NOAA Technical Memorandum NWS WR-220

CLIMATE OF PENDLETON, OREGON

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U.S. DEPARTMENT OF COMMERCE / National Oceanic and Atmospheric Administration / National Weather Service

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82 Flash Flood Forecasting and Warning Program in the Western Region. Philip Williams, Jr., Chester L. Glenn, and Roland L. Raetz, December 1972, (Revised March 1978). (COM 73 10251)
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86 Conditional Probabilities for Sequences of Wet Days at Phoenix, Arizona. Paul C. Kangieser, June 1973. (COM 73 11264)
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104 Objective Aids for Forecasting Minimum Temperatures at Reno, Nevada, During the Summer Months. Christopher D. Hill, January 1976. (PB 252 866/AS)
105 Forecasting the Mono Wind. Charles P. Ruscha, Jr., February 1976. (PB 254 650)
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121 Climatological Prediction of Cumulonimbus Clouds in the Vicinity of the Yucca Flat Weather Station. R.F. Quiring, June 1977. (PB 271 704/AS)
122 A Method for Transforming Temperature Distribution to Normality. Morris S. Webb, Jr., June 1977. (PB 271 742/AS)
124 Statistical Guidance for Prediction of Eastern North Pacific Tropical Cyclone Motion - Part I. Charles J. Neumann and Preston W. Leftwich, August 1977. (PB 272 661)
125 Statistical Guidance on the Prediction of Eastern North Pacific Tropical Cyclone Motion - Part II. Preston W. Leftwich and Charles J. Neumann, August 1977. (PB 273 155/AS)
126 Climate of San Francisco. E. Jan Null, February 1978. Revised by George T. Pericht, April 1988. (PB88 208624/AS)
127 Development of a Probability Equation for Winter-Type Precipitation Patterns in Great Falls, Montana. Kenneth B. Mielke, February 1978. (PB 281 387/AS)
128 Hand Calculator Program to Compute Parcel Thermal Dynamics. Dan Gudgel, April 1978. (PB 283 080/AS)
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139 Aids for Forecasting Minimum Temperature in the Wenatchee Frost District. Robert S. Robinson, April 1979. (PB298339/AS)
140 Influence of Cloudiness on Summertime Temperatures in the Eastern Washington Fire Weather district. James Holcomb, April 1979. (PB298674/AS)
141 Comparison of LFM and MFM Precipitation Guidance for Nevada During Doreen. Christopher Hill, April 1979. (PB298613/AS)

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Atmospheric Administration
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STATION PROFILE[1]

Pendleton is located in the southeastern part of the Columbia Basin, in the low country of northern Oregon and eastern Washington, almost entirely surrounded by mountains (Topographic Map). This Basin is bounded on the south by the high country of central Oregon, on the north by the mountains of western Canada, on the west by the Cascade Range and on the east by the Blue Mountains and the North Idaho Plateau. The gorge in the Cascades through which the Columbia River reaches the Pacific Ocean, is the most important break in the barriers surrounding this Basin. These physical features have important influences on the general climate of Pendleton and the surrounding territory.

The Weather Service Office at the Pendleton Municipal Airport is located in rolling country, which generally slopes upward toward the Blue Mountains, about 15 miles to the east and southeast. The Columbia River approaches the area from the northwest and joins the Walla Walla River at an elevation of 351 feet, 25 miles north of Pendleton, and then turns southwestward and is joined by the Umatilla River. Both the Walla Walla and Umatilla Rivers have their sources in the Blue Mountains and flow westward to the Columbia. The observation station is at an elevation of nearly 1,500 feet, about 3 miles northwest of downtown Pendleton. The city of Pendleton lies in the shallow east-west valley of the Umatilla River, approximately 400 feet lower than the airport.

Precipitation in the Pendleton area is definitely seasonal with only 10 percent of the average annual total occurring in the three-month period from July through September. Most precipitation reaching this area is associated with cyclonic storms moving onshore from the Pacific Ocean. These storms reach their greatest intensity and are highest in frequency from October through April. The Cascade Range west of the Columbia Basin reduces the amount of precipitation received from these Pacific cyclonic storms. The desert area of the central part of the Basin receives the least amount of precipitation. A gradual rise in elevation from the Columbia River to the foothills of the Blue Mountains then results in increased precipitation in the eastern section of the Basin. The lighter, summertime precipitation usually accompanies thunderstorms which often move into the area from the south or southwest. On occasion, these storms are quite intense, and cause flash flooding which may result in property damage and even loss of life.

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[1] Local Climatological Data, Annual Summary, Pendleton, Oregon, pg. 7

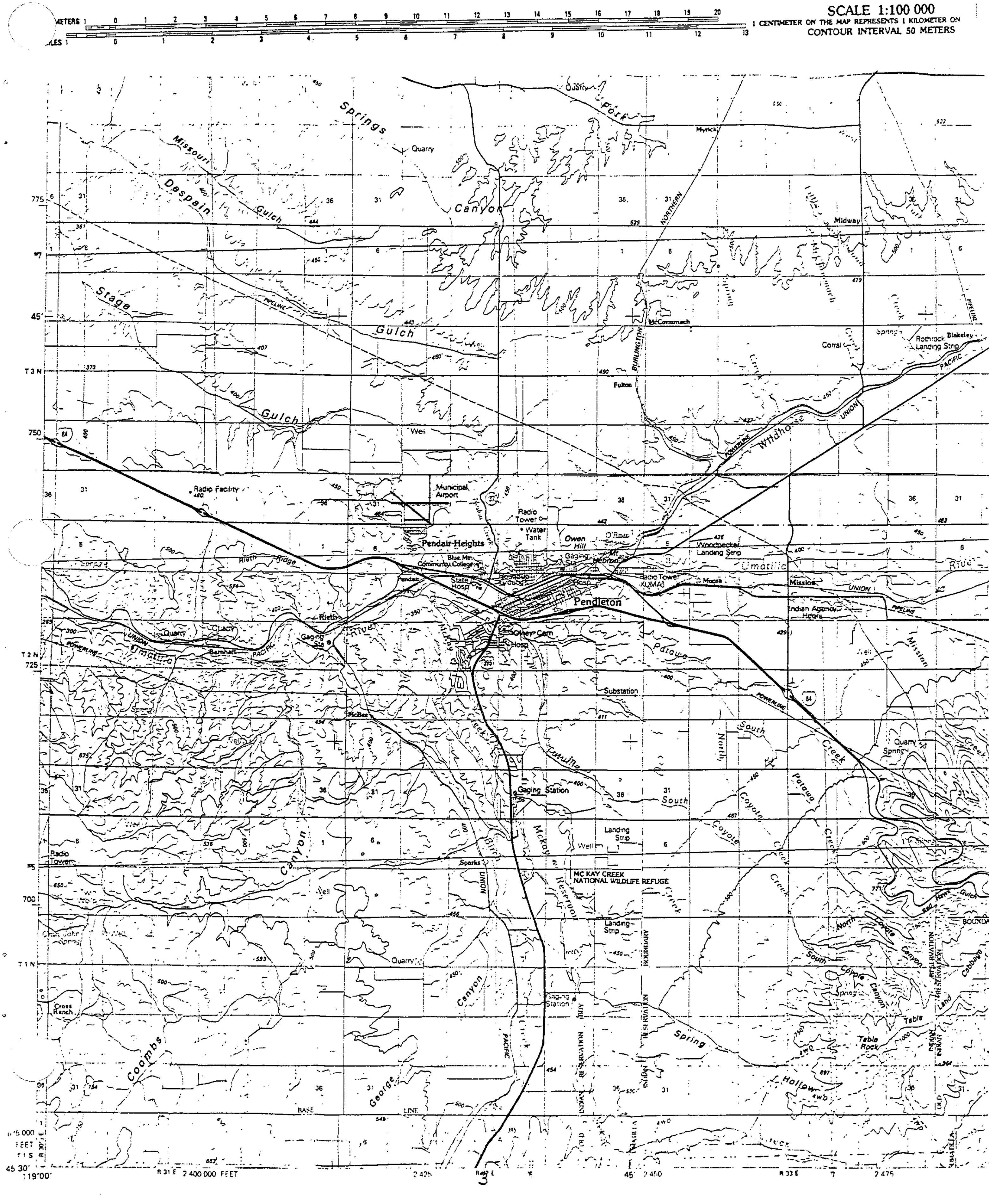
Seasonal temperature extremes are usually quite moderate for this latitude. The last spring occurrence of average temperatures as low as 32 degrees is mid-April, while the average first freeze typically occurs in late October. However, at the city station, where cool air drains into the valley on calm nights, temperatures of 32 degrees have been recorded later in the spring and earlier in the fall.

