAL HOURLY AVERAGE WIND SPEEDS (MPH)
50-FT LEVEL: 1955-70

HOUR BEGINNING (PST)	J	F	M	A	M	J	J	A	S	O	N	D	Y
00	6.2	6.9	8.2	8.7	9.0	9.9	9.8	9.1	7.9	6.6	6.1	6.1	7.9
01	6.1	6.7	8.0	8.4	8.5	9.1	9.0	8.3	7.3	6.3	6.1	6.0	7.5
02	6.0	6.7	7.9	8.0	7.9	8.4	8.1	7.5	7.0	6.0	5.8	6.0	7.1
03	5.9	6.6	7.5	7.5	7.6	7.7	7.5	6.9	6.8	6.0	5.7	5.8	6.8
04	5.8	6.6	7.3	7.1	7.3	7.5	7.1	6.5	6.3	5.8	5.8	5.8	6.6
05	5.7	6.5	7.2	6.9	6.6	6.8	6.5	6.0	6.1	5.8	5.5	5.5	6.2
06	5.6	6.3	6.9	6.5	6.9	7.7	7.1	5.6	5.5	5.5	5.3	5.5	6.2
07	5.5	6.0	6.6	7.6	7.2	7.5	6.9	6.1	5.9	5.2	5.2	5.4	6.3
08	5.5	6.2	7.5	8.4	6.8	6.9	5.6	5.6	6.3	5.4	5.2	5.4	6.2
09	5.6	6.6	8.0	8.2	6.6	6.5	5.2	5.2	6.1	6.2	5.9	5.3	6.3
10	5.9	6.8	8.4	8.4	6.8	7.0	5.6	5.3	6.2	6.4	6.3	5.7	6.6
11	6.5	7.3	8.8	8.6	7.2	7.4	6.1	5.6	6.6	6.3	6.5	6.1	6.9
12	6.9	7.7	9.2	9.1	7.6	7.6	6.5	6.0	7.0	6.8	6.6	6.3	7.3
13	6.8	7.8	9.7	9.6	8.1	8.1	7.2	6.6	7.0	7.2	6.7	6.4	7.6
14	6.7	7.9	10.1	10.2	8.7	8.7	7.7	7.2	7.6	7.4	6.4	6.3	7.9
15	6.2	8.0	10.2	10.5	9.4	9.4	8.3	7.8	8.1	7.5	6.3	6.0	8.1
16	6.2	7.6	10.4	11.1	9.9	10.5	9.1	8.5	8.5	7.3	6.1	6.0	8.4
17	6.4	7.4	9.6	11.3	10.7	12.0	10.3	9.5	8.8	7.4	6.5	6.2	8.8
18	6.7	7.7	9.4	10.9	11.2	12.9	11.4	10.3	9.1	8.0	6.4	6.2	9.2
19	6.8	7.6	9.5	10.9	11.3	13.0	12.1	11.2	9.8	7.9	6.4	6.1	9.4
20	6.6	7.6	9.4	11.0	11.4	13.0	12.8	11.8	9.7	7.6	6.4	6.0	9.5
21	6.4	7.3	9.1	10.5	11.5	12.8	13.2	12.0	9.3	7.4	6.2	6.0	9.3
22	6.1	7.3	8.4	9.9	10.6	12.1	12.3	11.0	8.7	7.1	6.2	6.0	8.8
23	6.1	7.2	8.3	9.1	9.8	10.9	10.7	9.9	8.1	6.8	6.2	6.1	8.3
AVG	6.2	7.1	8.6	9.1	8.7	9.3	8.6	7.9	7.5	6.7	6.1	5.9	7.6

FIGURE 21
SEASONAL AND DIURNAL VARIATION IN 50-FT. LEVEL WIND SPEED (mph): 1955-1970

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FIGURE 22
SEASONAL AND DIURNAL VARIATION IN PERCENTAGE OF 50-FT. WIND
FROM WNW AND NW BASED ON THE PERIOD 1955-1970

5.11

TABLE 19
SEASONAL AND DIURNAL VARIATION IN THE PERCENTAGE
OF SSW, SW, AND WSW WINDS
50-FT LEVEL; 1955-70

HOUR BEGINNING (PST)	J	F	M	A	M	J	J	A	S	O	N	D	Y
00	18.9	23.2	25.0	22.5	15.9	12.2	9.3	12.5	16.8	20.3	21.0	17.3	17.8
01	18.5	19.2	24.8	26.0	23.3	13.5	8.7	15.1	20.0	24.7	20.6	20.6	19.6
02	19.4	18.4	26.4	26.8	21.3	18.4	15.7	18.5	21.3	20.6	21.0	21.6	20.8
03	18.8	17.5	23.8	27.8	25.5	23.2	20.1	25.4	25.2	22.5	19.1	21.4	22.5
04	19.9	17.4	25.6	26.5	26.8	24.8	23.2	28.6	20.4	24.2	20.5	19.9	23.1
05	16.2	20.3	25.0	26.6	23.9	19.7	26.4	26.8	16.2	19.8	19.4	18.2	21.7
06	16.5	19.0	26.4	27.3	19.1	14.0	14.3	17.9	18.2	21.4	19.6	17.1	19.2
07	17.8	18.4	22.2	19.1	13.3	10.6	8.2	8.6	12.5	19.6	17.7	18.3	15.5
08	15.8	15.7	19.2	18.0	13.1	14.6	8.4	7.2	10.2	14.6	17.6	17.1	14.3
09	13.9	13.5	20.8	20.6	18.8	17.1	10.2	11.2	9.7	12.8	15.9	16.4	15.1
10	16.0	13.8	22.8	23.1	21.0	20.7	16.7	14.1	11.7	14.2	13.9	15.8	15.0
11	15.9	15.4	27.5	25.2	24.4	24.3	20.1	17.1	13.7	17.1	16.5	15.0	20.5
12	15.0	16.4	28.1	32.2	25.2	27.5	26.2	19.5	16.2	19.5	17.0	15.3	21.3
13	16.8	17.9	28.3	33.9	26.3	29.9	28.1	27.0	22.4	21.4	17.9	15.9	23.6
14	14.8	19.2	30.7	33.4	23.6	30.4	28.8	27.0	22.9	20.4	16.9	16.9	23.7
15	15.0	19.9	28.8	29.7	22.6	26.6	25.0	25.2	21.2	20.4	17.1	16.7	23.4
16	15.2	17.3	27.3	25.8	18.8	21.5	25.2	22.6	18.1	19.6	15.6	16.9	20.4
17	17.3	19.0	25.5	25.0	17.0	17.1	21.4	18.6	13.1	19.0	20.8	19.6	19.4
18	18.5	20.5	25.0	21.9	13.0	12.5	14.9	13.0	17.7	28.2	25.5	17.4	19.0
19	21.6	23.0	26.4	21.5	9.6	9.8	10.9	11.6	23.8	29.0	26.8	19.6	19.4
20	21.0	25.7	31.0	27.6	14.6	7.3	9.6	17.9	26.4	31.2	23.6	19.4	21.3
21	17.4	23.0	28.0	26.2	19.3	13.2	14.1	20.1	25.2	24.2	24.2	21.0	21.4
22	21.4	21.0	24.8	23.1	17.7	12.4	17.1	16.9	18.7	19.9	22.3	20.8	19.7
23	18.8	24.1	25.6	23.7	11.9	10.6	10.7	10.7	16.5	21.7	20.2	19.8	17.8
AVG	17.6	19.1	25.7	25.4	19.5	18.1	17.2	18.2	18.2	21.1	19.6	18.2	19.8

FIGURE 23
SEASONAL AND DIURNAL VARIATION IN THE PERCENTAGE OF WIND
FROM SSW, SW, AND WSW: 50-FT. LEVEL, 1955-1970

TABLE 21
PERCENTAGE OF WIND IN VARIOUS SPEED CLASSES DURING
HOURLY OBSERVATIONS OF PRECIPITATION: 1960-1970

Season	Cm	1-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46	Avg. Speed
Winter	16.9	21.5	29.2	24.7	6.0	1.1	0.2	0.3	0.1	0	5.9
Spring	4.4	12.4	29.9	30.6	14.8	5.9	1.4	0.5	0.1	0	9.1
Summer	5.4	7.8	26.4	32.8	20.0	5.8	1.2	0.6	0	0	9.8
Fall	14.2	20.6	29.6	22.8	9.6	2.2	0.7	0.3	0	0	6.6
Annual	12.6	18.0	29.1	26.3	10.0	2.8	0.7	0.4	0.1	0	7.1

The 11 and 12 directions (WSW and W) are more than 5 times as frequent in winter as in summer. In fact, these are the prevailing precipitation directions in summer whereas in winter the 13 and 14 directions (WNW and NW) account for almost half of all such directions. Direction 18 (calm) is more prevalent during precipitation in winter and fall than in spring and summer.

Wind speeds during precipitation average higher in spring and summer than in fall and winter. This is because there are more cases of speeds above 12 mph and fewer cases of calm in spring and summer.

Wind Conditions During Fog

Since fog is essentially a seasonal phenomenon, the statistics tabulated below apply to all hourly observations of fog restricting visibility to 1/2 mile or less.

TABLE 22
FREQUENCY DISTRIBUTION (%) OF WIND DIRECTIONS AND SPEEDS DURING
HOURLY OBSERVATIONS OF FOG WITH VISIBILITY 1/2 MILE OR LESS: 1960-1970

Direction Class (see text)									Total
<u>1-2</u>	<u>3-4</u>	<u>5-6</u>	<u>7-8</u>	<u>9-10</u>	<u>11-12</u>	<u>13-14</u>	<u>15-16</u>	<u>18</u>	
9.1	6.3	6.0	4.7	5.4	6.4	15.7	17.8	28.6	100.0

Speed Class (mph)							Total %	Avg. Speed
<u>Cm</u>	<u>1-3</u>	<u>4-7</u>	<u>8-12</u>	<u>>12</u>				
28.6	44.3	25.2	1.9	0	100.0	2.5		

Most fog at HMS is radiation-type and occurs in conjunction with low wind speeds (72.9 percent with speeds 3 mph or less). The 13 and 14 directions (WNW and NW) occur only 15.7 percent of the time with fog as compared to 32.6 percent overall. The 15 and 16 directions (NNW and N) occur 17.8 percent of the time with fog as compared to only 9.4 percent overall.

Wind Profiles

Refer to Section X, page 10.36.

Extreme Value Analysis of Peak Gusts

Refer to Section XI, page 11.1.

VI. SKY COVER, VISIBILITY, AND SOLAR RADIATION

VI. SKY COVER, VISIBILITY, AND SOLAR RADIATIONSky Cover

Sky cover is a term used to express the amount of cloudiness, and denotes one of the following:

1. Amount of sky covered, but not necessarily hidden by clouds or obscuring phenomena aloft.
2. Amount of sky hidden by an obscuring phenomenon on the ground (such as fog).
3. A combination of 1 and 2.

Sky cover is determined by scanning the sky hourly and estimating the number of tenths covered (0 denotes clear sky and 10 completely overcast).

Table 23 (top portion) summarizes these data for each hour during the period of automatic data processing (1957-1970). Table 23 (bottom portion) summarizes the data from sunrise to sunset over the full period of record. Sunrise to sunset observations for any particular month consider only those hourly observations when the sun is near or above the horizon. These hours are the same for any given month, but vary from month to month to correspond with the changes in sunrise and sunset.

The number of clear, partly cloudy, and cloudy days in Table 23 come from assigning each day to one of three categories in accordance with the following:

<u>Category</u>	<u>Average Sky Cover (Tenths from Sunrise to Sunset)</u>
Clear	0 - 3
Partly Cloudy	4 - 7
Cloudy	8 - 10

About 200 days annually are sunny days at the HMS, (the sum of the number of clear days and partly cloudy days).

TABLE 23
MONTHLY AND MONTHLY HOURLY SKY COVER AVERAGES
WITH STATISTICS ON CLEAR, PARTLY CLOUDY, AND
CLOUDY DAYS

HOUR (PST)	TABULAR VALUES BASED ON THE PERIOD 1957-70												
	J	F	M	A	M	J	J	A	S	O	N	D	Y
00	7.1	6.0	5.2	5.1	4.6	4.4	2.4	2.5	3.4	4.5	6.6	7.4	4.9
01	7.1	6.1	5.4	5.2	4.6	4.1	2.2	2.5	3.4	4.5	6.7	7.5	4.9
02	7.1	6.1	5.4	5.3	4.5	4.0	2.1	2.4	3.5	4.7	6.6	7.5	4.9
03	7.3	6.2	5.4	5.2	4.8	4.5	2.4	2.4	3.5	4.8	6.4	7.4	5.0
04	7.4	6.3	5.5	5.5	5.2	4.7	2.5	2.8	3.5	4.8	6.5	7.5	5.2
05	7.4	6.7	5.7	6.0	5.6	5.0	2.7	3.3	4.3	5.0	6.6	7.8	5.5
06	7.5	7.2	6.3	6.2	5.6	4.9	2.6	3.4	4.5	5.5	6.8	7.8	5.7
07	8.1	7.5	6.6	6.3	5.6	4.8	2.7	3.3	4.4	5.9	7.5	8.3	5.9
08	8.3	7.6	6.8	6.3	5.4	4.7	2.5	3.2	4.3	5.8	7.7	8.4	5.9
09	8.2	7.6	6.7	6.3	5.5	4.8	2.4	3.0	4.2	5.8	7.6	8.3	5.9
10	8.2	7.5	6.6	6.4	5.6	5.0	2.5	3.2	4.3	5.8	7.4	8.5	5.9
11	8.1	7.3	6.8	6.5	5.8	5.3	2.6	3.2	4.3	5.8	7.4	8.4	5.9
12	8.1	7.4	6.9	6.7	6.0	5.2	2.8	3.3	4.3	6.0	7.6	8.3	6.0
13	8.1	7.4	7.0	7.0	6.2	5.3	2.9	3.4	4.4	6.2	7.7	8.2	6.1
14	8.0	7.4	7.0	7.0	6.1	5.3	3.0	3.5	4.4	6.3	7.6	8.1	6.1
15	8.0	7.4	6.9	6.9	6.3	5.4	3.1	3.6	4.4	6.4	7.5	8.1	6.2
16	8.1	7.4	6.9	7.0	6.4	5.6	3.2	3.7	4.4	6.4	7.3	8.0	6.2
17	7.9	7.2	6.9	6.8	6.2	5.4	3.2	3.6	4.4	6.2	7.1	7.8	6.0
18	7.5	6.7	6.7	6.7	6.1	5.4	3.1	3.4	4.4	5.9	6.9	7.6	5.9
19	7.4	6.3	6.3	6.4	6.1	5.3	3.2	3.2	4.2	5.6	6.6	7.6	5.7
20	7.3	6.2	5.9	6.0	5.8	5.1	3.0	3.1	3.9	5.4	6.5	7.5	5.5
21	7.1	6.2	5.7	5.6	5.2	4.8	2.8	2.8	3.8	4.9	6.6	7.4	5.2
22	7.2	6.3	5.4	5.4	4.7	4.3	2.4	2.7	3.6	4.8	6.5	7.3	5.0
23	7.0	6.2	5.3	5.2	4.5	4.0	2.3	2.6	3.4	4.6	6.7	7.2	4.9
AVG	7.6	6.9	6.2	6.1	5.5	4.9	2.7	3.1	4.0	5.5	7.0	7.8	5.6

AVERAGE SKY COVER (SUNRISE TO SUNSET) AND NUMBER OF DAYS CLEAR, PARTLY CLOUDY AND CLOUDY
1946-70

MONTH	SKY COVER (SCALE 0-10)					NUMBER OF CLEAR DAYS					PARTLY CLOUDY DAYS	NUMBER OF CLOUDY DAYS				
	AVG	RECORD GREATEST	YEAR	RECORD LEAST	YEAR	AVG	RECORD GREATEST	YEAR	RECORD LEAST	YEAR		AVG	RECORD GREATEST	YEAR	RECORD LEAST	YEAR
JAN	7.8	9.0	1969	4.3	1949	3	13	1949	0	1955+	6	22	27	1969+	6	1949
FEB	7.4	8.9	1961	5.9	1964	5	9	1968+	1	1969+	5	18	26	1958	10	1951+
MAR	6.7	7.9	1950	4.9	1965	7	12	1965+	2	1961+	8	16	22	1968	7	1948
APR	6.4	8.1	1963	3.7	1951	6	18	1951	1	1963	10	14	21	1963	3	1949
MAY	5.8	7.7	1960	4.5	1949	8	14	1953	2	1960	11	12	19	1960	3	1949
JUNE	5.2	7.0	1950	2.8	1961	10	21	1961	3	1966	10	10	15	1957	0	1949
JULY	2.7	4.5	1955	0.9	1953	20	27	1953	14	1955	7	4	8	1955	0	1967+
AUG	3.3	5.9	1968	0.6	1955	19	30	1955	11	1968	7	5	13	1968	0	1969+
SEPT	4.1	6.1	1959	2.5	1950	15	21	1967	8	1969	7	8	13	1969	2	1952+
OCT	5.9	7.7	1950	3.9	1952	10	16	1953	3	1950+	7	14	18	1956+	3	1946
NOV	7.5	9.0	1965	6.2	1957	5	10	1957	1	1965+	5	20	24	1965+	12	1948
DEC	8.1	9.2	1962	6.8	1954	3	7	1954	0	1947	5	23	28	1962	14	1946
Y	5.9	6.4	1966	5.1	1949	111	134	1967	85	1966	88	166	181	1969+	151	1967

There is a diurnal variation in sky cover in every month, with the daylight hours having the greatest amount (Table 23). Hence, sky cover based on the period from sunrise to sunset averages a little higher than that based on the full 24 hours.

Visibility

Visibility, along with sky cover, is part of every hourly observation at HMS. It is recorded in miles up to 15. If the visibility is greater than 15 miles, it is recorded as 15⁺.

When the visibility is 6 miles or less, then one or more phenomena must be recorded to explain the restriction. Fog is the most common of these, but precipitation (usually snow), dust or blowing dust, smoke, and blowing snow are also visibility restricting phenomena. Table 24 below shows the percentage of all observations during the period 1945-1970 that any of these were recorded.

TABLE 24
AVERAGE* PERCENT OF HOURLY OBSERVATIONS WITH VISIBILITY RESTRICTED
TO SIX MILES OR LESS BY VARIOUS PHENOMENA

<u>Season</u>	<u>Phenomenon</u>					<u>Total</u>
	<u>Fog</u>	<u>Precip.</u>	<u>D - BD*</u>	<u>Smoke</u>	<u>Blowing Snow</u>	
Winter (D,J,F)	8.2	3.9	0.1	0.1	#	12.3
Spring (M,A,M)	0.2	0.2	0.2	#	0	0.6
Summer (J,J,A)	#	#	0.1	#	0	0.1
Fall (S,O,N)	<u>2.4</u>	<u>0.6</u>	<u>0.1</u>	<u>0.2</u>	<u>#</u>	<u>3.3</u>
Annual Average	2.7	1.2	0.1	0.1	#	4.1

Denotes less than 0.05%

* Averages based on the period 1945-1970

Solar Radiation (Solrad)

An Eppley 10-junction pyramometer⁽¹⁴⁾ is used at HMS for measurements of solar radiation received on a horizontal surface. Signals from the sensor are recorded as a continuous trace on a Leeds and Northrup Speedomax recorder designed to read in langleys per minute. The trace is evaluated by the "equal area" method to determine, for each hour, the average number of langleys per minute (to the nearest 0.01 langley) received during the past hour. These data are summarized in Table 25 and Figure 24. Since solrad is always zero at night, the hourly summary begins at 0400 and ends at 2000 PST (ending hour 1900 in Table 25).

An intense storm from a cumulonimbus cloud is the most effective damper of solrad. The recording pen may go nearly to zero in such instances. However, this is of short duration.

The lowest daily solrad totals occur in conjunction with low stratus overcast conditions, usually without precipitation. The highest daily totals occur when the sky is clear and the passage of a cold front on the previous day has imported clean air from the Pacific. The highest peaks on the chart, however, occur when the sun's rays come in close proximity to a cumulus cloud. In this case the sensor receives both direct and reflected radiation and instantaneous values may approach 2.00 langleys per minute, which is the upper limit of the recorder chart.

Figure 24 shows average daily totals closer to the lower extreme than to the upper during the months November through February. This is because these are the four cloudiest months (Table 23) and high daily totals are relatively infrequent. In the summer, however, this situation is reversed and the average daily totals are closer to the upper extreme.

As would be expected, the average daily total is lowest in December when the sun's declination is smallest and it is above the horizon the least amount of time. It is highest, however, not in June when the sun is above the horizon the longest, but in July when sky cover is least and clear days outnumber cloudy days by 21 to 3. In June, clear days outnumber cloudy days by only 11 to 9 and sky cover averages almost twice as much as in July (Table 23).

TABLE 25
AVERAGE HOURLY AND DAILY SOLRAD TOTALS (LANGLEYS). BASED ON
THE PERIOD 1957-70

HOUR BEGINNING (PST)	J	F	M	A	M	J	J	A	S	O	N	D	Y
04	0	0	0	T	1.1	2.4	1.3	0.1	0	0	0	0	0.4
05	0	0	T	2.4	8.5	11.5	9.8	4.3	0.7	T	0	0	3.1
06	0	0.1	2.8	11.9	20.9	24.9	23.3	16.0	8.2	2.1	0.1	0	9.2
07	0.4	3.0	12.4	25.4	35.0	39.4	38.7	30.3	21.2	10.8	2.9	0.4	18.4
08	4.8	11.1	24.0	38.6	47.8	52.1	53.1	44.6	34.8	22.2	9.8	4.2	29.0
09	11.7	19.8	35.3	49.4	58.0	61.4	63.5	55.5	45.7	31.6	17.0	9.7	38.3
10	17.8	27.8	43.6	56.7	64.2	67.6	71.1	63.0	53.4	38.3	22.0	14.5	45.0
11	21.4	32.4	48.7	58.7	67.2	70.5	74.7	66.0	56.0	41.2	24.0	17.3	48.1
12	21.9	33.1	48.2	57.7	63.7	69.2	73.8	66.1	55.6	39.8	23.0	17.3	47.5
13	18.8	30.0	43.9	52.0	59.7	63.8	69.0	62.7	50.3	33.8	18.9	14.5	43.0
14	13.6	24.1	36.9	45.1	52.8	56.3	61.7	53.5	40.9	24.9	13.0	9.2	36.0
15	6.8	15.6	26.4	34.1	42.1	46.2	50.7	42.2	29.4	14.8	5.6	3.4	26.5
16	1.3	6.0	14.6	22.1	29.4	34.1	37.6	29.0	16.4	5.0	0.6	0.1	16.4
17	0	0.6	4.3	10.4	17.3	21.4	23.1	15.2	5.1	0.4	0	0	8.2
18	0	0	0.1	2.2	6.2	9.8	9.8	4.3	0.4	T	0	0	2.8
19	0	0	0	0	0.7	2.6	1.7	0.2	0	0	0	0	0.4
SUM *	118.5	203.6	341.2	466.7	574.6	633.2	662.9	553.0	418.1	265.1	136.9	90.6	372.3
AVG **	118	200	340	470	571	626	659	551	418	262	135	91	370
HM	135	238	388	526	634	698	700	613	457	299	180	116	385
YEAR	1962	1960	1965	1959+	1970	1960	1969+	1955	1961	1958	1957	1970	1957
LM	88	164	305	374	511	563	588	475	354	227	97	57	357
YEAR	1955	1954	1961	1963	1962	1953	1955	1968	1959	1956	1964	1969	1967

* AVERAGE DAILY TOTAL BASED ON THE PERIOD 1957-70

* * AVERAGE DAILY TOTAL BASED ON THE PERIOD 1953-70

HM HIGHEST MONTHLY AND ANNUAL (1953-70)

LM LOWEST MONTHLY AND ANNUAL (1953-70)

+ ALSO IN EARLIER YEARS

T AN AMOUNT TOO SMALL TO MEASURE

FIGURE 24
AVERAGE, GREATEST, AND LEAST DAILY SOLRAD TOTALS: 1953-1970

VII. PSYCHROMETRIC DATA

VII. PSYCHROMETRIC DATA

Psychrometric data comprise observations of dry bulb, wet bulb, relative humidity, and dew point. The former is the temperature of the ambient air and the wet bulb is the lowest temperature to which air can be cooled by evaporating water into it. Relative humidity is the ratio of the actual water vapor content of the air to that at which saturation would occur if temperature and pressure remained the same. Dew point is the temperature at which saturation would occur if the pressure and water vapor content remained the same.

Psychrometric observations at HMS began in March 1946. From then until August 1956, observations (taken at 3-hourly intervals) consisted of sling psychrometer readings of dry and wet bulb temperature and conversion of these to equivalent relative humidity and dew point by the use of a psychrometric slide rule.

A Foxboro Dew Point Measuring System⁽⁴⁾ was installed in 1956. Since August 1 of that year, hourly observations of dry bulb and dew point temperature have been taken from a Leeds & Northrup Speedomax recorder and converted to equivalent wet bulb and relative humidity by use of the same psychrometric slide rule mentioned above. Tables 26 through 29 and Figure 25 are the result of computer analysis of these data from 1957 to 1970.

Figure 26 is a bar diagram of average 1300 PST relative humidity for each July of record from 1946-1970. Superimposed on the diagram is a 10-year moving average line which shows no perceptible trend. However, HMS is more than 10 miles from any irrigation project or storage reservoir and cannot be considered representative of conditions in the immediate vicinity thereof.

TABLE 26
MONTHLY AVERAGES OF PSYCHROMETRIC DATA
BASED ON PERIOD OF RECORD 1950-70

		AVERAGES													
		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YEAR	
DRY BULB		30.3	37.5	44.0	52.5	61.8	69.9	77.5	75.3	67.0	53.2	40.1	33.4	53.5	
WET BULB		27.9	33.6	37.3	42.8	49.1	54.5	57.9	57.3	52.6	45.4	36.4	31.2	43.8	
REL. HUM.		76.0	69.7	55.0	46.4	41.8	39.4	31.5	34.9	39.9	57.7	72.6	80.8	53.8	
DEWPOINT		23.2	27.4	27.3	30.4	36.0	41.2	42.3	42.8	39.5	36.9	31.1	27.5	33.8	
		MONTHLY AVERAGE EXTREMES													
DRY BULB	{	HIGHEST	43.0	44.0	48.7	56.2	68.7	75.5	82.8	82.5	72.0	59.1	45.8	38.8	56.3
		YEAR	1953	1958	1968	1956	1958	1969	1960	1967	1967	1952	1954	1953	1958
		LOWEST	12.9	25.8	39.6	48.3	57.2	64.2	73.2	70.6	61.6	50.3	32.3	26.5	51.0
		YEAR	1950	1956	1955	1955	1962	1953	1963	1964	1970	1968	1955	1964	1955+
WET BULB	{	HIGHEST	39.3	40.7	40.8	45.1	54.6	58.6	61.2	61.1	56.5	47.7	42.3	35.8	46.5
		YEAR	1953	1958	1968	1962	1958	1958	1958	1961	1963	1962	1954	1966	1958
		LOWEST	12.4	23.4	32.9	39.3	45.4	51.4	55.6	54.9	48.3	42.4	29.6	25.0	41.8
		YEAR	1950	1956	1955	1955	1959	1954	1954	1964	1970	1970	1955	1964	1955
REL. HUM.	{	HIGHEST	89	87	66	64	* 52	54	40	44	55	74	80	90	58
		YEAR	1960	1963	1950	1963	1962+	1950	1955	1968	1959	1962	1956	1950	1950+
		LOWEST	60	54	44	37	31	34	22	24	34	42	64	69	49
		YEAR	1963	1967	1965	1966	1966	1960	1959	1967	1952	1952	1963+	1968	1967
DEWPOINT	{	HIGHEST	34.4	36.7	34.0	37.1	43.8	47.5	46.6	46.9	45.4	43.5	38.3	34.3	37.7
		YEAR	1953	1958	1961	1963	1957	1958	1958	1961	1963	1962	1954	1950	1958
		LOWEST	6.5	17.3	20.8	26.2	30.4	37.5	35.4	38.4	33.8	32.1	24.0	21.0	31.5
		YEAR	1950	1956	1965+	1955	1964	1954	1959	1955	1970	1970	1959	1951	1955

+ ALSO IN EARLIER YEARS

* ALTHOUGH NOT INCLUDED IN THESE TABLES, AN AVERAGE OF 63% WAS
RECORDED IN 1948

BNWL-1605

TABLE 27
FREQUENCY DISTRIBUTION IN PERCENT OF DRY BULB TEMPERATURE VS WET BULB TEMPERATURE (1957-1970)

DRY BULB TEMPERATURE	WET BULB TEMPERATURE																						PERCENT TOTAL
	< -20	-20/-16	-15/-11	-10/-6	-5/-1	0/4	5/9	10/14	15/19	20/24	25/29	30/34	35/39	40/44	45/49	50/54	55/59	60/64	65/69	70/74	75/79	80/84	
< -20	#																						#
-20/-16		#																					#
-15/-11			#																				#
-10/-6			#	0.1																			0.1
-5/-1				#	0.1																		0.1
0/4					#	0.1																	0.1
5/9						#	0.2																0.2
10/14							0.1	0.4															0.5
15/19								0.2	0.8														1.0
20/24								#	0.4	1.7													2.1
25/29									#	0.9	3.4												4.3
30/34										0.1	2.6	5.2											7.9
35/39											0.2	4.7	3.6										8.5
40/44											#	0.9	6.2	2.6									9.7
45/49												#	2.8	5.4	1.2								9.4
50/54													0.4	4.9	3.5	0.5							9.3
55/59												#	1.5	4.8	1.8	0.2							8.3
60/64													0.2	3.2	4.3	0.9	0.1						8.7
65/69													#	0.8	4.3	2.2	0.2	#					7.5
70/74														0.1	2.5	3.7	0.5	#					6.8
75/79															0.6	3.3	1.3	#					5.2
80/84																#	2.0	2.0	0.1				4.1
85/89																#	0.5	1.9	0.3	#			2.7
90/94																	#	1.4	0.5	#			1.9
95/99																		0.4	0.7	#			1.1
100/104																		#	0.4	#			0.4
104/109																			0.1	#			0.1
> 109																				#			#
% TOTAL	#	#	#	0.1	0.1	0.1	0.3	0.6	1.2	2.7	6.2	10.8	13.0	14.6	13.6	14.0	12.8	7.8	2.1	#			100

TABLE 28
FREQUENCY DISTRIBUTION IN PERCENT OF DRY BULB TEMPERATURES VS RELATIVE HUMIDITY

MARCH, APRIL AND MAY 1957-1970								JUNE, JULY AND AUGUST 1957-70							
DRY BULB	RELATIVE HUMIDITY							DRY BULB	RELATIVE HUMIDITY						
	<30	30/44	45/59	60/74	75/89	>89	TOTAL		<30	30/44	45/59	60/74	75/89	>89	TOTAL
0/4	0	0	0	0	0	0	0	30/34	0	0	0	0	0	0	0
5/9	0	0	0	0	0	0	0	35/39	0	0	0	#	0	0	#
10/14	0	0	0	0	#	0	#	40/44	0	0	0	0.07	0	0	0.07
15/19	0.03	0.02	0.06	0.03	#	0.02	0.16	45/49	0	#	0.14	0.15	0.05	0.03	0.37
20/24	0.03	0.07	0.10	0.08	0.06	0.06	0.40	50/54	0.01	0.22	1.06	0.62	0.34	0.09	2.34
25/29	0.06	0.10	0.14	0.35	0.45	0.24	1.33	55/59	0.09	1.41	3.16	1.16	0.48	0.16	6.46
30/34	0.06	0.08	0.69	1.24	1.14	0.42	3.63	60/64	0.38	4.30	5.38	1.42	0.58	0.16	12.22
35/39	0.13	0.39	2.31	2.19	1.58	0.45	7.05	65/69	1.71	7.40	4.54	0.73	0.17	0.02	14.57
40/44	0.18	1.42	4.78	3.44	1.97	0.83	12.62	70/74	4.35	9.00	2.16	0.24	0.03	#	15.78
45/49	0.33	3.61	6.05	3.40	1.60	0.73	15.72	75/79	6.88	6.55	0.57	0.02	0	0	14.02
50/54	1.36	5.62	6.08	2.47	0.81	0.42	16.76	80/84	8.83	3.27	0.08	0	0	0	12.18
55/59	2.32	6.18	3.62	1.12	0.53	0.12	13.89	85/89	7.92	0.85	#	0	0	0	8.77
60/64	3.24	5.03	2.12	0.48	0.15	0.02	11.04	90/94	6.81	0.10	0	0	0	0	6.91
65/69	3.01	3.28	0.79	0.13	0.02	0	7.23	95/99	4.24	0	0	0	0	0	4.24
70/74	2.74	1.70	0.27	0.02	0	0	4.73	100/104	1.76	0	0	0	0	0	1.76
75/79	1.97	0.63	0.04	#	0	0	2.64	105/109	0.29	0	0	0	0	0	0.29
80/84	1.44	0.16	0.01	0	0	0	1.61	109	0.02	0	0	0	0	0	0.02
85/89	0.70	0.05	0	0	0	0	0.76	TOTAL	43.29	33.10	17.09	4.41	1.65	0.46	100.00
90/94	0.37	0	0	0	0	0	0.37	# DENOTES LESS THAN 0.01 PERCENT OF 30912 TOTAL OBSERVATIONS							
95/99	0.06	0	0	0	0	0	0.06								
100/104	#	0	0	0	0	0	#								
105/109	0	0	0	0	0	0	0								
>109	0	0	0	0	0	0	0								
TOTAL	18.03	28.34	27.06	14.95	8.31	3.31	100.00								
# DENOTES LESS THAN 0.01 PERCENT OF 30912 TOTAL OBSERVATIONS															

DENOTES LESS THAN 0.01 PERCENT OF 30912 TOTAL OBSERVATIONS

SEPTEMBER, OCTOBER AND NOVEMBER 1957-70								DECEMBER, JANUARY AND FEBRUARY 1957-70							
DRY BULB	RELATIVE HUMIDITY							DRY BULB	RELATIVE HUMIDITY						
	<30	30/44	45/59	60/74	75/89	>89	TOTAL		<30	30/44	45/59	60/74	75/89	>89	TOTAL
-10/-6	0	0	0	0	0	0	0	>-20	0	0	#	0.01	0	0	0.01
-5/-1	0	0	0	0	0	0	0	-20/-16	0	0	0	0.03	0.01	0	0.04
0/4	0	0	0	0	0	0	0	-15/-11	0	#	0.03	0.04	0.01	0	0.08
5/9	0	0	0.01	#	0	0	0.01	-10/-6	0	0.07	0.03	0.10	0.01	0	0.21
10/14	0	0.02	0.02	0.03	0.01	0	0.08	-5/-1	0	0.09	0.05	0.18	0.04	0.01	0.37
15/19	0	0.06	0.02	0.06	0.07	0.05	0.26	0/4	0	0.08	0.16	0.30	0.12	0.02	0.68
20/24	0.02	0.15	0.07	0.24	0.32	0.20	1.00	5/9	0.04	0.06	0.24	0.30	0.43	0.07	1.14
25/29	0	0.06	0.23	0.53	0.82	0.60	2.24	10/14	0.07	0.15	0.30	0.37	0.61	0.52	2.02
30/34	0.02	0.12	0.36	1.24	2.07	1.73	5.54	15/19	0.11	0.19	0.27	0.47	1.12	1.39	3.55
35/39	#	0.26	0.97	2.34	2.73	1.79	8.09	20/24	0.08	0.20	0.54	0.95	2.35	3.04	7.16
40/44	0.05	0.46	2.37	3.64	3.20	2.31	12.03	25/29	0.06	0.37	0.66	1.51	4.85	6.47	13.92
45/49	0.11	1.03	3.61	3.62	2.89	1.59	12.85	30/34	0.14	0.31	0.94	3.38	7.37	10.51	22.65
50/54	0.23	2.44	4.76	3.42	1.78	0.44	13.07	35/39	0.06	0.38	2.49	4.94	5.43	5.54	18.84
55/59	0.51	3.41	4.39	2.24	0.66	0.22	11.43	40/44	0.08	0.82	3.57	4.33	2.65	2.73	14.18
60/64	1.18	3.84	4.17	1.38	0.24	0.06	10.87	45/49	0.16	1.41	3.00	2.70	1.07	0.37	8.71
65/69	1.41	3.69	2.39	0.30	0.03	0	7.82	50/54	0.16	1.13	1.68	1.15	0.21	0.05	4.38
70/74	1.98	3.32	0.82	0.01	0	0	6.13	55/59	0.10	0.41	0.79	0.28	0.02	0	1.60
75/79	2.00	1.79	0.11	0	0	0	3.90	60/64	0.03	0.18	0.19	0.03	0	0	0.43
80/84	1.95	0.62	0	0	0	0	2.57	65/69	0.01	0.01	0.01	0	0	0	0.03
85/89	1.23	0.09	0	0	0	0	1.32	70/74	0	0	0	0	0	0	0
90/94	0.65	0.01	0	0	0	0	0.66	TOTAL	1.10	5.86	14.95	21.07	26.30	30.72	100.00
95/99	0.13	0	0	0	0	0	0.13	# DENOTES LESS THAN 0.01 PERCENT OF 30312 TOTAL OBSERVATIONS							
100/104	0	0	0	0	0	0	0								
105/109	0	0	0	0	0	0	0								
TOTAL	11.47	21.37	24.30	19.05	14.82	8.99	100.00								
# DENOTES LESS THAN 0.01 PERCENT OF 30576 TOTAL OBSERVATIONS															

DENOTES LESS THAN 0.01 PERCENT OF 30576 TOTAL OBSERVATIONS

TABLE 29
MONTHLY AND ANNUAL FREQUENCY OF OCCURRENCE (%) OF WET BULB VALUES (°F)
PERIOD OF RECORD 1957-70 (TOTAL OBSERVATIONS: 122,712)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
75-79	0	0	0	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0.06	0.38	0.14	0	0	0	0	0.05
65-69	0	0	0	0	0.64	4.61	10.72	7.90	1.46	0	0	0	2.13
60-64	0	0	0	0.30	4.59	17.85	30.44	27.50	12.32	0.94	0	0	7.89
55-59	0.05	0.01	0.30	2.39	16.10	30.74	32.18	35.01	26.21	7.94	0.16	0	12.66
50-54	0.48	1.30	2.90	10.60	28.32	30.13	20.34	22.02	31.29	17.07	2.47	0.21	13.97
45-49	2.15	6.00	12.59	26.40	27.14	13.82	5.22	6.62	18.71	29.19	11.68	7.28	13.50
40-44	8.30	18.41	27.31	32.80	16.68	2.65	0.69	0.75	7.54	25.89	23.91	9.57	14.49
35-39	15.77	26.62	28.24	19.85	5.39	0.14	0	0.05	1.85	12.93	25.33	20.96	13.00
30-34	23.60	26.24	16.86	6.55	1.08	0	0	0	0.62	5.19	19.87	30.69	10.82
25-29	20.60	13.69	8.69	1.07	0.07	0	0	0	0.01	0.74	10.58	19.57	6.23
20-24	11.41	4.66	1.99	0.05	0	0	0	0	0	0.11	3.93	9.72	2.66
15-19	7.03	1.50	0.88	0	0	0	0	0	0	0	1.64	3.47	1.22
10-14	4.23	1.26	0.25	0	0	0	0	0	0	0	0.34	1.64	0.64
05-09	3.21	0.23	0	0	0	0	0	0	0	0	0.11	0.53	0.34
00-04	1.71	0.05	0	0	0	0	0	0	0	0	0	0.44	0.19
-05/-01	0.82	0.02	0	0	0	0	0	0	0	0	0	0.41	0.11
-10/-06	0.32	0	0	0	0	0	0	0	0	0	0	0.37	0.06
-15/-11	0.16	0	0	0	0	0	0	0	0	0	0	0.13	0.03
-20/-16	0.13	0	0	0	0	0	0	0	0	0	0	0	0.01
L. T. -20	0.03	0	0	0	0	0	0	0	0	0	0	0	0

FIGURE 25
MONTHLY AND ANNUAL HOURLY AVERAGES OF DRY BULB (D.B.) AND WET BULB (W.B.) TEMPERATURE
RELATIVE HUMIDITY (R.H.), AND TEMPERATURE OF THE DEW POINT (D.P.)
(1957-1970)

FIGURE 25 (CONTD)

FIGURE 25 (CONTD)

FIGURE 25 (CONTD)

FIGURE 26
MEAN RELATIVE HUMIDITY (%) AT 1300 PST
IN JULY: EACH YEAR FROM 1946 TO 1970

VIII. ATMOSPHERIC PRESSURE

VIII. ATMOSPHERIC PRESSURE

Atmospheric pressure at the HMS has been measured and recorded since March 1, 1950. The height of the mercurial barometer through June 13, 1966 was 724 feet MSL. It was then moved to the present location, approximately 1500 feet west, where the barometer height is 733 feet MSL. Station pressure is obtained from 6-hourly observations of a mercurial barometer and hourly observations of an aneroid barograph. Station pressure reduced to sea level is calculated.

Pressures average higher in the winter than in the summer. However, the winter extremes are also greater and both the record high and low have been recorded during the winter months. The record of station pressure is summarized in Table 30. The diurnal range of sea level pressure is presented in Table 31, and Figure 27 shows this graphically for station pressure.

Records have not been kept on the rate of pressure changes, but some information has been obtained from one memorable storm. As a frontal system approached the HMS on November 3, 1958, the pressure fall averaged 0.082 inches Hg/hour over a 6-hour period. The maximum hourly fall was 0.160 inches Hg. The pressure rise for the same time period following the frontal passage averaged 0.090 inches of Hg/hour, and the maximum hourly rise was 0.145 inches Hg.

TABLE 30
AVERAGE AND EXTREME STATION AND SEA LEVEL PRESSURE DATA
(1950-70)

	STATION PRESSURE (IN. HG.)				SEA LEVEL PRESSURE (IN. HG.)			
	EXTREME			MAXIMUM	EXTREME			
	AVERAGE	HIGHEST	LOWEST	MONTHLY RANGE	HIGHEST	YEAR	LOWEST	YEAR
JANUARY	29.28	30.20	28.32	1.88	31.08	1957	29.10	1953
FEBRUARY	29.28	30.08	28.23	1.85	30.97	1956	28.98	1958
MARCH	29.21	29.92	28.28	1.64	30.79	1955	29.05	1951
APRIL	29.19	29.77	28.49	1.28	30.59	1961	29.26	1962
MAY	29.17	29.69	28.62	1.07	30.49	1953	29.38	1957
JUNE	29.13	29.54	28.61	0.93	30.32	1961	29.36	1952
JULY	29.14	29.52	28.66	0.86	30.30	1959	29.41	1962
AUGUST	29.14	29.55	28.57	0.98	30.32	1968	29.32	1951
SEPTEMBER	29.17	29.72	28.65	1.07	30.52	1970	29.41	1962
OCTOBER	29.24	29.82	28.19	1.63	30.63	1964	28.95	1950
NOVEMBER	29.29	29.97	28.42	1.55	30.86	1950	29.19	1951
DECEMBER	29.29	30.05	28.10	1.95	30.91	1968	28.86	1951
YEAR	29.29	30.20	28.10	2.10 ^(a)	31.08	1957	28.86	1951

^(a) GREATEST RANGE OVER THE PERIOD OF RECORD

TABLE 3I
MONTHLY HOURLY AVERAGE SEA LEVEL PRESSURE
(mbs)*: 1957-1970

HOUR BEGINNING (PST)	J	F	M	A	M	J	J	A	S	O	N	D	Y
00	200	181	158	151	139	120	123	122	136	169	184	194	1015.6
01	199	181	159	152	139	121	125	123	137	171	184	194	1015.7
02	200	182	159	152	140	123	126	125	138	171	185	195	1015.8
03	201	182	159	153	141	124	128	126	139	171	184	196	1015.9
04	201	182	160	154	143	126	131	129	141	172	184	195	1016.0
05	201	183	162	157	146	129	135	132	144	174	185	195	1016.2
06	201	185	165	160	149	132	138	136	148	177	186	195	1016.4
07	203	187	167	163	152	134	141	140	152	180	189	197	1016.7
08	205	189	170	164	153	135	143	142	153	183	192	199	1016.9
09	208	191	171	164	152	134	142	141	154	184	194	202	1017.0
10	210	192	172	163	150	130	139	140	153	184	195	204	1016.9
11	209	191	169	160	146	127	135	136	150	181	193	202	1016.6
12	203	187	166	155	142	122	130	131	145	176	188	197	1016.2
13	198	181	160	151	138	118	125	126	140	171	184	193	1015.7
14	196	177	156	147	133	113	120	121	134	166	181	192	1015.3
15	196	176	153	143	129	109	115	115	130	164	180	192	1015.0
16	196	174	149	140	125	105	109	110	126	162	180	192	1014.7
17	197	174	149	139	123	103	106	107	125	162	180	193	1014.6
18	197	176	150	139	122	103	104	106	125	164	182	194	1014.7
19	198	177	152	141	124	105	106	108	127	166	182	194	1014.8
20	198	177	153	145	128	108	109	112	130	167	182	195	1015.0
21	199	178	155	147	132	112	114	115	133	168	183	195	1015.2
22	200	179	157	150	136	117	119	118	135	170	184	196	1015.5
23	200	180	157	151	137	119	121	120	137	171	183	196	1015.6
AVG	201	182	159	152	138	119	124	124	139	172	185	196	1015.7

* THE HOURLY VALUES FOR EACH MONTH ARE TABULATED WITHOUT A DECIMAL POINT BETWEEN THE LAST TWO DIGITS AND WITHOUT A "10" FOR THE FIRST TWO DIGITS. BOTH OF THESE ARE INCLUDED IN THE HOURLY VALUES FOR THE YEAR. THUS, THE AVERAGE PRESSURE AT HOUR 00 FOR JANUARY IS 1020.0 mbs AND FOR THE YEAR AT THIS HOUR IT IS 1015.6 mbs.

FIGURE 27
DIURNAL VARIATION OF STATION PRESSURE
1957 THROUGH 1970

IX. MISCELLANEOUS PHENOMENA

IX. MISCELLANEOUS PHENOMENA

Table 32 below lists various meteorological phenomena and the average number of days per month and year that each occurs at HMS. Following the table, each will be discussed in greater detail. Other meteorological phenomena, and phenomena of interest to the meteorologist, will also be discussed.

TABLE 32
AVERAGE NUMBER OF DAYS OF VARIOUS PHENOMENA AT HMS

<u>Phenomenon</u>	Based on all available data from 1945 to 1970												
	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>	<u>Y</u>
Thunderstorm	0	#	#	1	2	3	2	2	1	#	0	0	11
Hail	#	#	#	#	#	#	#	#	#	0	0	0	1*
D or BD ⁽¹⁾	1	#	1	1	1	1	#	#	1	#	#	#	6
Fog ⁽²⁾	9	6	1	#	#	#	#	#	#	2	8	12	38
Fog, dense ⁽³⁾	6	3	1	#	#	0	0	#	#	1	5	8	24
Glaze	2	1	#	0	0	0	0	0	0	0	1	3	7
Warm front	3	2	1	#	#	0	0	0	#	1	2	3	12
Cold front	3	4	5	5	5	4	4	5	4	4	4	3	50

1. Dust or blowing dust

2. All fog regardless of visibility

3. Visibility 1/4 mile or less

Less than 1/2 day

* Although the average is less than 1/2 day for any single month, there have been 27 days with hail in 24 years of record for an average annual number of 1.

Thunderstorms

A thunderstorm day is one in which thunder is heard. If a thunderstorm should begin in the late evening and last past midnight, it counts as two thunderstorm days even though it is all one storm. Similarly, should there be two or more distinct thunderstorms in a day--and this sometimes happens--it still counts as a single thunderstorm day.

Thunderstorms may occur during any month of the year at HMS. Although Table 32 shows 0 for the months November through January, the summary period ended in 1970 and a thunderstorm occurred at HMS on December 22, 1971. About 25 miles SE of Richland one occurred on January 18, 1953. However, the thunderstorm season essentially includes only the months April through September. Although the average is 11 days per year, the number has varied from 3 to 23. In June 1948, there were 8 thunderstorm days during the month and this record was repeated in August 1953.

Additional information on thunderstorms is in the Narrative Climatological Summary of Appendix I (next to last paragraph). Appendix IV contains a study on phenomena associated with thunderstorms.

Hail

Hail is a rare phenomenon at HMS, there never having been more than two days of occurrence during any year of record. When it does occur it is often associated with thunderstorm activity and is included in the Appendix IV study mentioned above.

Among unseasonal hailstorms of record are those of January 25, 1953 (without thunder) and February 22, 1962 (with thunder). During the thunderstorm of December 22, 1971, hail occurred in Richland but not at HMS.

Dust and Blowing Dust

To become part of a climatological record, both of these phenomena require that airborne dust restrict visibility to 6 miles or less. Dust (D) is carried in from a distant source and may occur with little wind, while in the case of blowing dust (BD), dust is observed being picked up and blown about locally. Both D and BD occur at HMS, although approximately 7 of every 10 such observations are denoted BD.

Wind speeds during observations of BD have varied from 19 to 60 mph, while in the case of D the range has been from 4 to 30 mph. One of the most unusual occurrences of the latter was on September 13, 1950, when dust

obscured the sky and, during 5 consecutive hours, restricted visibility to the 5/16 to 3-mile range. Yet the range of hourly average wind speeds during this period was only 4 to 9 mph.

Observations of D or BD may occur with any direction of the wind although, as shown below, there is a heavy preference for SW.

<u>Wind Direction</u>	<u>% of Total Observations of D or BD</u>
NE	8
E	1
SE	1
S	7
SW	50
W	14
NW	11
<u>N</u>	<u>8</u>
Total	100

Most observations of dust are in conjunction with N and NE winds, while most of those of BD come with SW winds.

Fog

Although fog has been observed in every month of the year at HMS, it is essentially a seasonal phenomenon with 95 percent of it observed during the months November through February. Inclusion of March and October fog would increase this percentage to 99.7. Table 33 summarizes the statistics on fog occurrence at HMS.

Most fog at the HMS is of the radiation type and occurs in conjunction with low wind speeds. See Section V, page 5.14, Table 22.

Glaze

Glaze is a coating of ice formed when rain or drizzle freezes on contact with surfaces whose temperature is below freezing. Although the

TABLE 33
TOTAL DURATION* AND MAXIMUM PERSISTENCE OF FOG
TABULATED IN HOURS FOR THE PERIOD 1945-70

ALL FOG (VIZ 0-6 MILES)	AVG TOTAL DURATION	MAX TOTAL DURATION	YEAR	MIN TOTAL DURATION	YEAR	AVG DURATION PER DAY OF OCCURRENCE	MAX. PERSISTENCE ⁽³⁾	YEAR
JAN	68.3	193.4	1965	0	1949	7.2	58.1	1955
FEB	36.4	206.2	1963	0	1967	6.2	58.0	1963
MAR	4.4	20.6	1951	0	1968+	3.1	12.2	1949
APR	0.3	2.8	1950	0	1970+	1.4	2.8	1950
MAY	0.3	2.7	1958	0	1970+	1.2	2.7	1958
JUNE	#	0.5	1948	0	1970+	0.5	0.5	1948
JULY	#	0.7	1966	0	1970+	0.7	0.7	1966
AUG	#	1.0	1959	0	1970+	1.0	0.7	1959
SEPT	0.3	5.5	1957	0	1970+	2.0	2.6	1957
OCT	7.6	63.6	1962	0	1970+	3.9	39.0	1962
NOV	55.4	148.0	1952	1.0	1960	6.8	65.4	1963
DEC	105.4	193.8	1947	6.5	1968	8.7	72.3	1947
Y	278.4	462.5 ⁽¹⁾	1964-65	147.7 ⁽²⁾	1948-49	7.0	72.3	1947-48
DENSE FOG (VIZ 1/4 MI OR LESS)								
JAN	20.4	52.4	1955	0	1949	3.4	15.0	1953
FEB	12.7	86.7	1963	0	1967+	3.8	16.7	1963
MAR	1.8	7.8	1949	0	1968+	2.2	5.0	1961
APR	0.1	1.8	1955	0	1970+	1.8	0	----
MAY	0.1	1.6	1958	0	1970+	1.6	1.6	1958
JUNE	0	0	----	0	----	0	0	----
JULY	0	0	----	0	----	0	0	----
AUG	#	1.0	1959	0	1970+	1.0	0.7	1959
SEPT	0.1	3.2	1957	0	1970+	3.2	1.4	1957
OCT	3.1	35.2	1962	0	1970+	3.1	15.8	1962
NOV	21.1	71.4	1952	0	1960	4.1	20.6	1963
DEC	42.0	119.8	1947	1.3	1968	5.4	47.0	1957
Y	101.4	201.5 ⁽¹⁾	1962-63	47.3 ⁽²⁾	1948-49	4.2	47.0	1957-58

* TOTAL DURATION DENOTES TOTAL NUMBER OF HOURS AND TENTHS OF HOURS IN WHICH FOG IS OBSERVED.

DENOTES LESS THAN 0.05 HOUR

(1) DENOTES THE GREATEST NUMBER OF HOURS IN A SEASON

(2) DENOTES THE LEAST NUMBER OF HOURS IN A SEASON

(3) MAXIMUM PERSISTENCE OF DENSE FOG IS BASED ON THE PERIOD 1953-70

record shows an average of 7 glaze days per year, many of these cause little or no inconvenience to the public. Two outstanding exceptions to this rule occurred on February 11-12, 1954⁽¹⁾ and on November 23-24, 1970. There was serious disruption to project traffic in each instance, although there was no known damage to transmission lines. In each instance, rising temperatures soon melted the ice.

Warm and Cold Fronts

A warm front is a line of discontinuity formed when an advancing current of relatively warm air is replacing a retreating colder air mass. A cold front is a line of discontinuity along which a wedge of cold air is underrunning and displacing a warmer air mass.

Table 32 in the forepart of this section shows that an average of 12 warm fronts and 50 cold fronts pass HMS annually. This agrees well with 13 and 53, respectively, reported in an earlier work.⁽¹⁾ The earlier work also deals with wind directions, wind speeds, and temperature changes associated with these phenomena. Additional studies since publication of that document have established some further data on temperature changes associated with frontal passages.

On June 5, 1957, the temperature dropped from 90 to 64 (26 degrees) in 20 minutes due to passage of a cold front. On January 7, 1949, the temperature rose from 19 to 43 (24 degrees) in one hour due to passage of a warm front. On November 24, 1970 (following the severe glazing of that date), the temperature rose 8 degrees in 4 minutes, 15 degrees within 15 minutes, and 22 degrees within 30 minutes. In all on that date, the temperature rose from a morning low of 24 to a high of 60. The high of the previous day was 25.

Blowing and Drifting Snow

Both of these are phenomena of wind-driven snow. They are distinguished by the fact that blowing snow restricts visibility to a height of at least 6 feet above the surface, while drifting snow does not. Falling snow is not a requisite condition for either. However, both are dependent upon a quantity of dry, powdery snow on the ground, subfreezing

temperatures, and sufficient wind to blow the snow about. This combination of meteorological events is rarely experienced at HMS and so blowing and drifting snow do not often occur.

The blowing snow of February 4 and 5, 1948, remains as the most important of these storms yet observed at HMS. On the evening of the former date, there were 5 inches of freshly fallen snow on the ground when the wind began to increase from the north. The storm reached its peak on the early morning of the 5th when blowing snow reduced visibility to 2 miles and a peak gust of 47 mph from the NNE was recorded. The storm was augmented with dust carried in from the area northeast of the Hanford Reservation and, on the morning of the 5th, the snow was piled into dirty drifts several feet deep. Temperatures during the storm ranged from 22 to 30. There was no measurable new snow during the 14-hour period of blowing snow.

Rime

Rime occurs during periods of supercooled fog. It resembles frost and is sometimes called hoarfrost. Rime, however, occurs from rapid freezing of supercooled water droplets, whereas frost is deposited by direct condensation of aqueous vapor in the same manner as dew, except that the temperature is below freezing.

Rime deposits are common in the Hanford Reservation, particularly at the higher elevations. Hills around the HMS are shrouded in fog for extended periods of time in winter and the rime deposits are heavy.

Rime amounts at the HMS are generally less than on the surrounding hills, but during the period November 21-23, 1952, deposits were sufficiently heavy to break some local electrical distribution lines.⁽¹⁾

Dust Devils

A dust devil is a small column of whirling wind which may carry dust and debris several hundred feet into the air. The diameter may vary from a few feet to more than 100 feet.

Dust devils usually occur on sunny days with light winds. Sometimes the peak gust for a day occurs in conjunction with a dust devil. A characteristic of those which have hit the tower is that the peak gust is strongest near the surface and decreases with height.

Smoke

Smoke sufficiently thick to restrict visibility to 6 miles or less occurs, on the average, only about 3 days per year at HMS. The most common sources in this area are forest fires, orchard smudging, and agricultural field burning. None of these sources are near HMS and this is why the station is seldom affected.

Another situation which occasionally causes smoke at HMS is the slow buildup from many small sources due to adverse meteorological conditions. These conditions are typified by an inversion aloft (Section X) and by light surface winds.

Tornadoes

On June 16, 1948, a tornado was observed near the east end of Rattlesnake Mountain about 10 miles south of HMS. It was in barren country and no damage resulted. Funnel clouds (with bases not reaching the ground) were observed on March 24, 1961, and on July 15, 1970. The former was estimated 10-15 miles SSE of HMS and the latter about 9 miles SSW on the north slope of Rattlesnake Mountain.

Daubek⁽⁶⁾ has published a study on these and similar observations occurring within an approximate 100 mile radius of the HMS. The probability for an occurrence in any year at any one point within the 100 mile radius is 0.000006824 or one tornado each 146,000 years. It also indicates that the best estimates of the maximum tangential wind speed expected from a tornado similar to those which have occurred within the 100 mile radius over the past quarter of a century is 145 mph.

Auroras

An aurora, although not strictly a meteorological phenomenon, is nevertheless customarily observed by meteorologists. It is closely

connected with the appearance of magnetic disturbances. The particles originate on the sun and become luminous when attracted by the earth's magnetic field and pass through the atmosphere.

Auroras occur on an average of 10 nights per year at HMS. Some are barely visible, but others are spectacular. Several in the latter category occurred in September 1957, a month in which there were 9 nights altogether with auroral displays. Other notable displays occurred on February 10, 1958, and on April 25-26, 1967.

X. DIFFUSION CLIMATOLOGY

X. DIFFUSION CLIMATOLOGY

General

Previous sections have dealt only with observations made at a single level near the ground surface. The study of diffusion requires, in addition, a knowledge of the vertical distribution of some of these elements--particularly temperature and wind. The next section considers the first of these.

Vertical Temperature Profiles

Figure 28 depicts the average hourly temperature profiles for each month. The profiles show a breakup of the nocturnal inversion by the second or third hourly observation after sunrise and formation again by the first hourly observation after sunset. The profiles also show that the intensity of both lapses and inversions is greatest in the first 50 feet above ground surface. Even above 50 feet, however, lapse rates average adiabatic or superadiabatic during part of the day for a good portion of the year. Overall, June is the most unstable month and October the most stable (Figure 29).

Figure 30 shows the seasonal and diurnal variation in temperature difference between the 200- and 3-foot levels. One notable feature here is that, during the spring and summer months, the inversion breakup in morning is more abrupt than its formation in evening (indicated by a greater packing of the isopleths). December has less diurnal variation in this temperature difference than any other month.

Figure 31 shows the diurnal course of temperature at three levels during 4 months of the year. During most of the inversion period for all months, there is more difference in temperature between the surface and 50-foot levels than in the remainder of the distance to 400 feet.

Crossovers

Figure 32 shows both a morning and an evening crossing of the temperature lines. In July, for example, the 3-foot temperature crosses the

FIGURE 28
AVERAGE MONTHLY HOURLY TEMPERATURE PROFILES
BASED ON 16 YEARS OF RECORD: 1955-1970

FIGURE 28 (CONT'D)

FIGURE 28 (CONT'D)

FIGURE 29
AVERAGE MONTHLY AND ANNUAL TEMPERATURE PROFILES
BASED ON THE PERIOD 1955-70

FIGURE 30
SEASONAL AND DIURNAL VARIATION IN $T_{200}-T_3$ (10ths OF DEGREES F)
BASED ON THE PERIOD 1955-70

FIGURE 31
DIURNAL COURSE OF TEMPERATURE FOR THREE LEVELS
JANUARY, APRIL, JULY, AND OCTOBER

FIGURE 32
 AVERAGE MORNING AND EVENING CROSSOVERS* IN RELATION TO SUNRISE AND SUNSET
 *BASED ON TEMPERATURE DIFFERENCES BETWEEN 200 AND 3-FT LEVELS

400-foot temperature at about 0530 PST. Previous to that time the 3-foot temperature is colder (inversion). Afterward it is warmer (lapse). A crossover, then, is defined as the change from inversion to lapse, or vice versa. Since there may be numerous crossovers, or none at all, within the course of a single day, this study is limited to those associated with formation and decay of the nocturnal inversion. All statistics are based on temperature difference observations, taken hourly on the half-hour, between the 200- and 3-foot levels ($T_{200} - T_3$). Any minus difference is considered lapse; any plus difference is considered inversion; zero differences are considered neither.

Crossover Hours and Cases of Undetermined Crossover

Each day is checked for both of the following: (1) at least two consecutive hourly observations of inversion followed by at least two consecutive hourly observations of lapse, and (2) the vice versa situation. If (1) occurs, and the first hour of lapse is one of those for which data are tabulated in Table 34 (top portion), then this hour is designated the morning crossover hour. Otherwise, the case is tabulated as one of undetermined morning crossover (UMCO). If (2) occurs, and the first hour of inversion is one of those for which data are tabulated in Table 35 (bottom portion), then this hour is designated the evening crossover hour. Otherwise, the case is tabulated as one of undetermined evening crossover (UECO). Obviously, undetermined crossovers include cases where there is no crossover, as well as those where the crossover cannot be associated with formation or decay of the nocturnal inversion.

Conversion of Crossover Hour Data to Average Time of Crossover Occurrence

When an hour is designated a crossover hour, the actual time of crossover is assumed to be 30 minutes earlier. With this assumption, weighted averaging of the data in Table 34 then yields the MCO and ECO data in Columns 4 and 5 of Table 35. Harmonic analysis of these data yields, in turn, the MCO and ECO curves of Figure 32.

TABLE 34
MONTHLY AND ANNUAL DISTRIBUTION (%) OF CROSSOVER HOURS
AND CASES OF UNDETERMINED CROSSOVER
1963-1970

	PST	J	F	M	A	M	J	J	A	S	O	N	D	Y
MORNING	0430					#	5	2						1
	0530				4	21	37	22	3	2				8
	0630			1	33	65	47	64	59	7	3			23
	0730		3	34	52	8	2	6	32	67	23	4		19
	0830	13	30	53	4				2	19	61	28	6	18
	0930	25	31	6							8	36	29	11
	1030	20	12									10	21	5
	1130	7											5	1
	*UMCO	35	24	6	7	6	9	6	4	5	5	22	39	14
	SUM	100	100	100	100	100	100	100	100	100	100	100	100	100
EVENING	1430	3										2	4	1
	1530	9	3								1	13	18	4
	1630	34	13	1							27	53	31	13
	1730	14	54	30	2					26	50	11	7	16
	1830		9	48	45	19	2	2	31	44	10			17
	1930			7	27	42	34	38	32	9	1			16
	2030				8	11	20	15	10	3				6
	2130					5	6	9	1					2
	*UECO	40	21	14	18	23	38	36	26	18	11	21	40	25
	SUM	100	100	100	100	100	100	100	100	100	100	100	100	100

* UMCO DENOTES UNDETERMINED MORNING CROSSOVER. UECO
DENOTES UNDETERMINED EVENING CROSSOVER.

DENOTES LESS THAN 0.5%

TABLE 35
CROSSOVER STATISTICS* IN RELATION TO SUNRISE AND SUNSET

	1	2	3	4	5	6	7	8	9	10	11	12
	SR	SS	SAH	MCO	ECO	TLP	TIP	MCO-SR	ECO-SS	NLL	UMCO	UECO
J	07.6	16.6	9.0	09.3	16.0	6.7	17.3	1.7	-0.6	2.3	35.5	39.5
F	07.0	17.4	10.4	08.7	16.9	8.2	15.8	1.7	-0.5	2.2	24.4	20.6
M	06.2	18.1	11.9	07.7	17.7	10.0	14.0	1.5	-0.4	1.9	6.1	14.2
A	05.2	18.8	13.6	06.6	18.5	11.9	12.1	1.4	-0.3	1.7	7.5	18.1
M	04.4	19.4	15.0	05.9	19.0	13.1	10.9	1.5	-0.4	1.9	6.0	23.4
J	04.1	19.8	15.7	05.5	19.5	14.0	10.0	1.4	-0.3	1.7	9.2	37.9
J	04.4	19.8	15.4	05.8	19.5	13.7	10.3	1.4	-0.3	1.7	5.6	36.3
A	04.9	19.1	14.2	06.3	18.8	12.5	11.5	1.4	-0.3	1.7	4.5	26.2
S	05.6	18.2	12.6	07.1	17.9	10.8	13.2	1.5	-0.3	1.8	4.6	17.9
O	06.3	17.2	10.9	07.8	16.8	9.0	15.0	1.5	-0.4	1.9	5.4	10.7
N	07.0	16.4	9.4	08.6	15.9	7.3	16.7	1.6	-0.5	2.1	22.4	20.7
D	07.6	16.2	8.6	09.4	15.7	6.3	17.7	1.8	-0.5	2.3	38.9	40.3
Y	05.9	18.1	12.2	07.4	17.7	10.3	13.7	1.5	-0.4	1.9	14.2	25.5

COL. NO.	SYMBOL	EXPLANATION OF SYMBOL
1	SR	AVERAGE SUNRISE (HOURS AND 10ths, PST)
2	SS	AVERAGE SUNSET (HOURS AND 10ths, PST)
3	SAH	NUMBER OF HOURS WITH SUN ABOVE THE HORIZON = COL. 2 - COL. 1
4	MCO	AVERAGE MORNING CROSSOVER (HOURS AND 10ths, PST)
5	ECO	AVERAGE EVENING CROSSOVER (HOURS AND 10ths, PST)
6	TLP	TOTAL LAPSE PERIOD (HOURS) = COL. 5 - COL. 4
7	TIP	TOTAL INVERSION PERIOD = 24.0 - COLUMN 6
8	MCO-SR	DIFFERENCE IN HOURS BETWEEN MORNING CROSSOVER AND SUNRISE = COL. 4 - COL. 1
9	ECO-SS	DIFFERENCE IN HOURS BETWEEN EVENING CROSSOVER AND SUNSET = COL. 5 - COL. 2 MINUS SIGN INDICATES NEGATIVE LAG; i. e. CROSSOVER OCCURS BEFORE SUNSET.
10	NLL	NET LAPSE LAG = DIFFERENCE BETWEEN THE TIME WITH SUN ABOVE HORIZON (SAH) AND THE TOTAL LAPSE PERIOD (TLP) = COL. 3 - COL. 6 (ALSO COL. 8 - COL. 9)
11	UMCO	PERCENT OF DAYS WITH UNDETERMINED MORNING CROSSOVER
12	UECO	PERCENT OF DAYS WITH UNDETERMINED EVENING CROSSOVER

* BASED ON HOURLY OBSERVATIONS OF $T_{200}-T_3$ FOR THE PERIOD 1963-70

Discussion of Results in Table 35

The nocturnal inversion forms about 1/2 hour before sunset (Column 9) and lasts until about 1-1/2 hours after sunrise (Column 8). The length of the inversion period averages 13.7 hours, but varies seasonally from 10.0 hours in June to 17.7 hours in December (Column 7).

Of significance is the large percentage of days of undetermined evening crossover (UECO, Column 12) as compared to percentage with undetermined morning crossover (UMCO, Column 11) during most months. The months, November through February, have nearly equal UECO and UMCO percentages. The largest differences occur during the months of May through September.

Sky and wind are the main climatological factors influencing the figures in Columns 11 and 12. December and January are the cloudiest months and have little diurnal variation in wind speed. Since cloudiness, especially the low stratus type, inhibits inversions, the UECO and UMCO values are both high. November and February have less cloudiness (especially the low stratus type) and the UECO and UMCO values are appreciably less. However, these months also lack a diurnal wind pattern and are the only months with a larger percentage of UMCO and UECO. March is the first month with the seasonal afternoon and evening drainage wind pickup, which accounts for the large drop in undetermined crossovers in both categories. As these wind pickups become more frequent, reaching a maximum in June and July, the UECO percentages increase without a corresponding increase in the UMCO's. The maximum difference is reached in July. The reason is that the high wind speed which inhibits formation of an inversion during the evening, declines steadily after 2200 PST. Hence, an inversion usually forms sometime before sunrise and, once formed, there usually is nothing to prevent its decay after sunrise.

Persistence of Inversions

Figures 33A-D show the percent chance that an inversion, once observed on any hourly observation, will continue for N hours. In January-February, for example (Figure 33-A), the first hourly observation of an inversion will be followed by an inversion 1 hour later 86 percent of the time. This

FIGURE 33-A
 PROBABILITY (%) THAT THE FIRST HOURLY OBSERVATION OF AN INVERSION WILL MARK THE
 BEGINNING OF AN INVERSION RUN OF N HOURS

FIGURE 33-B
 PROBABILITY (%) THAT THE FIRST HOURLY OBSERVATION OF AN INVERSION WILL MARK THE
 BEGINNING OF AN INVERSION RUN OF N HOURS

FIGURE 33-C
 PROBABILITY (%) THAT THE FIRST HOURLY OBSERVATION OF AN INVERSION WILL MARK THE
 BEGINNING OF AN INVERSION RUN OF N HOURS

FIGURE 33-D
 PROBABILITY (%) THAT THE FIRST HOURLY OBSERVATION OF AN INVERSION WILL MARK THE
 BEGINNING OF AN INVERSION RUN OF N HOURS

percentage declines steadily with increasing hours. However, there is still a 50 percent chance that the first hourly observation of an inversion will be the first of 14 consecutive inversion observations. After about 15 hours, the percentage decreases rapidly, for a time, with increasing N. The following example will explain the various turns shown in Figure 33-A.

Suppose a January inversion forms at its normal time of about 1600 PST (Table 35) and lasts until about 0900 the next morning which is the normal time of decay. It would then be observed during 17 consecutive hourly observations beginning at 1630 and ending at 0830. This explains the change in slope of the curve between 14 and 17 hours. Should this inversion last through the normal lapse period, or 24 hours altogether, then the chance becomes better that it will last another 17 hours, or 41 altogether. This explains the change in slope between 20 and 25 hours, and again between 40 and 42 hours. Similarly, there is another change in slope near 48 hours.

Essentially, there is no chance for an inversion to persist for as long as 24 hours during the months March through September (Figures 33-B and 33-C). The reason they do in the November-February period is because there are certain types of inversions which are nondiurnal in character and which occur only during the cold season. The next section discusses these and all other types of inversions observed at HMS.

Types of Inversions

The radiation inversion is by far the most commonly observed inversion type at HMS. It accounts for nearly all summertime inversions and a good percentage of those in winter. It forms from radiational cooling near the ground and builds upward. It is a diurnal phenomenon and hence is less important from an air pollution standpoint than other types with greater persistence. Temperature differences between the surface and 200 feet may exceed 10 degrees at times, but rarely, if ever, exceed 15 degrees. Wind speeds are usually below 13 mph. However, as pointed out by Singer and Smith,⁽⁸⁾ and verified by observations at HMS, wind speed is not as closely related to the temperature profile as is gustiness. Large inversions

are sometimes observed in connection with wind speeds exceeding 20 mph if the winds are nongusty in character.

A chinook inversion, although never observed except during the cold season, is the second most common inversion type at HMS. It forms when advecting warm air overrides the cold and more dense surface air. The first indication that such an inversion is beginning is a temporary rise in the 400-foot temperature (near 1245 and 1800 for the one illustrated in Figure 34). Eventually, however, the inversion builds downward to affect all levels (near 0300 in Figure 34).

Chinook inversions are characterized by stability and strong wind shear. Temperature differences between the surface and 200-foot levels may exceed 20 degrees and the wind may be blowing NE at the surface and SW at 400 feet. Surface speeds are invariably under 10 mph until the warm air gets to the surface.

Chinook inversions may form at any time of the day or night. Although most last from 4 to 8 hours, some last less than 1 hour and others for days, the 99-hour inversion plotted on Figure 33-A was a chinook inversion which was first observed at 0530 on February 3, 1963. The next observation of a lapse was not until 0930 on February 7. At 1330 PST on February 3 the 200-foot temperature exceeded that at the surface by 17.8 degrees and the 250-foot temperature exceeded the 50-foot temperature by 15.2 degrees.

The decay of a chinook inversion may bring rather dramatic warming at the surface, as in the case below for February 10, 1971.

<u>Time (PST)</u>	<u>Temperature (°F at 3-ft level)</u>	<u>Temperature Rise</u>
1022	40.1	
1026	47.3	7.2° in 4 min
1030	53.1	13.0° in 8 min
1034	56.3	16.2° in 12 min

FIGURE 34
 VERTICAL TEMPERATURE DISTRIBUTION DURING THE FORMATION
 OF A CHINOOK INVERSION: DEC. 22-23, 1967

A fog inversion has some of the characteristics of the chinook inversion. The essential difference is the cause, which is warming due to reflection of heat from the top of a fog layer rather than from warm air advection.

Although fog is observed rather frequently during the cold season at HMS, fog inversions are not. In fact, fog usually will destroy any inversion which might be present at the time of its formation. It is only when the top of the fog layer is below the top of the tower that a fog inversion can be observed.

The snow cover inversion is another winter phenomenon at HMS. It occurs when the temperature is above freezing and wind of considerable speed and gustiness blows over a snow-covered surface. Heat is expended in melting the snow and the cooled air is carried aloft by turbulence. This is evidence of instability rather than stability. Snow cover inversions are not very intense, but may still extend to the full height of the meteorology tower. The temperature at this level may exceed that at the surface by 3-6 degrees. Some snow cover inversions last 24 hours or longer.

The shower inversion is a warm season phenomenon at HMS. It occurs when a shower falls on a heated ground surface and cools it suddenly and substantially. Figure 35 shows temperature profiles observed before, during, and after a shower inversion on June 6, 1970. Here the surface temperature fell from 96.4 at 1630 to 78.8 at 1650 (17.6 degrees in 20 minutes), but it was back to 90.8 at 1830. At 1650, about 10 minutes after the measurable portion of the shower began, the 200-foot temperature was 11.1 degrees above that at the surface. However, at 1830, about 45 minutes after the shower ended, the lapse condition was reestablished with the 200-foot temperature being 3.6 degrees below that at the surface.

Although, as in the above case, a shower inversion may be intense, the wind trace is one associated with instability rather than stability (Figure 36).

FIGURE 35
A SHOWER-CAUSED ALTERATION OF THE TEMPERATURE PROFILE ON JUNE 6, 1970

FIGURE 36
50-FOOT LEVEL WIND RECORD COVERING THE SHOWER INVERSION OF JUNE 6, 1970

BNWL-1605

Shower inversions, also as in the above case, are usually brief. Occasionally, however, a shower inversion may form in the afternoon and then merge with the radiation inversion at night to bring an unusually long period of inversion. Such was the case on August 20, 1954, when an inversion was observed at 1330 PST as the result of a shower which began at 1240. Intermittent showers continued until 1635 and the inversion persisted until after the 0530 observation of August 21 (17 hours).

Inversion Trapping

On occasions, atmospheric contaminants are trapped below the mountain tops surrounding the Hanford Area. This is a wintertime situation and occurs when an unstable layer of air at the surface is capped by an inversion layer aloft (Figure 37). Low clouds or fog, low surface wind speeds, and high barometric pressure are usually associated with this trapping. The inversion is formed by adiabatic warming of subsiding air or by a frontal surface aloft over the area. The average recurrence interval for 10 consecutive days of this situation at the HMS is 2 years.⁽⁷⁾

Persistence of Superadiabatic Lapse Rates

When the decrease in temperature with height exceeds the dry adiabatic lapse rate,* the condition is known as superadiabatic. The dry adiabatic lapse rate amounts to about 5.5°F per thousand feet. Between 3 and 200 feet, this would amount to about 1.1 degrees ($T_{200} - T_3 = -1.1$). When this temperature difference is less than -1.1 (a greater minus value) the condition is denoted superadiabatic on Figures 38A-F and "large lapse" on Tables 36-39.

From Tables 36-39 and from Figure 39, it is notable that, although superadiabatic lapse rates are much more frequent in summer (52 percent of all observations in June as compared to only 12 percent in December) it is

* The dry adiabatic lapse rate is defined as the rate of decrease of temperature with height of a parcel of dry air lifted adiabatically through an atmosphere in hydrostatic equilibrium. Air in which the lapse rate exceeds the dry adiabatic rate is therefore in unstable equilibrium.