Normally, air masses from the Pacific Ocean with moderate temperature characteristics move across the Cascades or through the Columbia Gorge resulting in mild temperatures in the Pendleton area. When this flow of air from the west is impeded by slow-moving high pressure systems over the interior of the continent, temperature conditions sometimes become rather severe: hot in summer and cold in winter. During the summer or early fall, if a stagnant high pressure system dominates to the north or east of Pendleton, the hot, dry conditions may prove detrimental to crops. This may also result in increased fire danger in the forest and grassland areas during late summer and early fall. During winter, the coldest temperatures occur when cold anticyclones in central Canada move southwestward across the Rocky Mountains and flow down into the Columbia Basin. When this occurs, the dense, cold air sometime remains at low levels in the Basin for several days while warmer air from the Pacific flows above it, causing comparatively mild temperatures at higher elevations and persistent dense fog in the Basin. Extreme winter temperatures are not particularly common in the Pendleton area. Below zero readings occurred in approximately 60 percent of all winters on record. Maximum temperatures usually reach 100+ degrees on only a few days during the summer.

STATION LOCATIONS

Observations began in Pendleton in February of 1866, and were taken by an unknown observer in downtown Pendleton. Between that time and April 30, 1926, various observers near the downtown area took observations, but the exact locations are unknown. On July 1, 1926, the official observing site was located at the U.S. Forest Service which at the time was on the roof of the Post Office in downtown Pendleton. On June 30, 1930, Mrs. Anna Perkins at 314 South Blaine Street took over the observations.

On June 2, 1934, the observation location moved to the Pendleton Municipal Airport which is 2.3 miles northwest of the Post Office. At that time, observations were taken by United Airlines employees. The Weather Bureau Office opened at the Pendleton Municipal Airport on April 1, 1935. The office, where the observations are currently taken, is located in the Air Terminal Building at an elevation of 1482 feet above sea level.


SCALE 1:100 000
1 CENTIMETER ON THE MAP REPRESENTS 1 KILOMETER ON
CONTOUR INTERVAL 50 METERS
METERS
MILES
Springs
Missouri
Despain
Gulch
Canyon
Quarry
Fork
Myrick
Midway
NORTHERN
Stage
Gulch
PIPELINE
McCommach
BURLINGTON
Fulton
Corral
Rothrock
Blakeley
Landing Strip
PACIFIC
UNION
Wildhorse
POWERLINE
Well
Radio Facility
Municipal Airport
Radio Tower
Water Tank
Owen Hill
Woodpecker Landing Strip
Pendair Heights
Rieth Ridge
Blue Mtn Community College
Gaging Sta
Mt Hebron
Radio Tower (KUMA)
Mission
Umatilla
River
State Hosp
Pendleton
Indian Agency Hdqrs
Rieth
Quarry
Barnhart
Umatilla
Gaging Sta
Patawa
Substation
McBee
South
North
Creek
Tutuilla
Gaging Station
Coyote
Landing Strip
Radio Tower
Canyon
Sparks
Birch
McKay
Reservoir
MC KAY CREEK NATIONAL WILDLIFE REFUGE
Landing Strip
Quarry
Cross Ranch
Coombs
Canyon
Gaging Station
Spring
Hollow
Table Rock
George
BASE LINE
RESERVATION
BOUNDARY
T 3 N
T 2 N
T 1 N
T 1 S
R 31 E
R 32 E
R 33 E
2 400 000 FEET
119°00'
45°30'
45'

EXTREME DAILY MAXIMUM AND MINIMUM BY MONTH
(Records for 1900-1991)
(Climatological normals from 1951-1980)

MONTH	NORMAL DAILY MAXIMUM	HIGHEST DAILY MAXIMUM	DATE OF OCCURRENCE
January	39.4	68	15th, 1974
February	46.9	72	24th, 1986
March	53.4	79	30th, 1964
April	61.4	91	24th, 1977
May	70.6	100	31st, 1986
June	79.6	108	17th, 1961
July	88.9	110	27th, 1939
August	85.9	113	4th, 1961
September	77.1	102	6th, 1955
October	63.7	92	5th, 1980
November	48.7	77	4th, 1975
December	42.5	67	26th, 1980*

MONTH	NORMAL DAILY MINIMUM	LOWEST DAILY MINIMUM	DATE OF OCCURRENCE
January	26.3	-22	27th, 1957
February	31.8	-18	3rd, 1950*
March	34.4	10	5th, 1955
April	39.2	18	1st, 1936
May	46.1	25	1st, 1954
June	52.9	36	1st, 1966*
July	58.6	42	7th, 1971
August	57.5	40	29th, 1980
September	50.5	30	25th, 1970*
October	41.3	11	30th, 1935
November	33.4	-12	23rd, 1985
December	29.5	-19	23rd, 1983

Highest temperature ever recorded -> 113 on August 4, 1961
Lowest temperature ever recorded -> -22 on January 27, 1957

* LAST OF SEVERAL OCCURRENCES

JANUARY

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	67 - 1939	40	-12 - 1979	27
2	57 - 1962	39	2 - 1979	27
3	60 - 1989	39	-1 - 1959*	26
4	61 - 1984	39	-4 - 1950	26
5	59 - 1966	39	-9 - 1942	26
6	58 - 1990*	39	-6 - 1942	26
7	61 - 1945	39	-7 - 1937	26
8	64 - 1953	39	-14 - 1937	26
9	67 - 1990	38	-10 - 1973	26
10	58 - 1983	38	-7 - 1963	26
11	63 - 1953	38	-11 - 1963	25
12	60 - 1959*	38	-8 - 1963	25
13	60 - 1966	38	-2 - 1960	25
14	62 - 1961	38	-4 - 1950	25
15	68 - 1974	39	1 - 1950	25
16	63 - 1976	39	-5 - 1950	26
17	59 - 1975	39	-7 - 1950	26
18	63 - 1986	39	-8 - 1943	26
19	67 - 1968	39	-8 - 1937	26
20	67 - 1968	39	-8 - 1954	26
21	61 - 1968	39	-10 - 1962	26
22	58 - 1970	39	-5 - 1962	26
23	57 - 1982	40	-8 - 1969	26
24	60 - 1959	40	-5 - 1957	27
25	55 - 1990	40	-10 - 1957	27
26	56 - 1983	41	-18 - 1957	27
27	56 - 1984	41	-22 - 1957	27
28	58 - 1971*	41	-14 - 1957	28
29	63 - 1967	41	-16 - 1957	28
30	65 - 1971	42	-15 - 1950	28
31	65 - 1971	42	-15 - 1950	28

* LAST OF SEVERAL OCCURRENCES

FEBRUARY

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	61 - 1991	43	-17 - 1950	29
2	65 - 1968	43	-18 - 1950	29
3	59 - 1991	43	-18 - 1950	30
4	66 - 1963	44	-13 - 1989	30
5	64 - 1963	44	-12 - 1989	30
6	62 - 1963	44	-4 - 1989	30
7	62 - 1945	45	-10 - 1936	31
8	59 - 1951	45	-8 - 1936	31
9	65 - 1961	46	-1 - 1939	31
10	67 - 1977	46	2 - 1936	31
11	64 - 1988	46	-1 - 1936	32
12	68 - 1977	46	11 - 1949	32
13	62 - 1971	47	3 - 1936	32
14	65 - 1971	47	-4 - 1936	32
15	66 - 1982	47	-4 - 1936	32
16	65 - 1977	48	-8 - 1936	32
17	65 - 1948	48	-10 - 1936	33
18	66 - 1958	48	6 - 1936	33
19	64 - 1982	48	13 - 1936	33
20	69 - 1982	49	7 - 1957	33
21	69 - 1988	49	6 - 1957	33
22	64 - 1983	49	18 - 1936	33
23	65 - 1954	49	21 - 1959	33
24	72 - 1986	49	16 - 1962	33
25	65 - 1950	50	15 - 1962	33
26	62 - 1957	50	12 - 1962	33
27	67 - 1972	50	11 - 1960	33
28	68 - 1972	50	10 - 1960	33
29	66 - 1968	50	13 - 1960	33

* LAST OF SEVERAL OCCURRENCES

MARCH

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	63 - 1968	50	17 - 1944	33
2	67 - 1936	50	11 - 1989	33
3	66 - 1991	51	12 - 1989	33
4	75 - 1968	51	13 - 1955	33
5	74 - 1972	51	10 - 1955	34
6	68 - 1979	51	19 - 1943	34
7	67 - 1941	51	25 - 1951	34
8	67 - 1953	52	27 - 1958	34
9	70 - 1953	52	23 - 1948	34
10	64 - 1976	52	16 - 1948	34
11	66 - 1938	52	16 - 1950	34
12	67 - 1968	52	23 - 1956	34
13	62 - 1940	53	23 - 1944	34
14	70 - 1961	53	16 - 1944	34
15	73 - 1940	53	24 - 1944	34
16	72 - 1972	53	26 - 1955	34
17	72 - 1972*	53	20 - 1965	34
18	71 - 1978	54	15 - 1965	34
19	69 - 1978	54	18 - 1965	34
20	72 - 1947*	54	22 - 1955	35
21	74 - 1960	54	28 - 1938	35
22	74 - 1960	55	27 - 1966	35
23	74 - 1960*	55	23 - 1965	35
24	76 - 1939	55	18 - 1965	35
25	78 - 1960	55	22 - 1955	35
26	73 - 1946	56	22 - 1955	35
27	76 - 1952	56	23 - 1975	35
28	72 - 1966	56	23 - 1954	36
29	75 - 1966	56	18 - 1954	36
30	79 - 1964	57	19 - 1936	36
31	76 - 1941	57	21 - 1936	36

* LAST OF SEVERAL OCCURRENCES

APRIL

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	73 - 1990	57	18 - 1936	36
2	80 - 1944	57	27 - 1980	37
3	79 - 1944	58	29 - 1970	37
4	79 - 1960	58	29 - 1972*	37
5	81 - 1952	58	24 - 1975	37
6	80 - 1977	59	29 - 1939	37
7	87 - 1977	59	28 - 1965	38
8	76 - 1960	59	28 - 1982	38
9	79 - 1985	59	31 - 1972	38
10	80 - 1968	60	30 - 1972	38
11	78 - 1936	60	30 - 1983	38
12	82 - 1936	60	30 - 1978	38
13	81 - 1962*	61	25 - 1968	39
14	83 - 1943	61	29 - 1967	39
15	84 - 1936	61	29 - 1967	39
16	82 - 1936	61	27 - 1970	39
17	84 - 1936	62	25 - 1964	40
18	85 - 1952	62	25 - 1966*	40
19	79 - 1942	62	23 - 1966	40
20	85 - 1942	63	29 - 1982	40
21	83 - 1956	63	26 - 1951	40
22	82 - 1977	63	31 - 1967	41
23	87 - 1977	64	32 - 1964	41
24	91 - 1977	64	30 - 1986	41
25	89 - 1946	64	33 - 1955	41
26	78 - 1947	65	30 - 1970	42
27	84 - 1964	65	30 - 1955	42
28	86 - 1940	65	30 - 1967	42
29	88 - 1968	66	32 - 1950	42
30	82 - 1976	66	30 - 1972	42

* LAST OF SEVERAL OCCURRENCES

MAY

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	88 - 1976	66	25 - 1954	43
2	87 - 1937	66	33 - 1954	43
3	89 - 1966	67	33 - 1969	43
4	92 - 1966	67	32 - 1962	43
5	96 - 1966	67	32 - 1986*	44
6	84 - 1987*	67	35 - 1977	44
7	87 - 1987	68	38 - 1968*	44
8	91 - 1987	68	35 - 1990	44
9	91 - 1940	69	37 - 1991*	45
10	92 - 1936	69	39 - 1944*	45
11	92 - 1971	69	30 - 1970	45
12	92 - 1988	70	33 - 1985	45
13	90 - 1972	70	35 - 1970	45
14	94 - 1939	70	33 - 1964	46
15	90 - 1939	70	37 - 1966	46
16	89 - 1970	71	37 - 1986	46
17	90 - 1956	71	38 - 1971	46
18	93 - 1956*	71	38 - 1966*	47
19	86 - 1956	72	38 - 1989*	47
20	88 - 1947	72	36 - 1987	47
21	90 - 1967*	72	37 - 1987	47
22	94 - 1951	72	34 - 1960	48
23	92 - 1969	73	35 - 1978	48
24	91 - 1938	73	38 - 1935	48
25	93 - 1966	73	35 - 1964	48
26	99 - 1936	73	35 - 1976	48
27	89 - 1983	74	40 - 1940	49
28	94 - 1983	74	38 - 1989	49
29	96 - 1983	74	38 - 1951	49
30	98 - 1986	75	36 - 1978	49
31	100 - 1986	75	40 - 1955	49

* LAST OF SEVERAL OCCURRENCES

JUNE

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	97 - 1986*	75	36 - 1966	50
2	96 - 1970	75	37 - 1987*	50
3	98 - 1970	75	41 - 1991	50
4	98 - 1969	76	35 - 1991	50
5	95 - 1957	76	43 - 1956	51
6	94 - 1972	76	41 - 1954	51
7	94 - 1977	77	43 - 1982	51
8	92 - 1948	77	40 - 1953	51
9	94 - 1950	77	42 - 1985*	51
10	96 - 1940	78	36 - 1938	52
11	99 - 1940	78	43 - 1952	52
12	99 - 1940	78	43 - 1952	52
13	94 - 1985*	78	38 - 1962	52
14	98 - 1987*	79	39 - 1990	52
15	101 - 1961	79	40 - 1945	53
16	106 - 1961	80	42 - 1955	53
17	108 - 1961	80	41 - 1949	53
18	100 - 1961	80	42 - 1954	53
19	98 - 1967	81	44 - 1942	54
20	99 - 1970	81	40 - 1945	54
21	99 - 1970	81	43 - 1960	54
22	103 - 1973	82	43 - 1963	54
23	102 - 1970	82	45 - 1987*	55
24	100 - 1940	83	45 - 1985	55
25	101 - 1970	83	44 - 1983*	55
26	101 - 1970	83	39 - 1976	55
27	94 - 1956	84	44 - 1976	56
28	101 - 1934	84	43 - 1964	56
29	101 - 1948	85	44 - 1971	56
30	101 - 1987	85	42 - 1949	56

* LAST OF SEVERAL OCCURRENCES

JULY

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	98 - 1942	85	46 - 1935	57
2	101 - 1967	86	42 - 1955	57
3	105 - 1942	86	46 - 1990*	57
4	107 - 1975	87	46 - 1988	57
5	106 - 1968	87	48 - 1986*	57
6	108 - 1968	87	45 - 1988	58
7	103 - 1960	88	42 - 1971	58
8	106 - 1968	88	45 - 1981	58
9	108 - 1975*	88	46 - 1965	58
10	102 - 1990	89	50 - 1971	58
11	105 - 1990	89	47 - 1981	58
12	104 - 1990	89	48 - 1981	59
13	106 - 1935	89	47 - 1976	59
14	108 - 1935	89	49 - 1939	59
15	103 - 1970	90	48 - 1962	59
16	105 - 1941	90	46 - 1983	59
17	107 - 1960*	90	48 - 1986	59
18	108 - 1960	90	48 - 1987*	59
19	105 - 1979	90	48 - 1962	59
20	104 - 1971	90	51 - 1991*	59
21	107 - 1938	90	49 - 1984	59
22	106 - 1938	90	47 - 1984*	59
23	103 - 1956	90	46 - 1963	59
24	104 - 1962	90	51 - 1953	59
25	102 - 1978	90	52 - 1966	60
26	107 - 1939	90	49 - 1969	60
27	110 - 1939	90	49 - 1986	60
28	106 - 1968	90	49 - 1959	60
29	104 - 1971	90	48 - 1979	59
30	106 - 1971	90	48 - 1981	59
31	108 - 1971	89	50 - 1970	59

* LAST OF SEVERAL OCCURRENCES

AUGUST

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	103 - 1971*	89	46 - 1987	59
2	100 - 1961	89	48 - 1987*	59
3	104 - 1978	89	51 - 1969	59
4	113 - 1961	89	48 - 1954	59
5	103 - 1990*	88	48 - 1948	59
6	106 - 1972	88	45 - 1969	59
7	109 - 1972	88	47 - 1946	59
8	111 - 1972	88	47 - 1938	59
9	106 - 1971	88	50 - 1970	59
10	105 - 1971	87	49 - 1947	59
11	104 - 1971	87	49 - 1991	58
12	105 - 1971	87	51 - 1991*	58
13	102 - 1977	87	50 - 1985*	58
14	103 - 1961	86	45 - 1964	58
15	103 - 1967	86	46 - 1937	58
16	105 - 1967	86	45 - 1935	58
17	105 - 1967	86	46 - 1987	58
18	104 - 1967	86	49 - 1987*	57
19	104 - 1967	85	47 - 1980*	57
20	101 - 1967	85	49 - 1966	57
21	102 - 1961	85	46 - 1987*	57
22	102 - 1956	85	46 - 1985*	57
23	100 - 1969	84	49 - 1971	57
24	101 - 1958	84	46 - 1935	56
25	101 - 1958	84	44 - 1980	56
26	101 - 1938	84	46 - 1991*	56
27	102 - 1972	83	48 - 1945	56
28	105 - 1972	83	43 - 1960	55
29	100 - 1967	83	40 - 1980	55
30	103 - 1967	82	44 - 1965	55
31	101 - 1967	82	41 - 1964	55

* LAST OF SEVERAL OCCURRENCES

SEPTEMBER

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	97 - 1987*	82	45 - 1937	55
2	101 - 1950	82	46 - 1944	54
3	93 - 1988*	81	44 - 1980	54
4	97 - 1988	81	44 - 1956	54
5	98 - 1955	81	44 - 1969	53
6	102 - 1955	80	44 - 1965*	53
7	97 - 1944	80	38 - 1960	53
8	98 - 1981	80	38 - 1962	53
9	97 - 1963	80	40 - 1970	52
10	96 - 1990	79	44 - 1985*	52
11	99 - 1944	79	43 - 1986*	52
12	94 - 1959	79	36 - 1970	52
13	97 - 1948	78	32 - 1970	51
14	94 - 1979	78	34 - 1970	51
15	93 - 1975	77	35 - 1970	51
16	93 - 1981	77	34 - 1965	50
17	94 - 1981	77	30 - 1965	50
18	90 - 1984*	76	34 - 1965	50
19	90 - 1967	76	34 - 1957	50
20	91 - 1967	76	35 - 1983	49
21	93 - 1967	75	39 - 1960	49
22	91 - 1975	75	38 - 1991*	49
23	90 - 1952	74	38 - 1970	48
24	94 - 1952	74	34 - 1965	48
25	99 - 1952	74	30 - 1970	48
26	91 - 1940	73	35 - 1972	47
27	91 - 1967	73	36 - 1951	47
28	91 - 1967	72	32 - 1985	47
29	87 - 1976	72	31 - 1985	47
30	88 - 1976	72	33 - 1954	46