FIGURE 37
A SCHEMATIC REPRESENTATION
OF AN INVERSION TRAPPING SITUATION

FIGURE 38-A
 PROBABILITY (%) THAT THE FIRST HOURLY OBSERVATION OF A SUPERADIABATIC LAPSE WILL MARK
 THE BEGINNING OF A SUPERADIABATIC RUN OF N HOURS
 JANUARY - FEBRUARY

10.25

FIGURE 38-B

PROBABILITY (%) THAT THE FIRST HOURLY OBSERVATION OF A SUPERADIABATIC LAPSE WILL MARK
THE BEGINNING OF A SUPERADIABATIC RUN OF N HOURS
MARCH - APRIL

FIGURE 38-C
 PROBABILITY (%) THAT THE FIRST HOURLY OBSERVATION OF A SUPERADIABATIC LAPSE WILL MARK
 THE BEGINNING OF A SUPERADIABATIC RUN OF N HOURS
 MAY - JUNE

FIGURE 38-D
 PROBABILITY (%) THAT THE FIRST HOURLY OBSERVATION OF A SUPERADIABATIC LAPSE WILL MARK
 THE BEGINNING OF A SUPERADIABATIC RUN OF N HOURS
 JULY - AUGUST

FIGURE 38-E

PROBABILITY (%) THAT THE FIRST HOURLY OBSERVATION OF A SUPERADIABATIC LAPSE WILL MARK
THE BEGINNING OF A SUPERADIABATIC RUN OF N HOURS
SEPTEMBER - OCTOBER

FIGURE 38-F

PROBABILITY (%) THAT THE FIRST HOURLY OBSERVATION OF A SUPERADIABATIC LAPSE WILL MARK
THE BEGINNING OF A SUPERADIABATIC RUN OF N HOURS
NOVEMBER - DECEMBER

TABLE 36
200-FOOT WIND SPEED VERSUS Δ_1^* BY MONTHS
BASED ON THE PERIOD 1955-1970

SPEED CLASS ** (MPH)											SPEED CLASS ** (MPH)												
$\Delta 1$	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46	TOTAL	$\Delta 1$	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46	TOTAL		
JANUARY	LL	4.00	4.05	2.90	1.71	0.74	0.41	0.13	0.03	0.01	13.98	JULY	LL	7.29	21.78	10.75	6.21	3.05	1.76	0.30	0.03	0	51.16
	SL	11.88	5.30	5.40	4.19	1.04	0.65	0.19	0.05	0	28.70		SL	1.17	1.26	1.55	2.08	2.80	2.60	0.35	0.02	0	11.82
	MI	11.72	11.51	11.70	9.88	3.93	1.63	0.50	0.17	0.03	51.08		MI	1.54	4.05	8.64	11.56	4.82	1.35	0.10	0	0	32.06
	LI	2.30	2.37	1.19	0.34	0.03	0.01	0	0	0	6.24		LI	0.69	1.61	1.86	0.76	0.03	0	0	0	0	4.96
	SUM	29.90	23.22	21.20	16.12	5.75	2.70	0.82	0.25	0.04	100.00		SUM	10.69	28.70	22.80	20.61	10.70	5.70	0.76	0.04	0	100.00
FEBRUARY	LL	5.23	6.09	4.36	3.30	1.35	0.82	0.30	0.10	0.03	21.59	AUGUST	LL	8.37	19.83	9.22	5.02	2.25	1.12	0.29	0	0	46.10
	SL	6.16	3.32	3.62	3.52	1.14	0.74	0.28	0.08	0.03	18.88		SL	1.39	1.55	1.56	2.35	2.46	1.84	0.27	0	0	11.42
	MI	10.26	10.55	12.05	12.23	4.14	1.63	0.51	0.07	0.03	51.48		MI	2.30	5.35	10.34	12.08	4.61	1.07	0.03	0	0	35.78
	LI	2.32	2.88	2.30	0.54	0.03	0	0	0	0	8.06		LI	0.87	2.57	2.61	0.65	0	0.01	0	0	0	6.70
	SUM	23.98	22.84	22.32	19.58	6.65	3.19	1.09	0.26	0.08	100.00		SUM	12.93	29.30	23.72	20.09	9.33	4.03	0.59	0	0	100.00
MARCH	LL	5.85	10.29	6.42	4.77	3.22	2.09	0.81	0.24	0	33.70	SEPTEMBER	LL	9.07	14.38	6.96	4.27	2.40	1.46	0.22	0.03	0	38.79
	SL	1.86	2.16	2.59	2.87	1.97	1.22	0.24	0.08	0.01	13.00		SL	1.55	1.66	1.55	2.20	1.97	1.34	0.20	0	0	10.46
	MI	4.88	8.48	12.39	12.29	4.56	1.44	0.24	0.12	0.02	44.43		MI	3.99	6.45	11.22	11.15	3.72	0.93	0.06	0	0	37.53
	LI	2.23	3.18	2.61	0.83	0.03	0	0	0	0	8.87		LI	2.86	4.81	4.20	1.31	0.04	0	0	0	0	13.22
	SUM	14.83	24.11	24.02	20.75	9.78	4.75	1.29	0.44	0.03	100.00		SUM										
APRIL	LL	6.46	12.62	8.84	6.86	4.36	2.56	0.83	0.14	0	42.68	OCTOBER	LL	8.90	9.57	4.14	2.82	2.01	1.09	0.35	0.05	0	28.94
	SL	1.23	1.45	2.23	3.16	2.39	1.33	0.43	0.03	0	12.26		SL	3.17	2.03	1.98	2.19	1.69	0.90	0.11	0.03	0.02	12.11
	MI	3.31	6.58	10.15	11.92	5.02	1.46	0.11	0.01	0	38.56		MI	8.41	9.65	10.84	10.51	3.26	0.74	0.16	0.03	0	43.60
	LI	1.25	2.54	2.12	0.57	0.03	0	0	0	0	6.51		LI	4.57	5.01	4.36	1.40	0.02	0	0	0	0	15.35
	SUM												SUM	25.04	26.26	21.32	16.92	6.99	2.72	0.62	0.10	0.02	100.00
MAY	LL	7.30	16.08	10.90	7.51	3.59	1.87	0.43	0.03	0	47.71	NOVEMBER	LL	6.48	5.40	3.31	2.02	0.93	0.48	0.26	0.05	0	18.93
	SL	1.53	1.59	1.96	2.95	2.76	1.74	0.26	0.02	0.01	12.81		SL	9.11	4.46	3.37	2.89	1.09	0.63	0.11	0.11	0.01	21.79
	MI	2.40	4.90	9.15	11.27	4.14	1.20	0.15	0	0	33.23		MI	12.49	11.75	11.43	9.08	3.79	1.33	0.29	0.10	0.02	50.28
	LI	1.03	2.13	2.27	0.76	0.04	0.01	0	0	0	6.25		LI	2.79	3.25	2.33	0.62	0.02	0	0	0	0	9.00
	SUM	12.27	24.70	24.28	22.50	10.53	4.82	0.84	0.04	0.01	100.00		SUM	30.88	24.86	20.43	14.61	5.82	2.44	0.66	0.26	0.03	100.00
JUNE	LL	5.40	18.99	12.12	8.06	4.31	2.23	0.47	0.03	0	51.60	DECEMBER	LL	4.29	3.03	2.72	1.25	0.60	0.24	0.07	0.04	0.01	12.25
	SL	0.89	1.51	1.86	3.29	3.38	2.53	0.39	0.02	0	13.87		SL	14.19	6.83	5.53	3.73	1.07	0.61	0.28	0.06	0.03	32.32
	MI	1.71	4.22	8.44	10.40	4.82	1.16	0.11	0.01	0	30.87		MI	11.67	11.56	10.61	9.54	3.28	1.53	0.73	0.26	0.03	49.20
	LI	0.60	1.41	1.23	0.42	0	0	0	0	0	3.66		LI	2.06	2.15	1.61	0.39	0.02	0	0	0	0	6.23
	SUM	8.60	26.13	23.65	22.16	12.51	5.92	0.97	0.05	0	100.00		SUM	32.20	23.57	20.47	14.91	4.96	2.39	1.08	0.36	0.06	100.00
ANNUAL	LL											LL	6.56	11.89	6.90	4.49	2.40	1.35	0.37	0.06	#	34.02	
	* $\Delta 1$	T ₂₀₀ -T ₃ WHERE T DENOTES TEMPERATURE (°F) AND THE T SUBSCRIPTS DENOTE HEIGHT ABOVE GROUND SURFACE IN FEET										SL	4.51	2.76	2.77	2.95	1.98	1.35	0.26	0.04	0.01	16.62	
												MI	6.19	7.90	10.57	10.99	4.18	1.29	0.25	0.06	0.01	41.44	
												LI	1.96	2.82	2.39	0.72	0.02	#	0	0	0	7.91	
												SUM	19.22	25.37	22.63	19.14	8.59	3.98	0.88	0.17	0.02	100.00	

* Δ_1 $T_{200}-T_3$ WHERE T DENOTES TEMPERATURE ($^{\circ}\text{F}$)
AND THE T SUBSCRIPTS DENOTE HEIGHT ABOVE
GROUND SURFACE IN FEET

** HOURLY AVERAGE SPEEDS

LL (LARGE LAPSE) Δ_1 LESS THAN -1.1
SL (SMALL LAPSE) Δ_1 -1.1 TO 0.0
MI (MODERATE INVERSION) Δ_1 0.1 TO 7.9
LI (LARGE INVERSION) Δ_1 > 7.9

DENOTES LESS THAN 0.01%

TABLE 37
200-FOOT WIND SPEED VERSUS Δ_2^* BY MONTHS
BASED ON THE PERIOD 1955-1970

SPEED CLASS**(MPH)											SPEED CLASS**(MPH)											
Δ_2	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46	TOTAL	Δ_2	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46	TOTAL	
JANUARY	LL	5.30	4.41	3.10	1.82	0.79	0.58	0.17	0.04	0.01	16.22	LL	6.17	19.29	9.86	6.10	3.44	2.18	0.34	0.03	0	47.43
	SL	13.31	7.77	7.63	6.29	2.64	1.42	0.49	0.18	0.03	39.75	SL	2.78	49.8	4.75	5.54	4.97	3.23	0.40	0.01	0	26.67
	MI	7.54	6.93	7.24	5.92	1.98	0.58	0.15	0.03	0.01	30.37	MI	1.20	3.02	5.81	6.75	1.82	0.29	0.01	0	0	18.90
	LI	3.74	4.12	3.23	2.10	0.34	0.12	0.02	0	0	13.66	LI	0.53	1.41	2.38	2.23	0.46	0	0	0	0	7.01
	SUM	29.90	23.22	21.20	16.12	5.75	2.70	0.82	0.25	0.04	100.00	SUM	10.69	28.70	22.80	20.61	10.70	5.70	0.76	0.04	0	100.00
FEBRUARY	LL	5.06	5.44	4.17	3.37	1.45	0.96	0.38	0.13	0.04	20.99	LL	7.45	17.72	8.62	5.09	2.74	1.40	0.34	0	0	43.35
	SL	8.56	6.31	6.67	5.87	2.87	1.63	0.62	0.12	0.05	32.71	SL	3.03	5.56	4.38	5.26	4.34	2.40	0.24	0	0	25.20
	MI	6.79	6.90	7.35	6.97	1.96	0.54	0.09	0.01	0	30.60	MI	1.73	4.04	7.56	7.04	1.93	0.24	0.02	0	0	22.56
	LI	3.56	4.19	4.13	3.38	0.38	0.06	0	0	0	15.71	LI	0.71	1.99	3.16	2.70	0.31	0.01	0	0	0	8.88
	SUM	23.98	22.84	22.32	19.58	6.65	3.19	1.09	0.26	0.09	100.00	SUM	12.93	29.30	23.72	20.09	9.33	4.03	0.59	0	0	100.00
MARCH	LL	5.02	9.38	5.99	4.94	3.37	2.26	0.82	0.24	0	32.01	LL	7.60	13.30	6.61	4.31	2.50	1.61	0.26	0.03	0	36.22
	SL	4.12	5.74	6.48	6.00	3.97	2.01	0.45	0.20	0.03	29.01	SL	4.24	4.82	4.63	4.91	3.76	1.99	0.20	0	0	24.55
	MI	3.30	5.83	7.96	6.77	2.05	0.45	0.02	0	0	26.38	MI	2.99	5.16	8.01	6.13	1.48	0.11	0.02	0	0	23.91
	LI	2.39	3.16	3.59	3.04	0.40	0.03	0	0	0	12.60	LI	2.63	4.03	4.69	3.58	0.39	0.01	0	0	0	15.32
	SUM	14.83	24.11	24.02	20.75	9.78	4.75	1.29	0.44	0.03	100.00	SUM	17.47	27.30	23.93	18.93	8.13	3.72	0.48	0.03	0	100.00
APRIL	LL	5.21	11.05	7.79	6.75	4.63	2.66	0.85	0.14	0	39.08	LL	7.04	8.14	3.98	2.72	2.06	1.12	0.32	0.06	0	25.44
	SL	3.54	5.11	6.06	6.82	4.86	2.43	0.50	0.03	0	29.35	SL	7.23	6.00	4.48	4.66	3.13	1.34	0.29	0.04	0.02	27.19
	MI	2.42	4.58	6.81	6.67	1.94	0.27	0.03	0.01	0	22.72	MI	6.01	7.27	7.88	5.84	1.40	0.25	0.01	0	0	28.64
	LI	1.09	2.45	2.69	2.28	0.36	0	0	0	0	8.86	LI	4.77	4.86	4.98	3.70	0.40	0.01	0	0	0	18.73
	SUM	12.25	23.19	23.34	22.52	11.79	5.36	1.37	0.18	0	100.00	SUM	25.04	26.26	21.32	16.92	6.99	2.72	0.62	0.10	0.02	100.00
MAY	LL	6.07	13.89	9.81	7.35	3.85	2.09	0.45	0.03	0	43.52	LL	6.68	5.12	3.11	2.10	1.12	0.59	0.26	0.07	0	19.05
	SL	3.65	5.49	5.31	6.72	4.65	2.54	0.38	0.02	0.01	28.76	SL	12.69	7.60	6.20	4.95	2.85	1.41	0.37	0.19	0.03	36.28
	MI	1.56	3.57	6.51	6.38	1.60	0.15	0.01	0	0	19.78	MI	7.80	7.78	7.68	5.43	1.57	0.38	0.04	0.01	0	30.68
	LI	1.00	1.76	2.65	2.05	0.44	0.03	0.01	0	0	7.93	LI	3.71	4.37	3.44	2.14	0.28	0.05	0	0	0	13.99
	SUM	12.27	24.70	24.28	22.50	10.53	4.82	0.84	0.05	0.01	100.00	SUM	30.88	24.86	20.43	14.61	5.82	2.44	0.66	0.26	0.03	100.00
JUNE	LL	4.55	16.88	11.12	7.95	4.62	2.55	0.54	0.03	0	48.24	LL	5.90	3.64	3.07	1.40	0.71	0.35	0.18	0.07	0.02	15.33
	SL	2.28	4.89	4.93	7.09	5.94	3.19	0.43	0.03	0	28.77	SL	15.92	8.92	7.34	5.82	2.25	1.47	0.70	0.25	0.04	42.71
	MI	1.19	3.10	5.79	5.36	1.74	0.18	0.01	0	0	17.38	MI	6.67	6.94	7.13	5.63	1.65	0.51	0.20	0.04	0	28.78
	LI	0.58	1.26	1.82	1.75	0.21	0	0	0	0	5.62	LI	3.72	4.07	2.93	2.05	0.36	0.05	0	0	0	13.18
	SUM	8.60	26.13	23.65	22.16	12.51	5.92	0.97	0.06	0	100.00	SUM	32.20	23.57	20.47	14.91	4.96	2.39	1.08	0.36	0.06	100.00
* Δ_2 $T_{250}-T_{50}$ WHERE T DENOTES TEMPERATURE ($^{\circ}\text{F}$) AND THE T SUBSCRIPTS DENOTE HEIGHT ABOVE GROUND SURFACE IN FEET											ANNUAL											
** HOURLY AVERAGE SPEEDS											SUM											
LL (LARGE LAPSE) Δ_2 LESS THAN -1.1°F											LL											
SL (SMALL LAPSE) Δ_2 -1.1 TO 0.0°F											SL											
MI (MODERATE INVERSION) Δ_2 0.1 TO 2.4°F											MI											
LI (LARGE INVERSION) Δ_2 GREATER THAN 2.4°F											LI											
# DENOTES LESS THAN 0.01%											#											

TABLE 38
200-FOOT WIND SPEED VERSUS Δ_3^* BY MONTHS
BASED ON THE PERIOD 1955-1970

SPEED CLASS** (MPH)												SPEED CLASS** (MPH)											
	Δ3	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46	TOTAL		Δ3	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46	TOTAL
JANUARY	LL	1.67	2.14	1.06	0.59	0.24	0.23	0.04	0.01	0	5.98	JULY	LL	3.74	13.84	6.63	4.40	2.60	1.59	0.28	0.03	0	33.10
	SL	16.26	9.57	9.17	6.96	3.24	1.82	0.58	0.20	0.02	47.82		SL	5.25	10.40	7.99	7.09	5.00	3.29	0.39	0.02	0	39.43
	MI	7.42	6.45	7.48	6.35	1.95	0.54	0.19	0.04	0.03	30.45		MI	1.14	3.12	5.59	6.08	2.39	0.79	0.09	0	0	19.20
	LI	4.54	5.06	3.49	2.22	0.31	0.12	0.01	0	0	15.74		LI	0.55	1.34	2.60	3.03	0.71	0.03	0	0	0	8.28
	SUM	29.90	23.22	21.20	16.12	5.75	2.70	0.82	0.25	0.04	100.00		SUM	10.69	28.70	22.80	20.61	10.70	5.70	0.76	0.004	0	100.00
FEBRUARY	LL	2.41	3.32	2.22	1.91	1.04	0.68	0.27	0.06	0.02	11.94	AUGUST	LL	5.18	13.03	6.07	3.60	1.97	0.95	0.24	0	0	31.03
	SL	10.66	8.22	8.63	7.01	3.16	1.97	0.74	0.19	0.06	40.64		SL	5.27	10.03	6.85	6.60	4.60	2.47	0.33	0	0	36.15
	MI	6.54	6.56	7.23	7.37	2.03	0.50	0.08	0	0	30.32		MI	1.80	4.19	7.07	6.25	2.24	0.58	0.02	0	0	22.14
	LI	4.37	4.73	4.25	3.29	0.42	0.05	0	0	0	17.10		LI	0.68	2.06	3.74	3.65	0.52	0.03	0	0	0	10.68
	SUM	23.98	22.84	22.32	19.58	6.65	3.19	1.09	0.26	0.08	100.00		SUM	12.93	29.30	23.72	20.09	9.33	4.03	0.59	0	0	100.00
MARCH	LL	3.33	6.65	4.13	3.54	2.67	1.75	0.64	0.15	0	22.86	SEPTEMBER	LL	4.68	8.88	4.51	3.14	1.85	1.27	0.22	0.02	0	24.57
	SL	5.50	8.54	8.61	7.44	4.59	2.50	0.61	0.29	0.03	38.11		SL	6.92	9.09	6.88	6.10	4.18	2.19	0.23	0.02	0	35.62
	MI	3.27	5.62	7.68	6.81	2.15	0.46	0.03	0	0	26.02		MI	2.84	5.02	7.61	5.63	1.64	0.23	0.03	0	0	23.00
	LI	2.74	3.31	3.60	2.96	0.38	0.03	0	0	0	13.02		LI	3.03	4.31	4.92	4.05	0.46	0.03	0	0	0	16.81
	SUM	14.83	24.11	24.02	20.75	9.78	4.75	1.29	0.44	0.03	100.00		SUM	17.47	27.30	23.93	18.93	8.13	3.72	0.48	0.04	0	100.00
APRIL	LL	3.59	7.92	5.65	5.03	3.67	2.25	0.74	0.13	0	28.97	OCTOBER	LL	3.87	5.28	2.41	1.68	1.47	0.83	0.20	0.05	0	15.799
	SL	4.88	8.24	8.58	8.83	5.73	2.74	0.63	0.05	0	39.68		SL	9.90	8.82	6.32	5.90	3.79	1.66	0.41	0.05	0.02	36.85
	MI	2.39	4.34	6.43	6.46	1.99	0.39	0.02	0	0	22.01		MI	5.76	6.82	7.23	5.35	1.25	0.23	0.01	0	0	26.64
	LI	1.32	2.68	2.73	2.25	0.34	0.01	0	0	0	9.33		LI	5.52	5.35	5.36	4.00	0.47	0.01	0	0	0	20.71
	SUM	12.18	23.18	23.38	22.58	11.73	5.38	1.39	0.18	0	100.00		SUM	25.04	26.26	21.32	16.92	6.99	2.72	0.62	0.10	0.02	100.00
MAY	LL	3.93	10.19	7.19	5.58	2.94	1.74	0.42	0.03	0	32.01	NOVEMBER	LL	3.28	2.64	1.79	1.08	0.54	0.26	0.16	0.03	0	9.77
	SL	5.59	9.13	8.14	8.55	5.39	2.74	0.39	0.02	0.01	39.95		SL	15.36	10.04	7.73	6.18	3.55	1.83	0.47	0.24	0.03	45.42
	MI	1.67	3.48	6.41	6.16	1.74	0.31	0.03	0	0	19.80		MI	7.64	7.30	7.26	5.11	1.48	0.30	0.04	0	0	29.12
	LI	1.08	1.91	2.54	2.21	0.46	0.03	0.01	0	0	8.24		LI	4.60	4.89	3.65	2.24	0.26	0.05	0	0	0	15.69
	SUM	12.27	24.70	24.28	22.50	10.53	4.82	0.84	0.05	0.01	100.00		SUM	30.88	24.86	20.43	14.61	5.82	2.44	0.66	0.27	0.03	100.00
JUNE	LL	2.56	11.95	8.04	5.74	3.47	1.93	0.44	0.02	0	34.15	DECEMBER	LL	2.18	1.67	1.19	0.32	0.34	0.17	0.08	0.02	0.01	5.96
	SL	4.09	9.94	8.29	9.33	6.63	3.39	0.45	0.03	0	42.15		SL	18.83	10.75	9.14	6.84	2.55	1.68	0.81	0.30	0.05	50.95
	MI	1.39	2.95	5.42	4.92	2.05	0.57	0.08	0	0	17.38		MI	6.31	6.12	7.04	5.79	1.71	0.48	0.19	0.03	0	27.67
	LI	0.55	1.28	1.90	2.18	0.38	0.03	0	0	0	6.32		LI	4.89	5.02	3.11	1.97	0.36	0.06	0	0.01	0	15.42
	SUM	8.60	26.12	23.64	22.16	12.52	5.93	0.98	0.05	0	100.00		SUM	32.20	23.57	20.47	14.91	4.96	2.39	1.08	0.36	0.06	100.00
												ANNUAL	LL	3.37	7.32	4.25	3.05	1.90	1.14	0.31	0.04	0	21.39
													SL	9.04	9.41	8.03	7.23	4.37	2.36	0.50	0.12	0.02	41.07
													MI	4.00	5.15	6.87	6.02	1.89	0.45	0.07	0.01	#	24.45
													LI	2.81	3.49	3.49	2.84	0.43	0.04	#	#	0	13.09
													SUM	19.22	25.37	22.63	19.14	8.58	3.98	0.88	0.17	0.02	100.00

* Δ_3 $T_{400}-T_{50}$ WHERE T DENOTES TEMPERATURE ($^{\circ}\text{F}$)
AND THE T SUBSCRIPTS DENOTE HEIGHT ABOVE
GROUND SURFACE IN FEET

** HOURLY AVERAGE SPEEDS

LL (LARGE LAPSE) Δ_3 LESS THAN -1.9°F
SL (SMALL LAPSE) Δ_3 -1.9 TO 0.0°F
MI (MODERATE INVERSION) Δ_3 0.1 TO 2.9°F
LI (LARGE INVERSION) Δ_3 GREATER THAN 2.9°F

DENOTES LESS THAN 0.01%

TABLE 39
200-FOOT WIND SPEED VERSUS Δ_1 , Δ_2 , AND Δ_3 BY SEASONS
BASED ON THE PERIOD 1955-1970

SPEED CLASS (MPH)	WINTER (D-J-F)					SPRING (M-A-M)					SUMMER (J-J-A)					AUTUMN (S-O-N)					YEAR				
	ΔT_1 CLASS					ΔT_1 CLASS					ΔT_1 CLASS					ΔT_1 CLASS					ΔT_1 CLASS				
	a	b	c	d	TOTAL	a	b	c	d	TOTAL	a	b	c	d	TOTAL	a	b	c	d	TOTAL	a	b	c	d	TOTAL
0-3	4.5	10.9	11.3	2.2	28.9	6.5	1.5	3.5	1.5	13.0	7.0	1.2	1.8	0.7	10.7	8.2	4.6	8.3	3.4	24.5	6.6	4.5	6.2	1.9	19.2
4-7	4.3	5.2	11.2	2.5	23.2	13.0	1.7	6.7	2.6	24.0	20.2	1.4	4.5	1.9	28.0	9.8	2.7	9.3	4.4	26.2	11.9	2.8	7.9	2.8	25.4
8-12	3.3	4.9	11.4	1.7	21.3	8.7	2.3	10.6	2.3	23.9	10.7	1.7	9.1	1.9	23.4	4.8	2.3	11.2	3.6	21.9	6.9	2.8	10.6	2.4	22.7
13-18	2.0	3.8	10.5	0.4	16.7	6.4	3.0	11.8	0.7	21.9	6.4	2.6	11.4	0.6	21.0	3.0	2.4	10.3	1.1	16.8	4.5	2.9	11.0	0.7	19.1
19-24	0.9	1.1	3.8	#	5.8	3.7	2.4	4.6	#	10.7	3.2	2.9	4.8	#	10.9	1.8	1.6	3.6	#	7.0	2.4	2.0	4.2	#	8.6
25-31	0.5	0.7	1.6	#	2.8	2.2	1.4	1.4	#	5.0	1.7	2.3	1.2	#	5.2	1.0	1.0	1.0	0.0	3.0	1.3	1.3	1.3	#	3.9
32-38	0.1	0.2	0.6	0.0	0.9	0.7	0.3	0.2	0.0	1.2	0.4	0.3	0.1	0.0	0.8	0.3	0.1	0.2	0.0	0.6	0.4	0.3	0.2	0.0	0.9
39-46	0.1	0.1	0.2	0.0	0.4	0.1	#	#	0.0	0.1	#	#	#	0.0	#	#	#	#	0.0	#	0.1	#	0.1	0.0	0.2
>46	#	#	#	0.0	#	0.0	#	#	0.0	#	0.0	0.0	0.0	0.0	0.0	0.0	#	#	0.0	#	#	#	#	0.0	#
SUM	15.7	26.9	50.6	6.8	100.0	41.3	12.6	38.8	7.1	100.0	49.6	12.4	32.9	5.1	100.0	28.9	14.7	43.9	12.5	100.0	34.1	16.6	41.5	7.8	100.0

ΔT_1 CLASS

a $\Delta T_1 < -1.1^{\circ}\text{F}$

b $0.0^{\circ} \geq \Delta T_1 \geq -1.1^{\circ}$

c $7.9^{\circ} \geq \Delta T_1 \geq 0.1^{\circ}$

d $\Delta T_1 > 7.9^{\circ}$

DENOTES LESS THAN 0.05%

* $\Delta_1 = T_{200} - T_3$

$\Delta_2 = T_{250} - T_{50}$

$\Delta_3 = T_{400} - T_{50}$

TABLE 39 (CONTD)

SPEED CLASS (MPH)	WINTER (D-J-F)					SPRING (M-A-M)					SUMMER (J-J-A)					AUTUMN (S-O-N)					YEAR				
	ΔT_2 CLASS					ΔT_2 CLASS					ΔT_2 CLASS					ΔT_2 CLASS					ΔT_2 CLASS				
	a	b	c	d	TOTAL	a	b	c	d	TOTAL	a	b	c	d	TOTAL	a	b	c	d	TOTAL	a	b	c	d	TOTAL
0-3	5.4	12.7	7.0	3.7	28.8	5.4	3.8	2.4	1.5	13.1	6.1	2.7	1.4	0.6	10.8	7.1	8.0	5.6	3.7	24.4	6.0	6.8	4.1	2.4	19.3
4-7	4.5	7.7	6.9	4.1	23.2	11.4	5.5	4.7	2.5	24.1	18.0	5.1	3.4	1.6	28.1	8.9	6.1	6.7	4.4	26.1	10.7	6.1	5.4	3.1	25.3
8-12	3.4	7.2	7.2	3.4	21.2	7.9	6.0	7.1	3.0	24.0	9.8	4.7	6.4	2.5	23.4	4.6	5.1	7.9	4.4	22.0	6.5	5.7	7.1	3.3	22.6
13-18	2.2	6.0	6.1	2.5	16.8	6.3	6.5	6.6	2.5	21.9	6.4	6.0	6.4	2.2	21.0	3.0	4.8	5.8	3.1	16.7	4.5	5.8	6.2	2.6	19.1
19-24	1.0	2.6	1.9	0.4	5.9	3.9	4.5	1.9	0.4	10.7	3.6	5.1	1.8	0.3	10.8	1.9	3.2	1.5	0.4	7.0	2.6	3.9	1.8	0.4	8.7
25-31	0.6	1.5	0.5	0.1	2.7	2.3	2.3	0.3	#	4.9	2.0	2.9	0.2	#	5.1	1.1	1.6	0.2	#	2.9	1.5	2.1	0.3	#	3.9
32-38	0.2	0.6	0.2	#	1.0	0.7	0.4	#	#	1.1	0.4	0.4	#	0.0	0.8	0.3	0.3	#	0.0	0.6	0.4	0.4	#	#	0.8
39-46	0.1	0.2	#	0.0	0.3	0.1	0.1	#	0.0	0.2	#	#	0.0	0.0	#	0.1	0.1	#	0.0	0.2	0.1	0.1	#	0.0	0.2
>46	#	#	#	0.0	#	0.0	#	0.0	0.0	#	0.0	0.0	0.0	0.0	0.0	0.0	#	0.0	0.0	#	#	#	#	0.0	#
SUM	17.4	38.5	29.8	14.2	100.0	38.0	29.1	23.0	9.9	100.0	46.3	26.9	19.6	7.2	100.0	27.0	29.2	27.7	16.0	100.0	32.3	30.9	24.9	11.8	100.0

ΔT_2 CLASS	
a	$\Delta T_2 < -1.1^{\circ}\text{F}$
b	$0.0^{\circ} \geq \Delta T_2 \geq -1.1^{\circ}$
c	$2.4^{\circ} \geq \Delta T_2 \geq 0.1^{\circ}$
d	$\Delta T_2 > 2.4^{\circ}$
#	DENOTES LESS THAN 0.05%

TABLE 39 (CONTD)

SPEED CLASS (MPH)	WINTER (D-I-F)					SPRING (M-A-M)					SUMMER (J-J-A)					AUTUMN (S-O-N)					YEAR				
	ΔT_3 CLASS					ΔT_3 CLASS					ΔT_3 CLASS					ΔT_3 CLASS					ΔT_3 CLASS				
	a	b	c	d	TOTAL	a	b	c	d	TOTAL	a	b	c	d	TOTAL	a	b	c	d	TOTAL	a	b	c	d	TOTAL
0-3	2.1	15.4	6.8	4.6	28.9	3.6	5.3	2.4	1.7	13.0	3.8	4.9	1.4	0.6	10.7	3.9	10.7	5.4	4.4	24.4	3.4	9.0	4.0	2.8	19.2
4-7	2.4	9.6	6.4	4.9	23.3	8.3	8.6	4.5	2.6	24.0	12.9	10.1	3.4	1.6	28.0	5.6	9.3	6.4	4.9	26.2	7.3	9.4	5.2	3.5	25.4
8-12	1.5	9.0	7.2	3.6	21.3	5.7	8.4	6.8	3.0	23.9	6.9	7.7	6.0	2.8	23.4	2.9	7.0	7.4	4.7	22.0	4.2	8.0	6.9	3.5	22.6
13-18	0.9	6.9	6.5	2.5	16.8	4.7	8.3	6.5	2.5	22.0	4.6	7.7	5.8	3.0	21.1	2.0	6.0	5.4	3.4	16.8	3.1	7.2	6.0	2.8	19.1
19-24	0.5	3.0	1.9	0.4	5.8	3.1	5.2	2.0	0.4	10.7	2.7	5.4	2.2	0.5	10.8	1.3	3.8	1.4	0.4	6.9	1.9	4.4	1.9	0.4	8.6
25-31	0.3	1.8	0.5	0.1	2.7	1.9	2.7	0.4	#	5.0	1.5	3.0	0.6	#	5.1	0.8	1.9	0.2	#	2.9	1.1	2.4	0.5	#	4.0
32-38	0.1	0.7	0.2	#	1.0	0.6	0.5	#	#	1.1	0.3	0.4	0.1	0.0	0.8	0.2	0.4	#	0.0	0.6	0.3	0.5	0.1	#	0.9
39-46	#	0.2	#	#	0.2	0.1	0.1	0.0	0.0	0.2	#	#	0.0	0.0	#	#	0.1	0.0	0.0	0.1	#	0.1	#	#	0.1
>46	#	#	#	0.0	#	0.0	#	0.0	0.0	#	0.0	0.0	0.0	0.0	0.0	0.0	#	0.0	0.0	#	#	#	#	0.0	#
SUM	7.8	46.6	29.5	16.1	100.0	28.0	39.1	22.6	10.2	100.0	32.7	39.2	19.5	8.5	100.0	16.7	39.2	26.2	17.8	100.0	21.3	41.0	24.6	13.0	100.0

 ΔT_3 CLASS

- a $\Delta T_3 < -1.90^\circ\text{F}$
 b $0.00 \geq \Delta T_3 \geq -1.90$
 c $2.90 \geq \Delta T_3 \geq 0.10$
 d $\Delta T_3 > 2.90$
 # DENOTES LESS THAN 0.05%

FIGURE 39
AVERAGE MONTHLY HOURLY WIND SPEEDS FOR SIX LEVELS
JANUARY THROUGH JUNE, 1955-1970

FIGURE 39 (CONTD)
AVERAGE MONTHLY HOURLY WIND SPEEDS FOR SIX LEVELS
JULY THROUGH DECEMBER, 1955-1970

BNWL-1605

only in winter that persistence of such lapse rates for 20 hours or more have occurred. Apparently this is because superadiabatic conditions cannot last through the night except during periods of very low cloudiness and/or fog. Essentially these conditions occur only during the winter at HMS.

In July-August there is better than an 80 percent chance that the first hourly observation of a superadiabatic lapse will be the first of nine consecutive such observations. In January-February, on the other hand, there is less than an 80 percent chance of only two consecutive such observations. This is probably indicative of considerable oscillation between the small and large lapse categories during winter.

The 200-foot wind speeds are used in Tables 36-39 because this level approximates the stack heights of the nearby industrial plants. Therefore, these tables have a specific application to the Hanford Area. For more general diffusion studies, refer to the paragraph entitled, "200-foot and 400-foot Wind Speeds versus Four Stability Categories," at the end of this section.

Wind Profiles

Wind profiles at HMS are characterized by large seasonal and diurnal variations in shear.

With respect to direction, the seasonal variation in shear is considerable. In June, for example, when the wind is from direction 14 at 50 feet it is also from direction 14 at 400 feet 71.2 percent of the time. In December, however, this figure drops to 51.8 percent (Table 40).

With respect to wind speed, the lines representing the upper tower levels practically run together during a portion of the day in June (small shear), but become widely separated at night (large shear - Figure 39). In December, however, there is no such diurnal variation.

Another notable feature of Figure 39 is the lower level wind increase which occurs near the time of morning crossover in summer. This feature is most prominent in July. It is largest at the 7-foot level and diminishes with increasing elevation. At 300-foot and 400-foot levels the speed continues to decrease during the time the wind increases at the lower levels.

TABLE 40
COMPOSITE VERTICAL WIND SHEAR

MONTH 1

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	37.2	10.5	3.0	2.5	3.2	1.7	1.0	1.2	0.7	1.5	2.0	3.0	2.0	2.7	5.2	19.2	1.5	1.7
2	20.3	29.5	8.3	6.0	3.2	2.6	1.7	1.7	0.6	1.1	3.2	3.7	2.3	2.6	2.9	4.0	2.0	4.3
3	6.7	15.6	26.3	15.6	4.5	1.8	3.6	1.8	0.9	1.8	4.0	3.1	1.3	2.7	3.1	2.2	2.2	2.7
4	3.5	2.4	14.3	26.5	15.7	8.7	2.1	2.8	2.8	1.7	0.3	2.1	2.8	1.4	2.4	1.7	1.7	7.0
5	0.3	1.2	1.5	14.6	31.8	28.3	6.5	3.3	0.6	1.8	1.5	0.9	0.9	0.6	0.3	0.6	1.2	5.1
6	0.9	0.4	1.6	3.1	12.6	39.1	17.1	6.3	1.6	2.2	0.2	1.8	3.4	1.8	0.9	0.5	0.4	6.3
7	0.	0.8	1.3	2.1	4.5	15.2	28.5	12.8	5.6	4.5	1.6	2.9	4.5	2.9	0.3	0.	0.8	11.5
8	0.9	0.2	0.5	1.2	1.2	2.3	7.5	32.5	18.2	8.2	4.2	3.7	7.7	2.8	2.1	1.2	0.5	5.1
9	0.2	0.2	0.2	0.9	0.3	1.0	2.2	5.5	41.0	26.2	4.3	3.8	5.7	3.4	0.7	1.4	0.	2.9
10	0.1	0.1	0.4	0.1	0.3	0.5	0.5	0.6	8.0	49.1	16.5	10.0	7.0	3.4	1.4	0.1	0.3	1.6
11	0.3	0.1	0.4	0.3	0.	0.6	0.4	0.1	0.4	9.6	44.3	20.4	13.5	5.8	0.7	0.4	0.3	2.4
12	0.1	0.4	0.1	0.	0.1	0.3	0.3	0.5	0.3	1.6	11.2	26.1	34.7	17.1	2.9	1.8	0.3	2.1
13	0.4	0.4	0.3	0.2	0.1	0.1	0.	0.4	0.3	0.3	1.8	3.9	33.0	49.0	6.6	1.7	0.2	1.4
14	1.3	0.8	0.3	1.1	0.2	0.4	0.3	0.5	0.5	0.5	0.6	1.7	7.1	58.5	18.2	5.9	0.7	1.4
15	4.8	2.8	2.9	1.3	1.3	2.2	0.7	1.4	0.4	2.0	1.6	3.5	3.0	16.8	37.2	15.1	1.4	1.6
16	10.0	4.2	1.5	2.8	0.6	1.5	1.1	0.6	1.3	1.3	3.1	2.2	3.5	5.5	17.2	38.9	1.7	3.1
17	0.6	2.4	3.0	3.6	3.0	3.6	2.4	5.4	3.6	10.1	14.9	13.7	7.1	6.0	4.8	4.2	6.5	5.4
18	2.9	2.6	3.5	2.9	2.0	4.6	2.9	1.7	1.1	1.9	2.2	2.6	3.7	7.7	4.0	5.1	0.8	47.7
SUM	3.4	2.5	2.0	2.6	2.7	4.3	2.9	2.9	4.0	6.6	6.1	5.9	11.2	22.5	8.8	5.6	0.8	5.3

MONTH 2

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	50.4	11.5	2.5	2.3	0.8	1.2	0.6	0.	0.6	0.4	1.5	2.1	1.9	1.7	3.5	16.7	1.0	1.2
2	14.7	35.5	11.5	4.3	3.2	4.0	1.3	1.9	1.3	2.1	1.9	2.4	2.9	1.1	1.3	5.3	1.3	4.0
3	4.3	13.3	26.7	22.9	8.8	4.3	1.4	1.9	1.9	1.0	3.3	3.8	1.4	2.4	1.9	1.4	2.9	1.4
4	0.4	2.7	13.3	35.0	19.5	10.2	2.2	3.5	0.9	1.8	1.3	0.4	0.4	1.8	0.4	1.3	1.3	3.5
5	0.	1.3	2.5	11.4	36.0	23.3	5.9	2.1	2.5	3.0	1.3	1.7	2.1	2.5	0.4	0.	1.3	2.5
6	0.3	0.3	0.8	2.7	18.3	46.7	13.9	5.4	2.2	2.7	1.4	3.8	2.2	1.4	0.8	1.1	0.8	3.3
7	0.	0.7	0.7	2.4	1.7	12.8	34.3	13.5	4.7	4.4	3.0	5.1	4.0	2.4	1.0	0.7	0.3	8.4
8	0.	1.0	0.3	2.5	1.6	3.8	9.9	27.7	16.2	7.0	4.8	9.9	5.1	3.8	1.0	0.3	0.3	4.8
9	0.4	0.2	0.	0.9	8.9	0.9	1.1	4.8	41.6	27.5	5.2	6.3	3.5	1.3	1.1	0.	0.7	3.7
10	0.4	0.1	0.2	0.4	0.2	0.4	0.1	0.4	6.8	53.4	18.5	8.5	5.7	1.5	0.4	0.4	0.5	2.3
11	0.1	0.2	0.2	0.1	0.1	0.1	0.5	1.0	1.1	9.3	40.8	27.5	10.6	3.7	1.2	0.6	0.6	1.9
12	0.3	0.5	0.3	0.1	0.2	0.1	0.3	0.2	0.2	1.0	8.9	36.4	31.8	14.1	3.5	0.4	0.2	1.5
13	0.5	0.4	0.3	0.1	0.3	0.	0.1	0.2	0.1	0.4	0.5	4.0	34.1	50.8	5.8	1.4	0.2	0.9
14	1.7	0.9	0.2	0.3	0.3	0.3	0.2	0.3	0.1	0.7	0.7	2.5	9.1	54.7	20.4	5.5	0.3	2.1
15	4.1	1.4	0.6	1.3	1.8	1.4	0.2	1.0	0.8	1.3	1.4	2.7	5.1	16.4	36.9	19.1	1.4	3.0
16	13.4	2.2	1.5	1.7	0.4	1.3	0.7	1.1	0.7	2.0	3.2	4.3	1.9	5.4	15.2	41.4	1.1	2.4
17	1.9	4.3	3.1	3.1	2.5	7.5	5.6	6.8	3.7	6.8	9.9	11.8	9.9	6.2	1.2	1.2	8.7	5.6
18	0.8	3.4	1.1	3.4	1.9	5.7	3.8	3.8	1.5	0.	1.1	2.6	5.3	8.3	2.6	3.0	2.6	49.1
SUM	4.3	2.8	1.7	2.3	2.2	3.6	2.4	2.3	3.4	7.0	6.6	8.8	12.5	21.6	8.5	5.6	0.8	3.5

TABLE 40 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 3

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	55.0	15.1	1.1	1.5	0.6	0.6	0.7	0.6	0.4	0.6	0.	0.6	0.2	2.2	2.6	17.2	0.6	0.6
2	21.4	46.1	12.6	2.4	1.5	0.7	1.2	0.7	0.2	0.7	1.0	0.2	1.0	1.2	1.2	5.3	1.7	0.7
3	1.5	19.4	45.6	16.5	3.4	1.9	1.0	0.	0.5	2.9	0.5	1.0	1.0	0.5	2.9	0.5	0.	1.0
4	0.9	3.4	11.5	49.4	13.6	5.5	5.1	0.4	1.3	1.3	1.3	1.3	0.	1.7	0.	1.3	0.4	1.7
5	0.	0.7	1.4	14.3	48.0	25.7	5.4	6.1	1.1	0.7	0.	0.4	0.4	1.4	0.4	0.4	1.1	0.7
6	0.2	0.	0.2	1.4	8.4	52.8	19.2	6.1	2.3	1.6	0.5	1.6	1.8	1.1	0.2	0.5	1.1	1.1
7	0.	0.3	0.	1.2	2.1	16.1	42.4	18.2	5.4	3.6	0.9	2.4	4.2	0.9	0.9	0.	0.9	0.6
8	0.	0.2	0.	0.4	1.1	2.9	8.1	41.9	24.2	5.2	3.8	4.7	2.7	2.5	0.7	0.	0.2	1.3
9	0.2	0.2	0.	0.	0.3	0.8	1.7	5.9	52.1	27.1	3.7	3.1	2.9	1.1	0.5	0.2	0.3	0.
10	0.	0.3	0.3	0.2	0.3	0.5	0.6	0.5	8.0	60.7	17.8	5.9	2.5	1.1	0.3	0.3	0.1	0.6
11	0.1	0.1	0.	0.	0.2	0.2	0.5	0.5	0.6	9.8	52.5	22.9	8.6	3.3	0.2	0.2	0.	0.4
12	0.1	0.2	0.	0.1	0.1	0.4	0.2	0.1	0.4	1.7	9.4	36.4	33.0	15.0	1.8	0.5	0.2	0.4
13	0.1	0.2	0.	0.1	0.1	0.1	0.1	0.2	0.1	0.4	0.7	4.1	47.2	39.1	6.0	0.9	0.2	0.4
14	1.2	0.7	0.4	0.5	0.1	0.3	0.3	0.1	0.1	0.4	0.4	1.7	12.9	55.9	18.6	5.5	0.4	0.6
15	4.4	1.8	1.2	1.0	0.7	0.3	0.8	0.7	0.2	0.8	0.2	1.5	3.9	19.3	46.1	15.2	0.8	1.2
16	13.7	3.1	2.2	1.3	1.0	1.2	0.2	0.	0.5	0.2	0.5	1.3	1.2	5.3	14.1	51.7	1.2	1.5
17	3.4	5.7	3.4	6.8	5.1	7.4	5.1	5.1	2.3	10.2	4.5	6.2	4.5	6.8	0.6	4.0	17.6	1.1
18	2.3	8.0	6.8	3.4	3.4	2.3	3.4	2.3	4.5	2.3	4.5	2.3	10.2	9.1	8.0	4.5	0.	22.7
SUM	4.5	3.3	1.9	2.2	2.0	3.7	3.0	3.1	5.1	9.5	8.9	8.1	13.8	17.0	7.0	5.5	0.7	0.8

MONTH 4

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	59.7	11.9	1.6	1.1	0.	0.5	0.5	0.	0.3	0.	0.3	0.	0.8	0.3	3.8	17.8	0.5	0.8
2	15.3	57.7	11.7	2.7	0.	1.4	0.5	0.	0.	0.3	0.5	0.	0.3	1.1	1.4	4.6	1.6	0.8
3	1.3	15.1	60.0	15.1	1.3	2.2	0.9	0.	0.4	0.4	0.4	0.4	0.	1.3	0.4	0.4	0.	0.
4	1.1	1.5	20.0	58.5	7.0	3.7	1.1	0.4	0.	0.4	0.4	1.1	0.4	0.4	0.7	0.	1.9	1.5
5	0.4	0.9	2.6	15.9	47.6	21.0	3.0	1.7	0.9	1.3	0.4	0.	0.	0.9	0.9	0.4	0.9	1.3
6	0.3	0.3	0.	1.1	11.0	58.0	15.2	5.1	2.3	0.8	0.3	1.1	0.8	1.4	0.	0.6	0.8	0.8
7	0.	0.4	0.4	1.1	2.8	14.7	47.4	18.2	3.5	1.8	1.8	3.5	1.8	1.8	0.	0.4	0.7	0.
8	0.	0.3	0.6	0.8	0.8	3.6	8.0	42.5	23.5	5.5	3.3	4.4	3.0	0.8	0.	0.6	1.9	0.3
9	0.	0.4	0.	0.	0.2	0.6	2.2	6.4	51.6	23.1	5.0	5.3	4.2	0.9	0.2	0.	0.	0.
10	0.	0.2	0.	0.2	0.5	0.2	0.6	0.8	7.0	62.6	16.7	5.7	3.8	1.0	0.2	0.	0.1	0.3
11	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.7	0.5	9.8	54.2	22.7	8.3	2.2	0.2	0.1	0.	0.1
12	0.2	0.	0.2	0.2	0.1	0.	0.1	0.1	0.1	0.7	9.0	42.8	33.5	10.4	1.5	0.4	0.1	0.4
13	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.4	5.3	64.6	23.9	3.8	0.6	0.1	0.2
14	0.6	0.5	0.4	0.1	0.4	0.2	0.1	0.1	0.1	0.3	0.2	1.2	19.0	63.4	9.8	3.4	0.	0.3
15	6.1	1.2	0.2	1.4	0.5	0.2	1.2	0.	0.	0.5	0.7	0.7	2.6	21.3	47.8	14.8	0.2	0.7
16	14.1	2.1	0.6	0.2	0.6	0.	0.4	0.2	0.	0.2	0.6	0.8	1.0	6.0	14.1	58.4	0.	0.4
17	5.3	4.9	5.7	7.3	2.0	5.7	6.1	5.3	4.1	4.5	4.1	4.1	3.3	4.9	3.3	4.5	24.5	0.4
18	0.	7.7	0.	5.8	5.8	7.7	1.9	0.	1.9	0.	3.8	7.7	11.5	13.5	11.5	3.8	0.	17.3
SUM	3.6	3.0	2.4	2.5	1.8	3.2	2.5	2.6	4.2	8.7	9.4	9.9	19.3	16.0	5.0	4.5	0.8	0.4

TABLE 40 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 5

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	60.1	13.1	0.	0.5	0.	0.3	0.	0.	0.3	0.	0.	0.	0.5	0.8	4.6	18.3	1.1	0.3
2	22.8	60.7	6.1	1.6	0.	0.	0.2	0.	0.2	0.	0.	0.5	0.2	1.6	0.9	3.6	1.4	0.2
3	1.1	26.6	56.9	6.7	0.7	1.5	0.4	0.	0.4	0.	0.7	0.	0.4	0.7	1.1	0.7	1.9	0.
4	0.7	3.1	23.3	51.6	9.4	2.8	0.7	1.0	0.3	0.3	0.	1.0	0.7	1.0	0.	0.3	2.8	0.7
5	0.4	0.4	2.7	16.3	51.5	21.2	1.9	0.8	0.8	0.	0.	0.	0.8	0.4	0.	0.4	1.1	1.5
6	0.3	0.5	0.3	2.0	11.7	63.7	11.2	2.0	1.5	1.0	0.5	1.0	0.8	0.5	0.3	0.8	1.3	0.8
7	0.	0.	0.	0.9	2.2	15.5	52.2	14.9	3.5	2.2	1.6	3.2	0.9	0.9	0.3	0.3	0.3	0.9
8	0.3	0.	0.3	1.8	0.9	3.9	11.6	48.1	13.4	5.4	3.0	5.4	4.5	0.3	0.	0.	1.2	0.
9	0.	0.	0.3	1.0	0.3	1.3	1.8	7.2	50.1	18.6	4.9	4.9	6.7	1.0	0.5	0.	0.5	0.8
10	0.	0.4	0.3	0.4	0.	0.5	1.0	1.6	7.3	58.7	15.5	6.4	5.6	0.9	0.4	0.1	0.4	0.4
11	0.2	0.3	0.3	0.2	0.3	0.1	0.3	0.8	0.9	8.3	49.6	24.6	11.0	2.2	0.1	0.3	0.1	0.4
12	0.2	0.4	0.	0.	0.	0.1	0.3	0.2	0.2	1.2	8.4	42.3	36.7	8.1	1.0	0.3	0.4	0.3
13	0.	0.0	0.2	0.0	0.0	0.	0.0	0.0	0.1	0.2	0.3	4.7	69.8	21.5	2.3	0.6	0.0	0.
14	0.3	0.4	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.2	0.8	19.0	67.0	9.1	2.2	0.1	0.0
15	3.9	1.4	0.9	0.2	0.2	0.7	0.7	0.5	0.	0.	0.2	0.5	3.4	27.1	46.2	12.6	0.9	0.5
16	11.4	2.6	0.2	0.6	0.2	0.4	0.2	0.4	0.	0.	0.2	0.2	1.3	5.6	12.0	62.9	1.5	0.2
17	4.7	5.5	6.0	3.1	2.9	5.0	4.2	5.0	3.4	4.7	2.6	4.5	3.7	5.2	2.1	5.5	31.2	0.8
18	7.5	3.0	0.	1.5	3.0	3.0	6.0	4.5	0.	1.5	1.5	4.5	9.0	19.4	11.9	0.	1.5	22.4
SUM	3.6	3.9	2.5	2.2	2.0	3.6	2.6	2.5	2.9	5.8	7.3	9.3	22.3	18.3	4.7	4.4	1.5	0.4

MONTH 6

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	62.4	14.3	0.2	0.	0.	0.	0.	0.	0.2	0.	0.5	0.2	0.	0.7	3.1	17.9	0.5	0.
2	15.0	66.2	10.5	1.9	0.7	0.	0.2	0.5	0.	0.2	0.	0.	0.	0.7	1.0	2.4	0.5	0.2
3	2.1	24.7	56.6	7.7	0.9	0.9	0.	0.4	0.	0.	0.	0.4	0.4	1.3	1.3	0.9	2.6	0.
4	0.4	2.0	17.6	61.2	11.0	2.4	0.	0.8	0.	0.4	0.4	0.4	0.4	0.4	0.4	0.	2.0	0.4
5	0.4	1.2	2.0	13.9	54.4	18.3	3.6	0.8	1.2	0.8	0.	0.	0.	1.2	0.8	0.8	0.8	0.
6	0.6	0.	0.	2.8	18.3	56.7	19.4	4.1	0.9	0.3	0.3	0.3	0.	1.3	0.	0.3	2.2	0.3
7	0.4	0.4	0.	0.4	3.3	15.8	45.8	15.8	5.4	3.7	0.8	2.1	2.5	0.	0.	1.7	0.8	0.8
8	0.	0.	0.7	1.0	0.3	3.0	8.3	47.3	19.7	4.7	2.3	5.7	4.3	0.3	0.7	0.	1.7	0.
9	0.	0.	0.9	0.	0.6	1.2	1.5	4.7	53.1	20.5	7.3	5.9	4.1	0.	0.	0.	0.3	0.
10	0.	0.4	0.1	0.3	0.1	0.3	0.8	0.7	6.9	57.9	19.5	7.2	3.2	0.7	0.3	0.4	0.9	0.3
11	0.5	0.2	0.2	0.5	0.1	0.4	0.2	0.4	0.7	6.9	54.6	24.9	7.4	1.8	0.5	0.2	0.1	0.3
12	0.2	0.1	0.3	0.	0.1	0.1	0.2	0.1	0.1	1.1	8.1	46.9	33.3	7.4	0.9	0.7	0.2	0.3
13	0.1	0.0	0.	0.	0.	0.	0.1	0.0	0.1	0.1	0.2	3.6	69.4	23.4	1.9	0.6	0.1	0.0
14	0.7	0.3	0.0	0.0	0.0	0.	0.0	0.1	0.0	0.0	0.2	1.0	17.3	71.2	6.3	2.3	0.2	0.1
15	4.2	1.2	0.	0.2	0.	0.2	0.5	0.	0.	0.2	0.2	1.0	2.7	24.6	51.5	12.3	0.5	0.5
16	16.5	2.0	0.4	0.	0.	0.	0.2	0.2	0.2	0.2	0.2	0.4	0.4	4.2	19.2	54.5	0.9	0.2
17	3.9	3.7	2.1	6.8	3.7	6.0	4.7	5.5	4.7	6.0	2.9	5.8	2.4	6.0	4.2	3.9	27.0	0.8
18	0.	2.7	0.	5.4	2.7	8.1	2.7	2.7	0.	5.4	2.7	5.4	5.4	13.5	10.8	5.4	5.4	21.6
SUM	4.1	3.9	2.2	2.3	2.0	2.8	2.2	2.2	3.0	5.6	7.4	9.4	22.0	20.5	4.7	4.2	1.4	0.3

TABLE 40 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 7

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	64.4	12.3	0.4	0.2	0.2	0.	0.	0.	0.	0.	0.	0.	0.2	0.2	2.0	18.5	1.5	0.
2	16.8	68.1	6.9	0.7	0.4	0.9	0.2	0.	0.	0.	0.	0.2	0.2	0.4	0.7	2.2	2.0	0.
3	3.4	20.9	55.7	12.8	1.3	0.4	0.	0.9	0.	0.4	0.4	0.	0.	0.4	0.4	0.9	1.7	0.4
4	0.3	3.0	18.7	58.6	10.5	2.6	0.	0.3	0.	0.7	0.3	0.	0.	1.6	0.7	0.	2.0	0.7
5	0.	0.4	2.2	15.9	56.5	16.6	2.2	0.	0.4	0.	1.1	0.7	0.4	1.1	0.	0.4	1.8	0.4
6	0.	1.2	0.9	1.2	11.6	60.5	14.2	3.2	0.9	0.6	0.	0.9	0.6	0.6	0.6	0.	2.6	0.6
7	0.	0.	0.	0.9	4.5	14.3	52.0	13.0	2.7	1.8	0.4	2.7	4.9	0.4	0.	0.	1.8	0.4
8	0.	0.3	0.7	0.7	1.0	3.0	11.9	48.5	14.5	5.6	2.3	4.0	5.3	1.0	0.	0.	1.3	0.
9	0.3	0.	0.3	0.	1.0	1.3	3.0	7.7	49.8	18.7	3.7	7.0	5.7	0.	0.3	0.	1.0	0.
10	0.1	0.4	0.3	0.3	0.4	0.3	0.5	0.7	4.8	59.0	17.4	7.6	5.4	0.9	0.3	0.3	0.3	0.3
11	0.4	0.4	0.4	0.2	0.	0.2	0.6	0.7	0.5	6.5	51.1	23.3	11.5	2.6	0.5	0.5	0.4	0.3
12	0.3	0.3	0.	0.1	0.1	0.	0.3	0.1	0.3	0.9	7.3	37.8	41.4	7.7	1.6	0.8	0.7	0.3
13	0.1	0.1	0.1	0.	0.0	0.	0.	0.	0.	0.1	0.4	3.8	68.2	24.9	1.8	0.3	0.1	0.1
14	0.4	0.3	0.2	0.	0.	0.	0.0	0.0	0.0	0.	0.0	0.4	17.7	70.6	8.2	1.7	0.2	0.0
15	2.6	2.6	0.2	0.2	0.	0.	0.	0.2	0.	0.2	0.	0.	3.1	26.6	47.1	16.3	0.5	0.2
16	14.9	2.3	0.2	0.2	0.	0.	0.	0.	0.2	0.6	0.2	0.6	0.8	3.0	14.5	61.4	1.3	0.
17	4.0	8.5	3.5	3.5	4.8	4.4	3.9	4.8	2.7	5.2	2.3	4.6	3.5	3.9	4.4	4.8	30.3	1.0
18	0.	7.1	4.8	2.4	4.8	0.	0.	0.	0.	0.	4.8	7.1	7.1	19.0	14.3	4.8	0.	23.8
SUM	4.3	4.4	2.2	2.4	2.3	2.8	2.1	2.1	2.2	5.3	6.6	7.6	22.8	20.7	4.8	4.9	2.1	0.3

MONTH 8

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1.9	0.4	0.0	0.0	0.	0.0	0.	0.	0.	0.	0.	0.0	0.0	0.1	0.1	0.8	0.1	0.0
2	0.6	2.0	0.3	0.1	0.	0.0	0.0	0.	0.	0.0	0.	0.0	0.0	0.0	0.0	0.1	0.1	0.
3	0.0	0.5	1.0	0.2	0.0	0.0	0.0	0.	0.	0.0	0.	0.0	0.0	0.	0.1	0.0	0.0	0.0
4	0.0	0.1	0.4	1.2	0.3	0.1	0.0	0.0	0.	0.0	0.	0.0	0.0	0.0	0.1	0.0	0.1	0.0
5	0.	0.0	0.1	0.5	1.3	0.5	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.0	0.0	0.	0.1	0.0
6	0.0	0.0	0.0	0.1	0.4	1.9	0.5	0.1	0.0	0.0	0.	0.0	0.0	0.0	0.	0.	0.1	0.0
7	0.0	0.	0.	0.0	0.1	0.4	1.1	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.	0.0	0.1	0.0
8	0.	0.	0.0	0.0	0.0	0.1	0.3	1.0	0.4	0.1	0.1	0.2	0.2	0.0	0.	0.	0.1	0.0
9	0.	0.	0.0	0.	0.0	0.0	0.1	0.3	1.5	0.6	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.
10	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	3.3	1.2	0.5	0.5	0.1	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.0	0.1	0.8	3.9	1.7	1.3	0.4	0.1	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.0	0.	0.1	0.8	3.7	4.9	1.5	0.1	0.0	0.0	0.0
13	0.0	0.0	0.	0.0	0.	0.	0.0	0.0	0.0	0.0	0.0	0.6	11.8	5.1	0.4	0.1	0.	0.0
14	0.1	0.0	0.0	0.	0.0	0.	0.	0.0	0.0	0.0	0.0	0.2	3.6	11.9	1.3	0.3	0.0	0.
15	0.1	0.0	0.0	0.	0.	0.0	0.	0.0	0.	0.	0.0	0.0	0.3	1.0	1.8	0.5	0.0	0.0
16	0.7	0.2	0.	0.0	0.	0.	0.	0.0	0.	0.	0.0	0.0	0.1	0.2	0.8	2.4	0.1	0.
17	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	1.3	0.
18	0.0	0.1	0.0	0.	0.	0.0	0.0	0.	0.0	0.	0.0	0.1	0.1	0.1	0.0	0.0	0.	0.1
SUM.	3.6	3.7	2.1	2.4	2.3	3.5	2.3	2.2	2.6	5.3	6.5	7.7	23.4	20.8	4.9	4.6	1.9	0.4

TABLE 40 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 9

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	54.6	14.3	1.2	0.4	0.	0.	0.2	0.2	0.	0.2	0.2	0.2	1.1	1.6	4.8	19.3	1.1	0.9
2	19.1	55.8	10.0	2.8	0.8	0.	0.6	0.	0.	0.2	0.2	1.1	0.6	0.6	1.5	4.2	1.7	0.9
3	2.9	21.3	44.4	13.0	2.5	2.2	1.8	0.4	0.	0.4	0.7	0.7	1.4	1.4	2.9	0.7	1.4	1.8
4	0.6	4.2	13.3	49.4	13.3	5.4	1.2	1.2	1.2	0.	1.2	1.2	0.6	0.9	0.	1.5	2.4	2.4
5	0.3	1.5	1.5	14.7	48.5	22.7	2.5	1.5	0.9	0.6	0.3	0.6	0.3	0.6	0.6	0.	1.5	1.2
6	0.4	0.	0.4	1.8	11.6	51.9	15.6	4.5	1.1	2.2	1.3	1.3	2.2	1.1	0.9	0.	1.8	1.8
7	0.	0.	0.	1.6	1.8	16.2	37.8	16.5	3.8	2.9	3.2	4.1	3.5	4.8	1.3	0.3	0.3	2.5
8	0.	0.3	0.9	0.3	0.6	6.6	10.7	28.0	16.4	4.7	4.4	9.7	9.1	3.1	1.9	0.6	0.9	1.6
9	0.5	0.	0.3	0.8	0.3	0.8	3.4	8.8	38.9	17.1	6.7	7.5	10.9	2.8	0.3	0.	0.3	0.8
10	0.	0.1	0.3	0.	0.1	0.7	0.9	0.9	6.4	52.2	18.7	9.1	6.4	2.5	0.4	0.3	0.1	0.7
11	0.7	0.1	0.1	0.4	0.	0.4	1.2	0.6	1.5	9.8	44.0	20.2	14.2	4.8	0.9	0.3	0.1	0.8
12	0.2	0.2	0.2	0.2	0.2	0.	0.2	0.3	0.5	0.5	7.6	30.5	36.8	17.9	3.8	0.6	0.2	0.3
13	0.5	0.1	0.2	0.1	0.1	0.	0.2	0.1	0.	0.1	0.7	4.7	53.6	32.9	5.9	0.7	0.1	0.1
14	1.1	0.2	0.1	0.	0.	0.1	0.	0.	0.1	0.1	0.5	0.8	14.9	63.8	14.7	3.4	0.2	0.2
15	4.2	2.3	0.4	0.	0.5	0.2	0.2	0.	0.4	0.	0.5	1.2	1.8	27.4	45.7	14.2	0.4	0.7
16	16.2	1.9	0.8	0.2	0.	0.3	0.2	0.	0.2	0.	0.	0.6	0.9	5.0	15.9	56.5	0.6	0.8
17	3.0	4.7	4.7	6.4	5.1	5.7	5.1	3.0	2.7	4.0	4.7	2.7	5.1	6.7	3.7	6.4	24.9	1.3
18	3.5	2.8	1.4	1.4	0.7	3.5	2.8	0.	2.1	2.1	2.1	5.6	9.7	24.3	11.8	4.9	0.7	20.8
SUM	5.2	4.4	2.3	2.7	2.6	3.8	2.6	2.0	2.7	5.1	6.7	7.5	17.1	19.5	7.5	6.0	1.2	1.0

MONTH 10

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	45.9	15.6	2.1	1.7	1.7	0.9	0.2	0.2	0.	0.5	0.5	0.9	1.4	3.1	5.4	18.2	0.9	0.7
2	14.4	44.4	13.2	5.4	1.7	1.7	0.9	0.5	0.2	0.5	0.5	0.9	0.9	1.4	2.4	5.9	2.8	2.1
3	2.2	12.8	36.9	21.9	3.3	4.0	1.1	1.5	0.7	1.1	0.7	1.1	1.1	1.1	3.3	2.6	1.1	3.6
4	2.1	2.1	8.4	39.8	18.3	6.3	3.0	0.9	0.6	1.8	1.5	2.1	1.2	2.1	1.8	2.4	2.4	3.3
5	1.0	0.5	1.8	10.7	47.8	23.9	3.6	3.1	0.8	0.8	0.8	0.3	0.8	1.0	0.5	0.8	1.0	1.0
6	0.8	0.5	0.3	2.3	8.0	48.7	15.4	4.2	2.3	2.5	2.0	1.8	2.7	2.7	1.0	1.0	0.8	3.0
7	0.	0.7	0.	0.5	2.7	14.2	32.6	13.4	4.2	4.2	3.0	6.2	9.5	3.0	1.7	0.5	1.0	2.5
8	0.2	0.2	0.7	0.7	2.4	5.1	8.3	28.4	16.0	8.3	5.1	6.8	7.5	3.4	2.7	0.	0.7	3.4
9	0.4	0.2	0.4	0.4	0.9	1.5	2.0	5.0	42.5	18.6	6.9	5.8	7.2	4.1	0.7	0.2	0.7	2.6
10	0.	0.2	0.	0.6	0.2	1.0	0.6	1.7	5.3	54.0	17.5	5.3	7.9	3.1	0.6	0.2	0.8	1.6
11	0.3	0.3	0.1	0.1	0.1	0.4	1.0	0.4	1.1	8.6	45.0	17.5	16.7	5.8	0.6	0.4	0.	1.7
12	0.2	0.	0.2	0.2	0.1	0.1	0.1	0.3	0.4	0.9	7.6	26.7	33.2	25.1	2.7	1.1	0.2	1.0
13	0.3	0.1	0.1	0.1	0.	0.1	0.3	0.3	0.	0.2	1.0	5.1	38.3	45.1	7.4	1.1	0.	0.7
14	1.2	0.6	0.3	0.5	0.1	0.3	0.3	0.1	0.1	0.	1.0	1.6	10.4	56.9	19.1	5.5	0.5	1.3
15	3.9	1.2	1.1	1.1	0.8	0.8	0.3	0.5	0.	0.	0.3	2.2	3.0	22.2	45.1	14.8	0.5	2.3
16	13.9	2.5	2.3	1.1	0.7	0.5	0.9	0.4	0.2	0.	0.5	1.1	1.2	8.2	17.8	45.8	0.7	2.1
17	5.6	4.2	4.2	2.8	3.3	5.6	8.5	5.2	2.8	5.6	6.6	9.9	4.7	3.8	5.2	3.8	15.5	2.8
18	3.7	4.9	1.5	4.6	3.1	4.3	2.2	2.5	1.5	1.2	3.4	4.6	8.6	13.6	7.1	5.6	0.3	27.2
SUM	3.7	3.1	2.1	2.8	3.2	4.8	3.0	2.5	3.5	6.5	7.6	7.2	13.8	19.6	8.0	5.3	0.8	2.4

TABLE 40 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 11

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	40.7	13.8	3.1	2.0	0.8	1.0	1.0	0.5	0.	2.0	0.8	2.6	0.8	3.1	5.9	17.4	2.0	2.6
2	20.3	37.9	8.3	7.0	2.3	3.0	1.7	0.7	0.3	0.3	1.3	1.3	1.0	0.	2.7	7.3	1.7	3.0
3	4.1	15.4	28.6	18.0	5.3	5.3	1.9	0.4	1.5	1.1	0.8	1.9	1.5	1.1	2.6	3.4	2.3	4.9
4	1.7	3.1	11.3	32.6	21.0	7.9	3.1	1.0	1.4	1.0	2.1	2.4	1.0	1.4	1.0	1.7	2.7	3.4
5	0.6	0.3	1.7	14.4	34.1	30.4	5.1	1.7	1.4	0.8	0.6	0.3	0.8	0.	0.3	0.8	1.4	5.4
6	1.0	0.	1.4	3.5	8.8	45.6	18.7	6.7	1.6	0.4	0.6	1.6	2.0	1.8	0.4	0.4	1.4	4.3
7	0.	1.0	1.3	2.1	1.8	13.6	26.4	20.7	5.8	3.4	2.4	4.2	5.2	3.7	1.6	0.	1.3	5.5
8	0.4	0.2	1.0	1.4	1.7	3.7	6.8	31.1	17.8	7.2	3.7	6.0	5.8	3.5	1.4	0.8	0.8	6.4
9	0.7	0.3	0.3	0.3	0.2	1.8	2.3	6.0	43.8	20.3	4.5	6.7	4.3	2.2	0.8	1.0	1.2	3.3
10	0.2	0.6	0.4	0.5	0.2	0.6	0.4	1.1	7.1	47.3	19.7	6.4	7.7	3.5	0.7	0.9	0.7	2.0
11	0.4	0.2	0.1	0.4	0.1	0.	0.9	0.5	0.4	8.4	40.3	22.3	13.9	7.1	1.2	0.6	0.2	3.0
12	0.5	0.2	0.1	0.	0.	0.3	0.3	0.3	0.6	0.8	8.5	29.9	29.6	22.1	4.1	1.0	0.1	1.3
13	0.7	0.1	0.1	0.1	0.	0.2	0.3	0.1	0.	0.7	1.4	4.9	31.0	49.7	7.4	2.1	0.3	1.0
14	1.6	0.6	0.4	0.6	0.5	0.5	0.3	0.3	0.1	0.6	0.9	2.1	7.8	56.1	19.6	6.3	0.3	1.4
15	4.0	2.2	1.2	1.4	1.2	1.2	0.5	1.0	1.0	0.6	1.9	2.4	2.2	14.7	43.2	17.1	1.0	2.9
16	13.3	4.2	2.5	2.3	1.0	2.1	0.6	0.6	0.6	1.1	1.3	1.3	2.1	4.4	18.9	39.4	0.6	3.8
17	1.2	3.6	1.8	1.2	3.6	5.3	4.7	5.3	4.1	7.1	9.5	7.1	5.9	9.5	6.5	4.1	14.8	4.7
18	3.4	5.4	2.6	2.1	2.2	4.7	2.8	1.5	0.7	1.5	1.7	2.4	6.2	8.0	8.6	3.9	1.1	41.2
SUM	3.6	2.8	2.0	2.7	2.7	4.7	2.9	3.2	4.2	6.2	6.4	7.0	10.9	20.1	9.3	5.7	1.0	4.5

MONTH 12

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	36.9	11.3	3.3	1.3	2.0	2.0	1.3	1.0	1.0	2.0	2.3	3.7	2.7	4.0	3.7	14.6	3.0	4.0
2	18.3	29.1	10.4	6.0	3.4	3.4	0.4	0.	1.5	1.9	2.2	2.2	1.1	5.2	2.2	7.8	1.1	3.7
3	5.2	14.7	24.7	17.3	8.9	3.0	0.9	1.7	1.3	0.9	2.2	2.6	0.	2.2	3.5	2.6	1.7	8.7
4	1.9	4.8	9.3	26.7	14.4	10.7	3.7	1.9	1.5	3.7	0.	1.1	1.5	2.6	0.7	1.9	3.3	10.4
5	0.6	1.2	3.2	13.0	27.1	24.8	6.9	2.3	3.5	1.4	1.7	1.4	1.7	0.9	0.	0.3	1.2	8.9
6	0.6	0.6	1.0	4.6	12.0	43.6	13.3	5.4	3.4	1.6	1.4	1.8	0.4	1.0	0.8	1.0	0.4	7.0
7	1.0	0.	0.2	2.0	3.4	16.3	23.2	18.0	8.6	3.0	2.0	3.2	5.4	1.7	1.2	0.5	1.0	9.4
8	0.2	1.0	0.7	1.4	2.1	2.4	7.8	32.1	17.6	5.0	4.0	5.9	6.2	3.1	0.5	1.2	0.5	8.3
9	0.4	0.2	1.1	0.4	1.1	1.3	3.0	3.8	44.1	19.8	5.9	5.1	4.2	2.9	0.4	0.6	0.8	4.8
10	0.4	0.2	0.6	0.6	0.1	0.8	1.2	1.3	7.3	53.5	14.7	6.1	6.7	2.0	0.8	0.5	0.6	2.6
11	0.4	0.6	0.	0.4	0.1	0.7	0.7	0.4	0.2	9.1	41.1	20.6	15.1	6.4	1.9	0.1	0.1	2.0
12	0.2	0.4	0.1	0.6	0.	0.6	0.2	0.5	0.2	1.7	12.1	26.2	33.9	15.8	3.4	1.7	0.	2.3
13	0.4	0.5	0.1	0.1	0.1	0.2	0.2	0.4	0.2	0.5	0.7	4.4	30.8	51.1	7.0	1.8	0.1	1.5
14	1.4	0.7	0.6	0.8	0.9	0.6	0.2	0.4	0.3	0.8	0.9	1.9	8.5	51.8	22.1	6.2	0.4	1.4
15	4.9	2.5	1.8	1.7	2.3	0.8	1.1	0.9	0.8	1.5	1.7	2.4	3.6	17.8	37.8	16.0	1.5	1.9
16	8.1	3.7	1.8	3.0	1.6	3.0	0.6	2.4	2.0	2.8	2.8	2.2	6.3	17.6	33.5	2.2	3.2	3.2
17	2.1	1.6	2.6	3.1	3.1	6.2	3.6	7.8	5.2	7.8	6.2	7.8	7.8	5.7	6.7	6.2	9.8	6.7
18	2.3	4.3	3.1	2.6	3.5	3.1	3.3	1.6	1.4	2.0	1.0	2.0	3.8	6.7	4.6	5.2	0.7	48.9
SUM	2.8	2.4	1.8	2.5	2.8	4.4	2.7	3.0	4.2	6.7	6.0	6.0	11.4	21.2	9.4	5.2	0.9	6.6

TABLE 40 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 13

50 FT DIR.	FREQUENCY DISTRIBUTION, IN PERCENT, OF 400 FT DIRECTIONS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	52.4	13.1	1.6	1.1	0.7	0.7	0.4	0.3	0.3	0.5	0.6	1.0	1.0	1.9	3.9	18.2	1.2	1.0
2	18.0	50.9	9.8	3.4	1.3	1.3	0.7	0.5	0.3	0.6	0.8	1.0	0.9	1.3	1.5	4.5	1.7	1.5
3	3.0	18.8	42.7	14.9	2.8	2.5	1.1	0.8	0.6	0.8	1.1	1.2	0.9	1.2	2.2	1.4	1.6	2.1
4	1.2	3.1	14.8	44.9	14.0	3.8	1.8	1.2	0.9	1.1	0.8	1.2	0.9	1.4	0.9	1.1	2.1	3.0
5	0.4	0.8	2.1	14.4	42.9	23.4	4.0	2.0	1.2	1.0	0.7	0.6	0.7	0.9	0.4	0.4	1.3	2.6
6	0.5	0.3	0.7	2.5	10.6	51.0	15.8	4.8	1.8	1.4	0.8	1.6	1.6	1.3	0.5	0.5	1.2	2.8
7	0.2	0.4	0.4	1.4	2.8	15.3	37.6	15.7	4.8	3.2	2.0	3.7	4.3	2.2	0.8	0.4	0.9	4.1
8	0.2	0.3	0.6	1.1	1.2	3.5	9.0	36.8	17.9	6.0	3.7	6.1	5.8	2.3	1.0	0.4	1.0	2.9
9	0.3	0.2	0.3	0.4	0.5	1.1	2.2	6.0	46.1	21.8	5.2	5.6	5.4	1.9	0.5	0.4	0.5	1.7
10	0.1	0.3	0.3	0.3	0.2	0.5	0.7	1.0	6.7	55.4	17.6	7.0	5.7	1.9	0.5	0.3	0.4	1.1
11	0.3	0.3	0.2	0.2	0.1	0.3	0.5	0.6	0.8	8.8	47.6	22.2	12.0	4.0	0.7	0.3	0.2	1.0
12	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	1.1	8.6	35.3	35.4	14.1	2.2	0.7	0.2	0.7
13	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.6	4.3	52.3	35.3	4.6	1.0	0.1	0.5
14	1.0	0.5	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.3	0.5	1.4	13.7	61.8	14.2	4.1	0.3	0.7
15	4.2	1.9	1.0	0.9	0.9	0.8	0.5	0.6	0.4	0.7	0.9	1.8	3.4	20.7	43.5	15.3	0.9	1.5
16	13.5	2.8	1.2	1.1	0.5	0.9	0.4	0.5	0.5	0.7	1.1	1.4	1.5	5.3	16.1	49.9	1.1	1.5
17	3.5	5.2	4.1	4.4	3.7	5.5	4.6	5.2	3.5	5.9	4.7	6.1	4.5	5.4	3.7	4.6	23.4	1.9
18	2.7	4.3	2.6	2.8	2.6	4.1	3.0	1.8	1.3	1.6	2.0	3.1	5.7	9.9	6.2	4.6	0.9	40.7
SUM	3.9	3.3	2.1	2.5	2.4	3.8	2.6	2.6	3.5	6.5	7.1	7.9	16.7	19.8	6.9	5.1	1.2	2.2

Figure 40 shows both seasonal and diurnal variation in wind speed difference between the 200- and 7-foot levels. The minimum of 1.5 and maximum of 9.5 mph both occur in summer. December has the least diurnal variation of this statistic with a minimum of 2.8 and a maximum of 5.5 mph.

Although climatological hourly average speeds always increase with elevation in the first 400 feet, individual hourly averages sometimes do not. For example, with the wind in the 13-18 class at 50 feet, it is in the same class at 400 feet 23 percent of the time ($3668 \times 100/16,242$ as per Table 41, month 13), it is in the 8-12 class 1 percent of the time, and there is even one case of 4-7 mph at 400 feet with 13-18 at 50 feet.

The opposite extreme, however, is more common. For example, with the wind in the 13-18 mph class at 50 feet, 1 percent of the time it is in the 32-38 mph class at 400 feet.

It was stated in Section V that, although the wind blew from the 259 degrees to 326 degrees 42.4 percent of the time, 88.9 percent of hourly average speeds above 31 mph were from the SW octant. These figures were based on the 50-foot level. Tables 42-44 summarize direction versus speed data for the 50-, 200-, and 400-foot levels. Tables 45-50 summarize hour versus direction and hour versus speed data for the same levels.

200-foot and 400-foot Wind Speed (mph) and Direction versus Four Stability Categories

These tables show the joint frequency distribution, in percent, between 6 class intervals of wind speed and 18 class intervals of wind direction, with each grouping broken down into four stability categories as follows: VS (very stable), MS (moderately stable), N (neutral), and U (unstable).

There are 3 sets of tables as follows:

Table 51 relates ΔT_1 to the 200-foot wind and Table 52 relates ΔT_2 to the same wind. Table 53 relates ΔT_6 to the 400-foot wind.

FIGURE 40
SEASONAL AND DIURNAL VARIATION IN $\bar{u}_{200} - \bar{u}_7$ (mph)
BASED ON THE PERIOD 1955-1970

10.48

BNWL-1605

TABLE 41
COMPOSITE VERTICAL WIND SHEAR

MONTH 1

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS										TOTALS
	0 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	25 TO 31	32 TO 38	39 TO 46	OVER 46		
0 TO 3	2996	1233	340	47	1	0	0	0	0	4617	
4 TO 7	470	1306	1318	467	33	1	0	0	0	3595	
8 TO 12	19	113	629	1255	289	12	1	0	0	2318	
13 TO 18	0	0	2	198	456	228	23	1	0	908	
19 TO 24	0	0	0	0	15	189	108	6	0	318	
25 TO 31	0	0	0	0	0	7	53	97	2	119	
32 TO 38	0	0	0	0	0	0	0	15	10	25	
39 TO 46	0	0	0	0	0	0	0	0	4	4	
OVER 46	0	0	0	0	0	0	0	0	0	0	
TOTALS	3485	2652	2289	1987	794	437	185	79	16	11904	

MONTH 2

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS										TOTALS
	0 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	25 TO 31	32 TO 38	39 TO 46	OVER 46		
0 TO 3	2172	872	255	46	1	0	0	0	0	3346	
4 TO 7	408	1320	1194	426	21	0	0	0	0	3369	
8 TO 12	24	110	765	1344	340	11	0	0	0	2594	
13 TO 18	0	0	0	292	501	236	17	0	0	1006	
19 TO 24	0	0	0	0	26	178	140	4	0	348	
25 TO 31	0	0	0	0	0	11	85	52	2	150	
32 TO 38	0	0	0	0	0	0	1	15	13	29	
39 TO 46	0	0	0	0	0	0	0	0	6	6	
OVER 46	0	0	0	0	0	0	0	0	0	0	
TOTALS	2604	2302	2214	2068	889	436	243	71	21	10848	

TABLE 41 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 3

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS										TOTALS
	0 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	25 TO 31	32 TO 38	39 TO 46	OVER 46		
0 TO 3	1316	783	251	27	1	0	0	0	0	2378	
4 TO 7	302	1648	1406	503	19	0	0	0	0	3878	
8 TO 12	15	90	1004	1590	397	7	1	0	0	3104	
13 TO 18	0	0	4	388	828	371	15	0	0	1606	
19 TO 24	0	0	0	0	91	387	167	1	0	646	
25 TO 31	0	0	0	0	1	33	148	51	1	234	
32 TO 38	0	0	0	0	0	0	3	27	24	54	
39 TO 46	0	0	0	0	0	0	0	0	3	3	
OVER 46	0	0	0	0	0	0	0	0	1	1	
TOTALS	1633	2521	2665	2508	1337	798	334	79	29	11904	

MONTH 4

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS										TOTALS
	0 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	25 TO 31	32 TO 38	39 TO 46	OVER 46		
0 TO 3	1076	615	218	22	0	0	0	0	0	1931	
4 TO 7	221	1672	1292	438	19	0	0	0	0	3642	
8 TO 12	14	58	897	1563	521	14	0	0	0	3067	
13 TO 18	0	0	1	437	945	465	17	0	0	1865	
19 TO 24	0	0	0	0	122	448	184	10	0	764	
25 TO 31	0	0	0	0	0	28	150	50	1	229	
32 TO 38	0	0	0	0	0	0	0	16	5	22	
39 TO 46	0	0	0	0	0	0	0	0	0	0	
OVER 46	0	0	0	0	0	0	0	0	0	0	
TOTALS	1311	2345	2408	2460	1607	955	351	76	7	11920	

TABLE 41 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 5

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS										TOTALS
	0 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	25 TO 31	32 TO 38	39 TO 46	OVER 46		
0 TO 3	1114	663	171	26	0	0	0	0	0	1974	
4 TO 7	218	1955	1264	502	30	2	0	0	0	3971	
8 TO 12	12	51	1109	1547	583	16	0	0	0	3318	
13 TO 18	0	0	3	496	879	411	9	0	0	1798	
19 TO 24	0	0	0	2	91	413	201	5	0	712	
25 TO 31	0	0	0	0	0	12	78	34	0	124	
32 TO 38	0	0	0	0	0	0	1	4	2	7	
39 TO 46	0	0	0	0	0	0	0	0	0	0	
OVER 46	0	0	0	0	0	0	0	0	0	0	
TOTALS	1344	2669	2547	2573	1583	854	289	43	2	11904	

MONTH 6

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS										TOTALS						
	TO 0	TO 3	TO 4	TO 7	TO 8	TO 12	TO 13	TO 18	TO 19	TO 24		TO 25	TO 31	TO 32	TO 38	TO 39	OVER 46
0 TO 3		751		466		115		13		2		0		0		0	1347
4 TO 7		238		2142		1175		397		30		2		0		0	3984
8 TO 12		8		51		1115		1511		539		10		0		0	3234
13 TO 18		0		0		2		492		947		557		12		0	2010
19 TO 24		0		0		0		0		116		421		242		4	783
25 TO 31		0		0		0		0		0		21		105		30	156
32 TO 38		0		0		0		0		0		0		1		4	6
39 TO 46		0		0		0		0		0		0		0		0	0
OVER 46		0		0		0		0		0		0		0		0	0
TOTALS		997		2659		2407		2413		1634		1011		360		38	11520

TABLE 41 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 7

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS										TOTALS
	0 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	25 TO 31	32 TO 38	39 TO 46	OVER 46		
0 TO 3	986	639	130	28	0	0	0	0	0	1783	
4 TO 7	233	2400	1286	544	33	0	0	0	0	4496	
8 TO 12	8	55	1019	1366	650	21	0	0	0	3119	
13 TO 18	0	0	2	367	760	550	11	0	0	1690	
19 TO 24	0	0	0	0	57	374	250	6	0	687	
25 TO 31	0	0	0	0	0	15	80	31	0	126	
32 TO 38	0	0	0	0	0	0	1	2	0	3	
39 TO 46	0	0	0	0	0	0	0	0	0	0	
OVER 46	0	0	0	0	0	0	0	0	0	0	
TOTALS	1227	3094	2437	2305	1500	960	342	39	0	11904	

MONTH 8

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS										TOTALS
	0 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	25 TO 31	32 TO 38	39 TO 46	OVER 46		
0 TO 3	1208	771	235	37	1	0	0	0	0	2252	
4 TO 7	224	2258	1358	650	57	0	0	0	0	4547	
8 TO 12	7	45	965	1383	633	14	0	0	0	3047	
13 TO 18	0	0	2	285	719	440	15	0	0	1461	
19 TO 24	0	0	0	0	52	249	196	2	0	499	
25 TO 31	0	0	0	0	0	13	66	18	0	97	
32 TO 38	0	0	0	0	0	0	0	1	0	1	
39 TO 46	0	0	0	0	0	0	0	0	0	0	
OVER 46	0	0	0	0	0	0	0	0	0	0	
TOTALS	1439	3074	2560	2355	1462	716	277	21	0	11904	

TABLE 41 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 9

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS										TOTALS
	0 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	25 TO 31	32 TO 38	39 TO 46	OVER 46		
0 TO 3	1512	856	294	50	1	0	0	0	0	2713	
4 TO 7	269	1914	1454	565	39	0	0	0	0	4241	
8 TO 12	14	78	845	1332	453	14	0	0	0	2736	
13 TO 18	0	0	1	272	643	338	5	0	0	1259	
19 TO 24	0	0	0	0	44	296	127	3	0	470	
25 TO 31	0	0	0	0	0	17	63	15	0	95	
32 TO 38	0	0	0	0	0	0	0	6	0	6	
39 TO 46	0	0	0	0	0	0	0	0	0	0	
OVER 46	0	0	0	0	0	0	0	0	0	0	
TOTALS	1795	2648	2594	2219	1180	665	195	24	0	11520.	

MONTH 10

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS										TOTALS
	0 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	25 TO 31	32 TO 38	39 TO 46	OVER 46		
0 TO 3	2304	1085	366	70	0	0	0	0	0	3825	
4 TO 7	416	1614	1396	589	28	0	0	0	0	4043	
8 TO 12	13	80	694	1355	382	13	0	0	0	2537	
13 TO 18	0	0	0	161	574	248	7	0	0	990	
19 TO 24	0	0	0	0	64	221	106	2	0	393	
25 TO 31	0	0	0	0	0	15	63	24	1	103	
32 TO 38	0	0	0	0	0	0	1	9	1	11	
39 TO 46	0	0	0	0	0	0	0	0	2	2	
OVER 46	0	0	0	0	0	0	0	0	0	0	
TOTALS	2733	2779	2456	2175	1048	497	177	35	4	11904.	

TABLE 41 (CONTD)
COMPOSITE VERTICAL WIND SHEAR

MONTH 11

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS									TOTALS
	TO 0	3 TO 4	7 TO 8	12 TO 13	18 TO 19	24 TO 25	31 TO 32	38 TO 39	46 OVER 46	
0 TO 3	2968	1214	341	48	2	0	0	0	0	4573
4 TO 7	395	1383	1235	430	22	0	0	0	0	3465
8 TO 12	15	80	623	1180	274	8	0	0	0	2180
13 TO 18	0	0	0	166	460	217	14	0	0	857
19 TO 24	0	0	0	0	27	194	92	3	0	316
25 TO 31	0	0	0	0	0	4	56	42	1	103
32 TO 38	0	0	0	0	0	0	0	11	12	23
39 TO 46	0	0	0	0	0	0	0	0	3	3
OVER 46	0	0	0	0	0	0	0	0	0	0
TOTALS	3378	2677	2199	1824	785	423	162	56	16	11520.