* LAST OF SEVERAL OCCURRENCES

OCTOBER

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	90 - 1975	71	32 - 1950	46
2	87 - 1975	71	31 - 1950	46
3	85 - 1958	71	35 - 1977	45
4	84 - 1958	70	33 - 1977	45
5	92 - 1980	69	34 - 1972	45
6	86 - 1980	69	31 - 1974	44
7	87 - 1980	68	31 - 1970	44
8	83 - 1988*	68	27 - 1985	44
9	84 - 1942	67	27 - 1985	43
10	86 - 1988	67	34 - 1980	43
11	80 - 1991	66	33 - 1990	43
12	78 - 1988	66	29 - 1969	42
13	82 - 1976	66	23 - 1969	42
14	83 - 1963	65	25 - 1969	42
15	84 - 1991*	64	26 - 1970	42
16	78 - 1974	64	26 - 1971	41
17	80 - 1975	63	26 - 1949	41
18	85 - 1940	63	27 - 1949	41
19	82 - 1940	62	23 - 1949	40
20	79 - 1940	62	27 - 1982*	40
21	77 - 1942	61	27 - 1961	40
22	80 - 1982	61	28 - 1984	39
23	75 - 1959	60	29 - 1984*	39
24	80 - 1977	60	27 - 1958	39
25	77 - 1986	59	27 - 1978	39
26	82 - 1986	59	25 - 1978	38
27	76 - 1937	58	24 - 1971	38
28	80 - 1937	57	21 - 1971	38
29	72 - 1944	57	19 - 1935*	37
30	74 - 1967	56	11 - 1935	37
31	74 - 1967	56	15 - 1935	37

* LAST OF SEVERAL OCCURRENCES

NOVEMBER

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	74 - 1965	55	12 - 1935	37
2	67 - 1959	54	7 - 1935	36
3	76 - 1975	54	10 - 1935	36
4	77 - 1975	53	15 - 1935	36
5	67 - 1941	53	21 - 1935	35
6	65 - 1958	52	22 - 1971	35
7	71 - 1978	52	20 - 1936	35
8	63 - 1969	51	20 - 1936	35
9	72 - 1989	51	19 - 1936	34
10	69 - 1989	50	16 - 1986*	34
11	69 - 1989	50	6 - 1978	34
12	66 - 1990	49	7 - 1955	34
13	66 - 1990*	49	7 - 1985	34
14	72 - 1953	49	-4 - 1955	33
15	67 - 1975	48	-6 - 1955	33
16	66 - 1976	48	3 - 1959	33
17	64 - 1976	48	10 - 1959	33
18	65 - 1946	47	16 - 1955	33
19	68 - 1989	47	19 - 1985*	33
20	69 - 1958	47	9 - 1977	32
21	74 - 1974	46	9 - 1985*	32
22	69 - 1954	46	-5 - 1985	32
23	66 - 1959	46	-12 - 1985	32
24	71 - 1960	46	-11 - 1985	32
25	65 - 1963	45	4 - 1985	32
26	67 - 1963	45	17 - 1985*	32
27	66 - 1949	45	7 - 1985	32
28	63 - 1973	45	5 - 1985	31
29	61 - 1941	45	6 - 1985	31
30	63 - 1951	45	6 - 1985	31

* LAST OF SEVERAL OCCURRENCES

DECEMBER

(Records for 1935-1991)
(Climatological normals from 1951-1980)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	62 - 1958	45	-6 - 1985	31
2	67 - 1975	45	6 - 1985	31
3	64 - 1975	44	14 - 1985	31
4	64 - 1989*	44	-1 - 1972	31
5	65 - 1939	44	1 - 1972	31
6	65 - 1987	44	7 - 1956	31
7	64 - 1938	44	-7 - 1972	31
8	66 - 1975	44	-11 - 1972	31
9	63 - 1987	44	-9 - 1972	31
10	62 - 1968	44	-13 - 1972	30
11	62 - 1976	43	-9 - 1972	30
12	60 - 1988	43	-4 - 1972	30
13	60 - 1969	43	-8 - 1972	30
14	59 - 1946	43	-3 - 1972	30
15	67 - 1959	43	-2 - 1972	30
16	62 - 1942	43	-12 - 1964	30
17	61 - 1974	43	-12 - 1964	30
18	59 - 1936	42	-4 - 1984	30
19	59 - 1941	42	-7 - 1984	29
20	60 - 1961	42	-12 - 1990	29
21	66 - 1972	42	-16 - 1990	29
22	61 - 1964	42	-15 - 1983	29
23	64 - 1950	41	-19 - 1983	29
24	60 - 1963	41	-17 - 1983	28
25	61 - 1980	41	0 - 1990	28
26	67 - 1980	41	9 - 1983	28
27	63 - 1980	41	8 - 1948	28
28	63 - 1965	40	2 - 1990*	28
29	65 - 1975	40	-13 - 1990	27
30	60 - 1938	40	-12 - 1968	27
31	62 - 1958	40	-10 - 1978	27

* LAST OF SEVERAL OCCURRENCES

AVERAGE MONTHLY TEMPERATURES
(Records for 1900-1991)
(Climatological normals for 1951-1980)

MONTH	NORMAL AVERAGE TEMP	HIGHEST AVERAGE TEMP	YEAR	LOWEST AVERAGE TEMP	YEAR
January	32.8	45.8	1953	13.0	1930
February	39.4	46.8	1958	19.4	1936
March	43.9	52.5	1934	38.8	1955
April	50.3	59.6	1934	45.8	1970*
May	58.4	64.9	1958	53.5	1932
June	66.2	71.6	1961	59.6	1991
July	73.8	78.4	1975	67.6	1986
August	71.7	79.7	1967	65.7	1910
September	63.8	69.9	1967	56.3	1970
October	52.5	58.4	1988*	44.4	1905
November	41.1	47.2	1927	26.5	1985
December	36.0	45.1	1917	19.5	1985

AVERAGE YEARLY TEMPERATURES
(Records for 1900-1991)
(Climatological normals for 1951-1980)

HIGHEST YEARLY AVERAGES		LOWEST YEARLY AVERAGES	
55.6	in 1934	48.3	in 1985
55.4	in 1958	48.7	in 1916
55.1	in 1967*	49.5	in 1929

Normal average yearly temperature...52.5

* LAST OF SEVERAL OCCURRENCES

HIGHEST AVERAGE MONTHLY TEMPERATURES
(Records for 1900-1991)

JAN		FEB		MAR		APR	
45.8	1953	46.8	1958	52.5	1934	59.6	1934
43.6	1934	46.2	1926*	51.3	1910	58.0	1926
43.1	1914	45.8	1924	50.8	1900	56.7	1904
42.4	1967	45.5	1961	49.8	1940	56.4	1925*
41.1	1923	44.7	1991	49.3	1926	55.7	1915
41.0	1900	44.6	1934	49.2	1941	55.5	1930
40.8	1983	43.8	1983*	48.8	1986	55.3	1977
40.6	1925	43.6	1915	48.7	1915*	55.1	1936
40.3	1964	42.8	1968*	48.5	1968	54.8	1990
40.0	1971*	42.5	1967*	48.2	1947	54.6	1949

MAY		JUN		JUL		AUG	
64.9	1958	71.6	1961	78.4	1975	79.7	1967
64.0	1947*	71.1	1974	78.3	1960	76.9	1961*
63.5	1924	70.6	1918	77.6	1958	76.8	1971
62.8	1936	70.1	1900	77.4	1985*	76.2	1972
62.6	1940*	70.0	1986	77.2	1968	76.1	1901
62.5	1949	69.8	1969*	77.0	1941	75.8	1986*
61.7	1969	69.7	1967	76.4	1967*	75.5	1974
61.6	1925	69.1	1977	76.1	1971	74.9	1977
61.5	1957	68.8	1903	76.0	1908	74.8	1942
61.4	1934*	68.7	1970	75.9	1956	74.3	1981

SEP		OCT		NOV		DEC	
69.9	1967	58.4	1988*	47.2	1927	45.1	1917
69.0	1938	57.8	1944	46.8	1932	44.3	1933
68.2	1990	57.5	1965*	46.6	1934	42.6	1900
67.6	1963	56.5	1940	46.4	1954*	41.5	1973
67.5	1974	56.2	1936	45.9	1983	41.3	1957
67.3	1976*	55.5	1963*	45.7	1953	41.2	1939
67.2	1935	55.4	1945*	45.4	1990*	41.1	1966
67.0	1975	55.0	1918	45.2	1962	40.6	1974
66.8	1952	54.9	1967	45.1	1966	40.5	1975
66.6	1966*	54.8	1974*	45.0	1904	40.4	1925