MONTH 12

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400-FT WIND SPEED INTERVALS									TOTALS
	0 to 3	4 to 7	8 to 12	13 to 18	19 to 24	25 to 31	32 to 38	39 to 46	Over 46	
0 to 3	3 349	1 192	337	51	2	0	0	0	0	4 931
4 to 7	398	1 250	1 349	443	29	0	0	0	0	3 469
8 to 12	17	61	691	1 193	270	18	0	0	0	2 250
13 to 18	0	1	2	154	422	195	18	0	0	792
19 to 24	0	0	0	0	17	141	120	22	0	300
25 to 31	0	0	0	0	0	3	54	67	9	133
32 to 38	0	0	0	0	0	0	0	10	13	23
39 to 46	0	0	0	0	0	0	0	0	5	5
Over 46	0	0	0	0	0	0	0	0	1	1
TOTALS	3 764	2 504	2 379	1 841	740	357	192	99	28	11 904

TABLE 41 (CONTO)
COMPOSITE VERTICAL WIND SHEAR

MONTH 13

50 FOOT SPEED	FREQUENCY DISTRIBUTION, IN NUMBER OF CASES, OF 400 FT WIND SPEED INTERVALS									TOTALS
	TO 0 3	TO 4 7	TO 8 12	TO 13 18	TO 19 24	TO 25 31	TO 32 38	TO 39 46	OVER 46	
0 TO 3	21752	10389	3053	465	11	0	0	0	0	35670
4 TO 7	3792	20862	15727	5954	360	5	0	0	0	46700
8 TO 12	166	872	10356	16619	5331	158	2	0	0	33504
13 TO 18	0	1	19	3668	8134	4256	163	1	0	16242
19 TO 24	0	0	0	2	722	3511	1933	68	0	6236
25 TO 31	0	0	0	0	1	179	1001	471	17	1669
32 TO 38	0	0	0	0	0	0	8	120	82	210
39 TO 46	0	0	0	0	0	0	0	0	23	23
OVER 46	0	0	0	0	0	0	0	0	2	2
TOTALS	25710	32124	29155	26708	14559	8109	3107	660	124	140256

TABLE 42
PERCENTAGE FREQUENCY DISTRIBUTION OF 50-FT WIND DIRECTION VS SPEED
1955-70

JANUARY											FEBRUARY											
DIRECTION	SPEED CLASS (MPH)									AVG SPEED	DIRECTION	SPEED CLASS (MPH)									AVG SPEED	
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46			0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46		
N	2.8	1.2	0.2	0.3	0.2					4.7	4.3	N	2.6	1.6	0.4	0.2	#	#			4.8	4.5
NNE	2.0	0.8	0.4	0.1	0.1	#				3.4	4.6	NNE	1.8	1.3	0.8	0.4	0.1	0.1			4.5	6.3
NE	1.8	0.7	0.2	0.1	0.1	#				2.9	4.4	NE	2.2	0.9	0.2	0.2	#				3.5	3.8
ENE	1.3	0.5	0.1	#	#					1.9	3.0	ENE	1.3	0.6	0.1						1.9	3.3
E	1.8	0.6	0.1	#						2.4	3.0	E	1.3	0.7	#						2.0	3.0
ESE	1.8	0.7	0.2	0.1	#					2.8	3.4	ESE	1.3	0.7	0.1						2.1	3.3
SE	2.7	1.5	0.4	0.2	#	#				4.8	4.0	SE	1.9	1.1	0.3	0.1					3.4	4.0
SSE	1.6	0.8	0.3	0.1	0.1					2.9	5.4	SSE	1.2	0.8	0.4	0.2	#				2.6	5.2
S	1.4	0.9	0.4	0.5	0.2	0.1	0.1	#		3.6	7.7	S	1.3	0.7	0.4	0.3	0.1	0.1			2.9	6.6
SSW	1.2	1.0	0.6	1.0	0.6	0.3	0.1	#		4.8	11.5	SSW	1.0	1.0	0.8	0.6	0.5	0.2	0.1	#	4.2	10.5
SW	1.4	1.4	1.4	1.6	0.7	0.3	#			6.8	10.7	SW	1.0	1.6	1.3	1.8	1.1	0.5	0.1	#	7.4	12.6
WSW	1.4	1.5	1.7	0.8	0.4	0.2	#			6.0	8.9	WSW	0.9	2.1	2.1	1.4	0.5	0.3	0.1	#	7.4	10.5
W	1.8	2.3	1.3	10.6	0.1					6.1	6.3	W	1.6	3.4	2.9	1.1	0.2	0.1			9.3	7.8
WNW	2.4	5.6	5.1	0.9	#	#				14.0	7.1	WNW	1.9	4.9	6.8	1.5	0.3	0.1			15.5	8.3
NW	3.6	7.8	6.6	1.2	0.1	#				19.3	6.9	NW	3.3	6.9	6.4	1.5	0.2	0.1			18.4	7.3
NNW	3.0	2.8	0.6	0.1	#					6.5	4.2	NNW	2.3	2.5	0.8	0.1	#				5.7	4.8
VAR	1.3	0.1								1.4	1.8	VAR	1.3	0.2	#						1.5	1.8
CALM	5.4									5.4		CALM	2.4								2.4	
TOTAL	38.7	30.1	19.6	7.6	2.6	0.9	0.2	#		100.0	6.2	TOTAL	30.6	31.0	23.8	9.4	3.0	1.5	0.3		100.0	7.1
# DENOTES LESS THAN 0.05%											# DENOTES LESS THAN 0.05%											
MARCH											APRIL											
DIRECTION	SPEED CLASS (MPH)									AVG SPEED	DIRECTION	SPEED CLASS (MPH)									AVG SPEED	
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46			0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46		
N	1.9	1.8	1.0	0.2	#					4.9	5.4	N	1.6	1.6	0.7	0.3	#				4.2	5.5
NNE	1.4	1.6	0.9	0.6	#	#				4.5	6.8	NNE	1.0	1.3	0.6	0.3	0.1	#			3.3	6.8
NE	1.7	1.2	0.3	0.2	0.1	#				3.5	4.8	NE	1.4	1.2	0.4	0.2	#	#			3.2	5.3
ENE	0.7	0.8	0.1	#	#	#				1.6	5.0	ENE	0.6	1.0	0.2	0.1					1.9	5.2
E	0.9	0.8	0.2	#	#					1.9	4.2	E	0.8	1.0	0.5	#					2.3	5.0
ESE	1.0	1.1	0.2	0.1						2.4	4.4	ESE	0.8	1.0	0.2	#					2.0	4.5
SE	1.4	1.7	0.5	0.1	#					3.7	5.0	SE	1.0	1.5	0.5	0.1					3.1	5.2
SSE	0.6	1.1	0.8	0.3	#					2.8	7.1	SSE	0.5	1.0	0.8	0.2					2.5	6.8
S	1.0	1.4	0.7	0.4	0.2	#				3.7	7.4	S	0.7	1.4	0.7	0.3	0.1	#			3.2	6.7
SSW	0.6	1.3	1.1	1.2	0.7	0.3	0.1			5.3	12.1	SSW	0.7	1.5	1.1	0.9	0.4	0.1			4.7	9.6
SW	0.8	2.0	2.0	2.5	1.5	0.8	0.2	#	#	9.8	13.5	SW	0.7	2.3	2.1	2.1	1.6	0.6	0.1		9.5	12.7
WSW	0.8	2.5	3.0	2.5	1.0	0.4	0.2			10.4	11.7	WSW	0.8	2.6	3.8	2.5	1.1	0.4	0.1		11.3	11.4
W	1.1	3.9	3.1	1.2	0.2	0.1				9.6	8.2	W	1.1	4.2	4.3	1.7	0.5	0.1	#		11.9	8.8
WNW	1.1	4.4	5.8	2.2	0.8	0.1				14.4	9.5	WNW	0.8	3.9	6.0	4.2	1.3	0.3			16.5	11.0
NW	1.5	4.4	5.3	1.8	0.6	0.1				13.7	8.9	NW	1.2	3.7	4.2	3.2	1.5	0.4	#		14.2	11.0
NNW	1.4	2.4	1.1	0.2	#					5.1	5.6	NNW	0.9	1.9	0.6	0.2	#				3.6	5.8
VAR	1.3	0.2	#							1.5	2.1	VAR	1.6	0.5							2.1	2.7
CALM	0.7									0.7		CALM	0.5								0.5	
TOTAL	19.9	32.6	26.1	13.5	5.1	1.8	0.5			100.0	8.6	TOTAL	16.7	31.6	26.7	16.3	6.6	1.9	0.2		100.0	9.1
# DENOTES LESS THAN 0.05%											# DENOTES LESS THAN 0.05%											

TABLE 42 (CONTD)
PERCENTAGE FREQUENCY DISTRIBUTION OF 50-FT WIND DIRECTION VS SPEED
1955-70

MAY											JUNE										
DIRECTION	SPEED CLASS (MPH)								TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)								TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
N	1.2	1.7	0.9	0.1					3.9	5.7	N	0.9	2.0	0.9	0.2					4.0	6.0
NNE	0.6	1.4	0.7	0.3	#				3.0	6.7	NNE	0.6	1.8	0.8	0.4	#				3.6	7.1
NE	1.0	1.5	1.0	0.1	0.1				3.7	6.4	NE	0.8	1.4	0.8	0.5	0.1	#			3.6	7.5
ENE	0.8	1.1	0.3	0.1					2.3	5.0	ENE	0.4	1.0	0.4	0.1	#	#			1.9	6.5
E	0.9	1.2	0.3	#					2.4	4.7	E	0.5	1.3	0.3	#	#				2.1	5.6
ESE	0.9	1.0	0.3	#					2.2	4.6	ESE	0.6	1.3	0.3	#					2.2	5.0
SE	1.0	1.5	0.6	0.1					3.2	5.4	SE	0.7	1.6	0.4	#					2.7	5.2
SSE	0.6	1.3	0.6	0.2	#				2.7	6.4	SSE	0.5	1.1	0.4	0.1	#				2.1	5.8
S	0.6	1.7	0.5	0.1	#				2.9	5.6	S	0.6	1.7	0.3	0.1					2.7	5.5
SSW	0.7	1.3	0.8	0.4	0.1	#			3.3	7.4	SSW	0.4	1.5	0.7	0.2	0.1	#			2.9	7.3
SW	0.6	2.4	1.7	1.1	0.5	0.1	#		6.4	9.6	SW	0.7	2.5	2.0	1.0	0.3	#			6.5	8.8
WSW	0.9	2.7	3.5	1.8	0.7	0.2	#		9.8	10.1	WSW	0.6	2.5	3.5	1.5	0.4	0.1	#		8.6	9.7
W	1.2	4.0	4.4	1.6	0.2	#			11.4	8.3	W	0.7	4.1	4.4	1.6	0.3	#			11.1	8.8
WNW	0.8	3.9	6.7	4.7	1.7	0.2	#		18.0	11.2	WNW	0.6	3.5	6.9	6.2	2.1	0.4	#		19.7	12.1
NW	1.2	3.6	4.9	4.4	2.6	0.5	#		17.2	12.0	NW	0.7	3.7	5.1	5.4	3.4	0.7	#		19.0	13.0
NNW	1.0	1.8	0.7	0.1					3.6	5.5	NNW	0.6	2.0	0.8	0.1	#	#			3.5	6.3
VAR	1.9	1.3	#						3.2	3.2	VAR	1.6	1.7	#						3.3	3.4
CALM	0.6								0.6		CALM	0.3								0.3	
TOTAL	16.5	33.4	27.9	15.1	5.9	1.0	#		100.0	8.7	TOTAL	11.8	34.7	28.0	17.4	6.7	1.2			100.0	9.3
# DENOTES LESS THAN 0.05%											# DENOTES LESS THAN 0.05%										
JULY											AUGUST										
DIRECTION	SPEED CLASS (MPH)								TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)								TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
N	1.1	2.6	0.6	0.1					4.4	5.3	N	1.3	2.5	0.4	0.1					4.3	5.0
NNE	0.7	2.1	0.8	0.2	#				3.8	6.0	NNE	1.0	1.8	0.5	0.1					3.4	5.1
NE	0.9	2.1	0.5	0.2	#				3.7	5.7	NE	1.3	1.6	0.3	0.1	#				3.3	4.4
ENE	0.5	1.2	0.2	#					1.9	5.0	ENE	0.7	1.1	0.1	#					1.9	4.3
E	0.7	1.5	0.3						2.5	4.9	E	0.9	1.3	0.2	#					2.4	4.5
ESE	0.7	1.3	0.3	#					2.3	4.9	ESE	0.8	1.6	0.3						2.7	4.7
SE	0.9	1.7	0.3	#					2.9	4.9	SE	1.1	1.8	0.5	#					3.4	4.8
SSE	0.4	1.0	0.4	#		#			1.8	5.6	SSE	0.7	1.1	0.6	#	#				2.4	5.5
S	0.7	1.5	0.2	0.1	#	#			2.5	5.3	S	0.8	1.4	0.3	#					2.5	4.8
SSW	0.5	1.3	0.5	0.2	#	#			2.5	6.5	SSW	0.6	1.6	0.7	0.2	0.1				3.2	6.6
SW	0.8	2.3	1.7	1.0	0.4	0.1	#		6.3	9.1	SW	1.0	2.7	1.6	0.8	0.2	0.1	#		6.4	8.1
WSW	0.7	3.0	2.8	1.4	0.4	0.2	#		8.5	9.5	WSW	0.9	3.2	2.9	1.4	0.1	0.1			8.6	8.5
W	1.0	4.4	3.5	0.9	0.1	#			9.9	7.7	W	1.3	5.1	4.1	0.7	#				11.2	7.5
WNW	0.7	4.2	7.7	4.8	1.8	0.2			19.4	11.2	WNW	0.9	4.1	7.6	4.1	1.3	0.2			18.2	10.6
NW	0.9	3.8	5.6	5.1	3.0	0.5			18.9	12.4	NW	1.2	3.8	5.1	4.5	2.3	0.5			17.4	11.8
NNW	0.8	2.0	0.7	0.1	#				3.6	5.8	NNW	1.0	2.3	0.5	0.1	#				3.9	5.4
VAR	2.6	1.8	#						4.4	3.3	VAR	2.8	1.3							4.1	3.0
CALM	0.4								0.4		CALM	0.6								0.6	
TOTAL	15.0	37.8	26.1	14.1	5.7	1.0			100.0	8.6	TOTAL	18.9	38.3	25.7	12.1	4.0	0.9	#		100.0	7.9
# DENOTES LESS THAN 0.05%											# DENOTES LESS THAN 0.05%										

TABLE 42 (CONTD)
PERCENTAGE FREQUENCY DISTRIBUTION OF 50-FT WIND DIRECTION VS SPEED
1955-70

SEPTEMBER											OCTOBER											
DIRECTION	SPEED CLASS (MPH)									AVG SPEED	DIRECTION	SPEED CLASS (MPH)									AVG SPEED	
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46			0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46		
N	1.9	2.4	0.9	0.3	#	#				5.5	5.3	N	2.6	1.7	0.4	0.1					4.8	3.9
NNE	1.5	1.8	1.0	0.4	0.1	#				4.8	6.4	NNE	2.1	1.1	0.3	0.1					3.6	3.9
NE	1.8	1.8	0.6	0.3	0.1	#				4.6	5.6	NE	2.4	0.8	0.2	0.1	#				3.5	3.5
ENE	1.3	0.9	0.1	0.1						2.4	3.9	ENE	1.4	0.7	0.1	#	#				2.2	3.6
E	1.6	1.1	0.2	#						2.9	3.7	E	1.8	0.9	0.1						2.8	3.1
ESE	1.2	1.5	0.2							2.9	4.1	ESE	1.8	1.4	0.1						3.3	3.6
SE	1.4	2.1	0.4	#						3.9	4.6	SE	2.5	1.9	0.6	0.1					5.1	4.2
SSE	0.9	1.3	0.5	0.1						2.8	5.3	SSE	1.0	1.5	0.7	0.1	#				3.3	5.7
S	0.9	1.3	0.3	0.1	#					2.6	5.2	S	1.1	1.4	0.5	0.3	0.2	#			3.5	6.7
SSW	0.8	1.6	0.5	0.2	0.1	0.1				3.3	7.0	SSW	1.0	1.4	0.7	0.7	0.5	0.2	#	#	4.5	9.7
SW	0.8	2.1	1.3	1.0	0.5	0.3		#		6.0	9.9	SW	1.0	2.0	1.5	1.4	1.0	0.4	#		7.3	11.3
WSW	1.0	3.0	2.7	1.3	0.6	0.1		#		8.7	9.4	WSW	1.0	2.8	3.0	1.6	0.6	0.1	#		9.1	9.5
W	1.3	4.9	3.7	0.8	0.3	0.1				11.1	7.6	W	1.7	4.6	3.6	0.7	0.1	#			10.7	7.1
WNW	1.2	4.0	5.6	2.9	0.9	0.1				14.7	9.8	WNW	1.7	4.7	5.0	1.4	0.4	#			13.2	8.1
NW	1.4	3.6	4.9	3.3	1.4	0.2				14.8	10.5	NW	2.4	4.4	4.0	1.6	0.4	0.1	#		12.9	8.0
NNW	1.3	2.6	0.9	0.2	#					5.0	5.7	NNW	2.1	2.5	0.6	0.1	#	#			5.3	4.7
VAR	2.0	0.6								2.6	2.6	VAR	1.6	0.1	#						1.7	1.8
CALM	1.2									1.2		CALM	2.7								2.7	
TOTAL	23.5	36.6	23.8	11.0	4.0	0.9				100.0	7.5	TOTAL	31.9	33.9	21.4	8.3	3.2	0.8	#	#	100.0	6.7

DENOTES LESS THAN 0.05%

DENOTES LESS THAN 0.05%

NOVEMBER											DECEMBER												
DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46		
N	2.7	1.3	0.4	0.2						4.6	4.0	N	2.7	1.0	0.3	0.2					4.2	3.5	
NNE	2.2	0.7	0.4	0.2	#					3.5	4.0	NNE	1.6	0.6	0.2	#					2.4	3.6	
NE	1.9	0.5	0.1	#						2.5	2.8	NE	1.7	0.5	#	#					2.2	2.6	
ENE	1.8	0.4	#							2.2	2.5	ENE	1.5	0.5	#						2.0	2.4	
E	1.9	0.6	#							2.5	2.6	E	1.6	0.6	0.1	#	#				2.3	2.9	
ESE	2.0	1.0	0.1							3.1	3.1	ESE	1.9	0.7	0.2	0.1	#				2.9	3.6	
SE	2.5	1.4	0.3	0.1						4.3	3.9	SE	2.6	1.2	0.4	0.1	#				4.3	3.6	
SSE	1.4	1.2	0.4	0.2	0.1	#				3.3	5.3	SSE	1.7	1.2	0.2	0.2	0.1				3.4	4.7	
S	1.7	1.2	0.5	0.5	0.3	#				4.2	6.8	S	1.7	0.8	0.4	0.4	0.2	0.1	#		3.6	6.7	
SSW	1.4	1.2	0.8	0.9	0.7	0.2	0.1			5.3	9.9	SSW	1.3	0.7	0.6	0.8	0.5	0.4	0.1	#	4.4	11.1	
SW	1.6	1.6	1.4	1.5	0.8	0.3	0.1	#		7.3	10.5	SW	1.5	1.3	1.2	1.4	1.0	0.5	0.1	#	7.0	11.8	
WSW	1.3	2.1	1.9	1.3	0.4	0.1	#	#		7.1	9.1	WSW	1.6	1.8	1.7	1.1	0.4	0.1	#		6.7	8.6	
W	2.1	3.4	1.9	0.6	0.1	0.1	#			8.2	6.8	W	2.1	2.7	1.5	0.5	0.1	#			6.9	6.0	
WNW	2.5	4.6	4.9	1.0	0.3	0.1				13.4	7.5	WNW	2.9	5.7	5.3	0.8	0.1	#			14.8	6.9	
NW	3.6	5.9	4.7	0.7	0.1	0.1	#			15.1	6.6	NW	3.8	7.3	6.0	1.0	0.1				18.2	6.7	
NNW	3.0	2.8	1.0	0.2						7.0	4.6	NNW	2.9	2.4	0.9	0.1					6.3	4.3	
VAR	1.4	0.1								1.5	1.6	VAR	1.5	0.1							1.6	1.7	
CALM	4.7									4.7		CALM	6.8								6.8		
TOTAL	39.7	30.0	18.8	7.4	2.8	0.9	0.2	#		100.0	6.1	TOTAL	41.4	29.1	19.0	6.7	2.5	1.1	0.2	#	#	100.0	5.9

DENOTES LESS THAN 0.05%

DENOTES LESS THAN 0.05%

TABLE 42 (CONTD)
PERCENTAGE FREQUENCY DISTRIBUTION OF 50-FT WIND DIRECTION VS SPEED
1955-70

COMPOSITE OF ALL MONTHS

DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46		
N	2.0	1.8	0.6	0.2	#	#				4.6	4.9
NNE	1.4	1.4	0.6	0.3	#	#				3.7	5.7
NE	1.6	1.2	0.4	0.2	#	#				3.4	4.9
ENE	1.0	0.8	0.2	#	#	#				2.0	4.1
E	1.2	1.0	0.2	#	#					2.4	3.9
ESE	1.2	1.1	0.2	#	#					2.5	4.0
SE	1.6	1.6	0.4	0.1	#	#				3.7	4.5
SSE	0.9	1.1	0.5	0.1	#	#				2.0	5.7
S	1.0	1.3	0.4	0.2	0.1	#	#	#		3.0	6.4
SSW	0.9	1.3	0.7	0.6	0.3	0.2	#	#		4.0	9.5
SW	1.0	2.0	1.6	1.4	0.8	0.3	0.1	#	#	7.2	10.9
WSW	1.0	2.5	2.7	1.6	0.5	0.2	#	#		8.5	9.9
W	1.4	3.9	3.2	1.0	0.2	#	#			9.7	7.7
WNW	1.5	4.5	6.1	2.9	0.9	0.1	#			16.0	9.7
NW	2.1	4.9	5.2	2.8	1.3	0.3	#			16.6	9.6
NNW	1.7	2.3	0.8	0.1	#	#				4.9	5.1
VAR	1.7	0.7	#							2.4	2.7
CALM	2.2									2.2	
TOTAL	25.4	33.4	23.8	11.5	4.1	1.1	0.1	#	#	100.0	7.6

DENOTES LESS THAN 0.05%

TABLE 43
PERCENTAGE FREQUENCY DISTRIBUTION OF 200-FOOT WIND DIRECTION VS SPEED
1955-70

JANUARY												FEBRUARY											
DIRECTION	SPEED CLASS (MPH)									AVG SPEED	TOTAL	DIRECTION	SPEED CLASS (MPH)									AVG SPEED	TOTAL
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	2.5	1.9	0.5	0.2	0.1	0.2				5.4	5.5	N	2.1	2.0	0.7	0.4	0.1	0.1				5.4	5.9
NNE	1.7	1.1	0.4	0.4	0.1	0.1	#			3.8	5.9	NNE	1.4	1.3	0.7	0.7	0.3	0.2				4.6	8.2
NE	1.8	0.9	0.3	0.2	0.1	0.1	#			3.4	5.2	NE	1.6	1.1	0.4	0.1	0.2					3.4	5.5
ENE	1.2	0.7	0.1	#	#					2.0	3.6	ENE	1.2	0.7	0.2	#	#					2.1	3.9
E	1.7	0.6	0.1	0.1	#					2.5	3.4	E	1.3	0.8	0.1	#						2.2	3.4
ESE	2.1	0.8	0.2	0.1	#					3.2	3.4	ESE	1.5	0.7	0.1	#						2.3	3.4
SE	2.6	1.2	0.6	0.1	0.1	0.1	#			4.7	4.7	SE	1.9	1.1	0.6	0.1	#					3.7	4.7
SSE	1.6	0.9	0.4	0.2	0.2	0.1	#			3.4	6.2	SSE	1.0	0.7	0.4	0.3	0.1	#				2.5	6.5
S	0.9	0.7	0.4	0.3	0.4	0.2	0.1	#	#	3.0	10.8	S	1.0	0.6	0.3	0.3	0.2	0.1	0.1			2.6	8.4
SSW	0.7	0.6	0.5	0.6	0.7	0.5	0.3	0.1	#	4.0	15.8	SSW	0.7	0.5	0.7	0.5	0.4	0.5	0.2	0.1	#	3.6	14.4
SW	0.8	0.7	0.6	1.3	1.4	0.8	0.2	0.1	#	5.9	16.1	SW	0.7	1.0	1.0	1.3	1.3	1.0	0.4	0.1	0.1	6.9	16.8
WSW	0.6	1.0	1.0	1.4	0.7	0.5	0.1	#		5.3	13.3	WSW	0.6	0.9	1.4	1.8	1.0	0.5	0.3	#	#	6.5	14.2
W	1.3	1.6	1.5	1.1	0.4	#	#			5.9	8.8	W	1.2	1.7	2.6	2.2	0.6	0.3	0.1	#		8.7	10.8
WNW	1.4	2.5	4.1	3.2	0.5	0.1	#			11.8	10.0	WNW	1.2	2.3	4.3	4.6	0.9	0.2	#			13.5	11.5
NW	2.3	4.3	8.4	6.6	1.0	0.1	#			22.7	10.4	NW	1.8	4.2	6.9	6.6	1.4	0.3	0.1			21.3	11.2
NNW	2.3	3.3	1.9	0.4	0.1	#				8.0	6.1	NNW	1.9	3.1	1.9	0.6	0.1	#				7.6	6.5
VAR	0.8	0.1								0.9	1.8	VAR	0.6	0.1	#							0.7	1.7
CALM	3.6									3.6		CALM	2.1									2.1	
TOTAL	29.9	22.9	21.0	16.2	5.8	2.8	0.7	0.2		100.0	8.6	TOTAL	23.8	22.8	22.3	19.5	6.6	3.2	1.2	0.2	0.1	100.0	9.7

DENOTES LESS THAN 0.05%

DENOTES LESS THAN 0.05%

MARCH												APRIL											
DIRECTION	SPEED CLASS (MPH)									AVG SPEED	TOTAL	DIRECTION	SPEED CLASS (MPH)									AVG SPEED	TOTAL
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	1.4	2.2	1.3	0.5	0.1	#				5.5	6.7	N	1.3	1.8	0.7	0.5	0.1	#				4.4	6.7
NNE	1.1	1.6	0.8	0.9	0.3	#	#			4.7	8.3	NNE	0.9	1.1	0.8	0.5	0.2	0.1	#			3.6	8.4
NE	1.4	1.3	0.5	0.2	0.1	#	#			3.5	6.1	NE	1.1	1.3	0.5	0.2	0.1	#				3.2	6.2
ENE	0.8	0.9	0.2	0.1	#	#	#			2.0	5.7	ENE	0.7	0.9	0.5	0.2	#					2.3	6.4
E	0.9	0.9	0.2	0.1	#	#				2.1	4.9	E	0.9	1.0	0.5	0.1	#					2.5	5.8
ESE	1.1	1.0	0.3	0.1	#					2.5	4.6	ESE	0.7	1.0	0.3	#						2.0	4.8
SE	1.0	1.7	0.8	0.2	0.1					3.8	6.2	SE	0.8	1.5	0.6	0.3	#					3.2	6.3
SSE	0.5	1.0	0.8	0.5	0.2	#				3.0	8.6	SSE	0.3	0.9	0.7	0.5	0.1	#				2.5	8.7
S	0.5	0.9	0.6	0.4	0.3	0.2	#			2.9	10.3	S	0.4	1.1	0.7	0.4	0.2	#				2.8	8.6
SSW	0.5	0.9	1.1	1.1	0.9	0.6	0.3	0.1		5.5	14.8	SSW	0.4	1.0	1.2	0.7	0.6	0.2	0.1	#		4.2	12.1
SW	0.6	1.0	1.5	2.0	1.8	1.4	0.5	0.2	#	9.0	17.5	SW	0.4	1.4	1.7	1.8	1.6	1.4	0.5	0.1		8.9	16.6
WSW	0.4	1.2	1.8	2.4	1.9	0.9	0.3	0.2		9.1	15.9	WSW	0.3	1.3	2.4	3.1	1.9	0.8	0.3	#		10.1	15.2
W	0.7	1.9	2.7	2.4	0.7	0.2	#			8.6	11.3	W	0.8	1.9	3.1	3.4	0.8	0.3	#			10.3	11.7
WNW	0.6	2.2	4.4	4.3	1.8	0.8	0.1			14.2	13.2	WNW	0.5	1.9	4.3	6.2	3.4	1.2	0.2	#		17.7	14.8
NW	1.0	2.8	5.2	5.1	1.6	0.6	#			16.3	12.1	NW	0.8	2.9	4.0	4.3	2.7	1.4	0.3	#		16.4	14.0
NNW	1.1	2.5	1.8	0.5	0.1					6.0	7.0	NNW	0.9	2.0	1.3	0.4	0.1	#				4.7	7.1
VAR	0.7	0.1								0.8	1.9	VAR	0.7	0.2								0.9	2.4
CALM	0.5									0.5		CALM	0.3									0.3	
TOTAL	14.8	24.1	24.0	20.8	9.9	4.7	1.2	0.5	#	100.0	11.2	TOTAL	12.2	23.2	23.3	22.6	11.8	5.4	1.4	0.1		100.0	11.8

DENOTES LESS THAN 0.05%

DENOTES LESS THAN 0.05%

TABLE 43 (CONTD)
PERCENTAGE FREQUENCY DISTRIBUTION OF 200-FOOT WIND DIRECTION VS SPEED
1955-70

MAY											JUNE												
DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	1.0	1.8	0.9	0.5	#					4.2	6.8	N	0.6	2.0	1.1	0.4	#				4.1	7.0	
NNE	0.5	1.2	0.9	0.5	0.1					3.2	8.0	NNE	0.4	1.7	1.1	0.6	0.2	#			4.0	8.6	
NE	0.9	1.5	1.1	0.5	0.1	#				4.1	7.5	NE	0.6	1.4	1.0	0.5	0.3	0.1			3.9	9.1	
ENE	0.6	1.1	0.6	0.1	#					2.4	6.2	ENE	0.3	1.1	0.5	0.2	0.1	#	#		2.2	7.7	
E	0.7	1.2	0.4	0.1	#					2.4	5.4	E	0.5	1.3	0.4	0.2	#				2.4	6.3	
ESE	0.7	1.0	0.4	#						2.1	5.1	ESE	0.5	1.2	0.5	0.1					2.3	5.6	
SE	1.1	1.6	0.6	0.2	0.1					3.6	6.1	SE	0.6	1.7	0.4	0.1	#				2.8	5.9	
SSE	0.4	1.0	0.7	0.4	0.1	#				2.6	8.5	SSE	0.4	1.1	0.4	0.3	0.1	#	#		2.3	7.3	
S	0.5	1.4	0.6	0.2	0.1	#				2.8	6.8	S	0.6	1.2	0.4	0.1	#				2.3	6.0	
SSW	0.4	1.0	0.9	0.5	0.2	0.1	#			3.1	9.2	SSW	0.2	1.3	0.8	0.4	0.1	0.1	#		2.9	8.7	
SW	0.5	1.4	1.5	1.3	0.6	0.4	0.1			5.8	12.0	SW	0.5	1.6	1.7	1.3	0.3	0.2	#	#	5.6	10.6	
WSW	0.3	1.3	2.1	2.7	1.2	0.4	0.2	#		8.2	13.7	WSW	0.5	1.6	2.4	2.3	0.9	0.2	0.1	#	8.0	12.4	
W	0.9	1.9	3.3	2.9	0.8	0.1				9.9	11.0	W	0.5	2.1	3.3	2.9	0.8	0.1	#		9.7	11.3	
WNW	0.6	2.3	5.1	7.2	3.4	1.6	0.2	#	#	20.4	14.7	WNW	0.3	1.8	4.3	6.9	4.6	1.8	0.3	#	20.0	15.9	
NW	0.7	2.6	4.0	5.0	3.7	2.3	0.4	#		18.7	15.4	NW	0.6	2.4	4.0	5.6	4.9	3.3	0.5	#	21.3	16.7	
NNW	0.9	1.8	1.2	0.4	#					4.3	7.0	NNW	0.5	1.9	1.4	0.5	#	#			4.3	7.7	
VAR	1.2	0.5	#							1.7	2.9	VAR	0.7	0.9	#						1.6	3.6	
CALM	0.4									0.4		CALM	0.2								0.2		
TOTAL	12.3	24.6	24.3	22.5	10.4	4.9	0.9	#	#	100.0	11.3	TOTAL	8.5	26.3	23.7	22.4	12.3	5.8	0.9	#	100.0	12.0	

DENOTES LESS THAN 0.05%

DENOTES LESS THAN 0.05%

JULY											AUGUST												
DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	0.9	2.4	1.1	0.2	#					4.6	6.2	N	1.1	2.1	0.8	0.1	#				4.1	5.7	
NNE	0.7	2.0	1.2	0.3	#					4.2	7.0	NNE	0.8	2.0	0.9	0.3	#				4.0	6.4	
NE	0.9	2.1	1.0	0.3	0.1	#				4.4	6.6	NE	1.1	2.0	0.5	0.1	#	#			3.7	5.3	
ENE	0.4	1.2	0.4	0.2	#					2.2	6.2	ENE	0.7	1.1	0.3	0.1	#				2.2	5.4	
E	0.6	1.5	0.5	0.1						2.7	5.7	E	0.7	1.3	0.3	0.1	#				2.4	5.2	
ESE	0.6	1.3	0.4	#	#					2.3	5.4	ESE	0.7	1.6	0.5						2.8	5.1	
SE	0.7	1.7	0.3	0.1		#				2.8	5.6	SE	0.9	1.9	0.7	0.1					3.6	5.6	
SSE	0.3	1.0	0.5	0.1	#		#			1.9	6.5	SSE	0.3	1.1	0.5	0.3					2.2	7.0	
S	0.4	1.5	0.4	0.1	#	#	#			2.4	6.4	S	0.5	1.1	0.4	0.1	#	#			2.1	6.0	
SSW	0.3	1.2	0.6	0.2	0.1	#	#			2.4	7.9	SSW	0.4	1.1	0.7	0.3	0.1	#			2.6	7.9	
SW	0.5	1.5	1.4	1.2	0.5	0.2	0.1			5.4	11.1	SW	0.6	1.6	1.7	1.1	0.5	0.1	#		5.6	10.1	
WSW	0.4	1.4	2.1	1.8	0.8	0.4	0.1	#		7.0	12.8	WSW	0.5	1.5	2.0	2.1	0.7	0.1	0.1		7.0	11.6	
W	0.6	2.3	3.1	2.2	0.4	0.1	#			8.7	10.2	W	0.7	2.3	3.3	2.0	0.4	0.1	#		8.8	10.0	
WNW	0.6	2.1	4.5	8.0	3.5	1.6	0.2			20.5	15.0	WNW	0.6	2.4	5.6	7.7	3.2	1.2	0.2		20.9	14.2	
NW	0.6	2.6	4.0	5.5	5.1	3.4	0.3			21.5	16.5	NW	0.9	2.9	4.4	5.4	4.3	2.4	0.3		20.6	15.2	
NNW	0.6	1.9	1.2	0.4	0.1					4.2	7.4	NNW	0.7	2.5	1.3	0.4	#				4.9	6.9	
VAR	1.4	1.1	#							2.5	3.3	VAR	1.3	0.8							2.1	3.1	
CALM	0.2									0.2		CALM	0.3								0.3		
TOTAL	10.7	28.8	22.7	20.7	10.6	5.7	0.7	#		100.0	11.3	TOTAL	12.8	29.3	23.9	20.2	9.2	3.9	0.6		100.0	10.5	

DENOTES LESS THAN 0.05%

DENOTES LESS THAN 0.05%

TABLE 43 (CONTD)
PERCENTAGE FREQUENCY DISTRIBUTION OF 200-FOOT WIND DIRECTION VS SPEED
1955-70

SEPTEMBER												OCTOBER											
DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	1.4	2.6	1.3	0.4	#		#			5.7	6.3	N	2.1	2.1	0.6	0.2	#					5.0	4.9
NNE	1.2	1.9	1.4	0.6	0.2	0.1				5.4	7.7	NNE	1.7	1.6	0.5	0.2	#					4.0	4.9
NE	1.5	1.6	0.8	0.5	0.2	0.1	#			4.7	7.3	NE	2.2	1.2	0.3	0.1	0.1	0.1				4.0	4.3
ENE	1.1	1.2	0.3	0.1	0.1					2.8	5.1	ENE	1.5	0.8	0.1	#	0.1	#				2.5	3.9
E	1.3	1.0	0.2	0.1						2.6	4.3	E	1.7	1.0	0.1	#						2.8	3.5
ESE	1.2	1.6	0.3	#						3.1	4.4	ESE	1.8	1.4	0.3	#						3.5	3.8
SE	1.3	1.9	0.6	0.1	#					3.9	5.4	SE	2.1	1.8	0.7	0.2	#					4.8	5.0
SSE	0.7	1.2	0.8	0.3	#					3.0	6.6	SSE	0.9	1.0	0.8	0.5	0.1	#				3.3	7.4
S	0.5	0.9	0.5	0.1	0.1	#	#			2.1	6.8	S	1.0	0.9	0.4	0.3	0.2	0.1	#			2.9	8.3
SSW	0.4	1.0	0.7	0.3	0.1	0.2	#			2.7	9.3	SSW	0.5	1.0	0.6	0.6	0.5	0.4	0.1	#	#	3.7	13.1
SW	0.5	1.2	1.2	1.1	0.7	0.5	0.1	#		5.3	13.3	SW	0.6	1.0	1.1	1.2	1.2	1.0	0.3	#		6.4	15.9
WSW	0.5	1.2	1.9	1.9	0.9	0.5	0.1	#		7.0	13.1	WSW	0.7	1.2	1.7	2.0	1.3	0.4	0.1	#		7.4	13.4
W	0.8	1.9	3.2	1.8	0.4	0.2	#			8.3	10.2	W	1.0	1.9	2.5	2.0	0.4	0.1	#			7.9	9.8
WNW	0.9	2.4	4.5	5.8	2.3	0.8	0.1			16.8	13.3	WNW	0.9	2.8	4.5	4.1	1.2	0.2	#			13.7	11.4
NW	1.1	2.9	4.5	5.2	3.0	1.3	0.1			18.1	13.6	NW	1.7	3.4	5.4	4.9	1.8	0.4	0.1			17.7	11.4
NNW	1.2	2.6	1.7	0.7	#	#				6.2	7.3	NNW	2.0	3.1	1.9	0.5	0.1	#	#			7.6	6.3
VAR	1.1	0.3	#							1.4	2.5	VAR	0.9	0.1								1.0	1.6
CALM	0.8									0.8		CALM	1.7									1.7	
TOTAL	17.5	27.4	23.9	19.0	8.0	3.7	0.4	#		100.0	10.0	TOTAL	25.0	26.3	21.5	16.8	7.0	2.7	0.6	#	#	100.0	9.0

DENOTES LESS THAN 0.05%

DENOTES LESS THAN 0.05%

NOVEMBER												DECEMBER											
DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	2.4	1.7	0.8	0.4	0.1					5.4	5.3	N	2.2	1.8	0.5	0.2	0.1					4.8	4.9
NNE	1.8	1.0	0.5	0.5	0.1	#				3.9	5.6	NNE	1.6	1.0	0.3	0.2	#					3.1	4.5
NE	2.0	0.9	0.2	0.1	#					3.2	3.5	NE	1.4	0.9	0.1	#						2.4	3.4
ENE	1.6	0.6	0.1							2.3	2.9	ENE	1.5	0.7	#	#						2.2	2.9
E	1.8	0.7	0.1	#						2.6	3.0	E	1.6	0.7	0.1	#						2.4	3.1
ESE	2.1	1.2	0.1	#	#					3.4	3.3	ESE	2.0	0.9	0.3	0.1	#					3.3	3.9
SE	2.5	1.6	0.5	0.2	0.1					4.9	4.7	SE	2.6	1.2	0.4	0.2	#	#				4.4	4.1
SSE	1.1	1.2	0.5	0.2	0.2	0.1	#			3.3	6.8	SSE	1.6	1.0	0.4	0.2	0.1	0.1	#			3.4	5.8
S	1.1	0.9	0.3	0.5	0.4	0.2	#	#		3.4	9.4	S	1.4	0.8	0.2	0.4	0.2	0.2	0.1	#		3.3	8.1
SSW	1.0	0.7	0.5	0.7	0.7	0.5	0.1	0.1		4.3	13.6	SSW	1.6	0.6	0.4	0.6	0.5	0.6	0.3	0.2	#	4.8	15.7
SW	1.0	0.8	0.9	1.3	1.3	0.7	0.2	0.1	#	6.3	14.9	SW	0.9	0.7	0.8	1.1	1.2	0.9	0.5	0.1	#	6.2	16.9
WSW	0.8	1.1	1.4	1.5	1.1	0.3	0.1	#	#	6.3	12.9	WSW	0.9	0.8	1.2	1.5	0.9	0.4	0.2	#		5.8	13.0
W	1.1	1.7	2.1	1.2	0.4	0.1	0.1	#		6.7	9.7	W	1.5	1.8	1.4	1.2	0.3	0.1	#			6.3	8.5
WNW	1.4	2.7	3.8	3.3	0.7	0.3	#			12.2	10.6	WNW	1.5	2.7	4.2	2.9	0.6	0.1	#			12.0	9.8
NW	2.3	4.7	6.7	4.2	0.7	0.2	0.1	#		18.9	9.7	NW	2.3	4.6	8.1	5.5	1.0	0.1	#			21.6	10.0
NNW	2.6	3.3	2.1	0.6	#					8.6	6.1	NNW	2.5	3.2	2.1	0.7	#	#				8.5	6.3
VAR	0.8	#								0.8	1.4	VAR	0.8	0.1								0.9	1.7
CALM	3.4									3.4		CALM	4.6									4.6	
TOTAL	30.8	24.8	20.6	14.7	5.8	2.4	0.6	0.2	#	100.0	8.3	TOTAL	32.5	23.5	20.5	14.8	4.9	2.5	1.0	0.3	#	100.0	8.3

DENOTES LESS THAN 0.05%

DENOTES LESS THAN 0.05%

TABLE 43 (CONTD)
 PERCENTAGE FREQUENCY DISTRIBUTION OF 200-FOOT WIND DIRECTION
 VS SPEED
 1955-70

COMPOSITE OF ALL MONTHS

DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	1.6	2.1	0.9	0.3	0.1	#	#			5.0	6.0
NNE	1.2	1.4	0.8	0.5	0.1	0.1	#			4.1	7.0
NE	1.4	1.3	0.6	0.2	0.1	#	#			3.6	6.0
ENE	0.9	0.9	0.3	0.1	#	#	#			2.2	5.0
E	1.1	1.0	0.3	0.1	#	#				2.5	4.5
ESE	1.3	1.1	0.3	#	#					2.7	4.3
SE	1.5	1.6	0.6	0.2	#	#	#			3.9	5.3
SSE	0.8	1.0	0.6	0.3	0.1	#	#			2.8	7.1
S	0.7	1.0	0.4	0.3	0.2	0.1	#	#	#	2.7	8.2
SSW	0.5	0.9	0.7	0.5	0.4	0.3	0.1	0.1	#	3.5	12.5
SW	0.6	1.2	1.3	1.3	1.0	0.7	0.2	0.1	#	6.4	14.6
WSW	0.6	1.2	1.8	2.0	1.1	0.5	0.2	#	#	7.4	13.6
W	0.9	1.9	2.7	2.1	0.5	0.1	#	#		8.2	10.4
WNW	0.9	2.3	4.5	5.4	2.2	0.8	0.1	#	#	16.2	13.3
NW	1.3	3.4	5.5	5.3	2.6	1.3	0.2	#		19.6	13.0
NNW	1.4	2.6	1.6	0.5	0.1	#	#			6.2	6.7
VAR	0.9	0.4	#							1.3	2.6
CALM	1.5									1.5	
TOTAL	19.1	25.3	22.9	19.1	8.5	3.9	0.8	0.2	#	100.0	10.2

DENOTES LESS THAN 0.05%

TABLE 44
PERCENTAGE FREQUENCY DISTRIBUTION OF 400-FOOT WIND DIRECTION VS SPEED
1955-70

JANUARY											FEBRUARY												
DIRECTION	SPEED CLASS (MPH)									AVG SPEED	DIRECTION	SPEED CLASS (MPH)									AVG SPEED		
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46			TOTAL	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		>46	TOTAL
N	2.3	1.9	0.6	0.3	0.2	0.2	0.1			5.6	6.3	N	2.1	2.0	0.8	0.5	0.2	0.1	#			5.7	6.3
NNE	1.5	1.0	0.4	0.3	0.1	0.1	0.1			3.5	6.9	NNE	1.2	1.0	0.7	0.8	0.3	0.2	0.1			4.3	9.7
NE	1.3	0.7	0.2	0.1	#	0.1				2.4	5.1	NE	1.3	0.7	0.4	0.1	0.2	#				2.7	6.1
ENE	1.2	0.6	0.1	#	#					1.9	3.8	ENE	1.0	0.6	0.2	#						1.8	3.8
E	1.9	0.6	0.1	#						2.6	2.9	E	1.5	0.7	0.1	#						2.3	3.2
ESE	1.7	0.8	0.1	#	#	#				2.6	3.2	ESE	1.5	0.6	0.2	#						2.3	3.3
SE	2.3	1.2	0.5	0.2	0.1	0.1	#	#		4.4	4.9	SE	1.8	1.0	0.5	0.2	#					3.5	4.9
SSE	1.1	0.7	0.4	0.3	0.2	0.2	0.1	#		3.0	8.5	SSE	1.0	0.5	0.3	0.2	0.2	#	#			2.2	7.2
S	0.9	0.6	0.4	0.4	0.3	0.2	0.1	0.1	#	3.0	11.5	S	0.8	0.6	0.2	0.2	0.2	0.2	0.1	#		2.3	9.6
SSW	0.6	0.5	0.5	0.6	0.7	0.6	0.3	0.2	0.1	4.1	17.6	SSW	0.5	0.5	0.5	0.6	0.4	0.4	0.4	0.1	0.1	3.5	16.9
SW	0.8	0.6	0.7	1.1	1.4	1.2	0.5	0.2	#	6.5	18.2	SW	0.7	0.7	0.8	1.1	1.3	1.2	0.8	0.3	0.1	7.0	20.0
WSW	0.7	1.0	1.1	1.2	1.0	0.6	0.3	0.1		6.0	15.1	WSW	0.5	0.8	1.2	1.7	1.4	0.6	0.3	0.1	#	6.6	16.0
W	1.1	1.4	1.5	1.1	0.5	0.2	#	#		5.8	10.1	W	1.1	1.8	2.0	2.3	1.0	0.4	0.1	#	#	8.7	12.1
WNW	1.4	2.3	3.1	3.2	0.9	0.2	#	#		11.1	10.8	WNW	1.3	2.2	3.3	3.8	1.3	0.5	0.2	#	#	12.6	12.1
NW	2.1	4.5	7.7	6.8	1.2	0.2	#	#		22.5	10.7	NW	1.9	4.2	7.1	6.3	1.5	0.4	0.22	#		21.6	11.4
NNW	2.2	3.7	2.0	0.7	0.1	#	#			8.7	6.5	NNW	1.7	3.2	2.4	1.0	0.2	#				8.5	7.5
VAR	0.8	0.1								0.9	1.7	VAR	0.8	#								0.8	1.5
CALM	5.3									5.3		CALM	3.5									3.5	
TOTAL	27.2	22.2	19.4	16.3	6.7	3.9	1.5	0.6	0.1	100.0	9.4	TOTAL	24.2	21.1	20.7	18.8	8.2	4.0	2.2	0.5	0.2	100.0	10.5
# DENOTES LESS THAN 0.05%											# DENOTES LESS THAN 0.05%												
MARCH											APRIL												
DIRECTION	SPEED CLASS (MPH)									AVG SPEED	DIRECTION	SPEED CLASS (MPH)									AVG SPEED		
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46			TOTAL	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		>46	TOTAL
N	1.2	2.0	1.2	0.9	0.2	#				5.5	7.8	N	1.1	1.8	0.8	0.6	0.1	0.1	#			4.5	7.6
NNE	0.9	1.3	0.8	0.9	0.4	0.1	#			4.4	9.3	NNE	0.7	0.9	0.9	0.6	0.3	0.1	0.1			3.6	9.8
NE	1.1	1.1	0.5	0.3	0.2	0.1	#			3.3	7.3	NE	1.0	1.1	0.5	0.3	0.1	#				3.0	6.7
ENE	0.6	0.9	0.2	#	#	#				1.7	5.8	ENE	0.7	0.8	0.5	0.2	0.1					2.3	6.9
E	1.0	0.9	0.2	0.2	#					2.3	5.1	E	0.8	1.0	0.4	0.2	0.1					2.5	6.1
ESE	0.8	0.8	0.3	#	#					1.9	4.9	ESE	0.6	0.9	0.3	0.1						1.9	5.3
SE	0.8	1.6	0.9	0.4	0.1	#				3.8	7.0	SE	0.8	1.3	0.7	0.3	0.1					3.2	7.0
SSE	0.6	0.8	0.8	0.5	0.2	0.1				3.0	9.1	SSE	0.4	0.9	0.6	0.5	0.1	#	#			2.5	8.8
S	0.5	0.8	0.7	0.5	0.3	0.2	#			3.0	11.1	S	0.4	1.0	0.6	0.4	0.2	#				2.6	8.6
SSW	0.4	0.6	0.9	1.2	0.8	0.6	0.4	0.2	#	5.1	16.9	SSW	0.3	1.0	1.1	0.7	0.7	0.3	0.1	#	#	4.2	13.0
SW	0.6	1.0	1.3	1.8	1.9	1.7	0.9	0.3	0.2	9.7	19.4	SW	0.4	1.0	1.5	1.7	1.6	1.5	0.8	0.2	#	8.7	18.8
WSW	0.2	0.9	1.4	2.1	2.1	1.3	0.6	0.2	0.1	8.9	18.2	WSW	0.4	0.9	1.8	2.4	2.2	1.2	0.4	0.1	#	9.4	17.1
W	0.7	1.4	2.0	2.3	1.1	0.4	0.1	#		8.0	12.8	W	0.6	1.5	2.2	3.5	1.5	0.6	0.1	#		10.0	13.5
WNW	0.8	1.6	3.2	4.0	2.2	1.4	0.6	#		13.8	15.4	WNW	0.6	1.8	3.5	5.3	4.3	2.8	0.9	0.1		19.3	17.3
NW	0.9	2.7	5.6	5.3	1.6	0.8	0.2	#		17.1	12.7	NW	0.7	2.5	4.0	3.9	2.4	1.7	0.7	0.2		16.1	15.1
NNW	1.0	2.7	2.3	0.8	0.2					7.0	7.9	NNW	0.8	1.8	1.5	0.7	0.1	#				4.9	7.8
VAR	0.6	#								0.6	1.6	VAR	0.7	0.1								0.8	2.3
CALM	0.8									0.8		CALM	0.4									0.4	
TOTAL	13.5	21.1	22.3	21.2	11.3	6.7	2.8	0.7	0.3	100.0	12.5	TOTAL	11.4	20.3	20.9	21.4	13.9	8.3	3.1	0.6	#	100.0	13.3
# DENOTES LESS THAN 0.05%											# DENOTES LESS THAN 0.05%												

TABLE 44 (CONTD)
PERCENTAGE FREQUENCY DISTRIBUTION OF 400-FOOT WIND DIRECTION VS SPEED
1955-70

MAY												JUNE											
DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	0.9	1.8	1.0	0.7	#	#				4.4	7.9	N	0.7	1.8	1.2	0.4	0.1					4.2	7.3
NNE	0.6	1.2	1.0	0.7	0.2	#				3.7	8.8	NNE	0.6	1.4	1.1	0.6	0.3	0.1				4.1	9.1
NE	0.8	1.3	0.9	0.5	0.2	0.1	#			3.8	8.2	NE	0.5	1.3	0.9	0.6	0.4	0.1				3.8	10.1
ENE	0.6	1.1	0.6	0.2	0.1	#				2.6	6.8	ENE	0.3	1.0	0.5	0.2	0.1	#	#			2.1	8.1
E	0.7	1.1	0.4	0.1	#					2.3	5.5	E	0.5	1.1	0.5	0.1	0.1	#				2.3	6.6
ESE	0.5	1.1	0.4	0.1						2.1	5.6	ESE	0.5	1.1	0.4	0.1						2.1	5.8
SE	0.9	1.4	0.7	0.3	0.1	0.1				3.5	7.0	SE	0.7	1.5	0.4	0.2	#	#				2.8	6.0
SSE	0.4	0.9	0.7	0.4	0.2	#	#			2.6	9.0	SSE	0.4	1.0	0.3	0.3	0.1		#			2.1	7.8
S	0.5	1.1	0.6	0.2	0.1	#	#			2.5	7.2	S	0.4	1.2	0.4	0.1	#	#				2.1	6.2
SSW	0.3	0.9	0.9	0.5	0.2	0.1	#	#		2.9	10.1	SSW	0.3	1.2	0.8	0.4	0.2	0.1	#	#		2.0	9.3
SW	0.4	1.2	1.6	1.3	0.7	0.5	0.1	#		5.8	13.1	SW	0.5	1.4	1.5	1.4	0.5	0.2	0.1			5.6	11.1
WSW	0.3	1.0	1.5	2.2	1.3	0.6	0.2	0.1		7.2	15.2	WSW	0.3	1.3	1.9	2.2	1.2	0.4	0.1	0.1	#	7.5	13.7
W	0.7	1.6	2.1	3.2	1.4	0.3				9.3	12.6	W	0.5	1.6	2.6	3.0	1.3	0.3	#			9.3	12.6
WNW	0.5	1.9	3.8	6.6	5.2	2.9	1.2	0.2	#	22.3	17.6	WNW	0.3	1.5	3.2	5.7	5.9	3.8	1.4	0.1		21.9	18.9
NW	1.0	2.5	3.5	4.2	3.6	2.6	0.9	0.1	#	18.4	16.3	NW	0.5	2.1	3.5	5.0	4.0	3.8	1.5	0.1		20.5	18.1
NNW	0.7	1.8	1.4	0.6	0.1					4.6	7.9	NNW	0.5	1.9	1.6	0.6	0.1		#			4.7	8.0
VAR	1.1	0.4	#							1.5	2.6	VAR	0.8	0.6	#							1.4	3.3
CALM	0.4									0.4		CALM	0.3									0.3	
TOTAL	11.3	22.3	21.1	21.8	13.4	7.2	2.4	0.4	#	100.0	12.7	TOTAL	8.6	230.0	20.8	20.9	14.3	8.8	3.1	0.3	#	100.0	13.4

DENOTES

DENOTES LESS THAN 0.05%

JULY												AUGUST											
DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	0.9	2.4	1.2	0.3	0.1	#				4.9	6.7	N	1.0	2.2	1.1	0.2	#	#				4.5	6.3
NNE	0.6	1.9	1.3	0.4	0.1	#				4.3	7.5	NNE	0.7	1.7	0.8	0.3	0.1	#				3.6	6.9
NE	0.9	1.9	1.0	0.4	0.1	#				4.3	6.8	NE	1.1	1.8	0.6	0.1	0.1	#				3.7	5.6
ENE	0.4	1.2	0.5	0.2	0.1					2.4	6.8	ENE	0.7	1.1	0.3	0.1	#	#				2.2	5.4
E	0.5	1.3	0.5	0.1	#					2.4	6.0	E	0.7	1.1	0.3	0.1	#	#				2.2	5.5
ESE	0.5	1.2	0.5	0.1	#					2.3	5.8	ESE	0.6	1.3	0.4	#						2.3	5.4
SE	0.6	1.6	0.4	0.1	#	#				2.7	5.9	SE	0.8	1.7	0.8	0.2	#	#				3.5	6.0
SSE	0.4	1.1	0.4	0.2	#		#			2.1	6.7	SSE	0.4	1.0	0.5	0.4	0.1					2.4	7.7
S	0.4	1.3	0.3	0.1	#	#	#			2.1	6.5	S	0.5	1.1	0.4	0.1	#	#				2.1	6.1
SSW	0.2	1.0	0.6	0.2	0.1	0.1		#		2.2	8.3	SSW	0.3	1.0	0.7	0.4	0.1	0.1				2.6	8.5
SW	0.4	1.3	1.4	1.3	0.6	0.3	0.1	#		5.4	12.4	SW	0.6	1.4	1.4	1.0	0.6	0.3	#	#		5.3	11.2
WSW	0.3	1.1	1.8	1.6	1.1	0.4	0.2	0.1		6.6	14.1	WSW	0.3	1.1	1.5	2.0	1.2	0.3	0.1			6.5	13.5
W	0.5	1.5	2.3	2.5	0.7	0.1	#	#		7.6	11.7	W	0.6	1.8	2.2	2.3	0.7	0.1	#	#		7.7	11.3
WNW	0.7	2.1	3.3	6.5	5.8	3.1	1.2	0.1		22.8	17.7	WNW	0.5	2.3	4.4	6.9	5.5	2.6	1.1	0.1		23.4	17.0
NW	0.7	2.3	3.4	5.0	3.9	4.0	1.3	0.1		20.7	17.8	NW	0.9	2.6	4.3	5.2	3.9	2.7	1.1	0.1		20.8	16.3
NNW	0.5	2.0	1.6	0.6	0.1	#				4.8	8.1	NNW	0.7	2.2	1.5	0.5	#					4.9	7.3
VAR	1.4	0.6								2.0	3.0	VAR	1.3	0.6								1.9	2.9
CALM	0.3									0.3		CALM	0.4									0.4	
TOTAL	10.2	25.8	20.5	19.6	12.7	8.0	2.8	0.3		100.0	12.7	TOTAL	12.1	26.0	21.2	19.8	12.3	6.1	2.3	0.2		100.0	11.9

DENOTES LESS THAN 0.05%

DENOTES LESS THAN 0.05%

TABLE 44 (CONTD)
PERCENTAGE FREQUENCY DISTRIBUTION OF 400-FOOT WIND DIRECTION VS SPEED
1955-70

SEPTEMBER												OCTOBER											
DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	1.2	2.4	1.6	0.6	0.1	#	#			5.9	7.3	N	2.0	2.0	0.8	0.3	#		#			5.1	5.5
NNE	1.0	1.7	1.3	0.9	0.3	0.1	#			5.3	8.9	NNE	1.5	1.3	0.4	0.4	0.1					3.7	5.6
NE	1.2	1.5	0.8	0.5	0.3	0.2	#			4.5	8.2	NE	1.8	0.8	0.3	0.1	0.1	0.1				3.2	5.0
ENE	0.8	1.0	0.3	0.1	0.1	#				2.3	5.7	ENE	1.3	0.6	0.2	#	#	0.1				2.2	4.3
E	1.2	1.2	0.2	0.1	#					2.7	4.6	E	1.6	1.0	0.2	0.1	#					2.9	3.7
ESE	1.1	1.2	0.3	#						2.6	4.4	ESE	1.5	1.3	0.3	#						3.1	4.2
SE	1.0	2.0	0.6	0.2	#	#				3.8	6.0	SE	1.9	1.6	0.8	0.4	#					4.7	5.8
SSE	0.6	1.0	0.7	0.3	#					2.6	7.0	SSE	0.7	0.8	0.8	0.4	0.2	#				2.9	8.3
S	0.5	0.8	0.6	0.1	0.1	#				2.1	7.0	S	0.6	0.7	0.4	0.4	0.2	0.2	0.1			2.6	10.2
SSW	0.3	0.8	0.6	0.4	0.2	0.1	0.1	#		2.5	11.0	SSW	0.4	0.6	0.6	0.6	0.6	0.4	0.2	0.1	#	3.5	15.6
SW	0.4	0.9	1.0	1.1	0.9	0.5	0.2	0.1		5.1	14.9	SW	0.5	0.7	1.1	1.2	1.2	1.1	0.6	0.1	#	6.5	18.0
WSW	0.5	1.0	1.4	1.8	1.1	0.7	0.2	#		6.7	14.6	WSW	0.6	1.0	1.5	2.0	1.6	0.6	0.2	0.1	#	7.6	15.2
W	0.6	1.7	2.1	2.1	0.8	0.3	0.1			7.7	11.7	W	0.9	1.8	1.6	1.9	0.7	0.2	#			7.1	10.8
WNW	0.8	1.8	3.8	4.9	3.3	1.9	0.5	#		17.0	15.7	WNW	0.9	2.3	3.5	4.2	2.1	0.6	0.2			13.8	13.1
NW	1.2	2.9	4.7	5.4	2.9	1.9	0.5	0.1		19.6	14.5	NW	1.7	3.5	6.0	5.4	1.9	0.9	0.2	#		19.6	12.0
NNW	1.1	2.8	2.5	0.9	0.2	#				7.5	8.0	NNW	1.6	3.4	2.2	0.7	0.1	#	#			8.0	7.0
VAR	1.0	0.1	#							1.1	2.2	VAR	0.8	0.1								0.9	1.6
CALM	1.0									1.0		CALM	2.4									2.4	
TOTAL	15.5	24.8	22.5	19.4	10.3	5.7	1.6	0.2		100.0	11.3	TOTAL	22.7	23.5	20.7	18.1	8.8	4.2	1.5	0.3	#	100.0	10.1
# DENOTES LESS THAN 0.05%												# DENOTES LESS THAN 0.05%											
NOVEMBER												DECEMBER											
DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED	DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46				0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	>46		
N	2.2	1.8	0.8	0.6	0.2	#				5.6	6.2	N	2.3	1.7	0.7	0.3	0.2					5.2	5.4
NNE	1.6	1.0	0.5	0.4	0.1	#				3.6	6.1	NNE	1.3	0.9	0.3	0.2	0.1					2.8	5.3
NE	1.7	0.8	0.2	0.1	#					2.8	3.8	NE	1.6	0.6	0.1	#						2.3	3.1
ENE	1.2	0.6	0.1							1.9	3.1	ENE	1.3	0.5	0.1							1.9	2.8
E	1.9	0.7	0.1	#						2.7	3.0	E	1.6	0.8	0.1	#						2.5	3.2
ESE	1.5	1.1	0.2	#						2.8	3.7	ESE	1.8	0.7	0.2	0.1	#					2.8	3.8
SE	2.2	1.7	0.5	0.3	0.1	#				4.8	4.9	SE	2.4	1.3	0.4	0.2	0.1	#				4.4	4.7
SSE	1.0	1.0	0.4	0.2	0.2	0.1	#	#		2.9	7.2	SSE	1.3	0.8	0.3	0.2	0.1	0.1	#			2.8	6.0
S	0.8	0.6	0.5	0.5	0.4	0.3	0.1		#	3.2	11.3	S	1.0	0.7	0.3	0.4	0.3	0.2	0.1	#	#	3.0	10.1
SSW	0.7	0.5	0.5	0.6	0.8	0.6	0.3	0.1	0.1	4.2	16.5	SSW	0.6	0.5	0.5	0.5	0.6	0.6	0.4	0.3	0.1	4.1	18.8
SW	0.8	0.6	0.6	1.3	1.3	1.0	0.5	0.2	#	6.3	17.8	SW	0.7	0.8	0.7	1.1	1.2	1.0	0.7	0.4	0.1	6.7	19.6
WSW	0.7	1.0	1.1	1.5	1.2	0.6	0.2	#	#	6.3	14.7	WSW	0.7	0.7	1.0	1.6	1.2	0.5	0.3	0.1	#	6.1	15.5
W	1.0	1.8	1.6	1.6	0.6	0.2	0.1	0.1	#	7.0	11.2	W	1.3	1.4	1.4	1.1	0.5	0.1	#			5.8	9.6
WNW	1.5	2.5	2.8	2.5	0.8	0.6	0.1	#		10.8	11.3	WNW	1.6	2.4	3.6	2.8	0.8	0.3	#	#		11.5	10.4
NW	2.3	4.3	6.8	5.2	1.2	0.3	0.1	#		20.2	10.5	NW	2.5	4.1	7.4	5.8	1.2	0.2	#			21.2	10.4
NNW	2.6	3.3	2.4	1.0	0.1	#				9.4	6.7	NNW	2.2	3.1	2.9	1.1	#	#				9.3	7.2
VAR	1.0									1.0	1.2	VAR	0.8	0.1								0.9	1.7
CALM	4.5									4.5		CALM	6.6									6.6	
TOTAL	29.2	23.3	19.1	15.8	7.0	3.7	1.4	0.4	0.1	100.0	9.2	TOTAL	31.6	21.1	20.0	15.4	6.3	3.0	1.5	0.8	0.2	100.0	9.1
# DENOTES LESS THAN 0.05%												# DENOTES LESS THAN 0.05%											

TABLE 44 (CONTD)
 PERCENTAGE FREQUENCY DISTRIBUTION OF 400-FOOT WIND DIRECTION
 VS SPEED
 1955-70

COMPOSITE OF ALL MONTHS

DIRECTION	SPEED CLASS (MPH)									TOTAL	AVG SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	> 46		
N	1.5	2.0	1.0	0.5	0.1	#	#			5.1	6.6
NNE	1.0	1.3	0.8	0.5	0.2	0.1	#			3.9	7.9
NE	1.2	1.1	0.5	0.3	0.1	0.1	#			3.3	6.6
ENE	0.8	0.8	0.3	0.1	#	#	#			2.0	5.4
E	1.2	0.9	0.3	0.1	#	#				2.5	4.6
ESE	1.0	1.0	0.3	#	#	#				2.3	4.5
SE	1.3	1.5	0.6	0.2	0.1	#	#	#		3.7	5.8
SSE	0.7	0.9	0.5	0.3	0.1	#	#	#		2.5	7.8
S	0.6	0.9	0.5	0.3	0.2	0.1	#	#	#	2.6	9.1
SSW	0.4	0.8	0.7	0.5	0.4	0.3	0.2	0.1	#	3.4	14.3
SW	0.6	1.0	1.1	1.3	1.1	0.9	0.4	0.1	#	6.5	16.7
WSW	0.5	1.0	1.4	1.9	1.4	0.7	0.3	0.1	#	7.3	15.4
W	0.8	1.6	2.0	2.3	0.9	0.3	0.1	#	#	8.0	11.8
WNW	0.9	2.1	3.5	4.7	3.2	1.7	0.6	0.1	#	16.8	15.6
NW	1.4	3.1	5.3	5.3	2.4	1.6	0.6	0.1	#	19.8	13.8
NNW	1.3	2.7	2.0	0.8	0.1	#	#			6.9	7.4
VAR	0.9	0.2	#							1.1	2.3
CALM	2.2									2.2	
TOTAL	18.3	22.9	20.8	19.1	10.3	5.8	2.2	0.5	#	100.0	11.3

DENOTES LESS THAN 0.05%

TABLE 45
COMPOSITE HOUR VS. 50 FOOT DIRECTION

MONTH 1

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	3.4	1.2	1.2	2.4	2.4	2.8	3.4	4.6	4.8	8.1	6.0	7.1	18.7	19.2	4.0	4.2	1.4	4.8	496.
1	2.2	1.6	1.4	1.0	2.8	3.4	2.8	6.5	5.8	7.1	5.6	8.5	16.7	21.2	4.0	3.2	1.0	5.0	496.
2	2.4	1.2	1.0	1.6	3.0	4.4	3.4	4.2	3.8	8.9	6.7	6.9	17.7	18.3	4.6	4.4	1.0	6.2	496.
3	1.8	2.4	1.2	0.4	2.4	5.4	3.4	4.0	5.6	6.5	6.7	8.9	14.7	19.8	4.4	2.8	3.8	5.6	496.
4	3.0	1.0	2.2	1.4	1.4	5.0	3.4	3.8	6.5	6.9	6.5	6.2	17.7	20.4	5.6	2.2	1.8	4.8	496.
5	2.2	2.4	0.8	1.6	2.8	4.4	3.0	5.0	4.0	6.6	5.6	5.2	18.3	18.7	6.4	3.4	2.2	6.6	497.
6	1.4	1.0	1.6	2.0	3.2	5.0	2.4	4.0	4.2	6.7	5.6	8.9	13.5	19.8	6.9	4.8	2.2	6.7	496.
7	1.6	2.4	1.2	2.0	2.2	5.4	4.2	3.0	5.6	6.2	6.0	8.9	12.3	18.7	8.1	3.4	2.2	6.2	496.
8	2.8	1.2	1.2	3.0	2.0	5.6	3.6	4.0	5.6	4.8	5.4	5.8	13.3	23.0	5.4	5.0	1.4	6.5	496.
9	4.8	3.0	1.6	2.0	2.8	4.4	3.6	4.4	3.4	6.7	3.8	4.8	11.7	23.6	6.7	5.4	1.6	5.4	496.
10	6.0	5.8	3.0	1.4	2.4	5.8	2.6	2.4	5.2	5.0	5.8	2.2	10.7	20.4	9.3	6.0	1.6	4.0	496.
11	6.2	7.3	4.0	3.6	2.2	3.2	2.2	3.2	4.2	6.7	5.0	2.2	7.9	20.0	11.1	6.7	1.2	3.0	496.
12	6.9	7.3	2.6	4.0	4.2	4.0	2.4	2.0	4.8	5.6	4.6	2.0	6.5	20.4	11.1	8.5	1.2	1.8	496.
13	7.7	5.8	4.0	4.2	5.8	4.8	3.2	2.2	6.0	4.8	6.0	1.0	4.8	18.3	8.9	7.3	2.0	2.8	496.
14	4.4	6.2	5.0	4.0	6.2	5.4	3.2	3.4	4.6	5.4	4.8	2.6	6.9	15.9	10.1	8.9	1.0	1.6	496.
15	5.6	4.8	3.2	4.2	4.8	5.6	4.0	3.8	5.6	5.4	4.0	2.4	8.5	19.0	6.2	6.0	0.6	5.8	496.
16	4.0	3.0	2.8	4.4	3.2	6.5	4.6	2.8	4.8	5.8	4.6	2.0	12.9	21.2	4.6	4.6	0.2	7.7	496.
17	2.2	2.6	1.4	2.6	3.2	5.8	4.8	3.0	4.2	8.1	5.0	6.5	17.3	16.9	4.6	3.0	0.8	7.7	496.
18	0.8	1.8	0.8	3.2	2.6	4.4	4.2	2.2	4.2	8.1	6.2	8.9	16.7	17.9	5.8	3.6	0.6	7.7	496.
19	1.2	1.8	0.8	2.4	0.8	4.8	3.2	3.0	4.4	7.9	9.3	9.5	16.7	19.8	3.6	3.8	1.0	5.8	496.
20	1.8	1.8	1.2	1.2	2.4	3.2	2.6	2.4	5.4	6.7	8.9	8.5	19.8	17.3	6.7	3.2	0.4	6.5	496.
21	2.4	1.0	1.0	1.2	2.2	4.2	1.6	4.4	3.4	7.3	6.7	10.3	18.7	20.0	5.8	1.6	2.4	5.6	496.
22	3.4	1.2	1.2	1.4	1.4	3.8	0.8	3.0	5.0	8.9	7.5	8.3	18.3	19.2	4.6	3.8	1.2	6.9	496.
23	2.2	2.2	0.4	2.2	0.8	4.2	2.4	4.4	5.0	7.1	6.7	9.5	20.2	18.1	5.0	3.0	0.8	5.6	496.
TOTAL	3.4	2.9	1.9	2.4	2.8	4.7	3.1	3.6	4.9	6.7	6.0	6.1	14.2	19.5	6.4	4.6	1.4	5.4	11905.

MONTH 2

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	2.0	1.5	0.7	0.9	1.5	2.2	2.9	3.5	4.2	9.5	9.5	13.9	17.7	17.3	5.8	2.0	2.0	2.9	452.
1	1.5	1.1	0.4	1.3	2.0	4.4	4.4	2.0	2.9	7.7	8.6	15.0	18.1	17.3	4.2	3.3	2.0	3.5	452.
2	2.7	1.1	1.5	1.8	1.3	3.8	3.3	2.7	3.8	6.0	8.6	13.7	19.2	17.3	6.0	2.9	1.3	3.1	452.
3	3.1	2.7	1.1	1.1	2.4	3.3	3.1	3.8	3.8	6.0	7.7	10.8	21.0	17.9	4.0	3.3	1.8	3.1	452.
4	3.1	1.8	0.2	1.1	2.4	3.3	2.7	3.3	4.4	7.5	5.5	11.7	17.0	22.1	5.5	2.7	1.3	4.2	452.
5	3.1	0.7	0.7	1.3	2.4	3.3	3.3	3.3	4.0	7.7	8.6	11.5	16.2	19.0	6.2	3.8	2.0	2.9	452.
6	3.3	1.1	1.5	1.8	1.1	3.1	2.7	4.2	5.3	6.6	7.1	11.5	17.0	20.6	6.0	1.5	2.4	3.1	452.
7	2.9	2.0	1.5	1.3	1.3	2.9	2.9	4.9	5.3	6.2	6.9	8.4	17.9	22.1	5.3	2.9	1.5	3.8	452.
8	3.5	3.3	1.5	1.5	1.8	2.0	3.5	3.8	4.6	4.9	6.2	6.2	15.5	23.9	6.6	4.2	3.3	3.5	452.
9	4.0	5.8	3.1	2.4	1.3	2.2	3.3	2.0	3.5	6.0	4.0	4.9	13.7	26.5	8.6	6.6	0.9	1.1	452.
10	6.4	6.4	3.3	1.8	2.4	2.4	2.7	1.3	3.1	5.8	4.9	3.5	11.7	21.7	9.7	9.5	1.8	1.5	452.
11	9.5	8.0	3.5	4.0	1.5	2.2	1.3	1.8	3.3	6.6	5.5	3.3	8.2	21.0	7.7	9.7	1.5	1.1	452.
12	7.7	9.7	2.7	3.5	2.2	4.6	0.7	2.0	4.9	7.3	4.2	4.2	8.4	18.8	7.5	9.7	1.5	0.2	452.
13	9.3	7.1	2.7	3.3	2.4	4.0	1.5	3.1	4.9	6.6	6.4	3.1	8.4	14.6	8.8	11.1	2.0	0.7	452.
14	11.5	7.1	3.8	3.8	3.8	3.8	2.0	2.2	3.5	8.4	7.3	2.7	9.3	12.8	7.1	7.7	2.0	1.3	452.
15	9.1	7.5	4.0	4.0	3.8	4.6	2.2	2.0	5.3	8.4	6.2	3.5	8.8	13.7	6.4	8.4	1.5	0.4	452.
16	7.1	4.9	4.0	3.5	4.6	4.9	1.8	2.2	4.9	7.5	4.9	5.3	11.1	15.0	6.2	7.3	1.1	3.8	452.
17	5.1	3.1	3.3	2.7	3.5	6.2	3.5	2.0	4.4	7.1	7.5	3.5	15.0	19.0	3.8	6.2	0.2	3.8	452.
18	2.9	2.7	2.7	2.4	2.2	4.9	5.1	1.8	5.5	9.5	5.5	9.7	17.7	17.9	3.5	3.8	0.9	1.3	452.
19	1.3	0.9	2.0	2.0	1.8	4.4	4.0	3.3	4.2	3.0	10.8	13.1	17.0	18.4	4.6	1.8	0.9	1.5	452.
20	1.1	0.9	0.2	0.9	1.8	2.7	2.9	3.8	4.0	10.0	11.7	17.0	17.7	14.6	4.2	3.1	0.4	3.1	452.
21	1.5	1.3	0.7	1.3	1.3	2.4	2.0	1.8	4.6	9.3	9.1	17.3	20.1	17.5	3.3	2.7	0.9	2.9	452.
22	2.2	1.5	0.7	1.1	2.0	2.0	1.8	4.4	2.9	8.4	9.7	15.9	22.1	15.9	2.9	2.9	0.7	2.9	452.
23	2.2	0.9	0.7	1.1	1.1	1.8	2.2	4.4	4.2	8.8	11.1	12.8	20.4	17.0	4.9	2.0	1.5	2.9	452.
TOTAL	4.4	3.5	1.9	2.1	2.2	3.4	2.7	2.9	4.2	7.5	7.4	9.3	15.4	18.4	5.8	5.0	1.5	2.4	10848.

TABLE 45 (CONTD)
COMPOSITE HOUR VS. 50 FOOT DIRECTION

MONTH 3

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.2	1.2	0.6	0.8	1.4	1.8	1.6	2.8	4.6	8.3	11.1	15.1	26.4	15.5	3.8	2.2	0.8	0.6	496.
1	0.6	1.6	0.4	1.2	1.0	2.2	2.4	3.2	5.0	8.1	11.7	17.9	21.8	14.9	4.0	1.8	0.6	1.4	496.
2	0.8	1.4	0.4	0.6	2.0	3.2	2.4	3.0	4.2	11.5	10.7	13.9	22.2	15.3	5.2	2.0	0.4	0.6	496.
3	1.6	1.0	0.2	0.8	1.8	2.8	3.6	4.2	5.0	8.1	10.7	13.1	21.4	16.5	4.2	2.6	1.2	1.0	496.
4	2.4	1.4	1.4	0.6	1.6	3.4	2.0	3.4	4.8	10.1	10.7	12.5	20.8	15.1	3.6	3.4	1.2	1.4	496.
5	1.6	1.2	1.0	1.2	1.2	3.8	2.2	5.2	5.2	9.3	10.5	13.7	17.1	15.1	4.6	3.4	1.8	1.6	496.
6	2.6	1.2	0.6	1.8	1.8	3.4	2.4	5.2	6.0	9.3	11.1	10.5	17.7	15.3	5.0	3.0	1.8	1.0	496.
7	3.6	2.2	1.8	1.2	1.6	2.6	2.6	4.2	5.2	7.1	9.9	10.7	17.7	17.5	6.7	3.6	0.6	1.0	496.
8	6.0	4.6	1.4	1.4	2.0	2.4	2.6	2.8	4.8	6.7	7.7	4.2	11.9	22.4	11.7	4.8	1.8	0.6	496.
9	7.3	7.1	1.8	1.2	2.4	2.8	2.0	2.0	5.2	6.5	9.1	3.4	8.7	15.9	10.9	11.5	2.0	0.2	496.
10	9.7	8.3	4.4	2.8	2.2	2.2	2.6	3.4	5.4	8.5	8.9	2.0	6.0	11.9	8.3	10.3	2.8	0.2	496.
11	9.1	9.9	4.2	3.0	1.8	2.8	2.4	3.6	7.9	11.7	7.9	2.2	4.6	8.5	7.1	10.1	3.2	0.	496.
12	9.9	6.7	1.4	3.8	3.2	4.8	1.8	3.6	8.5	11.7	7.9	2.4	5.0	9.3	5.4	10.5	4.0	0.	496.
13	10.5	6.7	4.2	1.8	4.2	3.8	1.8	4.8	6.5	12.7	9.1	4.0	5.6	7.9	5.6	7.5	3.2	0.	496.
14	9.1	7.9	3.0	1.8	3.2	4.8	2.2	3.6	7.5	14.3	8.9	2.8	4.8	10.9	5.0	7.7	2.4	0.	496.
15	8.7	5.0	3.2	3.0	4.0	6.5	2.8	5.0	4.2	13.5	11.1	2.6	5.2	11.1	2.6	8.1	2.8	0.4	496.
16	7.5	4.8	3.2	4.0	4.0	6.5	4.4	4.0	7.1	12.1	8.1	4.6	6.5	12.7	2.6	6.7	0.6	0.6	496.
17	5.0	3.2	3.8	5.0	3.2	7.7	3.4	5.0	6.7	8.7	10.1	4.6	9.7	12.1	3.4	5.9	0.4	2.0	496.
18	3.2	2.6	2.2	2.4	4.0	7.3	6.0	4.6	5.4	9.9	9.7	6.0	12.7	13.3	5.0	3.4	0.	2.0	496.
19	1.4	2.2	0.	3.0	3.4	4.8	4.8	5.2	4.8	12.5	9.1	10.3	17.1	15.3	2.4	2.4	0.4	0.6	496.
20	1.8	0.4	0.6	2.0	2.0	2.4	6.2	2.4	4.2	11.1	15.7	15.3	17.7	12.9	2.2	1.6	1.2	0.	496.
21	1.6	0.6	0.6	1.6	1.4	2.6	2.2	2.6	3.8	9.5	14.7	20.0	18.3	13.5	2.2	3.0	0.6	1.0	496.
22	1.8	1.0	0.6	0.8	1.4	2.2	1.2	3.6	2.8	7.9	14.1	20.0	22.2	10.7	3.8	3.6	1.2	1.0	496.
23	1.0	0.8	0.2	1.2	1.2	2.2	1.4	1.8	4.8	8.7	12.1	18.0	24.4	14.1	4.6	2.6	0.2	0.4	495.
TOTAL	4.5	3.5	1.7	2.0	2.4	3.7	2.8	3.7	5.4	9.9	10.4	9.6	14.4	13.7	5.0	5.1	1.5	0.7	11203.

MONTH 4

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	0.4	0.2	0.2	0.2	0.8	2.1	1.5	1.5	3.7	7.3	11.5	24.8	24.0	17.1	2.7	1.2	0.6	0.2	480.
1	0.8	0.	0.	0.6	0.6	1.7	1.2	2.5	2.9	8.5	14.6	24.6	24.0	13.1	1.9	2.1	0.4	0.4	480.
2	0.6	0.6	0.8	0.4	1.7	1.9	0.6	1.9	3.7	7.9	15.2	20.4	22.1	15.2	1.7	2.9	1.7	0.6	480.
3	0.2	0.4	0.6	0.6	1.7	2.9	0.6	2.7	5.8	8.3	13.7	21.5	19.4	12.5	3.3	2.7	1.2	1.7	480.
4	0.6	0.6	0.6	0.8	1.7	3.1	1.5	3.7	4.6	10.0	11.9	22.1	17.7	12.7	3.3	1.5	2.3	1.2	480.
5	0.8	0.4	0.4	0.6	1.7	2.3	2.1	3.3	5.2	7.7	13.7	18.3	22.1	11.2	4.4	1.7	2.3	1.7	480.
6	1.5	0.8	0.6	1.9	0.8	2.1	2.5	2.3	5.0	9.8	11.5	14.2	21.7	14.2	4.4	2.9	1.7	2.3	480.
7	2.3	5.0	1.5	1.9	1.0	2.1	2.3	2.5	3.5	4.8	10.8	8.7	18.5	19.0	8.3	5.8	1.2	0.6	480.
8	5.2	6.5	2.5	2.5	1.9	2.1	0.6	2.1	3.3	6.2	8.5	5.0	12.9	20.6	9.6	7.9	2.1	0.4	480.
9	6.0	8.3	3.1	3.3	1.9	1.9	1.9	2.3	5.2	8.5	6.9	2.7	9.8	13.5	9.6	10.2	4.8	0.	480.
10	7.1	7.1	2.3	4.8	3.7	2.5	2.9	3.1	6.5	8.3	8.3	3.7	7.5	12.3	5.0	9.4	5.4	0.	480.
11	7.1	6.7	4.0	2.5	2.1	5.4	2.7	4.6	6.0	12.1	7.1	5.6	6.9	9.6	3.5	8.5	5.6	0.	480.
12	6.5	5.8	3.1	4.2	2.5	4.0	3.1	5.0	7.9	13.7	8.7	5.2	5.8	9.6	4.4	5.0	5.4	0.	480.
13	7.3	5.8	2.7	2.1	2.9	4.2	2.3	3.3	7.3	15.4	11.2	4.6	6.0	9.0	4.4	5.9	5.6	0.	480.
14	7.9	5.6	3.5	2.7	3.1	2.9	2.7	4.4	6.9	14.8	11.7	5.8	6.5	10.0	2.9	4.4	4.2	0.	480.
15	6.0	5.4	3.3	3.3	2.9	5.0	2.7	3.7	5.8	13.1	10.8	5.0	8.3	12.9	2.5	6.7	2.3	0.	480.
16	4.6	5.0	4.6	2.9	4.2	5.2	2.5	3.7	4.8	10.6	10.4	7.5	10.2	14.8	2.7	3.7	2.5	0.	480.
17	3.5	3.5	4.4	5.6	4.0	4.8	4.0	3.7	4.2	9.8	11.0	6.0	13.1	14.6	3.1	4.0	0.6	0.	480.
18	2.1	3.1	3.5	5.6	3.1	6.0	5.6	5.2	4.0	7.7	10.2	4.8	14.8	16.9	2.1	4.8	0.	0.4	480.
19	2.3	1.0	2.1	5.6	3.3	5.8	5.2	3.7	4.0	9.6	7.9	7.1	19.0	19.0	1.9	2.1	0.2	0.2	480.
20	0.8	2.1	1.0	2.7	1.0	2.7	5.2	1.9	4.2	11.7	11.7	9.0	26.0	17.7	1.5	0.8	0.	0.	480.
21	1.5	0.6	0.4	0.6	1.0	1.5	2.9	2.9	3.1	8.3	14.8	12.7	29.2	16.7	1.0	2.1	0.4	0.2	480.
22	1.2	0.8	0.6	0.2	0.2	1.0	1.9	2.9	2.7	6.0	14.4	21.2	26.5	16.5	2.1	1.5	0.	0.2	480.
23	0.6	0.6	0.8	0.4	0.6	0.8	0.8	2.3	3.1	7.3	13.3	22.9	25.6	14.4	2.7	2.5	0.4	0.6	480.
TOTAL	3.2	3.2	2.0	2.3	2.0	3.1	2.5	3.1	4.7	9.5	11.2	11.8	16.6	14.3	3.7	4.2	2.1	0.5	11520.

TABLE 45 (CONTD)
COMPOSITE HOUR VS. 50 FOOT DIRECTION

MONTH 5

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	0.2	0.2	0.6	0.2	0.8	0.8	0.8	0.6	2.0	3.4	10.5	24.4	35.9	15.1	2.6	1.0	0.	0.8	496.
1	0.	1.2	0.6	0.6	0.8	0.2	0.8	0.8	2.2	5.8	15.3	20.4	33.1	12.7	3.8	1.2	0.2	0.2	496.
2	0.8	0.6	0.2	0.6	0.6	1.2	1.4	1.4	3.0	5.8	12.5	24.4	29.4	13.3	1.6	2.0	0.4	0.6	496.
3	0.4	0.6	0.6	0.	1.2	2.4	1.8	1.8	4.2	5.8	15.5	20.8	25.0	13.5	3.2	1.2	1.0	0.8	496.
4	0.2	0.2	0.	1.0	0.8	1.4	2.6	3.4	4.0	6.7	16.1	19.6	23.8	14.1	2.8	1.4	0.4	1.4	496.
5	0.2	1.6	0.6	1.2	0.8	2.6	2.2	3.4	3.4	5.6	14.9	18.3	22.0	14.5	2.6	2.6	0.8	2.4	496.
6	1.2	2.2	1.0	0.6	1.8	2.4	2.0	1.8	2.6	4.4	12.1	10.3	23.2	24.0	4.6	2.6	0.6	2.4	496.
7	5.4	2.8	1.6	1.0	1.4	1.0	1.4	2.0	1.4	4.6	7.3	4.4	18.5	27.4	10.9	6.0	1.6	1.0	496.
8	6.5	6.5	2.0	2.6	1.2	2.8	1.0	1.2	1.6	4.0	7.5	3.4	12.1	21.4	10.9	10.1	5.0	0.2	496.
9	7.1	5.2	2.8	3.8	2.4	2.6	2.8	1.6	3.2	7.9	6.9	3.2	8.3	16.3	6.5	10.1	9.3	0.	496.
10	7.5	5.2	2.4	3.6	2.2	4.8	3.2	5.4	5.8	8.5	6.7	6.2	5.6	8.5	5.4	8.7	10.1	0.	496.
11	6.2	6.0	2.2	4.8	4.8	4.2	2.6	5.0	5.4	10.3	8.7	6.0	5.6	8.1	3.8	6.2	9.7	0.	496.
12	4.0	6.9	5.0	2.8	3.6	3.8	3.6	6.0	5.4	12.3	7.5	6.0	5.8	8.5	3.8	4.8	9.9	0.	496.
13	5.0	6.7	5.0	2.6	2.8	7.1	3.0	3.6	6.5	11.1	8.7	6.7	5.6	9.9	1.8	5.0	8.9	0.	496.
14	5.4	6.2	4.2	4.0	4.8	3.0	2.6	5.0	4.6	9.9	9.1	8.1	6.9	11.3	3.2	5.2	6.2	0.	496.
15	4.8	9.5	3.2	3.6	3.6	5.0	2.8	4.4	5.4	9.1	9.1	4.4	7.7	13.3	3.0	6.0	4.8	0.	496.
16	4.2	7.9	4.2	4.2	3.2	5.2	3.4	3.0	4.2	7.5	7.1	6.2	7.5	20.8	2.0	5.4	3.6	0.2	496.
17	3.8	7.5	5.0	5.6	3.2	4.2	4.6	3.2	4.0	6.5	6.5	4.0	9.3	23.6	2.2	4.2	2.0	0.4	496.
18	3.2	3.8	5.2	5.0	3.6	5.8	5.4	2.4	2.6	4.6	5.8	4.4	12.9	28.6	1.6	3.2	0.4	1.0	496.
19	1.8	4.4	2.2	4.4	5.6	6.0	4.6	3.8	1.2	3.8	4.6	4.6	19.6	28.0	1.4	2.4	0.4	0.8	496.
20	1.6	2.0	2.2	2.8	1.8	6.2	4.4	2.8	1.8	6.9	6.9	7.1	24.0	24.4	2.0	1.4	1.0	0.6	496.
21	1.6	1.2	1.6	0.8	1.0	3.4	3.2	2.6	1.2	4.8	13.3	12.1	28.4	21.8	1.6	0.8	0.2	0.2	496.
22	1.4	0.6	0.6	0.8	0.6	1.4	2.0	0.6	1.2	3.0	13.5	20.6	31.7	18.1	3.2	0.6	0.	0.	496.
23	1.0	0.4	0.4	0.8	0.2	1.4	1.0	1.2	0.6	1.4	9.9	29.2	31.7	15.7	2.8	1.4	0.4	0.4	496.
TOTAL	3.1	3.7	2.2	2.4	2.2	3.3	2.7	2.8	3.3	6.4	9.8	11.5	18.1	17.2	3.7	3.0	3.2	0.6	11904.

MONTH 6

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.7	0.8	0.4	0.4	0.4	0.4	0.2	0.2	0.4	3.3	8.5	22.3	40.8	15.8	2.7	0.6	0.6	0.2	480.
1	0.6	1.0	0.8	0.2	0.4	0.4	0.6	0.6	0.6	3.3	9.6	24.0	38.5	14.8	1.2	1.9	0.6	0.6	480.
2	1.2	1.0	0.	0.2	0.6	1.0	0.4	1.5	1.2	6.2	11.0	23.5	33.3	14.4	2.1	0.6	0.8	0.6	480.
3	1.5	0.2	0.4	0.4	1.9	0.8	0.6	1.7	1.9	6.5	14.8	21.5	28.1	16.5	1.9	1.2	0.2	0.	480.
4	0.6	0.2	0.8	0.2	0.6	1.0	1.5	3.1	5.4	5.0	14.4	22.3	27.3	10.6	3.7	1.7	0.8	0.6	480.
5	0.8	0.4	0.	0.4	1.8	1.7	2.3	3.1	3.5	6.0	10.2	20.6	25.2	16.0	2.7	1.0	3.1	1.7	480.
6	3.1	2.7	0.2	0.6	1.9	0.8	2.7	2.1	1.7	5.0	7.3	8.7	24.8	26.2	5.6	4.6	0.4	1.5	480.
7	5.6	3.3	1.2	1.2	1.0	2.3	1.5	1.9	2.7	1.9	6.0	6.9	15.2	26.2	12.3	6.9	2.9	0.8	480.
8	8.1	6.5	2.1	2.1	1.9	2.9	2.7	1.0	3.1	5.0	6.5	4.4	9.6	21.0	8.5	10.2	4.2	0.2	480.
9	6.0	5.4	3.1	2.9	3.7	4.0	2.1	4.2	3.3	6.7	7.1	5.6	7.1	13.5	6.7	9.2	9.4	0.	480.
10	7.7	6.5	2.3	3.7	3.5	5.6	3.7	5.0	4.2	9.6	6.9	3.3	6.7	10.2	5.0	6.9	9.2	0.	480.
11	5.8	8.7	2.9	3.5	1.7	6.0	5.2	4.0	6.2	12.7	5.4	5.2	7.1	9.2	1.9	5.6	8.7	0.	480.
12	5.2	5.8	3.7	3.3	2.3	3.3	2.7	5.8	4.8	14.4	8.3	6.5	3.7	7.9	4.6	6.7	10.8	0.	480.
13	5.6	4.6	3.3	3.3	2.3	4.8	2.3	4.8	6.2	15.0	8.7	5.2	6.0	10.6	3.3	4.2	9.6	0.	480.
14	5.6	5.2	3.3	2.9	2.9	2.9	1.9	5.2	4.8	13.7	11.9	5.4	6.7	11.9	2.1	5.4	8.1	0.	480.
15	4.8	6.9	3.3	3.1	3.3	3.3	1.5	4.6	6.0	9.6	11.0	7.3	7.5	14.6	2.3	6.5	4.4	0.	480.
16	6.5	6.2	2.3	3.7	2.7	4.8	2.9	2.7	4.0	8.1	9.4	5.8	9.0	20.0	4.6	5.2	2.1	0.	480.
17	4.6	6.5	3.5	5.6	4.0	3.7	1.5	2.5	2.9	5.2	9.0	5.2	8.3	28.5	2.9	4.6	1.5	0.	480.
18	3.3	5.4	5.2	3.7	4.8	3.7	3.5	2.1	2.1	3.7	6.7	4.8	13.7	30.4	3.3	2.5	0.6	0.2	480.
19	2.3	3.5	4.6	3.7	5.8	5.4	2.5	1.5	1.9	2.7	5.2	3.5	21.2	30.6	1.2	3.3	0.4	0.4	480.
20	2.7	2.5	2.3	3.5	4.4	3.3	4.4	1.5	1.0	2.3	4.0	7.9	27.1	30.4	1.7	0.6	0.	0.4	480.
21	2.7	1.7	1.0	2.7	0.4	2.1	2.1	2.3	1.5	5.0	6.7	10.6	29.8	28.5	1.7	1.0	0.	0.2	480.
22	0.8	1.5	0.6	0.8	0.2	1.7	0.8	1.0	1.2	2.7	8.5	16.7	36.5	24.6	0.8	1.2	0.2	0.	480.
23	0.4	0.8	1.2	0.4	0.6	0.2	0.4	0.2	0.2	2.3	8.1	21.5	37.7	21.5	1.7	1.7	0.8	0.2	480.
TOTAL	3.6	3.6	2.0	2.2	2.2	2.8	2.1	2.6	3.0	6.5	8.6	11.2	19.6	18.9	3.5	3.9	3.3	0.3	11520.

TABLE 45 (CONTD)
COMPOSITE HOUR VS. 50 FOOT DIRECTION

MONTH 7

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	0.4	0.4	0.4	0.	0.2	0.4	0.	0.8	0.2	2.2	6.9	21.2	42.3	20.8	2.4	1.2	0.2	0.	496.
1	0.4	0.4	0.	0.6	0.2	0.6	0.2	0.8	0.6	1.6	6.5	25.4	41.5	17.9	2.2	0.4	0.6	0.	496.
2	0.	0.2	0.2	0.8	0.4	1.2	1.0	1.2	1.0	3.4	11.3	22.6	39.9	12.5	2.2	0.6	0.8	0.6	496.
3	0.	0.2	0.6	0.2	0.8	0.6	1.2	1.8	2.2	5.6	12.3	22.0	33.3	14.5	0.8	1.6	0.8	1.4	496.
4	0.2	0.4	0.	0.6	0.8	0.6	1.6	2.0	2.8	7.9	12.5	20.4	32.1	13.7	1.8	0.8	0.6	1.2	496.
5	0.2	0.6	0.	0.4	1.0	0.8	1.2	2.2	4.2	10.3	11.9	16.1	27.6	18.5	2.2	0.6	0.8	1.2	496.
6	0.8	0.4	0.8	1.0	1.0	1.2	1.2	2.8	2.4	4.6	7.3	8.9	26.6	30.0	6.5	2.2	0.4	1.8	496.
7	4.4	2.6	0.8	0.8	0.8	1.8	1.4	1.6	1.2	3.0	4.0	4.8	13.3	36.5	12.7	8.5	1.6	0.	496.
8	9.1	6.2	2.2	1.4	2.2	2.8	1.6	1.0	1.4	3.2	3.8	2.8	7.5	20.2	14.7	13.3	8.2	0.2	496.
9	10.5	7.3	2.6	4.2	3.4	4.0	3.6	3.8	1.8	4.8	3.6	2.8	4.8	10.5	6.7	13.7	11.7	0.	496.
10	7.5	6.5	3.6	4.6	4.8	6.5	4.2	5.4	4.6	7.1	5.0	3.8	3.2	5.8	4.4	8.7	13.9	0.2	496.
11	6.9	8.1	2.2	4.4	5.4	6.7	3.4	5.4	5.4	8.9	5.8	3.6	4.6	5.8	3.2	6.0	13.9	0.	496.
12	6.2	7.7	4.4	2.4	4.2	6.0	3.6	4.2	5.6	13.1	7.5	4.8	3.2	5.6	3.4	4.0	13.7	0.	496.
13	5.6	8.3	2.2	2.6	3.4	4.2	2.8	5.0	6.9	11.9	9.3	6.7	3.6	6.7	2.4	7.7	11.3	0.	496.
14	5.6	6.2	3.2	2.8	2.8	4.6	2.6	4.0	4.0	14.9	9.9	6.5	5.4	7.9	2.0	7.5	9.9	0.	496.
15	6.0	7.9	3.6	3.8	2.6	3.8	2.0	4.8	3.4	11.5	10.1	7.3	7.1	9.1	2.0	6.5	8.5	0.	496.
16	6.9	5.6	5.2	5.0	3.0	2.8	2.0	2.0	3.0	9.1	13.1	6.2	7.9	15.9	1.6	5.8	4.6	0.	496.
17	6.5	6.9	4.0	7.5	3.0	3.6	1.0	2.6	2.0	7.5	11.5	6.5	6.7	20.8	1.8	5.2	3.0	0.	496.
18	6.2	5.8	4.2	6.9	3.4	5.6	1.2	2.0	2.2	3.8	8.9	5.0	8.5	29.2	1.8	4.2	0.6	0.2	496.
19	5.0	3.4	2.6	5.8	5.8	5.4	1.4	1.6	1.0	3.4	6.5	2.4	16.7	33.1	1.2	3.4	0.2	0.8	496.
20	2.0	3.0	1.8	3.4	4.0	3.2	2.6	1.8	1.6	3.6	4.4	3.8	23.4	35.7	1.8	2.8	0.6	0.2	496.
21	0.6	1.8	1.0	1.2	0.6	1.4	3.4	2.8	0.8	4.8	8.5	7.7	27.6	34.9	1.6	0.8	0.2	0.2	496.
22	0.4	0.8	0.8	0.4	0.	1.0	0.8	0.6	0.6	2.4	14.1	8.9	38.7	26.8	2.8	0.4	0.2	0.2	496.
23	0.2	0.4	0.6	0.2	0.4	0.2	0.6	0.4	1.0	1.8	7.9	18.5	42.5	22.0	1.8	1.0	0.2	0.2	496.
TOTAL	3.8	3.8	2.6	2.6	2.3	2.9	1.9	2.5	2.5	6.3	8.4	9.9	19.5	18.9	3.5	4.5	4.4	0.4	11904.

MONTH 8

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	0.2	0.	0.	0.	0.6	1.0	0.4	0.4	0.6	3.0	8.9	25.4	41.1	15.3	1.6	1.2	0.	0.2	496.
1	0.6	0.4	0.4	0.2	0.2	0.4	0.4	0.8	0.8	4.0	10.3	23.8	41.9	11.9	1.6	1.0	0.4	0.8	496.
2	0.8	0.4	0.2	1.0	0.8	0.6	1.2	2.4	2.8	5.8	9.9	24.4	34.5	11.9	1.6	0.6	0.6	0.4	496.
3	0.8	0.2	0.4	0.4	0.6	1.6	1.8	2.4	3.8	8.3	13.3	22.6	28.6	11.7	1.6	0.2	0.8	0.8	496.
4	0.2	0.2	0.4	0.4	0.6	1.4	1.8	2.2	5.2	8.9	14.5	22.8	27.4	9.1	1.8	0.8	1.0	1.2	496.
5	0.4	0.4	0.2	1.2	0.4	1.8	2.0	4.2	4.8	9.3	12.7	21.0	22.4	14.1	2.2	0.8	0.2	1.8	496.
6	1.0	0.8	1.0	0.8	0.8	1.2	1.8	2.8	3.2	5.4	9.3	11.3	24.2	25.0	4.8	2.8	1.0	2.6	496.
7	3.4	1.6	1.2	1.2	1.2	2.0	0.8	1.8	2.0	2.2	4.4	6.5	16.1	35.5	12.7	4.2	1.8	1.2	496.
8	6.9	3.6	2.2	1.6	1.6	2.2	1.8	0.6	1.6	3.2	2.4	2.4	8.7	23.8	17.7	14.9	4.4	0.2	496.
9	8.7	8.7	3.6	4.2	2.8	3.4	1.2	2.4	3.0	3.8	4.4	3.2	4.8	12.9	7.1	13.9	10.9	0.8	496.
10	7.3	6.0	3.2	6.2	4.6	5.0	3.0	4.8	3.0	7.1	4.0	3.8	5.2	8.3	5.6	10.7	11.9	0.	496.
11	6.9	7.1	3.4	3.6	6.0	5.0	4.6	3.8	5.6	6.5	5.0	4.0	4.6	7.7	2.6	9.3	14.1	0.	496.
12	7.3	6.5	2.2	2.8	5.8	6.7	4.4	6.7	5.0	9.9	4.6	3.4	2.8	6.9	4.0	6.9	14.1	0.	496.
13	7.7	6.0	4.4	2.8	3.6	4.4	3.4	4.8	6.0	12.5	8.5	4.6	2.8	6.2	3.4	6.0	12.5	0.	496.
14	5.2	6.7	3.4	4.0	4.0	5.2	3.4	4.0	5.2	12.9	8.9	5.4	3.6	10.5	2.2	6.0	9.1	0.	496.
15	4.2	7.5	3.6	2.8	2.8	6.5	2.6	2.6	5.6	10.5	9.1	6.0	4.8	12.5	4.0	6.9	7.9	0.	496.
16	6.5	4.6	4.4	4.2	4.0	5.0	2.4	2.0	4.0	7.7	10.9	5.4	5.2	18.7	3.4	5.2	8.0	0.	496.
17	5.6	5.8	4.0	7.3	6.0	6.0	1.8	1.8	2.4	7.5	8.7	5.6	6.0	21.6	3.0	2.0	1.4	0.2	496.
18	3.6	4.6	3.8	6.0	7.9	8.3	2.4	2.8	3.0	4.2	5.8	4.4	10.9	24.6	2.6	3.0	0.4	1.4	496.
19	2.0	2.8	2.6	3.2	6.0	8.5	6.0	3.0	2.2	4.4	5.0	4.0	15.7	28.8	1.4	3.0	0.	1.0	496.
20	1.6	1.8	2.2	1.4	2.0	3.6	5.6	2.6	3.0	5.8	9.1	5.2	21.6	31.7	1.4	0.4	0.	0.8	496.
21	0.2	0.4	0.4	0.8	0.8	0.4	2.6	1.0	1.0	5.6	13.5	10.9	27.6	30.4	2.4	1.2	0.4	0.2	496.
22	0.4	0.2	0.4	0.4	0.4	0.4	0.4	0.2	1.0	1.8	14.1	17.5	37.5	22.0	2.2	1.0	0.	0.	496.
23	0.4	0.4	0.	0.2	0.2	0.6	0.6	0.2	0.4	2.2	8.1	26.8	39.7	17.3	1.6	0.8	0.4	0.	496.
TOTAL	3.4	3.2	2.0	2.4	2.7	3.4	2.4	2.5	3.2	6.4	8.6	11.3	18.3	17.4	3.9	4.4	4.1	0.6	11904.

TABLE 45 (CONTD)
COMPOSITE HOUR VS. 50 FOOT DIRECTION

MONTH 9

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.0	0.6	0.2	0.8	0.6	1.0	0.6	0.6	2.9	5.2	8.7	23.1	30.4	15.8	4.0	2.1	0.8	1.2	480.
1	1.0	0.6	0.8	0.	1.2	0.6	0.8	1.2	3.1	6.5	10.4	23.3	26.7	15.4	3.3	2.1	0.6	2.1	480.
2	1.7	0.8	0.6	0.8	0.6	1.2	1.7	3.1	3.3	7.3	11.0	17.7	25.4	16.5	3.5	1.9	0.8	1.9	480.
3	1.7	0.6	0.6	0.4	1.5	2.3	1.7	3.7	5.4	6.9	12.9	15.8	21.7	15.2	3.7	1.5	1.2	3.1	480.
4	1.5	0.4	0.8	2.1	1.0	2.1	4.6	4.4	5.2	4.2	11.0	15.6	20.8	13.5	4.8	2.7	1.2	4.0	480.
5	1.7	1.7	1.7	2.1	0.6	3.3	4.4	4.6	3.1	4.8	8.3	15.0	20.6	16.0	4.2	2.7	1.2	4.0	480.
6	1.2	1.2	2.1	1.2	1.0	3.3	3.1	5.0	4.4	4.6	9.2	13.3	17.5	16.9	4.6	5.4	2.3	3.5	480.
7	4.8	3.5	1.5	1.9	1.2	3.7	2.7	3.5	1.7	4.6	6.2	6.2	16.2	21.9	10.0	4.6	1.7	4.0	480.
8	9.8	7.7	3.1	2.5	2.3	2.5	1.5	1.2	1.2	4.4	4.6	3.7	7.9	20.8	15.0	9.8	0.8	1.0	480.
9	11.9	7.7	4.0	5.2	3.1	3.5	1.0	1.0	1.2	3.1	5.4	3.3	4.6	14.2	12.5	14.4	3.7	0.	480.
10	9.0	9.0	4.4	5.4	6.0	3.3	1.9	2.7	2.5	4.0	5.2	2.3	4.8	9.4	8.3	14.8	6.9	0.2	480.
11	11.5	8.7	4.4	6.5	5.2	6.0	1.9	3.5	3.1	5.4	5.2	3.1	2.7	8.3	4.0	12.1	8.1	0.2	480.
12	9.6	9.4	4.4	6.0	5.8	5.4	2.5	4.6	5.2	5.8	5.2	2.3	3.7	7.9	5.8	8.7	7.5	0.	480.
13	8.3	9.8	2.9	4.4	4.6	6.5	3.5	2.9	4.4	9.4	5.6	2.9	4.6	6.9	4.8	9.0	9.4	0.2	480.
14	8.1	10.0	3.7	4.4	5.0	5.2	2.1	3.5	5.8	9.4	7.7	2.3	3.5	9.2	3.5	9.8	6.7	0.	480.
15	10.6	9.6	4.4	3.7	5.6	6.2	3.1	2.5	2.9	9.0	8.3	5.0	2.3	12.1	2.7	7.3	4.6	0.	480.
16	8.7	10.4	5.2	5.6	5.8	7.7	2.9	2.1	4.6	5.8	7.7	4.6	4.0	14.4	2.7	6.5	1.2	0.	480.
17	6.0	7.9	4.0	5.2	6.2	8.3	6.0	2.5	3.7	4.2	5.2	6.2	6.9	17.3	2.5	5.0	0.6	2.1	480.
18	3.5	3.3	2.5	4.6	6.5	9.2	6.2	4.0	4.0	5.8	7.9	5.2	10.8	18.5	2.9	3.3	0.2	1.5	480.
19	1.7	2.1	2.3	2.9	1.7	6.7	6.7	5.2	4.0	8.3	11.5	8.3	14.8	18.5	2.3	2.9	0.	0.2	480.
20	1.0	1.5	1.2	0.8	1.0	2.7	4.2	1.7	3.1	7.9	15.4	14.6	20.6	19.0	2.9	1.9	0.2	0.2	480.
21	1.2	1.2	0.4	0.6	0.6	1.5	1.7	0.6	2.5	7.1	15.6	20.2	21.9	19.8	2.7	1.7	0.2	0.4	480.
22	1.2	1.2	1.2	0.6	0.2	0.2	0.4	1.5	1.2	6.0	11.5	24.2	29.8	14.6	3.5	1.5	1.0	0.	480.
23	1.0	1.0	1.2	1.2	0.2	0.8	0.4	0.4	1.7	4.0	10.8	26.7	29.6	13.7	4.2	2.1	0.6	0.2	480.
TOTAL	4.9	4.6	2.4	2.9	2.8	3.9	2.7	2.8	3.4	6.0	8.8	11.1	14.7	14.8	4.9	5.6	2.6	1.2	11520.

MONTH 10

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	0.6	0.8	1.2	0.8	2.4	3.4	1.6	3.6	5.4	5.6	9.3	19.4	21.8	12.9	5.2	2.2	0.8	2.8	496.
1	1.2	0.8	0.2	2.0	1.0	3.4	3.6	4.2	6.7	7.3	10.7	14.5	17.3	15.3	3.8	2.0	1.6	4.2	496.
2	1.4	1.8	1.8	2.2	1.2	4.0	3.4	4.6	5.4	6.7	8.5	15.3	16.9	14.3	4.2	1.8	2.4	3.8	496.
3	1.8	1.6	2.0	1.4	2.6	4.8	4.8	3.8	5.4	6.0	11.1	12.5	19.2	12.1	4.8	1.6	1.6	2.6	496.
4	0.8	1.8	1.2	2.2	2.2	6.9	3.8	5.0	4.8	8.3	11.1	9.9	15.7	13.1	5.4	2.6	1.6	3.4	496.
5	2.2	1.6	0.8	2.0	1.0	6.5	4.6	5.6	3.2	8.1	8.5	11.7	16.5	13.5	4.4	2.0	2.2	5.4	496.
6	0.8	2.2	1.0	1.4	2.4	4.8	5.4	4.8	5.0	6.9	9.5	10.9	15.3	15.5	4.4	2.6	1.2	5.6	496.
7	2.0	1.2	2.6	1.6	0.6	4.4	5.0	6.7	5.6	6.5	7.5	8.5	14.1	14.9	5.0	5.4	2.4	5.8	496.
8	4.0	6.7	2.0	3.0	2.2	3.4	3.6	3.4	3.2	5.6	5.8	5.8	10.5	20.4	9.3	6.0	0.8	4.0	496.
9	7.7	8.1	3.2	2.6	2.8	3.8	1.6	2.4	2.8	4.8	5.2	3.8	9.3	13.3	12.1	10.5	3.4	2.4	496.
10	8.7	9.9	4.2	5.0	4.8	2.0	2.4	2.2	3.6	5.6	5.0	2.2	6.9	13.3	11.3	8.9	3.2	0.6	496.
11	7.5	8.9	4.4	5.2	6.0	3.6	2.0	3.0	5.6	7.1	4.4	2.0	5.8	8.9	7.3	13.7	4.0	0.4	496.
12	11.1	7.5	5.4	3.8	7.5	4.6	2.8	1.6	4.8	8.9	5.8	3.0	3.8	7.9	7.7	9.9	3.2	0.6	496.
13	8.1	8.3	4.0	5.2	5.8	7.5	2.4	2.6	4.8	8.9	7.7	2.4	5.4	6.9	6.5	10.7	2.8	0.	496.
14	8.1	7.5	4.8	4.8	6.0	8.5	4.0	2.6	4.6	8.9	6.7	1.6	4.4	9.7	6.7	7.5	3.2	0.4	496.
15	6.9	6.5	4.8	6.2	6.9	8.3	2.4	2.6	4.2	8.5	7.7	3.0	6.5	9.5	5.6	7.7	1.8	1.0	496.
16	4.8	3.6	4.4	6.0	7.3	7.5	3.8	2.2	4.8	7.3	7.5	3.0	9.7	13.9	5.2	3.2	0.6	5.0	496.
17	2.6	1.2	2.0	4.4	7.3	8.7	5.4	3.0	3.6	8.9	6.5	6.0	15.1	13.1	3.4	3.0	0.6	5.0	496.
18	1.4	0.8	1.2	2.0	3.8	9.5	5.0	4.2	4.8	11.3	12.1	7.5	14.9	15.1	1.8	1.4	0.8	2.2	496.
19	0.4	0.8	1.2	1.4	1.0	7.7	4.2	4.4	4.4	8.9	15.7	17.3	14.7	11.5	2.2	1.8	0.4	1.8	496.
20	0.4	0.4	0.4	1.6	0.8	2.2	3.4	2.8	4.0	9.5	17.7	21.0	15.3	11.7	2.6	2.0	1.6	2.4	496.
21	1.2	0.8	0.6	0.4	2.2	1.6	1.4	1.4	5.2	6.9	12.1	26.4	18.5	13.1	3.8	1.6	1.0	1.6	496.
22	1.0	1.2	0.6	1.4	0.2	1.8	1.2	3.0	2.2	4.6	13.1	26.4	17.9	16.3	3.6	3.0	0.6	1.6	496.
23	0.6	1.4	0.8	0.2	1.0	2.4	2.6	2.8	3.8	5.8	12.1	22.8	22.0	14.1	2.6	1.8	0.8	2.2	496.
TOTAL	3.6	3.6	2.3	2.8	3.3	5.1	3.4	3.5	4.5	7.4	9.2	10.7	13.2	12.9	5.4	4.7	1.8	2.7	11904.

TABLE 45 (CONTD)
COMPOSITE HOUR VS. 50 FOOT DIRECTION

MONTH 11

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.7	0.4	0.4	2.1	2.3	5.0	2.1	5.0	5.2	7.7	8.1	11.5	16.9	14.8	6.7	3.5	1.5	5.2	480.
1	2.1	1.9	1.7	1.7	2.3	3.3	3.5	4.4	7.3	7.5	5.8	10.4	17.9	15.8	5.4	2.9	0.8	5.2	480.
2	1.9	1.5	1.5	2.1	2.7	4.0	2.9	4.2	8.1	6.0	6.9	9.2	16.7	14.8	7.1	2.5	1.9	6.2	480.
3	1.0	0.8	0.8	3.7	1.9	5.4	2.9	5.0	5.4	7.7	6.0	10.0	16.5	15.6	5.0	4.4	2.3	5.4	480.
4	1.2	1.2	0.4	2.1	2.5	5.6	3.3	7.7	5.8	8.5	6.2	7.5	15.2	15.6	6.2	3.5	1.5	5.6	480.
5	1.5	0.2	1.2	3.5	1.7	3.7	3.7	8.1	5.6	7.1	6.7	8.5	16.0	12.7	7.7	4.4	1.9	5.6	480.
6	1.7	1.9	0.8	1.9	2.1	4.0	4.8	5.2	4.6	7.3	7.7	9.2	15.6	14.2	6.5	4.8	1.9	6.0	480.
7	2.5	1.9	2.1	1.5	2.3	4.2	5.2	5.0	5.2	6.0	6.5	10.0	14.6	14.2	8.3	2.9	0.8	6.9	480.
8	2.5	2.9	1.7	1.2	3.5	3.1	4.6	3.5	6.2	5.6	5.8	7.5	13.1	17.5	8.3	4.0	3.1	6.7	480.
9	5.2	3.7	4.0	3.1	1.0	4.6	4.0	2.1	5.2	6.7	4.0	5.4	9.2	21.0	11.2	5.4	0.8	3.3	480.
10	6.2	5.6	4.4	2.7	3.5	3.3	1.9	2.1	4.0	6.2	3.7	4.0	9.2	18.1	11.2	8.7	2.5	2.5	480.
11	9.4	5.6	4.4	3.1	3.7	3.7	1.5	2.9	4.2	7.3	5.0	2.3	6.9	15.4	11.9	9.0	2.5	1.2	480.
12	8.6	5.0	4.8	4.6	5.4	2.7	2.7	2.5	4.6	6.3	6.1	2.1	5.8	15.7	10.6	9.8	2.1	0.6	479.
13	8.8	7.5	5.0	5.0	6.1	4.0	1.3	2.5	4.4	7.7	5.8	2.5	5.6	12.3	8.6	10.0	1.9	1.0	479.
14	8.5	7.5	5.2	5.6	4.6	5.4	2.5	3.1	4.0	6.9	6.0	3.7	7.5	12.7	7.7	5.6	0.6	2.7	480.
15	4.6	3.7	6.2	5.4	4.2	6.2	2.7	2.9	4.6	7.3	5.2	3.5	9.8	13.7	7.3	4.6	1.5	6.5	480.
16	4.0	2.1	2.9	4.2	6.7	6.7	3.3	4.0	5.4	6.9	3.3	5.6	13.1	14.6	5.6	3.3	1.2	7.1	480.
17	2.9	2.1	0.8	1.2	5.2	7.1	5.0	4.8	4.6	8.3	7.9	8.1	14.0	15.6	3.5	2.7	0.6	5.4	480.
18	1.9	1.5	1.0	0.6	3.3	5.8	4.6	5.2	6.5	10.0	9.0	10.0	16.9	13.5	4.4	2.1	0.4	3.3	480.
19	1.5	1.2	1.0	1.2	1.7	5.4	4.4	2.9	6.0	8.7	12.1	15.2	15.6	13.3	3.7	2.3	0.6	2.9	480.
20	0.8	1.0	1.2	1.2	1.7	3.7	2.9	4.6	4.0	7.5	12.1	14.4	16.9	15.8	3.1	3.1	1.5	4.4	480.
21	1.0	1.2	1.5	0.8	2.9	2.3	2.5	4.0	5.4	7.3	11.5	13.5	15.4	16.0	3.7	3.5	1.0	6.2	480.
22	0.8	1.2	1.0	1.2	1.9	3.3	3.5	4.6	4.0	8.7	9.6	12.7	15.8	15.6	5.8	3.3	1.0	5.6	480.
23	1.2	0.8	1.2	0.6	0.8	3.3	3.7	4.4	5.0	6.9	8.3	14.2	17.5	14.4	6.9	2.9	1.9	5.8	480.
TOTAL	3.4	2.6	2.3	2.5	3.1	4.4	3.3	4.2	5.2	7.3	7.1	8.4	13.4	15.1	6.9	4.6	1.4	4.7	11518.

MONTH 12

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.2	0.6	0.2	1.8	2.2	3.8	3.8	3.8	4.2	8.3	4.8	8.9	19.8	18.7	5.8	2.8	2.4	6.7	496.
1	1.0	1.0	1.0	1.8	2.8	3.8	3.0	3.8	4.6	8.9	7.1	8.1	18.3	16.3	5.4	3.4	2.2	7.3	496.
2	1.4	0.8	1.4	2.6	2.6	3.8	3.0	3.4	5.4	7.9	8.3	8.9	15.1	20.0	5.2	1.6	1.0	7.5	496.
3	2.0	2.4	0.8	3.2	2.4	3.0	3.2	4.0	4.6	8.9	7.9	6.2	16.1	18.7	6.5	3.6	1.4	4.8	496.
4	1.4	2.2	2.0	1.2	2.4	3.2	3.4	2.6	4.8	5.4	8.7	9.1	16.1	19.4	6.2	2.4	2.0	7.3	496.
5	1.6	1.4	1.8	2.6	2.6	3.2	4.8	3.8	4.6	6.9	6.7	8.1	17.1	16.3	6.5	3.8	1.0	7.1	496.
6	2.4	2.4	1.6	3.6	2.0	3.6	3.6	4.6	4.6	5.8	6.7	6.9	15.3	18.7	4.8	3.4	1.4	8.3	496.
7	2.2	2.0	1.6	2.4	2.0	4.4	4.0	4.6	6.2	5.6	6.5	7.5	14.5	18.5	4.0	3.6	1.8	8.3	496.
8	1.2	1.8	1.8	2.0	2.8	4.0	4.0	5.4	6.5	5.0	5.6	6.0	13.1	17.7	7.9	5.2	2.4	7.3	496.
9	2.6	2.4	2.6	1.8	2.6	4.6	3.6	3.4	5.8	5.2	5.4	5.6	13.3	17.5	7.7	5.8	1.8	7.9	496.
10	4.6	2.4	3.2	1.2	2.0	4.0	4.6	3.4	5.6	4.0	6.2	4.0	10.7	21.0	9.7	6.7	1.4	5.0	496.
11	5.6	4.4	3.0	1.8	3.4	3.8	3.0	2.6	4.4	5.0	5.6	2.6	7.7	20.8	11.1	8.9	2.2	3.8	496.
12	5.8	6.2	4.4	1.6	3.6	4.8	1.2	2.0	3.4	7.7	4.2	4.0	7.1	19.0	9.7	8.1	2.0	5.0	496.
13	5.2	3.8	3.4	3.6	4.0	5.0	1.6	2.8	3.6	7.1	5.2	4.0	7.5	18.7	7.7	8.7	1.8	6.0	496.
14	5.8	4.2	3.6	3.0	4.8	5.6	2.2	2.6	3.6	8.1	5.2	3.2	9.9	17.7	7.7	4.0	1.2	7.3	496.
15	4.0	3.8	2.8	4.6	4.0	4.6	3.8	3.0	4.6	8.9	3.2	3.6	11.3	21.4	5.8	2.6	1.0	6.7	496.
16	2.6	2.2	2.4	2.8	5.4	5.8	3.8	3.2	4.6	8.5	3.8	5.0	13.7	18.3	4.0	4.0	0.6	8.9	496.
17	1.6	1.8	2.2	2.6	5.2	4.6	3.6	2.6	4.0	8.5	7.1	6.5	14.7	17.1	4.4	3.6	1.2	8.5	496.
18	0.8	1.0	1.4	1.4	2.6	4.2	5.0	4.4	3.8	6.5	7.1	9.3	17.3	16.7	5.4	3.0	3.4	7.5	496.
19	1.8	1.6	0.8	0.6	1.2	5.2	4.2	3.0	4.4	7.9	7.3	9.9	18.5	16.9	5.4	3.0	1.6	6.5	496.
20	1.4	1.0	0.8	1.6	2.4	4.4	2.2	2.4	2.2	7.7	9.5	6.9	20.2	18.1	5.4	3.8	2.0	7.9	496.
21	1.0	2.4	0.4	2.4	2.2	4.0	2.6	4.0	3.0	6.9	11.1	9.7	18.3	16.1	5.0	3.0	1.0	6.7	496.
22	1.4	1.0	2.0	1.6	1.8	3.6	3.2	4.2	3.8	7.9	9.1	10.1	20.0	14.9	5.0	2.2	1.6	6.5	496.
23	1.6	0.8	1.0	2.2	2.4	2.6	3.8	4.6	3.0	7.3	9.5	12.1	19.0	17.1	4.8	1.8	1.2	5.0	496.
TOTAL	2.5	2.3	1.9	2.3	2.9	4.2	3.4	3.5	4.4	7.1	6.7	8.1	14.8	18.2	6.3	4.1	1.6	6.8	11904.

TABLE 45 (CONTD)
COMPOSITE HOUR VS. 50 FOOT DIRECTION

MONTH 13

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.2	0.7	0.5	0.9	1.3	2.1	1.6	2.3	3.2	6.0	8.6	18.1	28.1	16.5	3.9	2.0	0.9	2.1	5844.
1	1.0	1.0	0.7	0.9	1.3	2.0	2.1	2.6	3.6	6.3	9.7	18.0	26.4	15.6	3.4	2.1	0.9	2.6	5844.
2	1.3	1.0	0.8	1.2	1.5	2.5	2.1	2.8	3.8	7.0	10.0	16.8	24.4	15.3	3.7	2.0	1.1	2.7	5844.
3	1.3	1.1	0.8	1.1	1.8	3.0	2.4	3.3	4.4	7.0	11.1	15.5	22.1	15.4	3.6	2.2	1.5	2.5	5844.
4	1.3	1.0	0.9	1.1	1.5	3.1	2.7	3.7	4.9	7.4	10.8	15.0	21.0	14.9	4.2	2.1	1.3	3.0	5844.
5	1.4	1.1	0.8	1.5	1.4	3.1	3.0	4.3	4.3	7.5	9.9	14.0	20.1	15.5	4.5	2.5	1.6	3.5	5845.
6	1.7	1.5	1.1	1.6	1.7	2.9	2.9	3.7	4.1	6.4	8.7	10.4	19.4	20.1	5.3	3.4	1.4	3.7	5844.
7	3.4	2.5	1.6	1.5	1.4	3.1	2.8	3.5	3.8	4.9	6.8	7.6	15.7	22.7	8.7	4.8	1.7	3.3	5844.
8	5.5	4.8	2.0	2.1	2.1	3.0	2.6	2.5	3.6	4.9	5.8	4.8	11.3	21.0	10.5	8.0	2.9	2.6	5844.
9	6.8	6.1	3.0	3.1	2.5	3.5	2.6	2.7	3.7	5.9	5.5	4.1	8.7	16.5	8.8	9.8	5.1	1.8	5844.
10	7.3	6.6	3.4	3.6	3.5	4.0	3.0	3.5	4.5	6.6	5.9	3.4	7.3	13.3	7.8	9.1	5.9	1.2	5844.
11	7.6	7.4	3.6	3.9	3.7	4.4	2.8	3.6	5.2	8.4	5.9	3.5	6.0	11.9	6.3	8.8	8.3	0.8	5844.
12	7.4	7.0	3.7	3.6	4.2	4.6	2.7	3.9	5.4	9.7	6.2	3.8	5.1	11.4	6.5	7.7	8.3	0.7	5843.
13	7.4	6.7	3.7	3.4	4.0	5.0	2.4	3.6	5.6	10.3	7.7	4.0	5.4	10.6	5.5	7.7	5.9	0.9	5843.
14	7.1	6.7	3.9	3.7	4.3	4.8	2.6	3.7	4.9	10.6	8.2	4.2	6.3	11.7	5.0	6.6	4.6	1.1	5844.
15	6.3	6.5	3.8	4.0	4.1	5.5	2.7	3.5	4.8	9.6	8.0	4.5	7.3	13.6	4.2	6.4	3.5	1.7	5844.
16	5.6	5.0	3.8	4.2	4.5	5.7	3.2	2.8	4.7	8.1	7.6	5.1	9.2	16.7	3.8	5.1	2.1	2.8	5844.
17	4.1	4.3	3.2	4.6	4.5	5.9	3.7	3.1	3.9	7.5	8.0	5.7	11.3	18.3	3.2	4.4	1.1	2.9	5844.
18	2.8	3.0	2.8	3.7	4.0	6.2	4.5	3.4	4.0	7.1	7.9	6.7	14.0	20.3	3.4	3.2	0.6	2.4	5844.
19	1.9	2.2	1.8	3.0	3.2	5.9	4.3	3.4	3.5	7.2	8.7	8.7	17.2	21.1	2.6	2.7	0.5	1.9	5844.
20	1.4	1.5	1.3	2.0	2.1	3.4	3.9	2.5	3.2	7.5	10.6	10.8	20.9	20.8	3.0	2.1	0.8	2.2	5844.
21	1.4	1.2	0.8	1.2	1.4	2.3	2.4	2.5	3.0	6.9	11.5	14.3	22.8	20.7	2.9	1.9	0.7	2.1	5844.
22	1.4	1.0	0.9	0.9	0.9	1.9	1.5	2.5	2.4	5.7	11.6	16.9	26.4	18.0	3.4	2.1	0.7	2.1	5844.
23	1.0	0.9	0.7	0.9	0.8	1.7	1.7	2.3	2.7	5.3	9.8	19.6	27.6	16.6	3.6	2.0	0.8	2.0	5843.
TOTAL	3.6	3.4	2.1	2.4	2.6	3.7	2.8	3.2	4.1	7.2	8.5	9.8	16.0	16.6	4.9	4.5	2.4	2.2	140254.

TABLE 46
COMPOSITE HOUR VS. 200 FOOT DIRECTION

MONTH 1

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	5.0	1.6	1.0	1.2	2.6	4.4	3.0	2.4	3.4	7.1	5.8	7.5	14.7	24.4	6.9	4.8	0.6	3.4	496.
1	3.6	2.0	1.6	1.6	2.2	4.2	2.2	3.4	4.2	6.2	5.4	7.3	14.7	25.0	6.2	5.0	0.6	4.2	496.
2	3.4	1.8	1.4	1.8	2.8	4.8	3.2	2.4	3.6	6.7	5.2	5.0	13.3	26.8	7.3	5.2	1.4	3.6	496.
3	2.2	3.0	1.2	2.2	2.6	4.8	3.2	2.8	4.4	5.4	5.6	7.3	15.5	22.2	8.9	3.6	1.0	3.8	496.
4	2.4	2.0	1.0	2.0	3.0	4.8	3.2	2.4	4.0	6.0	6.2	7.1	13.9	24.8	9.1	3.0	0.8	4.0	496.
5	3.0	2.0	1.8	2.8	2.8	6.2	2.2	3.2	3.4	4.2	5.4	8.3	12.3	23.4	8.5	4.8	1.6	3.8	496.
6	2.8	1.2	1.0	1.0	2.8	6.5	2.6	3.8	3.4	4.4	6.0	6.7	15.3	21.6	8.1	5.8	2.0	4.8	496.
7	3.0	2.6	1.4	1.2	1.6	4.6	4.2	3.8	4.0	5.2	5.2	7.5	12.1	22.8	9.3	6.5	1.2	3.6	496.
8	4.6	2.4	1.4	2.8	2.0	4.4	3.4	4.6	4.4	3.8	4.6	7.7	11.1	25.0	8.3	3.6	1.0	4.6	496.
9	3.8	3.0	1.2	2.0	2.6	5.0	3.6	3.8	3.8	6.5	4.6	5.2	9.5	24.8	9.1	5.2	1.4	4.6	496.
10	4.4	6.0	3.2	2.0	2.0	5.4	3.2	3.2	6.7	4.2	5.2	3.6	7.5	22.8	10.7	5.4	1.8	2.4	496.
11	6.2	6.0	4.8	3.0	3.0	3.8	2.2	2.2	5.2	6.7	5.0	2.0	7.1	22.0	11.9	6.0	0.6	2.0	496.
12	6.7	6.0	3.8	3.6	5.2	3.6	2.6	1.8	5.0	6.2	4.8	1.8	5.6	22.4	9.3	9.1	1.0	1.2	496.
13	7.5	6.0	3.4	4.8	6.7	4.6	3.6	2.2	6.0	5.4	5.6	2.6	4.4	17.7	9.1	7.5	0.8	1.8	496.
14	5.6	5.0	4.0	5.8	6.5	5.8	3.6	3.4	4.0	5.6	4.6	3.2	4.8	17.7	9.7	8.5	0.8	1.0	496.
15	4.2	6.7	3.4	5.2	5.2	6.0	4.4	3.0	5.2	5.8	4.2	2.2	6.9	18.1	7.9	6.7	0.6	4.0	496.
16	3.8	4.4	3.2	3.0	4.8	5.2	5.2	3.8	2.6	7.5	4.8	2.6	8.3	23.0	6.0	5.0	0.4	6.0	496.
17	2.0	2.6	3.6	1.4	4.8	4.4	5.4	3.6	3.8	7.1	4.4	5.8	13.9	20.6	5.4	4.6	1.0	5.2	496.
18	2.2	2.2	1.6	2.2	3.6	4.6	5.0	2.6	3.6	7.3	5.0	7.1	13.7	23.0	7.3	4.0	0.4	4.4	496.
19	1.6	2.8	0.8	2.2	1.8	4.4	3.6	4.0	2.6	6.7	7.3	8.9	14.3	23.6	5.6	5.4	0.8	3.4	496.
20	3.0	2.2	1.2	1.2	2.2	3.4	4.0	2.2	3.2	6.9	6.5	8.5	15.9	23.0	6.7	5.4	0.8	3.6	496.
21	2.6	1.6	1.2	1.4	2.4	3.8	2.8	3.8	2.0	5.2	6.5	9.3	15.9	24.8	7.1	5.4	0.8	3.2	496.
22	3.4	3.2	0.6	1.8	2.8	2.6	2.6	1.6	3.0	7.3	4.8	9.1	15.7	24.0	7.3	5.4	1.2	3.4	496.
23	2.6	3.0	1.0	1.8	0.6	4.8	2.2	2.4	2.6	6.2	7.5	7.9	16.9	23.0	7.7	4.4	0.4	4.8	496.
TOTAL	3.8	3.3	2.0	2.4	3.2	4.7	3.4	3.0	3.9	6.0	5.5	6.0	11.8	22.8	8.0	5.5	1.0	3.6	11904.

MONTH 2

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	3.3	2.0	0.	1.1	1.8	2.2	2.7	2.4	2.4	8.0	8.4	11.5	16.8	24.1	6.2	4.6	0.2	2.2	452.
1	1.8	3.1	0.9	0.9	1.8	4.6	2.4	2.7	2.9	5.1	7.7	12.8	18.4	21.7	6.9	4.0	0.7	1.8	452.
2	2.2	0.9	1.5	0.4	2.0	2.9	2.9	3.5	2.2	5.3	6.4	12.6	19.5	23.0	7.1	4.0	1.1	2.4	452.
3	2.7	2.7	0.7	2.0	1.5	2.7	2.4	2.9	3.3	3.8	6.4	11.9	17.9	23.2	8.2	3.5	0.9	3.3	452.
4	2.4	1.8	0.7	2.4	1.5	3.5	3.3	2.9	2.7	5.3	5.5	10.4	17.9	24.8	8.6	3.1	0.4	2.7	452.
5	2.4	1.8	0.9	2.0	2.0	3.8	2.9	3.1	2.7	5.8	5.5	13.5	16.4	21.2	8.4	4.4	0.9	2.4	452.
6	2.9	2.4	1.5	1.8	2.2	3.1	2.2	2.4	4.0	5.8	6.6	10.4	16.2	24.1	8.2	3.1	1.1	2.0	452.
7	4.2	1.8	1.5	2.0	2.0	2.4	2.0	3.8	4.2	6.2	5.5	10.8	13.5	25.7	7.3	3.5	0.4	3.1	452.
8	4.2	3.1	2.7	1.3	1.5	2.7	3.5	3.1	3.3	4.6	5.5	8.6	12.8	27.0	9.1	2.2	2.0	2.7	452.
9	4.0	3.3	3.3	2.0	1.5	3.1	3.1	2.2	3.5	6.2	4.4	6.6	11.5	27.0	10.8	5.1	0.7	1.5	452.
10	5.1	4.9	4.2	2.0	3.1	2.0	2.0	1.5	4.0	7.1	4.9	3.8	7.7	25.0	11.1	8.6	1.5	1.5	452.
11	8.2	7.7	4.2	3.8	2.0	3.3	1.5	1.8	3.3	8.2	5.1	3.8	7.7	21.0	7.7	9.7	0.2	0.7	452.
12	8.2	8.2	3.3	4.2	2.4	4.4	2.0	1.8	4.9	7.1	5.8	3.3	7.7	17.7	8.0	10.0	0.9	0.2	452.
13	9.5	6.4	2.9	3.5	3.5	4.4	1.3	2.7	5.3	6.9	5.5	4.2	7.1	16.4	8.2	10.8	0.9	0.4	452.
14	11.7	5.3	3.1	6.4	4.0	2.9	1.8	2.0	4.4	8.4	7.3	3.1	7.7	13.9	7.3	8.0	1.3	1.3	452.
15	10.0	7.1	3.8	4.2	4.0	5.8	2.2	2.0	4.6	8.6	6.6	4.0	6.6	15.0	6.0	8.4	0.7	0.4	452.
16	7.1	5.1	4.9	3.3	4.4	5.3	2.9	1.3	5.3	7.7	6.0	5.5	8.0	16.6	7.3	6.9	0.4	2.0	452.
17	5.1	4.2	2.7	4.0	3.1	6.9	2.2	2.7	3.8	7.1	7.1	4.0	11.9	17.9	7.3	6.2	0.7	3.3	452.
18	3.5	2.9	2.7	2.9	2.4	6.6	3.5	2.7	4.6	9.3	5.3	6.2	13.5	20.1	7.3	4.4	0.2	1.8	452.
19	3.1	1.8	2.2	0.9	2.4	4.6	5.3	1.8	3.8	6.9	8.2	10.0	16.2	21.7	4.6	4.0	0.	2.7	452.
20	2.0	1.3	0.9	0.7	3.1	3.3	1.5	3.8	3.1	8.2	8.2	14.6	16.2	19.2	7.7	2.7	0.2	3.3	452.
21	1.8	1.5	0.4	0.4	2.0	2.7	2.0	3.1	2.9	7.5	7.5	13.7	18.1	21.0	7.1	4.2	0.9	3.1	452.
22	2.0	1.1	0.7	0.9	2.0	3.1	1.8	2.7	3.1	6.6	6.9	13.7	18.4	22.3	6.9	4.9	0.4	2.7	452.
23	2.4	1.3	1.3	0.7	0.7	2.7	2.4	2.9	3.1	8.0	8.4	9.5	18.1	24.3	7.1	3.8	0.2	3.1	452.
TOTAL	4.6	3.4	2.1	2.2	2.4	3.7	2.5	2.6	3.6	6.8	6.5	8.7	13.6	21.4	7.7	5.4	0.7	2.1	10848.

TABLE 46 (CONTD)
COMPOSITE HOUR VS. 200 FOOT DIRECTION

MONTH 3

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	2.2	0.6	0.6	0.6	1.2	2.4	2.2	1.8	3.6	7.1	9.3	14.5	21.2	22.6	5.2	4.0	0.2	0.6	496.
1	1.6	0.6	0.6	0.6	1.0	3.2	2.2	2.2	4.2	7.5	8.5	15.1	20.6	22.0	6.0	2.8	0.6	0.6	496.
2	1.0	1.2	0.4	1.6	2.2	2.6	2.4	2.6	3.4	7.9	7.5	14.3	20.0	23.2	6.2	2.4	0.4	0.6	496.
3	2.4	0.4	1.0	1.6	1.4	2.6	2.2	2.8	3.2	8.3	7.1	13.9	20.8	20.0	7.1	3.4	0.6	1.2	496.
4	1.8	1.8	1.0	1.4	1.8	2.4	2.4	3.0	3.8	7.1	8.9	13.7	20.0	19.2	7.1	3.4	0.4	0.8	496.
5	2.6	2.2	0.8	1.2	2.2	1.8	1.4	2.6	5.4	7.3	8.7	13.3	17.5	20.0	6.9	3.4	1.0	1.6	496.
6	4.2	1.6	0.6	0.8	2.6	2.6	3.6	2.4	4.6	7.3	10.1	10.9	19.0	18.7	6.2	3.2	0.6	0.8	496.
7	2.6	2.8	1.4	1.0	2.6	3.6	1.0	2.2	7.5	5.2	8.5	9.7	19.6	19.0	8.1	4.2	0.4	0.6	496.
8	5.0	4.4	1.4	0.4	2.4	2.6	2.0	3.2	5.0	6.0	8.7	5.2	11.5	24.8	10.5	5.6	0.6	0.4	496.
9	6.5	6.5	2.0	2.2	1.8	3.6	1.2	2.2	3.8	8.3	8.5	3.2	7.3	17.3	13.1	10.9	1.6	0.	496.
10	8.7	8.5	4.4	3.6	2.6	1.6	3.0	2.6	6.0	8.9	9.1	2.2	5.6	11.5	9.7	9.5	2.4	0.	496.
11	11.3	7.3	5.8	2.4	2.8	2.4	3.0	3.0	8.3	10.1	8.7	2.8	4.4	8.9	6.9	10.1	1.6	0.2	496.
12	8.7	7.1	2.4	3.6	3.6	4.2	3.2	3.2	8.3	12.1	8.7	1.8	4.6	9.7	5.4	11.9	1.4	0.	496.
13	10.7	7.7	3.8	3.6	3.2	4.6	2.8	3.8	7.9	13.1	9.1	3.0	4.6	8.5	6.2	6.9	0.4	0.	496.
14	7.9	7.9	3.0	3.0	3.2	5.2	2.4	3.2	8.3	13.9	8.3	3.8	4.4	10.9	5.2	7.7	1.6	0.	496.
15	8.9	5.6	3.8	2.6	4.0	6.0	3.4	4.2	5.8	14.3	10.1	2.6	5.0	10.9	2.8	8.3	1.2	0.2	496.
16	7.5	5.0	3.8	3.8	3.4	7.3	3.8	4.0	6.9	12.5	7.5	4.2	7.1	12.1	3.6	6.5	0.4	0.6	496.
17	5.8	4.4	3.6	4.8	3.6	6.9	5.2	3.2	7.1	9.7	8.7	4.6	9.1	12.5	4.2	5.2	0.2	1.0	496.
18	4.0	3.4	1.6	2.6	4.0	6.7	6.0	3.6	6.5	9.5	10.7	4.0	11.9	14.9	4.0	5.2	0.	1.2	496.
19	2.8	1.4	1.2	2.8	3.0	5.4	4.8	4.6	4.6	11.5	9.1	7.9	16.5	15.3	4.0	4.0	0.4	0.4	496.
20	2.4	1.4	1.0	2.6	1.8	3.2	5.8	4.0	3.8	8.5	11.9	11.5	20.0	15.9	3.0	2.2	0.4	0.4	496.
21	1.0	2.0	1.0	0.8	3.2	1.8	4.0	2.2	3.4	8.5	11.3	14.1	21.8	16.3	3.4	3.8	0.6	0.6	496.
22	2.4	1.6	1.2	0.8	1.2	3.0	1.4	2.2	3.6	7.1	10.5	15.9	21.6	19.0	4.4	3.4	0.2	0.4	496.
23	1.6	1.6	0.4	1.6	0.6	2.4	1.4	2.4	2.6	8.3	9.5	13.5	25.8	18.7	5.2	3.2	0.8	0.2	496.
TOTAL	4.7	3.6	2.0	2.1	2.5	3.7	3.0	3.0	5.3	9.1	9.1	8.6	14.2	16.3	6.0	5.5	0.8	0.5	11904.

MONTH 4

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.0	0.4	0.6	0.	1.7	1.5	1.5	0.4	2.9	6.2	9.6	17.9	28.7	20.4	4.0	3.1	0.	0.	480.
1	1.2	0.	0.2	0.2	1.5	2.1	0.2	2.3	1.5	5.8	11.0	19.8	28.1	18.3	4.6	2.7	0.4	0.	480.
2	1.0	0.4	0.4	1.0	1.9	1.7	0.4	1.0	1.9	5.6	11.9	17.3	26.7	19.2	6.5	2.1	0.8	0.2	480.
3	0.6	0.8	0.2	1.2	1.0	2.5	0.8	1.9	1.9	7.5	11.7	18.3	23.5	18.1	5.2	3.3	1.0	0.2	480.
4	0.8	1.0	1.0	0.4	1.5	1.2	1.2	1.7	2.9	7.7	12.1	17.1	23.3	18.5	5.0	2.7	0.6	1.0	480.
5	0.8	0.4	1.0	1.2	1.9	2.3	1.7	2.1	2.1	6.2	11.0	19.0	24.0	17.3	5.8	1.7	0.4	1.0	480.
6	1.0	0.6	0.4	1.7	1.5	1.9	1.9	1.9	3.3	5.8	11.7	17.1	18.3	20.2	6.0	4.6	0.6	1.5	480.
7	2.5	2.7	2.9	2.9	0.4	2.5	1.9	2.3	2.9	5.6	9.6	10.2	16.5	20.8	8.1	6.0	1.2	0.8	480.
8	5.8	6.7	2.9	2.5	1.5	2.1	1.5	2.1	3.3	5.6	9.8	4.6	12.5	21.2	10.4	6.9	0.2	0.4	480.
9	7.1	7.7	3.3	3.5	2.3	2.1	1.2	3.1	4.8	8.7	7.1	3.7	7.9	14.2	9.6	10.2	3.3	0.	480.
10	7.5	7.1	2.7	6.2	3.1	3.1	3.3	2.5	7.5	9.2	8.3	3.5	6.7	12.3	5.8	9.0	2.1	0.	480.
11	8.1	6.5	4.6	2.7	2.9	5.0	4.2	3.7	7.1	11.9	6.9	5.4	8.1	9.8	4.0	7.5	1.7	0.	480.
12	6.0	6.0	3.5	4.2	3.1	4.0	3.3	5.8	7.7	13.3	9.6	4.0	5.8	10.4	4.6	6.2	2.3	0.	480.
13	7.5	7.1	1.9	2.9	2.9	4.6	2.5	3.5	7.5	15.2	12.3	4.0	6.9	8.3	4.4	5.8	2.7	0.	480.
14	6.9	5.8	3.5	4.2	2.5	4.0	2.5	5.6	6.7	15.4	9.8	6.7	6.9	7.9	4.6	5.2	1.9	0.	480.
15	5.0	6.2	4.0	2.7	3.3	5.4	3.5	3.3	6.0	14.4	9.4	4.8	8.3	12.9	3.1	6.9	0.6	0.	480.
16	6.0	4.4	5.0	3.3	3.3	5.2	3.3	3.1	5.0	10.8	11.0	7.3	9.6	14.8	2.9	3.7	1.0	0.	480.
17	4.2	3.5	4.6	5.6	3.7	5.6	3.3	3.1	4.4	10.0	11.2	5.2	12.7	15.6	3.1	3.1	0.6	0.2	480.
18	3.3	3.1	4.6	4.8	2.9	5.4	6.5	4.2	4.8	7.9	9.4	5.0	13.7	18.5	2.1	3.3	0.	0.4	480.
19	2.9	1.5	2.7	4.6	3.3	5.2	5.4	4.4	3.5	9.6	7.1	7.9	17.3	20.4	1.0	2.7	0.2	0.2	480.
20	1.0	2.7	2.3	2.3	1.0	4.0	4.0	3.3	4.4	9.2	9.6	6.9	27.5	19.2	0.8	1.7	0.2	0.	480.
21	1.5	2.7	0.6	1.2	0.4	2.7	3.5	1.9	3.7	7.3	12.1	9.2	31.0	18.1	1.5	1.9	0.2	0.4	480.
22	0.6	1.5	0.6	0.6	0.8	1.9	1.5	1.9	3.7	5.4	9.2	16.9	32.3	17.3	2.7	2.3	0.6	0.2	480.
23	1.5	0.6	0.8	0.6	0.6	1.5	0.6	2.1	2.7	5.0	11.5	16.7	29.8	18.3	4.8	2.3	0.4	0.2	480.
TOTAL	3.5	3.3	2.3	2.5	2.0	3.2	2.5	2.8	4.3	8.7	10.1	10.3	17.8	16.3	4.6	4.4	1.0	0.3	11520.

TABLE 46 (CONTD)
COMPOSITE HOUR VS. 200 FOOT DIRECTION

MONTH 5

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	0.4	0.4	0.6	0.2	1.0	1.4	0.6	1.0	0.8	2.8	7.1	18.5	40.1	18.1	5.2	1.6	0.	0.	496.
1	0.4	0.8	0.4	0.4	0.2	1.4	0.6	0.4	1.0	3.6	10.1	16.5	37.7	19.0	4.4	2.0	0.2	0.8	496.
2	0.6	0.8	1.6	0.	0.8	1.2	0.6	0.6	2.6	2.6	10.5	16.5	36.1	18.5	3.2	3.2	0.2	0.2	496.
3	0.4	1.0	0.6	0.2	0.8	2.2	1.2	0.4	1.8	4.2	8.9	20.2	32.5	18.1	3.0	3.4	0.2	0.8	496.
4	0.8	0.4	0.2	1.2	0.6	1.6	2.0	1.2	1.8	1.6	12.5	17.1	32.5	17.7	4.0	2.4	1.2	1.0	496.
5	0.4	0.8	0.6	1.4	1.0	2.2	1.0	1.8	2.0	2.6	10.1	21.6	27.8	18.7	4.2	2.4	0.4	0.8	496.
6	0.6	1.4	1.6	0.8	1.8	2.8	1.6	1.8	0.6	4.2	10.1	11.7	25.0	23.6	6.5	3.2	0.8	1.8	496.
7	3.6	3.2	1.6	1.4	1.0	1.4	1.0	1.8	1.6	5.2	6.7	5.4	17.1	29.6	10.7	6.9	0.4	1.2	496.
8	6.9	5.8	2.8	2.8	1.4	3.2	1.0	1.4	1.6	4.4	7.9	3.2	12.5	20.8	12.5	9.5	2.2	0.	496.
9	7.1	6.9	3.2	3.4	3.2	2.2	2.8	2.6	3.8	9.3	6.7	3.4	8.1	14.1	8.3	9.9	5.0	0.	496.
10	6.5	6.9	2.4	3.2	3.4	5.8	2.8	5.6	6.5	8.7	7.1	5.8	5.6	9.7	5.0	9.9	5.0	0.	496.
11	6.2	7.1	2.2	4.4	4.0	5.4	2.8	6.5	6.5	9.5	9.9	6.0	5.0	9.1	3.6	6.9	4.8	0.	496.
12	5.4	7.1	5.0	3.4	3.2	3.8	4.6	6.0	5.8	12.3	7.5	6.0	6.0	7.7	4.8	5.0	6.0	0.	496.
13	6.2	7.7	5.0	3.8	2.2	6.9	3.6	4.2	6.7	11.7	9.1	5.6	6.7	9.3	2.8	4.2	4.0	0.2	496.
14	6.0	6.5	4.0	4.4	3.2	4.4	3.0	4.6	5.2	10.9	10.7	6.5	6.5	10.7	4.2	5.4	3.6	0.	496.
15	5.4	10.1	3.4	3.8	2.8	6.2	2.6	4.6	5.0	9.3	10.1	3.6	6.9	14.9	2.6	6.0	2.4	0.	496.
16	5.0	8.3	4.6	4.0	3.2	5.8	3.2	3.2	4.6	6.2	8.7	4.6	7.7	20.8	2.8	5.4	1.6	0.	496.
17	3.8	8.1	5.0	4.6	4.0	4.4	4.6	3.2	4.2	7.1	6.2	3.2	9.5	23.6	2.4	4.4	1.2	0.2	496.
18	3.8	3.8	5.2	5.6	3.0	6.2	5.4	2.2	2.6	4.6	5.2	4.6	13.1	28.2	2.0	3.0	0.2	0.8	496.
19	2.2	5.4	2.2	4.0	6.0	4.0	5.6	3.4	1.8	3.4	4.8	4.6	19.6	28.2	1.6	2.0	0.4	0.4	496.
20	2.4	3.4	3.2	2.8	2.6	5.8	4.8	2.2	2.2	4.6	5.2	5.8	24.6	26.0	2.6	1.0	0.4	0.	496.
21	1.8	2.4	2.0	0.6	1.2	3.2	5.2	2.6	1.8	4.2	7.3	10.9	30.2	23.8	1.4	1.2	0.	0.	496.
22	1.6	1.8	0.6	0.6	1.0	1.8	1.8	2.6	1.0	2.6	8.7	15.1	37.5	20.4	1.8	1.0	0.	0.	496.
23	1.2	0.6	0.6	1.0	0.2	1.0	1.4	1.4	0.6	1.6	7.1	19.0	38.5	20.0	3.4	2.2	0.	0.2	496.
TOTAL	3.3	4.2	2.5	2.4	2.2	3.5	2.7	2.7	3.0	5.7	8.2	9.8	20.3	18.8	4.3	4.3	1.7	0.4	11904.

MONTH 6

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.7	1.0	0.4	0.4	0.2	0.4	0.	0.6	0.8	1.2	5.6	18.1	40.6	21.9	4.6	1.5	0.8	0.	480.
1	1.2	0.8	0.2	0.8	0.6	0.4	0.	0.8	0.6	0.8	7.3	18.3	39.2	22.5	4.2	1.9	0.2	0.	480.
2	1.2	1.2	0.	0.4	0.4	1.0	0.8	1.2	0.4	2.7	8.1	20.0	36.5	19.4	5.0	1.5	0.	0.	480.
3	1.0	0.6	0.6	0.6	0.6	0.8	0.8	1.0	0.6	2.3	9.8	20.4	33.3	21.5	3.5	2.3	0.	0.	480.
4	1.5	0.4	0.2	0.4	0.2	1.2	0.8	1.5	1.0	4.4	11.5	20.0	30.4	19.6	3.5	2.5	0.	0.8	480.
5	1.9	0.4	0.	0.6	0.6	1.5	1.0	1.2	2.3	4.0	8.5	18.5	28.5	24.0	3.3	1.0	1.5	1.0	480.
6	2.9	1.2	1.0	1.0	0.8	1.5	2.5	1.9	1.2	4.0	8.7	8.5	23.7	28.5	6.9	4.0	0.4	1.0	480.
7	5.0	3.5	1.7	1.2	1.5	1.5	1.9	2.1	2.5	2.1	6.7	6.9	15.8	26.0	12.5	7.0	1.0	0.2	480.
8	9.6	5.8	2.7	1.7	2.3	3.3	1.9	1.2	2.9	5.2	6.5	4.8	10.8	19.8	9.8	9.6	1.7	0.4	480.
9	7.1	5.8	2.9	4.8	3.5	4.6	1.7	4.6	3.5	5.4	9.2	5.4	7.5	12.7	8.1	8.3	4.8	0.	480.
10	6.7	8.5	1.9	4.6	4.0	6.5	4.2	3.7	5.2	9.8	7.1	4.6	5.8	10.2	5.6	7.3	4.4	0.	480.
11	7.1	7.5	2.9	4.0	1.7	7.1	5.4	4.6	7.5	10.8	7.1	5.4	7.7	8.3	2.5	6.5	4.0	0.	480.
12	6.0	6.2	4.8	3.1	2.5	4.2	2.7	5.2	7.9	13.7	7.7	6.7	4.8	8.3	3.7	6.2	6.0	0.	480.
13	6.2	4.2	3.1	5.0	2.5	4.8	2.9	4.2	6.7	16.7	9.6	5.2	5.4	10.6	3.3	4.6	5.0	0.	480.
14	5.6	6.2	3.1	2.9	2.3	4.4	2.7	5.0	5.6	12.9	12.5	5.4	6.9	11.5	2.7	5.2	5.0	0.	480.
15	5.6	6.0	4.2	3.1	3.1	3.3	2.1	4.4	6.9	9.4	12.3	6.2	7.7	13.3	4.4	5.2	2.7	0.	480.
16	6.2	5.8	3.1	3.7	3.1	3.3	3.5	3.3	3.7	7.9	10.0	6.0	7.3	21.2	5.2	5.4	0.8	0.	480.
17	4.8	6.2	4.2	5.2	4.0	3.1	2.5	1.9	2.3	5.6	9.6	5.2	7.5	29.4	2.7	4.8	0.8	0.2	480.
18	4.2	5.6	5.0	3.5	5.0	4.0	3.1	2.3	1.5	4.0	7.5	4.4	11.7	32.5	2.9	2.9	0.	0.	480.
19	3.1	4.8	4.0	2.7	7.1	4.6	2.9	1.0	1.9	2.7	5.4	3.7	18.7	32.7	1.7	2.1	0.4	0.4	480.
20	1.9	4.0	2.1	4.0	3.7	3.3	4.0	1.5	1.2	1.7	4.0	6.2	26.9	31.9	1.9	1.7	0.	0.2	480.
21	2.5	2.3	1.9	3.1	1.2	2.5	2.9	1.9	1.7	3.3	4.2	7.7	29.8	31.2	1.5	2.3	0.	0.	480.
22	1.7	1.9	0.8	0.8	0.2	1.5	1.9	1.5	1.0	2.3	5.4	12.3	37.1	28.7	1.9	0.8	0.	0.2	480.
23	1.2	1.0	1.0	0.4	0.4	0.6	0.6	0.8	0.4	1.7	5.0	14.2	40.6	26.2	3.3	1.7	0.2	0.4	480.
TOTAL	4.0	3.8	2.2	2.4	2.2	2.9	2.2	2.4	2.9	5.6	7.9	9.8	20.2	21.3	4.4	4.0	1.7	0.2	11520.

TABLE 46 (CONTD)
COMPOSITE HOUR VS. 200 FOOT DIRECTION

MONTH 7

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	0.8	0.4	0.6	0.	0.6	0.2	0.4	0.6	0.	1.0	4.0	12.7	44.6	28.2	3.6	2.2	0.	0.	496.
1	0.4	1.0	0.	0.8	0.2	0.4	0.	0.4	0.8	1.6	3.0	14.5	46.6	25.0	3.6	1.6	0.	0.	496.
2	0.2	0.2	0.2	0.4	0.2	0.2	1.0	0.4	0.4	1.8	6.5	17.1	46.2	19.0	3.2	2.4	0.4	0.2	496.
3	0.6	1.0	0.	0.6	0.2	0.2	0.4	0.8	0.6	2.8	5.8	21.8	39.5	19.8	3.4	2.0	0.	0.4	496.
4	0.	0.8	0.2	0.2	0.6	0.2	0.6	0.8	0.8	3.0	9.7	19.0	38.9	19.2	3.2	2.2	0.	0.6	496.
5	0.2	0.	0.6	0.4	0.2	1.2	1.0	1.8	0.6	3.8	9.1	19.2	32.9	23.0	4.6	1.0	0.2	0.2	496.
6	1.4	0.4	0.6	1.0	1.2	0.8	0.8	2.2	1.8	3.8	6.9	9.5	25.6	34.7	5.2	2.4	0.8	0.8	496.
7	3.6	2.8	0.8	0.8	1.0	1.2	1.8	1.6	1.4	2.6	4.2	4.8	13.7	36.9	12.7	9.1	0.8	0.	496.
8	8.5	7.3	3.2	3.0	2.0	1.8	2.2	1.0	2.0	2.8	5.0	2.6	6.5	21.4	16.7	10.9	3.0	0.	496.
9	9.9	9.1	3.2	5.0	4.0	3.8	3.4	3.6	1.4	6.5	4.0	2.0	4.8	10.5	6.0	15.1	7.5	0.	496.
10	7.9	9.1	4.2	4.0	6.5	6.7	4.4	4.4	5.8	8.1	5.6	3.2	3.8	5.6	4.4	9.1	6.9	0.2	496.
11	7.5	8.3	2.2	4.4	5.6	7.3	4.4	6.0	6.0	10.1	5.6	4.6	4.0	6.5	3.4	7.1	8.9	0.	496.
12	8.3	6.9	5.2	2.6	2.8	5.8	3.8	5.0	6.0	13.1	8.3	5.4	3.4	4.6	3.8	4.4	10.3	0.	496.
13	6.5	8.1	2.4	4.0	4.2	5.0	3.0	4.2	7.1	12.9	10.7	5.4	3.6	6.5	3.4	6.9	8.0	0.	496.
14	7.9	7.1	3.2	3.4	2.6	4.8	2.6	5.6	4.2	14.1	11.9	6.0	4.4	9.1	2.6	5.2	5.0	0.	496.
15	6.2	8.9	3.4	4.2	2.8	4.0	2.0	4.8	3.2	10.9	11.7	6.7	6.2	9.5	3.0	6.2	8.0	0.	496.
16	7.3	6.2	4.4	6.0	2.6	3.2	2.0	2.0	3.2	8.7	12.9	7.1	7.1	16.7	1.8	6.0	2.6	0.	496.
17	6.7	7.3	4.4	6.7	3.0	4.8	0.8	2.6	3.0	6.0	11.3	7.3	5.4	22.6	1.8	5.2	1.0	0.	496.
18	6.2	6.0	4.4	5.4	4.8	5.2	1.4	2.4	1.8	3.6	8.7	5.8	7.7	29.6	2.2	4.0	0.2	0.2	496.
19	5.8	4.2	3.6	5.8	5.2	4.8	1.6	1.2	1.2	2.8	6.2	2.2	15.7	34.1	1.8	3.0	0.	0.4	496.
20	3.2	4.4	1.4	4.0	3.8	3.0	3.2	1.2	1.4	2.4	4.8	3.0	20.8	37.5	2.2	3.0	0.	0.4	496.
21	1.4	2.0	1.8	1.8	1.2	3.0	2.2	2.0	1.8	2.4	5.8	6.5	26.2	37.5	3.0	1.0	0.	0.2	496.
22	0.8	1.4	0.8	0.6	0.4	1.0	1.0	1.8	0.2	2.0	5.6	9.9	38.7	32.9	1.8	1.0	0.	0.	496.
23	1.4	1.0	0.4	0.2	0.6	0.4	0.4	0.8	1.0	1.2	3.6	11.7	44.2	28.8	3.4	0.4	0.4	0.	496.
TOTAL	4.3	4.3	2.2	2.7	2.4	2.9	1.9	2.4	2.3	5.3	7.1	8.7	20.4	21.6	4.2	4.7	2.4	0.2	11904.

MONTH 8

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.0	0.	0.	0.	0.2	0.6	0.2	0.4	0.4	1.8	6.5	12.9	47.4	23.6	3.4	1.2	0.4	0.	496.
1	0.8	0.6	0.2	0.2	0.2	0.	0.2	0.6	0.6	2.0	8.1	12.9	47.4	21.8	2.8	1.2	0.	0.4	496.
2	0.8	0.2	0.4	0.6	0.6	0.4	0.	0.8	1.6	2.6	7.9	18.7	40.7	19.8	2.8	1.8	0.	0.2	496.
3	1.0	0.2	0.2	0.6	0.6	0.6	0.8	0.4	1.2	4.0	7.2	20.4	37.5	19.6	3.0	0.8	1.0	0.4	496.
4	0.6	0.4	0.6	0.2	0.4	0.6	1.0	0.	1.4	3.8	10.9	20.2	36.9	17.3	3.0	1.6	0.8	0.2	496.
5	0.8	1.0	0.2	0.2	0.6	1.2	1.2	0.6	1.4	4.0	8.3	18.1	34.5	19.8	5.2	1.6	0.4	0.8	496.
6	0.8	0.4	0.2	1.0	0.6	1.6	0.6	1.2	1.8	2.8	5.4	15.9	26.4	32.5	5.0	2.2	0.4	1.0	496.
7	3.0	1.6	1.4	1.0	1.0	2.0	0.6	1.4	2.0	2.8	4.2	6.0	16.5	36.9	14.7	3.6	0.4	0.6	496.
8	8.9	4.4	0.6	1.8	1.6	1.8	2.4	0.8	1.6	3.6	3.0	2.8	7.7	25.2	18.3	13.3	1.8	0.2	496.
9	10.5	9.1	4.6	3.4	3.2	4.4	1.4	1.4	3.2	6.0	4.4	3.6	4.8	13.7	6.5	13.9	5.0	0.6	496.
10	8.9	7.9	3.8	6.2	5.8	5.0	4.0	5.6	3.4	6.2	4.8	2.2	6.5	8.5	7.1	7.9	6.0	0.	496.
11	7.1	8.1	2.8	3.4	6.0	6.2	4.2	6.7	5.8	7.5	5.0	3.0	4.8	8.3	4.0	8.3	8.7	0.	496.
12	7.1	8.7	2.4	4.0	6.2	6.5	4.4	6.7	5.8	10.3	7.1	3.4	3.4	6.9	5.2	5.0	6.9	0.	496.
13	7.5	7.7	5.4	3.8	2.8	5.6	3.8	5.2	6.9	14.1	8.9	3.8	3.2	6.2	4.0	4.6	8.2	0.	496.
14	5.4	6.0	4.2	4.6	4.4	5.2	3.4	4.0	5.2	14.1	9.3	4.8	4.2	9.7	3.6	6.5	5.0	0.	496.
15	5.0	9.1	4.2	2.6	2.0	7.9	2.8	3.4	4.2	12.9	10.1	4.2	5.2	12.5	4.2	6.2	3.2	0.	496.
16	7.1	5.2	4.8	4.2	5.0	5.2	2.2	2.2	4.0	7.5	11.5	4.8	5.2	18.5	3.4	6.5	2.4	0.	496.
17	6.2	6.0	4.0	7.7	6.5	6.2	1.8	1.2	2.2	7.9	9.1	5.8	4.4	22.8	2.6	4.6	0.6	0.2	496.
18	3.6	5.4	3.6	6.2	7.9	8.1	2.0	2.8	2.6	4.8	5.2	4.6	9.7	26.2	2.4	3.4	0.4	0.8	496.
19	2.8	3.2	3.6	1.8	6.0	8.9	5.0	2.6	2.4	3.8	4.6	2.8	15.3	31.2	1.6	3.0	0.	1.0	496.
20	2.2	3.0	2.2	1.6	3.0	4.2	5.0	2.6	2.2	4.4	6.9	3.8	21.2	33.1	3.2	1.0	0.	0.2	496.
21	1.2	0.6	0.8	0.4	0.8	1.2	3.4	2.0	1.4	4.0	7.5	9.7	29.8	32.5	3.0	1.2	0.2	0.2	496.
22	1.0	0.4	0.4	0.4	0.2	0.4	1.0	0.4	1.8	1.8	7.9	11.7	42.3	26.8	3.0	0.4	0.	0.	496.
23	0.8	0.2	0.	0.2	0.2	0.4	0.4	0.4	0.8	0.8	5.4	13.9	47.0	23.8	3.8	1.8	0.	0.	496.
TOTAL	3.9	3.7	2.1	2.4	2.8	3.5	2.2	2.2	2.7	5.6	7.1	8.8	20.9	20.7	4.8	4.2	2.1	0.3	11904.

TABLE 46 (CONTD)
COMPOSITE HOUR VS. 200 FOOT DIRECTION

MONTH 9

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.9	0.8	0.6	0.8	0.8	0.6	0.4	0.6	1.0	3.1	6.9	12.5	35.0	24.2	6.9	2.7	0.8	0.2	480.
1	1.9	1.2	0.2	0.4	1.2	1.2	0.4	0.2	1.7	3.5	6.5	13.5	37.7	19.2	7.5	2.7	0.2	0.6	480.
2	1.9	1.0	0.4	0.6	1.0	0.8	0.6	1.2	1.9	3.7	7.5	15.0	32.7	21.0	6.0	3.3	0.4	0.6	480.
3	1.5	0.6	0.4	0.8	1.2	1.2	1.9	1.0	1.2	5.0	6.7	14.8	27.5	24.4	6.0	3.1	0.6	1.9	480.
4	2.3	1.0	0.6	1.0	1.2	0.8	2.7	1.9	1.7	4.4	7.7	13.5	24.8	21.5	7.9	2.7	0.6	3.5	480.
5	2.1	1.2	1.7	0.8	1.2	1.5	3.3	1.5	1.7	4.4	6.9	10.6	23.3	25.6	7.1	2.7	1.9	2.5	480.
6	2.5	2.1	1.5	0.8	1.2	3.5	3.1	2.3	1.5	3.7	6.2	11.7	19.2	23.5	7.3	5.8	1.7	2.3	480.
7	4.0	3.1	1.5	2.1	1.7	4.6	2.5	2.9	1.9	3.3	6.7	6.9	14.8	25.8	10.2	5.0	0.8	2.3	480.
8	9.0	5.8	3.7	2.9	2.5	1.9	1.9	1.2	1.7	4.0	5.0	3.5	8.1	21.5	15.8	10.4	0.6	0.4	480.
9	11.7	6.1	3.3	5.6	3.1	2.9	2.3	1.2	1.0	3.5	5.6	2.7	6.0	13.5	13.1	14.2	1.9	0.	480.
10	10.4	10.0	5.4	5.8	5.6	4.2	2.3	2.7	2.1	4.4	5.2	2.1	3.7	8.7	9.0	14.4	4.0	0.	480.
11	10.2	10.4	5.8	5.8	5.4	6.0	4.0	2.7	2.9	6.5	5.4	1.9	2.7	8.1	6.2	11.5	4.2	0.2	480.
12	9.6	9.4	5.0	4.6	6.5	8.1	2.9	3.7	5.2	5.6	6.0	2.7	3.5	7.7	5.4	10.8	3.1	0.	480.
13	10.2	9.4	3.1	4.0	5.2	8.5	3.1	2.7	4.0	11.7	5.0	2.5	4.2	7.7	5.2	8.3	5.2	0.	480.
14	9.6	8.5	5.6	4.2	4.6	6.0	3.1	3.3	6.0	10.2	7.1	3.1	4.2	8.7	4.0	9.2	2.5	0.	480.
15	11.0	9.2	5.0	3.1	5.8	6.9	2.7	2.7	4.0	9.6	8.3	4.0	3.3	10.4	4.2	6.7	3.1	0.	480.
16	8.7	10.4	4.6	6.9	5.6	7.1	2.9	3.3	4.4	6.5	7.3	4.2	3.3	15.0	3.7	5.2	0.8	0.	480.
17	5.6	7.5	5.0	4.6	6.9	7.7	6.5	2.3	4.2	4.4	5.8	5.6	5.8	18.3	2.3	5.4	0.4	1.7	480.
18	4.4	3.7	3.7	4.0	6.7	8.1	7.1	3.1	4.0	5.6	8.1	4.0	10.0	20.4	2.5	3.5	0.2	0.8	480.
19	4.2	3.3	1.7	2.7	2.3	6.5	7.3	2.7	4.4	7.3	9.2	6.2	16.9	20.2	1.9	2.9	0.	0.4	480.
20	2.7	2.7	2.5	0.4	2.1	2.7	4.8	2.7	2.9	4.8	11.0	11.9	19.4	25.0	2.1	1.9	0.4	0.	480.
21	2.3	1.7	1.0	0.4	0.8	1.0	2.5	1.9	2.3	5.8	8.1	14.0	27.3	25.0	3.7	1.7	0.2	0.2	480.
22	1.0	1.2	1.5	0.2	0.2	0.8	1.2	1.0	1.5	5.2	6.5	14.6	34.6	20.4	5.6	4.0	0.	0.4	480.
23	2.3	1.2	1.0	0.8	0.8	0.2	0.6	0.8	1.2	3.7	7.7	14.8	34.2	22.1	5.8	2.1	0.2	0.2	480.
TOTAL	5.5	4.7	2.7	2.6	3.1	3.9	2.9	2.1	2.7	5.4	6.9	8.2	16.8	18.3	6.2	5.8	1.4	0.8	11520.

MONTH 10

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.4	0.8	0.8	1.4	1.0	3.4	2.0	2.4	3.0	4.6	7.3	11.1	24.2	22.8	8.1	3.6	0.4	1.6	496.
1	1.6	1.6	0.4	1.6	2.8	2.4	2.0	2.4	4.6	5.0	8.3	13.1	16.7	24.0	8.1	1.8	0.6	2.8	496.
2	1.4	2.0	1.6	0.8	1.6	3.4	2.6	4.0	2.8	6.0	8.7	9.3	20.4	22.0	7.7	2.2	0.4	3.0	496.
3	2.0	2.2	1.6	0.8	1.6	4.6	2.4	3.8	3.2	5.0	6.5	12.3	18.3	22.4	6.5	2.6	1.4	2.6	496.
4	2.4	1.6	1.8	1.4	3.2	3.8	4.0	3.6	3.2	4.2	6.7	11.9	17.1	19.2	7.9	4.0	1.2	2.6	496.
5	2.4	2.2	1.8	1.0	2.0	4.0	4.2	3.6	2.6	6.0	6.0	10.9	14.3	23.4	6.2	4.0	1.2	3.8	496.
6	2.0	1.8	1.8	2.2	1.2	4.4	2.0	4.8	2.2	7.7	8.5	9.1	16.3	22.2	5.6	3.6	1.8	2.6	496.
7	1.6	2.0	2.2	3.0	2.8	3.4	3.0	3.2	4.2	6.2	6.9	8.7	15.3	20.0	8.9	4.6	1.2	2.6	496.
8	3.8	4.8	2.2	3.0	2.0	4.4	2.2	3.4	2.6	5.6	5.6	6.0	10.5	22.0	11.5	6.9	1.6	1.6	496.
9	6.2	8.1	4.0	3.0	1.8	4.8	2.4	2.4	2.6	4.8	4.8	4.2	8.1	14.3	14.9	10.3	1.6	1.4	496.
10	8.9	10.1	4.0	4.4	4.6	3.4	2.0	3.0	3.2	5.6	5.2	1.8	6.7	13.1	12.7	8.7	1.8	0.6	496.
11	7.5	9.5	4.4	5.0	7.3	4.0	2.0	2.8	5.2	6.7	6.2	1.4	5.2	8.7	8.9	13.1	2.0	0.	496.
12	11.1	8.3	4.8	5.4	6.7	5.6	3.0	2.8	4.4	7.9	6.9	3.2	3.4	7.7	7.7	9.3	1.8	0.	496.
13	7.7	8.3	4.6	4.2	7.7	7.3	4.0	1.6	5.4	8.1	8.3	2.6	3.8	6.9	7.9	10.5	1.2	0.	496.
14	7.9	8.7	3.6	7.1	5.8	9.3	3.4	2.0	5.6	8.5	7.5	1.2	3.6	7.9	9.3	7.1	1.4	0.2	496.
15	7.7	7.5	4.8	6.0	7.7	8.7	2.0	1.8	4.4	8.7	8.1	3.4	5.6	10.5	6.0	6.5	0.4	0.2	496.
16	6.2	4.8	4.2	6.2	7.5	7.3	4.4	2.4	4.4	8.3	8.3	2.8	8.5	12.7	6.5	3.0	0.2	2.2	496.
17	3.0	2.4	2.4	4.6	6.2	9.3	5.8	3.2	3.4	9.3	6.2	4.8	11.1	17.1	4.0	4.0	0.2	2.6	496.
18	2.6	0.8	1.8	2.4	4.0	9.5	6.5	3.4	4.8	8.5	8.1	5.8	14.1	18.1	4.2	3.0	0.2	2.0	496.
19	2.0	0.8	2.0	1.8	2.0	6.7	7.7	3.8	3.2	8.5	9.1	10.3	17.1	18.3	2.2	2.6	0.4	1.4	496.
20	1.2	0.4	0.8	0.8	1.2	3.8	5.0	3.2	4.8	5.4	10.9	13.5	20.8	19.0	4.0	2.4	0.8	1.8	496.
21	1.6	0.8	0.4	0.4	1.6	1.8	2.4	1.6	3.4	6.2	9.5	13.1	21.6	24.8	5.6	2.6	0.6	1.8	496.
22	2.4	1.4	1.2	0.8	0.8	1.6	1.6	2.4	2.0	3.4	8.5	13.1	24.4	24.6	6.9	2.6	0.4	1.8	496.
23	1.8	1.4	1.4	1.2	1.0	2.0	2.8	1.6	2.8	4.2	7.5	11.9	24.0	22.6	8.7	2.6	0.6	1.8	496.
TOTAL	4.0	3.8	2.5	2.9	3.5	5.0	3.3	2.9	3.7	6.4	7.5	7.7	13.8	17.7	7.5	5.1	1.0	1.7	11904.