* LAST OF SEVERAL OCCURRENCES

LOWEST AVERAGE MONTHLY TEMPERATURES
(Records for 1900-1991)

JAN		FEB		MAR		APR	
13.0	1930	19.4	1936	38.8	1955	45.8	1970*
14.1	1937	24.3	1929	39.8	1917	46.2	1955
15.3	1979	25.1	1989	40.0	1912	47.5	1975
16.6	1950	28.4	1956	40.2	1935	47.6	1982*
16.8	1949	29.4	1923*	40.3	1954	48.0	1978*
18.6	1916	29.6	1910	40.5	1971	48.2	1984*
19.0	1957	32.0	1905	40.6	1965	48.4	1932*
21.8	1942	32.6	1916	40.7	1951	48.5	1964
22.0	1969	32.9	1950	41.3	1980*	48.7	1929
23.8	1929	33.3	1932	42.1	1913	49.0	1983*

MAY		JUN		JUL		AUG	
53.5	1932	59.6	1991	67.6	1986	65.7	1910
53.9	1991	59.8	1953	68.4	1983*	66.1	1907
54.0	1962	60.4	1980	68.6	1963	66.9	1980*
54.4	1978*	61.4	1906	68.9	1987	67.3	1954
54.7	1984*	61.6	1981	69.0	1912*	67.7	1976
55.0	1953	61.7	1954*	69.2	1981*	68.0	1918
55.1	1977	62.1	1984	69.6	1903	68.1	1985
55.2	1927	62.7	1983	69.7	1955	68.4	1964*
55.3	1948	62.8	1920*	69.9	1932	68.6	1948
55.4	1959*	62.9	1932	70.0	1921	68.8	1989*

SEP		OCT		NOV		DEC	
56.3	1970	44.4	1905	26.5	1985	19.5	1985
57.0	1985	47.4	1970	33.5	1978	23.2	1983
57.8	1921	48.4	1949	33.6	1929	23.3	1919
58.5	1977	48.7	1913*	34.0	1952	25.8	1990
58.6	1926	48.8	1946*	34.7	1979	26.0	1924
58.8	1912*	49.1	1984*	34.9	1955	27.1	1972
58.9	1986*	49.2	1931*	35.4	1940	27.4	1914
59.1	1971	49.3	1969	35.6	1935	28.4	1909
59.2	1910	50.0	1977*	36.0	1931	29.5	1978
59.5	1961	50.2	1954*	36.2	1916	30.0	1931

* LAST OF SEVERAL OCCURRENCES

NUMBER OF DAYS PER MONTH WITH MAXIMUM TEMPERATURE...
(Climatological normals for 1951-1980)

90 DEGREES OR HIGHER
(Records for 1935-1991)

MONTH	NORMAL NUMBER OF DAYS WITH MAX TEMP 90 DEGREES OR HIGHER	GREATEST NUMBER OF DAYS WITH MAX TEMP 90 DEGREES OR HIGHER	
January	0	0	
February	0	0	
March	0	0	
April	0	1	in 1977
May	.8	4	in 1973
June	4.6	14	in 1974*
July	14.4	25	in 1985*
August	10.6	26	in 1967
September	2.7	10	in 1967
October	0	1	in 1980
November	0	0	
December	0	0	

32 DEGREES OR LOWER
(Records for 1949-1991)

MONTH	NORMAL NUMBER OF DAYS WITH MAX TEMP 32 DEGREES OR LOWER	GREATEST NUMBER OF DAYS WITH MAX TEMP 32 DEGREES OR LOWER	
January	9.3	24	in 1985*
February	2.9	12	in 1989*
March	.2	4	in 1960
April	0	0	
May	0	0	
June	0	0	
July	0	0	
August	0	0	
September	0	0	
October	0	1	in 1991
November	2.0	16	in 1985
December	7.4	26	in 1985

*LAST OF SEVERAL OCCURRENCES

NUMBER OF DAYS PER MONTH WITH MINIMUM TEMPERATURE...
(Records for 1949-1991)
(Climatological normals for 1951-1980)

32 DEGREES OR LOWER

MONTH	NORMAL NUMBER OF DAYS WITH MIN TEMP 32 DEGREES OR LOWER	GREATEST NUMBER OF DAYS WITH MIN TEMP 32 DEGREES OR LOWER	
January	21.2	31	in 1985*
February	15.8	26	in 1989
March	9.5	21	in 1955
April	2.5	10	in 1970
May	.1	1	in 1986
June	0	0	
July	0	0	
August	0	0	
September	.1	2	in 1985*
October	2.5	12	in 1971
November	12.3	26	in 1978
December	19.3	31	in 1985

0 DEGREES OR LOWER

MONTH	NORMAL NUMBER OF DAYS WITH MIN TEMP 0 DEGREES OR LOWER	GREATEST NUMBER OF DAYS WITH MIN TEMP 0 DEGREES OR LOWER	
January	1.7	11	in 1957*
February	.7	7	in 1989
March	0	0	
April	0	0	
May	0	0	
June	0	0	
July	0	0	
August	0	0	
September	0	0	
October	0	0	
November	.1	3	in 1985
December	.7	10	in 1972

* LAST OF SEVERAL OCCURRENCES

CONSECUTIVE DAYS OF MAXIMUM TEMPERATURE 100 DEGREES OR HIGHER
(Records for 1935-1991)

DURATION	DATES OF OCCURRENCE
11	August 10 - 20, 1967
7	July 2 - 8, 1968
6	August 7 - 12, 1971*
5	August 5 - 9, 1972
4	July 27 - 30, 1973*
2	July 27 - 28, 1974

CONSECUTIVE DAYS OF MAXIMUM TEMPERATURE 90 DEGREES OR HIGHER
(Records for 1935-1991)

DURATION	DATES OF OCCURRENCE
31	July 14 - August 13, 1971
22	July 31 - August 21, 1977
19	July 15 - August 16, 1958
18	July 25 - August 11, 1972
16	August 8 - August 23, 1967
15	July 8 - 22, 1990*

CONSECUTIVE DAYS OF MAXIMUM TEMPERATURE 32 DEGREES OR LOWER
(Records for 1949-1991)

DURATION	DATES OF OCCURRENCE
24	December 8 - December 31, 1985
17	December 23, 1987 - January 8, 1988*
14	December 16 - December 29, 1983*
13	November 20 - December 8, 1985*
12	January 1 - January 12, 1974
11	January 9 - January 19, 1985*

* LAST OF SEVERAL OCCURRENCES

CONSECUTIVE DAYS OF MINIMUM TEMPERATURE 32 DEGREES OR LOWER
(Records for 1949-1991)

DURATION	DATES OF OCCURRENCE
67	November 10, 1985 - January 15, 1986
43	December 30, 1984 - February 10, 1985
42	December 25, 1978 - February 4, 1979
40	January 1 - February 8, 1949
33	December 11, 1987 - January 12, 1988
31	December 19, 1951 - January 18, 1952

CONSECUTIVE DAYS OF MINIMUM TEMPERATURE 0 DEGREES OR LOWER
(Records for 1949-1991)

DURATION	DATES OF OCCURRENCE
9	December 7 - 15, 1972
8	January 28 - February 4, 1950
7	December 19 - 25, 1989*
5	January 30 - February 3, 1956
4	December 21 - 24, 1983*

*LAST OF SEVERAL OCCURRENCES

EARLIEST AND LATEST DATES OF HIGH AND LOW TEMPERATURES
(Records for 1900-1991)

EARLIEST DATE WITH READING OF:		LATEST DATE WITH READING OF:
70 or higher-	Feb 24, 1986	Nov 24, 1960
80 or higher-	Apr 2, 1944	Oct 28, 1937
90 or higher-	Apr 24, 1977	Oct 5, 1980
100 or higher-	May 31, 1986	Sep 6, 1955
110 or higher-	Jul 27, 1939	Aug 8, 1972

EARLIEST DATE WITH READING OF:		LATEST DATE WITH READING OF:
32 or lower-	Sep 13, 1970	May 11, 1970
20 or lower-	Oct 29, 1971*	Apr 1, 1936
10 or lower-	Nov 2, 1935	Mar 5, 1955
0 or lower-	Nov 14, 1955	Feb 17, 1936
-10 or lower-	Nov 23, 1985	Feb 17, 1936
-20 or lower-	Jan 27, 1957	Jan 27, 1957