TABLE 46 (CONTD)
COMPOSITE HOUR VS. 200 FOOT DIRECTION

MONTH 11

	DIRECTION INTERVAL																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	SUM
HOUR																			
0	2.5	1.0	1.2	1.7	2.5	4.6	2.7	3.5	3.5	5.8	6.9	8.3	16.7	22.5	7.3	4.0	1.2	4.0	480.
1	2.9	1.2	1.5	0.8	3.1	3.5	2.9	2.7	6.0	4.4	6.2	7.3	14.8	24.8	6.2	5.6	1.7	4.2	480.
2	2.3	3.1	0.8	1.9	2.9	4.2	4.4	2.9	6.0	5.6	4.8	7.1	16.2	20.0	9.2	3.7	1.0	3.7	480.
3	1.9	1.0	0.8	2.5	3.3	5.0	3.7	3.1	5.0	6.7	4.4	7.1	16.9	19.4	8.7	4.8	1.7	4.0	480.
4	1.7	2.3	1.7	1.5	3.7	4.0	3.7	5.4	4.6	6.7	7.3	7.3	13.3	19.4	7.7	4.8	1.0	4.0	480.
5	2.3	1.7	1.5	2.1	2.5	5.2	4.2	4.2	4.4	5.8	7.3	7.5	13.5	19.8	8.5	4.8	0.8	4.0	480.
6	2.7	2.5	0.8	1.7	2.3	5.8	3.1	3.7	4.8	5.0	5.6	8.1	14.8	20.4	9.4	5.2	1.2	2.7	480.
7	4.4	1.7	2.7	2.5	3.1	4.0	4.2	2.3	4.4	4.8	7.7	5.4	13.7	20.6	8.7	5.6	1.9	2.3	480.
8	3.1	2.5	0.8	2.9	3.7	5.0	3.1	2.5	4.2	5.2	6.0	7.7	11.7	21.0	9.0	6.0	0.6	4.8	480.
9	4.0	2.9	2.9	3.5	2.9	4.4	2.5	2.9	3.7	7.3	5.4	4.6	7.7	23.5	10.2	7.5	0.4	3.5	480.
10	6.2	5.0	4.0	4.2	4.0	2.5	1.7	2.7	4.4	6.0	4.8	3.3	8.1	19.2	12.7	8.5	1.2	1.5	480.
11	8.5	6.7	3.7	2.1	4.6	4.8	1.5	3.1	4.2	6.9	5.2	3.3	5.0	16.2	12.7	8.7	1.2	1.5	480.
12	8.1	6.7	4.8	3.5	6.1	3.8	1.7	2.7	5.2	6.3	7.3	1.5	5.0	13.6	13.4	8.8	1.0	0.6	479.
13	8.1	8.1	4.4	6.7	5.4	5.2	1.5	2.9	3.8	7.7	5.6	2.9	4.0	14.0	8.1	9.8	0.8	0.8	479.
14	8.1	8.1	5.4	6.5	4.8	5.6	2.5	3.3	2.9	7.9	6.7	3.1	6.0	13.3	8.1	5.6	0.2	1.7	480.
15	5.0	4.8	4.8	6.9	4.0	6.2	4.2	3.1	4.4	6.7	5.4	4.6	6.5	14.8	8.3	5.2	0.4	4.8	480.
16	3.1	4.2	2.3	3.5	5.8	6.9	4.8	3.1	4.8	6.5	4.8	5.2	10.0	15.8	7.7	5.2	0.2	6.0	480.
17	2.5	2.9	1.7	1.7	3.7	8.3	4.8	4.2	4.4	7.9	6.2	6.0	13.5	17.9	5.8	4.0	0.4	4.0	480.
18	1.9	2.3	1.2	1.7	3.1	5.6	5.2	5.0	4.4	7.3	7.9	7.9	16.2	16.7	5.0	4.4	0.6	3.5	480.
19	1.5	1.5	1.7	1.9	2.1	5.4	4.2	5.0	4.2	6.9	7.9	12.1	14.0	20.2	5.0	3.7	0.	2.9	480.
20	2.3	1.2	1.7	1.2	2.1	5.4	3.1	3.7	4.0	6.2	7.5	12.1	17.9	19.0	5.4	4.0	0.4	2.7	480.
21	2.3	2.3	0.8	1.7	1.5	4.0	1.9	2.9	4.6	6.5	6.5	10.6	17.7	19.4	7.3	4.2	0.6	5.4	480.
22	2.1	2.3	1.2	1.2	2.1	3.1	2.9	3.3	2.9	7.7	7.5	9.0	18.3	18.3	10.2	2.9	0.8	4.0	480.
23	2.5	0.8	0.8	0.8	1.9	4.4	4.2	3.1	4.2	5.0	7.9	8.7	15.6	22.1	9.8	3.5	0.6	4.0	480.
TOTAL	3.8	3.2	2.2	2.7	3.4	4.9	3.3	3.4	4.4	6.4	6.4	6.7	12.4	18.8	8.5	5.4	3.9	3.4	11514.

MONTH 12

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	2.8	1.6	0.8	1.0	1.8	4.4	4.0	2.6	4.2	7.7	6.2	5.8	16.7	24.6	8.9	2.6	0.2	3.8	496.
1	3.0	1.8	1.6	1.4	2.8	3.6	2.6	4.8	4.6	6.9	6.5	8.1	14.7	22.4	6.9	3.4	0.4	4.4	496.
2	1.0	1.8	1.4	1.2	3.2	4.6	3.2	3.0	4.2	6.7	7.1	8.5	10.9	24.0	8.9	3.4	1.2	5.6	496.
3	1.8	1.6	1.4	1.8	3.0	3.2	5.0	2.6	3.0	6.0	6.9	6.2	13.7	23.6	8.5	5.2	1.0	5.2	496.
4	1.4	1.3	2.6	2.2	2.6	3.8	3.4	3.6	3.0	6.2	5.8	8.7	14.5	23.8	7.7	4.0	1.2	3.4	496.
5	2.2	1.1	1.8	2.8	2.8	3.8	4.0	3.6	3.2	5.2	6.7	7.7	13.3	21.2	8.9	4.8	1.2	5.0	496.
6	3.4	2.6	0.8	2.8	3.2	3.4	4.2	3.6	4.4	5.0	5.0	6.0	14.5	21.8	7.1	4.4	0.8	6.7	496.
7	2.5	2.0	2.4	2.8	3.2	5.0	3.2	5.0	5.4	4.8	4.2	8.7	11.1	22.0	7.1	5.4	0.6	4.2	496.
8	2.8	2.4	2.0	2.6	3.2	5.2	3.6	3.4	5.8	4.4	4.0	8.1	11.7	20.0	9.1	5.6	1.0	4.8	496.
9	2.4	3.4	1.8	2.4	3.8	4.2	2.6	3.8	5.2	5.0	5.8	5.4	13.1	21.2	9.1	4.0	1.0	5.0	496.
10	3.8	3.4	3.2	1.8	2.4	4.8	3.8	2.2	5.0	4.0	7.5	6.2	7.9	23.0	11.1	5.4	1.2	3.0	496.
11	4.0	4.0	3.4	2.2	3.8	4.0	3.4	2.8	4.8	5.2	5.6	2.8	5.6	22.4	13.1	7.7	1.2	3.6	496.
12	6.0	5.4	5.0	2.4	3.4	5.0	1.6	2.2	3.8	7.5	5.4	2.4	5.6	19.2	11.3	8.7	1.8	3.0	496.
13	5.6	3.6	6.8	4.2	5.0	4.4	2.6	2.4	4.4	6.9	5.4	3.6	5.6	18.1	9.5	7.9	0.8	4.2	496.
14	6.2	4.0	3.4	4.6	4.2	6.5	1.8	3.0	4.6	7.9	5.0	3.2	7.5	19.0	7.7	5.2	1.4	4.6	496.
15	4.6	4.0	3.0	5.0	5.0	6.0	3.4	3.4	4.4	7.5	4.4	3.4	7.9	20.8	8.3	4.0	0.2	4.4	496.
16	3.6	3.0	3.2	2.0	6.7	4.4	4.2	4.2	4.4	7.7	5.0	3.6	7.5	20.4	7.5	6.7	0.6	5.2	496.
17	2.8	2.4	1.8	3.8	4.6	3.2	4.4	3.0	3.2	8.5	4.6	4.4	11.7	20.4	7.3	4.0	0.8	6.9	496.
18	2.8	0.8	1.4	1.6	3.2	4.8	4.8	4.6	3.2	6.5	5.2	8.7	14.5	19.6	8.9	3.6	0.6	5.0	496.
19	2.4	1.4	1.0	2.4	2.4	4.4	3.0	3.6	3.4	7.5	5.0	7.1	16.1	20.6	10.9	3.6	0.4	4.6	496.
20	2.2	1.0	1.6	1.0	2.8	3.8	3.6	2.6	3.0	4.6	7.5	8.5	14.9	24.8	7.3	3.6	1.2	5.8	496.
21	1.6	1.6	1.2	2.0	2.8	3.4	3.6	3.0	3.2	4.6	7.5	8.9	16.3	21.2	8.1	5.0	0.6	5.2	496.
22	1.4	1.8	1.8	2.4	1.6	4.0	3.8	2.2	4.8	6.7	8.1	8.7	16.5	20.4	7.3	4.0	0.8	3.6	496.
23	2.2	1.4	0.6	1.4	1.6	3.8	3.8	2.2	4.2	6.7	7.9	7.5	17.1	23.0	7.1	3.8	1.8	3.8	496.
TOTAL	3.0	2.5	2.2	2.4	3.3	4.4	3.5	3.3	4.2	6.2	5.9	6.3	12.0	21.5	8.6	4.9	0.9	4.7	11904.

TABLE 46 (CONTD)
COMPOSITE HOUR VS. 200 FOOT DIRECTION

MONTH 13

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	2.0	0.9	0.6	0.7	1.3	2.2	1.6	1.6	2.2	4.7	6.9	12.6	29.0	23.1	5.9	3.0	0.4	1.3	5844.
1	1.7	1.2	0.7	0.8	1.5	2.3	1.3	1.9	2.7	4.4	7.4	13.3	28.1	22.1	5.6	2.0	0.5	1.7	5844.
2	1.4	1.2	0.9	0.9	1.6	2.3	1.8	2.0	2.6	4.8	7.7	13.4	26.6	21.3	6.1	2.9	0.6	1.7	5844.
3	1.5	1.3	0.7	1.2	1.5	2.5	2.1	2.0	2.5	5.1	7.3	14.6	24.8	21.0	6.0	3.2	0.8	2.0	5844.
4	1.5	1.3	1.0	1.2	1.7	2.3	2.4	2.3	2.6	5.0	8.7	13.8	23.7	20.4	6.2	3.0	0.7	2.1	5844.
5	1.8	1.3	1.1	1.4	1.7	2.9	2.3	2.4	2.7	4.9	7.8	14.0	21.6	21.4	6.5	3.1	1.0	2.3	5844.
6	2.3	1.5	1.0	1.4	1.8	3.2	2.4	2.7	2.8	5.0	7.6	10.5	19.6	24.3	6.8	4.0	1.0	2.3	5844.
7	3.3	2.5	1.8	1.8	1.8	3.0	2.3	2.7	3.5	4.5	6.3	7.6	15.0	25.5	9.9	5.7	0.9	1.8	5844.
8	6.0	4.6	2.2	2.3	2.2	3.2	2.4	2.3	3.2	4.6	6.0	5.4	10.6	22.5	11.8	7.6	1.4	1.7	5844.
9	6.7	6.2	3.0	3.4	2.8	3.8	2.4	2.8	3.4	6.5	5.9	4.2	8.0	17.2	9.9	9.6	2.9	1.4	5844.
10	7.1	7.3	3.6	4.0	3.9	4.3	3.1	3.4	5.0	6.8	6.2	3.5	6.3	14.1	8.7	8.6	3.2	0.8	5844.
11	7.6	7.4	3.9	3.6	4.1	5.0	3.2	3.9	5.6	8.3	6.3	3.5	5.6	12.4	7.1	8.6	3.1	0.2	5844.
12	7.6	7.2	4.2	3.7	4.3	4.9	3.0	3.9	5.9	9.6	7.1	3.5	4.9	11.3	6.9	7.9	3.6	0.4	5843.
13	7.7	7.0	3.9	4.2	4.3	5.5	2.9	3.3	6.0	10.9	7.9	3.8	4.9	10.8	6.0	7.3	2.9	0.6	5843.
14	7.4	6.6	3.9	4.8	4.0	5.4	2.8	3.8	5.3	10.8	8.4	4.2	5.6	11.7	5.7	6.6	2.5	0.7	5844.
15	6.5	7.1	4.0	4.1	4.2	6.1	3.0	3.4	4.9	9.8	8.4	4.1	6.3	13.6	5.1	6.3	1.8	1.2	5844.
16	6.0	5.6	4.0	4.2	4.6	5.5	3.6	3.0	4.4	8.1	8.2	4.8	7.4	17.3	4.9	5.5	1.0	1.8	5844.
17	4.4	4.8	3.6	4.6	4.5	6.1	4.0	2.9	3.8	7.5	7.5	5.2	9.7	19.9	4.1	4.6	0.7	2.1	5844.
18	3.6	3.4	3.1	3.6	4.2	6.2	4.7	3.3	3.7	6.6	7.2	5.7	12.5	22.3	4.2	3.7	0.3	1.8	5844.
19	2.9	2.7	2.2	2.8	3.7	5.4	4.7	3.2	3.1	6.5	7.0	6.9	16.5	23.9	3.5	3.3	0.3	1.5	5844.
20	2.2	2.3	1.7	1.9	2.5	3.9	4.1	2.8	3.0	5.6	7.8	8.8	20.5	24.5	3.9	2.5	0.4	1.5	5844.
21	1.8	1.8	1.1	1.2	1.6	2.6	3.1	2.4	2.7	5.5	7.8	10.6	23.8	24.7	4.4	2.9	0.4	1.7	5844.
22	1.7	1.6	1.0	0.9	1.1	2.1	1.9	2.0	2.4	4.8	7.5	12.5	28.2	22.9	5.0	2.7	0.4	1.4	5844.
23	1.8	1.2	0.8	0.9	0.8	2.0	1.7	1.7	2.2	4.3	7.4	12.4	29.4	22.7	5.8	2.7	0.5	1.6	5844.
TOTAL	4.0	3.7	2.2	2.5	2.7	3.9	2.8	2.7	3.6	6.4	7.3	8.3	16.2	19.6	6.2	4.0	1.3	1.5	140254.

TABLE 47
COMPOSITE HOUR VS. 400 FOOT DIRECTION

MONTH 1

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	4.0	2.0	1.4	1.4	1.8	3.2	2.8	2.4	3.0	6.9	5.8	7.5	12.5	26.4	8.5	4.2	0.8	5.2	496.
1	3.8	0.8	1.0	1.6	2.4	3.0	1.6	3.0	3.6	7.1	6.9	6.0	13.1	24.8	9.5	5.8	0.2	5.6	496.
2	2.4	2.0	1.6	1.4	1.8	3.4	2.8	2.6	3.8	7.7	4.4	6.7	12.9	27.4	8.9	4.4	0.8	4.8	496.
3	2.6	1.4	1.2	1.4	1.6	3.6	3.2	2.8	3.6	6.9	5.4	6.5	13.5	24.8	8.5	6.7	0.6	5.6	496.
4	3.0	1.8	1.6	1.0	2.0	3.6	3.2	3.2	4.0	6.9	6.2	7.1	12.5	23.2	8.7	5.8	0.2	5.8	496.
5	2.8	1.0	1.6	1.6	2.8	3.8	1.8	2.6	3.2	4.4	8.3	9.1	11.5	23.2	7.7	6.7	0.8	7.1	496.
6	2.4	1.2	2.2	2.4	2.0	4.2	3.2	2.8	3.2	5.4	7.1	5.6	14.1	20.8	9.3	6.5	2.2	5.2	496.
7	3.6	1.8	0.8	1.2	1.6	3.8	3.2	4.4	3.0	7.1	5.8	8.3	11.3	22.6	9.3	6.7	0.2	5.2	496.
8	3.2	1.6	1.4	2.8	2.4	4.0	3.0	3.8	4.8	4.4	5.4	6.5	12.1	24.0	8.9	5.2	1.0	5.2	496.
9	2.8	2.6	1.4	2.6	1.6	4.6	2.8	3.8	3.2	8.1	5.8	6.2	9.1	23.4	8.9	5.4	1.0	5.8	496.
10	3.4	3.8	2.4	2.2	2.6	5.2	2.6	4.0	5.0	6.2	6.0	4.6	8.9	23.2	10.1	4.8	0.8	3.8	496.
11	4.8	4.2	1.8	3.2	3.0	4.2	2.8	3.2	4.8	6.7	5.4	3.0	7.3	23.6	10.9	5.8	2.0	3.0	496.
12	5.0	5.0	2.4	3.4	4.4	4.6	2.6	1.8	6.0	6.5	5.8	2.2	6.7	20.2	12.3	7.1	1.2	2.6	496.
13	5.8	3.8	3.4	4.4	5.2	3.8	3.8	3.2	6.2	6.5	5.0	3.6	5.2	15.9	11.7	8.5	0.6	3.0	496.
14	4.4	5.6	4.6	6.0	3.6	7.7	3.0	2.8	4.6	5.8	4.8	3.0	4.4	18.3	9.1	7.5	1.2	3.2	496.
15	6.2	3.6	3.4	3.6	4.8	6.7	4.6	2.6	5.6	6.2	4.0	2.2	7.7	16.5	8.5	6.5	1.4	5.6	496.
16	4.2	3.2	3.6	2.8	4.8	5.6	3.2	3.4	3.4	7.9	5.6	2.8	7.5	20.4	7.5	5.8	0.6	7.5	496.
17	2.4	2.8	2.8	3.0	3.4	5.6	3.6	2.8	3.4	8.3	5.8	4.6	14.1	18.1	5.8	4.6	0.2	8.3	496.
18	1.8	2.0	2.4	2.8	2.0	5.6	3.4	2.6	4.8	6.9	7.1	6.0	13.5	21.4	6.7	5.0	0.	5.8	496.
19	2.0	1.6	1.8	3.0	2.4	3.4	2.8	2.6	3.6	7.3	7.3	6.9	14.5	22.8	6.5	5.4	0.4	5.6	496.
20	3.4	2.0	2.0	2.2	1.6	3.0	3.6	1.8	3.4	5.8	7.9	7.5	14.3	23.6	8.3	3.8	0.4	5.2	496.
21	2.0	1.2	1.2	2.2	2.4	3.2	2.2	2.2	2.8	5.6	7.7	7.9	14.3	23.8	9.7	4.4	1.0	6.0	496.
22	3.4	1.8	0.8	2.6	2.2	3.4	1.4	1.6	3.2	6.2	5.6	9.5	13.1	26.6	8.5	3.6	0.8	5.4	496.
23	2.4	1.8	1.4	2.8	1.0	3.4	1.6	3.8	2.2	6.9	6.7	7.1	15.7	25.0	7.7	4.0	0.6	5.8	496.
TOTAL	3.4	2.5	2.0	2.6	2.7	4.3	2.9	2.9	4.0	6.6	6.1	5.9	11.2	22.5	8.8	5.6	0.8	5.3	11904.

MONTH 2

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	3.3	1.3	1.3	0.4	2.0	2.2	2.9	1.8	2.0	6.9	9.3	10.2	15.0	24.3	8.2	3.1	0.7	5.1	452.
1	2.0	1.8	0.7	1.8	2.0	2.7	2.7	2.4	3.3	5.3	6.0	11.7	14.6	27.2	7.7	3.5	0.7	4.0	452.
2	2.0	0.9	0.	1.3	1.5	2.4	3.3	2.9	2.2	6.4	6.2	13.5	14.6	25.2	8.8	3.3	1.1	4.2	452.
3	2.9	2.0	0.9	1.3	1.3	2.7	2.0	2.2	3.3	6.2	4.6	13.7	16.2	25.2	8.8	2.7	0.7	3.3	452.
4	2.7	1.3	0.9	2.2	1.5	2.4	2.0	1.3	3.3	5.3	5.1	13.1	15.0	25.9	8.2	4.2	0.9	4.6	452.
5	2.7	0.9	1.8	2.0	1.8	2.4	2.0	1.5	2.7	5.3	6.9	12.2	14.6	24.1	10.2	4.0	1.1	4.0	452.
6	2.4	0.9	0.7	2.4	1.1	2.4	2.0	2.0	3.3	5.3	6.4	12.2	16.6	23.9	8.8	4.2	0.4	4.9	452.
7	2.7	1.3	0.2	2.2	1.1	2.0	0.9	3.3	3.1	5.3	7.3	12.6	12.2	24.1	11.3	4.6	1.1	4.6	452.
8	2.9	2.9	0.9	1.3	1.5	2.9	2.7	2.4	3.1	6.0	5.8	10.0	13.5	28.1	7.7	4.0	0.2	4.2	452.
9	2.2	2.2	2.2	2.0	1.8	2.2	2.2	2.2	3.3	7.3	5.5	7.5	10.4	27.4	11.5	4.2	2.0	3.8	452.
10	5.5	3.5	1.8	4.0	2.0	3.3	2.7	2.4	2.4	8.6	5.5	4.9	8.8	23.2	10.8	7.3	1.1	2.0	452.
11	6.2	5.8	3.5	3.5	2.2	3.3	2.7	2.4	4.2	7.1	6.2	3.8	9.1	20.1	8.0	9.3	0.9	1.8	452.
12	7.5	4.4	4.2	3.5	3.1	4.4	0.9	3.1	4.9	7.3	5.5	4.0	8.4	17.9	9.5	9.1	1.1	1.1	452.
13	7.1	5.3	2.2	3.8	3.3	4.2	1.3	3.1	5.3	7.3	6.0	4.4	7.5	14.8	8.8	13.3	1.8	0.4	452.
14	10.6	5.3	2.9	4.0	4.9	3.5	2.4	2.2	4.0	10.0	6.6	4.4	7.3	13.5	6.9	9.1	0.7	1.8	452.
15	7.7	6.2	3.3	3.8	3.3	6.4	2.4	1.8	5.5	8.2	7.1	4.4	6.2	15.5	5.8	9.7	1.1	1.5	452.
16	7.5	5.1	4.2	3.5	3.1	6.2	2.9	1.5	4.4	9.3	6.4	5.1	8.0	15.3	7.7	6.9	0.	2.9	452.
17	6.4	3.1	2.7	4.2	3.5	6.0	2.0	2.4	3.8	9.7	6.6	4.2	10.0	17.0	6.9	7.5	0.2	3.8	452.
18	5.3	3.8	2.9	1.5	2.7	6.2	3.1	2.2	4.2	10.0	6.4	4.9	11.9	19.5	7.3	5.3	0.4	2.4	452.
19	3.1	2.9	1.5	1.8	2.4	5.1	3.5	2.7	3.1	6.4	6.9	9.5	16.2	17.9	7.7	5.1	0.7	3.5	452.
20	2.7	0.9	1.1	1.5	2.0	3.3	3.3	1.8	2.9	6.9	7.7	12.6	16.2	19.9	7.5	2.7	1.1	6.0	452.
21	2.2	1.8	0.4	1.5	2.2	3.1	2.4	2.2	2.7	6.4	7.5	13.1	17.5	21.0	6.9	3.8	0.4	4.9	452.
22	2.9	1.1	0.4	1.8	1.3	3.5	2.9	2.2	3.1	6.2	8.6	10.4	17.5	21.0	8.0	4.4	0.7	4.0	452.
23	1.8	1.8	0.9	0.4	2.0	2.7	1.5	2.7	2.2	6.2	8.2	10.2	12.8	26.8	9.7	4.0	0.2	6.0	452.
TOTAL	4.3	2.8	1.7	2.3	2.2	3.6	2.4	2.3	3.4	7.0	6.6	8.8	12.5	21.6	8.5	5.6	0.8	3.5	10848.

TABLE 47 (CONTD)
COMPOSITE HOUR VS. 400 FOOT DIRECTION

MONTH 3

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.8	1.6	1.0	0.6	0.4	2.2	2.2	1.8	3.0	7.1	9.3	14.7	19.8	21.6	8.5	3.0	0.2	1.2	496.
1	1.6	1.2	0.6	0.4	0.6	2.4	2.4	2.0	4.4	8.1	8.7	13.3	17.1	24.4	8.3	3.4	0.	1.0	496.
2	1.0	1.2	1.0	1.0	1.2	3.2	1.8	2.2	4.2	6.9	7.1	12.7	19.6	23.2	10.1	2.8	0.4	0.4	496.
3	1.6	1.8	0.8	1.2	0.8	1.8	2.4	3.4	3.0	6.0	7.7	13.7	20.8	23.4	7.7	3.2	0.	0.6	496.
4	1.4	1.6	0.4	1.2	1.2	3.2	2.2	1.8	3.6	6.2	8.5	12.7	20.6	21.8	7.5	3.2	0.6	2.2	496.
5	2.0	1.4	0.4	0.8	1.4	2.6	1.4	2.2	4.8	7.5	8.1	12.5	15.5	25.0	7.3	3.8	0.8	2.4	496.
6	3.8	1.4	0.8	0.6	1.4	2.0	2.4	1.8	5.4	6.5	8.3	10.9	20.0	20.2	9.1	3.4	0.6	1.4	496.
7	2.2	1.6	0.8	1.0	0.8	3.0	2.0	2.0	4.2	8.3	7.7	10.1	17.7	23.6	8.5	4.2	0.8	1.4	496.
8	5.0	2.4	1.2	1.4	0.2	2.4	3.2	2.6	4.2	8.5	8.3	5.8	14.9	23.6	10.9	3.8	0.8	0.6	496.
9	5.4	4.2	3.0	2.0	2.8	2.4	1.0	2.4	4.8	9.3	8.3	4.6	7.5	17.9	13.9	8.7	1.0	0.6	496.
10	7.3	7.3	3.6	3.8	3.8	2.4	2.4	3.0	5.8	9.7	8.9	2.8	5.6	12.1	10.7	10.1	1.2	0.2	496.
11	10.7	6.7	4.8	3.2	3.2	2.4	2.4	4.2	7.7	10.9	8.3	3.2	5.4	8.5	7.9	8.7	1.8	0.	496.
12	8.7	5.8	2.4	4.4	3.0	4.4	2.2	3.6	8.9	12.1	8.5	1.6	6.0	9.9	5.8	11.5	1.0	0.	496.
13	8.9	6.0	3.8	3.2	3.2	4.4	2.8	4.2	8.3	13.3	8.7	2.6	5.0	9.7	4.8	9.7	1.2	0.	496.
14	8.1	6.9	2.6	2.8	3.4	5.6	1.8	5.2	7.5	14.1	8.5	3.4	5.8	9.5	6.0	7.5	1.0	0.2	496.
15	8.5	6.0	3.4	2.6	2.4	6.2	3.8	4.4	6.0	13.3	10.7	3.0	5.2	10.9	3.0	8.3	1.6	0.4	496.
16	7.3	4.2	3.4	4.8	2.8	6.5	4.8	4.0	6.2	12.7	7.9	4.2	6.5	11.9	3.8	7.1	1.0	0.8	496.
17	4.8	4.6	2.8	5.2	2.6	6.7	6.0	3.4	6.7	10.7	8.5	4.4	8.5	12.9	4.0	7.1	0.2	0.8	496.
18	4.2	4.0	1.8	2.2	3.4	6.9	5.8	4.0	5.4	9.9	11.1	3.4	12.7	12.9	4.4	5.8	0.4	1.4	496.
19	3.2	2.2	1.8	2.8	2.8	5.4	6.2	3.8	4.0	10.9	9.1	7.1	17.9	12.3	4.8	4.4	0.2	0.8	496.
20	3.0	1.8	1.2	3.4	2.0	4.6	5.8	2.4	4.4	8.9	12.1	8.1	20.6	13.7	4.6	2.2	0.4	0.6	496.
21	2.0	1.6	1.4	2.0	3.2	3.2	2.8	3.8	2.8	9.5	10.3	11.9	18.5	17.7	4.6	3.4	0.	1.0	496.
22	1.8	1.8	1.8	0.8	1.4	3.0	1.6	3.2	4.0	8.1	9.7	13.9	19.2	20.0	6.0	3.0	0.2	0.4	496.
23	2.4	1.4	0.2	1.0	1.2	2.6	1.0	2.8	2.2	9.5	9.3	12.9	20.4	21.4	6.5	3.0	0.8	1.4	496.
TOTAL	4.5	3.3	1.9	2.2	2.0	3.7	3.0	3.1	5.1	9.5	8.9	8.1	13.8	17.0	7.0	5.5	0.7	0.8	11904.

MONTH 4

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	2.3	0.8	0.2	0.2	1.5	1.5	1.5	1.2	2.5	6.9	8.5	14.8	29.8	20.0	6.0	2.1	0.	0.2	480.
1	1.2	0.4	0.4	0.4	0.6	1.2	1.0	1.2	2.3	5.0	9.6	18.5	28.3	17.3	7.5	3.5	0.4	0.8	480.
2	1.2	0.2	0.4	1.9	0.6	0.8	0.8	0.4	1.9	6.9	8.7	18.7	25.8	20.0	7.7	3.1	0.2	0.4	480.
3	1.2	0.6	0.4	0.4	1.7	1.0	1.0	1.2	2.1	5.4	11.2	17.3	24.2	21.9	5.8	3.7	0.4	0.2	480.
4	1.0	0.6	0.4	1.0	1.0	1.7	1.0	2.1	2.1	7.3	9.6	16.2	24.6	21.9	5.8	2.3	0.6	0.6	480.
5	1.5	1.2	0.6	0.2	1.0	2.3	1.0	2.1	2.1	5.0	9.0	19.8	24.8	19.6	4.0	3.3	0.6	1.9	480.
6	1.5	1.5	0.6	1.2	0.2	1.7	2.1	2.1	1.9	5.2	10.0	15.6	24.4	21.5	5.8	2.3	0.6	1.9	480.
7	1.5	1.9	1.7	2.5	1.2	2.7	1.0	1.9	3.3	5.0	10.6	8.3	22.5	21.0	6.0	7.3	0.4	1.0	480.
8	5.2	3.1	3.7	2.3	1.5	1.9	1.5	2.1	2.3	7.1	9.8	5.6	15.0	19.0	12.5	6.5	0.6	0.4	480.
9	5.2	6.7	3.7	4.6	1.2	2.9	1.5	2.5	3.7	9.2	7.9	5.0	9.6	13.1	10.6	9.8	2.7	0.	480.
10	6.9	7.3	2.7	4.4	3.1	4.0	1.9	3.3	6.2	10.0	8.3	4.2	7.1	12.5	6.0	9.8	2.3	0.	480.
11	8.1	5.6	3.5	3.7	2.1	4.6	5.0	3.7	6.2	12.7	6.9	5.2	9.4	9.6	3.7	8.5	1.2	0.	480.
12	4.8	5.8	4.4	3.1	2.5	5.0	2.9	6.0	7.9	13.3	9.8	4.0	6.7	9.2	5.2	7.1	2.3	0.	480.
13	6.9	5.2	2.5	3.7	2.3	5.0	2.5	4.6	7.7	13.7	12.3	4.0	8.7	7.3	4.0	7.1	2.5	0.	480.
14	7.3	4.6	4.2	4.2	1.9	4.2	2.7	4.6	7.7	15.4	9.6	6.9	7.1	8.5	3.3	5.8	2.1	0.	480.
15	5.8	5.4	3.7	2.7	3.1	5.0	3.5	3.3	7.1	12.9	10.0	5.2	10.0	11.0	3.1	7.1	0.8	0.	480.
16	5.4	4.6	5.4	2.5	3.1	5.0	3.7	2.7	5.8	11.0	10.4	7.1	11.5	14.2	2.9	3.7	0.8	0.	480.
17	4.2	4.2	4.0	6.0	3.1	5.2	3.5	3.1	5.4	9.6	10.6	5.8	14.2	14.0	3.1	3.5	0.2	0.2	480.
18	3.5	3.3	5.0	4.4	3.1	4.6	5.8	4.0	5.8	8.3	8.1	6.7	15.8	15.8	1.5	3.7	0.	0.4	480.
19	3.5	1.9	3.7	4.2	2.7	5.6	4.6	3.7	3.7	9.6	8.1	5.4	20.4	18.1	1.9	1.9	0.	0.8	480.
20	2.5	2.1	3.1	2.3	2.5	4.4	4.4	2.3	3.7	7.9	10.2	4.4	30.8	15.2	3.1	1.0	0.	0.	480.
21	2.5	1.5	1.7	2.1	1.5	3.1	2.3	1.9	3.3	9.6	8.1	9.6	31.0	16.9	2.9	1.7	0.	0.4	480.
22	1.5	1.5	0.4	2.1	1.2	1.9	2.1	1.2	3.3	6.9	10.0	12.9	32.3	18.5	2.3	1.7	0.	0.2	480.
23	1.0	1.9	0.8	0.6	1.5	1.0	1.7	1.2	3.1	5.4	9.2	16.9	30.0	19.0	4.0	1.7	0.2	0.8	480.
TOTAL	3.6	3.0	2.4	2.5	1.8	3.2	2.5	2.6	4.2	8.7	9.4	9.9	19.3	16.0	5.0	4.5	0.8	0.4	11520.

TABLE 47 (CONTD)
COMPOSITE HOUR VS. 400 FOOT DIRECTION

MONTH 5

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	0.2	0.2	1.2	1.0	0.2	1.0	1.4	0.8	1.2	2.2	5.2	18.3	39.7	20.2	4.0	2.4	0.	0.6	496.
1	0.2	1.0	0.6	0.4	0.	2.0	1.0	0.4	0.6	3.4	6.0	16.5	37.9	20.0	6.5	2.4	0.2	0.8	496.
2	1.4	1.2	0.2	0.6	0.2	1.2	0.4	1.2	0.8	3.2	8.7	17.5	33.5	22.2	5.2	2.2	0.	0.2	496.
3	0.4	1.2	0.6	0.4	0.2	1.0	1.0	0.4	1.0	3.0	8.5	16.5	35.7	21.2	5.2	2.6	0.2	0.8	496.
4	0.8	0.4	0.8	0.8	0.8	0.6	0.8	0.	1.6	1.8	9.5	15.7	36.3	21.6	5.4	1.8	0.8	0.4	496.
5	0.4	0.2	1.0	1.0	0.4	1.2	1.2	1.6	0.8	2.4	8.1	17.5	33.1	21.6	6.0	2.6	0.4	0.4	496.
6	1.4	1.2	0.2	1.0	1.0	2.4	1.0	1.0	0.6	3.0	8.9	11.5	31.9	22.4	7.1	3.0	0.4	2.0	496.
7	3.4	2.2	1.2	1.6	0.4	1.8	0.4	1.2	1.4	4.2	7.3	7.5	19.0	29.0	9.9	7.5	0.6	1.4	496.
8	5.6	5.0	2.0	2.4	1.6	2.6	1.0	1.4	1.6	4.6	7.3	4.6	13.3	21.2	11.7	10.9	2.8	0.2	496.
9	6.5	6.0	3.4	3.2	2.4	2.8	2.8	3.0	2.6	10.5	4.8	5.2	10.1	13.1	7.1	11.9	4.4	0.	496.
10	7.1	6.2	2.8	4.0	3.2	5.2	2.8	5.6	5.8	10.1	7.1	5.2	7.3	8.5	6.9	7.7	4.4	0.	496.
11	7.7	5.5	3.0	3.2	4.0	6.3	3.2	6.1	5.9	10.9	8.9	5.7	6.7	8.3	4.0	5.9	4.8	0.	495.
12	5.2	8.1	3.6	2.8	2.6	5.8	4.2	5.6	7.3	11.9	7.1	6.7	6.9	7.7	4.2	5.8	4.4	0.	496.
13	7.1	7.1	4.8	3.0	2.6	7.5	2.8	3.0	7.5	12.7	8.9	5.6	7.3	8.1	2.6	5.4	4.0	0.	496.
14	6.7	6.2	4.4	3.6	3.4	4.8	3.0	4.0	5.8	10.9	11.9	5.0	8.3	9.1	4.4	5.6	2.6	0.	496.
15	6.9	8.5	3.8	3.0	2.6	6.7	2.4	4.6	5.0	10.3	9.3	4.4	6.7	15.5	2.2	6.2	1.8	0.	496.
16	5.6	7.5	4.6	4.2	2.4	5.4	3.0	3.2	5.4	6.7	8.5	4.6	10.3	18.3	2.6	5.2	1.6	0.4	496.
17	5.2	6.9	5.2	3.6	4.0	4.4	4.6	3.0	4.0	6.9	6.7	3.0	11.1	22.8	2.2	4.4	1.2	0.6	496.
18	4.4	4.0	5.0	4.8	3.6	5.4	5.4	1.8	3.4	4.8	4.8	5.2	14.5	26.2	2.4	2.8	0.2	0.8	496.
19	3.8	4.6	3.2	3.2	5.6	3.4	5.2	4.0	1.4	4.2	4.2	4.4	21.0	26.8	2.2	1.8	0.4	0.2	496.
20	3.0	3.2	3.6	2.4	3.0	6.5	4.4	2.4	2.0	3.4	5.8	5.2	27.4	22.8	2.0	1.6	0.6	0.4	496.
21	2.0	2.6	2.6	1.0	2.6	3.4	4.6	3.0	1.8	3.4	5.8	8.3	36.9	17.3	1.8	2.4	0.	0.2	496.
22	1.4	2.6	1.0	0.8	1.2	2.2	2.8	1.6	1.4	2.2	6.5	12.7	40.9	18.1	2.6	1.2	0.2	0.4	496.
23	0.6	1.4	0.6	1.0	0.6	1.4	1.6	1.4	1.2	1.8	6.7	16.7	40.7	17.9	3.2	2.4	0.2	0.4	496.
TOTAL	3.6	3.9	2.5	2.2	2.0	3.6	2.6	2.5	2.9	5.8	7.3	9.3	22.3	18.3	4.7	4.4	1.5	0.4	11003.

MONTH 6

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.9	2.3	0.2	0.6	0.	0.8	0.8	0.4	0.2	1.5	5.0	15.4	41.5	22.9	2.7	2.5	0.6	0.6	480.
1	1.9	1.0	0.	0.8	0.2	0.8	0.	1.2	0.4	1.0	6.0	17.5	40.2	21.0	5.0	2.3	0.	0.4	480.
2	1.5	1.2	0.	0.4	0.4	0.2	1.0	0.8	0.4	2.5	5.2	19.6	38.1	19.6	6.7	2.1	0.2	0.	480.
3	1.5	0.8	0.8	0.	0.2	0.6	0.8	0.	0.8	2.1	5.6	21.9	34.2	24.0	4.2	2.3	0.	0.2	480.
4	2.3	0.4	0.	0.2	0.2	1.2	0.6	0.4	0.8	2.7	8.7	19.4	32.7	20.6	5.4	3.7	0.2	0.2	480.
5	1.5	0.2	0.2	0.2	0.2	1.7	0.2	0.6	1.2	3.1	8.1	16.0	34.0	21.9	5.4	3.7	0.6	1.0	480.
6	2.5	1.2	0.6	0.6	0.6	1.7	1.0	1.9	1.7	2.5	8.3	9.6	27.7	28.3	7.5	2.5	0.8	0.8	480.
7	5.0	2.5	0.4	1.2	1.2	1.2	1.9	2.7	1.9	2.1	7.1	7.7	16.5	28.1	11.7	7.3	1.2	0.2	480.
8	9.8	4.6	3.3	1.0	2.3	2.7	2.3	1.0	3.3	4.8	6.2	5.6	11.5	20.2	9.6	9.0	2.1	0.6	480.
9	7.3	5.4	2.5	3.7	3.7	4.2	2.3	3.7	4.4	5.4	9.6	5.8	7.3	13.7	7.9	9.4	3.5	0.	480.
10	6.2	7.7	2.1	4.6	3.5	7.3	3.7	4.6	5.6	10.6	7.5	3.7	7.3	9.6	5.6	7.3	2.9	0.	480.
11	6.2	7.3	3.5	3.7	3.5	5.0	5.2	5.6	7.3	11.0	7.3	5.8	8.1	7.5	2.7	6.5	3.5	0.	480.
12	4.8	5.4	4.6	2.7	3.7	4.6	2.3	6.2	6.9	15.4	7.5	6.0	5.8	7.7	5.2	6.2	4.8	0.	480.
13	5.0	5.0	3.3	4.8	1.7	4.8	2.9	3.3	8.3	17.7	9.8	6.7	5.2	9.0	3.7	5.2	3.5	0.	480.
14	5.6	6.2	3.5	2.7	1.5	4.6	3.5	3.7	5.8	14.2	12.1	5.6	8.3	10.6	2.7	5.2	4.0	0.	480.
15	6.5	6.2	3.3	3.3	3.1	2.7	2.1	3.7	6.5	10.2	12.7	6.5	9.0	12.9	4.8	4.8	1.7	0.	480.
16	5.2	7.3	3.1	3.1	2.7	2.9	3.1	3.7	3.5	8.1	9.8	7.3	6.7	21.7	4.8	5.4	1.5	0.	480.
17	4.6	6.2	4.4	4.4	3.7	3.5	2.5	2.3	2.5	5.8	9.4	4.8	9.6	27.3	3.3	4.4	1.0	0.2	480.
18	4.4	5.6	4.6	4.2	4.0	3.7	2.9	1.5	2.7	3.3	7.9	4.6	14.6	29.0	3.3	3.3	0.4	0.	480.
19	4.0	5.2	4.0	3.1	6.2	3.7	2.9	1.2	2.1	2.1	6.0	3.7	22.1	29.2	1.9	1.7	0.4	0.4	480.
20	2.5	4.2	2.7	3.7	3.3	3.3	3.5	1.5	1.7	1.7	3.7	5.6	30.2	28.3	2.5	1.2	0.	0.2	480.
21	3.1	3.5	2.5	3.5	0.8	2.5	2.9	1.0	1.7	2.5	3.7	6.7	37.1	25.0	1.9	1.2	0.	0.2	480.
22	1.9	2.5	1.5	1.7	1.2	1.7	1.9	0.6	0.8	1.7	5.0	9.8	38.7	27.3	1.7	1.2	0.2	0.6	480.
23	2.3	1.0	1.0	1.0	0.2	1.2	1.0	0.4	0.6	2.1	4.4	10.4	41.2	27.5	2.3	2.1	0.2	0.8	480.
TOTAL	4.1	3.9	2.2	2.3	2.0	2.8	2.2	2.2	3.0	5.6	7.4	9.4	22.0	20.5	4.7	4.2	1.4	0.3	11520.

TABLE 47 (CONTD)
COMPOSITE HOUR VS. 400 FOOT DIRECTION

MONTH 7

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	0.6	0.6	0.8	0.2	0.6	0.4	0.4	0.6	0.2	1.2	3.6	10.9	44.8	27.6	4.8	2.4	0.	0.2	496.
1	0.4	0.8	0.6	0.6	0.2	0.6	0.	0.	0.6	1.8	2.6	11.3	47.6	25.0	5.8	1.8	0.	0.2	496.
2	0.6	1.0	0.2	0.4	0.4	0.	0.8	0.2	0.2	1.6	4.0	17.7	43.7	21.4	5.8	1.6	0.	0.2	496.
3	1.0	0.8	0.4	0.6	0.2	0.	0.6	0.2	0.4	2.0	4.0	17.7	43.5	20.4	5.6	1.8	0.	0.6	496.
4	0.6	0.6	0.4	0.2	0.	0.2	0.2	0.2	0.8	1.8	5.4	17.9	41.7	22.8	5.2	1.4	0.	0.4	496.
5	0.	0.4	0.2	0.2	0.2	1.0	0.6	0.2	0.6	2.2	6.9	15.7	40.3	22.6	6.9	1.4	0.2	0.4	496.
6	0.6	0.6	0.2	0.6	0.6	1.2	0.4	1.0	0.8	3.6	5.4	7.7	35.9	30.4	5.6	3.0	0.6	1.6	496.
7	3.2	2.2	0.4	0.8	1.0	0.6	1.8	2.6	1.0	2.0	4.0	4.6	17.7	36.3	12.3	7.9	1.0	0.4	496.
8	8.9	5.0	3.2	1.4	2.0	1.8	2.0	1.8	1.4	3.4	4.2	2.0	9.5	21.4	16.1	11.9	3.8	0.	496.
9	8.7	9.9	3.4	3.0	3.8	4.2	4.0	3.2	2.2	5.8	4.8	2.2	5.6	11.9	7.3	14.5	5.2	0.	496.
10	9.3	8.1	2.6	4.2	6.7	6.9	4.0	5.4	5.4	7.7	6.2	3.4	4.0	6.9	4.6	7.3	7.1	0.2	496.
11	7.5	7.5	2.4	3.2	6.0	7.9	5.6	5.8	5.8	10.5	4.8	5.2	3.4	6.2	4.2	7.5	6.2	0.	496.
12	5.6	8.3	5.8	2.2	3.4	6.2	3.8	6.2	6.9	12.7	9.3	4.4	3.6	5.8	3.2	5.8	6.5	0.	496.
13	6.9	7.7	2.8	4.2	3.6	5.2	4.6	4.0	6.2	14.9	11.1	4.0	3.6	5.4	3.8	7.5	4.2	0.	496.
14	7.3	6.5	3.4	2.4	2.6	4.4	4.0	4.6	4.0	14.1	13.3	5.8	5.6	7.5	3.6	6.0	4.6	0.	496.
15	7.1	7.7	4.0	4.2	3.4	2.4	3.0	3.6	4.0	10.9	11.3	6.0	8.5	8.7	2.8	6.5	5.8	0.	496.
16	8.5	6.9	3.4	5.8	2.2	2.8	2.8	1.4	2.8	9.7	13.1	6.7	8.3	15.5	1.8	5.6	2.6	0.	496.
17	7.3	7.1	4.2	5.8	3.0	4.8	1.0	2.6	2.4	6.9	11.3	7.5	7.7	20.0	1.6	5.8	1.0	0.	496.
18	6.0	6.7	5.4	5.2	3.8	5.6	1.2	2.0	1.8	4.2	9.1	5.6	10.7	26.8	1.4	4.0	0.	0.2	496.
19	4.8	5.8	3.0	6.0	4.8	4.2	2.2	0.6	1.0	3.2	6.0	2.2	18.1	30.6	2.6	3.4	0.	0.2	496.
20	4.2	4.0	2.6	3.0	3.4	3.8	2.4	1.0	1.4	1.8	5.0	3.0	24.8	33.7	1.6	3.2	0.	0.8	496.
21	1.2	2.8	2.4	2.4	2.2	2.2	2.6	1.2	1.0	1.6	4.6	5.8	30.2	31.3	2.4	3.0	0.2	0.6	496.
22	1.0	2.2	1.4	0.6	1.2	1.2	1.8	1.2	0.6	2.2	3.6	6.7	41.5	29.8	2.2	1.8	0.	0.6	496.
23	1.8	1.4	0.2	0.4	0.6	0.2	0.6	1.0	1.4	1.4	2.4	9.1	46.4	27.2	4.0	1.4	0.2	0.2	496.
TOTAL	4.3	4.4	2.2	2.4	2.3	2.8	2.1	2.1	2.2	5.3	6.6	7.6	22.8	20.7	4.8	4.9	2.1	0.3	11904.

MONTH 8

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.0	0.4	0.4	0.	0.2	0.4	0.2	0.4	0.4	1.2	6.2	12.1	46.2	23.2	5.4	1.6	0.6	0.	496.
1	1.2	0.4	0.2	0.	0.2	0.2	0.	0.	0.4	2.4	7.5	11.5	45.0	24.8	4.6	1.2	0.	0.4	496.
2	1.2	0.2	0.4	0.	0.6	0.4	0.2	0.2	1.0	1.8	6.0	14.9	43.7	23.8	3.6	1.2	0.2	0.4	496.
3	0.8	0.2	0.	0.4	0.4	0.2	0.6	0.6	0.8	3.0	5.4	15.5	41.7	24.6	3.2	1.4	0.6	0.4	496.
4	0.8	0.2	0.4	0.2	0.2	0.4	0.4	0.6	0.6	2.0	7.3	17.3	40.3	23.6	3.2	1.6	0.	0.8	496.
5	1.2	0.6	0.	0.4	0.2	0.6	0.6	0.6	0.2	1.6	6.5	16.5	38.9	23.8	5.2	1.6	0.2	1.2	496.
6	0.2	0.2	0.	0.2	0.6	0.8	0.4	0.2	1.2	2.0	4.8	13.3	37.3	29.6	6.7	1.2	0.2	1.0	496.
7	1.4	1.2	0.6	0.8	0.8	1.6	0.8	0.8	1.6	2.8	4.6	6.0	22.0	37.5	11.7	3.8	0.6	1.2	496.
8	5.4	3.4	1.8	1.2	1.0	2.0	1.6	1.8	1.8	3.6	2.8	3.2	12.1	24.2	18.1	13.9	1.6	0.2	496.
9	9.5	7.7	4.2	3.2	3.4	4.4	1.6	2.6	2.4	6.7	4.0	3.8	6.0	13.7	9.9	12.5	3.6	0.6	496.
10	6.9	8.1	3.6	5.8	5.2	4.8	3.8	5.6	3.6	6.7	3.8	3.6	6.2	9.3	7.1	9.1	6.7	0.	496.
11	7.3	7.1	3.0	3.4	5.6	7.3	4.8	5.0	5.6	8.9	4.4	3.0	5.2	7.5	4.2	8.9	8.7	0.	496.
12	7.3	7.9	3.6	3.4	4.4	8.7	5.2	6.0	5.6	11.5	6.7	3.2	4.0	6.7	4.8	5.8	5.0	0.	496.
13	7.1	8.1	3.6	4.4	2.2	5.2	4.6	4.4	7.7	14.5	7.7	4.6	3.8	5.8	3.2	5.8	7.1	0.	496.
14	5.2	7.1	4.4	4.0	3.8	4.8	4.0	4.4	6.2	14.1	10.5	3.2	4.6	9.3	4.0	6.5	3.6	0.	496.
15	6.9	7.5	3.6	2.8	2.6	6.5	3.0	3.4	5.2	12.1	9.2	5.0	4.8	14.5	2.2	6.5	3.4	0.	496.
16	6.9	5.8	4.6	4.6	3.0	5.8	2.6	2.6	3.8	7.1	12.3	3.8	7.9	16.9	3.2	6.5	2.2	0.2	496.
17	5.2	6.7	5.0	5.6	5.4	6.7	2.2	1.2	2.4	8.3	9.3	5.4	7.5	20.0	3.6	4.8	0.6	0.	496.
18	3.8	5.0	4.4	6.0	7.1	7.3	2.4	2.4	2.8	4.8	5.2	4.4	13.9	22.8	2.2	4.2	0.4	0.6	496.
19	2.6	4.0	2.8	4.4	4.4	7.7	5.2	1.8	2.8	3.2	6.0	3.0	17.9	27.6	1.2	3.8	0.	1.2	496.
20	2.0	3.2	2.0	3.6	1.8	4.4	5.4	2.6	1.8	3.0	6.9	2.6	28.8	26.0	2.8	2.2	0.	0.6	496.
21	2.0	1.8	1.4	0.8	1.4	2.4	3.0	2.0	1.0	3.4	5.0	7.7	33.1	30.2	2.4	2.0	0.	0.2	496.
22	0.8	1.2	0.2	0.6	0.2	0.	1.4	2.0	1.4	1.6	6.7	8.5	44.8	26.0	2.6	1.2	0.4	0.4	496.
23	0.6	0.6	0.8	0.2	0.2	0.2	0.6	0.4	0.8	1.0	5.4	11.9	45.6	27.0	2.2	2.4	0.	0.	496.
TOTAL	3.6	3.7	2.1	2.4	2.3	3.5	2.3	2.2	2.6	5.3	6.5	7.7	23.4	20.8	4.9	4.6	1.9	0.4	11904.

TABLE 47 (CONTD)
COMPOSITE HOUR VS. 400 FOOT DIRECTION

MONTH 9

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	2.7	0.4	0.2	0.4	0.8	0.8	0.6	0.8	1.0	3.1	5.8	10.4	32.7	27.5	8.3	2.9	0.6	0.6	480.
1	2.5	0.4	0.	0.6	0.2	1.2	0.8	0.	1.9	2.1	6.2	11.7	33.5	25.2	8.5	4.0	0.	1.0	480.
2	1.9	0.6	0.	0.	0.2	0.4	1.0	1.0	1.2	2.3	7.5	12.3	31.0	28.3	8.1	2.7	0.	1.2	480.
3	1.5	0.6	0.2	1.0	0.	1.5	0.4	0.8	1.0	3.1	7.3	12.9	29.8	25.0	9.6	3.1	0.6	1.5	480.
4	2.5	0.6	0.4	0.4	0.8	0.6	1.0	0.6	1.9	3.3	5.2	13.7	26.9	26.5	9.4	3.3	0.4	2.3	480.
5	2.1	1.0	0.2	0.2	0.8	1.0	1.0	0.8	2.3	2.1	5.0	13.3	26.7	26.7	10.0	3.5	0.8	2.3	480.
6	2.5	1.0	0.2	0.6	1.0	1.7	1.0	1.0	1.2	2.7	6.2	12.3	22.3	26.9	12.9	3.7	0.	2.5	480.
7	2.1	2.3	0.8	1.7	1.0	1.9	1.0	1.2	1.9	3.7	6.5	7.9	19.8	25.0	12.5	6.2	0.6	3.7	480.
8	5.4	5.0	2.5	1.5	2.9	2.5	1.7	0.8	1.0	4.8	5.4	4.2	9.0	26.0	15.2	9.8	1.0	1.2	480.
9	9.8	8.3	2.9	4.2	4.0	2.9	2.5	1.0	1.5	4.0	5.2	2.9	6.0	14.0	14.6	14.0	2.1	0.2	480.
10	9.6	7.9	4.6	7.5	4.0	4.6	1.9	3.1	1.9	4.2	5.8	2.9	2.9	9.4	9.4	16.0	4.0	0.4	480.
11	9.4	9.8	4.4	6.2	6.0	6.0	2.5	4.2	2.7	6.0	6.0	2.1	2.5	9.2	7.9	11.5	3.1	0.4	480.
12	9.0	9.4	5.0	5.0	6.2	7.3	3.3	3.5	5.8	6.7	6.0	2.9	3.5	7.5	6.7	9.6	2.5	0.	480.
13	9.6	8.1	4.2	3.3	5.0	8.3	2.5	4.2	3.5	12.3	5.8	2.5	4.2	7.9	4.6	9.2	4.6	0.2	480.
14	10.4	8.5	4.2	4.4	4.0	6.0	3.5	3.3	6.5	10.2	7.5	2.5	4.4	7.7	4.0	9.6	3.3	0.	480.
15	8.7	10.0	4.8	4.0	5.2	6.2	4.0	2.7	4.0	9.4	8.5	4.2	3.5	10.6	4.6	7.3	2.3	0.	480.
16	10.2	8.5	3.7	7.5	5.4	6.0	3.5	3.7	3.5	7.1	7.3	4.4	4.0	14.2	4.2	5.6	0.8	0.2	480.
17	5.8	7.3	5.0	5.6	5.0	7.9	5.0	3.7	3.7	4.8	6.2	5.8	6.5	17.1	2.5	5.8	0.4	1.7	480.
18	5.0	5.0	2.7	4.8	4.8	7.9	6.7	3.3	4.0	5.6	8.3	4.4	11.7	17.9	2.9	3.7	0.2	1.0	480.
19	5.6	2.7	2.9	2.3	2.1	7.3	6.0	3.3	4.6	6.7	8.7	4.6	16.7	19.8	3.3	2.1	0.	1.2	480.
20	3.3	3.3	2.7	1.7	0.6	5.2	6.0	1.2	2.5	3.5	9.6	10.4	20.6	23.7	3.5	1.5	0.2	0.2	480.
21	1.7	2.5	2.3	1.0	0.6	2.5	3.3	1.7	2.3	4.2	7.7	11.9	25.6	25.2	4.0	2.5	0.	1.0	480.
22	2.1	1.2	1.5	0.4	0.4	1.0	1.9	1.5	2.5	5.8	5.6	9.6	34.2	23.7	4.8	3.1	0.2	0.4	480.
23	2.1	1.0	0.8	0.6	0.2	0.8	1.5	0.6	1.2	4.6	7.9	11.2	32.3	22.7	7.9	3.5	0.2	0.6	480.
TOTAL	5.2	4.4	2.3	2.7	2.6	3.8	2.6	2.0	2.7	5.1	6.7	7.5	17.1	19.5	7.5	6.0	1.2	1.0	11520.

MONTH 10

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	0.6	1.2	0.4	1.8	1.4	1.0	2.4	1.4	2.6	5.0	8.3	10.9	19.2	29.4	9.5	1.4	0.6	2.8	496.
1	1.0	1.2	0.4	0.8	1.8	1.8	1.8	2.6	2.4	5.2	9.1	10.1	17.9	28.8	8.5	2.6	0.4	3.4	496.
2	1.2	1.0	1.0	0.6	1.4	2.8	1.8	1.8	2.6	7.1	6.9	9.9	20.0	26.4	7.3	3.4	0.6	4.2	496.
3	0.8	1.8	1.0	1.2	1.2	2.6	2.8	2.8	3.0	4.6	8.7	9.3	18.5	26.8	7.5	4.2	0.6	2.4	496.
4	2.0	1.4	1.4	1.2	0.8	2.6	2.6	1.8	2.8	4.6	6.5	10.5	19.2	26.0	7.9	4.2	0.8	3.6	496.
5	1.6	0.8	0.6	1.8	1.8	2.4	1.8	2.4	1.4	5.8	5.8	10.9	20.8	22.2	10.5	5.2	0.4	3.6	496.
6	1.6	0.6	1.0	1.2	1.4	2.2	1.2	3.4	2.0	5.4	8.9	9.1	20.0	22.6	11.5	3.8	0.8	3.2	496.
7	2.0	2.0	1.6	1.0	1.8	3.0	1.0	2.4	3.4	6.0	7.9	9.9	16.7	24.8	9.7	3.4	0.4	2.8	496.
8	3.6	2.0	1.2	2.6	0.8	4.0	2.0	2.0	3.0	7.3	4.8	7.7	11.9	24.8	11.9	5.8	1.0	3.4	496.
9	4.6	4.2	3.2	3.2	3.4	3.0	3.0	2.4	3.4	5.2	4.8	4.8	7.7	19.6	13.1	9.5	2.8	1.8	496.
10	9.1	7.3	3.6	4.2	4.2	3.4	1.8	3.0	4.4	4.8	7.1	1.8	7.1	13.1	13.3	9.1	2.2	0.4	496.
11	7.5	8.7	3.8	4.8	7.1	4.6	2.2	2.8	4.8	6.9	6.5	2.2	4.6	10.1	8.9	11.7	2.2	0.6	496.
12	8.7	7.9	4.8	4.8	6.2	7.1	2.8	3.0	4.0	9.7	6.5	2.6	4.0	7.5	7.5	11.3	1.4	0.2	496.
13	8.1	7.5	4.2	5.4	5.8	8.9	3.6	2.4	5.2	8.5	7.9	2.6	3.6	6.9	7.5	10.1	1.6	0.2	496.
14	7.5	8.3	4.0	5.2	6.2	9.9	3.2	2.6	5.2	9.1	6.2	2.0	4.0	7.3	8.9	8.7	1.2	0.4	496.
15	7.5	6.5	4.6	6.5	8.1	7.9	2.4	2.4	4.0	10.1	7.5	2.8	5.8	9.3	6.7	6.9	0.4	0.8	496.
16	6.2	3.4	4.2	7.3	5.4	9.1	4.0	2.2	4.4	7.9	9.7	2.8	7.7	12.1	5.8	4.8	0.4	2.4	496.
17	3.4	2.4	2.2	5.2	5.6	9.1	5.6	3.6	3.2	9.1	6.9	5.4	10.9	14.5	4.2	4.4	0.2	3.8	496.
18	2.2	1.8	1.8	2.6	4.6	9.1	6.2	3.2	4.4	7.7	7.9	4.6	15.7	16.5	5.0	3.0	0.2	3.2	496.
19	2.0	1.4	1.6	2.4	2.0	8.9	5.2	3.2	3.6	7.5	8.7	9.1	17.5	17.1	3.8	2.0	0.4	3.4	496.
20	1.2	0.6	1.2	1.4	1.2	5.8	6.2	1.8	4.0	5.8	9.1	10.1	21.0	22.0	3.4	2.8	0.6	1.6	496.
21	1.4	0.6	1.4	0.8	1.4	1.8	4.2	3.0	3.2	5.4	8.7	10.9	19.8	26.6	5.6	1.8	0.2	3.0	496.
22	2.4	0.4	0.8	1.0	0.8	2.4	1.4	2.2	3.0	3.6	8.7	11.3	19.6	27.4	7.9	2.6	0.4	4.0	496.
23	1.6	1.6	0.4	0.8	1.4	1.4	2.4	1.4	2.2	4.6	9.1	10.9	18.7	29.0	7.3	3.6	0.4	3.0	496.
TOTAL	3.7	3.1	2.1	2.8	3.2	4.8	3.0	2.5	3.5	6.5	7.6	7.2	13.8	19.6	8.0	5.3	0.8	2.4	11904.

TABLE 47 (CONTD)
COMPOSITE HOUR VS. 400 FOOT DIRECTION

MONTH 11

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	3.1	1.0	1.5	1.2	1.2	3.3	3.5	2.7	3.7	4.8	8.1	9.2	12.1	23.5	10.0	4.8	0.8	5.2	480.
1	2.5	1.0	1.5	2.1	1.9	4.6	1.9	2.1	6.0	3.7	7.3	8.7	12.1	23.3	10.6	4.8	1.5	4.4	480.
2	2.5	2.1	1.0	2.7	1.9	2.5	3.3	3.3	5.4	6.5	6.2	7.3	11.5	24.0	10.4	4.0	0.6	4.8	480.
3	3.3	0.6	1.2	2.7	3.1	4.6	3.3	2.7	4.0	6.7	4.4	10.0	13.1	22.3	8.1	4.6	1.2	4.0	480.
4	2.5	1.2	1.5	1.9	2.3	4.0	3.3	4.8	5.2	5.8	7.7	7.3	10.4	24.4	9.0	4.2	0.8	3.7	480.
5	1.7	0.8	1.7	2.1	2.5	5.0	2.9	3.7	5.0	4.6	6.7	9.4	11.5	23.1	9.4	5.0	1.0	4.0	480.
6	2.5	1.7	0.2	1.2	2.7	5.2	2.3	2.7	4.8	4.8	6.5	7.7	13.1	25.4	8.7	6.2	1.0	3.1	480.
7	2.7	1.5	1.7	2.3	1.2	4.2	4.0	1.7	4.0	6.0	4.4	6.7	15.4	23.1	10.0	5.6	1.5	4.2	480.
8	2.5	3.5	1.5	2.3	2.5	4.4	2.1	1.9	4.2	5.2	5.2	10.2	12.7	20.2	11.5	5.4	1.0	3.7	480.
9	4.0	3.1	2.3	2.7	2.1	4.2	2.3	3.1	2.7	7.1	4.0	7.1	9.0	24.6	9.8	6.3	1.5	4.2	480.
10	4.8	3.5	2.7	3.3	3.3	3.1	2.3	2.3	4.2	7.3	5.2	4.4	7.5	19.2	13.7	7.9	1.2	4.0	480.
11	7.1	4.8	3.3	2.5	4.2	4.8	2.3	2.7	4.0	6.7	6.5	3.1	6.9	15.8	13.1	7.5	2.5	2.5	480.
12	5.8	6.3	4.6	3.8	5.2	4.4	1.9	3.3	4.8	6.3	6.1	3.5	5.2	13.8	13.2	8.6	1.9	1.5	479.
13	7.5	6.9	4.2	5.4	4.6	6.1	1.7	3.3	4.2	7.3	5.6	3.3	5.2	12.9	10.2	8.4	1.9	1.3	479.
14	7.7	7.1	4.2	5.4	4.0	6.7	2.1	3.5	3.1	8.1	6.9	2.7	6.0	12.7	9.4	6.5	0.6	3.3	480.
15	4.6	5.8	3.1	6.5	3.3	7.3	2.3	3.5	4.6	8.3	6.0	4.8	6.2	14.0	8.1	5.2	0.4	5.8	480.
16	4.6	3.1	2.3	2.7	4.6	6.5	4.2	3.7	4.8	6.0	6.7	4.6	9.4	15.4	5.8	6.9	0.4	8.3	480.
17	4.2	2.1	1.9	3.1	2.3	8.1	4.6	3.7	3.7	7.1	7.9	6.2	11.7	17.1	6.0	4.0	0.4	6.2	480.
18	2.7	3.3	1.5	2.7	2.5	5.4	4.6	4.0	3.5	6.9	9.2	7.1	12.7	18.3	4.4	5.0	0.2	6.0	480.
19	2.7	1.7	1.2	1.7	2.5	5.2	4.2	4.4	3.5	6.2	6.7	10.6	14.6	18.7	6.7	4.2	0.2	5.0	480.
20	2.1	1.5	0.8	1.7	2.7	4.6	3.3	2.7	4.6	6.7	6.7	9.8	14.0	20.4	8.7	4.8	0.6	4.4	480.
21	1.9	1.7	1.5	1.7	1.5	3.5	2.5	2.7	4.2	5.8	6.0	10.0	14.6	22.1	8.5	4.6	1.2	6.0	480.
22	2.9	1.5	0.8	2.1	1.0	2.9	2.1	3.3	3.1	6.2	6.0	8.7	12.9	23.7	8.1	6.7	0.6	7.1	480.
23	1.7	1.5	0.8	1.5	1.7	3.1	3.1	3.7	4.0	5.6	7.3	5.8	12.7	25.0	10.4	5.6	0.6	5.8	480.
TOTAL	3.6	2.8	2.0	2.7	2.7	4.7	2.9	3.2	4.2	6.2	6.4	7.0	10.9	20.1	9.3	5.7	1.0	4.5	11518.

MONTH 12

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.8	2.0	0.6	1.4	1.2	4.2	2.4	3.6	3.0	8.5	6.2	6.7	15.7	21.4	9.1	4.8	0.8	6.5	496.
1	2.0	2.6	1.4	2.6	1.6	3.0	2.2	3.4	4.6	6.7	6.5	7.5	13.3	21.8	9.9	4.4	0.6	5.8	496.
2	1.0	1.0	1.8	1.0	2.8	4.0	3.6	3.2	3.8	7.5	5.6	8.3	12.9	21.0	10.1	4.2	1.4	6.7	496.
3	2.2	1.8	1.4	1.8	1.6	4.4	2.8	3.2	2.8	7.3	5.8	8.5	13.1	20.8	11.3	4.2	0.4	6.5	496.
4	2.0	1.8	1.8	1.2	1.8	3.2	4.0	2.0	3.4	5.0	8.5	7.5	11.7	24.4	10.5	5.0	0.6	5.4	496.
5	2.4	1.4	2.0	2.4	0.8	3.6	3.4	2.4	4.2	5.4	7.1	6.7	11.9	25.4	8.1	6.2	0.6	5.8	496.
6	3.6	1.4	2.0	1.8	2.2	4.4	1.6	4.2	3.6	5.8	5.6	6.5	13.5	22.0	8.9	4.6	1.2	6.9	496.
7	2.8	1.8	2.0	2.0	2.8	4.2	2.2	4.6	4.6	4.8	4.6	8.7	12.9	22.0	8.9	4.2	0.2	6.5	496.
8	2.2	1.4	1.2	2.6	2.6	3.8	2.8	3.2	5.8	5.2	4.8	6.7	13.1	20.2	9.7	6.5	1.0	7.1	496.
9	3.0	1.4	1.0	2.4	3.0	5.6	1.4	3.4	4.0	6.5	6.5	6.9	10.3	22.2	10.1	4.6	0.6	7.1	496.
10	2.4	3.4	2.4	2.4	2.8	4.8	2.4	2.0	5.0	5.2	6.5	6.5	10.9	20.4	9.9	6.2	1.6	5.0	496.
11	4.4	3.8	2.4	2.4	3.2	4.0	3.0	2.6	5.6	5.0	5.0	4.4	6.7	24.0	9.5	6.7	1.2	5.8	496.
12	5.8	5.4	2.2	3.0	4.2	4.6	2.4	1.0	4.8	6.9	6.0	2.6	6.0	19.8	11.5	6.7	1.8	5.0	496.
13	4.6	2.6	3.8	4.8	4.4	5.8	2.0	3.2	4.6	7.1	4.8	4.0	6.7	17.1	8.9	7.3	1.0	7.1	496.
14	5.2	4.8	4.0	3.8	4.8	6.2	1.8	2.2	4.8	8.5	4.6	3.6	6.9	16.1	8.7	4.8	1.6	7.3	496.
15	4.2	4.0	2.4	5.6	3.8	6.7	2.4	3.8	3.0	9.1	4.0	4.0	5.0	19.6	10.1	5.0	0.2	6.9	496.
16	3.4	3.0	2.6	4.0	6.2	5.8	3.6	3.2	4.0	8.1	5.0	4.2	6.7	18.5	9.7	3.6	0.4	7.7	496.
17	2.6	2.2	2.2	4.4	4.0	5.6	3.8	3.2	3.4	7.1	5.8	4.2	10.9	18.3	8.1	2.0	0.4	8.5	496.
18	2.0	1.8	1.8	2.2	2.8	4.4	3.6	3.4	4.2	7.5	4.4	6.2	13.1	19.2	8.7	5.4	1.4	7.7	496.
19	2.4	2.0	1.2	2.0	2.4	4.2	3.0	2.6	4.0	7.5	6.2	4.4	15.1	21.2	8.9	5.2	0.2	7.3	496.
20	2.4	1.2	0.6	1.8	2.4	3.0	2.8	2.4	3.2	6.2	6.9	6.7	12.5	26.6	6.5	5.4	1.6	7.7	496.
21	1.6	1.8	0.8	1.8	2.2	4.6	1.8	2.0	3.6	6.5	8.1	6.5	15.9	21.8	8.9	5.0	0.6	6.5	496.
22	1.6	1.8	1.2	2.0	1.8	2.4	2.0	4.2	5.0	5.6	9.3	6.9	15.3	20.8	9.1	4.4	0.4	6.0	496.
23	1.4	1.6	0.6	1.2	1.4	3.4	3.2	2.2	4.2	7.1	7.1	7.1	13.7	24.2	10.1	4.2	0.8	6.5	496.
TOTAL	2.8	2.4	1.8	2.5	2.8	4.4	2.7	3.0	4.2	6.7	6.0	6.0	11.4	21.2	9.4	5.2	0.9	6.6	11904.

TABLE 47 (CONTD)
COMPOSITE HOUR VS. 400 FOOT DIRECTION

MONTH 13

HOUR	DIRECTION INTERVAL																		SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
0	1.9	1.2	0.8	0.8	0.9	1.8	1.8	1.5	1.9	4.6	6.8	11.8	27.5	24.0	7.1	2.9	0.5	2.3	5844.
1	1.7	1.1	0.6	1.0	1.0	2.0	1.3	1.5	2.5	4.3	6.9	12.0	26.8	23.6	7.7	3.3	0.3	2.3	5844.
2	1.5	1.1	0.7	0.9	1.1	1.8	1.7	1.7	2.3	5.0	6.4	13.2	25.7	23.5	7.7	2.9	0.5	2.3	5844.
3	1.6	1.1	0.8	1.0	1.0	2.0	1.8	1.7	2.2	4.7	6.6	13.6	25.4	23.3	7.1	3.4	0.4	2.2	5844.
4	1.8	1.0	0.8	1.0	1.1	2.0	1.8	1.6	2.5	4.4	7.4	13.2	24.4	23.5	7.2	3.4	0.5	2.5	5844.
5	1.6	0.8	0.9	1.1	1.2	2.3	1.5	1.7	2.4	4.1	7.2	13.3	23.7	23.3	7.5	3.9	0.6	2.8	5844.
6	2.1	1.1	0.7	1.2	1.2	2.5	1.6	2.0	2.5	4.4	7.2	10.1	23.1	24.5	8.5	3.7	0.8	2.9	5844.
7	2.7	1.9	1.0	1.5	1.3	2.5	1.7	2.4	2.8	4.8	6.5	8.2	17.0	26.5	10.1	5.7	0.7	2.7	5844.
8	5.0	3.3	2.0	1.9	1.8	2.9	2.2	2.1	3.1	5.4	5.8	6.0	12.4	22.7	12.0	7.8	1.4	2.2	5844.
9	5.8	5.2	2.8	3.1	2.8	3.6	2.3	2.8	3.2	7.1	5.9	5.2	8.2	17.8	10.4	9.3	2.5	2.0	5844.
10	6.5	6.2	2.9	4.2	3.7	4.6	2.7	3.7	4.7	7.6	6.5	4.0	7.0	13.9	9.0	8.5	3.0	1.3	5844.
11	7.2	6.4	3.3	3.6	4.2	5.0	3.5	4.1	5.4	8.6	6.3	3.9	6.2	12.5	7.1	8.2	3.2	1.2	5843.
12	6.5	6.7	4.0	3.5	4.1	5.6	2.9	4.1	6.2	10.0	7.1	3.6	5.6	11.1	7.4	7.9	2.8	0.9	5843.
13	7.0	6.1	3.6	4.2	3.7	5.8	3.0	3.6	6.2	11.3	7.8	4.0	5.5	10.0	6.1	8.1	2.8	1.0	5843.
14	7.1	6.4	3.9	4.1	3.7	5.7	2.9	3.6	5.5	11.2	8.6	4.0	6.1	10.8	5.9	6.9	2.2	1.4	5844.
15	6.7	6.5	3.6	4.1	3.8	5.9	3.0	3.4	5.0	10.1	8.4	4.4	6.6	13.2	5.2	6.6	1.8	1.8	5844.
16	6.3	5.2	3.8	4.4	3.8	5.6	3.5	3.0	4.4	8.5	8.6	4.8	7.8	16.2	5.0	5.6	1.0	2.5	5844.
17	4.7	4.6	3.5	4.7	3.8	6.1	3.7	2.9	3.7	7.8	7.0	5.1	10.2	18.3	4.3	5.1	0.5	2.8	5844.
18	3.8	3.9	3.3	3.6	3.7	6.0	4.3	2.9	3.9	6.6	7.5	5.3	13.4	20.5	4.2	4.3	0.3	2.5	5844.
19	3.3	3.0	2.4	3.1	3.4	5.4	4.3	2.8	3.1	6.2	7.1	5.9	17.7	21.9	4.3	3.4	0.2	2.5	5844.
20	2.7	2.3	2.0	2.4	2.2	4.3	4.3	2.0	3.0	5.1	7.6	7.1	21.8	23.0	4.5	2.7	0.5	2.3	5844.
21	2.0	2.0	1.6	1.7	1.8	3.0	2.9	2.2	2.5	5.3	6.9	9.1	24.6	23.4	5.0	3.0	0.3	2.5	5844.
22	2.0	1.6	1.0	1.4	1.2	2.1	1.9	2.1	2.6	4.7	7.1	10.1	27.5	23.6	5.3	2.9	0.3	2.5	5844.
23	1.6	1.4	0.7	1.0	1.0	1.8	1.7	1.8	2.1	4.7	6.9	10.8	27.6	24.4	6.2	3.2	0.4	2.6	5844.
TOTAL	3.9	3.3	2.1	2.5	2.4	3.8	2.6	2.6	3.5	6.5	7.1	7.9	16.7	19.8	6.9	5.1	1.2	2.2	140253.