* LAST OF SEVERAL OCCURRENCES

LOWEST DAILY MAXIMUMS

(Records for 1897-1991)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6 1979	-2 1950	31 1970	42 1935	50 1915	57 1971	65 1955	69 1985	65 1941	55 1937	33 1991	9 1985
2	12 1924	3 1950	22 1960	45 1920	52 1988*	56 1923	64 1966	72 1956	60 1941	54 1939	31 1935	16 1985
3	15 1952	2 1950	23 1960	36 1936	51 1950*	54 1966	64 1902	65 1941	67 1941	53 1950	35 1991	25 1909
4	12 1959	3 1989	27 1955	43 1975	51 1988	57 1988*	59 1932	68 1941	57 1940	54 1975	45 1977*	20 1972*
5	13 1979	9 1899	28 1983	42 1932	51 1961	52 1988	66 1951*	71 1950	61 1911*	57 1948	34 1973	23 1956
6	9 1979*	17 1989*	34 1980	44 1982	54 1986	53 1954	56 1955	72 1946	61 1901	49 1990	34 1973	18 1956
7	5 1909	9 1929	41 1974	42 1935	53 1990	52 1950	69 1983	64 1976	57 1978	47 1985	37 1920	15 1972
8	3 1909	9 1936	37 1983	41 1935	50 1983	57 1964	68 1932	67 1907	60 1985*	43 1985	33 1945	7 1972
9	-2 1909	12 1929	40 1939	44 1905	51 1948	62 1922	69 1955	72 1947*	57 1952	49 1985	39 1982	10 1972
10	-4 1909	12 1929	37 1932	49 1983*	53 1942*	61 1983	63 1974	69 1985	61 1941	49 1981	35 1986*	7 1972
11	4 1909	12 1905	29 1906	49 1983	54 1943	58 1915	60 1932	72 1941	57 1927	52 1929	25 1985	11 1972
12	0 1909	18 1905	23 1906	44 1968	56 1960	56 1980	72 1934	66 1978	56 1907	51 1954	19 1955	3 1919
13	6 1909	21 1933*	22 1906	50 1955	56 1966	60 1907	68 1932	61 1908	57 1927	44 1899	15 1955	0 1919
14	6 1909	22 1936	23 1906	49 1975	52 1955	58 1943	71 1983	66 1976	58 1955	49 1905	14 1955	-2 1919
15	9 1907	18 1936	25 1906	49 1991	53 1983*	60 1932	66 1942	63 1976	55 1958	47 1905	15 1955	10 1919
16	1 1916	21 1936	29 1906	44 1917	52 1971*	57 1949	66 1986	65 1968	60 1954	49 1905	16 1955	14 1919
17	0 1916	14 1936	37 1906	44 1955	52 1991	61 1975*	66 1987	71 1902	52 1947	43 1905	22 1955	5 1964
18	8 1950	22 1936	43 1965	47 1927	54 1948	61 1975	71 1987	66 1980	57 1983	39 1949	30 1959	7 1964
19	10 1930	26 1936	42 1991	45 1970	50 1962	62 1948	68 1949	68 1924	59 1983*	44 1930	24 1978	11 1984
20	10 1935*	26 1957	43 1938	44 1967	54 1902	56 1991	62 1934	66 1978	59 1931	46 1984	21 1921	5 1990
21	4 1930	26 1957	40 1898	49 1949	52 1932	62 1943*	66 1934	66 1990	55 1945	42 1945	19 1977	3 1990
22	6 1930	21 1910	45 1929	48 1960	53 1932	66 1907	71 1987	70 1978*	57 1984	46 1905	16 1985	2 1983
23	9 1930	26 1910	39 1990	54 1935	51 1932	60 1983	77 1953	62 1989	42 1934	46 1984*	4 1985	2 1983
24	11 1930	27 1922	36 1904	49 1984*	51 1932	59 1972	74 1949	68 1973*	47 1934	39 1919	7 1985	8 1983
25	8 1957	34 1962*	34 1904	51 1984	52 1932	54 1942	75 1990*	69 1954*	52 1948	44 1919	17 1985	8 1924
26	1 1957	32 1922	45 1985*	48 1970	53 1932	59 1942	67 1940	61 1956	55 1948	38 1918	24 1952	12 1924
27	6 1957	35 1922*	35 1931	46 1948	57 1927	62 1931	69 1948	70 1942	49 1929	43 1991	25 1952	18 1985*
28	5 1957	36 1970*	40 1954	52 1990	56 1941	62 1982	71 1950	65 1942	54 1977	40 1991	7 1985	20 1987*
29	7 1950	34 1944	37 1936	44 1933	57 1932*	63 1955	72 1975	67 1951	58 1950	31 1935	9 1985	2 1990
30	6 1950		41 1936	50 1915	53 1971	66 1955*	69 1964	68 1975*	50 1930	35 1991*	13 1985	0 1968
31	2 1950		41 1936		59 1932		72 1937	67 1897		35 1935		4 1968
LOW DATE	-4 10-09	-2 1-50	22 2-60*	36 3-36	50 8-83*	52 4-88*	56 6-55	61 26-56	42 23-34	31 29-35	4 23-85	-2 14-19

* LAST OF SEVERAL OCCURRENCES

HIGHEST DAILY MINIMUMS

(Records for 1897-1991)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	44	49	50	51	54	69	70	76	70	61	51	52
	1948	1909	1910	1915	1906	1986	1924	1929	1987	1991	1976	1975
2	47	53	52	53	56	68	69	69	65	57	52	53
	1921	1909	1934	1961	1931	1975	1924	1974	1922	1976	1909	1977
3	49	46	57	50	52	67	72	66	67	59	52	50
	1903	1925	1987	1915	1971*	1986	1924	1958	1923*	1967	1983*	1982*
4	48	49	57	50	55	64	67	68	67	55	53	54
	1933	1926	1987	1991	1979*	1922	1985*	1977	1913	1975	1927	1975
5	53	48	52	53	55	73	65	65	64	56	54	46
	1914	1960	1968	1973	1900	1969	1975*	1991*	1972	1918	1927	1981
6	49	45	55	53	59	66	79	80	75	56	47	54
	1923	1953*	1979	1971	1966	1958	1968	1904	1918	1960	1927	1970
7	46	47	47	51	58	67	68	66	62	58	51	48
	1990	1945	1983*	1906	1905	1976	1958	1989*	1990*	1966	1906	1970
8	50	46	59	54	62	65	68	72	65	57	51	42
	1959	1945	1910	1934	1987	1898	1933	1982	1963	1948	1978*	1939
9	52	46	49	48	59	65	71	71	64	57	54	42
	1959	1951	1983	1944*	1987	1969	1928	1990	1969	1972	1989	1956*
10	38	48	49	55	58	63	73	71	68	57	48	52
	1971	1921	1902	1924	1987*	1969	1975	1990	1962*	1930	1983	1956
11	41	46	46	63	56	71	76	72	62	52	48	49
	1961*	1983	1938	1925	1987	1898	1975	1965	1907	1938	1973	1974
12	46	51	52	50	55	65	71	69	63	53	49	53
	1945	1939	1968	1934*	1941	1978*	1990	1906	1926	1908	1991	1933
13	48	50	47	58	60	77	70	70	63	54	52	49
	1967	1979	1961*	1904	1949	1898	1990	1973	1918	1988	1906	1918
14	51	50	48	50	60	75	68	69	61	55	53	49
	1961	1982	1924	1990	1959*	1898	1923	1983	1918	1988*	1906	1917
15	58	47	50	52	55	65	71	70	63	61	49	52
	1974	1982	1961*	1989	1949*	1975	1955	1964	1975	1963	1975	1959
16	52	56	55	53	59	62	68	74	63	58	49	49
	1974	1902	1967	1936	1979	1988	1970*	1901	1975	1988	1983	1973
17	55	48	54	52	55	68	71	69	59	51	50	46
	1919	1983	1918	1938	1985*	1961	1917	1933*	1976*	1928	1932	1973
18	51	52	51	55	62	70	68	66	62	51	60	57
	1919	1948*	1932	1932	1925	1961	1958	1991*	1981	1975*	1897	1917
19	47	50	48	57	62	66	66	71	63	50	50	49
	1971	1968	1932	1914	1958	1968	1944	1965	1984	1941*	1965	1933
20	52	52	47	52	63	68	70	73	63	52	61	46
	1972	1930	1988	1910	1956	1982	1973	1982	1956	1973*	1962	1900
21	48	49	48	53	59	71	74	69	61	52	59	58
	1899*	1968	1963	1986	1968	1918	1913	1986	1967	1973	1974*	1933
22	49	45	48	56	59	79	68	65	59	56	49	53
	1935	1968*	1976	1936	1928	1925	1980*	1951	1976	1963	1904	1933
23	46	47	49	53	65	66	78	69	57	52	58	41
	1906	1968	1908	1969*	1958	1958*	1959	1946	1968	1966	1959	1973
24	45	53	51	51	60	64	68	68	60	51	57	47
	1974*	1986	1940	1965	1979	1986	1976*	1913	1905	1938	1960	1971
25	48	49	49	56	57	68	72	66	62	52	55	43
	1964	1979*	1930	1904	1983*	1928	1927	1946	1947	1964	1927	1967*
26	46	57	49	60	62	75	72	65	57	60	50	60
	1974	1932	1943*	1904	1948	1970	1978	1901	1966*	1906	1972	1980
27	47	49	51	57	62	72	76	67	64	54	48	49
	1967	1914	1974	1927	1938	1925	1928	1967	1978	1950	1945*	1922
28	51	54	53	61	66	61	70	70	63	52	48	48
	1967	1972	1934	1965	1924	1938	1982*	1986	1960	1949	1973	1937*
29	49	41	54	54	61	64	74	66	56	49	51	53
	1965	1972	1960	1977	1939	1986	1958	1922	1949	1975*	1909	1917
30	45		55	55	58	68	73	72	56	53	47	47
	1906		1906	1981	1947	1986	1960	1915	1951	1908	1962*	1927
31	49		51		64		70	64		50		44
	1924		1961		1931		1901	1919		1960		1960*
HI	58	57	59	63	66	79	79	80	75	61	61	60
DATE	15-74	26-32	8-10	11-25	28-24	22-25	6-68	6-04	6-18	1-91*	20-62	26-80