TABLE 4B
COMPOSITE HOUR VS. 50 FOOT WIND SPEED

MONTH 1

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	38.51	30.24	20.77	7.66	1.41	1.01	0.40	0.	3075.0	6.2
1	36.29	34.88	18.35	7.86	1.01	0.81	0.60	0.20	3040.0	6.1
2	38.31	32.26	18.95	7.66	1.61	0.81	0.40	0.	2994.0	6.0
3	40.12	30.04	20.56	6.05	2.02	1.01	0.20	0.	2946.0	5.9
4	36.49	34.27	21.37	5.65	1.01	1.21	0.	0.	2890.0	5.8
5	38.91	34.27	17.94	5.85	2.02	1.01	0.	0.	2824.0	5.7
6	43.15	29.23	19.15	5.24	2.42	0.60	0.20	0.	2785.0	5.6
7	42.14	32.66	15.93	6.45	2.42	0.40	0.	0.	2727.0	5.5
8	42.34	31.25	17.74	6.05	2.02	0.60	0.	0.	2738.0	5.5
9	45.97	26.61	17.94	5.85	2.82	0.60	0.20	0.	2767.0	5.6
10	43.35	26.21	17.94	9.07	2.62	0.60	0.20	0.	2947.0	5.9
11	40.73	27.42	17.54	9.07	3.63	1.41	0.20	0.	3219.0	6.5
12	39.72	27.42	18.53	9.07	4.64	2.02	0.40	0.20	3430.0	6.9
13	40.12	27.02	17.14	9.27	4.03	2.02	0.20	0.20	3390.0	6.8
14	38.51	28.63	18.35	7.86	4.64	1.81	0.20	0.	3299.0	6.7
15	41.33	27.42	16.94	8.87	4.44	0.81	0.20	0.	3093.0	6.2
16	39.11	28.83	20.36	7.26	3.23	1.21	0.	0.	3059.0	6.2
17	34.07	32.26	21.57	8.67	2.22	1.01	0.20	0.	3178.0	6.4
18	32.06	30.44	24.48	8.27	3.63	1.21	0.	0.	3331.0	6.7
19	32.26	32.26	21.37	10.08	2.02	1.61	0.20	0.20	3368.0	6.8
20	32.06	33.27	21.17	9.88	2.82	0.60	0.20	0.	3277.0	6.6
21	36.90	30.24	21.57	7.06	3.43	0.60	0.20	0.	3163.0	6.4
22	39.52	27.02	23.39	7.06	2.42	0.20	0.40	0.	3013.0	6.1
23	38.91	30.65	20.36	7.26	1.61	0.81	0.40	0.	3030.0	6.1
TOTALS	38.79	30.20	19.47	7.63	2.67	1.00	0.21	0.03	73583.	6.2

MONTH 2

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	29.20	31.64	28.54	7.08	1.99	1.55	0.	0.	3125.0	6.9
1	29.42	32.30	27.88	6.19	3.76	0.44	0.	0.	3041.0	6.7
2	30.53	33.41	25.22	6.86	3.10	0.44	0.44	0.	3031.0	6.7
3	32.52	31.64	24.56	7.74	2.65	0.66	0.22	0.	3003.0	6.6
4	32.52	32.30	25.22	6.64	2.21	0.88	0.22	0.	2985.0	6.6
5	31.42	35.84	22.79	6.64	2.43	0.44	0.44	0.	2922.0	6.5
6	32.96	33.63	23.67	7.30	1.55	0.88	0.	0.	2843.0	6.3
7	36.50	31.64	25.00	4.42	1.77	0.66	0.	0.	2707.0	6.0
8	39.60	27.88	21.46	7.52	2.43	1.11	0.	0.	2806.0	6.2
9	37.61	26.77	21.02	10.62	2.43	1.11	0.44	0.	2994.0	6.6
10	37.17	27.88	20.13	9.51	2.65	2.43	0.22	0.	3092.0	6.8
11	35.40	28.32	18.14	11.95	4.20	1.11	0.88	0.	3295.0	7.3
12	33.85	27.88	17.26	13.27	4.42	2.21	0.88	0.22	3479.0	7.7
13	33.19	28.76	16.81	13.50	4.65	2.43	0.66	0.	3539.0	7.8
14	31.64	28.98	18.36	13.27	3.54	3.54	0.44	0.22	3582.0	7.9
15	32.52	23.23	23.45	13.27	4.42	2.43	0.44	0.22	3629.0	8.0
16	30.09	30.09	21.98	10.62	5.53	1.33	0.22	0.22	3423.0	7.6
17	25.44	36.95	22.57	9.51	3.54	1.55	0.22	0.22	3342.0	7.4
18	21.46	36.95	25.66	10.62	3.10	1.77	0.44	0.	3491.0	7.7
19	23.01	33.85	26.77	11.06	3.54	1.77	0.	0.	3453.0	7.6
20	22.57	33.85	27.88	10.84	3.76	1.11	0.	0.	3448.0	7.6
21	25.44	31.64	28.98	9.73	3.54	0.66	0.	0.	3316.0	7.3
22	28.32	29.20	29.42	8.41	2.88	1.55	0.22	0.	3298.0	7.3
23	27.88	30.75	31.19	5.97	2.88	1.11	0.	0.22	3234.0	7.2
TOTALS	30.84	31.06	23.91	9.27	3.21	1.38	0.27	0.06	77078.	7.1

TABLE 48 (CONTD)

TABLE B2

COMPOSITE HOUR VS. 50 FOOT WIND SPEED

MONTH 3

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	16.53	32.66	35.48	11.29	3.02	0.20	0.60	0.	0.20	4052.0	8.2
1	18.35	33.06	33.27	11.69	2.42	0.40	0.81	0.	0.	3983.0	8.0
2	20.36	33.87	30.24	11.29	2.62	1.41	0.20	0.	0.	3910.0	7.9
3	20.27	34.68	31.25	9.48	2.22	1.21	0.20	0.	0.	3737.0	7.5
4	26.41	30.04	31.05	8.87	3.02	0.20	0.40	0.	0.	3611.0	7.3
5	24.40	34.48	29.03	8.67	2.62	0.60	0.20	0.	0.	3549.0	7.2
6	25.60	35.89	27.62	8.87	1.61	0.20	0.20	0.	0.	3422.0	6.9
7	31.45	34.88	20.77	10.28	2.02	0.60	0.	0.	0.	3274.0	6.6
8	27.62	33.06	20.56	13.51	4.23	0.81	0.20	0.	0.	3722.0	7.5
9	30.04	28.83	18.35	14.52	6.05	2.02	0.20	0.	0.	3974.0	8.0
10	30.65	29.03	16.93	13.71	5.65	3.43	1.01	0.	0.	4155.0	8.4
11	27.42	32.06	15.32	12.70	6.85	4.64	1.01	0.	0.	4387.0	8.8
12	20.97	35.48	16.53	13.71	7.66	4.44	1.21	0.	0.	4587.0	9.2
13	18.95	34.88	16.94	14.72	9.07	4.23	1.01	0.20	0.	4836.0	9.7
14	17.14	32.06	20.56	14.52	9.48	5.04	1.21	0.	0.	4987.0	10.1
15	17.74	29.64	20.97	14.72	11.09	5.24	0.60	0.	0.	5075.0	10.2
16	18.35	27.42	19.56	18.55	11.49	4.03	0.60	0.	0.	5143.0	10.4
17	16.94	32.26	21.17	17.54	9.07	2.62	0.20	0.20	0.	4762.0	9.6
18	12.70	32.26	28.23	18.35	6.65	1.81	0.	0.	0.	4658.0	9.4
19	9.07	31.85	33.67	18.55	5.24	1.21	0.40	0.	0.	4711.0	9.5
20	8.47	31.25	38.51	15.12	5.65	0.60	0.40	0.	0.	4685.0	9.4
21	10.08	34.88	31.45	18.15	4.44	1.01	0.	0.	0.	4488.0	9.1
22	16.13	31.65	33.47	13.51	4.64	0.60	0.	0.	0.	4181.0	8.4
23	13.10	35.69	35.28	11.49	3.43	0.60	0.20	0.20	0.	4113.0	8.3
TOTALS	19.98	32.58	26.08	13.49	5.43	1.97	0.45	0.03	0.01	102002.	8.6

MONTH 4

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	10.21	32.29	38.96	15.42	2.71	0.42	0.	0.	0.	4196.0	8.7
1	10.62	35.42	38.75	12.71	2.08	0.42	0.	0.	0.	4009.0	8.4
2	13.75	36.87	35.21	12.29	1.67	0.	0.21	0.	0.	3827.0	8.0
3	18.96	34.79	34.79	8.75	2.29	0.42	0.	0.	0.	3594.0	7.5
4	23.12	34.58	30.21	10.00	2.08	0.	0.	0.	0.	3431.0	7.1
5	24.37	36.87	28.54	7.71	2.08	0.42	0.	0.	0.	3304.0	6.9
6	33.33	32.50	22.08	8.96	2.92	0.21	0.	0.	0.	3125.0	6.5
7	30.00	26.87	23.75	13.96	3.75	1.67	0.	0.	0.	3671.0	7.6
8	27.92	27.50	18.75	17.08	6.87	1.87	0.	0.	0.	4017.0	8.4
9	29.17	29.17	16.25	16.87	6.67	1.87	0.	0.	0.	3952.0	8.2
10	25.21	33.96	16.67	16.25	5.00	2.50	0.42	0.	0.	4021.0	8.4
11	20.83	38.54	16.46	15.42	5.62	2.71	0.42	0.	0.	4143.0	8.6
12	16.25	38.12	20.00	13.54	8.75	2.92	0.42	0.	0.	4390.0	9.1
13	14.58	36.67	20.83	15.42	8.33	3.54	0.62	0.	0.	4621.0	9.6
14	11.67	36.87	21.88	14.79	10.62	3.13	1.04	0.	0.	4881.0	10.2
15	11.67	36.04	20.00	15.21	11.67	4.79	0.62	0.	0.	5030.0	10.5
16	13.96	28.96	20.21	17.08	13.75	5.42	0.62	0.	0.	5351.0	11.1
17	13.96	25.21	20.42	22.50	12.50	5.42	0.	0.	0.	5406.0	11.3
18	12.08	24.17	26.25	22.50	11.67	3.13	0.21	0.	0.	5239.0	10.9
19	8.96	25.83	28.54	24.17	9.58	2.92	0.	0.	0.	5246.0	10.9
20	7.08	23.75	32.71	24.17	10.42	1.87	0.	0.	0.	5284.0	11.0
21	5.62	27.50	35.21	21.46	9.17	1.04	0.	0.	0.	5056.0	10.5
22	7.71	26.67	36.87	23.12	5.00	0.62	0.	0.	0.	4740.0	9.9
23	11.25	29.58	35.62	19.17	3.96	0.42	0.	0.	0.	4384.0	9.1
TOTALS	16.76	31.61	26.62	16.19	6.63	1.99	0.19	0.	0.	104918.	9.1

TABLE 48 (CONTD)
COMPOSITE HOUR VS. 50 FOOT WIND SPEED

MONTH 5

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	8.06	30.65	40.52	17.94	2.82	0.	0.	0.	4482.0	9.0
1	9.88	33.06	42.54	12.10	2.42	0.	0.	0.	4202.0	8.5
2	13.71	32.86	40.73	11.49	1.21	0.	0.	0.	3920.0	7.9
3	14.52	38.31	36.69	8.87	1.21	0.40	0.	0.	3750.0	7.6
4	17.74	38.91	32.46	9.07	1.21	0.60	0.	0.	3597.0	7.3
5	23.99	40.12	27.22	7.06	1.21	0.40	0.	0.	3282.0	6.6
6	33.47	23.79	30.44	9.68	2.62	0.	0.	0.	3416.0	6.9
7	29.03	29.84	26.01	11.69	3.43	0.	0.	0.	3556.0	7.2
8	34.48	30.44	20.16	11.69	3.23	0.	0.	0.	3355.0	6.8
9	32.26	36.09	17.14	11.90	2.42	0.20	0.	0.	3256.0	6.6
10	24.19	44.76	17.34	10.89	2.22	0.60	0.	0.	3368.0	6.8
11	20.56	46.17	18.95	10.28	3.23	0.60	0.20	0.	3579.0	7.2
12	14.72	47.98	22.38	10.28	3.83	0.81	0.	0.	3782.0	7.6
13	12.50	47.58	21.17	13.91	3.83	0.81	0.20	0.	4003.0	8.1
14	11.29	45.36	20.77	15.93	5.65	0.60	0.40	0.	4318.0	8.7
15	13.10	37.30	23.59	15.12	8.47	2.42	0.	0.	4639.0	9.4
16	14.31	31.45	23.79	17.14	10.48	2.82	0.	0.	4934.0	9.9
17	16.94	23.59	21.77	19.56	13.31	4.84	0.	0.	5308.0	10.7
18	13.51	23.39	22.38	22.18	15.12	3.23	0.20	0.	5553.0	11.2
19	10.28	21.77	28.43	22.78	14.31	2.22	0.20	0.	5609.0	11.3
20	8.67	24.80	26.61	22.38	15.93	1.41	0.20	0.	5671.0	11.4
21	6.85	23.79	29.03	24.60	13.91	1.81	0.	0.	5680.0	11.5
22	7.66	22.58	35.48	26.61	6.85	0.81	0.	0.	5281.0	10.6
23	6.25	26.01	43.35	19.35	4.64	0.40	0.	0.	4854.0	9.8
TOTALS	16.58	33.36	27.87	15.10	5.98	1.04	0.06	0.	103395.	8.7

MONTH 6

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	6.04	25.62	40.21	25.62	2.50	0.	0.	0.	4741.0	9.9
1	7.71	28.13	43.12	19.37	1.67	0.	0.	0.	4370.0	9.1
2	7.92	34.79	43.54	13.75	0.	0.	0.	0.	4034.0	8.4
3	11.67	37.71	41.67	8.54	0.21	0.21	0.	0.	3718.0	7.7
4	11.67	42.08	37.08	8.12	1.04	0.	0.	0.	3581.0	7.5
5	22.92	36.87	31.04	8.33	0.83	0.	0.	0.	3256.0	6.8
6	22.08	28.13	31.46	16.67	1.67	0.	0.	0.	3717.0	7.7
7	25.21	31.46	25.62	15.42	2.29	0.	0.	0.	3589.0	7.5
8	26.46	37.50	22.71	11.87	1.25	0.21	0.	0.	3294.0	6.9
9	26.46	43.75	18.12	10.62	1.04	0.	0.	0.	3141.0	6.5
10	15.83	51.46	21.46	8.75	1.87	0.62	0.	0.	3339.0	7.0
11	11.46	52.29	24.79	8.33	2.50	0.62	0.	0.	3535.0	7.4
12	8.75	54.37	22.92	10.21	3.33	0.42	0.	0.	3656.0	7.6
13	8.54	49.79	26.25	9.58	5.00	0.83	0.	0.	3906.0	8.1
14	7.08	47.71	24.79	13.12	6.25	1.04	0.	0.	4172.0	8.7
15	8.75	40.00	25.83	16.25	7.29	1.46	0.42	0.	4519.0	9.4
16	8.54	36.67	23.33	16.87	9.58	4.58	0.42	0.	5019.0	10.5
17	8.12	27.71	21.25	21.67	15.00	6.04	0.21	0.	5764.0	12.0
18	6.67	22.29	22.71	21.88	21.25	5.00	0.21	0.	6189.0	12.9
19	6.67	22.50	19.79	25.00	21.88	4.17	0.	0.	6231.0	13.0
20	6.46	20.83	21.04	27.92	20.62	3.13	0.	0.	6232.0	13.0
21	4.79	18.54	25.42	30.42	17.71	3.13	0.	0.	6163.0	12.8
22	4.37	20.42	25.08	37.71	11.46	1.04	0.	0.	5830.0	12.1
23	6.46	19.37	34.58	32.71	6.87	0.	0.	0.	5244.0	10.9
TOTALS	11.69	34.58	28.07	17.45	6.80	1.35	0.05	0.	107240.	9.3

TABLE 48 (CONTD)
COMPOSITE HOUR VS. 50 FOOT WIND SPEED

MONTH 7

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	3.83	27.22	44.15	21.77	2.82	0.20	0.	0.	0.	4877.0	9.8
1	3.83	30.65	51.21	12.50	1.41	0.40	0.	0.	0.	4482.0	9.0
2	9.07	33.47	47.98	8.87	0.40	0.20	0.	0.	0.	4036.0	8.1
3	11.69	39.72	41.33	7.06	0.20	0.	0.	0.	0.	3732.0	7.5
4	12.70	43.75	39.72	3.63	0.20	0.	0.	0.	0.	3532.0	7.1
5	21.37	42.74	31.65	3.43	0.20	0.60	0.	0.	0.	3204.0	6.5
6	22.58	35.28	32.46	8.47	1.21	0.	0.	0.	0.	3510.0	7.1
7	23.59	38.51	26.81	9.88	0.81	0.40	0.	0.	0.	3444.0	6.9
8	38.31	40.32	13.51	6.45	1.41	0.	0.	0.	0.	2760.0	5.6
9	41.73	40.73	12.10	4.23	1.01	0.20	0.	0.	0.	2569.0	5.2
10	30.04	51.01	12.10	5.24	1.21	0.40	0.	0.	0.	2780.0	5.6
11	21.17	57.66	13.31	6.65	1.01	0.20	0.	0.	0.	3006.0	6.1
12	16.33	57.46	17.14	7.06	1.81	0.20	0.	0.	0.	3245.0	6.5
13	11.09	56.85	19.96	9.68	1.61	0.60	0.20	0.	0.	3564.0	7.2
14	10.69	54.23	20.77	9.88	3.23	1.21	0.	0.	0.	3808.0	7.7
15	11.29	48.39	20.77	12.90	5.24	1.41	0.	0.	0.	4116.0	8.3
16	12.30	41.33	20.56	15.73	7.66	2.22	0.20	0.	0.	4518.0	9.1
17	15.32	31.25	21.37	15.93	12.30	3.83	0.	0.	0.	5096.0	10.3
18	12.90	26.41	19.15	21.17	16.33	4.03	0.	0.	0.	5675.0	11.4
19	8.27	28.02	16.73	25.00	19.15	2.82	0.	0.	0.	5902.0	12.1
20	6.85	20.16	19.96	30.85	19.56	2.62	0.	0.	0.	6339.0	12.8
21	5.44	18.55	21.37	30.04	21.77	2.62	0.20	0.	0.	6540.0	13.2
22	4.03	18.75	29.23	34.07	12.70	1.21	0.	0.	0.	6083.0	12.3
23	5.04	23.99	35.48	30.24	5.24	0.	0.	0.	0.	5324.0	10.7
TOTALS	14.98	37.77	26.20	14.20	5.77	1.06	0.03	0.	0.	102232.	8.6

MONTH 8

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	5.44	31.05	44.76	18.15	0.60	0.	0.	0.	0.	4522.0	9.1
1	8.67	33.87	46.98	10.08	0.40	0.	0.	0.	0.	4128.0	8.3
2	12.50	38.91	41.73	6.45	0.40	0.	0.	0.	0.	3709.0	7.5
3	16.33	41.94	36.90	4.64	0.20	0.	0.	0.	0.	3406.0	6.9
4	18.75	43.35	34.88	2.82	0.20	0.	0.	0.	0.	3230.0	6.5
5	22.18	49.60	25.20	3.02	0.	0.	0.	0.	0.	2955.0	6.0
6	37.70	32.66	24.80	4.44	0.40	0.	0.	0.	0.	2755.0	5.6
7	31.65	34.07	26.81	6.85	0.60	0.	0.	0.	0.	3049.0	6.1
8	35.89	40.52	16.13	6.65	0.81	0.	0.	0.	0.	2775.0	5.6
9	44.56	35.89	12.50	5.85	1.21	0.	0.	0.	0.	2596.0	5.2
10	38.51	43.15	12.50	4.64	1.01	0.20	0.	0.	0.	2622.0	5.3
11	27.22	53.63	12.50	5.65	1.01	0.	0.	0.	0.	2756.0	5.6
12	22.38	56.45	12.90	7.26	0.60	0.40	0.	0.	0.	2985.0	6.0
13	16.33	55.04	19.96	6.65	1.61	0.20	0.20	0.	0.	3223.0	6.6
14	13.71	54.03	18.15	11.09	2.02	1.01	0.	0.	0.	3558.0	7.2
15	15.52	47.98	19.35	12.50	3.02	1.61	0.	0.	0.	3845.0	7.8
16	20.77	36.69	20.36	12.70	7.26	2.22	0.	0.	0.	4205.0	8.5
17	19.56	32.46	19.35	15.73	9.07	3.83	0.	0.	0.	4703.0	9.5
18	16.13	29.44	19.56	18.75	11.69	4.44	0.	0.	0.	5131.0	10.3
19	9.07	28.43	22.38	22.78	14.52	2.82	0.	0.	0.	5535.0	11.2
20	6.65	24.80	23.79	26.41	16.73	1.61	0.	0.	0.	5865.0	11.8
21	4.84	21.77	29.03	27.82	15.93	0.60	0.	0.	0.	5945.0	12.0
22	4.44	23.19	34.27	29.44	8.27	0.40	0.	0.	0.	5478.0	11.0
23	5.24	27.82	39.52	24.19	3.02	0.20	0.	0.	0.	4904.0	9.9
TOTALS	18.92	38.20	25.60	12.27	4.19	0.81	0.01	0.	0.	93950.	7.9

TABLE 48 (CONTD)
COMPOSITE HOUR VS. 50 FOOT WIND SPEED

MONTH 9

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	11.87	39.37	35.83	11.46	1.25	0.21	0.	0.	0.	3781.0	7.9
1	18.54	36.67	33.54	10.21	0.83	0.21	0.	0.	0.	3519.0	7.3
2	20.21	37.92	33.96	6.04	1.67	0.21	0.	0.	0.	3377.0	7.0
3	24.79	35.21	31.04	7.29	1.46	0.21	0.	0.	0.	3263.0	6.8
4	25.62	40.21	27.71	5.00	1.04	0.42	0.	0.	0.	3029.0	6.3
5	29.79	38.96	24.37	5.00	1.87	0.	0.	0.	0.	2917.0	6.1
6	35.42	39.37	18.54	5.21	1.46	0.	0.	0.	0.	2656.0	5.5
7	41.67	27.71	19.17	9.38	1.46	0.62	0.	0.	0.	2821.0	5.9
8	39.37	31.04	16.04	10.21	2.50	0.83	0.	0.	0.	3007.0	6.3
9	40.83	30.21	16.67	8.96	2.92	0.42	0.	0.	0.	2914.0	6.1
10	39.37	32.08	15.63	10.00	2.08	0.62	0.21	0.	0.	3000.0	6.2
11	30.21	42.29	14.17	9.38	2.71	1.04	0.21	0.	0.	3171.0	6.6
12	23.54	48.33	14.17	7.71	4.37	1.87	0.	0.	0.	3364.0	7.0
13	24.58	45.62	15.00	9.17	3.75	1.67	0.21	0.	0.	3381.0	7.0
14	24.17	43.96	15.00	8.96	6.04	1.67	0.21	0.	0.	3628.0	7.6
15	24.79	36.04	17.92	11.87	7.08	2.08	0.21	0.	0.	3906.0	8.1
16	24.79	33.12	16.67	14.79	8.96	1.46	0.21	0.	0.	4100.0	8.5
17	21.25	35.21	17.92	13.33	10.62	1.67	0.	0.	0.	4226.0	8.8
18	16.04	34.58	23.33	15.42	9.38	1.25	0.	0.	0.	4370.0	9.1
19	9.58	34.38	26.04	20.00	9.17	0.83	0.	0.	0.	4699.0	9.8
20	8.12	33.54	31.04	20.21	5.83	1.25	0.	0.	0.	4670.0	9.7
21	7.71	35.62	35.21	14.58	5.83	1.04	0.	0.	0.	4454.0	9.3
22	11.87	35.00	33.75	15.42	3.75	0.21	0.	0.	0.	4164.0	8.7
23	11.04	37.08	37.29	12.71	1.87	0.	0.	0.	0.	3894.0	8.1
TOTALS	23.55	36.81	23.75	10.93	4.08	0.82	0.05	0.	0.	86311.	7.5

MONTH 10

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	25.20	39.72	26.61	5.85	2.42	0.20	0.	0.	0.	3261.0	6.6
1	31.05	34.07	27.22	6.25	0.81	0.60	0.	0.	0.	3129.0	6.3
2	30.04	39.31	23.79	4.84	1.61	0.20	0.	0.20	0.	2969.0	6.0
3	33.87	33.47	25.20	5.65	1.41	0.20	0.	0.20	0.	2953.0	6.0
4	34.07	35.89	23.39	4.84	1.61	0.20	0.	0.	0.	2892.0	5.8
5	35.28	35.69	21.98	5.04	1.61	0.40	0.	0.	0.	2858.0	5.8
6	38.10	34.48	21.37	4.23	1.21	0.60	0.	0.	0.	2749.0	5.5
7	45.16	31.45	16.73	4.44	1.61	0.60	0.	0.	0.	2559.0	5.2
8	46.57	25.81	18.55	6.45	2.22	0.40	0.	0.	0.	2686.0	5.4
9	46.57	23.79	14.31	10.28	4.44	0.60	0.	0.	0.	3066.0	6.2
10	43.35	29.44	11.69	9.48	4.84	1.21	0.	0.	0.	3164.0	6.4
11	40.12	34.48	10.89	8.27	4.44	1.81	0.	0.	0.	3146.0	6.3
12	40.32	31.25	11.49	8.87	5.24	2.42	0.40	0.	0.	3366.0	6.8
13	36.09	34.68	11.69	8.27	6.65	2.42	0.20	0.	0.	3552.0	7.2
14	34.68	33.47	12.50	10.28	6.85	1.61	0.60	0.	0.	3676.0	7.4
15	36.29	28.63	16.13	8.67	7.46	2.62	0.20	0.	0.	3740.0	7.5
16	30.85	33.47	17.14	10.89	6.45	1.21	0.	0.	0.	3631.0	7.3
17	25.60	35.08	21.57	12.30	5.04	0.40	0.	0.	0.	3685.0	7.4
18	19.76	32.06	30.04	13.71	3.83	0.40	0.20	0.	0.	3981.0	8.0
19	15.93	38.51	28.23	14.31	2.42	0.40	0.20	0.	0.	3939.0	7.9
20	19.96	35.48	29.64	11.69	2.42	0.81	0.	0.	0.	3773.0	7.6
21	18.55	37.70	30.85	9.88	2.22	0.81	0.	0.	0.	3692.0	7.4
22	20.97	38.31	30.65	8.06	1.41	0.40	0.20	0.	0.	3522.0	7.1
23	22.78	38.91	29.84	7.06	1.01	0.20	0.20	0.	0.	3361.0	6.8
TOTALS	32.13	33.96	21.31	8.32	3.30	0.87	0.09	0.02	0.	79350.	6.7

TABLE 48 (CONTD)
COMPOSITE HOUR VS. 50 FOOT WIND SPEED

MONTH 11

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	36.67	33.96	18.96	7.29	1.87	1.04	0.21	0.	2905.0	6.1
1	36.25	32.92	20.42	7.71	1.87	0.62	0.21	0.	2933.0	6.1
2	37.92	32.92	20.00	6.25	2.29	0.62	0.	0.	2784.0	5.8
3	37.29	35.83	17.92	5.62	2.29	0.83	0.21	0.	2751.0	5.7
4	40.21	29.17	21.46	6.46	1.67	0.62	0.42	0.	2795.0	5.8
5	43.12	28.96	19.58	5.21	2.50	0.21	0.42	0.	2663.0	5.5
6	46.67	26.87	18.33	6.25	1.04	0.62	0.21	0.	2565.0	5.3
7	45.62	28.96	18.33	5.21	1.67	0.	0.21	0.	2476.0	5.2
8	50.83	23.12	17.71	5.00	2.50	0.62	0.21	0.	2512.0	5.2
9	45.62	25.42	17.71	7.50	2.50	1.04	0.21	0.	2816.0	5.9
10	47.08	22.71	15.21	8.75	4.79	1.04	0.42	0.	3002.0	6.3
11	46.25	20.83	17.29	9.38	4.37	1.46	0.42	0.	3115.0	6.5
12	45.09	23.38	13.78	10.65	4.38	2.09	0.63	0.	3172.0	6.6
13	41.96	26.93	14.82	9.19	3.76	3.13	0.21	0.	3209.0	6.7
14	46.04	24.79	13.54	9.58	3.75	2.29	0.	0.	3086.0	6.4
15	45.62	23.96	15.21	8.75	4.58	1.67	0.21	0.	3012.0	6.3
16	41.46	27.50	18.33	7.92	3.54	1.04	0.	0.21	2948.0	6.1
17	33.54	32.50	22.08	9.38	1.67	0.42	0.21	0.21	3120.0	6.5
18	32.71	32.50	25.00	7.50	1.67	0.42	0.21	0.	3080.0	6.4
19	29.37	36.46	24.58	6.87	2.71	0.	0.	0.	3064.0	6.4
20	30.42	35.62	23.75	6.87	2.92	0.42	0.	0.	3088.0	6.4
21	29.79	40.00	20.21	7.50	2.08	0.42	0.	0.	2976.0	6.2
22	31.25	38.33	21.04	6.46	2.71	0.	0.	0.21	2978.0	6.2
23	31.67	38.33	18.96	7.29	2.71	0.83	0.21	0.	2983.0	6.2
TOTALS	39.69	30.08	18.93	7.44	2.74	0.89	0.20	0.03	70033.	6.1

MONTH 12

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	39.51	29.03	21.77	7.46	0.81	1.61	0.	0.	3007.0	6.1
1	37.10	32.86	21.17	6.05	1.61	1.01	0.20	0.	2952.0	6.0
2	39.11	30.44	20.77	5.24	3.63	0.60	0.20	0.	2997.0	6.0
3	40.32	31.25	19.56	5.65	2.02	0.81	0.20	0.20	2891.0	5.8
4	40.32	30.85	20.16	5.44	2.22	0.81	0.	0.20	2875.0	5.8
5	40.93	34.07	17.34	4.23	2.62	0.40	0.40	0.	2751.0	5.5
6	41.13	32.86	18.35	4.64	1.81	0.81	0.40	0.	2723.0	5.5
7	43.15	30.65	19.15	4.44	1.61	0.81	0.20	0.	2656.0	5.4
8	44.56	31.45	14.52	6.25	2.42	0.40	0.40	0.	2683.0	5.4
9	51.21	23.79	15.32	5.65	3.23	0.81	0.	0.	2616.0	5.3
10	47.58	23.99	16.73	7.86	1.61	2.02	0.20	0.	2841.0	5.7
11	47.98	20.56	18.75	7.06	4.03	1.41	0.20	0.	3011.0	6.1
12	44.96	23.99	16.13	8.67	4.64	1.21	0.40	0.	3143.0	6.3
13	45.16	24.19	15.52	7.86	5.04	1.81	0.	0.40	3188.0	6.4
14	44.96	24.40	16.33	7.26	4.23	2.22	0.40	0.20	3119.0	6.3
15	44.15	28.43	15.32	7.66	2.02	1.81	0.40	0.20	3000.0	6.0
16	40.93	30.24	16.94	8.06	1.81	1.41	0.60	0.	2972.0	6.0
17	39.11	28.02	21.37	7.06	3.23	1.21	0.	0.	3068.0	6.2
18	37.50	31.65	20.56	6.05	3.23	0.81	0.20	0.	3059.0	6.2
19	38.10	30.44	20.16	7.06	3.23	1.01	0.	0.	3004.0	6.1
20	36.69	31.85	21.17	7.86	1.61	0.81	0.	0.	2999.0	6.0
21	36.69	31.05	22.58	7.66	1.41	0.60	0.	0.	2978.0	6.0
22	36.90	31.85	21.77	6.85	1.21	1.21	0.20	0.	2982.0	6.0
23	36.29	31.45	22.18	7.66	1.21	1.21	0.	0.	3015.0	6.1
TOTALS	41.42	29.14	16.90	6.65	2.52	1.12	0.19	0.04	70530.	5.9

TABLE 48 (CONTD)
COMPOSITE HOUR VS. 50 FOOT WIND SPEED

MONTH 13

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	19.20	31.95	33.08	13.11	2.02	0.53	0.10	0.	0.02	46024.0	7.9
1	20.60	33.16	33.74	10.23	1.68	0.41	0.15	0.02	0.	43788.0	7.5
2	22.76	34.75	31.88	8.42	1.68	0.38	0.12	0.02	0.	41588.0	7.1
3	25.22	35.40	30.15	7.10	1.51	0.50	0.09	0.03	0.	39744.0	6.8
4	26.61	36.31	28.75	6.37	1.45	0.41	0.09	0.02	0.	38438.0	6.6
5	29.88	37.41	24.73	5.84	1.66	0.38	0.12	0.	0.	36485.0	6.2
6	34.36	32.05	24.04	7.48	1.66	0.33	0.09	0.	0.	36266.0	6.2
7	35.42	31.59	21.99	8.54	1.95	0.48	0.03	0.	0.	36529.0	6.3
8	37.83	31.71	18.12	9.05	2.65	0.56	0.07	0.	0.	36355.0	6.2
9	39.39	30.94	16.41	9.38	3.06	0.74	0.09	0.	0.	36661.0	6.3
10	35.22	34.69	16.12	9.50	2.96	1.30	0.22	0.	0.	38331.0	6.6
11	30.78	37.92	16.48	9.48	3.63	1.42	0.29	0.	0.	40363.0	6.9
12	27.23	39.41	16.76	9.99	4.47	1.75	0.36	0.03	0.	42599.0	7.3
13	25.23	39.07	18.00	10.58	4.77	1.97	0.31	0.07	0.	44482.0	7.6
14	24.26	37.94	18.41	11.36	5.53	2.09	0.38	0.03	0.	46114.0	7.9
15	25.21	34.00	19.59	12.13	6.40	2.36	0.27	0.02	0.02	47604.0	8.1
16	24.61	32.17	19.92	13.14	7.48	2.41	0.24	0.03	0.	49303.0	8.4
17	22.50	31.01	21.03	14.44	8.15	2.74	0.09	0.05	0.	51658.0	8.8
18	19.47	29.64	23.92	15.55	8.98	2.29	0.14	0.	0.	53757.0	9.2
19	16.70	30.34	24.71	17.33	9.00	1.81	0.09	0.02	0.	54851.0	9.4
20	16.15	29.07	26.42	17.88	9.05	1.35	0.07	0.	0.	55331.0	9.5
21	18.03	29.24	27.55	17.45	8.49	1.20	0.03	0.	0.	54461.0	9.3
22	17.73	28.56	29.53	18.10	5.29	0.68	0.09	0.02	0.	51550.0	8.8
23	17.95	30.80	31.98	15.47	3.20	0.48	0.09	0.03	0.	48340.0	8.3
TOTALS	25.43	33.30	23.89	11.58	4.45	1.19	0.15	0.02	0.00	1070622.	7.6

TABLE 49
COMPOSITE HOUR VS. 200 FOOT WIND SPEED

MONTH 1

HOUR	SPEED CLASS									TOTAL	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	28.43	19.96	24.19	17.94	6.45	1.61	0.81	0.60	0.	4472.0	9.0
1	28.02	20.36	26.01	16.53	5.44	2.22	0.81	0.40	0.20	4457.0	9.0
2	26.01	23.99	21.77	19.56	5.44	2.02	0.81	0.20	0.20	4443.0	9.0
3	29.84	19.35	25.00	17.14	5.24	2.42	0.81	0.20	0.	4332.0	8.7
4	27.02	25.60	19.96	19.76	4.84	1.81	0.81	0.20	0.	4257.0	8.6
5	28.63	22.58	25.40	15.12	5.24	2.02	1.01	0.	0.	4211.0	8.5
6	31.65	21.77	21.57	16.53	5.65	1.81	0.81	0.20	0.	4145.0	8.4
7	31.85	22.58	22.98	14.11	5.44	2.02	1.01	0.	0.	4066.0	8.2
8	29.03	25.40	24.60	13.51	4.64	2.22	0.60	0.	0.	4018.0	8.1
9	34.07	23.99	21.98	12.30	4.03	2.62	0.81	0.20	0.	3802.0	7.7
10	36.29	22.18	21.98	12.10	4.84	2.02	0.40	0.20	0.	3749.0	7.6
11	34.88	25.81	17.74	11.09	6.45	3.23	0.60	0.20	0.	3957.0	8.0
12	34.27	25.60	17.14	11.90	5.65	3.43	1.61	0.20	0.20	4156.0	8.4
13	34.07	26.81	14.52	12.70	6.25	4.03	1.21	0.40	0.	4133.0	8.3
14	32.46	27.02	18.35	11.49	5.24	4.03	1.21	0.20	0.	4076.0	8.2
15	34.68	23.99	18.15	12.90	5.24	4.23	0.60	0.20	0.	4034.0	8.1
16	28.83	25.81	19.35	16.13	5.85	3.02	0.81	0.20	0.	4253.0	8.6
17	25.00	26.01	20.56	17.34	7.66	2.22	0.60	0.60	0.	4507.0	9.1
18	26.81	21.57	20.77	19.35	6.25	3.83	1.21	0.20	0.	4661.0	9.4
19	26.01	21.57	19.76	20.97	7.06	2.82	1.41	0.20	0.20	4765.0	9.6
20	26.01	21.17	22.38	18.75	7.86	3.02	0.40	0.40	0.	4699.0	9.5
21	27.02	20.16	22.98	19.56	6.05	3.43	0.60	0.20	0.	4596.0	9.3
22	29.84	20.77	20.16	20.56	5.24	2.82	0.20	0.20	0.20	4426.0	8.9
23	27.02	23.19	21.57	19.35	5.85	1.81	0.60	0.60	0.	4414.0	8.9
TOTALS	29.91	23.22	21.20	16.11	5.75	2.70	0.82	0.25	0.04	102629.	8.6

MONTH 2

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	21.24	20.13	24.78	24.12	5.75	2.21	1.77	0.	0.	4509.0	10.0
1	22.35	20.35	23.89	23.89	5.75	2.88	0.88	0.	0.	4450.0	9.8
2	23.23	20.35	22.57	23.89	5.09	3.54	1.11	0.22	0.	4451.0	9.8
3	22.12	23.23	22.79	20.13	7.30	3.32	0.88	0.22	0.	4416.0	9.8
4	23.67	21.02	22.79	21.24	6.86	3.32	0.44	0.66	0.	4350.0	9.6
5	22.79	21.24	25.66	20.13	7.08	2.21	0.22	0.66	0.	4349.0	9.6
6	24.78	21.46	23.01	20.58	8.19	1.11	0.88	0.	0.	4223.0	9.3
7	27.43	21.02	24.78	20.13	4.42	1.33	0.88	0.	0.	4013.0	8.9
8	27.88	24.12	23.23	17.04	4.20	2.43	0.88	0.22	0.	3878.0	8.6
9	30.75	22.12	23.89	15.49	4.42	2.21	0.66	0.44	0.	3768.0	8.3
10	31.19	25.00	21.90	13.50	4.65	2.21	1.33	0.22	0.	3736.0	8.3
11	29.42	28.98	16.59	13.27	7.30	3.10	0.66	0.44	0.22	3925.0	8.7
12	27.65	30.75	14.82	14.82	6.19	3.76	1.11	0.88	0.	4093.0	9.1
13	28.98	25.88	17.70	14.60	6.86	4.20	1.11	0.66	0.	4196.0	9.3
14	26.99	26.11	17.92	16.15	6.19	4.42	1.55	0.44	0.22	4279.0	9.5
15	25.66	23.89	20.35	16.15	7.30	4.42	1.55	0.22	0.44	4457.0	9.9
16	24.34	23.89	21.68	16.15	7.30	4.65	1.55	0.	0.44	4468.0	9.9
17	19.25	23.67	26.11	17.92	8.19	3.10	1.33	0.22	0.22	4627.0	10.2
18	15.04	25.66	25.22	18.36	9.73	4.65	0.88	0.22	0.22	4906.0	10.9
19	17.48	22.79	24.34	21.46	8.41	3.76	1.55	0.22	0.	4829.0	10.7
20	19.47	18.81	23.45	24.56	8.63	3.54	1.55	0.	0.	4847.0	10.7
21	19.69	21.02	21.68	25.22	7.08	4.42	0.88	0.	0.	4759.0	10.5
22	21.24	19.25	24.34	23.89	6.42	3.32	1.33	0.22	0.	4700.0	10.4
23	23.23	17.48	22.35	26.99	6.19	2.43	1.11	0.	0.22	4581.0	10.1
TOTALS	24.00	22.84	22.33	19.57	6.65	3.19	1.09	0.26	0.08	104810.	9.7

TABLE 49 (CONTD)
COMPOSITE HOUR VS. 200 FOOT WIND SPEED

MONTH 3

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	7.46	20.97	28.63	29.64	9.68	2.62	0.20	0.60	0.20	5853.0	11.8
1	12.10	16.33	29.03	28.43	10.08	2.82	0.40	0.60	0.20	5769.0	11.6
2	12.50	19.76	28.83	26.41	8.06	3.02	1.01	0.40	0.	5601.0	11.3
3	14.52	19.76	27.62	27.42	7.06	2.42	0.81	0.40	0.	5417.0	10.9
4	16.33	21.37	26.01	24.19	7.86	3.63	0.20	0.40	0.	5210.0	10.5
5	17.34	22.78	27.02	21.57	7.26	3.23	0.60	0.20	0.	5041.0	10.2
6	18.15	23.99	25.20	23.19	7.06	2.02	0.40	0.	0.	4899.0	9.9
7	20.56	25.20	26.81	18.35	7.06	1.41	0.60	0.	0.	4541.0	9.2
8	21.98	29.03	23.39	15.32	7.06	2.62	0.40	0.20	0.	4506.0	9.1
9	26.41	28.83	16.94	14.31	7.86	4.23	1.21	0.20	0.	4583.0	9.2
10	24.60	30.04	16.94	12.70	8.27	4.44	2.22	0.81	0.	4789.0	9.7
11	23.99	29.84	16.53	13.31	8.06	4.44	2.82	1.01	0.	5030.0	10.1
12	18.95	34.68	15.93	12.10	8.87	6.45	2.02	1.01	0.	5239.0	10.6
13	15.32	35.28	14.52	14.72	9.07	7.86	2.42	0.81	0.	5532.0	11.2
14	15.12	28.83	21.37	13.10	10.48	7.46	3.02	0.60	0.	5725.0	11.5
15	13.51	30.04	19.35	13.31	11.69	8.87	2.82	0.40	0.	5951.0	12.0
16	14.52	23.39	20.56	16.53	13.10	8.47	2.82	0.60	0.	6176.0	12.5
17	11.49	24.60	23.39	17.94	12.10	8.27	1.61	0.60	0.	6121.0	12.3
18	8.87	20.36	25.40	22.58	15.32	5.85	1.41	0.20	0.	6312.0	12.7
19	7.46	17.74	27.22	26.61	13.71	5.85	0.81	0.60	0.	6384.0	12.9
20	5.44	20.16	26.81	27.22	14.52	4.64	0.81	0.40	0.	6433.0	13.0
21	8.87	16.73	27.82	27.82	12.30	5.24	1.01	0.20	0.	6243.0	12.6
22	10.89	17.14	31.45	23.79	11.09	5.04	0.60	0.	0.	5888.0	11.9
23	9.07	20.77	29.64	27.22	8.47	3.63	0.81	0.20	0.20	5804.0	11.7
TOTALS	14.81	24.07	24.02	20.74	9.84	4.77	1.29	0.44	0.03	133047.	11.2

MONTH 4

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	4.79	19.37	26.67	31.67	13.54	3.33	0.62	0.	0.	6054.0	12.6
1	7.29	17.50	30.21	31.04	11.25	2.29	0.42	0.	0.	5792.0	12.1
2	7.29	19.17	32.08	29.37	9.58	2.29	0.	0.21	0.	5565.0	11.6
3	11.04	20.21	28.96	28.75	8.12	2.71	0.21	0.	0.	5366.0	11.2
4	14.17	21.67	26.67	26.46	8.12	2.92	0.	0.	0.	5075.0	10.6
5	17.08	22.29	26.67	25.21	6.67	1.67	0.42	0.	0.	4827.0	10.1
6	19.58	25.21	27.29	21.25	3.96	2.50	0.	0.21	0.	4463.0	9.3
7	26.04	22.29	22.71	19.37	6.04	2.50	1.04	0.	0.	4430.0	9.2
8	24.37	25.42	20.00	15.83	9.58	3.75	1.04	0.	0.	4628.0	9.6
9	26.04	27.71	16.04	16.04	8.33	4.58	1.25	0.	0.	4545.0	9.5
10	22.29	32.29	17.08	15.21	8.12	3.13	1.67	0.21	0.	4573.0	9.5
11	18.75	35.00	16.87	15.42	8.54	3.33	1.67	0.42	0.	4703.0	9.8
12	14.37	32.50	24.79	12.08	10.21	3.96	1.67	0.42	0.	4993.0	10.4
13	11.04	33.33	22.08	16.46	8.33	6.25	1.87	0.62	0.	5305.0	11.1
14	8.75	33.75	22.08	15.63	9.38	7.29	2.50	0.62	0.	5577.0	11.6
15	8.12	33.12	21.67	15.00	11.25	7.92	2.50	0.42	0.	5853.0	12.2
16	10.62	26.25	19.37	16.67	13.33	10.21	3.33	0.21	0.	6313.0	13.2
17	9.17	20.21	23.33	16.87	16.46	10.83	2.71	0.42	0.	6661.0	13.9
18	6.67	16.04	23.54	22.08	19.17	9.38	2.71	0.42	0.	6996.0	14.6
19	5.00	14.58	22.71	23.75	21.25	10.21	2.50	0.	0.	7220.0	15.0
20	4.58	12.08	23.33	28.33	19.58	9.79	2.29	0.	0.	7281.0	15.2
21	4.17	14.37	22.50	29.79	18.75	9.38	1.04	0.	0.	7065.0	14.7
22	5.00	15.00	21.67	35.00	17.92	4.37	1.04	0.	0.	6682.0	13.9
23	7.29	16.87	21.67	33.54	15.83	4.17	0.42	0.21	0.	6262.0	13.0
TOTALS	12.23	23.18	23.33	22.53	11.81	5.36	1.37	0.18	0.	136229.	11.8

TABLE 49 (CONTD)
COMPOSITE HOUR VS. 200 FOOT WIND SPEED

MONTH 5

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	5.85	9.68	30.44	37.30	13.91	2.82	0.	0.	0.	6550.0	13.2
1	5.04	13.10	30.44	39.11	10.28	2.02	0.	0.	0.	6228.0	12.6
2	6.85	15.32	33.27	35.08	8.27	1.21	0.	0.	0.	5831.0	11.8
3	8.67	18.95	32.66	30.24	7.66	1.41	0.40	0.	0.	5608.0	11.3
4	12.30	20.56	28.23	29.84	6.85	1.61	0.60	0.	0.	5327.0	10.7
5	13.91	25.00	29.84	25.81	4.03	1.21	0.20	0.	0.	4884.0	9.8
6	21.37	23.99	30.65	18.55	4.23	1.21	0.	0.	0.	4349.0	8.8
7	25.00	27.42	25.81	14.52	5.04	2.22	0.	0.	0.	4131.0	8.3
8	30.04	27.82	22.78	12.50	5.04	1.81	0.	0.	0.	3848.0	7.8
9	28.63	32.66	20.97	11.90	4.44	1.41	0.	0.	0.	3606.0	7.5
10	21.98	40.73	19.96	11.49	4.44	1.01	0.40	0.	0.	3795.0	7.7
11	16.94	44.35	19.15	13.51	3.83	2.02	0.20	0.	0.	4025.0	8.1
12	12.90	42.94	24.19	12.90	4.23	2.02	0.61	0.	0.	4252.0	8.6
13	9.27	43.95	22.98	16.53	4.84	2.02	0.20	0.20	0.	4521.0	9.1
14	8.67	39.92	20.56	18.35	9.07	2.62	0.60	0.20	0.	4955.0	10.0
15	8.67	35.69	21.57	17.14	12.10	3.63	1.21	0.	0.	5373.0	10.8
16	11.90	27.62	22.78	16.94	11.49	6.85	2.42	0.	0.	5804.0	11.7
17	11.90	22.18	20.77	19.56	13.31	9.48	2.82	0.	0.	6398.0	12.9
18	9.68	15.93	22.18	18.95	18.95	12.10	2.02	0.20	0.	7092.0	14.3
19	5.85	13.91	20.16	21.98	21.57	14.31	1.81	0.40	0.	7725.0	15.6
20	5.04	13.51	18.15	25.00	20.36	15.52	2.22	0.	0.20	7941.0	16.0
21	4.84	11.90	21.57	24.40	20.36	14.92	2.42	0.	0.	7842.0	15.8
22	5.04	13.51	19.35	30.65	21.77	8.27	1.41	0.	0.	7340.0	14.8
23	4.23	12.90	24.19	37.50	16.53	4.23	0.40	0.	0.	6879.0	13.9
TOTALS	12.27	24.73	24.28	22.49	10.53	4.81	0.84	0.04	0.01	134394.	11.3

MONTH 6

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	3.75	12.08	20.83	38.12	21.67	3.54	0.	0.	0.	6842.0	14.3
1	3.75	12.92	26.67	38.96	16.04	1.67	0.	0.	0.	6386.0	13.3
2	4.58	12.50	30.83	40.00	11.87	0.21	0.	0.	0.	6001.0	12.5
3	4.79	15.83	33.96	37.29	7.50	0.42	0.21	0.	0.	5663.0	11.8
4	7.92	18.33	30.83	35.21	7.08	0.62	0.	0.	0.	5404.0	11.3
5	13.33	23.54	31.04	28.13	2.92	1.04	0.	0.	0.	4718.0	9.8
6	18.54	23.54	29.17	22.50	6.04	0.21	0.	0.	0.	4432.0	9.2
7	21.67	28.96	23.33	20.21	5.21	0.62	0.	0.	0.	4148.0	8.6
8	23.33	35.00	23.12	13.96	4.17	0.42	0.	0.	0.	3729.0	7.8
9	22.29	42.29	19.79	12.50	2.92	0.21	0.	0.	0.	3534.0	7.4
10	13.75	48.54	21.46	11.87	3.13	1.25	0.	0.	0.	3728.0	7.8
11	8.75	50.00	23.75	11.67	3.96	1.87	0.	0.	0.	3964.0	8.3
12	6.25	51.04	24.17	12.29	3.75	2.50	0.	0.	0.	4119.0	8.6
13	4.79	46.04	27.71	12.92	6.04	2.29	0.21	0.	0.	4475.0	9.3
14	7.50	41.46	23.54	17.08	6.46	3.33	0.62	0.	0.	4739.0	9.9
15	6.67	36.87	24.58	16.25	10.00	4.58	1.04	0.	0.	5183.0	10.8
16	6.87	31.25	22.71	18.12	11.04	7.50	2.08	0.42	0.	5854.0	12.2
17	5.42	24.79	20.00	16.67	18.33	10.83	3.54	0.21	0.	6858.0	14.3
18	3.96	18.12	20.83	15.00	22.50	15.83	3.75	0.	0.	7643.0	15.9
19	3.13	14.37	19.37	16.25	24.17	18.33	4.37	0.	0.	8183.0	17.0
20	2.92	10.83	17.29	20.62	22.50	22.50	3.13	0.21	0.	8495.0	17.7
21	4.58	10.21	16.67	19.79	25.62	19.79	3.33	0.	0.	8411.0	17.5
22	3.75	10.21	16.25	24.37	31.04	12.92	1.04	0.42	0.	8060.0	16.8
23	3.96	9.79	19.37	31.67	25.83	9.38	0.	0.	0.	7397.0	15.4
TOTALS	8.59	26.19	23.64	22.15	12.49	5.91	0.97	0.05	0.	137966.	12.0

TABLE 49 (CONTD)
COMPOSITE HOUR VS. 200 FOOT WIND SPEED

MONTH 7

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	4.23	6.65	22.98	43.55	19.15	3.02	0.40	0.	7226.0	14.6
1	2.02	10.08	22.98	51.61	11.09	1.81	0.40	0.	6889.0	13.9
2	4.03	11.29	29.84	44.56	9.68	0.40	0.	0.20	6292.0	12.7
3	6.05	13.10	34.68	37.90	7.66	0.40	0.20	0.	5894.0	11.9
4	7.26	16.94	36.09	33.06	6.25	0.40	0.	0.	5586.0	11.3
5	10.69	21.37	36.29	27.62	3.23	0.20	0.60	0.	4986.0	10.1
6	16.13	26.41	36.09	17.94	2.42	1.01	0.	0.	4365.0	8.8
7	18.35	35.89	28.43	13.91	2.42	1.01	0.	0.	3990.0	8.0
8	31.05	41.13	16.73	7.46	3.02	0.60	0.	0.	3162.0	6.4
9	35.08	44.15	11.69	6.85	1.61	0.60	0.	0.	2943.0	5.9
10	23.59	53.02	13.51	7.06	2.22	0.40	0.20	0.	3128.0	6.3
11	16.94	57.06	15.73	6.45	3.02	0.81	0.	0.	3364.0	6.8
12	12.70	55.65	18.55	9.07	2.62	1.21	0.20	0.	3655.0	7.4
13	7.46	54.84	20.56	12.30	2.82	1.61	0.40	0.	4034.0	8.1
14	7.46	48.99	23.59	12.30	5.44	1.41	0.60	0.20	4361.0	8.8
15	8.06	49.16	22.38	13.10	6.25	4.23	0.60	0.20	4743.0	9.6
16	9.27	36.69	20.97	17.34	9.48	4.84	1.21	0.20	5288.0	10.7
17	10.69	27.82	22.98	14.72	12.30	9.48	2.02	0.	6053.0	12.2
18	7.86	21.77	22.98	14.52	15.52	15.52	1.81	0.	7032.0	14.2
19	4.64	15.12	22.58	14.72	21.98	18.95	2.02	0.	8012.0	16.2
20	3.63	12.90	16.33	15.73	26.81	21.98	2.62	0.	8729.0	17.6
21	3.43	12.30	15.52	16.33	24.40	23.99	3.83	0.20	8965.0	18.1
22	2.82	11.29	15.32	23.99	29.23	16.53	0.81	0.	8425.0	17.0
23	3.23	9.07	20.36	32.46	28.23	6.45	0.20	0.	7696.0	15.5
TOTALS	10.69	28.70	22.80	20.61	10.70	5.70	0.76	0.04	134818.	11.3

MONTH 6

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	3.43	8.87	25.00	45.97	14.92	1.61	0.20	0.	6810.0	13.7
1	3.43	10.89	29.23	44.15	11.90	0.40	0.	0.	6410.0	12.9
2	5.85	15.32	33.06	38.10	7.26	0.40	0.	0.	5821.0	11.7
3	9.27	16.33	33.87	34.27	6.25	0.	0.	0.	5435.0	11.0
4	8.47	22.58	35.89	29.44	3.43	0.20	0.	0.	5134.0	10.4
5	10.89	25.60	37.30	22.98	3.23	0.	0.	0.	4704.0	9.5
6	19.56	29.44	32.06	16.53	2.42	0.	0.	0.	3980.0	8.0
7	22.78	34.48	28.83	11.90	2.02	0.	0.	0.	3640.0	7.3
8	29.84	40.73	16.94	9.48	2.82	0.20	0.	0.	3216.0	6.5
9	37.70	36.90	15.93	6.85	2.02	0.60	0.	0.	2962.0	6.0
10	32.06	43.75	16.13	4.84	3.02	0.20	0.	0.	2963.0	6.0
11	22.18	53.83	14.72	7.26	1.61	0.40	0.	0.	3098.0	6.2
12	16.73	55.65	17.14	7.46	2.02	0.60	0.40	0.	3374.0	6.8
13	13.31	53.02	20.56	8.47	3.63	0.60	0.40	0.	3698.0	7.5
14	8.67	51.61	21.37	11.90	4.44	1.41	0.60	0.	4081.0	8.2
15	10.08	45.36	21.37	13.31	6.85	2.62	0.40	0.	4443.0	9.0
16	16.53	35.28	20.77	12.70	8.47	4.84	1.41	0.	4903.0	9.9
17	12.30	32.66	17.54	17.14	11.09	7.66	1.61	0.	5643.0	11.4
18	8.67	23.59	23.19	15.12	15.52	10.89	3.02	0.	6584.0	13.3
19	5.04	16.33	25.81	16.73	19.56	13.71	2.82	0.	7505.0	15.1
20	4.03	14.72	20.16	19.35	20.97	18.95	1.81	0.	8025.0	16.2
21	4.84	13.71	16.73	20.56	26.01	17.14	1.01	0.	8117.0	16.4
22	2.02	12.50	21.57	29.03	23.19	11.29	0.40	0.	7687.0	15.5
23	2.42	9.88	24.40	39.11	21.17	3.02	0.	0.	7160.0	14.4
TOTALS	12.92	29.29	23.73	20.11	9.32	4.03	0.59	0.	125400.	10.5

TABLE 49 (CONTD)
COMPOSITE HOUR VS. 200 FOOT WIND SPEED

MONTH 9

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	7.71	17.08	28.54	35.21	9.58	1.67	0.21	0.	0.	5670.0	11.8
1	9.58	20.62	26.87	33.75	8.12	1.04	0.	0.	0.	5334.0	11.1
2	12.29	21.67	27.08	31.25	5.62	1.87	0.21	0.	0.	5083.0	10.6
3	14.79	21.88	26.25	28.96	6.04	1.87	0.21	0.	0.	4934.0	10.3
4	18.96	20.83	29.79	23.75	5.21	1.25	0.21	0.	0.	4584.0	9.5
5	21.25	22.08	29.17	20.83	5.00	1.67	0.	0.	0.	4388.0	9.1
6	23.54	25.21	29.17	17.92	3.13	1.04	0.	0.	0.	4018.0	8.4
7	31.25	26.87	24.37	12.29	4.17	0.42	0.62	0.	0.	3616.0	7.5
8	31.87	31.67	19.58	9.58	5.42	1.67	0.21	0.	0.	3505.0	7.3
9	35.62	30.00	17.92	10.21	4.17	1.87	0.21	0.	0.	3380.0	7.0
10	33.33	33.33	17.08	10.00	3.96	1.87	0.42	0.	0.	3439.0	7.2
11	25.42	41.46	15.63	11.25	3.13	2.50	0.42	0.21	0.	3618.0	7.5
12	19.79	47.29	14.58	9.17	5.21	2.92	1.04	0.	0.	3839.0	8.0
13	20.62	44.79	15.83	9.38	5.62	3.13	0.62	0.	0.	3672.0	8.1
14	19.58	43.12	14.79	11.25	6.46	4.17	0.42	0.21	0.	4187.0	8.7
15	18.96	36.46	18.96	11.67	6.87	5.83	1.04	0.21	0.	4569.0	9.5
16	19.58	31.04	19.58	11.67	10.62	6.67	0.62	0.21	0.	4927.0	10.3
17	13.96	30.00	20.83	13.54	11.46	10.00	0.21	0.	0.	5436.0	11.3
18	9.17	22.08	29.17	14.79	14.58	9.38	0.83	0.	0.	5972.0	12.4
19	6.25	18.75	28.33	19.79	16.87	9.17	0.83	0.	0.	6410.0	13.4
20	5.00	17.71	27.92	24.37	17.29	6.67	1.04	0.	0.	6447.0	13.4
21	6.04	18.96	26.96	25.21	13.12	6.04	1.67	0.	0.	6157.0	12.8
22	6.25	17.50	30.00	28.75	12.71	4.58	0.21	0.	0.	5939.0	12.4
23	8.33	14.79	33.96	29.79	10.83	2.08	0.21	0.	0.	5718.0	11.9
TOTALS	17.47	27.30	23.93	18.93	8.13	3.72	0.48	0.03	0.	115042.	10.0

MONTH 10

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	18.35	22.18	27.62	23.99	5.44	2.22	0.20	0.	0.	4851.0	9.8
1	18.55	23.99	22.98	26.61	5.65	1.61	0.60	0.	0.	4782.0	9.6
2	22.58	22.98	25.60	21.98	5.24	1.21	0.	0.20	0.20	4478.0	9.0
3	22.38	25.60	26.01	19.15	5.44	0.81	0.40	0.	0.20	4358.0	8.8
4	23.99	27.42	23.39	18.75	5.04	1.01	0.40	0.	0.	4181.0	8.4
5	28.83	23.79	23.19	16.73	5.44	1.61	0.40	0.	0.	4132.0	8.3
6	28.63	25.00	23.39	16.73	4.44	1.21	0.60	0.	0.	4003.0	8.1
7	30.24	27.62	23.19	14.72	2.42	1.01	0.81	0.	0.	3733.0	7.5
8	39.31	23.99	19.76	11.90	3.02	1.81	0.20	0.	0.	3409.0	6.9
9	41.13	24.80	13.91	10.28	7.66	1.61	0.60	0.	0.	3620.0	7.3
10	37.90	29.44	13.51	8.87	6.45	3.23	0.60	0.	0.	3692.0	7.4
11	35.82	33.06	12.70	7.86	6.85	2.42	1.21	0.	0.	3679.0	7.4
12	33.67	34.07	11.49	8.87	6.85	3.63	1.01	0.40	0.	3935.0	7.9
13	30.24	35.48	12.70	7.86	6.85	5.44	1.21	0.20	0.	4170.0	8.4
14	27.22	36.90	11.69	10.69	6.65	5.04	1.41	0.40	0.	4334.0	8.7
15	28.63	30.04	15.73	10.69	7.66	5.65	1.61	0.	0.	4527.0	9.1
16	23.99	29.64	18.15	12.50	9.68	5.24	0.81	0.	0.	4677.0	9.4
17	19.35	25.20	22.98	17.74	10.28	4.03	0.40	0.	0.	5029.0	10.1
18	13.91	23.59	25.60	20.56	11.29	4.64	0.20	0.20	0.	5454.0	11.0
19	14.11	21.98	28.23	19.15	13.10	2.82	0.40	0.20	0.	5407.0	10.9
20	14.31	22.58	26.61	23.79	9.48	2.42	0.60	0.20	0.	5307.0	10.7
21	15.32	20.97	26.61	24.60	8.67	3.02	0.81	0.	0.	5301.0	10.7
22	15.12	18.75	32.06	24.19	7.46	2.02	0.20	0.20	0.	5166.0	10.4
23	15.32	20.56	29.64	27.02	5.85	1.21	0.	0.40	0.	5046.0	10.2
TOTALS	24.96	26.23	21.53	16.89	6.96	2.70	0.61	0.10	0.02	107271.	9.0

TABLE 49 (CONTD)
COMPOSITE HOUR VS. 200 FOOT WIND SPEED

MONTH 11

	SPEED CLASS											
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46	TOTAL	AVE SPEED	
HOUR	SPEED											
0	23.96	26.25	25.83	14.79	5.83	2.50	0.42	0.42	0.	4230.0	8.8	
1	26.87	23.96	22.08	17.92	6.67	1.87	0.21	0.42	0.	4210.0	8.8	
2	27.71	28.13	19.58	15.21	6.25	2.50	0.62	0.	0.	4022.0	8.4	
3	29.79	24.79	21.25	16.46	4.37	2.08	1.04	0.21	0.	3989.0	8.3	
4	29.37	25.00	18.96	18.54	5.42	1.67	0.83	0.21	0.	4079.0	8.5	
5	30.42	24.79	21.04	15.00	6.04	2.08	0.21	0.42	0.	3982.0	8.3	
6	30.83	26.04	21.46	13.96	5.62	1.46	0.42	0.21	0.	3821.0	8.0	
7	34.38	23.12	21.46	15.63	3.33	1.67	0.21	0.21	0.	3692.0	7.7	
8	34.38	24.37	22.92	11.87	3.96	1.67	0.62	0.21	0.	3625.0	7.6	
9	37.50	24.17	18.54	12.50	4.17	1.67	1.04	0.42	0.	3599.0	7.5	
10	40.83	25.00	13.33	10.42	5.21	3.75	1.04	0.42	0.	3624.0	7.5	
11	41.04	21.46	16.04	9.58	7.50	3.13	0.83	0.42	0.	3732.0	7.8	
12	40.29	23.59	14.20	10.23	7.10	2.71	1.46	0.42	0.	3787.0	7.9	
13	37.37	26.30	15.24	9.19	6.68	2.92	2.30	0.	0.	3827.0	8.0	
14	38.33	25.42	14.79	10.62	5.83	3.13	1.67	0.21	0.	3777.0	7.9	
15	37.29	23.75	15.83	10.83	6.25	4.58	0.83	0.62	0.	3883.0	8.1	
16	31.46	26.87	16.67	13.75	6.25	3.96	0.42	0.42	0.21	4047.0	8.4	
17	27.29	25.00	19.58	17.08	8.33	1.87	0.42	0.21	0.21	4270.0	8.9	
18	24.17	26.25	21.67	19.17	6.87	1.25	0.21	0.42	0.	4274.0	8.9	
19	22.50	25.00	26.67	17.50	6.25	2.08	0.	0.	0.	4282.0	8.9	
20	22.50	23.96	27.08	17.08	6.25	2.71	0.42	0.	0.	4389.0	9.1	
21	22.92	23.12	27.92	18.75	4.79	2.08	0.42	0.	0.	4244.0	8.8	
22	23.54	23.54	26.46	18.54	5.21	2.08	0.42	0.	0.21	4291.0	8.9	
23	24.37	24.79	25.62	16.87	5.21	2.29	0.42	0.42	0.	4297.0	9.0	
TOTALS	30.80	24.78	20.59	14.65	5.81	2.40	0.69	0.26	0.03	95973.	8.3	

MONTH 12

HOUR	SPEED CLASS										TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46			
0	28.43	21.37	21.37	19.76	6.45	0.81	1.01	0.81	0.	4445.0	9.0	
1	28.23	22.18	21.77	18.35	6.05	2.22	0.60	0.60	0.	4395.0	8.9	
2	31.45	19.35	22.98	17.34	4.23	3.43	0.81	0.40	0.	4339.0	8.7	
3	31.05	20.56	23.59	17.94	3.43	2.02	1.01	0.20	0.20	4217.0	8.5	
4	29.03	19.96	26.21	17.94	3.02	2.02	1.61	0.	0.20	4300.0	8.7	
5	30.44	23.99	25.20	13.91	3.23	2.82	0.91	0.40	0.	4078.0	8.2	
6	31.05	25.20	22.38	14.72	3.63	1.61	0.81	0.60	0.	3977.0	8.0	
7	33.67	23.79	20.16	15.93	3.63	1.61	0.60	0.60	0.	3848.0	7.8	
8	31.45	26.61	21.37	12.90	4.84	1.61	0.81	0.40	0.	3881.0	7.8	
9	37.10	25.20	19.76	10.69	3.63	2.62	1.01	0.	0.	3639.0	7.3	
10	39.11	24.19	18.55	10.89	3.63	1.81	1.41	0.40	0.	3649.0	7.4	
11	38.71	22.78	19.15	10.48	4.44	3.02	1.21	0.20	0.	3760.0	7.6	
12	39.11	24.19	15.52	9.88	6.05	4.44	0.40	0.40	0.	3843.0	7.7	
13	40.73	21.57	16.73	8.47	7.06	3.43	1.41	0.20	0.40	3920.0	7.9	
14	38.51	23.59	17.34	9.68	4.84	3.43	2.02	0.40	0.20	3948.0	8.0	
15	34.68	23.79	18.95	13.10	5.24	1.81	1.61	0.60	0.20	4024.0	8.1	
16	31.85	26.01	17.14	15.12	5.85	1.81	1.61	0.40	0.20	4154.0	8.4	
17	30.24	23.99	19.35	15.52	6.25	2.02	1.61	0.20	0.	4273.0	8.6	
18	26.61	28.83	17.34	18.75	4.03	3.23	1.01	0.20	0.	4301.0	8.7	
19	28.83	23.99	21.57	16.13	5.04	2.82	1.41	0.20	0.	4287.0	8.6	
20	28.02	22.78	22.98	16.94	6.05	2.42	0.40	0.40	0.	4314.0	8.7	
21	28.02	23.59	20.56	18.35	5.85	2.62	0.81	0.20	0.	4335.0	8.7	
22	27.42	24.40	20.36	18.95	6.05	1.61	0.60	0.60	0.	4384.0	8.8	
23	28.63	23.39	21.17	17.54	6.65	1.21	1.21	0.20	0.	4283.0	8.6	
TOTALS	32.17	23.54	20.48	14.97	4.96	2.39	1.08	0.36	0.06	98594.	8.3	

TABLE 49 (CONTD)
COMPOSITE HOUR VS. 200 FOOT WIND SPEED

MONTH 13

HOUR	SPEED CLASS										TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46			
0	13.11	17.01	25.58	30.22	11.05	2.33	0.48	0.21	0.02	67512.0	11.6	
1	13.89	17.66	26.03	30.92	9.03	1.90	0.36	0.17	0.03	65102.0	11.1	
2	15.33	19.13	27.33	28.59	7.22	1.83	0.38	0.15	0.03	61927.0	10.6	
3	17.01	19.93	28.10	26.33	6.33	1.64	0.51	0.10	0.03	59629.0	10.2	
4	18.17	21.78	27.10	24.86	5.82	1.69	0.43	0.12	0.02	57487.0	9.8	
5	20.41	23.24	28.18	21.08	4.93	1.64	0.38	0.14	0.	54300.0	9.3	
6	23.65	24.79	26.81	18.34	4.71	1.27	0.33	0.10	0.	50675.0	8.7	
7	26.92	26.66	24.42	15.88	4.26	1.32	0.48	0.07	0.	47848.0	8.2	
8	29.57	29.65	21.18	12.58	4.81	1.73	0.39	0.09	0.	45405.0	7.8	
9	32.73	30.29	18.07	11.62	4.60	2.02	0.56	0.10	0.	44078.0	7.5	
10	29.76	34.02	17.59	10.71	4.83	2.10	0.80	0.19	0.	44865.0	7.7	
11	26.08	37.03	17.04	10.90	5.37	2.52	0.80	0.24	0.02	46855.0	8.0	
12	23.05	38.22	17.71	10.87	5.72	3.13	0.98	0.31	0.02	49285.0	8.4	
13	21.07	37.36	18.42	11.95	6.16	3.65	1.11	0.26	0.03	51683.0	8.8	
14	19.90	35.63	18.96	13.16	6.71	3.97	1.35	0.29	0.03	54039.0	9.2	
15	19.56	32.41	19.90	13.60	8.06	4.86	1.32	0.24	0.05	57040.0	9.8	
16	19.13	28.68	19.97	15.30	9.38	5.66	1.59	0.22	0.07	60864.0	10.4	
17	16.34	25.53	21.42	16.85	11.31	6.72	1.57	0.21	0.03	65876.0	11.3	
18	13.47	21.97	23.13	18.28	13.31	8.06	1.59	0.17	0.02	71227.0	12.2	
19	12.18	18.82	23.89	19.58	14.94	8.76	1.66	0.15	0.02	75009.0	12.8	
20	11.72	17.61	22.69	21.78	15.06	9.55	1.44	0.14	0.02	76907.0	13.2	
21	12.46	17.23	22.45	22.50	14.46	9.34	1.49	0.07	0.	76035.0	13.0	
22	12.71	16.97	23.24	25.14	14.82	6.26	0.68	0.14	0.03	72988.0	12.5	
23	13.04	16.96	24.50	28.27	13.09	3.49	0.44	0.17	0.03	69537.0	11.9	
TOTALS	19.22	25.36	22.66	19.14	8.58	3.98	0.88	0.17	0.02	1426173.	10.2	

TABLE 50
COMPOSITE HOUR VS. 400 FOOT WIND SPEED

MONTH 1

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	25.81	23.19	18.55	18.55	8.67	2.62	1.61	1.01	0.	9.8
1	27.22	19.56	22.18	18.95	5.85	4.03	1.21	0.60	0.40	9.7
2	23.99	24.19	20.77	17.74	7.66	3.63	1.01	0.60	0.40	9.7
3	28.43	19.35	20.36	20.56	5.85	3.23	1.81	0.40	0.	9.5
4	27.22	23.79	20.16	17.54	5.85	3.83	1.01	0.60	0.	9.3
5	27.82	21.37	22.58	18.55	4.64	2.82	1.61	0.60	0.	9.2
6	28.63	21.17	22.58	16.53	6.25	2.82	1.01	1.01	0.	9.1
7	28.83	22.98	20.36	16.73	5.85	3.02	1.61	0.60	0.	9.1
8	28.02	23.19	19.56	19.76	5.65	1.41	1.81	0.60	0.	9.0
9	30.44	22.58	22.38	15.52	4.44	3.02	1.01	0.60	0.	8.5
10	31.65	24.19	20.77	13.31	6.25	2.22	1.21	0.20	0.20	8.4
11	34.27	25.00	16.53	12.10	6.25	3.02	2.02	0.81	0.	8.6
12	35.28	22.78	17.14	11.49	6.05	4.64	1.61	0.81	0.20	8.9
13	37.50	22.78	13.10	12.90	6.85	3.02	2.62	1.01	0.20	8.8
14	33.06	24.40	17.74	11.49	6.25	4.44	1.81	0.81	0.	8.8
15	34.88	22.18	16.73	13.10	6.25	4.84	1.21	0.81	0.	8.8
16	31.25	21.37	19.56	14.72	5.04	5.44	1.61	1.01	0.	9.2
17	28.23	25.20	16.94	15.12	7.86	4.64	1.01	1.01	0.	9.6
18	28.23	19.35	18.35	18.75	7.66	5.44	1.21	1.01	0.	10.1
19	26.21	21.77	17.34	18.95	7.66	5.04	2.02	0.60	0.40	10.4
20	27.22	19.96	19.15	17.94	8.67	4.64	2.02	0.	0.40	10.2
21	26.81	20.77	18.95	18.55	8.06	4.23	2.02	0.20	0.40	10.1
22	26.01	20.36	20.77	18.75	8.47	3.02	2.22	0.	0.40	9.8
23	25.60	23.19	18.95	18.95	8.06	3.02	1.01	1.01	0.20	9.8
TOTALS	29.28	22.28	19.23	16.52	6.67	3.67	1.55	0.66	0.13	9.4

MONTH 2

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	24.12	14.38	23.67	23.45	8.63	2.43	2.43	0.88	0.	10.7
1	23.89	17.26	22.35	21.46	7.74	5.31	1.99	0.	0.	10.6
2	21.24	19.47	23.89	21.24	7.52	3.10	2.65	0.66	0.22	10.8
3	21.02	21.90	21.90	19.91	7.96	3.98	2.65	0.66	0.	10.7
4	21.24	23.01	21.24	21.46	6.42	3.98	1.77	0.66	0.22	10.5
5	21.90	21.68	20.35	23.23	5.97	5.09	0.88	0.44	0.44	10.4
6	21.90	22.35	22.35	19.25	9.29	3.76	0.44	0.66	0.	10.2
7	25.88	19.47	19.91	23.01	7.52	2.65	0.88	0.66	0.	9.8
8	24.34	22.35	23.89	18.58	5.97	2.43	1.77	0.66	0.	9.6
9	27.21	24.12	21.90	17.04	5.75	1.11	1.99	0.88	0.	9.2
10	31.86	21.46	21.46	14.38	5.97	2.21	2.21	0.44	0.	8.8
11	31.19	24.56	16.59	13.72	8.19	3.54	1.33	0.66	0.22	9.2
12	29.87	25.88	15.93	13.72	7.52	3.98	1.77	0.88	0.44	9.5
13	29.87	23.01	16.59	15.04	7.52	4.65	2.21	0.88	0.22	9.8
14	27.88	24.56	15.04	17.04	7.52	4.20	2.88	0.44	0.44	10.0
15	26.55	20.80	20.35	15.04	8.41	5.75	1.99	0.44	0.66	10.5
16	24.78	22.57	19.47	15.49	8.19	5.75	2.43	0.88	0.44	10.7
17	19.91	22.79	21.68	17.48	8.85	5.09	2.88	0.88	0.44	11.1
18	18.14	21.90	21.46	18.58	9.51	6.19	3.32	0.44	0.44	11.7
19	20.35	18.81	21.02	19.69	11.28	4.20	3.54	1.11	0.	11.7
20	20.13	18.81	20.80	19.03	11.73	5.75	3.10	0.66	0.	11.7
21	20.58	16.81	20.80	23.01	11.73	3.32	3.10	0.66	0.	11.6
22	21.68	19.69	18.14	23.67	8.63	4.20	3.32	0.44	0.22	11.3
23	20.58	21.68	19.03	23.01	8.85	3.76	2.21	0.66	0.22	10.9
TOTALS	24.00	21.22	20.41	19.06	8.20	4.02	2.24	0.65	0.19	10.5

TABLE 50 (CONTD)
COMPOSITE HOUR VS. 400 FOOT WIND SPEED

MONTH 3

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	10.08	16.33	24.80	28.23	12.90	4.03	2.82	0.	0.81	6515.0	13.1
1	9.48	17.94	22.38	31.05	11.69	5.44	1.01	0.40	0.60	6468.0	13.0
2	11.29	14.92	28.63	25.60	12.70	3.43	2.42	0.60	0.40	6308.0	12.7
3	11.49	19.15	22.78	28.83	11.49	3.63	1.61	0.81	0.20	6144.0	12.4
4	13.31	17.14	29.23	23.39	9.48	5.24	1.61	0.20	0.40	5957.0	12.0
5	15.12	18.15	27.02	24.60	8.27	4.44	1.81	0.40	0.20	5736.0	11.6
6	15.12	19.96	25.20	23.79	10.08	4.03	1.41	0.40	0.	5643.0	11.4
7	16.53	18.35	28.83	23.99	6.45	4.64	0.60	0.60	0.	5376.0	10.8
8	19.76	23.39	26.41	16.13	8.06	4.44	1.61	0.	0.20	5092.0	10.3
9	24.80	25.40	20.56	13.91	8.47	5.04	1.61	0.	0.20	4920.0	9.9
10	24.60	27.82	17.54	12.50	8.67	5.04	2.42	1.21	0.20	5076.0	10.2
11	22.58	28.02	17.94	13.10	8.47	5.24	3.23	1.41	0.	5315.0	10.7
12	17.74	33.67	16.33	11.29	9.88	6.85	2.62	1.21	0.40	5554.0	11.2
13	15.73	31.45	16.73	13.51	10.08	7.26	4.03	0.60	0.60	5874.0	11.8
14	14.92	26.81	21.17	12.90	10.08	8.87	4.03	1.21	0.	6116.0	12.3
15	12.70	29.23	17.14	15.12	11.29	8.47	5.24	0.60	0.20	6331.0	12.8
16	12.30	24.19	18.15	17.74	12.10	9.48	4.84	1.01	0.20	6658.0	13.4
17	10.69	21.98	20.97	18.15	12.30	10.08	4.23	1.41	0.20	6797.0	13.7
18	8.47	18.15	22.38	19.15	15.32	11.69	3.83	1.01	0.	7217.0	14.6
19	7.46	14.11	23.39	24.60	15.12	10.69	3.43	1.01	0.20	7312.0	14.7
20	7.26	14.31	23.59	24.19	15.52	10.28	4.44	0.	0.40	7325.0	14.8
21	8.67	14.52	20.56	27.02	16.13	9.27	2.82	1.01	0.	7211.0	14.5
22	9.68	15.73	22.58	29.23	12.10	7.06	3.23	0.40	0.	6759.0	13.6
23	9.48	17.54	22.98	27.62	12.90	6.25	2.42	0.40	0.40	6587.0	13.3
TOTALS	13.72	21.18	22.39	21.07	11.23	6.70	2.81	0.66	0.24	148291.	12.5

MONTH 4

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	5.00	15.21	20.42	31.04	18.33	7.08	2.50	0.42	0.	6971.0	14.5
1	6.87	14.17	22.50	30.00	18.33	6.25	1.87	0.	0.	6720.0	14.0
2	7.50	14.17	23.33	33.96	14.37	5.21	1.25	0.	0.21	6530.0	13.6
3	8.12	17.71	23.75	30.21	12.71	6.25	1.04	0.21	0.	6268.0	13.1
4	8.75	20.42	23.75	30.42	8.54	7.50	0.62	0.	0.	5977.0	12.5
5	13.96	14.17	28.13	29.17	8.54	4.79	1.04	0.21	0.	5700.0	11.9
6	14.37	20.00	28.33	23.75	8.12	4.17	1.04	0.21	0.	5312.0	11.1
7	21.67	21.46	23.54	20.42	7.50	3.54	1.46	0.42	0.	4951.0	10.3
8	24.58	23.33	19.79	14.58	10.21	5.62	1.46	0.42	0.	4920.0	10.2
9	26.67	25.83	16.25	13.75	11.04	4.58	1.87	0.	0.	4776.0	9.9
10	22.29	30.42	16.67	14.79	9.58	3.75	1.67	0.83	0.	4812.0	10.0
11	18.54	32.71	18.12	14.37	8.96	4.37	2.29	0.42	0.21	4962.0	10.3
12	14.17	30.83	21.46	16.04	9.38	5.00	2.50	0.42	0.21	5285.0	11.0
13	12.08	30.83	21.25	17.50	7.71	7.08	2.08	1.25	0.21	5588.0	11.6
14	8.75	32.71	20.00	15.63	10.62	8.12	3.13	1.04	0.	5911.0	12.3
15	7.08	31.04	21.04	15.63	11.04	8.96	4.37	0.83	0.	6229.0	13.0
16	9.17	24.79	21.67	12.92	14.17	11.87	3.96	1.25	0.21	6772.0	14.1
17	7.92	19.58	21.67	14.37	17.92	11.25	6.46	0.83	0.	7271.0	15.1
18	5.83	13.96	20.42	19.58	17.71	14.17	6.46	1.46	0.42	7949.0	16.6
19	5.62	12.29	18.12	19.17	20.21	16.04	6.25	2.29	0.	8375.0	17.4
20	5.42	10.62	17.29	20.21	22.08	16.25	6.46	1.67	0.	8499.0	17.7
21	5.62	10.42	16.87	21.46	23.54	14.17	7.50	0.42	0.	8307.0	17.3
22	4.37	11.04	17.50	27.50	23.75	11.46	3.75	0.62	0.	7886.0	16.4
23	8.75	10.83	19.79	26.04	20.42	11.46	2.08	0.62	0.	7286.0	15.2
TOTALS	11.38	20.36	20.90	21.35	13.95	8.29	3.05	0.66	0.06	153257.	13.3

TABLE 50 (CONTD)
COMPOSITE HOUR VS. 400 FOOT WIND SPEED

MONTH 5

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	6.25	9.27	17.14	33.27	24.80	7.66	1.61	0.	7649.0	15.4
1	5.24	10.48	22.38	34.88	20.56	5.44	1.01	0.	7210.0	14.5
2	3.83	15.73	22.38	35.28	17.94	4.23	0.60	0.	6812.0	13.7
3	7.86	13.71	21.77	37.10	15.93	2.42	1.01	0.20	6574.0	13.3
4	9.68	16.13	23.39	34.27	12.10	3.23	0.81	0.40	6272.0	12.6
5	9.88	16.33	28.63	31.45	10.48	1.81	1.41	0.	5910.0	11.9
6	14.72	19.15	32.86	24.19	5.85	3.02	0.20	0.	5097.0	10.3
7	21.77	28.02	24.48	16.73	5.85	3.02	0.20	0.	4406.0	8.9
8	29.84	26.41	22.18	13.51	5.85	2.02	0.20	0.	4024.0	8.1
9	29.23	29.64	21.98	12.70	4.64	1.61	0.20	0.	3849.0	7.8
10	22.38	38.71	20.36	12.30	4.64	1.21	0.40	0.	3928.0	7.9
11	17.14	41.94	20.16	14.52	3.63	2.22	0.40	0.	4172.0	8.4
12	13.91	38.91	25.40	13.10	5.24	2.62	0.81	0.	4416.0	8.9
13	9.88	41.53	22.58	16.94	5.65	2.82	0.40	0.20	4708.0	9.5
14	9.88	37.10	20.77	18.35	9.27	3.63	0.60	0.40	5185.0	10.5
15	7.66	33.87	22.38	16.94	12.10	5.24	1.81	0.	5666.0	11.4
16	10.48	26.61	23.79	15.52	11.90	8.67	2.82	0.20	6155.0	12.4
17	11.09	22.18	19.96	16.33	13.91	10.89	4.64	1.01	6855.0	13.8
18	8.47	14.92	19.96	18.55	16.73	14.92	5.04	1.41	7858.0	15.8
19	4.03	14.31	17.34	17.54	17.14	20.77	7.66	1.01	8848.0	17.9
20	3.63	10.69	17.94	16.13	21.37	19.76	9.48	0.81	9296.0	18.7
21	4.44	10.28	15.73	17.54	22.78	18.35	9.07	1.81	9292.0	18.7
22	4.64	11.09	14.72	23.59	23.99	15.93	5.24	0.81	8714.0	17.6
23	5.04	11.09	15.32	28.02	26.81	10.69	2.62	0.40	8080.0	16.3
TOTALS	11.29	22.42	21.40	21.61	13.30	7.17	2.43	0.36	150996.	12.7

MONTH 6

HOUR	SPEED CLASS								TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46		
0	5.42	7.50	16.25	25.83	30.00	13.12	1.87	0.	8045.0	16.8
1	4.17	10.21	18.33	29.37	29.58	7.71	0.62	0.	7527.0	15.7
2	4.17	10.62	20.62	36.46	21.88	6.25	0.	0.	7121.0	14.8
3	3.75	10.42	27.29	36.04	18.12	3.96	0.42	0.	6668.0	13.9
4	6.04	13.75	25.00	36.67	15.42	2.71	0.42	0.	6348.0	13.2
5	8.33	15.42	31.04	33.54	9.38	2.29	0.	0.	5640.0	11.7
6	14.58	23.54	28.54	24.37	6.67	2.29	0.	0.	4866.0	10.1
7	20.42	28.96	23.12	19.17	7.29	1.04	0.	0.	4322.0	9.0
8	24.37	31.87	20.62	16.25	6.04	0.83	0.	0.	3847.0	8.0
9	24.17	37.08	20.00	14.58	3.33	0.83	0.	0.	3658.0	7.6
10	16.46	43.12	21.46	13.12	4.37	0.83	0.62	0.	3875.0	8.1
11	10.42	46.04	22.92	14.17	4.37	2.08	0.	0.	4092.0	8.5
12	9.17	46.04	23.33	14.37	4.17	2.71	0.21	0.	4251.0	8.9
13	6.25	41.46	27.08	15.63	6.87	2.29	0.42	0.	4646.0	9.7
14	6.67	40.63	21.25	18.75	7.29	4.17	1.25	0.	4940.0	10.3
15	7.08	34.17	23.75	18.12	10.42	4.58	1.04	0.83	5438.0	11.3
16	7.29	27.50	22.71	19.79	11.25	7.08	3.54	0.62	6183.0	12.9
17	5.83	22.08	19.37	16.67	17.92	11.04	6.25	0.83	7314.0	15.2
18	3.33	17.08	18.96	16.25	16.25	19.37	8.12	0.62	8332.0	17.4
19	2.29	13.12	18.75	13.12	15.42	24.58	11.46	1.25	9274.0	19.3
20	2.50	10.00	15.63	14.37	19.17	22.08	15.00	1.25	9819.0	20.5
21	5.42	6.67	11.67	15.42	21.67	25.00	12.29	1.87	9898.0	20.6
22	4.79	8.33	10.83	17.71	26.46	23.96	7.29	0.62	9387.0	19.6
23	4.79	8.33	12.92	22.92	27.08	19.79	4.17	0.	8653.0	18.0
TOTALS	8.65	23.08	20.89	20.95	14.18	8.78	3.13	0.33	154144.	13.4

TABLE 50 (CONTD)
COMPOSITE HOUR VS. 400 FOOT WIND SPEED

MONTH 7

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	3.43	7.26	15.52	29.23	30.44	12.10	2.02	0.	0.	8485.0	17.1
1	2.22	7.46	16.94	36.29	31.05	5.04	0.60	0.40	0.	8036.0	16.2
2	3.63	7.46	22.18	39.52	24.40	2.42	0.20	0.20	0.	7371.0	14.9
3	4.03	9.07	24.80	41.33	18.55	2.02	0.20	0.	0.	6924.0	14.0
4	3.83	13.51	25.20	42.34	13.31	1.81	0.	0.	0.	6484.0	13.1
5	7.06	13.31	32.66	37.90	7.46	1.01	0.60	0.	0.	5982.0	12.1
6	11.09	23.39	36.69	24.19	3.43	1.01	0.20	0.	0.	4929.0	9.9
7	17.74	33.27	30.24	13.71	3.83	0.61	0.40	0.	0.	4130.0	8.3
8	30.85	40.12	16.13	8.87	3.43	0.40	0.20	0.	0.	3270.0	6.6
9	34.48	43.15	11.90	7.46	2.42	0.60	0.	0.	0.	3007.0	6.1
10	24.60	50.00	14.92	7.06	2.22	1.01	0.20	0.	0.	3207.0	6.5
11	18.15	52.02	17.14	8.27	3.63	0.81	0.	0.	0.	3440.0	6.9
12	13.31	52.42	18.95	10.28	3.63	1.01	0.40	0.	0.	3772.0	7.6
13	9.48	51.41	20.77	12.50	3.23	1.81	0.60	0.20	0.	4156.0	8.4
14	8.27	46.37	23.59	13.51	5.24	2.02	0.60	0.40	0.	4519.0	9.1
15	9.07	41.94	22.38	13.10	7.86	4.03	1.21	0.40	0.	4961.0	10.0
16	10.28	33.47	21.77	16.94	9.68	6.05	1.21	0.60	0.	5541.0	11.2
17	10.48	27.02	22.18	14.92	11.09	10.69	2.82	0.60	0.	6304.0	12.9
18	6.65	20.16	23.79	13.10	13.31	17.14	5.65	0.20	0.	7571.0	15.3
19	4.03	12.10	20.36	14.31	15.93	21.98	10.08	1.21	0.	9066.0	18.3
20	3.02	9.27	17.54	12.30	15.12	27.82	13.31	1.61	0.	10113.0	20.4
21	3.23	11.49	11.29	12.50	18.75	25.40	15.93	1.41	0.	10421.0	21.0
22	5.44	9.07	11.69	13.31	24.19	27.02	8.67	0.60	0.	9805.0	19.8
23	3.02	9.07	12.70	21.77	30.24	19.35	3.83	0.	0.	9077.0	18.3
TOTALS	10.31	25.99	20.47	19.36	12.60	8.06	2.87	0.33	0.	150651.	12.7

MONTH 8

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	3.02	7.86	16.94	34.27	28.43	8.67	0.81	0.	0.	8051.0	16.2
1	2.82	7.66	19.96	37.10	28.02	4.23	0.20	0.	0.	7646.0	15.4
2	4.44	9.48	23.19	40.73	19.76	2.02	0.40	0.	0.	6943.0	14.0
3	5.24	13.31	24.19	40.52	14.52	2.22	0.	0.	0.	6535.0	13.2
4	5.04	14.31	29.64	38.51	11.90	0.60	0.	0.	0.	6151.0	12.4
5	6.45	15.93	34.48	34.68	8.06	0.40	0.	0.	0.	5755.0	11.6
6	10.08	20.56	37.70	27.22	3.83	0.60	0.	0.	0.	5025.0	10.1
7	17.94	33.47	31.05	13.31	4.03	0.20	0.	0.	0.	3951.0	8.0
8	29.23	37.90	20.16	8.87	3.23	0.60	0.	0.	0.	3344.0	6.7
9	38.71	33.27	18.15	6.25	2.62	1.01	0.	0.	0.	3039.0	6.1
10	31.85	41.13	18.15	5.65	2.82	0.20	0.20	0.	0.	3042.0	6.1
11	23.99	49.40	16.13	7.86	2.02	0.60	0.	0.	0.	3178.0	6.4
12	18.35	51.01	17.34	8.87	2.62	0.60	0.40	0.	0.	3488.0	7.0
13	14.72	50.60	19.76	9.48	4.03	1.01	0.20	0.20	0.	3825.0	7.7
14	10.89	46.37	22.58	12.70	5.24	1.61	0.60	0.	0.	4237.0	8.5
15	11.90	41.73	21.57	13.31	8.27	2.22	0.81	0.20	0.	4658.0	9.4
16	16.13	34.48	19.76	12.30	9.88	5.65	1.81	0.	0.	5157.0	10.4
17	12.10	29.03	20.36	15.73	11.09	7.06	4.03	0.60	0.	6051.0	12.2
18	6.65	22.58	22.98	14.52	13.31	14.11	5.44	0.40	0.	7314.0	14.7
19	3.63	13.10	24.40	15.12	16.33	16.53	9.27	1.61	0.	8655.0	17.4
20	3.23	14.11	16.94	14.92	17.94	19.15	12.90	0.81	0.	9319.0	18.8
21	6.05	11.29	13.51	15.93	19.96	20.97	11.90	0.40	0.	9384.0	18.9
22	4.03	11.09	13.71	19.96	25.60	19.96	5.65	0.	0.	8994.0	18.1
23	3.63	9.27	13.51	27.02	31.25	14.11	1.21	0.	0.	8488.0	17.1
TOTALS	12.09	25.82	21.51	19.78	12.28	6.01	2.33	0.18	0.	142230.	11.9