* LAST OF SEVERAL OCCURRENCES

MONTHLY PRECIPITATION
(Records for 1900-1991)
(Climatological normals for 1951-1980)

MONTH	NORMAL MONTHLY TOTAL	GREATEST MONTHLY TOTAL AND YEAR	LOWEST MONTHLY TOTAL AND YEAR
January	1.73	4.18 - 1912	.21 - 1949
February	1.11	3.17 - 1921	.02 - 1903
March	1.06	2.82 - 1983	.24 - 1941
April	.99	2.78 - 1978	.01 - 1956
May	1.09	3.36 - 1906	.03 - 1964
June	.70	2.90 - 1923	.01 - 1928
July	.30	2.47 - 1904	.00 - 1931*
August	.55	2.58 - 1977	.00 - 1969*
September	.58	2.70 - 1927	T - 1990*
October	.95	3.92 - 1900	T - 1987*
November	1.48	4.07 - 1910	.04 - 1939
December	1.66	4.68 - 1973	.21 - 1989

Greatest precipitation in one month -- 4.68" in Dec 1973

MONTH	NORMAL DAILY TOTAL	GREATEST DAILY TOTAL AND DATE
January	.06	1.19 - 15th, 1956
February	.04	.87 - 18th, 1949
March	.03	1.00 - 5th, 1983
April	.03	1.24 - 27th, 1990
May	.04	1.05 - 28th, 1988
June	.02	1.17 - 26th, 1942
July	.01	1.18 - 5th, 1948
August	.02	1.05 - 22nd, 1989
September	.02	1.10 - 9th, 1985
October	.03	1.40 - 28th, 1982
November	.05	1.35 - 26th, 1971
December	.05	1.25 - 4th, 1978

Greatest precipitation in one day -- 1.40" on Oct 28, 1982

NORMAL YEARLY TOTAL	GREATEST YEARLY TOTALS AND YEAR	LOWEST YEARLY TOTALS AND YEAR
12.20	19.54 - 1912	6.77 - 1967
	19.31 - 1923	7.62 - 1987
	18.22 - 1900	7.99 - 1935
	17.75 - 1978	8.07 - 1908
	17.73 - 1942	8.20 - 1911

* LAST OF SEVERAL OCCURRENCES

GREATEST MONTHLY PRECIPITATION
(Records for 1900-1991)

JAN		FEB		MAR		APR	
4.18	1912	3.17	1921	2.82	1983	2.78	1978
3.92	1970	3.12	1916	2.78	1932	2.56	1920
3.53	1975	3.03	1940	2.77	1904	2.47	1988*
3.08	1965	2.67	1901	2.53	1916	2.45	1958
2.97	1956	2.64	1926	2.39	1931	2.39	1937
2.88	1969*	2.58	1986	2.31	1957	2.30	1902
2.82	1978	2.53	1922	2.27	1905	2.13	1974
2.73	1916	2.46	1961*	2.25	1961	2.05	1969
2.63	1913	2.38	1924	2.19	1915	2.04	1943
2.51	1925	2.25	1923	2.17	1940	2.00	1912

MAY		JUN		JUL		AUG	
3.36	1906	2.90	1923	2.47	1904	2.58	1977
3.18	1991	2.70	1947	1.54	1913	2.21	1978
3.09	1912	2.54	1942	1.26	1948	1.96	1920
3.02	1962	2.41	1937	1.19	1915	1.79	1912
2.97	1915	2.26	1913	0.98	1921	1.77	1976
2.87	1942	2.24	1941	0.94	1981	1.60	1941
2.82	1956	2.14	1991	0.93	1942	1.47	1918
2.78	1917	2.10	1931	0.90	1974	1.42	1903
2.38	1941	2.02	1952	0.88	1955	1.40	1979
2.22	1945	1.99	1948	0.79	1966	1.29	1926

SEP		OCT		NOV		DEC	
2.70	1927	3.92	1900	4.07	1910	4.68	1973
2.39	1920	2.79	1947	3.76	1973	3.42	1983
2.34	1941	2.67	1982	3.70	1921	3.23	1965
2.10	1985	2.59	1951	3.58	1909	2.98	1929
2.03	1959	2.52	1950	2.80	1919	2.89	1922
1.94	1905	2.41	1913	2.75	1945	2.88	1917
1.78	1901	2.14	1923	2.73	1971	2.82	1925
1.47	1982	2.08	1955	2.69	1955	2.72	1942
1.46	1917	2.04	1942	2.68	1991	2.64	1920
1.41	1940	1.80	1975	2.58	1902	2.60	1921

* LAST OF SEVERAL OCCURRENCES

LOWEST MONTHLY PRECIPITATION
(Records for 1900-1991)

JAN		FEB		MAR		APR	
0.21	1949	0.02	1903	0.24	1941	0.01	1956
0.43	1944	0.07	1964	0.25	1911	0.08	1966
0.44	1985	0.12	1988	0.29	1965	0.16	1949
0.47	1961	0.15	1967	0.31	1936	0.17	1968
0.48	1977	0.23	1920	0.35	1914	0.18	1977*
0.49	1911	0.28	1990	0.37	1963*	0.22	1906
0.50	1973*	0.33	1947	0.43	1973	0.26	1929
0.53	1984	0.37	1965	0.44	1944	0.27	1973*
0.59	1968*	0.38	1929	0.47	1968	0.29	1927
0.60	1908	0.43	1928	0.52	1952	0.30	1918*

MAY		JUN		JUL		AUG	
0.03	1964	0.01	1928	0.00	1931*	0.00	1969*
0.07	1966	0.03	1986	T	1967*	T	1988*
0.11	1931	0.05	1932	0.01	1988*	0.01	1957*
0.18	1940*	0.12	1940	0.02	1969*	0.02	1986*
0.23	1934	0.15	1973*	0.04	1919	0.03	1981*
0.25	1935	0.19	1974*	0.05	1933*	0.04	1938
0.26	1974	0.21	1979*	0.06	1984*	0.05	1987
0.30	1975	0.23	1908	0.07	1950*	0.06	1945
0.31	1982	0.25	1939	0.08	1970*	0.07	1939*
0.32	1970*	0.26	1917	0.09	1989*	0.08	1973*

SEP		OCT		NOV		DEC	
0.00	1975	T	1987*	0.04	1939	0.21	1989
T	1990*	0.04	1936	0.05	1936	0.27	1966
0.01	1942*	0.05	1958	0.12	1929	0.30	1914
0.03	1987*	0.10	1988*	0.19	1976	0.37	1988
0.10	1908	0.14	1925	0.31	1959	0.44	1976
0.11	1935	0.19	1966	0.32	1935	0.45	1967
0.12	1989*	0.29	1974	0.34	1982*	0.50	1932
0.13	1950	0.31	1944	0.36	1969	0.61	1930
0.15	1964	0.37	1945	0.43	1943	0.62	1979*
0.16	1972*	0.44	1964	0.55	1914	0.63	1960