TABLE 50 (CONTD)
COMPOSITE HOUR VS. 400 FOOT WIND SPEED

MONTH 9

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	8.12	12.71	23.75	31.25	17.92	5.21	0.83	0.21	0.	6522.0	13.6
1	8.12	15.42	24.79	31.46	15.00	1.58	0.62	0.	0.	6256.0	13.0
2	8.75	17.92	24.17	33.12	12.08	2.50	1.46	0.	0.	5946.0	12.4
3	10.42	15.63	30.21	28.96	10.00	3.75	0.83	0.21	0.	5742.0	12.0
4	12.29	16.04	31.46	28.54	7.71	3.33	0.42	0.21	0.	5461.0	11.4
5	14.17	20.83	25.62	27.71	7.92	3.13	0.62	0.	0.	5208.0	10.8
6	16.04	21.46	29.79	22.92	6.87	2.50	0.42	0.	0.	4871.0	10.1
7	21.88	24.17	30.42	15.63	5.83	1.46	0.62	0.	0.	4254.0	8.9
8	30.21	30.21	20.21	11.04	5.42	2.29	0.62	0.	0.	3758.0	7.8
9	35.21	28.96	16.87	11.67	4.17	2.71	0.21	0.21	0.	3566.0	7.4
10	33.12	30.21	18.75	9.38	6.25	1.67	0.42	0.21	0.	3613.0	7.5
11	25.83	38.96	16.46	11.46	3.54	3.13	0.42	0.21	0.	3775.0	7.9
12	19.58	45.42	14.58	10.42	4.79	3.33	1.87	0.	0.	4023.0	8.4
13	20.62	42.29	15.83	10.83	6.25	2.50	1.46	0.21	0.	4062.0	8.5
14	19.79	38.54	17.50	11.46	6.25	5.00	1.25	0.21	0.	4421.0	9.2
15	18.12	35.83	17.92	11.46	8.33	6.46	1.67	0.21	0.	4845.0	10.1
16	16.87	32.29	18.75	11.25	9.38	9.38	1.87	0.21	0.	5282.0	11.0
17	12.29	27.92	22.08	11.67	10.42	12.92	2.71	0.	0.	5962.0	12.4
18	7.50	21.88	25.42	14.79	13.96	11.25	4.79	0.42	0.	6760.0	14.1
19	7.08	15.42	25.42	17.08	15.00	14.58	5.00	0.42	0.	7293.0	15.2
20	6.25	16.67	21.04	21.25	17.29	12.08	4.37	1.04	0.	7359.0	15.3
21	7.29	15.63	22.29	24.79	15.00	9.38	4.79	0.83	0.	7147.0	14.9
22	7.29	14.37	22.92	25.42	18.33	9.38	2.08	0.21	0.	6925.0	14.4
23	7.08	14.58	24.17	28.75	18.12	6.04	1.25	0.	0.	6592.0	13.7
TOTALS	15.58	24.72	22.52	19.26	10.24	5.77	1.69	0.21	0.	129643.	11.3

MONTH 10

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	16.73	18.55	25.60	24.40	10.28	3.43	0.81	0.20	0.	5474.0	11.0
1	16.73	17.74	24.40	27.42	9.88	2.62	1.01	0.20	0.	5498.0	11.1
2	16.73	19.96	25.20	26.01	8.27	2.82	0.60	0.	0.40	5253.0	10.6
3	19.15	19.96	26.41	22.38	8.67	2.62	0.40	0.20	0.20	5150.0	10.4
4	19.96	20.97	24.40	23.99	7.26	2.22	1.21	0.	0.	4978.0	10.0
5	21.57	20.97	27.62	19.15	5.85	3.63	1.01	0.20	0.	4831.0	9.7
6	21.17	24.60	22.98	21.17	5.85	2.82	1.01	0.40	0.	4752.0	9.6
7	23.99	22.58	25.00	20.56	5.04	1.61	1.01	0.20	0.	4542.0	9.2
8	31.45	23.39	21.37	17.54	3.43	2.42	0.40	0.	0.	3991.0	8.0
9	37.30	24.40	15.12	11.69	7.46	3.43	0.60	0.	0.	3922.0	7.9
10	37.90	26.81	14.31	8.67	6.65	4.03	1.41	0.20	0.	3907.0	7.9
11	35.08	31.85	12.90	8.27	7.66	2.62	1.41	0.20	0.	3900.0	7.9
12	32.46	33.27	12.10	8.87	6.45	4.44	2.02	0.40	0.	4167.0	8.4
13	27.42	35.69	13.51	9.07	6.65	5.04	2.02	0.60	0.	4431.0	8.9
14	26.61	33.87	14.11	9.48	7.26	5.44	2.42	0.81	0.	4640.0	9.4
15	28.23	28.23	15.52	9.88	8.87	6.25	2.62	0.40	0.	4870.0	9.8
16	25.40	25.00	18.95	12.10	9.48	5.04	3.63	0.40	0.	5114.0	10.3
17	18.75	23.19	21.37	14.72	12.30	7.06	2.62	0.	0.	5625.0	11.3
18	17.54	19.96	19.56	19.15	12.70	8.27	2.62	0.	0.20	6084.0	12.3
19	14.31	19.96	22.78	21.17	12.70	6.65	1.81	0.60	0.	6056.0	12.2
20	13.91	18.15	25.00	22.98	11.49	6.25	1.21	1.01	0.	6079.0	12.3
21	16.33	17.34	20.36	26.41	12.30	4.84	2.02	0.40	0.	5961.0	12.0
22	16.53	15.93	24.80	23.59	15.12	2.62	1.21	0.20	0.	5776.0	11.6
23	15.73	17.94	21.77	29.84	9.68	4.03	0.60	0.40	0.	5700.0	11.5
TOTALS	22.96	23.35	20.63	18.27	8.80	4.18	1.49	0.29	0.03	120701.	10.1

TABLE 50 (CONTD)
COMPOSITE HOUR VS. 400 FOOT WIND SPEED

MONTH 11

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	24.37	23.12	22.92	16.25	7.29	3.54	1.87	0.42	0.21	4716.0	9.8
1	24.58	21.88	23.96	16.04	7.29	4.58	1.25	0.42	0.	4669.0	9.7
2	26.25	25.00	19.37	17.92	6.25	3.75	1.25	0.21	0.	4461.0	9.3
3	28.75	20.83	22.08	17.29	5.42	3.13	1.87	0.42	0.21	4494.0	9.4
4	27.29	21.46	20.83	17.29	8.33	2.92	0.83	0.62	0.42	4592.0	9.6
5	26.04	24.17	21.88	15.63	7.50	2.71	1.46	0.62	0.	4493.0	9.4
6	25.21	25.21	21.67	16.87	7.92	1.67	0.62	0.83	0.	4418.0	9.2
7	27.92	23.96	20.83	17.29	6.25	2.29	1.04	0.21	0.21	4268.0	8.9
8	30.00	23.75	18.33	19.17	4.37	2.29	1.46	0.42	0.21	4261.0	8.9
9	33.12	23.12	20.00	13.96	4.58	2.50	1.87	0.62	0.21	4085.0	8.5
10	36.67	27.92	10.83	12.71	5.21	4.58	1.04	0.83	0.21	3957.0	8.2
11	38.12	23.33	15.63	10.62	5.03	4.37	1.46	0.42	0.21	3989.0	8.3
12	38.41	24.01	14.20	9.60	7.72	3.55	1.67	0.84	0.	4042.0	8.4
13	36.12	26.72	14.20	10.02	6.26	3.13	2.51	1.04	0.	4104.0	8.6
14	39.58	23.12	13.33	11.04	6.04	3.96	2.50	0.42	0.	4028.0	8.4
15	37.08	23.96	13.96	10.21	7.08	4.58	2.29	0.62	0.21	4207.0	8.8
16	32.08	23.33	16.25	13.12	7.29	5.42	1.46	0.83	0.21	4465.0	9.3
17	25.83	25.42	17.50	15.42	8.33	5.83	0.83	0.42	0.42	4747.0	9.9
18	25.21	23.54	18.33	19.17	7.92	4.17	1.25	0.21	0.21	4700.0	9.8
19	21.67	24.17	20.42	19.79	9.17	3.75	1.04	0.	0.	4767.0	9.9
20	22.50	21.46	23.12	20.00	7.50	4.17	1.04	0.21	0.	4838.0	10.1
21	26.46	16.87	25.42	19.79	6.46	4.37	0.42	0.21	0.	4637.0	9.7
22	25.00	19.37	23.33	19.79	6.87	4.17	1.04	0.21	0.21	4700.0	9.8
23	25.21	22.08	19.79	21.04	6.67	2.71	1.67	0.62	0.21	4715.0	9.8
TOTALS	29.31	23.24	19.09	15.84	6.82	3.67	1.41	0.49	0.14	106353.	9.2

MONTH 12

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	29.84	17.74	19.56	20.56	7.46	2.42	0.	2.02	0.40	4902.0	9.9
1	29.23	18.15	21.57	19.15	6.25	2.62	1.61	1.21	0.20	4811.0	9.7
2	30.24	18.35	22.18	17.14	6.65	1.81	2.62	0.60	0.40	4733.0	9.5
3	29.84	19.76	20.77	19.35	5.44	2.02	1.81	0.81	0.20	4625.0	9.3
4	29.23	18.55	22.58	17.94	6.25	2.62	1.81	0.81	0.20	4703.0	9.5
5	29.44	19.76	23.99	18.35	3.23	3.23	1.41	0.61	0.20	4540.0	9.2
6	28.83	21.57	23.99	15.32	4.84	3.23	1.21	0.81	0.20	4492.0	9.1
7	30.65	22.18	20.97	17.34	4.23	3.02	0.60	0.60	0.40	4311.0	8.7
8	31.45	21.37	21.37	15.73	5.04	2.82	1.41	0.81	0.	4389.0	8.8
9	32.46	23.75	21.77	12.30	4.84	2.22	1.81	0.81	0.	4202.0	8.5
10	36.49	20.36	20.16	13.10	5.24	2.22	1.41	1.01	0.	4095.0	8.3
11	39.52	16.35	19.35	11.49	4.84	4.44	1.21	0.40	0.40	4087.0	8.2
12	38.10	22.38	16.13	9.88	7.06	4.23	1.61	0.40	0.20	4162.0	8.4
13	38.21	20.97	18.35	7.46	7.06	4.23	2.22	0.40	0.40	4207.0	8.5
14	37.50	23.79	15.93	9.27	5.85	4.64	1.41	1.41	0.20	4207.0	8.5
15	34.88	22.38	16.73	12.70	7.86	2.22	2.02	0.60	0.60	4372.0	8.8
16	34.88	22.38	16.53	13.10	7.06	3.23	1.21	1.01	0.60	4450.0	9.0
17	32.06	22.78	17.34	15.12	5.65	3.63	2.42	1.01	0.	4584.0	9.2
18	28.63	23.99	16.53	18.15	7.26	2.02	3.02	0.20	0.20	4708.0	9.5
19	28.43	22.38	18.15	18.15	6.45	2.82	2.62	1.01	0.	4718.0	9.5
20	26.21	22.58	20.56	16.73	8.06	3.43	1.61	0.60	0.20	4765.0	9.6
21	28.63	19.76	20.97	17.94	6.85	3.63	1.61	0.40	0.20	4765.0	9.6
22	26.61	20.77	21.17	18.75	7.66	2.62	0.81	1.21	0.40	4861.0	9.8
23	26.81	20.77	23.39	16.13	8.06	2.62	1.21	1.01	0.	4776.0	9.6
TOTALS	31.62	21.03	19.98	15.47	6.22	3.00	1.61	0.83	0.24	106465.	9.1

TABLE 50 (CONTD)
COMPOSITE HOUR VS. 460 FOOT WIND SPEED

MONTH 13

HOUR	SPEED CLASS									TOTAL SPEED	AVE SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	OVER 46		
0	13.47	14.43	20.40	26.39	17.15	6.04	1.59	0.43	0.12	77008.0	13.2
1	13.33	14.60	21.80	27.82	15.98	4.81	1.08	0.27	0.10	74465.0	12.7
2	13.47	16.41	23.00	28.76	13.33	3.42	1.20	0.24	0.17	71170.0	12.2
3	14.82	16.70	23.85	28.61	11.24	3.25	1.13	0.33	0.07	68664.0	11.7
4	15.30	18.22	24.76	27.74	9.39	3.32	0.87	0.29	0.10	66275.0	11.3
5	16.79	18.48	27.02	26.18	7.27	2.93	0.99	0.27	0.07	63079.0	10.8
6	18.46	21.90	27.77	21.65	6.55	2.65	0.63	0.36	0.02	58547.0	10.0
7	22.91	24.95	24.93	18.12	5.78	2.28	0.70	0.27	0.05	53478.0	9.2
8	27.87	27.31	20.82	14.97	5.54	2.29	0.91	0.24	0.03	49692.0	8.5
9	31.19	28.47	18.89	12.53	5.30	2.40	0.92	0.26	0.03	47405.0	8.1
10	29.16	31.91	17.93	11.38	5.65	2.41	1.10	0.41	0.05	47661.0	8.2
11	26.23	34.41	17.49	11.64	5.60	3.03	1.15	0.38	0.09	49321.0	8.4
12	23.34	35.68	17.75	11.47	6.20	3.58	1.45	0.41	0.12	51872.0	8.9
13	21.51	34.98	18.31	12.54	6.50	3.73	1.73	0.55	0.14	54380.0	9.3
14	20.28	33.25	18.62	13.43	7.24	4.67	1.87	0.60	0.05	57103.0	9.8
15	19.58	30.51	19.11	13.71	8.98	5.29	2.19	0.50	0.14	60663.0	10.4
16	19.23	26.52	19.78	14.58	9.62	6.91	2.53	0.67	0.15	65169.0	11.2
17	16.27	24.11	20.11	15.47	11.46	8.37	3.41	0.72	0.09	71374.0	12.2
18	13.72	19.78	20.67	17.47	12.65	10.75	4.23	0.62	0.12	78791.0	13.5
19	12.06	16.79	20.62	18.22	13.54	12.34	5.36	1.01	0.07	84801.0	14.5
20	11.74	15.54	19.88	18.33	14.66	12.68	6.26	0.80	0.10	87771.0	15.0
21	13.26	14.32	18.17	20.00	15.28	11.96	6.14	0.80	0.05	87254.0	14.9
22	12.97	14.72	18.51	21.75	16.80	10.99	3.71	0.44	0.10	83804.0	14.3
23	12.94	15.50	18.69	24.26	17.40	8.68	2.02	0.43	0.09	79758.0	13.6
TOTALS	18.33	22.90	20.79	19.04	10.38	5.78	2.22	0.47	0.09	1589505.	11.3

TABLE 51
COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_1) SEASON - SPRING
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
WIND DIRECTION AT 200-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.15	0.13	0.09	0.14	0.21	0.23	0.16	0.13	0.14	0.21	0.15	0.38	0.27	0.31	0.27	0.22	0.14	0.23	3.55
	MS	0.08	0.11	0.08	0.10	0.17	0.20	0.07	0.08	0.08	0.08	0.07	0.14	0.09	0.10	0.14	0.12	0.08	0.08	1.86
	N	0.10	0.20	0.11	0.14	0.20	0.19	0.07	0.07	0.06	0.07	0.03	0.12	0.06	0.13	0.18	0.22	0.15	0.07	2.15
	U	0.51	0.70	0.39	0.46	0.29	0.31	0.12	0.20	0.16	0.14	0.11	0.14	0.17	0.30	0.36	0.67	0.50	0.01	5.56
4 - 7	VS	0.15	0.13	0.12	0.15	0.18	0.30	0.20	0.24	0.20	0.35	0.52	0.93	0.99	0.92	0.53	0.34	0.01	0.	6.25
	MS	0.08	0.12	0.10	0.16	0.18	0.33	0.16	0.18	0.15	0.19	0.27	0.44	0.37	0.37	0.23	0.22	0.01	0.	3.57
	N	0.06	0.10	0.07	0.13	0.12	0.25	0.13	0.11	0.07	0.08	0.10	0.13	0.18	0.21	0.16	0.10	0.02	0.	2.02
	U	1.00	1.03	0.69	0.61	0.52	0.71	0.46	0.60	0.56	0.65	0.38	0.40	0.58	1.28	1.19	1.27	0.23	0.	12.15
8 -12	VS	0.11	0.15	0.14	0.10	0.08	0.13	0.22	0.14	0.14	0.24	0.61	1.29	2.06	1.54	0.51	0.22	0.	0.	7.67
	MS	0.11	0.10	0.04	0.06	0.07	0.20	0.21	0.16	0.28	0.37	0.58	1.13	1.45	0.98	0.25	0.14	0.	0.	6.15
	N	0.07	0.04	0.05	0.05	0.06	0.10	0.10	0.06	0.09	0.14	0.18	0.18	0.31	0.39	0.10	0.08	0.	0.	1.98
	U	0.55	0.44	0.19	0.14	0.12	0.26	0.23	0.25	0.55	0.80	0.72	0.43	0.77	1.52	0.56	0.55	0.00	0.	8.08
13-18	VS	0.06	0.04	0.04	0.04	0.00	0.05	0.17	0.03	0.02	0.07	0.34	0.50	1.20	1.34	0.15	0.11	0.	0.	4.16
	MS	0.09	0.07	0.02	0.03	0.02	0.09	0.16	0.12	0.26	0.58	1.12	1.75	3.43	1.89	0.14	0.12	0.	0.	9.89
	N	0.09	0.02	0.01	0.01	0.01	0.05	0.05	0.08	0.10	0.20	0.29	0.21	0.39	0.38	0.04	0.04	0.	0.	1.95
	U	0.41	0.21	0.05	0.02	0.01	0.03	0.08	0.11	0.37	0.84	1.00	0.41	0.88	1.17	0.12	0.22	0.	0.	5.90
19-24	VS	0.	0.00	0.00	0.01	0.	0.01	0.02	0.01	0.	0.01	0.04	0.02	0.06	0.20	0.01	0.	0.	0.	0.38
	MS	0.05	0.02	0.01	0.01	0.00	0.04	0.08	0.07	0.18	0.51	0.72	0.45	1.99	1.36	0.03	0.02	0.	0.	5.52
	N	0.02	0.02	0.01	0.	0.	0.01	0.02	0.07	0.10	0.19	0.20	0.08	0.30	0.35	0.01	0.01	0.	0.	1.41
	U	0.12	0.06	0.01	0.01	0.	0.	0.01	0.04	0.26	0.63	0.72	0.21	0.52	0.75	0.02	0.04	0.	0.	3.40
OVER 24	VS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00	0.01	0.	0.00	0.	0.	0.	0.	0.	0.01
	MS	0.01	0.01	0.	0.	0.	0.	0.01	0.05	0.19	0.45	0.26	0.06	0.75	0.84	0.	0.01	0.	0.	2.62
	N	0.01	0.00	0.00	0.00	0.	0.	0.01	0.01	0.07	0.24	0.14	0.03	0.24	0.26	0.	0.	0.	0.	1.02
	U	0.02	0.03	0.02	0.	0.	0.	0.	0.02	0.17	0.84	0.59	0.14	0.33	0.56	0.01	0.01	0.	0.	2.73
TOTALS	VS	0.47	0.46	0.39	0.44	0.47	0.72	0.76	0.54	0.50	0.89	1.65	3.12	4.58	4.32	1.47	0.88	0.15	0.23	22.03
	MS	0.42	0.42	0.25	0.36	0.45	0.85	0.69	0.67	1.15	2.17	3.02	3.97	8.09	5.54	0.79	0.62	0.09	0.08	29.61
	N	0.35	0.38	0.24	0.33	0.39	0.61	0.37	0.40	0.48	0.91	0.95	0.75	1.48	1.72	0.48	0.45	0.17	0.07	10.54
	U	2.62	2.46	1.35	1.23	0.93	1.32	0.90	1.23	2.07	3.89	3.52	1.74	3.25	5.58	2.25	2.76	0.74	0.01	37.83

TABLE 51 (CONTD)
COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_1)
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
WIND DIRECTION AT 200-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

SEASON - SUMMER

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CAL"	TOTAL
0 - 3	VS	0.08	0.07	0.06	0.06	0.06	0.10	0.05	0.08	0.09	0.10	0.13	0.18	0.16	0.16	0.08	0.12	0.06	0.10	1.68
	MS	0.05	0.04	0.04	0.05	0.08	0.12	0.04	0.07	0.04	0.05	0.06	0.12	0.09	0.11	0.04	0.07	0.06	0.05	1.16
	N	0.10	0.10	0.09	0.12	0.10	0.15	0.07	0.06	0.07	0.06	0.08	0.07	0.07	0.11	0.10	0.15	0.10	0.05	1.64
	U	0.42	0.65	0.28	0.37	0.36	0.37	0.18	0.31	0.16	0.32	0.21	0.24	0.18	0.35	0.37	0.57	0.93	0.02	6.28
4 - 7	VS	0.14	0.13	0.10	0.13	0.12	0.21	0.14	0.11	0.13	0.18	0.35	0.78	0.81	0.51	0.38	0.21	0.01	0.	4.45
	MS	0.08	0.08	0.06	0.10	0.16	0.19	0.07	0.10	0.07	0.17	0.22	0.40	0.27	0.22	0.13	0.05	0.01	0.	2.38
	N	0.09	0.07	0.08	0.08	0.16	0.21	0.08	0.09	0.07	0.10	0.09	0.17	0.16	0.22	0.15	0.12	0.03	0.	1.98
	U	1.58	1.55	0.88	1.08	0.89	1.16	0.76	0.98	0.92	1.11	0.84	0.88	0.85	1.66	1.47	1.79	0.87	0.	19.27
8 - 12	VS	0.14	0.16	0.09	0.09	0.11	0.08	0.16	0.09	0.06	0.13	0.49	1.18	2.04	1.28	0.44	0.18	0.	0.	6.71
	MS	0.09	0.10	0.03	0.09	0.11	0.12	0.10	0.05	0.06	0.19	0.48	1.25	1.49	0.63	0.13	0.12	0.	0.	5.04
	N	0.05	0.03	0.05	0.04	0.05	0.06	0.04	0.02	0.04	0.08	0.15	0.18	0.30	0.29	0.05	0.03	0.	0.	1.46
	U	0.78	0.54	0.20	0.18	0.18	0.23	0.15	0.22	0.53	1.21	1.06	0.62	0.99	1.95	0.66	0.66	0.01	0.	10.17
13-18	VS	0.04	0.04	0.02	0.03	0.	0.02	0.08	0.01	0.01	0.02	0.11	0.30	1.36	1.44	0.15	0.03	0.	0.	3.65
	MS	0.06	0.05	0.04	0.04	0.01	0.03	0.05	0.03	0.07	0.18	0.62	1.47	4.79	2.03	0.13	0.05	0.	0.	9.64
	N	0.02	0.02	0.01	0.01	0.00	0.02	0.03	0.03	0.03	0.10	0.29	0.24	0.44	0.36	0.02	0.02	0.	0.	1.64
	U	0.24	0.16	0.06	0.04	0.02	0.05	0.05	0.04	0.18	0.87	1.04	0.37	0.97	1.69	0.10	0.13	0.	0.	6.02
19-24	VS	0.	0.01	0.00	0.	0.	0.	0.	0.	0.	0.	0.01	0.	0.03	0.22	0.00	0.	0.	0.	0.27
	MS	0.02	0.03	0.02	0.01	0.00	0.00	0.01	0.02	0.03	0.09	0.18	0.29	2.77	2.70	0.02	0.01	0.	0.	6.19
	N	0.01	0.03	0.01	0.00	0.	0.	0.	0.	0.02	0.07	0.16	0.07	0.51	0.58	0.01	0.00	0.	0.	1.47
	U	0.05	0.07	0.01	0.01	0.	0.	0.02	0.02	0.07	0.27	0.45	0.15	0.48	1.27	0.02	0.01	0.	0.	2.89
OVER 24	VS	0.	0.00	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00	0.	0.	0.	0.	0.	0.01
	MS	0.00	0.01	0.	0.	0.	0.00	0.00	0.00	0.01	0.03	0.03	0.02	1.02	1.63	0.00	0.	0.	0.	2.77
	N	0.00	0.01	0.	0.	0.	0.	0.01	0.01	0.01	0.03	0.08	0.02	0.49	0.79	0.00	0.	0.	0.	1.44
	U	0.	0.03	0.01	0.	0.	0.	0.	0.	0.03	0.15	0.24	0.07	0.26	1.02	0.01	0.	0.	0.	1.80
TOTALS	VS	0.40	0.40	0.27	0.31	0.29	0.40	0.42	0.29	0.25	0.44	1.09	2.45	4.39	3.61	1.06	0.53	0.06	0.10	16.77
	MS	0.30	0.31	0.19	0.27	0.37	0.46	0.27	0.27	0.27	0.70	1.58	3.54	10.44	7.33	0.46	0.30	0.07	0.05	27.19
	N	0.29	0.25	0.23	0.25	0.32	0.44	0.23	0.21	0.23	0.43	0.85	0.76	1.96	2.35	0.33	0.31	0.12	0.05	9.62
	U	3.08	3.00	1.45	1.67	1.45	1.81	1.15	1.57	1.88	3.94	3.83	2.32	3.73	7.93	2.63	3.17	1.81	0.02	46.42

TABLE 51 (CONTD)
COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_1) SEASON - FALL
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPED AND
WIND DIRECTION AT 200-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR,	CALM	TOTAL
0 - 3	VS	0.31	0.31	0.25	0.32	0.43	0.60	0.34	0.35	0.32	0.31	0.31	0.55	0.54	0.66	0.63	0.52	0.30	0.87	7.91
	MS	0.20	0.21	0.19	0.27	0.38	0.54	0.23	0.20	0.12	0.12	0.18	0.17	0.23	0.37	0.29	0.39	0.15	0.60	4.84
	N	0.37	0.43	0.38	0.41	0.40	0.51	0.21	0.16	0.15	0.11	0.08	0.13	0.16	0.35	0.46	0.37	0.16	0.39	5.24
	U	0.71	0.97	0.57	0.63	0.48	0.31	0.14	0.11	0.06	0.13	0.09	0.11	0.15	0.31	0.53	0.70	0.36	0.08	6.42
4 - 7	VS	0.28	0.23	0.17	0.18	0.28	0.50	0.47	0.43	0.38	0.49	0.67	1.20	1.53	1.48	0.92	0.49	0.02	0.	9.73
	MS	0.19	0.12	0.16	0.15	0.27	0.44	0.29	0.17	0.19	0.20	0.19	0.33	0.51	0.70	0.47	0.32	0.01	0.	4.71
	N	0.13	0.13	0.06	0.12	0.25	0.31	0.13	0.09	0.07	0.08	0.08	0.13	0.21	0.54	0.36	0.15	0.01	0.	2.85
	U	0.88	0.74	0.46	0.48	0.60	0.52	0.23	0.18	0.25	0.24	0.21	0.17	0.36	0.94	1.23	1.22	0.08	0.	8.81
8 -12	VS	0.17	0.08	0.06	0.06	0.04	0.17	0.31	0.11	0.13	0.32	0.68	1.50	2.49	2.37	0.77	0.27	0.	0.	9.55
	MS	0.10	0.05	0.03	0.03	0.10	0.23	0.27	0.16	0.22	0.43	0.48	0.76	1.26	1.45	0.41	0.13	0.	0.	6.10
	N	0.05	0.05	0.01	0.03	0.03	0.09	0.08	0.07	0.05	0.07	0.15	0.11	0.23	0.60	0.17	0.06	0.	0.	1.85
	U	0.45	0.26	0.05	0.03	0.05	0.11	0.04	0.08	0.17	0.28	0.35	0.20	0.32	1.11	0.56	0.44	0.00	0.	4.50
13-18	VS	0.06	0.03	0.01	0.02	0.00	0.05	0.10	0.03	0.02	0.08	0.25	0.43	1.54	1.93	0.21	0.04	0.	0.	4.79
	MS	0.09	0.05	0.00	0.02	0.01	0.09	0.15	0.18	0.31	0.63	0.87	0.97	2.18	1.85	0.17	0.12	0.	0.	7.70
	N	0.04	0.02	0.00	0.00	0.	0.04	0.04	0.07	0.09	0.14	0.21	0.11	0.26	0.37	0.09	0.05	0.	0.	1.55
	U	0.25	0.12	0.01	0.	0.	0.03	0.03	0.03	0.10	0.34	0.45	0.14	0.42	0.63	0.09	0.13	0.	0.	2.78
19-24	VS	0.	0.00	0.00	0.	0.	0.	0.01	0.01	0.01	0.01	0.04	0.03	0.09	0.19	0.	0.00	0.	0.	0.38
	MS	0.05	0.03	0.03	0.	0.00	0.01	0.05	0.18	0.27	0.57	0.54	0.24	0.99	1.04	0.03	0.02	0.	0.	4.04
	N	0.00	0.01	0.01	0.	0.	0.02	0.02	0.04	0.10	0.19	0.20	0.02	0.13	0.23	0.01	0.02	0.	0.	1.00
	U	0.04	0.03	0.01	0.	0.	0.	0.01	0.01	0.07	0.32	0.34	0.08	0.23	0.37	0.01	0.02	0.	0.	1.55
OVER 24	VS	0.	0.	0.	0.	0.	0.	0.	0.01	0.01	0.	0.00	0.	0.	0.	0.	0.	0.	0.	0.02
	MS	0.	0.01	0.	0.	0.	0.	0.02	0.08	0.30	0.43	0.21	0.07	0.31	0.40	0.01	0.	0.	0.	1.84
	N	0.01	0.01	0.00	0.	0.	0.	0.01	0.02	0.09	0.19	0.09	0.03	0.07	0.13	0.00	0.00	0.	0.	0.66
	U	0.01	0.05	0.01	0.	0.	0.	0.	0.01	0.09	0.39	0.24	0.07	0.09	0.21	0.01	0.	0.	0.	1.16
TOTALS	VS	0.83	0.66	0.49	0.58	0.76	1.32	1.22	0.94	0.87	1.21	1.95	3.70	6.18	6.63	2.52	1.32	0.32	0.87	32.38
	MS	0.63	0.46	0.40	0.46	0.76	1.32	1.02	0.98	1.40	2.38	2.48	2.53	5.49	5.82	1.37	0.97	0.16	0.60	29.24
	N	0.60	0.64	0.47	0.56	0.68	0.96	0.49	0.46	0.56	0.78	0.82	0.54	1.08	2.23	1.09	0.65	0.16	0.39	13.16
	U	2.34	2.17	1.10	1.14	1.13	0.97	0.45	0.42	0.75	1.71	1.69	0.77	1.57	3.56	2.43	2.50	0.44	0.08	25.23

TABLE 51 (CONTD)
COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_1)
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
WIND DIRECTION AT 200-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

SEASON - WINTER

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.29	0.35	0.23	0.30	0.36	0.58	0.39	0.37	0.27	0.30	0.31	0.48	0.41	0.61	0.50	0.54	0.35	0.73	7.36
	MS	0.38	0.36	0.34	0.42	0.69	0.82	0.48	0.39	0.24	0.24	0.20	0.40	0.46	0.66	0.64	0.59	0.23	1.30	8.83
	N	0.62	0.64	0.51	0.66	0.74	0.91	0.55	0.32	0.23	0.22	0.21	0.39	0.45	0.75	0.89	0.91	0.14	1.42	10.56
	U	0.30	0.25	0.20	0.15	0.12	0.07	0.03	0.05	0.04	0.03	0.01	0.06	0.08	0.14	0.22	0.23	0.05	0.06	2.08
4 - 7	VS	0.29	0.21	0.16	0.21	0.22	0.33	0.30	0.36	0.25	0.36	0.48	0.93	0.99	1.10	0.92	0.53	0.06	0.	7.70
	MS	0.33	0.29	0.22	0.21	0.26	0.47	0.31	0.23	0.20	0.27	0.27	0.53	0.84	1.42	1.08	0.65	0.03	0.	7.62
	N	0.20	0.21	0.18	0.16	0.23	0.28	0.23	0.09	0.07	0.14	0.16	0.23	0.53	1.23	0.66	0.34	0.00	0.	4.93
	U	0.31	0.25	0.16	0.12	0.10	0.09	0.04	0.03	0.05	0.02	0.02	0.03	0.12	0.64	0.55	0.41	0.01	0.	2.96
8 -12	VS	0.09	0.05	0.03	0.03	0.05	0.13	0.15	0.12	0.13	0.29	0.59	0.95	1.41	1.79	0.70	0.15	0.	0.	6.67
	MS	0.15	0.07	0.03	0.06	0.11	0.30	0.19	0.13	0.25	0.36	0.45	0.69	1.67	3.10	0.72	0.18	0.00	0.	8.45
	N	0.07	0.06	0.03	0.01	0.03	0.09	0.06	0.03	0.03	0.07	0.08	0.10	0.86	1.87	0.28	0.09	0.	0.	3.78
	U	0.14	0.08	0.03	0.01	0.01	0.02	0.01	0.02	0.08	0.04	0.10	0.07	0.28	1.07	0.29	0.14	0.	0.	2.40
13-18	VS	0.05	0.03	0.	0.00	0.	0.04	0.04	0.05	0.09	0.19	0.31	0.51	0.89	1.41	0.17	0.03	0.	0.	3.81
	MS	0.15	0.05	0.01	0.01	0.05	0.08	0.16	0.26	0.36	0.78	0.88	0.76	1.73	3.16	0.29	0.12	0.	0.	8.85
	N	0.07	0.01	0.00	0.01	0.01	0.02	0.02	0.03	0.07	0.14	0.15	0.08	0.67	1.21	0.08	0.06	0.	0.	2.62
	U	0.13	0.03	0.00	0.00	0.	0.	0.00	0.01	0.08	0.10	0.20	0.11	0.26	0.44	0.06	0.08	0.	0.	1.51
19-24	VS	0.	0.	0.	0.	0.	0.01	0.02	0.01	0.04	0.07	0.05	0.05	0.08	0.12	0.00	0.	0.	0.	0.45
	MS	0.04	0.03	0.	0.	0.01	0.03	0.10	0.18	0.36	0.96	0.56	0.35	0.44	0.70	0.05	0.03	0.	0.	3.85
	N	0.03	0.01	0.	0.00	0.01	0.	0.01	0.03	0.09	0.14	0.12	0.03	0.07	0.18	0.01	0.06	0.	0.	0.79
	U	0.03	0.04	0.01	0.	0.	0.00	0.00	0.01	0.04	0.13	0.14	0.03	0.06	0.14	0.00	0.03	0.	0.	0.67
OVER 24	VS	0.	0.	0.	0.	0.	0.00	0.01	0.01	0.04	0.04	0.01	0.01	0.	0.	0.	0.	0.	0.	0.12
	MS	0.02	0.00	0.	0.	0.	0.02	0.06	0.21	0.69	0.99	0.41	0.11	0.12	0.13	0.01	0.02	0.	0.	2.79
	N	0.03	0.02	0.	0.	0.	0.	0.01	0.03	0.14	0.23	0.05	0.02	0.01	0.02	0.	0.03	0.	0.	0.61
	U	0.04	0.00	0.	0.	0.	0.	0.	0.01	0.08	0.20	0.16	0.02	0.01	0.04	0.00	0.01	0.	0.	0.57
TOTALS	VS	0.72	0.63	0.42	0.55	0.63	1.10	0.91	0.92	0.81	1.26	1.75	2.92	3.79	5.03	2.30	1.25	0.41	0.73	26.12
	MS	1.07	0.81	0.59	0.70	1.12	1.73	1.30	1.39	2.10	3.61	2.77	2.85	5.26	9.17	2.77	1.59	0.26	1.30	40.39
	N	1.02	0.96	0.72	0.83	1.01	1.30	0.87	0.52	0.66	0.93	0.77	0.85	2.60	5.26	1.93	1.49	0.14	1.42	23.29
	U	0.95	0.86	0.41	0.29	0.23	0.18	0.08	0.13	0.36	0.53	0.64	0.34	0.80	2.46	1.13	0.91	0.06	0.06	10.20

TABLE 51 (CONTD)
COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_1)
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
WIND DIRECTION AT 200-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

SEASON - ANNUAL

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.21	0.21	0.15	0.20	0.26	0.38	0.23	0.23	0.20	0.23	0.22	0.40	0.34	0.43	0.37	0.35	0.21	0.48	5.11
	MS	0.17	0.18	0.16	0.21	0.33	0.42	0.20	0.18	0.12	0.12	0.13	0.21	0.22	0.31	0.28	0.29	0.13	0.50	4.15
	N	0.30	0.34	0.27	0.33	0.36	0.44	0.22	0.15	0.13	0.11	0.10	0.18	0.18	0.33	0.41	0.41	0.13	0.48	4.87
	U	0.49	0.64	0.36	0.40	0.31	0.27	0.12	0.17	0.10	0.16	0.10	0.14	0.14	0.27	0.37	0.54	0.46	0.04	5.09
4 - 7	VS	0.21	0.18	0.14	0.17	0.20	0.33	0.28	0.28	0.24	0.35	0.50	0.96	1.08	1.00	0.69	0.39	0.02	0.	7.02
	MS	0.17	0.15	0.13	0.15	0.22	0.36	0.21	0.17	0.15	0.21	0.24	0.42	0.50	0.68	0.47	0.31	0.02	0.	4.56
	N	0.12	0.13	0.10	0.12	0.19	0.26	0.14	0.10	0.07	0.10	0.11	0.16	0.27	0.55	0.33	0.18	0.01	0.	2.94
	U	0.94	0.90	0.55	0.58	0.53	0.62	0.37	0.45	0.45	0.51	0.37	0.38	0.48	1.13	1.11	1.18	0.30	0.	10.84
8 -12	VS	0.13	0.11	0.08	0.07	0.07	0.13	0.21	0.11	0.12	0.24	0.59	1.23	2.00	1.74	0.60	0.20	0.	0.	7.65
	MS	0.11	0.08	0.03	0.06	0.10	0.21	0.19	0.13	0.20	0.34	0.50	0.96	1.47	1.53	0.38	0.14	0.00	0.	6.43
	N	0.06	0.04	0.03	0.03	0.04	0.09	0.07	0.04	0.06	0.09	0.14	0.14	0.42	0.78	0.15	0.06	0.	0.	2.26
	U	0.48	0.33	0.12	0.09	0.09	0.15	0.11	0.14	0.34	0.59	0.56	0.33	0.59	1.42	0.52	0.45	0.00	0.	6.31
13-18	VS	0.05	0.03	0.02	0.02	0.00	0.04	0.10	0.03	0.03	0.09	0.25	0.43	1.25	1.53	0.17	0.05	0.	0.	4.10
	MS	0.10	0.05	0.02	0.02	0.02	0.07	0.13	0.15	0.25	0.54	0.87	1.24	3.04	2.23	0.18	0.10	0.	0.	9.03
	N	0.05	0.01	0.01	0.01	0.00	0.03	0.04	0.05	0.07	0.14	0.24	0.16	0.44	0.58	0.06	0.04	0.	0.	1.94
	U	0.26	0.13	0.03	0.01	0.01	0.03	0.04	0.05	0.18	0.54	0.68	0.26	0.64	0.98	0.09	0.14	0.	0.	4.07
19-24	VS	0.	0.00	0.00	0.00	0.	0.00	0.01	0.01	0.01	0.02	0.04	0.02	0.06	0.18	0.00	0.00	0.	0.	0.37
	MS	0.04	0.03	0.01	0.00	0.00	0.02	0.06	0.11	0.21	0.53	0.50	0.33	1.55	1.45	0.03	0.02	0.	0.	4.91
	N	0.02	0.02	0.00	0.00	0.00	0.01	0.01	0.03	0.08	0.15	0.17	0.05	0.25	0.34	0.01	0.02	0.	0.	1.17
	U	0.06	0.05	0.01	0.00	0.	0.00	0.01	0.02	0.11	0.34	0.41	0.12	0.32	0.63	0.01	0.03	0.	0.	2.13
OVER 24	VS	0.	0.00	0.	0.	0.	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.	0.	0.	0.	0.	0.04
	MS	0.01	0.01	0.	0.	0.	0.01	0.02	0.08	0.30	0.47	0.22	0.06	0.55	0.76	0.00	0.01	0.	0.	2.50
	N	0.01	0.01	0.00	0.00	0.	0.	0.01	0.02	0.08	0.17	0.09	0.03	0.21	0.30	0.00	0.01	0.	0.	0.93
	U	0.02	0.03	0.01	0.	0.	0.	0.	0.01	0.09	0.40	0.31	0.08	0.17	0.46	0.01	0.00	0.	0.	1.57
TOTALS	VS	0.60	0.54	0.39	0.47	0.53	0.88	0.83	0.67	0.61	0.95	1.61	3.05	4.73	4.89	1.83	1.00	0.23	0.48	24.29
	MS	0.60	0.50	0.36	0.45	0.67	1.08	0.82	0.83	1.22	2.21	2.46	3.23	7.33	6.96	1.34	0.87	0.14	0.50	31.57
	N	0.56	0.55	0.42	0.49	0.60	0.82	0.49	0.40	0.48	0.76	0.85	0.72	1.78	2.88	0.95	0.72	0.15	0.48	14.11
	U	2.25	2.08	1.08	1.09	0.94	1.07	0.65	0.84	1.27	2.53	2.43	1.30	2.35	4.90	2.11	2.34	0.77	0.04	30.03

TABLE 52
COMPOSITE REPORT (1955 THROUGH 1970) USING ΔT_2 SEASON - SPRING
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
WIND DIRECTION AT 200-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.05	0.03	0.01	0.04	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.10	0.06	0.06	0.08	0.05	0.05	0.05	0.82
	MS	0.16	0.20	0.13	0.14	0.26	0.29	0.18	0.16	0.17	0.22	0.16	0.38	0.27	0.32	0.31	0.27	0.16	0.22	3.99
	N	0.28	0.42	0.29	0.34	0.32	0.32	0.09	0.18	0.13	0.17	0.10	0.22	0.16	0.28	0.36	0.46	0.39	0.11	4.59
	U	0.35	0.50	0.24	0.31	0.23	0.26	0.12	0.11	0.10	0.08	0.07	0.10	0.09	0.18	0.20	0.44	0.31	0.02	3.72
4 - 7	VS	0.01	0.01	0.01	0.	0.04	0.06	0.04	0.04	0.07	0.12	0.12	0.20	0.22	0.19	0.11	0.05	0.	0.	1.28
	MS	0.18	0.16	0.13	0.21	0.28	0.45	0.26	0.32	0.27	0.34	0.56	1.03	1.03	1.05	0.62	0.44	0.02	0.	7.35
	N	0.33	0.39	0.31	0.38	0.28	0.51	0.26	0.34	0.27	0.36	0.33	0.40	0.52	0.73	0.59	0.55	0.08	0.	6.63
	U	0.78	0.81	0.52	0.46	0.41	0.58	0.39	0.42	0.38	0.44	0.26	0.27	0.36	0.82	0.78	0.90	0.17	0.	8.74
8 -12	VS	0.01	0.01	0.00	0.	0.00	0.04	0.06	0.02	0.01	0.05	0.13	0.20	0.28	0.59	0.13	0.02	0.	0.	1.54
	MS	0.16	0.19	0.10	0.13	0.13	0.27	0.31	0.21	0.26	0.42	0.96	1.95	2.95	1.81	0.61	0.27	0.	0.	10.78
	N	0.24	0.16	0.10	0.11	0.10	0.15	0.18	0.21	0.39	0.52	0.54	0.61	0.84	0.97	0.27	0.27	0.	0.	5.66
	U	0.43	0.37	0.15	0.11	0.09	0.23	0.21	0.20	0.40	0.55	0.46	0.27	0.52	1.07	0.41	0.43	0.00	0.	5.91
13-18	VS	0.	0.	0.	0.00	0.	0.01	0.03	0.	0.01	0.00	0.05	0.11	0.26	0.70	0.07	0.01	0.	0.	1.25
	MS	0.10	0.07	0.05	0.07	0.02	0.12	0.26	0.09	0.14	0.46	1.15	1.66	3.68	2.23	0.21	0.18	0.	0.	10.49
	N	0.19	0.08	0.03	0.01	0.01	0.05	0.11	0.17	0.32	0.60	0.83	0.81	1.25	0.95	0.06	0.10	0.	0.	5.59
	U	0.35	0.18	0.04	0.02	0.00	0.03	0.06	0.09	0.29	0.62	0.70	0.28	0.70	0.91	0.11	0.20	0.	0.	4.59
19-24	VS	0.	0.	0.	0.	0.	0.00	0.01	0.01	0.	0.	0.	0.01	0.05	0.14	0.01	0.	0.	0.	0.22
	MS	0.02	0.01	0.01	0.02	0.	0.02	0.07	0.05	0.11	0.28	0.47	0.23	1.27	0.96	0.02	0.01	0.	0.	3.54
	N	0.08	0.04	0.01	0.	0.00	0.03	0.05	0.09	0.25	0.58	0.66	0.33	1.09	0.87	0.02	0.04	0.	0.	4.14
	U	0.09	0.05	0.01	0.01	0.	0.	0.01	0.04	0.19	0.48	0.55	0.18	0.47	0.69	0.02	0.03	0.	0.	2.81
OVER 24	VS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.01	0.00	0.	0.	0.00	0.	0.	0.	0.	0.01
	MS	0.01	0.01	0.	0.	0.	0.	0.	0.02	0.08	0.18	0.11	0.02	0.34	0.33	0.	0.01	0.	0.	1.11
	N	0.02	0.01	0.00	0.00	0.	0.	0.01	0.04	0.20	0.63	0.41	0.08	0.66	0.76	0.00	0.00	0.	0.	2.84
	U	0.01	0.03	0.02	0.	0.	0.	0.	0.01	0.14	0.71	0.47	0.13	0.33	0.57	0.00	0.00	0.	0.	2.42
TOTALS	VS	0.07	0.05	0.03	0.04	0.09	0.16	0.17	0.10	0.12	0.21	0.33	0.62	0.86	1.68	0.39	0.12	0.05	0.05	5.13
	MS	0.62	0.63	0.47	0.57	0.70	1.15	1.07	0.85	1.03	1.90	3.41	5.28	9.53	6.71	1.76	1.16	0.18	0.22	37.25
	N	1.15	1.10	0.75	0.84	0.71	1.06	0.69	1.03	1.57	2.86	2.88	2.45	4.53	4.55	1.31	1.42	0.43	0.11	29.43
	U	2.02	1.93	0.98	0.91	0.74	1.10	0.78	0.87	1.49	2.89	2.52	1.23	2.47	4.22	1.53	2.00	0.48	0.02	28.18

TABLE 52 (contd)
 COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_2 SEASON - SUMMER
 PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
 WIND DIRECTION AT 200-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.02	0.01	0.	0.01	0.00	0.02	0.01	0.02	0.01	0.03	0.03	0.03	0.04	0.03	0.01	0.02	0.01	0.01	0.31
	MS	0.10	0.09	0.07	0.09	0.10	0.15	0.07	0.10	0.08	0.12	0.16	0.25	0.20	0.24	0.12	0.16	0.10	0.10	2.28
	N	0.17	0.28	0.20	0.24	0.25	0.27	0.09	0.19	0.11	0.17	0.12	0.17	0.14	0.19	0.25	0.30	0.41	0.08	3.63
	U	0.36	0.47	0.20	0.24	0.26	0.30	0.18	0.21	0.12	0.20	0.16	0.17	0.12	0.27	0.22	0.43	0.61	0.03	4.55
4 - 7	VS	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.01	0.04	0.08	0.17	0.16	0.09	0.06	0.03	0.00	0.	0.76
	MS	0.17	0.15	0.12	0.15	0.20	0.30	0.18	0.17	0.17	0.31	0.43	0.93	0.86	0.63	0.44	0.21	0.04	0.	5.46
	N	0.38	0.40	0.25	0.34	0.41	0.54	0.29	0.36	0.30	0.41	0.40	0.48	0.46	0.67	0.55	0.55	0.20	0.	7.00
	U	1.32	1.28	0.74	0.89	0.72	0.91	0.56	0.73	0.72	0.80	0.59	0.64	0.61	1.21	1.08	1.38	0.67	0.	14.86
8 - 12	VS	0.	0.01	0.	0.	0.01	0.01	0.01	0.02	0.01	0.02	0.08	0.23	0.33	0.42	0.17	0.02	0.	0.	1.33
	MS	0.20	0.20	0.10	0.14	0.19	0.16	0.22	0.11	0.09	0.26	0.77	1.93	2.98	1.43	0.37	0.23	0.	0.	9.38
	N	0.21	0.14	0.07	0.08	0.11	0.11	0.09	0.07	0.17	0.46	0.57	0.65	0.78	0.84	0.22	0.19	0.	0.	4.77
	U	0.66	0.49	0.20	0.18	0.15	0.20	0.13	0.18	0.42	0.86	0.75	0.42	0.73	1.47	0.52	0.55	0.01	0.	7.91
13-18	VS	0.	0.	0.	0.	0.	0.00	0.01	0.	0.01	0.01	0.02	0.05	0.23	0.86	0.07	0.	0.	0.	1.26
	MS	0.07	0.07	0.05	0.06	0.01	0.05	0.11	0.03	0.05	0.14	0.56	1.27	4.92	2.28	0.19	0.07	0.	0.	9.91
	N	0.07	0.05	0.03	0.01	0.00	0.03	0.06	0.04	0.11	0.35	0.69	0.75	1.60	0.94	0.07	0.06	0.	0.	4.85
	U	0.23	0.15	0.05	0.04	0.02	0.03	0.03	0.04	0.12	0.68	0.80	0.30	0.81	1.44	0.08	0.10	0.	0.	4.92
19-24	VS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00	0.	0.03	0.16	0.00	0.	0.	0.	0.20
	MS	0.01	0.02	0.01	0.01	0.	0.00	0.01	0.01	0.02	0.05	0.10	0.12	1.61	1.85	0.02	0.01	0.	0.	3.84
	N	0.03	0.06	0.02	0.01	0.00	0.	0.00	0.01	0.05	0.15	0.35	0.26	1.69	1.54	0.01	0.01	0.	0.	4.18
	U	0.04	0.06	0.01	0.01	0.	0.	0.01	0.01	0.05	0.24	0.35	0.12	0.45	1.21	0.02	0.01	0.	0.	2.60
OVER 24	VS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00	0.	0.	0.	0.	0.	0.00
	MS	0.	0.01	0.	0.	0.	0.00	0.	0.00	0.01	0.01	0.01	0.00	0.32	0.63	0.00	0.	0.	0.	0.99
	N	0.00	0.01	0.00	0.	0.	0.	0.01	0.01	0.01	0.06	0.15	0.05	1.19	1.79	0.01	0.	0.	0.	3.28
	U	0.00	0.03	0.01	0.	0.	0.	0.	0.	0.02	0.14	0.20	0.06	0.26	1.02	0.01	0.	0.	0.	1.73
TOTALS	VS	0.03	0.02	0.01	0.02	0.01	0.05	0.05	0.06	0.04	0.10	0.22	0.49	0.79	1.56	0.31	0.07	0.01	0.01	3.86
	MS	0.55	0.53	0.36	0.44	0.49	0.66	0.58	0.42	0.40	0.89	2.02	4.51	10.89	7.06	1.14	0.68	0.14	0.10	31.86
	N	0.87	0.93	0.57	0.68	0.77	0.95	0.54	0.68	0.74	1.60	2.27	2.36	5.86	5.98	1.11	1.10	0.61	0.08	27.71
	U	2.61	2.48	1.21	1.36	1.15	1.45	0.91	1.18	1.45	2.92	2.85	1.71	2.97	6.62	1.92	2.47	1.30	0.03	36.57

TABLE 52 (contd)
COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_2) SEASON - FALL
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
WIND DIRECTION AT 200-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.08	0.08	0.06	0.09	0.11	0.19	0.13	0.11	0.08	0.06	0.09	0.14	0.12	0.15	0.17	0.17	0.09	0.20	2.13
	MS	0.42	0.39	0.35	0.40	0.54	0.78	0.36	0.39	0.31	0.35	0.33	0.51	0.57	0.75	0.67	0.65	0.36	1.00	9.13
	N	0.58	0.89	0.59	0.65	0.73	0.65	0.32	0.24	0.19	0.17	0.16	0.25	0.29	0.61	0.77	0.74	0.28	0.68	8.79
	U	0.52	0.56	0.39	0.48	0.31	0.34	0.12	0.09	0.06	0.09	0.07	0.05	0.09	0.19	0.30	0.41	0.23	0.06	4.37
4 - 7	VS	0.05	0.05	0.04	0.04	0.05	0.14	0.17	0.15	0.10	0.13	0.23	0.31	0.31	0.35	0.20	0.09	0.01	0.	2.44
	MS	0.36	0.24	0.20	0.21	0.36	0.67	0.50	0.40	0.42	0.50	0.55	1.11	1.58	1.71	1.11	0.64	0.03	0.	10.58
	N	0.38	0.36	0.25	0.31	0.50	0.51	0.27	0.19	0.20	0.22	0.23	0.27	0.46	1.05	0.81	0.58	0.03	0.	6.61
	U	0.69	0.56	0.34	0.37	0.50	0.46	0.18	0.14	0.18	0.17	0.14	0.13	0.26	0.56	0.85	0.86	0.06	0.	6.48
8 -12	VS	0.01	0.00	0.	0.01	0.	0.04	0.10	0.03	0.02	0.06	0.17	0.40	0.48	0.73	0.20	0.01	0.	0.	2.27
	MS	0.21	0.12	0.07	0.07	0.12	0.34	0.42	0.20	0.24	0.50	0.88	1.66	3.02	2.98	0.93	0.34	0.	0.	12.11
	N	0.17	0.11	0.03	0.04	0.06	0.12	0.13	0.13	0.20	0.35	0.39	0.37	0.55	1.04	0.36	0.18	0.	0.	4.26
	U	0.38	0.21	0.04	0.03	0.04	0.11	0.04	0.05	0.12	0.18	0.22	0.13	0.25	0.79	0.43	0.36	0.00	0.	3.38
13-18	VS	0.00	0.	0.	0.	0.	0.01	0.03	0.00	0.01	0.01	0.05	0.12	0.39	1.02	0.08	0.	0.	0.	1.73
	MS	0.12	0.05	0.01	0.03	0.00	0.12	0.20	0.17	0.20	0.40	0.83	1.04	2.99	2.54	0.25	0.12	0.	0.	9.10
	N	0.13	0.07	0.01	0.01	0.01	0.06	0.07	0.11	0.26	0.58	0.58	0.39	0.70	0.75	0.15	0.11	0.	0.	3.99
	U	0.18	0.09	0.01	0.	0.	0.01	0.03	0.02	0.05	0.20	0.32	0.09	0.33	0.48	0.07	0.12	0.	0.	2.01
19-24	VS	0.	0.	0.	0.	0.	0.	0.00	0.00	0.00	0.00	0.01	0.00	0.05	0.14	0.	0.	0.	0.	0.21
	MS	0.03	0.02	0.02	0.	0.	0.01	0.05	0.13	0.14	0.31	0.39	0.18	0.77	0.79	0.02	0.01	0.	0.	2.86
	N	0.02	0.03	0.01	0.	0.00	0.02	0.03	0.09	0.24	0.56	0.50	0.13	0.43	0.58	0.02	0.02	0.	0.	2.71
	U	0.04	0.03	0.01	0.	0.	0.00	0.01	0.01	0.07	0.22	0.23	0.06	0.19	0.32	0.01	0.02	0.	0.	1.19
OVER 24	VS	0.	0.	0.	0.	0.	0.	0.	0.	0.00	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
	MS	0.	0.01	0.	0.	0.	0.	0.02	0.05	0.13	0.14	0.10	0.04	0.13	0.18	0.	0.	0.	0.	0.80
	N	0.01	0.01	0.01	0.	0.	0.	0.01	0.06	0.27	0.58	0.24	0.08	0.26	0.36	0.01	0.00	0.	0.	1.90
	U	0.01	0.04	0.00	0.	0.	0.	0.	0.01	0.08	0.30	0.20	0.05	0.08	0.19	0.01	0.	0.	0.	0.98
TOTALS	VS	0.14	0.14	0.10	0.14	0.16	0.37	0.43	0.30	0.21	0.26	0.36	0.98	1.36	2.39	0.66	0.27	0.10	0.20	8.78
	MS	1.15	0.83	0.65	0.71	1.02	1.92	1.54	1.34	1.45	2.20	3.09	4.53	9.07	8.94	2.97	1.77	0.38	1.00	44.57
	N	1.29	1.48	0.90	1.01	1.29	1.36	0.83	0.85	1.36	2.46	2.10	1.50	2.69	4.38	2.12	1.63	0.31	0.68	28.25
	U	1.83	1.48	0.81	0.88	0.85	0.92	0.37	0.31	0.56	1.16	1.18	0.52	1.19	2.53	1.67	1.77	0.29	0.06	18.41

TABLE 52 (contd)

COMPOSITE REPORT (1955 THROUGH 1970) USING ΔT_2 SEASON - WINTER
 PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
 WIND DIRECTION AT 200-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.10	0.12	0.07	0.10	0.10	0.22	0.11	0.13	0.11	0.09	0.10	0.14	0.08	0.15	0.19	0.12	0.18	0.12	2.24
	MS	0.49	0.53	0.42	0.54	0.70	1.01	0.67	0.53	0.35	0.38	0.35	0.62	0.62	0.95	0.82	0.88	0.37	1.35	11.57
	N	0.75	0.70	0.61	0.74	0.94	1.00	0.56	0.42	0.28	0.30	0.25	0.50	0.63	0.94	1.08	1.04	0.18	1.92	12.84
	U	0.24	0.24	0.18	0.15	0.17	0.16	0.10	0.04	0.04	0.03	0.02	0.07	0.07	0.11	0.16	0.23	0.05	0.12	2.18
4 - 7	VS	0.10	0.10	0.06	0.08	0.07	0.14	0.12	0.14	0.09	0.12	0.18	0.28	0.22	0.26	0.32	0.19	0.04	0.	2.52
	MS	0.43	0.31	0.27	0.26	0.35	0.57	0.44	0.39	0.31	0.40	0.52	1.00	1.37	2.01	1.60	0.88	0.04	0.	11.15
	N	0.32	0.35	0.25	0.25	0.26	0.34	0.29	0.15	0.12	0.25	0.20	0.42	0.80	1.72	0.91	0.59	0.01	0.	7.22
	U	0.28	0.19	0.12	0.11	0.12	0.12	0.03	0.03	0.04	0.02	0.03	0.05	0.09	0.40	0.38	0.28	0.00	0.	2.31
8 - 12	VS	0.01	0.	0.01	0.01	0.01	0.05	0.06	0.05	0.05	0.06	0.11	0.20	0.26	0.61	0.29	0.03	0.	0.	1.82
	MS	0.13	0.09	0.03	0.06	0.10	0.33	0.22	0.15	0.23	0.43	0.81	1.28	2.44	3.92	1.03	0.25	0.00	0.	11.50
	N	0.20	0.09	0.05	0.04	0.08	0.13	0.11	0.08	0.17	0.25	0.23	0.28	1.30	2.61	0.48	0.18	0.	0.	6.28
	U	0.11	0.08	0.03	0.01	0.01	0.03	0.02	0.02	0.06	0.03	0.08	0.04	0.23	0.69	0.19	0.09	0.	0.	1.71
13-18	VS	0.01	0.00	0.	0.	0.	0.01	0.01	0.03	0.02	0.03	0.05	0.12	0.26	0.68	0.08	0.	0.	0.	1.30
	MS	0.10	0.05	0.00	0.01	0.04	0.09	0.16	0.17	0.28	0.68	0.91	1.02	2.16	3.62	0.33	0.08	0.	0.	9.70
	N	0.19	0.05	0.00	0.01	0.02	0.03	0.05	0.14	0.23	0.43	0.43	0.25	0.96	1.61	0.15	0.15	0.	0.	4.71
	U	0.10	0.02	0.01	0.	0.	0.01	0.00	0.01	0.07	0.09	0.14	0.06	0.17	0.31	0.04	0.05	0.	0.	1.09
19-24	VS	0.	0.	0.	0.	0.	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.05	0.00	0.	0.	0.	0.15
	MS	0.01	0.02	0.	0.	0.00	0.03	0.07	0.12	0.24	0.67	0.45	0.28	0.44	0.71	0.03	0.01	0.	0.	3.08
	N	0.05	0.03	0.	0.00	0.01	0.01	0.04	0.10	0.25	0.54	0.31	0.14	0.14	0.25	0.03	0.08	0.	0.	1.99
	U	0.04	0.03	0.01	0.	0.	0.00	0.00	0.02	0.03	0.09	0.10	0.01	0.05	0.12	0.00	0.03	0.	0.	0.54
OVER 24	VS	0.	0.	0.	0.	0.	0.00	0.	0.01	0.01	0.01	0.	0.00	0.	0.	0.	0.	0.	0.	0.02
	MS	0.01	0.00	0.	0.	0.	0.01	0.05	0.13	0.38	0.53	0.27	0.08	0.09	0.09	0.00	0.00	0.	0.	1.64
	N	0.05	0.02	0.	0.	0.	0.01	0.01	0.11	0.50	0.73	0.25	0.07	0.05	0.06	0.01	0.05	0.	0.	1.91
	U	0.03	0.01	0.	0.	0.	0.	0.00	0.01	0.06	0.19	0.13	0.02	0.01	0.04	0.00	0.01	0.	0.	0.51
TOTALS	VS	0.22	0.23	0.14	0.19	0.18	0.43	0.32	0.35	0.29	0.32	0.45	0.76	0.85	1.76	0.88	0.35	0.22	0.12	8.07
	MS	1.18	1.00	0.72	0.87	1.20	2.04	1.61	1.48	1.80	3.07	3.31	4.28	7.11	11.30	3.81	2.10	0.41	1.35	48.64
	N	1.58	1.25	0.91	1.04	1.30	1.51	1.06	1.00	1.56	2.48	1.67	1.66	3.87	7.19	2.66	2.09	0.19	1.92	34.95
	U	0.78	0.57	0.35	0.26	0.30	0.32	0.16	0.13	0.29	0.46	0.50	0.25	0.61	1.67	0.78	0.70	0.05	0.12	8.34

TABLE 52 (contd)
 COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_2) SEASON - ANNUAL
 PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
 WIND DIRECTION AT 200-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.06	0.06	0.04	0.06	0.06	0.12	0.07	0.07	0.06	0.05	0.06	0.10	0.08	0.10	0.11	0.09	0.08	0.09	1.37
	MS	0.29	0.30	0.24	0.29	0.40	0.55	0.32	0.29	0.23	0.26	0.25	0.44	0.41	0.56	0.48	0.49	0.25	0.66	6.71
	N	0.44	0.57	0.42	0.49	0.56	0.56	0.26	0.26	0.18	0.20	0.16	0.28	0.31	0.50	0.61	0.63	0.31	0.69	7.43
	U	0.37	0.44	0.25	0.30	0.25	0.26	0.13	0.11	0.08	0.10	0.08	0.10	0.09	0.19	0.22	0.38	0.30	0.06	3.71
4 - 7	VS	0.04	0.04	0.03	0.03	0.04	0.09	0.09	0.09	0.07	0.10	0.15	0.24	0.23	0.22	0.17	0.09	0.01	0.	1.75
	MS	0.28	0.21	0.18	0.21	0.30	0.50	0.34	0.32	0.29	0.39	0.52	1.02	1.21	1.35	0.94	0.54	0.03	0.	8.62
	N	0.35	0.38	0.27	0.32	0.36	0.47	0.27	0.26	0.22	0.31	0.29	0.39	0.56	1.04	0.72	0.56	0.08	0.	6.86
	U	0.77	0.71	0.44	0.46	0.44	0.52	0.29	0.33	0.33	0.36	0.26	0.28	0.33	0.75	0.78	0.86	0.23	0.	8.13
8 - 12	VS	0.01	0.00	0.00	0.00	0.00	0.03	0.06	0.03	0.02	0.05	0.12	0.26	0.34	0.59	0.20	0.02	0.	0.	1.74
	MS	0.17	0.15	0.09	0.10	0.13	0.27	0.29	0.17	0.20	0.40	0.86	1.71	2.85	2.52	0.73	0.27	0.00	0.	10.94
	N	0.21	0.12	0.07	0.07	0.09	0.13	0.13	0.13	0.23	0.40	0.44	0.48	0.86	1.36	0.33	0.21	0.	0.	5.24
	U	0.40	0.29	0.11	0.08	0.07	0.14	0.10	0.11	0.25	0.41	0.38	0.22	0.43	1.01	0.39	0.36	0.00	0.	4.75
13-18	VS	0.00	0.00	0.	0.00	0.	0.01	0.02	0.01	0.01	0.01	0.04	0.10	0.28	0.81	0.07	0.00	0.	0.	1.38
	MS	0.10	0.06	0.03	0.04	0.02	0.10	0.18	0.12	0.17	0.42	0.86	1.25	3.45	2.66	0.24	0.11	0.	0.	9.80
	N	0.15	0.06	0.02	0.01	0.01	0.04	0.07	0.11	0.23	0.49	0.63	0.55	1.13	1.06	0.11	0.10	0.	0.	4.78
	U	0.21	0.11	0.03	0.01	0.00	0.02	0.03	0.04	0.13	0.40	0.49	0.19	0.51	0.79	0.07	0.12	0.	0.	3.16
19-24	VS	0.	0.	0.	0.	0.	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.04	0.12	0.00	0.	0.	0.	0.20
	MS	0.02	0.02	0.01	0.01	0.00	0.02	0.05	0.08	0.13	0.32	0.35	0.20	1.02	1.08	0.02	0.01	0.	0.	3.33
	N	0.05	0.04	0.01	0.00	0.00	0.02	0.03	0.07	0.20	0.46	0.45	0.22	0.84	0.81	0.02	0.04	0.	0.	3.26
	U	0.05	0.04	0.01	0.00	0.	0.00	0.01	0.02	0.08	0.26	0.31	0.09	0.29	0.59	0.01	0.02	0.	0.	1.79
OVER 24	VS	0.	0.	0.	0.	0.	0.00	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.	0.	0.	0.	0.01
	MS	0.00	0.00	0.	0.	0.	0.00	0.02	0.05	0.15	0.21	0.12	0.03	0.22	0.31	0.00	0.00	0.	0.	1.13
	N	0.02	0.01	0.00	0.00	0.	0.00	0.01	0.06	0.25	0.50	0.26	0.07	0.54	0.75	0.01	0.01	0.	0.	2.49
	U	0.01	0.02	0.01	0.	0.	0.	0.00	0.01	0.08	0.34	0.25	0.07	0.17	0.46	0.00	0.00	0.	0.	1.42
TOTALS	VS	0.11	0.11	0.07	0.10	0.11	0.25	0.24	0.20	0.16	0.22	0.39	0.71	0.96	1.85	0.56	0.20	0.09	0.09	6.44
	MS	0.87	0.75	0.55	0.65	0.85	1.44	1.20	1.02	1.17	2.01	2.96	4.65	9.16	8.49	2.41	1.42	0.28	0.66	40.53
	N	1.22	1.19	0.78	0.89	1.02	1.22	0.78	0.89	1.31	2.35	2.23	2.00	4.24	5.52	1.79	1.56	0.39	0.69	30.07
	U	1.82	1.62	0.84	0.86	0.76	0.95	0.56	0.63	0.95	1.87	1.77	0.93	1.82	3.77	1.48	1.74	0.53	0.06	22.96

TABLE 53
COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_6) SEASON - SPRING
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
WIND DIRECTION AT 400-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.03	0.03	0.03	0.03	0.01	0.03	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.03	0.05	0.05	0.01	0.01	0.37
	MS	0.52	0.66	0.38	0.48	0.53	0.58	0.31	0.31	0.28	0.34	0.23	0.58	0.40	0.53	0.54	0.69	0.55	0.26	8.17
	N	0.27	0.44	0.25	0.31	0.30	0.30	0.10	0.14	0.15	0.15	0.12	0.19	0.17	0.26	0.35	0.45	0.30	0.10	4.35
	U	0.02	0.02	0.01	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.03	0.02	0.01	0.22
4 - 7	VS	0.01	0.01	0.01	0.02	0.01	0.05	0.01	0.02	0.01	0.01	0.01	0.02	0.07	0.06	0.06	0.03	0.00	0.	0.40
	MS	0.84	0.86	0.66	0.60	0.68	1.00	0.62	0.71	0.56	0.82	0.87	1.27	1.46	1.81	1.27	1.10	0.15	0.	15.29
	N	0.44	0.48	0.29	0.41	0.30	0.50	0.31	0.39	0.40	0.42	0.39	0.59	0.57	0.89	0.75	0.76	0.10	0.	7.98
	U	0.01	0.03	0.01	0.02	0.02	0.04	0.01	0.01	0.01	0.02	0.01	0.02	0.02	0.04	0.03	0.03	0.01	0.	0.33
8 -12	VS	0.	0.	0.	0.00	0.	0.01	0.01	0.	0.	0.01	0.00	0.	0.12	0.13	0.01	0.	0.	0.	0.30
	MS	0.49	0.44	0.22	0.21	0.20	0.44	0.45	0.33	0.62	0.85	1.32	2.13	3.49	3.01	0.85	0.55	0.00	0.	15.62
	N	0.34	0.27	0.19	0.14	0.12	0.24	0.28	0.30	0.43	0.66	0.74	0.87	0.95	1.25	0.54	0.42	0.	0.	7.74
	U	0.01	0.01	0.01	0.00	0.	0.00	0.01	0.01	0.01	0.02	0.03	0.02	0.03	0.04	0.02	0.01	0.	0.	0.23
13-18	VS	0.	0.	0.	0.	0.	0.00	0.	0.	0.	0.00	0.01	0.	0.15	0.10	0.00	0.	0.	0.	0.27
	MS	0.31	0.20	0.07	0.07	0.02	0.15	0.25	0.16	0.33	0.78	1.67	1.74	4.22	3.50	0.22	0.27	0.	0.	13.95
	N	0.34	0.13	0.05	0.03	0.02	0.06	0.20	0.19	0.41	0.87	1.01	1.10	1.50	1.17	0.22	0.22	0.	0.	7.52
	U	0.	0.	0.	0.	0.	0.00	0.	0.00	0.01	0.04	0.05	0.03	0.03	0.02	0.	0.01	0.	0.	0.18
19-24	VS	0.	0.	0.	0.	0.	0.00	0.	0.	0.	0.00	0.	0.00	0.03	0.01	0.	0.	0.	0.	0.05
	MS	0.09	0.05	0.02	0.01	0.00	0.05	0.10	0.09	0.18	0.54	0.91	0.40	1.84	1.72	0.03	0.03	0.	0.	6.09
	N	0.11	0.05	0.01	0.01	0.	0.01	0.03	0.09	0.36	0.76	0.72	0.35	0.97	0.89	0.02	0.04	0.	0.	4.42
	U	0.	0.00	0.	0.	0.	0.	0.	0.	0.00	0.03	0.04	0.01	0.04	0.03	0.	0.	0.	0.	0.15
OVER 24	VS	0.	0.	0.	0.	0.	0.	0.	0.00	0.	0.	0.	0.	0.00	0.	0.	0.	0.	0.	0.01
	MS	0.01	0.01	0.	0.	0.	0.	0.01	0.05	0.14	0.59	0.38	0.09	0.73	0.88	0.00	0.01	0.	0.	2.91
	N	0.03	0.02	0.02	0.00	0.	0.	0.	0.03	0.27	0.91	0.59	0.13	0.59	0.77	0.00	0.00	0.	0.	3.37
	U	0.	0.	0.	0.	0.	0.	0.	0.	0.02	0.04	0.02	0.00	0.00	0.01	0.	0.	0.	0.	0.10
TOTALS	VS	0.03	0.05	0.04	0.05	0.02	0.10	0.03	0.03	0.01	0.03	0.02	0.03	0.38	0.34	0.13	0.08	0.01	0.01	1.38
	MS	2.26	2.22	1.36	1.37	1.44	2.22	1.74	1.65	2.12	3.92	5.38	6.22	12.13	11.45	2.91	2.66	0.70	0.26	62.02
	N	1.53	1.39	0.81	0.90	0.74	1.11	0.92	1.14	2.01	3.76	3.58	3.24	4.75	5.23	1.89	1.89	0.40	0.10	35.39
	U	0.03	0.06	0.03	0.04	0.03	0.06	0.02	0.03	0.06	0.15	0.16	0.08	0.14	0.15	0.06	0.07	0.03	0.01	1.21

TABLE 53 (contd)
COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_6) SEASON - SUMMER
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
WIND DIRECTION AT 400-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.01	0.01	0.01	0.	0.01	0.00	0.	0.00	0.	0.00	0.	0.	0.	0.02	0.	0.01	0.	0.01	0.08
	MS	0.43	0.56	0.27	0.38	0.37	0.47	0.23	0.33	0.23	0.37	0.31	0.46	0.36	0.51	0.37	0.58	0.76	0.14	7.16
	N	0.21	0.27	0.18	0.19	0.22	0.24	0.11	0.17	0.08	0.15	0.14	0.13	0.14	0.20	0.22	0.27	0.36	0.06	3.33
	U	0.01	0.02	0.01	0.01	0.01	0.02	0.	0.02	0.00	0.01	0.02	0.02	0.	0.01	0.00	0.04	0.01	0.00	0.20
4 - 7	VS	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.	0.00	0.01	0.01	0.03	0.04	0.01	0.01	0.	0.	0.15
	MS	1.31	1.30	0.78	0.96	0.87	1.11	0.70	0.87	0.78	1.04	1.04	1.64	1.58	1.81	1.45	1.53	0.61	0.	19.40
	N	0.55	0.50	0.33	0.43	0.44	0.62	0.32	0.38	0.39	0.51	0.44	0.56	0.47	0.73	0.63	0.61	0.27	0.	8.17
	U	0.02	0.03	0.01	0.01	0.02	0.03	0.02	0.03	0.02	0.01	0.01	0.03	0.02	0.03	0.04	0.02	0.02	0.	0.36
8 -12	VS	0.	0.	0.00	0.	0.	0.	0.01	0.	0.00	0.	0.01	0.02	0.15	0.14	0.01	0.	0.	0.	0.35
	MS	0.74	0.57	0.24	0.24	0.29	0.33	0.30	0.27	0.44	1.02	1.43	2.30	3.80	3.06	0.92	0.64	0.01	0.	16.60
	N	0.32	0.25	0.14	0.16	0.17	0.14	0.13	0.10	0.24	0.55	0.71	0.89	0.84	0.93	0.35	0.33	0.	0.	6.25
	U	0.01	0.01	0.	0.	0.	0.01	0.00	0.00	0.01	0.03	0.03	0.02	0.03	0.03	0.01	0.02	0.	0.	0.19
13-18	VS	0.	0.	0.	0.00	0.	0.01	0.	0.	0.	0.	0.	0.01	0.37	0.26	0.01	0.	0.	0.	0.65
	MS	0.23	0.17	0.08	0.08	0.02	0.07	0.13	0.07	0.19	0.71	1.29	1.50	5.57	4.18	0.28	0.11	0.	0.	14.70
	N	0.14	0.10	0.05	0.03	0.01	0.04	0.08	0.04	0.08	0.44	0.76	0.85	1.57	1.06	0.12	0.11	0.	0.	5.47
	U	0.00	0.	0.	0.	0.	0.	0.	0.	0.01	0.02	0.02	0.01	0.05	0.02	0.	0.01	0.	0.	0.13
19-24	VS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.01	0.	0.	0.07	0.12	0.	0.	0.	0.	0.19
	MS	0.04	0.07	0.02	0.00	0.00	0.00	0.01	0.03	0.06	0.22	0.41	0.25	2.58	3.33	0.03	0.01	0.	0.	7.07
	N	0.04	0.07	0.02	0.01	0.	0.	0.01	0.01	0.05	0.21	0.39	0.25	1.12	1.30	0.02	0.01	0.	0.	3.52
	U	0.00	0.	0.	0.	0.	0.	0.	0.	0.	0.00	0.	0.	0.02	0.02	0.	0.	0.	0.	0.05
OVER 24	VS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.01	0.03	0.	0.	0.	0.	0.04
	MS	0.00	0.01	0.00	0.	0.	0.00	0.01	0.01	0.03	0.07	0.13	0.04	1.10	1.93	0.01	0.	0.	0.	3.34
	N	0.00	0.03	0.01	0.	0.	0.	0.	0.01	0.01	0.13	0.21	0.07	0.65	1.46	0.00	0.	0.	0.	2.58
	U	0.	0.	0.	0.	0.	0.	0.00	0.	0.	0.01	0.01	0.	0.01	0.01	0.	0.	0.	0.	0.04
TOTALS	VS	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.00	0.01	0.02	0.03	0.62	0.61	0.03	0.02	0.	0.01	1.44
	MS	2.76	2.68	1.40	1.66	1.55	1.98	1.38	1.58	1.74	3.43	4.62	6.20	14.99	14.82	3.07	2.88	1.39	0.14	68.27
	N	1.26	1.21	0.72	0.82	0.84	1.04	0.66	0.71	0.85	1.99	2.64	2.76	4.79	5.68	1.33	1.34	0.64	0.06	29.33
	U	0.04	0.05	0.01	0.02	0.02	0.06	0.03	0.05	0.05	0.07	0.08	0.08	0.12	0.11	0.05	0.08	0.03	0.00	0.96

TABLE 53 (contd)
 COMPOSITE REPORT (1955 THROUGH 1970) USING ΔT_6 SEASON - FALL
 PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
 WIND DIRECTION AT 400-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALN	TOTAL
0 - 3	VS	0.07	0.05	0.07	0.06	0.06	0.07	0.05	0.03	0.02	0.01	0.01	0.02	0.03	0.07	0.09	0.12	0.06	0.10	1.00
	MS	1.06	1.21	0.86	1.07	1.16	1.30	0.62	0.60	0.48	0.49	0.45	0.67	0.74	1.13	1.24	1.18	0.68	1.22	16.17
	N	0.46	0.66	0.44	0.49	0.46	0.56	0.25	0.19	0.15	0.18	0.19	0.25	0.30	0.48	0.56	0.66	0.21	0.62	7.10
	U	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.	0.	0.	0.00	0.01	0.00	0.01	0.03	0.01	0.01	0.00	0.16
4 - 7	VS	0.07	0.05	0.04	0.03	0.02	0.04	0.05	0.02	0.02	0.03	0.02	0.03	0.09	0.11	0.10	0.08	0.01	0.	0.81
	MS	0.97	0.80	0.56	0.64	0.99	1.27	0.78	0.68	0.65	0.72	0.88	1.36	2.03	2.61	1.99	1.37	0.10	0.	18.39
	N	0.43	0.36	0.25	0.26	0.39	0.47	0.29	0.19	0.22	0.26	0.25	0.43	0.50	0.93	0.84	0.69	0.02	0.	6.77
	U	0.01	0.01	0.01	0.	0.00	0.	0.00	0.	0.01	0.01	0.	0.01	0.00	0.01	0.04	0.03	0.	0.	0.13
8 -12	VS	0.01	0.	0.	0.	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.19	0.23	0.07	0.01	0.	0.	0.59
	MS	0.49	0.27	0.08	0.09	0.16	0.41	0.50	0.24	0.35	0.73	1.22	1.92	3.43	4.12	1.14	0.57	0.00	0.	15.73
	N	0.27	0.16	0.07	0.06	0.05	0.19	0.19	0.17	0.22	0.35	0.41	0.63	0.66	1.16	0.68	0.32	0.	0.	5.59
	U	0.	0.01	0.	0.	0.	0.	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.00	0.	0.	0.10
13-18	VS	0.00	0.	0.	0.	0.	0.00	0.00	0.	0.00	0.	0.	0.01	0.17	0.15	0.00	0.	0.	0.	0.35
	MS	0.25	0.13	0.01	0.02	0.01	0.14	0.23	0.16	0.24	0.57	1.19	1.16	3.50	3.76	0.33	0.13	0.	0.	11.84
	N	0.19	0.09	0.02	0.02	0.	0.06	0.09	0.15	0.27	0.61	0.58	0.48	0.73	0.87	0.22	0.20	0.	0.	4.58
	U	0.	0.	0.	0.	0.	0.	0.00	0.	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.	0.	0.06
19-24	VS	0.	0.	0.	0.	0.	0.00	0.	0.	0.	0.00	0.	0.	0.01	0.03	0.	0.	0.	0.	0.05
	MS	0.06	0.03	0.03	0.	0.00	0.02	0.07	0.10	0.20	0.49	0.66	0.22	1.08	1.26	0.02	0.03	0.	0.	4.28
	N	0.03	0.04	0.02	0.	0.	0.01	0.01	0.13	0.25	0.58	0.46	0.14	0.33	0.53	0.02	0.02	0.	0.	2.58
	U	0.00	0.00	0.	0.	0.	0.	0.00	0.00	0.	0.01	0.01	0.00	0.01	0.01	0.	0.	0.	0.	0.06
OVER 24	VS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00	0.	0.	0.00	0.00	0.	0.	0.	0.	0.01
	MS	0.01	0.02	0.01	0.	0.	0.	0.02	0.05	0.25	0.46	0.26	0.07	0.28	0.42	0.	0.	0.	0.	1.85
	N	0.01	0.04	0.	0.	0.	0.	0.00	0.06	0.24	0.55	0.28	0.10	0.19	0.31	0.02	0.00	0.	0.	1.81
	U	0.	0.	0.	0.	0.	0.	0.00	0.	0.01	0.	0.	0.	0.	0.01	0.	0.	0.	0.	0.01
TOTALS	VS	0.15	0.11	0.11	0.09	0.09	0.12	0.11	0.06	0.05	0.05	0.06	0.07	0.49	0.60	0.26	0.21	0.06	0.10	2.80
	MS	2.85	2.46	1.55	1.81	2.32	3.15	2.22	1.84	2.17	3.45	4.66	5.40	11.06	13.31	4.73	3.28	0.78	1.22	68.25
	N	1.38	1.35	0.79	0.83	0.90	1.29	0.83	0.89	1.35	2.53	2.18	2.03	2.71	4.26	2.34	1.90	0.23	0.62	28.43
	U	0.03	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.05	0.03	0.03	0.05	0.07	0.09	0.05	0.01	0.00	0.52

TABLE 53 (contd)
COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_6)
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
WIND DIRECTION AT 400-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

SEASON - WINTER

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.10	0.14	0.08	0.07	0.09	0.10	0.05	0.06	0.05	0.02	0.02	0.06	0.05	0.14	0.13	0.20	0.10	0.07	1.54
	MS	1.06	0.95	0.81	1.07	1.29	1.64	0.98	0.76	0.53	0.56	0.51	0.92	0.93	1.40	1.51	1.43	0.55	2.22	19.11
	N	0.42	0.49	0.38	0.39	0.52	0.63	0.41	0.30	0.20	0.21	0.19	0.34	0.41	0.61	0.61	0.63	0.12	1.22	8.07
	U	0.00	0.01	0.02	0.01	0.01	0.01	0.	0.01	0.	0.	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.12
4 - 7	VS	0.14	0.11	0.06	0.06	0.04	0.07	0.06	0.04	0.02	0.04	0.03	0.08	0.10	0.20	0.23	0.21	0.03	0.	1.52
	MS	0.68	0.55	0.46	0.47	0.57	0.85	0.60	0.50	0.43	0.59	0.70	1.30	1.78	2.90	2.16	1.17	0.06	0.	15.76
	N	0.29	0.29	0.18	0.16	0.21	0.25	0.21	0.16	0.11	0.17	0.20	0.37	0.59	1.28	0.82	0.56	0.01	0.	5.85
	U	0.01	0.01	0.01	0.	0.	0.01	0.01	0.	0.01	0.	0.01	0.	0.01	0.01	0.01	0.00	0.00	0.	0.08
8 -12	VS	0.01	0.01	0.00	0.	0.01	0.04	0.02	0.02	0.01	0.01	0.02	0.03	0.08	0.15	0.17	0.03	0.	0.	0.60
	MS	0.26	0.16	0.07	0.09	0.14	0.40	0.31	0.20	0.35	0.53	0.93	1.38	3.43	6.20	1.30	0.31	0.	0.	16.07
	N	0.18	0.10	0.05	0.03	0.04	0.09	0.08	0.07	0.14	0.21	0.28	0.39	0.71	1.47	0.51	0.22	0.00	0.	4.59
	U	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.	0.	0.04
13-18	VS	0.	0.	0.	0.	0.	0.01	0.01	0.01	0.01	0.	0.00	0.01	0.05	0.06	0.01	0.	0.	0.	0.17
	MS	0.18	0.06	0.01	0.01	0.04	0.12	0.16	0.24	0.37	0.77	1.12	1.11	3.12	5.36	0.36	0.16	0.	0.	13.18
	N	0.22	0.05	0.00	0.02	0.02	0.01	0.06	0.11	0.22	0.45	0.41	0.34	0.38	0.80	0.22	0.13	0.	0.	3.44
	U	0.	0.	0.	0.	0.00	0.00	0.	0.	0.00	0.	0.00	0.	0.00	0.01	0.00	0.	0.	0.	0.02
19-24	VS	0.	0.	0.	0.	0.	0.00	0.	0.00	0.00	0.	0.00	0.	0.01	0.02	0.	0.	0.	0.	0.04
	MS	0.04	0.03	0.01	0.	0.01	0.04	0.10	0.16	0.33	0.85	0.63	0.33	0.54	0.99	0.03	0.04	0.	0.	4.15
	N	0.07	0.05	0.00	0.00	0.	0.00	0.02	0.08	0.19	0.44	0.23	0.12	0.10	0.12	0.03	0.08	0.	0.	1.54
	U	0.	0.	0.	0.	0.	0.	0.	0.00	0.00	0.01	0.01	0.00	0.	0.00	0.00	0.	0.	0.	0.03
OVER 24	VS	0.	0.	0.	0.	0.	0.00	0.	0.	0.00	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.01
	MS	0.03	0.01	0.	0.	0.	0.01	0.06	0.14	0.58	0.89	0.45	0.12	0.11	0.14	0.01	0.02	0.	0.	2.56
	N	0.06	0.02	0.	0.	0.	0.01	0.01	0.12	0.37	0.55	0.18	0.04	0.03	0.05	0.01	0.05	0.	0.	1.51
	U	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00	0.	0.00	0.	0.	0.	0.	0.	0.	0.01
TOTALS	VS	0.25	0.26	0.14	0.13	0.14	0.22	0.14	0.13	0.10	0.08	0.08	0.17	0.29	0.57	0.54	0.44	0.13	0.07	3.87
	MS	2.25	1.77	1.36	1.63	2.05	3.06	2.21	2.00	2.59	4.20	4.34	5.17	9.90	16.99	5.36	3.12	0.61	2.22	70.82
	N	1.25	1.00	0.61	0.61	0.79	0.99	0.80	0.83	1.23	2.04	1.49	1.60	2.23	4.34	2.20	1.67	0.13	1.22	25.00
	U	0.01	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.03	0.03	0.02	0.03	0.03	0.01	0.01	0.01	0.31

TABLE 53 (contd)
COMPOSITE REPORT (1955 THROUGH 1970 USING ΔT_6)
PERCENTAGE FREQUENCY DISTRIBUTION OF WIND SPEED AND
WIND DIRECTION AT 400-FOOT-LEVEL VS. ATMOSPHERIC STABILITY

SEASON - ANNUAL

		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	N	VAR.	CALM	TOTAL
0 - 3	VS	0.05	0.06	0.04	0.04	0.04	0.05	0.03	0.03	0.02	0.01	0.01	0.02	0.02	0.06	0.07	0.10	0.04	0.05	0.74
	MS	0.77	0.84	0.58	0.75	0.84	0.99	0.53	0.50	0.38	0.44	0.37	0.66	0.61	0.89	0.91	0.97	0.64	0.95	12.61
	N	0.34	0.46	0.31	0.34	0.37	0.43	0.21	0.20	0.14	0.17	0.16	0.23	0.26	0.39	0.43	0.50	0.25	0.49	5.70
	U	0.01	0.01	0.01	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.02	0.01	0.01	0.17
4 - 7	VS	0.06	0.04	0.03	0.03	0.02	0.04	0.03	0.02	0.01	0.02	0.02	0.03	0.07	0.10	0.10	0.08	0.01	0.	0.71
	MS	0.95	0.88	0.62	0.67	0.78	1.06	0.68	0.69	0.61	0.79	0.87	1.39	1.71	2.28	1.71	1.29	0.23	0.	17.21
	N	0.43	0.41	0.26	0.32	0.34	0.46	0.28	0.28	0.28	0.34	0.32	0.49	0.53	0.95	0.78	0.66	0.10	0.	7.20
	U	0.01	0.02	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.02	0.01	0.	0.23
8 - 12	VS	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.13	0.16	0.06	0.01	0.	0.	0.46
	MS	0.50	0.36	0.15	0.15	0.20	0.40	0.39	0.26	0.44	0.79	1.23	1.94	3.54	4.09	1.05	0.52	0.00	0.	16.01
	N	0.28	0.20	0.11	0.10	0.10	0.16	0.17	0.16	0.26	0.44	0.54	0.70	0.79	1.20	0.52	0.32	0.00	0.	6.05
	U	0.00	0.00	0.00	0.00	0.	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.02	0.02	0.01	0.01	0.	0.	0.14
13-18	VS	0.00	0.	0.	0.00	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.15	0.01	0.	0.	0.	0.36
	MS	0.24	0.14	0.04	0.04	0.02	0.12	0.19	0.16	0.28	0.71	1.32	1.38	4.11	4.19	0.30	0.17	0.	0.	13.42
	N	0.22	0.09	0.03	0.02	0.01	0.04	0.11	0.12	0.25	0.59	0.69	0.70	1.05	0.97	0.19	0.17	0.	0.	5.26
	U	0.00	0.	0.	0.	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.02	0.01	0.00	0.00	0.	0.	0.10
19-24	VS	0.	0.	0.	0.	0.	0.00	0.	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.	0.	0.	0.	0.08
	MS	0.06	0.05	0.02	0.00	0.00	0.03	0.07	0.10	0.19	0.52	0.65	0.30	1.51	1.83	0.07	0.03	0.	0.	5.41
	N	0.06	0.05	0.01	0.01	0.	0.00	0.02	0.07	0.21	0.50	0.45	0.22	0.63	0.71	0.02	0.04	0.	0.	3.02
	U	0.00	0.00	0.	0.	0.	0.	0.00	0.00	0.00	0.01	0.02	0.00	0.02	0.02	0.00	0.	0.	0.	0.07
OVER 24	VS	0.	0.	0.	0.	0.	0.00	0.	0.	0.00	0.	0.00	0.	0.00	0.01	0.	0.	0.	0.	0.01
	MS	0.01	0.01	0.00	0.	0.	0.00	0.02	0.06	0.25	0.50	0.31	0.08	0.56	0.85	0.00	0.01	0.	0.	2.67
	N	0.03	0.03	0.01	0.00	0.	0.00	0.00	0.05	0.22	0.54	0.32	0.09	0.37	0.65	0.01	0.01	0.	0.	2.32
	U	0.	0.	0.	0.	0.	0.	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.	0.	0.	0.	0.04
TOTALS	VS	0.11	0.10	0.08	0.07	0.07	0.11	0.07	0.05	0.04	0.04	0.04	0.08	0.45	0.53	0.24	0.19	0.05	0.05	2.36
	MS	2.53	2.29	1.41	1.62	1.84	2.60	1.89	1.77	2.15	3.75	4.75	5.75	12.03	14.13	4.01	2.99	0.87	0.95	67.32
	N	1.35	1.24	0.74	0.79	0.82	1.11	0.80	0.89	1.36	2.58	2.48	2.41	3.63	4.88	1.94	1.70	0.35	0.49	29.56
	U	0.03	0.04	0.02	0.02	0.02	0.04	0.02	0.02	0.03	0.07	0.07	0.05	0.08	0.09	0.06	0.05	0.02	0.01	0.75

The ΔT 's, together with the stability category determination for each, are explained below where T is temperature in degrees F, and the subscripts denote height above ground surface in feet.

	$\Delta T_1 = T_{200} - T_3$	$\Delta T_2 = T_{250} - T_{50}$	$\Delta T_6 = T_{400} - T_{250}$
VS	≥ 3.5	≥ 3.5	≥ 2.5
MS	3.4 to -0.4	3.4 to -0.4	2.4 to -0.3
N	-0.5 to -1.4	-0.5 to -1.4	-0.4 to -1.1
U	≤ -1.5	≤ -1.5	≤ -1.2

XI. PERSISTENCE AND EXTREME VALUES

XI. PERSISTENCE AND EXTREME VALUES

Probability that a Winter Low Will Fall Below or a Summer High Will Exceed A Given Temperature

Figure 41 contains a plot, on arithmetic probability paper, of each winter's low temperature from the beginning of record through the winter of 1969-1970. Figure 42 is a similar plot of each summer's high temperature through the 1969 summer. A straight line fitted to the winter plot has a considerable greater slope than the other since winter minima have varied from -27 to +23 (50 degrees).

Extreme Value Analysis of Minimum Soil Temperatures

Only in 1957 has freezing occurred at the 36-inch depth. Figure 43 shows the approximate return period for a given minimum soil temperature.

Rainfall Intensity, Duration and Frequency

Design criteria sometimes require a knowledge of the expected frequency of intense, short-period rainfall (24 hours or less). For Hanford, this can be obtained from Table 54 and Figure 44. Input for Figure 44 consists of the maximum amount of rainfall observed each year from 1947-1969 during each of five time intervals,* and then applying Gumbel's theory of extreme values.⁽⁵⁾ From Table 54 it is interesting to note that the existing record for a storm of 6 hours duration (1.68 inches) has an expected frequency of only once in well over 100 years.

Extreme Value Analysis of Peak Gusts

Figure 45 depicts each year's peak gust at three levels for the period 1945-1972. The summary period was extended in this case to include gusts recorded in the violent wind storm of January 11, 1972.⁽⁹⁾ Equations of the three lines shown are:

50-ft level	$X_{50} = 57.87 + 5.33 y$
200-ft level	$X_{200} = 65.08 + 6.35 y$
400-ft level	$X_{400} = 68.61 + 8.48 y$

* The time intervals used were 1, 3, 6, 12, and 24 hours.

Persistence of Temperature Inversions

Refer to Section X, page 10.12.

Persistence of Superadiabatic Lapse Rates

Refer to Section X, page 10.23.

Snow Depth Probability

Refer to Section IV, page 4.10.

FIGURE 41

LOWEST TEMPERATURE DURING EACH OF 58 WINTERS OF RECORD AT HANFORD: 1912 - 13 TO 1969 - 70

FIGURE 42

HIGHEST TEMPERATURE DURING EACH OF 57 SUMMERS OF RECORD AT HANFORD : 1912-1969

FIGURE 43
SEASONAL MINIMUM SOIL TEMPERATURE VS DEPTH CORRESPONDING
TO RETURN PERIODS OF R YEARS (BASED ON EXTREME VALUE
ANALYSIS OF DATA AT 15 AND 36-INCH DEPTHS FOR SEASONS
1952-53 THRU 1969-70)

TABLE 54

AVERAGE RETURN PERIOD (R) AND EXISTING RECORD (ER) FOR VARIOUS PRECIPITATION AMOUNTS AND INTENSITY DURING SPECIFIED TIME PERIODS AT HANFORD

(BASED ON EXTREME VALUE ANALYSIS OF 1947-69 RECORDS)

R (YEARS)	AMOUNT (INCHES)							INTENSITY (INCHES PER HOUR)						
	TIME PERIOD							TIME PERIOD						
	20 MIN	60 MIN	2 HRS	3 HRS	6 HRS	12 HRS	24 HRS	20 MIN	60 MIN	2 HRS	3 HRS	6 HRS	12 HRS	24 HRS
2	0.16	0.26	0.30	0.36	0.48	0.62	0.72	0.49	0.26	0.15	0.12	0.08	0.052	0.030
5	0.24	0.40	0.48	0.55	0.77	0.95	1.06	0.72	0.40	0.24	0.18	0.13	0.079	0.044
10	0.37	0.50	0.59	0.67	0.96	1.17	1.28	1.1	0.50	0.30	0.22	0.16	0.098	0.053
25	0.47	0.62	0.74	0.83	1.21	1.45	1.56	1.4	0.62	0.37	0.28	0.20	0.121	0.065
50	0.53	0.72	0.85	0.96	1.40	1.66	1.77	1.6	0.72	0.42	0.32	0.23	0.138	0.074
100	0.60	0.81	0.96	1.07	1.59	1.87	1.99	1.8	0.81	0.48	0.36	0.27	0.156	0.083
250	0.68	0.93	1.11	1.22	1.82	2.13	2.26	2.0	0.93	0.55	0.41	0.30	0.177	0.094
500	0.73	1.02	1.22	1.33	2.00	2.34	2.47	2.2	1.02	0.61	0.44	0.33	0.195	0.103
1000	0.80	1.11	1.33	1.45	2.20	2.55	2.68	2.4	1.11	0.67	0.48	0.37	0.212	0.112
ER	*	0.59	0.88	1.08	1.68	1.88	1.91	*	0.59	0.44	0.36	0.28	0.157	0.080
		6/12	10/1	10/1	10/1-2	10/1-2	10/1-2		6/12	10/1	10/1	10/1-2	10/1-2	10/1-2
DATE	--	1969	1957	1957	1957	1957	1957	--	1969	1957	1957	1957	1957	1957

* NO RECORDS HAVE BEEN KEPT FOR TIME PERIODS OF LESS THAN 60 MINUTES. HOWEVER, THE RAIN GAGE CHART FOR 6-12-69 SHOWS THAT 0.55 INCH OCCURRED DURING A 20-MINUTE PERIOD FROM 1835 TO 1855 PST. AN ADDITIONAL 0.04 INCH OCCURRED BETWEEN 1855 AND 1910 TO ACCOUNT FOR THE RECORD 60-MINUTE AMOUNT OF 0.59 INCH.

FIGURE 14

RAINFALL INTENSITY, DURATION, AND FREQUENCY BASED ON THE PERIOD 1947-69 AT HANFORD

TO USE THIS CHART, SELECT ANY DESIRED RAINFALL INTENSITY AND DURATION AND READ FROM THE DIAGONAL LINES THE EXPECTED FREQUENCY OF SUCH INTENSITY AND DURATION. FOR EXAMPLE, RAINFALL INTENSITY OF 1.3 INCHES PER HOUR FOR 10 MINUTES CAN BE EXPECTED TO OCCUR, ON AVERAGE, ONCE EVERY 5 YEARS (POINT A). HOWEVER, SUCH INTENSITY CAN BE EXPECTED FOR 30 MINUTES DURATION ONLY ABOUT ONCE IN 100 YEARS (POINT B). THE RETURN PERIOD FOR THIS INTENSITY FOR 60 MINUTES DURATION IS GREATER THAN 1000 YEARS (POINT C).

THERE ARE, OF COURSE, VARIATIONS IN USE OF THE CHART. SUPPOSE, FOR EXAMPLE, IT IS DESIRED TO FIND THE "100-YEAR STORM" FOR 60 MINUTES. THIS IS 0.8 INCH (POINT D).

FIGURE 45
PEAK WIND GUST RETURN PROBABILITY DIAGRAM

XII. METEOROLOGY INSTRUMENTATION

XII. METEOROLOGY INSTRUMENTATION

This section deals with the type and location of meteorological instruments in use at the HMS and on the Hanford Meteorology Tower (HMT). The table below shows the height location of individual sensors at the HMS. No accuracy testing program has been conducted at the HMS other than normal maintenance checks. Any reference to the accuracy of a given sensor will be that claimed by the manufacturer.

INSTRUMENT HEIGHT LOCATIONS

<u>Instruments</u>	<u>Surface (ft)</u>		<u>Tower Levels (ft)</u>							
	<u>3</u>	<u>7</u>	<u>50</u>	<u>100</u>	<u>150</u>	<u>200</u>	<u>250</u>	<u>300</u>	<u>350</u>	<u>400</u>
Dewcel	X									
Aerovanes		X	X	X	X	X	X	X		X
Thermohms	X		X	X	X	X	X	X	X	X

Solar Radiation Measurements

The sensor for solar radiation measurements is an Epply 10-junction pyrhelimeter. A Leeds & Northrup Type G, Speedomax is used to record solar radiation. This system is calibrated yearly by Department of Commerce personnel. Routine maintenance is the responsibility of the HMS instrument personnel.

Temperature Measurements

The sensors for the HMT and subsoil temperatures are Leeds & Northrup copper thermohms. Temperatures are recorded on Leeds & Northrup Speedomax, Type G recorders. The recorder for the tower temperatures is equipped with an automatic range changer. The accuracy for the copper thermohms and the recorder is about $\pm 0.2^{\circ}\text{F}$. A standard Stevenson Screen houses the Taylor thermometers used for maximum and minimum temperatures.

Dew Point Measurements

A Foxboro Dew Point Measuring System consisting of a Dewcel (humidity-sensing cell), a power unit, and a Leeds & Northrup Speedomax, Type G recorder is in use. The Dewcel is accurate within $\pm 2^{\circ}\text{F}$ when the dew point values are stable and within $\pm 3^{\circ}\text{F}$ when the values are unstable. It cannot record correctly when relative humidity values are low. (See table below.)

Dew points cannot be measured when relative humidity is below: —		
Ambient Temperature ($^{\circ}\text{F}$)	by International Critical Tables (%)	by Blue Hill Calibration (%)
120	10	10
100	11	11
80	11	11
60	11	8
40	14	9
20	21	10
0	26	13*
-20	41	20*
-40	100	30*

* Calibration curve extrapolated

Response time varies as to whether the dew point is rising or falling. With a rise in the dew point of 20°F at an air temperature of 65°F , the response time to 98 percent of the new value is about 1.5 minutes. With an equal amount of fall, the time lag would be about 3.5 minutes at 80 percent relative humidity and the lag increases as the relative humidity decreases.

Atmospheric Pressure Measurements

A Fortin-type mercurial barometer and a Bendix-Friez Model 790, microbarograph are used to measure atmospheric pressure. The mercurial barometer is periodically cleaned and calibrated. Maintenance of the microbarograph is done by the HMS instrument personnel.

Precipitation Measurements

A Bendix-Friez Model 405, tipping bucket automatic rain gage and a standard 8-inch rain gage are in use at the HMS. Precipitation from the automatic rain gage is recorded on a Casella No. 3032 recorder. The standard 8-inch rain gage is used to check the accuracy of the automatic gage, especially during periods of snow.

Wind Measurements

Wind speed and direction are measured by Bendix-Friez Aerovane, Model 120 transmitters, and recorded on Aerovane, Model 141-7 recorders. With the 3 bladed rotors used at Hanford, the starting speed is about 2.5 mph. The HMS instrument personnel calibrate the recorders and check the sensors for signs of excess mechanical drag or electrical malfunction. On rare occasions, during period of low wind speeds and icing conditions the sensors have become inoperative.

XIII. ACKNOWLEDGEMENTS

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XIV. REFERENCES

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1. Jenne, D.E. and R.E. Kerns. A Climatological Study of the Hanford Area, HW-57722, November 1959.
2. Federal Meteorological Handbook No. 1. Surface Observations, January 1970.
3. Federal Meteorological Handbook No. 2. Synoptic Code, January 1969.
4. Stone, W.A. Meteorological Instrumentation of the Hanford Area, HW-62455, March 1964.
5. Gumbel, E.J. Statistical Theory of Extreme Values and Some Practical Applications, U.S. Department of Commerce, Nat. Bur. of Standard, Applied Math. Series 33, 1954.
6. Daubek, H.G. Tornado History and a Discussion of the Tornado Warning System to the Jersey Nuclear Company, BNW/JN 19-20, December 1970.
7. Jenne, D.E. Frequency Analysis of Some Climatological Extremes at Hanford, HW-75445, April 1963.
8. Singer, I.A. and M.E. Smith. "Relation of Gustiness to Other Meteorological Parameters," Journal of Meteorology, 10:2, 121-126. April 1963.
9. The Hanford Wind Storm of January 11, 1972. BNWL-1640. Prepared by Staff Members of the Atmospheric Sciences Department, Battelle-Northwest Laboratories, Richland, Washington, February 1972.

APPENDIX I

APPENDIX I

AVERAGES AND EXTREMES OF CLIMATIC ELEMENTS AT HANFORD

[BASED ON ALL AVAILABLE RECORDS TO AND INCLUDING THE YEAR 1970]

	TEMPERATURE (°F)												DEGREE DAYS (BASE 65°F)				PRECIPITATION (INCHES)																	
	1912-1970 AVERAGES												1912-1970 EXTREMES				1945-1970 TOTALS				1912-1970 TOTALS													
	DAILY MAXIMUM						DAILY MINIMUM						MEAN MONTHLY				MEAN MONTHLY				SNOW, ICE PELLETS (SLEET)													
	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	
	HIGHEST	HIGHEST	HIGHEST	HIGHEST	HIGHEST	HIGHEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	RECORD LOWEST	
Jan.	36.7	22.1	79.4	42.5	1953	12.1	1950	66	1968	-2	1950	51	1921	-23	1937*	1094	1640	1990	694	1953	0.93	2.47	1970	0.13	1962*	1.08	1948	5.2	23.4	1950	7.1	1954	12.0	1969
Feb.	45.3	27.1	36.2	44.5	1958	21.4	1929	71	1924	-3	1950	55	1932	-23	1950	728	1147	1956	576	1958	0.82	3.08	1940	1	1967*	1.24	1916	2.3	26.0	1916	5.2	1959	10.0	1969
Mar.	54.5	33.8	45.2	49.8	1926	39.4	1955	83	1962	24	1960	54	1942	6	1955	642	784	1955	476	1947	0.36	1.38	1957	3	1962*	0.58	1949	0.3	4.2	1951	2.2	1957	2.3	1957
Apr.	66.3	40.1	53.2	59.6	1934	47.5	1955	95	1934	41	1945	60	1956	12	1935	381	522	1955	266	1947	0.40	1.22	1969	0	1953	0.53	1951	1	7	1968*	0	1957		
May	75.5	48.0	61.8	68.8	1947	56.6	1933	103	1936*	49	1918	70	1956	28	1954	133	255	1962	36	1947	0.45	1.71	1948	0	1931	0.55	1948*	1	1	1960	7	1940	0	1957
June	83.2	55.5	69.8	75.4	1922	63.0	1953	110	1912	55	1966	81	1924	33	1933	34	90	1953	3	1958	0.57	2.92	1950	0	1919	1.50	1934	0	0	0	0	0	0	1957
July	91.8	61.0	76.4	81.8	1960	72.4	1963	115	1939	59	1966	82	1925	41	1935	3	22	1955	0	1970*	0.14	0.81	1966	0	1939*	1.25	1942	0	0	0	0	0	0	1957
Aug.	89.2	59.2	74.2	81.5	1967	69.8	1964	113	1961	40	1961	5	1920	5	1920	5	32	1960	0	1970*	0.19	1.18	1920	0	1954*	0.73	1914	0	0	0	0	0	0	1957
Sept.	79.6	50.8	65.2	71.7	1967	58.8	1926	102	1950	52	1954	12	1955	25	1926	67	122	1970	13	1967	0.30	1.34	1947	1	1954*	0.82	1947	0	0	0	0	0	0	1957
Oct.	65.3	40.8	51.1	59.0	1952	48.8	1930	40	1933	31	1955	60	1945*	6	1939	375	418	1946	200	1962	0.58	2.22	1957	0	1912*	1.91	1957	1	0.3	1957	0.3	1957	0.3	1957
Nov.	48.4	31.5	40.0	46.0	1954*	31.3	1955	73	1934	14	1955	52	1959*	-1	1955	746	1008	1955	567	1954	0.85	3.05	1926	7	1939*	0.78	1966	1.2	12.7	1955	4.8	1955	5.1	1946
Dec.	39.2	26.0	32.6	42.0	1933	18.5	1919	68	1933	-3	1919	53	1933*	-27	1919	941	1224	1944	822	1957	0.86	2.53	1931	0.11	1946	1.00	1958	3.7	13.4	1955	5.4	1965	12.1	1964
Year	64.8	41.4	53.1	58.8	1950	12.1	1950	115	1939	3	1950*	82	1925	-27	1919	5267	1640	1950	0	1970*	6.25	3.08	1940	0	1955*	1.91	1957	12.7	29.0	1916	7.1	1954	12.1	1964

EXTREME AVERAGES OR TOTALS
AND YEAR OR SEASON OF OCCURRENCE

1912-1970 TEMPERATURE AVERAGES (°F)

HIGHEST ANNUAL	56.2	1958*
LOWEST ANNUAL	50.2	1929
HIGHEST WINTER (D-J-F)	41.1	1933-34
LOWEST WINTER	24.2	1948-49
HIGHEST SPRING (M-A-M)	58.2	1947
LOWEST SPRING	48.0	1955
HIGHEST SUMMER (J-J-A)	78.2	1958
LOWEST SUMMER	70.3	1954
HIGHEST FALL (S-O-N)	56.6	1963
LOWEST FALL	49.6	1946

1912-1970 PRECIPITATION TOTALS (IN.)

GREATEST ANNUAL	11.45	1950
LEAST ANNUAL	3.26	1967
SNOW, ICE PELLETS (SLEET)		
GREATEST SEASONAL	43.6	1915-16
LEAST SEASONAL	0.3	1957-58

1945-1970 WIND SPEED AVERAGE (mph)

HIGHEST ANNUAL	8.3	1968*
LOWEST ANNUAL	6.3	1957

1945-1970 RELATIVE HUMIDITY AVERAGE (%)

HIGHEST ANNUAL	57.9	1950*
LOWEST ANNUAL	49.4	1967

1945-1970 SKY COVER AVERAGES

(SUNRISE TO SUNSET, SCALE 0-10)		
HIGHEST ANNUAL	6.4	1966
LOWEST ANNUAL	5.1	1949

1953-1970 SOLAR RADIATION

AVERAGE DAILY TOTAL (LANGLEYS)		
HIGHEST ANNUAL	385	1957
LOWEST ANNUAL	357	1967

NUMBER OF DAYS

CLEAR 10.3 TENTHS SKY COVER, SR TO SS		
GREATEST ANNUAL (1946-70)	141	1951
LEAST ANNUAL (1946-70)	85	1966

CLOUDY 8-10 TENTHS SKY COVER, SR TO SS

GREATEST ANNUAL (1946-70)	181	1969
LEAST ANNUAL (1946-70)	84	1949

THUNDERSTORMS

GREATEST ANNUAL (1945-70)	23	1948
LEAST ANNUAL (1945-70)	3	1949

HEAVY FOG (VIS. 1/4 MILE OR LESS)

GREATEST SEASONAL (1945-70)	42	1950-51
LEAST SEASONAL (1945-70)	9	1948-49

PRECIPITATION 0.10 INCH OR MORE

GREATEST ANNUAL (1946-70)	39	1950
LEAST ANNUAL (1946-70)	10	1965

SNOW 1.0 INCH OR MORE

GREATEST SEASONAL (1946-70)	15	1955-56
LEAST SEASONAL (1946-70)	0	1957-58

3 IN. OR MORE SNOW ON GROUND

GREATEST SEASONAL (1946-70)	40	1964-65
LEAST SEASONAL (1946-70)	0	1960-61*

PEAK GUST 40 MPH OR GREATER

GREATEST ANNUAL (1945-70)	41	1958
LEAST ANNUAL (1945-70)	13	1951

MAX. TEMPERATURE 90 OR ABOVE

GREATEST ANNUAL (1912-70)	85	1940*
LEAST ANNUAL (1912-70)	37	1954

MAX. TEMPERATURE 100 OR ABOVE

GREATEST ANNUAL (1912-70)	32	1942
LEAST ANNUAL (1912-70)	1	1954

MAX. TEMPERATURE 32 OR BELOW

GREATEST SEASONAL (1912-70)	53	1955-56
LEAST SEASONAL (1912-70)	1	1937-38

MIN. TEMPERATURE 32 OR BELOW

GREATEST SEASONAL (1912-70)	141	1916-17
LEAST SEASONAL (1912-70)	75	1957-58

MIN. TEMPERATURE 0 OR BELOW

GREATEST SEASONAL (1912-70)	18	1949-50
LEAST SEASONAL (1912-70)	0	1969-70*

	WIND (mph)												RELATIVE HUMIDITY (%)						SKY COVER (SCALE 0-10)				SOLAR RADIATION (LANGLEYS)*														
	1945-1970 AVERAGES												1946-1970 EXTREMES						1946-1970 AVERAGES (SUNRISE TO SUNSET)				1953-1970 AVG. DAILY TOTALS				1953-1970 EXTREMES DAILY TOTALS										
	PREVAILING DIRECTION						PEAK GUST						HIGHEST						MONTHLY				MONTHLY				MONTHLY										
	MEAN/MONTHLY SPEED		HIGHEST/MONTHLY		YEAR		DIRECTION		YEAR		MEAN		HIGHEST/MONTHLY		YEAR		LOWEST		YEAR		MONTHLY		HIGHEST/MONTHLY		YEAR		MONTHLY		HIGHEST/MONTHLY		YEAR		MONTHLY		HIGHEST/MONTHLY		YEAR
Jan.	NW	6.3	9.6	1953	3.1	1955	65	S	1967	75.7	88.8	1960	60.0	1963	100	1970*	13	1963	7.8	4.0	1969	4.3	1949	118	135	1962	88	1955	277	1969	16	1970					
Feb.	NW	7.2	9.4	1961	4.6	1963	63	SW	1965	69.9	86.9	1963	54.0	1967	100	1970*	14	1962	7.4	8.9	1941	5.9	1949	200	238	1940	104	1964	422	1958	27	1970*					
Mar.	WW	8.4	10.7	1964	5.4	1958	70	SW	1956	55.8	65.9	1960	44.0	1965	100	1970*	12	1965*	6.7	7.9	1950	4.9	1965	360	388	1965	305	1961	342	1968	71	1963					
Apr.	WW	9.0	11.1	1959	7.4	1958	60	WSW	1964	46.7	54.5	1963	36.9	1966	100	1967*	9	1954	6.4	8.1	1963	3.7	1961	410	258	1959*	374	1963	601	1958	115	1970					
May	WW	8.8	10.5	1965*	5.8	1957	71	SSW	1948	42.2	62.4	1948	31.2	1966	100	1969*	7	1953	5.8	7.7	1960	4.5	1949	571	654	1970	511	1962	782	1959	67	1962					
June	WW	9.2	10.7	1949	7.7	1950*	72	SW	1957	34.6	53.5	1950	30.0	1949	100	1967*	10	1964*	5.2	7.0	1950	2.8	1961	626	696	1960	563	1953	809	1957	112	1965					
July	WW	8.6	9.6	1963	6.8	1955	55	WSW	1968	31.8	40.5	1955	21.9	1959	97	1963	5	1951	2.7	4.5	1955	0.9	1953	659	700	1969*	588	1955	789	1969	190	1955					
Aug.	WW	8.0	9.1	1946	6.0	1956	67	SW	1961	34.8	43.8	1948	24.5	1967	100	1959	7	1951	3.3	5.0	1968	0.6	1955	551	613	1955	475	1968	721	1957	107	1959					
Sept.	WW	7.5	9.2	1961	5.4	1957	65	SSW	1963	40.6	55.1	1959	33.9	1952	100	1962*	10	1962*	4.1	6.1	1959	2.5	1950	418	457	1961	354	1959	591	1970	61	1957					
Oct.	WW	6.7	9.1	1948	4.4	1952	63	SSW	1960	57.8	74.2	1962	42.5	1962	100	1959	5	1952	5.9	7.7	1960	3.9	1962	262	299	1958	227	1956	428	1955	38	1962					
Nov.	WW	6.2	9.1	1959	5.8	1954	64	SW	1964	50.9	80.5	1959	46.1	1969	100	1970*	16	1959	7.5	7.0	1965	6.2	1957	135	130	1957	97	1964	283	1951	14	1962					
Dec.	NW	6.0	8.3	1968	3.9	1962	71	SW	1955	80.4	89.9	1961	69.0	1968	100	1970*	8	1964	6.1	9.2	1962	6.8	1964	61	91	1962	57	1956	155	1960	14	1962					
Jan.	WW	7.6	11.1	1959	2.9	1956	72	SW	1957	40.4	89.9	1961	28.1	1959	100	1970*	6	1951	5.9	9.2	1962	0.6	1965	370	700	1969*	57	1969	809	1957	14	1966					

APPENDIX II

APPENDIX II

A Tabulation of All Days at the HMS With Mean Daily Temperatures
 10°F or More Below Normal for a Period of 5 Days or More
 (Winters 1944-1945 Through 1969-1970)

<u>Season</u>	<u>Date</u>	<u>Mean Temp (°F)</u>	<u>Season</u>	<u>Date</u>	<u>Mean Temp (°F)</u>
1944-1945	None	-	1949-1950	1-2	12
1945-1946	None	-		3	7
1946-1947	12-30	14		4	5
	31	22		5	2
	1-1	25		6	14
	2	20		5 days	8.0
	3	16		1-13	4
	4	10		14	-2
	5	12		15	0
	6	16		16	0
	7	20		17	-3
	8	20		18	6
	10 days	17.5		19	10
1947-1948	None	-		20	11
1948-1949	1-8	20		8 days	3.2
	9	15		1-24	12
	10	8		25	2
	11	5		26	6
	12	6		27	6
	13	7		28	3
	14	10		29	-8
	15	17		30	0
	16	12		31	-12
	17	23		2-1	-13
	18	20		2	-10
	19	18		3	-11
	20	7		4	8
	21	16		5	21
	22	18		13 days	0.3
	23	12			
	24	4			
	25	0			
	26	10			
	27	14			
	28	7			
	29	10			
	30	15			
	31	18			
	2-1	18			
	2	14			
	3	20			
	27 days	12.7			

<u>Season</u>	<u>Date</u>	<u>Mean Temp (°F)</u>	<u>Season</u>	<u>Date</u>	<u>Mean Temp (°F)</u>
1950-1951	None	-	1955-1956	1-28	18
				29	18
1951-1952	12-30	23		30	11
	31	14		31	5
	1-1	11	2-1		2
	2	12		2	0
	3	12		3	8
	4	16		4	12
	5	18		5	20
	6	26		6	17
	7	22		7	18
	8	16		8	20
	10 days	17.0		9	22
				10	25
1952-1953	None	-		14 days	14.0
1953-1954	1-16	16	1956-1957	1-14	23
	17	16		15	16
	18	16		16	11
	19	10		17	8
	20	2		18	3
	21	7		19	6
	22	18		20	18
	23	12		21	14
	24	14		22	18
	25	12		23	16
	10 days	12.3		24	6
				25	0
1954-1955	None	-		26	-10
1955-1956	11-12	13		27	-10
	13	10		28	-4
	14	9		29	-3
	15	10		30	2
	16	14		31	11
	17	19	2-1		22
	18	18		2	10
	19	24		3	16
	20	22		21 days	8.2
	21	24	1957-1958	None	-
	22	20	1958-1959	1-2	18
	11 days	16.6		3	8
				4	6
				5	14
				6	16
				5 days	12.4

<u>Season</u>	<u>Date</u>	<u>Mean Temp (°F)</u>	<u>Season</u>	<u>Date</u>	<u>Mean Temp (°F)</u>
1959-1960	1-9	18	1964-1965	12-15	20
	10	18		16	-4
	11	19		17	-4
	12	14		18	8
	13	20		19	15
	14	18		20	19
	15	18	1965-1966	6 days	9.0
	16	24		None	-
	17	18		None	-
	18	9		None	-
	19	13		None	-
	20	18	1968-1969	12-28	6
	21	22		29	-6
	22	20		30	-8
	23	24		31	0
	15 days	18.2		1-1	6
1960-1961	None	-	1969-1970	2	10
				3	16
1961-1962	1-18	18		4	20
	19	10		8 days	5.5
	20	12		None	-
	21	14			
	22	9			
	23	14			
1962-1963	6 days	12.8			
	1-10	14			
	11	5			
	12	6			
	13	14			
	14	20			
	5 days	11.8			
	1-26	18			
	27	18			
	28	26			
	29	16			
	30	12			
	31	19			
	2-1	19			
	2	18			
	8 days	18.2			
1963-64	None	-			

APPENDIX III

Wahluke Slope Station Temperatures (°F) 4 Miles East of Mattawa, Washington

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
MAXIMUM												
1962	35.5	43.0	53.5	70.0	68.0*	84.5*	96.0*	87.8	83.4*	63.2	49.0	40.2*
1963	30.0*	43.8	55.4	57.5	74.4	83.0	86.2*	92.4*	87.0	67.0	47.9*	32.8*
1964	39.4	47.0	53.0	52.4*	73.0	81.2*	91.0*	84.6	77.0	64.5	40.2	30.7*
1965	36.4*	46.1*	53.5	65.4	72.8	82.3	90.8*	84.4	75.2	69.1	48.8	37.9
1966	36.8	47.0	55.9*	68.2	76.5	79.4	88.0*	90.2*	83.0*	66.4	52.2*	44.2
1967	46.6*	52.2*	54.7	58.2	73.2	86.0	94.1	97.7	87.1*	66.5*	50.5	39.6
Total	224.7	279.1	326.0	371.7	437.9	496.4	546.1	537.1	492.7	396.7	288.6	225.4
Avg	37.5	46.5	54.3	62.0	73.0	82.7	91.0	89.5	82.1	66.1	48.1	37.6
MINIMUM												
1962	17.5	27.0	29.5	41.0	45.5*	52.5*	62.5*	58.5	51.2*	41.5	33.4	29.6*
1963	15.0	28.2	34.6	40.0	47.0	56.6	59.2	61.5*	56.2	43.0	31.8*	23.8*
1964	25.7	24.6	30.0	36.4*	44.8	53.3*	58.2*	56.5	48.7	38.8	29.4	16.5*
1965	24.1*	28.0	30.0	39.2	43.9	53.1	59.2*	60.8	48.0	42.5	36.2	25.0
1966	25.0	32.4	35.8*	43.4	49.7	53.8	60.0*	61.0*	55.0*	42.7	37.8*	32.8
1967	32.4*	32.3*	32.5	36.8	46.6	58.5	61.9	64.6	56.6*	42.1*	32.9	26.0
Total	139.7	172.5	192.4	236.8	232.7	327.8	361.0	362.9	315.7	250.6	201.5	153.7
Avg	23.3	28.8	32.1	39.5	38.8	54.6	60.2	60.5	52.6	41.8	33.6	25.6
MEAN												
1962	26.5*	35.0	41.5	55.5	56.2*	68.5*	79.2*	73.2	67.3*	52.3	41.2	35.0*
1963	22.5	36.0	45.0	48.8	60.7	69.8	72.2*	76.9*	71.6	55.0	39.9*	28.3*
1964	32.6	35.8	41.5	49.4*	58.9	67.3*	74.6*	70.6	62.8	51.6	34.8	23.6*
1965	30.3*	37.1*	41.8	52.3	58.4	67.7	75.0*	72.8	61.6	55.8	42.5	31.5
1966	30.9	40.0	45.9*	55.8	63.1	66.6	74.0*	75.6*	69.0*	54.6	45.0*	38.5
1967	39.5*	42.2*	43.6	47.5	60.0	72.2	78.0	81.2	71.8*	54.3*	41.7	32.8
Total	182.3	226.1	259.3	309.3	357.3	412.1	453.0	450.3	404.8	323.6	245.1	189.7
Avg	30.4	37.7	43.2	51.6	59.6	68.7	75.5	75.1	67.5	53.9	40.9	31.6
Heat Units = Sum of daily mean temperatures over 50°F											TOTAL DAILY HEAT UNITS--Apr.-Oct.	
1962	184.4				239.3*	545.0*	849.7*	717.9	466.8*	110.5	3113.6	
1963	50.9				334.4	593.3	717.2*	818.7*	649.3	224.9	3388.7	
1964	45.0*				282.3	517.4*	763.4*	625.0	374.9	105.0	2713.0	
1965	114.5				270.8	531.2	775.8*	741.1	353.9	190.9	2978.2	
1966	189.7				438.4	494.2	742.0*	795.0*	568.4*	161.1	3388.8	
1967	13.7				313.8	657.7	863.4	960.6	657.9*	151.1*	3618.2	
Total	598.2				1879.0	3338.8	4711.5	4658.3	3071.2	943.5	19,200.5	
Avg	99.7				313.2	556.6	785.2	776.3	511.9	157.3	3,200.1	

*Missing temperatures substituted from Hanford Meteorology Station - 25 miles N.W. of Richland, Wash. Lat. 46°34', Long. 119°35' W. Elevation (ground) 733 feet.

APPENDIX III

BNWL-1605

APPENDIX IV

APPENDIX IVHanford Climatological Data Pertaining to ThunderstormsThunderstorm Days: 1945-1970

	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>	<u>Sum</u>
Total	0	1	7	18	53	64	46	54	24	5	0	0	272
Average	0	#	#	1	2	3	2	2	1	#	0	0	11
% of Total	0	#	3	7	19	23	17	20	9	2	0	0	100

= less than 0.5

Precipitation was not measured during 1945 and 1946 in which 26 thunderstorm days occurred--leaving 246 such days during the period 1947-1970. The daily precipitation distribution during these days was as follows:

<u>Amount - Inches</u>	<u>Number of Cases</u>	<u>% of Total</u>
None or trace	110	45
0.01 - 0.10	87	35
0.11 - 0.25	29	12
0.26 - 0.50	15	6
>0.50	<u>5</u>	<u>2</u>
	246	100

The Federal Meteorological Handbook No. 1, Surface Observations, dated October 23, 1968, defines rainfall intensities as follows:

Very light: surface not wet
 Light: trace to 0.10 inch/hr
 Moderate: 0.11 to 0.30 inch/hr
 Heavy: more than 0.30 inch/hr, or 0.03 inch in 6 minutes

The record for rainfall intensity during a thunderstorm is 0.55 inch in 20 minutes (1.65 inches per hour) on June 12, 1969. This storm included hailstones of 1/4-inch diameter.

Hail was reported on 14 or 5 percent of these days. Their distribution by months is as follows:

	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>	<u>Total</u>
Number	0	1	1	4	2	1	2	2	1	0	0	0	14
% of Total	0	7	7	30	14	7	14	14	7	0	0	0	100

Where size was reported, all except 2 were in the 0.2-0.3-inch category. The exceptions were May 26, 1954 and July 1, 1955 when the size reported was 0.4 inch.

Blowing dust or dust was reported on 16 thunderstorm days and both hail and blowing dust or dust on 6 days.

Peak gust data are not available for the 50, 200, and 400-foot levels prior to 1952. Of the 185 thunderstorm days occurring during the period 1952-1970, the speed classification of peak gusts on these days is as follows:

<u>mph</u>	<u>Number of Cases</u>			<u>% of Total</u>		
	<u>50</u>	<u>200</u>	<u>400</u>	<u>50</u>	<u>200</u>	<u>400</u>
<21	18	9	5	10	5	3
21 - 30	75	45	42	40	24	23
31 - 40	63	80	73	34	43	39
41 - 50	23	34	46	12	19	25
51 - 60	4	11	12	2	6	6
61 - 70	1	4	5	1	2	3
>70	<u>1</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>
	185	185	185	100	100	100

APPENDIX V

SUNRISE AND SUNSET AT THE HANFORD METEOROLOGY STATION

PACIFIC STANDARD TIME (PST)

DAY	JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC	
	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.	RISE A.M.	SET P.M.
1	0742	1621	0722	1702	0639	1743	0538	1827	0444	1907	0409	1943	0408	1955	0438	1930	0517	1838	0557	1738	0604	1643	0721	1613
2	0742	1622	0722	1703	0637	1745	0537	1828	0443	1908	0408	1944	0409	1954	0439	1929	0519	1836	0558	1736	0641	1642	0722	1612
3	0742	1623	0719	1705	0635	1746	0534	1830	0440	1910	0408	1945	0410	1954	0440	1927	0520	1834	0500	1734	0643	1640	0723	1612
4	0742	1624	0719	1706	0632	1748	0532	1831	0439	1911	0407	1946	0411	1954	0442	1926	0521	1832	0601	1732	0643	1639	0725	1612
5	0742	1625	0717	1708	0631	1749	0530	1832	0439	1912	0407	1946	0411	1953	0443	1924	0522	1830	0602	1730	0646	1637	0726	1611
6	0742	1626	0716	1709	0629	1750	0528	1834	0436	1914	0406	1947	0412	1953	0444	1923	0523	1829	0602	1729	0647	1636	0727	1611
7	0742	1627	0714	1711	0628	1752	0526	1835	0435	1915	0406	1948	0413	1953	0446	1921	0525	1827	0604	1727	0648	1635	0728	1611
8	0741	1629	0714	1712	0626	1753	0524	1836	0434	1916	0406	1949	0414	1952	0446	1920	0526	1825	0605	1725	0650	1633	0729	1611
9	0741	1630	0711	1714	0623	1755	0522	1838	0432	1918	0405	1949	0414	1952	0449	1918	0527	1823	0607	1723	0652	1632	0730	1611
10	0741	1631	0710	1715	0622	1756	0521	1839	0431	1919	0405	1950	0415	1951	0449	1917	0528	1821	0609	1721	0652	1631	0731	1611
11	0740	1632	0708	1717	0619	1758	0519	1840	0429	1920	0404	1951	0416	1950	0451	1915	0530	1819	0610	1719	0653	1630	0732	1611
12	0740	1633	0707	1718	0617	1759	0517	1842	0428	1922	0404	1951	0417	1950	0452	1913	0531	1817	0611	1717	0656	1628	0733	1611
13	0739	1635	0705	1720	0616	1800	0515	1843	0427	1923	0404	1952	0418	1949	0453	1912	0532	1815	0613	1715	0657	1627	0733	1611
14	0739	1636	0704	1721	0613	1802	0513	1844	0425	1924	0404	1952	0419	1948	0455	1910	0533	1813	0614	1713	0659	1626	0734	1611
15	0738	1637	0702	1723	0611	1803	0511	1846	0424	1925	0405	1953	0420	1948	0456	1908	0535	1811	0615	1712	0700	1625	0735	1611
16	0738	1638	0701	1724	0610	1805	0510	1847	0423	1926	0405	1953	0420	1947	0457	1907	0536	1809	0617	1710	0702	1624	0735	1611
17	0737	1640	0659	1726	0608	1806	0508	1848	0422	1927	0405	1953	0421	1946	0458	1905	0538	1806	0618	1708	0703	1623	0736	1612
18	0736	1641	0657	1727	0606	1808	0506	1850	0421	1929	0405	1954	0422	1945	0500	1903	0538	1805	0619	1706	0704	1622	0737	1612
19	0736	1642	0656	1729	0604	1809	0504	1851	0420	1930	0405	1954	0423	1944	0501	1901	0541	1802	0621	1705	0706	1621	0738	1612
20	0735	1644	0654	1730	0602	1810	0503	1852	0419	1931	0405	1954	0424	1944	0502	1900	0542	1800	0622	1703	0707	1620	0739	1613
21	0734	1645	0652	1732	0600	1812	0501	1854	0418	1932	0405	1954	0426	1943	0503	1858	0543	1758	0624	1701	0708	1619	0739	1613
22	0733	1647	0651	1733	0558	1813	0459	1855	0417	1933	0405	1955	0427	1942	0505	1856	0544	1756	0625	1659	0710	1618	0739	1613
23	0732	1648	0649	1735	0555	1815	0457	1856	0416	1934	0405	1955	0428	1941	0506	1854	0546	1754	0626	1658	0711	1617	0740	1614
24	0731	1649	0647	1736	0554	1816	0455	1858	0415	1935	0406	1955	0429	1939	0507	1853	0547	1752	0628	1656	0712	1617	0740	1615
25	0730	1651	0646	1737	0552	1817	0454	1859	0414	1936	0406	1955	0430	1938	0508	1851	0548	1750	0629	1654	0714	1616	0741	1616
26	0730	1652	0644	1739	0549	1819	0452	1900	0413	1937	0406	1955	0431	1937	0510	1849	0551	1748	0631	1653	0715	1615	0741	1616
27	0728	1654	0642	1740	0548	1820	0450	1902	0412	1938	0407	1955	0432	1936	0511	1847	0551	1746	0632	1651	0716	1615	0741	1617
28	0727	1655	0640	1742	0546	1821	0449	1903	0412	1939	0407	1955	0433	1935	0512	1845	0553	1744	0633	1650	0718	1614	0742	1618
29	0726	1657	0639	1743	0543	1823	0448	1904	0411	1940	0408	1955	0434	1934	0513	1844	0554	1742	0635	1648	0719	1614	0742	1618
30	0725	1658			0542	1824	0445	1906	0410	1941	0408	1955	0436	1932	0515	1842	0556	1740	0636	1647	0720	1613	0742	1619
31	0724	1700			0540	1826			0410	1942			0437	1931	0516	1840		0638	1645			0742	1620	

APPENDIX V

BNWL-1605

A.V.1

APPENDIX VI

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APPENDIX VICLIMATOLOGICAL MEASUREMENTS ON THE ALE RESERVEIntroduction

The Arid Lands Ecology Reserve lies on the western side of the Atomic Energy Commission's Hanford Reservation in Eastern Washington. In this region, long ridges (anticlines) trend almost east-west from near the Cascade Mountains to end along the western margins of the Columbia Basin. The two major ridges on the ALE Reserve are Yakima Ridge, in the northern section of the Reserve, and the Rattlesnake Hills along the southwestern edge of the Reserve (Figure 1-B, Section I, page 1.2).

Between Yakima Ridge and the Rattlesnake Hills is Dry Creek Valley, which merges with Cold Creek Valley at the toe of the Yakima Ridge. Dry Creek Valley is presently occupied by a very small stream from a permanent spring (Rattlesnake Spring) that emerges about a mile up valley from the mouth of Dry Creek Valley. The spring is fed by underground drainage from uplands (the Snively Ranch region) of the Rattlesnake Hills. The stream ordinarily vanishes in the sands of Cold Creek Valley within a couple of miles.

Cold Creek Valley is wide, shallow and marked by flats that appear to be old playas. Its southwestern slopes merge into the long, lower slopes of the Rattlesnake Hills. These lower slopes are gentle, about 5 degrees; at about 1500 feet above mean sea level (MSL) the lower slopes give way to the steep (about 25 degrees) upper slopes of the Hills.⁽¹⁾

Climatological Network

The climatological network consists of five elevational transects comprising 26 sites (Figure A.VI.1) The northernmost Snively Transect begins in Cold Creek Valley at an elevation of 670 feet MSL and continues to abandoned fields at 1750 feet MSL. The Benson Transect begins in abandoned fields in Cold Creek Valley, at 620 feet MSL, and continues over the crest of the Rattlesnake Hills (3100 feet MSL) to wheat fields

currently under cultivation. The Central Transect begins at 520 feet MSL in what appears to be an old playa on the floor of Cold Creek Valley. It extends over the summit of the Hills at 3500 feet MSL. The Winterfat Transect begins at 675 feet MSL, near (not on) the floor of Cold Creek Valley and extends over the shoulder of the Rattlesnake Hills (3100 feet MSL). The Blacktop Transect begins near the Yakima River at the lower end of Cold Creek Valley (440 feet MSL) and continues up a blacktop road along the southeastern shoulder of the Rattlesnake Hills to 2500 feet MSL.

Climatological Observations

Climatological observations were begun on the Arid Lands Ecology Reserve in March of 1968, with weekly readings of maximum and minimum temperature at 25 sites. Precipitation was recorded weekly beginning in October of 1968. The observation schedule was changed to monthly readings in October 1969, and has continued essentially uninterrupted to date. An additional site was added in late 1969 bringing the total to 26 climatological sites.

Temperature

A definite and repeated air temperature pattern over the ALE Reserve has become increasingly apparent. The pattern of weekly and monthly maximum temperatures present essentially a uniform adiabatic lapse rate of temperature with increasing elevation. Local topography modifies this generalization, especially near the crest of the Rattlesnake Hills. Relative cool environments are noticeable at the north slope Sites 10 and 14. There is a persistence of highest maximum temperatures at Sites 1 and 5.

Isotherms of minimum temperature indicate a well-defined temperature inversion reaching to 600-1000 feet above the valley floor. The intensity of the inversion appears to be dependent on season; months near September and March exhibit minimum temperatures near the top of the inversion 10 to 15°F warmer than those of the valley floor, whereas near June and December the difference is more nearly 5 to 10°F. It should be noted that maximum-minimum temperatures at the Reserve stations are measured at 1 foot above ground. This height was chosen as being most representative of the vegetation height on the Reserve.

Tables A.VI.1 through A.VI.8⁽²⁾ include monthly maximum and minimum temperatures for 1967 through 1971. The data are tabulated from October of one year to December of the following year, thus presenting on one page both calendar year and "bioyear" data. The "bioyear" (October-May) is an approximation to the period of moisture accumulation and biological use of the stored moisture, and is perhaps most closely attuned to plant life cycles.

Precipitation

Precipitation measurements on the ALE Reserve commenced in the autumn of 1968. Each of the 26 sites is equipped with a 5-inch capacity rain gage. These gages are charged with an antifreeze solution in the winter months and an oil layer is used during all seasons as an evaporation suppressant. These gages underestimate snowfall because of their small mouth and because they are occasionally buried beneath drifting snow. In order to better quantify total precipitation, heated recording 8-inch gages are now (1972) installed at four sites and standard 8-inch gages have provided measurements at Sites 3, 4, and 10 since 1970.

Calendar year and bioyear precipitation totals are presented in Table A.VI.9, and annual isohyets have been drawn for 1969, 1970, and 1971 (Figures A.VI.2, 3, 4). Adjusted values resulted from interpolation from nearby sites for periods when records at the site in question were lost due to animal interference, etc. Records to date indicate precipitation maxima just below and to the north of the crest of Rattlesnake Mountain. This area is in the lee of the crest during most of the winter precipitation (which accounts for about two-thirds of the annual total). Very strong winds are frequently recorded on Rattlesnake Mountain during winter storms and these winds cause great difficulty in accurate precipitation measurements on the mountain crest. The problem has not been solved to date (1972), thus it is not known whether the lee slope maximum is real or a result of wind error in the crest measurements. Even so it is evident that precipitation amounts near the top of Rattlesnake Mountain (Sites 9 and 10) are 70 percent to 90 percent greater than those recorded on the valley floor at Sites 1, 2, and 5.

Future plans include installation of additional standard 8-inch gages and wind screening of those gages in exposed locations.

REFERENCES

1. Hinds, W.T. and J.M. Thorp, 1969: Biotic and Abiotic Characteristics of the Microclimatological Network on the Arid Lands Ecology Reserve, BNWL-SA-2733, April 1969, Battelle-Northwest, Richland, Washington 99352.
2. Hinds, W.T. and J.M. Thorp, 1971: Annual Summaries of Microclimatological Data from the Arid Lands Ecology Reserve: 1968 through 1970, BNWL-1629, November 1971, Battelle Pacific Northwest Laboratories, Richland, Washington 99352.

TABLE A.VI.1

ARID LANDS ECOLOGY RESERVE -- MONTHLY MAXIMUM TEMPERATURES (FAHRENHEIT)

1967-1968

STATION	STATION NAME	ELEV. FT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	UPPER COLD CREEK	0670	****	****	****	****	****	77.	90.	98.	112.	109.	102.	102.	91.	67.	62.
2	RATTLESNAKE SPRINGS	0690	****	****	****	****	****	74.	90.	96.	109.	116.	102.	101.	91.	64.	60.
3	LOWER SNIVELY	1060	****	****	****	****	****	70.	86.	94.	108.	114.	100.	98.	88.	62.	56.
4	UPPER SNIVELY	1750	****	****	****	****	****	68.	82.	91.	104.	112.	100.	98.	88.	59.	54.
5	BENSON RANCH	0620	****	****	****	****	****	78.	92.	99.	112.	112.	105.	103.	92.	64.	60.
6	UPPER BENSON	0800	****	****	****	****	****	76.	91.	97.	110.	106.	104.	101.	90.	64.	60.
7	ALLUVIAL FAN	1140	****	****	****	****	****	66.	88.	95.	108.	112.	100.	100.	88.	62.	57.
7A	LOWER LARK SPUR	1600	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****
8	LARK SPUR	1930	****	****	****	****	****	71.	84.	92.	104.	100.	96.	97.	87.	58.	52.
9	BENSON BASIN	2440	****	****	****	****	****	68.	80.	89.	102.	98.	96.	94.	84.	56.	51.
10	ANDERSON RIM	2900	****	****	****	****	****	66.	78.	88.	100.	94.	91.	92.	78.	63.	48.
11	ANDERSON FIELD	3080	****	****	****	****	****	70.	78.	87.	100.	95.	95.	94.	83.	66.	48.
12	HOPSAGE	0520	****	****	****	****	****	76.	90.	98.	111.	108.	105.	103.	91.	65.	62.
13	TELEMETER	1200	****	****	****	****	****	74.	88.	94.	108.	110.	102.	100.	88.	62.	54.
14	RATTLESNAKE CREST NE	3350	****	****	****	****	****	65.	76.	81.	98.	****	87.	86.	76.	64.	46.
15	RATTLESNAKE CREST	3540	****	****	****	****	****	64.	76.	84.	96.	****	91.	88.	78.	62.	46.
16	RATTLESNAKE CREST SW	3500	****	****	****	****	****	65.	77.	88.	96.	****	92.	91.	80.	51.	47.
17	WINTERFAT	0675	****	****	****	****	****	76.	92.	98.	109.	****	102.	101.	88.	64.	60.
18	CALOCHORTUS	1250	****	****	****	****	****	74.	86.	94.	107.	106.	100.	100.	88.	62.	54.
19	BEETLE PLOT 7	3130	****	****	****	****	****	78.	78.	86.	96.	104.	79.	97.	82.	68.	50.
20	LOWER COLD CREEK	0440	****	****	****	****	****	77.	90.	98.	109.	110.	103.	101.	88.	66.	62.
21	BEETLE PLOT 3	0630	****	****	****	****	****	82.	92.	98.	114.	118.	93.	104.	90.	66.	62.
22	BEETLE PLOT 4	0940	****	****	****	****	****	78.	89.	98.	112.	117.	92.	102.	89.	66.	60.
23	E. R. C. (Y)	1080	****	****	****	****	****	76.	90.	96.	108.	107.	104.	100.	88.	62.	60.
24	BEETLE PLOT 5	1470	****	****	****	****	****	74.	87.	96.	110.	114.	98.	98.	86.	62.	56.
25	BEETLE PLOT 6	2480	****	****	****	****	****	68.	82.	90.	100.	106.	93.	94.	79.	58.	49.

TABLE A.VI.2

ARID LANDS ECOLOGY RESERVE -- MONTHLY MAXIMUM TEMPERATURES (FAHRENHEIT)

1968-1969

STATION	STATION NAME	ELEV. FT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	UPPER COLD CREEK	0670	91.	67.	62.	44.	48.	71.	82.	108.	118.	120.	117.	109.	93.	83.	68.
2	RATTLESNAKE SPRINGS	0690	91.	64.	60.	46.	****	70.	83.	102.	109.	110.	107.	100.	85.	75.	63.
3	LOWER SNIVELY	1060	88.	62.	56.	42.	****	68.	80.	100.	111.	111.	109.	100.	88.	75.	63.
4	UPPER SNIVELY	1750	88.	59.	54.	47.	****	69.	75.	96.	107.	107.	105.	100.	85.	75.	63.
5	BENSON RANCH	0620	92.	64.	60.	44.	****	72.	83.	108.	118.	118.	116.	107.	93.	82.	67.
6	UPPER BENSON	0800	90.	64.	60.	44.	****	72.	86.	102.	109.	111.	107.	102.	87.	77.	65.
7	ALLUVIAL FAN	1140	88.	62.	57.	41.	****	68.	80.	99.	108.	109.	106.	99.	85.	73.	63.
7A	LOWER LARK SPUR	1600	****	****	****	****	****	****	****	****	****	****	****	****	****	****	55.
8	LARK SPUR	1930	87.	58.	52.	48.	****	66.	76.	95.	106.	106.	102.	98.	84.	71.	61.
9	BENSON BASIN	2440	84.	56.	51.	46.	****	67.	74.	92.	101.	105.	98.	94.	79.	74.	60.
10	ANDERSON RIM	2900	78.	63.	48.	43.	****	64.	70.	88.	98.	99.	96.	93.	76.	73.	62.
11	ANDERSON FIELD	3080	83.	66.	48.	44.	****	65.	70.	89.	100.	102.	100.	97.	80.	75.	65.
12	HOPSAGE	0520	91.	65.	62.	45.	49.	77.	86.	103.	****	109.	107.	102.	89.	78.	66.
13	TELEMETER	1200	88.	62.	54.	44.	46.	70.	79.	101.	106.	110.	105.	101.	87.	73.	62.
14	RATTLESNAKE CREST NE	3350	76.	64.	46.	44.	****	56.	66.	82.	93.	95.	90.	87.	73.	72.	61.
15	RATTLESNAKE CREST	3540	78.	62.	46.	44.	41.	62.	68.	86.	96.	94.	92.	88.	73.	70.	62.
16	RATTLESNAKE CREST SW	3500	80.	51.	47.	44.	38.	62.	70.	87.	97.	96.	95.	90.	74.	72.	65.
17	WINTERFAT	0675	88.	64.	60.	44.	****	76.	84.	102.	109.	108.	106.	103.	100.	77.	64.
18	CALOCHORTUS	1250	88.	62.	54.	46.	48.	68.	80.	99.	108.	108.	104.	100.	87.	75.	63.
19	BEEBLE PLOT 7	3130	82.	68.	50.	46.	42.	64.	72.	90.	99.	98.	99.	93.	78.	75.	67.
20	LOWER COLD CREEK	0440	88.	66.	62.	44.	50.	74.	81.	104.	110.	109.	107.	103.	89.	76.	69.
21	BEEBLE PLOT 3	0630	90.	66.	62.	44.	51.	76.	82.	104.	112.	112.	110.	106.	90.	78.	65.
22	BEEBLE PLOT 4	0940	89.	66.	60.	42.	50.	74.	82.	104.	112.	110.	108.	105.	89.	78.	66.
23	E. R. C. (Y)	1080	88.	62.	60.	44.	49.	72.	80.	98.	106.	108.	103.	98.	83.	72.	62.
24	BEEBLE PLOT 5	1470	86.	62.	56.	48.	46.	68.	79.	97.	104.	106.	102.	98.	82.	71.	62.
25	BEEBLE PLOT 6	2480	79.	58.	49.	44.	42.	65.	74.	92.	100.	100.	98.	93.	77.	74.	60.

TABLE A.VI.3

ARID LANDS ECOLOGY RESERVE -- MONTHLY MAXIMUM TEMPERATURES (FAHRENHEIT)

1969-1970

STA- TION	STATION NAME	ELEV. FT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
---	-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1	UPPER COLD CREEK	0670	93.	83.	68.	****	58.	70.	75.	105.	120.	122.	120.	114.	96.	68.	61.
2	RATTLESNAKE SPRINGS	0690	85.	75.	63.	****	56.	68.	72.	98.	110.	112.	113.	108.	90.	65.	57.
3	LOWER SNIVELY	1060	88.	75.	63.	****	56.	66.	71.	98.	108.	112.	112.	106.	89.	62.	58.
4	UPPER SNIVELY	1750	85.	75.	63.	****	54.	68.	70.	93.	105.	107.	108.	104.	86.	58.	55.
5	BENSON RANCH	0620	93.	82.	67.	****	59.	70.	76.	100.	115.	117.	117.	111.	93.	68.	63.
6	UPPER BENSON	0800	87.	77.	65.	****	59.	70.	75.	100.	113.	112.	114.	109.	92.	66.	60.
7	ALLUVIAL FAN	1140	85.	73.	63.	****	56.	66.	72.	96.	109.	111.	111.	107.	90.	64.	58.
7A	LOWER LARK SPUR	1600	****	****	55.	****	53.	65.	70.	94.	108.	110.	110.	105.	86.	58.	54.
8	LARK SPUR	1930	84.	71.	61.	****	52.	63.	68.	94.	107.	107.	108.	103.	85.	57.	53.
9	BENSON BASIN	2440	79.	74.	60.	****	48.	63.	67.	90.	101.	103.	104.	98.	86.	53.	50.
10	ANDERSON RIM	2900	76.	73.	62.	****	43.	57.	63.	87.	100.	101.	102.	96.	86.	55.	46.
11	ANDERSON FIELD	3080	80.	75.	65.	****	48.	61.	64.	85.	103.	106.	104.	97.	88.	60.	****
12	HOPSAGE	0520	89.	78.	66.	****	60.	69.	77.	98.	111.	113.	114.	109.	93.	68.	61.
13	TELEMETER	1200	87.	73.	62.	****	54.	65.	72.	95.	107.	109.	109.	103.	89.	60.	58.
14	RATTLESNAKE CREST NE	3350	73.	72.	61.	****	41.	53.	59.	80.	93.	95.	97.	92.	79.	53.	****
15	RATTLESNAKE CREST	3540	73.	70.	62.	****	41.	54.	60.	83.	98.	99.	99.	94.	82.	53.	44.
16	RATTLESNAKE CREST SW	3500	74.	72.	65.	****	42.	56.	61.	84.	100.	100.	100.	95.	86.	57.	45.
17	WINTERFAT	0675	100.	77.	64.	****	58.	68.	75.	97.	110.	112.	112.	107.	92.	66.	58.
18	CALOCHORTUS	1250	87.	75.	63.	****	54.	66.	72.	96.	109.	111.	114.	106.	89.	59.	58.
19	BEETLE PLOT 7	3130	78.	75.	67.	****	48.	60.	68.	87.	100.	103.	103.	98.	86.	59.	50.
20	LOWER COLD CREEK	0440	89.	76.	69.	****	58.	67.	74.	98.	111.	113.	113.	108.	95.	66.	59.
21	BEETLE PLOT 3	0630	90.	78.	65.	****	58.	68.	79.	102.	113.	115.	115.	110.	95.	66.	58.
22	BEETLE PLOT 4	0940	89.	78.	66.	****	59.	68.	77.	101.	113.	116.	115.	110.	94.	67.	57.
23	E. R. C. (Y)	1080	83.	72.	62.	****	55.	65.	72.	96.	108.	110.	110.	104.	90.	60.	54.
24	BEETLE PLOT 5	1470	82.	71.	62.	****	52.	63.	70.	94.	106.	109.	109.	103.	88.	58.	54.
25	BEETLE PLOT 6	2480	77.	74.	60.	****	49.	59.	66.	89.	103.	105.	104.	98.	85.	57.	52.

A.VI.7

1970-1971

TABLE A.VI.4

ARID LANDS ECOLOGY RESERVE -- MONTHLY MAXIMUM TEMPERATURES (FAHRENHEIT)

STA- TION	STATION NAME	ELEV. FT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	UPPER COLD CREEK	0670	96	68	61	65	MISG	77	96	100	MISG	118	119	96	93	65	60
2	RATTLESNAKE SPRINGS	0690	90	65	57	60		73	91	97		114	116	93	88	63	59
3	LOWER SNIVLEY	1060	89	62	58	60		70	92	97		117	115	93	87	62	57
4	UPPER SNIVELY	1750	86	58	55	57		71	85	90		110	111	90	85	61	52
5	BENSON RANCH	0620	93	68	63	60		72	91	94		118	>120	xxxx	xxxx	65	60
6	UPPER BENSON	0800	92	66	60	64		74	96	101		116	116	96	90	164	59
7	ALLUVIAL FAN	1140	90	64	58	60		71	92	98		116	115	95	88	62	56
7A	LOWER LARK SPUR	1600	86	58	54	57		68	87	94		110	112	91	86	60	52
8	LARK SPUR	1930	85	57	53	57		68	87	92		112	112	90	84	60	52
9	BENSON BASIN	2440	86	53	50	52		66	84	87		107	107	86	82	60	49
10	ANDERSON RIM	2900	86	55	46	48		64	79	84		104	104	83	80	58	44
11	ANDERSON FIELD	3080	88	60	xxxx	51		67	79	84		107	107	86	83	61	xxxx
12	HOPSAGE	0520	93	68	61	64		75	96	99		116	119	xxxx	91	64	58
13	TELEMETER	1200	89	60	58	60		69	89	93		113	115	92	87	60	54
14	RATTLESNAKE CREST NE	3350	79	53	xxxx	46		xxxx	74	80		99	98	78	75	55	xxxx
15	RATTLESNAKE CREST	3540	82	53	44	45		60	78	82		102	101	80	80	55	45
16	RATTLESNAKE CREST SW	3500	86	57	45	47		63	80	82		104	104	82	83	58	46
17	WINTERFAT	0675	92	66	58	64		74	94	97		114	116	xxxx	90	63	57
18	CALOCHORTUS	1250	89	59	58	62		71	90	94		112	114	92	88	60	54
19	BEETLE PLOT 7	3130	86	59	50	52		66	81	85		106	116	85	86	62	51
20	LOWER COLD CREEK	0440	95	66	59	65		75	94	99		118	114	96	88	66	60
21	BEETLE PLOT 3	0630	95	66	58	63		74	95	103		119	118	97	91	66	58
22	BEETLE PLOT 4	0940	94	67	57	62		73	95	100		118	119	97	92	66	57
23	E.R.C. (Y)	1080	90	60	54	61		71	91	95		114	113	93	87	63	54
24	BEETLE PLOT 5	1470	88	58	54	57		67	82	93		112	111	91	85	62	54
25	BEETLE PLOT 6	2480	85	57	52	53	MISG	66	85	86	MISG	108	108	86	82	60	49

TABLE A.VI.5

ARID LANDS ECOLOGY RESERVE -- MONTHLY MINIMUM TEMPERATURES (FAHRENHEIT)

1967-1968

STA- TION	STATION NAME	ELEV. FT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
---	-----	----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1	UPPER COLD CREEK	0670	****	****	****	****	****	16.	14.	24.	36.	43.	45.	36.	26.	22.	19.
2	RATTLESNAKE SPRINGS	0690	****	****	****	****	****	22.	18.	31.	36.	43.	49.	39.	31.	26.	22.
3	LOWER SNIVELY	1060	****	****	****	****	****	29.	26.	34.	39.	44.	50.	39.	36.	30.	19.
4	UPPER SNIVELY	1750	****	****	****	****	****	26.	21.	30.	36.	41.	48.	38.	32.	27.	16.
5	BENSON RANCH	0620	****	****	****	****	****	15.	12.	23.	30.	35.	44.	34.	25.	22.	18.
6	UPPER BENSON	0800	****	****	****	****	****	22.	20.	34.	39.	45.	50.	41.	33.	28.	23.
7	ALLUVIAL FAN	1140	****	****	****	****	****	30.	22.	36.	40.	48.	51.	44.	36.	32.	21.
7A	LOWER LARK SPUR	1600	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****
8	LARK SPUR	1930	****	****	****	****	****	23.	22.	30.	39.	42.	46.	40.	32.	24.	15.
9	BENSON BASIN	2440	****	****	****	****	****	20.	14.	25.	37.	38.	46.	38.	32.	24.	18.
10	ANDERSON RIM	2900	****	****	****	****	****	20.	12.	22.	32.	34.	42.	32.	26.	20.	14.
11	ANDERSON FIELD	3080	****	****	****	****	****	21.	14.	22.	34.	36.	40.	34.	30.	25.	15.
12	HOPSAGE	0520	****	****	****	****	****	16.	14.	26.	32.	42.	47.	34.	24.	19.	15.
13	TELEMETER	1200	****	****	****	****	****	26.	24.	34.	40.	46.	48.	40.	34.	30.	22.
14	RATTLESNAKE CREST NE	3350	****	****	****	****	****	20.	20.	23.	34.	****	44.	38.	32.	26.	16.
15	RATTLESNAKE CREST	3540	****	****	****	****	****	23.	18.	22.	34.	****	44.	36.	32.	26.	15.
16	RATTLESNAKE CREST SW	3500	****	****	****	****	****	22.	18.	22.	34.	****	42.	36.	32.	26.	15.
17	WINTERFAT	0675	****	****	****	****	****	25.	20.	34.	40.	****	50.	40.	34.	26.	20.
18	CALOCHORTUS	1250	****	****	****	****	****	24.	23.	34.	40.	43.	48.	39.	33.	28.	22.
19	BEETLE PLOT 7	3130	****	****	****	****	****	22.	16.	26.	38.	40.	42.	39.	32.	28.	18.
20	LOWER COLD CREEK	0440	****	****	****	****	****	16.	13.	25.	36.	40.	52.	38.	24.	18.	16.
21	BEETLE PLOT 3	0630	****	****	****	****	****	22.	22.	30.	38.	40.	50.	40.	29.	24.	22.
22	BEETLE PLOT 4	0940	****	****	****	****	****	24.	20.	32.	40.	40.	48.	39.	32.	23.	20.
23	E. R. C. (Y)	1080	****	****	****	****	****	24.	22.	32.	36.	40.	48.	40.	32.	27.	21.
24	BEETLE PLOT 5	1470	****	****	****	****	****	29.	24.	32.	40.	44.	50.	40.	34.	29.	22.
25	BEETLE PLOT 6	2480	****	****	****	****	****	26.	20.	28.	36.	44.	46.	41.	36.	31.	21.

TABLE A.VI.6

ARID LANDS ECOLOGY RESERVE -- MONTHLY MINIMUM TEMPERATURES (FAHRENHEIT)

1968-1969

STATION	STATION NAME	ELEV. FT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	UPPER COLD CREEK	0670	26.	22.	19.	-16.	-6.	17.	23.	33.	41.	44.	39.	30.	37.	10.	12.
2	RATTLESNAKE SPRINGS	0690	31.	26.	22.	-16.	****	-2.	28.	36.	44.	46.	42.	39.	40.	22.	18.
3	LOWER SNIVELY	1060	36.	30.	19.	-15.	****	5.	30.	37.	46.	51.	47.	46.	46.	23.	20.
4	UPPER SNIVELY	1750	32.	27.	16.	-17.	****	0.	27.	35.	42.	43.	42.	35.	43.	16.	15.
5	BENSON RANCH	0620	25.	22.	18.	-16.	****	4.	18.	30.	39.	40.	34.	27.	34.	8.	7.
6	UPPER BENSON	0800	33.	28.	23.	-12.	****	10.	31.	40.	45.	52.	47.	43.	44.	24.	21.
7	ALLUVIAL FAN	1140	36.	32.	21.	-12.	****	8.	33.	40.	44.	49.	45.	46.	48.	22.	19.
7A	LOWER LARK SPUR	1600	****	****	****	****	****	****	****	****	****	****	****	****	****	****	20.
8	LARK SPUR	1930	32.	24.	15.	-19.	****	-6.	27.	36.	41.	46.	47.	40.	44.	24.	17.
9	BENSON BASIN	2440	32.	24.	18.	-19.	****	-4.	30.	36.	43.	44.	45.	39.	42.	20.	18.
10	ANDERSON RIM	2900	26.	20.	14.	-22.	****	-2.	23.	30.	37.	39.	39.	30.	37.	15.	12.
11	ANDERSON FIELD	3080	30.	25.	15.	-20.	****	4.	27.	33.	37.	41.	40.	38.	37.	22.	15.
12	HOPSAGE	0520	24.	19.	15.	-15.	-12.	16.	22.	31.	41.	46.	39.	32.	37.	15.	11.
13	TELEMETER	1200	34.	30.	22.	-12.	6.	21.	30.	40.	43.	51.	45.	43.	44.	25.	20.
14	RATTLESNAKE CREST NE	3350	32.	26.	16.	-18.	****	0.	26.	32.	38.	41.	42.	39.	36.	23.	17.
15	RATTLESNAKE CREST	3540	32.	26.	15.	-22.	-2.	16.	25.	31.	39.	41.	41.	39.	35.	22.	15.
16	RATTLESNAKE CREST SW	3500	32.	26.	15.	-21.	1.	16.	26.	32.	40.	41.	40.	39.	35.	22.	15.
17	WINTERFAT	0675	34.	26.	20.	-10.	****	4.	30.	37.	43.	50.	46.	45.	41.	23.	19.
18	CALOCHORTUS	1250	33.	28.	22.	-12.	2.	22.	29.	41.	43.	50.	45.	39.	46.	26.	19.
19	BEETLE PLOT 7	3130	32.	28.	18.	-16.	2.	19.	26.	33.	39.	38.	38.	33.	37.	25.	15.
20	LOWER COLD CREEK	0440	24.	18.	16.	-15.	-6.	16.	21.	28.	40.	42.	38.	31.	36.	12.	10.
21	BEETLE PLOT 3	0630	29.	24.	22.	-10.	0.	18.	30.	34.	47.	47.	48.	39.	43.	19.	18.
22	BEETLE PLOT 4	0940	32.	23.	20.	-12.	0.	20.	29.	33.	44.	45.	44.	37.	43.	18.	19.
23	E. R. C. (Y)	1080	32.	27.	21.	-12.	-3.	18.	27.	35.	44.	40.	45.	38.	39.	21.	18.
24	BEETLE PLOT 5	1470	34.	29.	22.	-14.	4.	20.	30.	39.	44.	49.	47.	43.	45.	27.	22.
25	BEETLE PLOT 6	2480	36.	31.	21.	-14.	2.	23.	33.	39.	45.	46.	50.	44.	43.	30.	20.

A.VI.10

TABLE A.VI.7

ARID LANDS ECOLOGY RESERVE -- MONTHLY MINIMUM TEMPERATURES (FAHRENHEIT)

1969-1970

STA- TION	STATION NAME	ELEV. FT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	UPPER COLD CREEK	0670	37.	10.	12.	****	2.	15.	20.	19.	44.	49.	44.	26.	15.	12.	3.
2	RATTLESNAKE SPRINGS	0690	40.	22.	18.	****	10.	21.	28.	25.	40.	50.	46.	34.	20.	22.	6.
3	LOWER SNIVELY	1060	46.	23.	20.	****	18.	27.	32.	30.	44.	53.	50.	34.	27.	32.	8.
4	UPPER SNIVELY	1750	43.	16.	15.	****	10.	20.	26.	24.	40.	44.	43.	33.	22.	28.	6.
5	BENSON RANCH	0620	34.	8.	7.	****	4.	14.	20.	13.	30.	42.	37.	22.	10.	10.	-2.
6	UPPER BENSON	0800	44.	24.	21.	****	18.	25.	32.	30.	47.	54.	52.	37.	26.	25.	9.
7	ALLUVIAL FAN	1140	48.	22.	19.	****	18.	25.	32.	30.	44.	49.	52.	34.	25.	30.	8.
7A	LOWER LARK SPUR	1600	****	****	20.	****	15.	16.	35.	32.	46.	47.	53.	37.	28.	34.	12.
8	LARK SPUR	1930	44.	24.	17.	****	10.	21.	31.	27.	41.	46.	49.	34.	22.	29.	7.
9	BENSON BASIN	2440	42.	20.	18.	****	9.	20.	27.	24.	42.	44.	47.	33.	25.	27.	8.
10	ANDERSON RIM	2900	37.	15.	12.	****	3.	16.	25.	16.	37.	37.	40.	30.	20.	23.	4.
11	ANDERSON FIELD	3080	37.	22.	15.	****	10.	17.	30.	22.	34.	37.	43.	30.	24.	27.	****
12	HOPSAGE	0520	37.	15.	11.	****	6.	19.	23.	18.	34.	44.	42.	26.	11.	13.	0.
13	TELEMETER	1200	44.	25.	20.	****	16.	24.	32.	30.	44.	55.	52.	36.	24.	27.	7.
14	RATTLESNAKE CREST NE	3350	36.	23.	17.	****	8.	17.	28.	22.	36.	38.	44.	28.	27.	27.	****
15	RATTLESNAKE CREST	3540	35.	22.	15.	****	7.	15.	26.	20.	36.	37.	46.	27.	26.	26.	2.
16	RATTLESNAKE CREST SW	3500	35.	22.	15.	****	6.	15.	26.	20.	36.	37.	43.	27.	23.	25.	2.
17	WINTERFAT	0675	41.	23.	19.	****	12.	23.	30.	27.	41.	52.	50.	34.	23.	23.	7.
18	CALOCHORTUS	1250	46.	26.	19.	****	14.	23.	30.	28.	40.	50.	50.	37.	23.	27.	7.
19	BEETLE PLOT 7	3130	37.	25.	15.	****	6.	18.	29.	23.	38.	39.	40.	29.	15.	24.	6.
20	LOWER COLD CREEK	0440	36.	12.	10.	****	8.	16.	23.	15.	36.	43.	42.	23.	11.	10.	-2.
21	BEETLE PLOT 3	0630	43.	19.	18.	****	13.	20.	30.	24.	42.	47.	50.	31.	22.	20.	7.
22	BEETLE PLOT 4	0940	43.	18.	19.	****	12.	22.	28.	20.	37.	42.	46.	32.	18.	22.	4.
23	E. R. C. (Y)	1080	39.	21.	18.	****	13.	23.	27.	23.	38.	46.	47.	34.	20.	22.	4.
24	BEETLE PLOT 5	1470	45.	27.	22.	****	14.	25.	30.	29.	44.	47.	50.	38.	27.	27.	9.
25	BEETLE PLOT 6	2480	43.	30.	20.	****	13.	24.	34.	28.	45.	45.	51.	35.	32.	32.	11.

A.VI.11

1970-1971

TABLE A.VI.8

ARID LANDS ECOLOGY RESERVE -- MONTHLY MINIMUM TEMPERATURES (FAHRENHEIT)

STA- TION	STATION NAME	ELEV. FT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	UPPER COLD CREEK	0670	15	12	3	3	MISG	8	16	26	MISG	34	42	27	4	10	5
2	RATTLESNAKE SPRINGS	0690	20	22	6	7		14	23	31		40	45	36	9	18	8
3	LOWER SNIVELY	1060	27	32	8	13		19	29	34		44	47	40	14	25	12
4	UPPER SNIVELY	1750	22	28	6	9		13	23	30		40	45	35	15	18	7
5	BENSON RANCH	0620	10	10	-2	2		11	17	26		32	40	xxxx	xxxx	10	0
6	UPPER BENSON	0800	26	25	9	10		17	26	36		44	49	38	14	22	12
7	ALLUVIAL FAN	1140	25	30	8	10		17	27	32		44	46	40	11	18	8
7A	LOWER LARK SPUR	1600	28	34	12	12		19	29	34		45	45	40	24	22	11
8	LARK SPUR	1930	22	29	7	7		14	24	32		41	45	37	17	18	8
9	BENSON BASIN	2440	25	27	8	10		12	24	33		38	44	35	17	17	8
10	ANDERSON RIM	2900	20	23	4	2		10	20	30		32	40	30	9	11	3
11	ANDERSON FIELD	3080	24	27	xxxx	4		14	21	30		36	40	32	13	xxxx	8
12	HOPSAGE	0520	11	13	0	2		10	17	27		35	xxxx	29	5	10	2
13	TELEMETER	1200	24	27	7	9		17	25	34		50	47	38	15	20	10
14	RATTLESNAKE CREST NE	3350	27	27	xxxx	3		xxxx	12	30		35	40	31	15	19	xxxx
15	RATTLESNAKE CREST	3540	26	26	2	9		12	22	29		36	40	30	14	20	7
16	RATTLESNAKE CREST SW	3500	23	25	2	7		11	22	28		34	39	29	13	17	6
17	WINTERFAT	0675	23	23	7	9		17	24	33		42	xxxx	37	11	17	6
18	CALOCHORTUS	1250	23	27	7	9		17	25	33		43	45	39	16	20	10
19	BEETLE PLOT 7	3130	15	24	6	7		15	20	31		42	42	32	12	18	7
20	LOWER COLD CREEK	0440	11	10	-2	2		8	14	28		35	42	26	5	7	1
21	BEETLE PLOT 3	0630	22	20	7	7		16	20	35		42	49	34	12	14	8
22	BEETLE PLOT 4	0940	18	22	4	7		14	24	30		40	44	32	9	15	6
23	E.R.C. (Y)	1080	20	22	4	7		16	24	33		40	47	35	15	17	6
24	BEETLE PLOT 5	1470	27	27	9	10		18	27	34		44	48	39	22	21	10
25	BEETLE PLOT 6	2480	32	32	11	14	MISG	20	29	37	MISG	43	47	37	22	27	12

TABLE A.VI.9

ALE RESERVE PRECIPITATION

NO.	SITE LOCATION	BIOYEAR 1969 OCT 68-MAY 69	CALENDAR 1969 12/12/68 TO 12/29/69	BIOYEAR 1970 OCT 69-MAY 70	CALENDAR 1970 12/29/69 TO 12/28/70	BIOYEAR 1971 OCT 70-MAY 71	CALENDAR 1971 12/28/70 TO 1/4/72
		in.	in.	in.	in.	in.	in.
1	UPPER COLD CREEK	6.69	6.43	6.10	6.45	4.96*	6.54
2	RATTLESNAKE SPRINGS	7.11	6.65	6.40	6.63	4.97	6.27
2S	R. S. TIPPING BUCKET						6.81
3	LOWER SNIVELY	8.53	7.94	7.59	8.26	6.80	8.43
3S	L. S. STANDARD					7.12	9.36
4	UPPER SNIVELY	9.90	10.85	8.50*	9.75	8.22	10.27
4S	U. S. STANDARD					9.09	11.82
5	BENSON RANCH	6.99	6.91	6.83	7.23	4.89*	6.50
6	UPPER BENSON	6.90	7.06	7.43	8.34	5.83	7.30
7	ALLUVIAL FAN	8.13	7.69	8.39	9.82	7.49	9.00
7A	LOWER LARK SPUR			8.44	9.84	7.73*	9.99
8	LARK SPUR	9.69	9.09	9.57	10.91	7.85	9.82
9	BENSON BASIN	11.01	10.06	10.19	12.00	8.50	10.60
10	ANDERSON RIM	11.89	10.24	10.03	11.28	7.92	9.86
10S	A. R. STANDARD						11.60
11	ANDERSON FIELD	9.93	8.50	7.85	9.28	6.27	8.54
12	HOPSAGE	6.95	7.48	7.78	8.08	4.61	5.97
13	TELEMETER	9.21	8.48	9.29	10.97	8.58	9.81
14	RATTLESNAKE CREST NE	9.53	8.73	8.71	9.17	6.03	7.97
15	RATTLESNAKE CREST			6.45	6.57	4.78	6.01
16	RATTLESNAKE CREST SW	9.99	8.73	6.27	6.51	4.71	5.80
17	WINTER FAT	7.33	6.73	8.12	9.00	6.36	7.75
18	CALOCHORTUS	9.53	9.22	9.85*	11.48	8.44	9.86
19	BEETLE PLOT 7	10.32	9.28	8.73	9.64	7.25	9.77
20	LOWER COLD CREEK	9.02	8.70	7.95	8.57	5.35*	7.19
21	BEETLE PLOT 3	8.60	8.13	7.67	8.43	5.82	8.16
22	BEETLE PLOT 4	8.89	8.20	8.54	9.53	6.24	8.38
23	ERC "y"	9.46	8.78	7.56	8.34	6.67*	8.75
24	BETTLE PLOT 5	9.85	9.54	8.73	9.55	7.44	9.86
25	BEETLE PLOT 6	9.63	9.45	8.35	8.78	6.39	8.29
	HANFORD MET. TOWER	7.02	7.46	5.95	6.33	4.46	6.30

*Adjusted values

FIGURE A.VI.1
ARID LANDS ECOLOGY RESERVE CLIMATOLOGICAL NETWORK

A.VI.14

BNWL-1605

FIGURE A.VI.2

ARID LANDS ECOLOGY RESERVE 1969 PRECIPITATION (INCHES OF WATER)

A.VI.15

BNWL-1605

FIGURE A.VI.3
 ARID LANDS ECOLOGY RESERVE 1970 PRECIPITATION (INCHES OF WATER)

A.VI.16

BNWL-1605

FIGURE A.VI.4
ARID LANDS ECOLOGY RESERVE 1971 PRECIPITATION (INCHES OF WATER)

A.VI.17

BNWL-1605