* LAST OF SEVERAL OCCURRENCES

GREATEST DAILY PRECIPITATION

(Records for 1935-1991)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.45	0.49	0.43	0.92	0.56	0.96	0.35	0.26	0.73	0.57	0.61	0.35
	1987	1957	1940	1978	1949	1947	1983	1960	1971	1957	1950	1966
2	0.94	0.27	0.48	0.32	0.41	0.65	0.37	0.22	0.87	0.58	0.28	0.78
	1966	1953	1957	1948	1977	1971	1966	1976	1941	1938	1938	1972
3	0.52	0.15	0.57	0.32	0.24	0.44	0.29	0.28	0.51	0.29	0.42	0.58
	1936	1953	1977	1958	1962	1971	1939	1956	1970	1941	1944	1947
4	0.58	0.24	0.36	0.31	0.50	0.49	0.44	0.10	0.36	0.35	0.54	1.25
	1976	1968*	1951	1936	1956	1984	1986	1985	1940	1948	1988	1978
5	0.35	0.40	1.00	0.61	0.45	0.45	1.18	0.39	0.68	0.15	0.50	0.75
	1943	1944	1983	1938	1986	1951	1948	1991	1945	1949	1991	1971
6	0.67	0.83	0.21	0.49	0.20	1.08	0.88	0.10	0.09	0.58	0.28	0.48
	1948	1938	1986	1969	1991	1991	1981	1962	1947	1960	1980	1950
7	0.47	0.57	0.41	0.36	0.77	0.64	0.23	0.04	0.21	0.37	0.45	0.64
	1942	1985	1960	1940	1956	1936	1963	1976	1973	1960	1950	1973
8	0.69	0.35	0.49	0.52	0.56	0.60	0.70	0.28	0.50	0.21	0.71	0.38
	1980	1944	1949	1976	1956	1981	1980	1953	1952	1950	1963	1963*
9	0.61	0.32	0.31	0.30	0.53	0.41	0.55	0.05	1.10	0.48	0.30	0.31
	1989	1961	1966	1940	1989	1937	1974	1989	1985	1983*	1962	1942
10	0.54	0.51	0.30	0.29	0.36	0.42	0.10	0.14	0.31	0.63	0.35	0.84
	1988	1973	1990	1937	1961	1983	1974*	1952	1962	1955	1960	1958
11	0.34	0.31	0.50	0.35	0.32	0.34	0.12	0.27	0.23	0.38	0.55	0.80
	1979*	1943	1939	1944	1951	1968	1942	1941	1985*	1968	1973	1956
12	0.50	0.76	0.50	0.46	0.38	0.70	0.14	0.12	0.22	0.29	0.61	0.48
	1958	1936	1972	1957	1945	1948	1966	1978	1958	1935	1989	1946
13	0.19	0.49	0.64	0.29	0.61	0.34	0.15	0.24	0.41	0.26	0.66	0.92
	1937	1984	1972	1952	1952	1946	1956	1979	1980	1980	1947	1966
14	0.74	0.62	0.49	0.35	0.62	0.52	0.12	0.53	0.70	0.76	0.53	0.58
	1958	1939	1987	1937	1969	1960	1964	1976	1955	1980	1963	1948
15	1.19	0.45	0.54	0.21	0.68	0.49	0.38	0.73	0.48	0.14	0.68	0.39
	1956	1952	1958	1937	1949	1948	1942	1978	1959	1953	1941	1974
16	0.52	0.57	0.32	0.57	0.72	0.44	0.35	0.03	0.55	0.19	0.63	0.53
	1982	1959	1989	1978	1991	1965	1942	1972	1954	1969	1986	1941
17	0.55	0.75	0.49	0.47	0.61	0.54	0.06	0.04	0.32	0.16	0.38	0.47
	1945	1959	1937	1947	1991	1965	1991	1968	1940	1950	1991	1973
18	0.56	0.87	0.66	0.80	0.56	0.37	0.07	0.15	0.71	0.49	0.45	0.20
	1953	1949	1976	1984	1957	1937	1987	1935	1941	1953	1954	1983
19	0.24	0.35	0.28	0.38	0.54	0.72	0.08	0.24	0.45	0.38	0.59	0.69
	1962	1975	1945	1963	1962	1937	1968	1965	1982	1979	1955	1969
20	0.43	0.16	0.36	0.56	0.64	0.69	0.33	0.30	0.39	0.84	0.32	0.48
	1985	1968	1980	1988	1960	1952	1972	1978	1945	1947	1946	1940
21	0.56	0.43	0.26	1.03	0.99	0.32	0.20	0.47	0.59	0.73	0.16	0.37
	1943	1968	1958	1988	1972	1967	1965	1990	1944	1954	1946	1964
22	0.36	0.39	0.29	0.22	0.50	0.37	0.11	1.05	0.26	0.34	0.58	0.48
	1986	1986	1937	1988	1942	1937	1987	1989	1973	1963	1977	1964
23	0.67	0.53	0.23	0.85	0.41	0.22	0.06	0.39	0.22	0.36	0.73	0.42
	1970	1986	1978	1981	1962	1978	1983	1983	1986	1951	1949	1977
24	0.67	0.55	0.22	0.49	0.57	0.31	0.29	0.64	0.13	0.66	0.55	0.53
	1975	1978	1938	1974	1942	1936	1959*	1977	1973	1940	1961	1964
25	1.10	0.44	0.60	0.98	0.66	0.88	0.07	0.58	0.24	0.41	0.31	0.32
	1975	1940	1940	1989	1981	1942	1990	1965	1982	1975	1961	1935
26	0.41	0.34	0.35	0.37	0.82	1.17	0.52	0.58	0.29	0.59	1.35	0.41
	1975	1978	1981*	1978	1953	1942	1940	1941	1981*	1942	1971	1975
27	0.74	0.28	0.26	1.24	0.27	0.40	0.10	0.13	0.96	0.31	0.37	0.57
	1959	1980	1983	1990	1990	1983	1947	1968	1981	1967	1986	1973
28	0.41	0.38	0.22	0.81	1.05	0.63	0.14	0.15	0.47	1.40	0.42	0.39
	1965	1970	1976	1951	1988	1946	1947	1942	1977	1982	1973	1950
29	0.59	0.21	0.40	0.37	0.24	0.66	0.03	0.71	0.32	0.61	0.49	51
	1965	1944	1943	1948	1991	1991	1964	1977	1986	1950	1978	1983
30	0.29		0.26	0.21	0.34	0.45	0.34	0.77	0.36	0.30	0.51	0.40
	1986		1974	1943	1976	1954	1964	1977	1951	1950	1978	1952
31	0.43		0.34		0.39		0.34	0.10		0.77		0.39
	1963		1957		1971		1985	1937		1942		1942
HI	1.19	0.87	1.00	1.24	1.05	1.17	1.18	1.05	1.10	1.40	1.35	1.25
DATE	15-56	18-49	5-83	27-90	28-88	26-42	5-48	22-89	9-85	28-82	26-71	4-78

* LAST OF SEVERAL OCCURRENCES

NUMBER OF DAYS PER MONTH OF PRECIPITATION
(Records for 1951-1991)
(Climatological normals for 1935-1970)

MONTH	.01 INCH OR MORE		.10 INCH OR MORE	
	NORMAL	GREATEST	NORMAL	GREATEST
Januray	12	27 - 1969	6	12 - 1978
February	11	21 - 1961	4	10 - 1961
March	11	20 - 1957	4	9 - 1961
April	9	18 - 1958	3	8 - 1958
May	8	14 - 1957	4	9 - 1962
June	7	13 - 1980*	3	6 - 1981*
July	3	7 - 1987*	1	4 - 1967
August	3	11 - 1976	1	5 - 1979*
September	4	12 - 1960	2	8 - 1959
October	7	14 - 1951	4	9 - 1951
November	12	22 - 1973	5	13 - 1973
December	13	22 - 1952	5	12 - 1973
Year	100	117 - 1955	41	55 - 1953

	.50 INCH OR MORE		1.00 INCH OR MORE	
	NORMAL	GREATEST	NORMAL	GREATEST
Janury	0	2 - 1975*	0	1 - 1975*
February	0	2 - 1959	0	0
March	0	2 - 1972	0	1 - 1983
April	0	2 - 1988*	0	1 - 1988
May	1	3 - 1956	0	1 - 1988
June	0	2 - 1991	0	1 - 1991*
July	0	1 - 1981*	0	0
August	0	3 - 1977	0	1 - 1989
September	0	1 - 1981*	0	1 - 1985
October	0	2 - 1958	0	1 - 1982
November	0	2 - 1978*	0	1 - 1971*
December	0	3 - 1973	0	1 - 1978
Year	3	9 - 1978	0	2 - 1988

* LAST OF SEVERAL OCCURRENCES

CONSECUTIVE DAYS OF PRECIPITATION
(Records for 1900-1991)

CONSECUTIVE DAYS WITH MEASURABLE PRECIPITATION

DURATION	RAINFALL AMOUNT	DATES OF OCCURRENCE
14	1.69	January 29 - February 11, 1961
14	1.35	January 9 - 26, 1969
14	2.36	February 28 - March 13, 1983
12	.58	March 24 - April 4, 1928
12	1.27	December 27, 1968 - January 7, 1969
11	3.22	January 28 - February 7, 1916
10	1.67	March 17 - 26, 1905
10	2.15	December 18 - 27, 1964 (Flood)
10	1.01	December 15 - 24, 1972

CONSECUTIVE DAYS WITHOUT MEASURABLE PRECIPITATION

DURATION	DATES OF OCCURRENCE
109	July 11 - October 27, 1974
81	June 22 - September 10, 1967
76	August 7 - October 21, 1991
70	June 29 - September 6, 1931
68	July 3 - September 8, 1969
67	June 19 - August 24, 1929
64	July 15 - September 16, 1988
58	June 29 - August 25, 1945
55	June 9 - August 2, 1962

AVERAGE AND EXTREME SNOWFALL AND SNOW DEPTH
(Records for 1899-1991)
(Climatological normals for 1962-1992)

MONTH	AVERAGE SNOWFALL	MAXIMUM SNOWFALL	MAXIMUM SNOW DEPTH
January	7.1"	41.6 - 1950	17 - 1957
February	3.3	32.8 - 1916	31 - 1916
March	1.0	4.9 - 1971	4 - 1989*
April	.1	2.2 - 1974	1 - 1963*
May	T	T - 1988*	0
June	0	0	0
July	0	0	0
August	0	0	0
September	0	0	0
October	.1	3.2 - 1973	2 - 1991*
November	1.8	34.0 - 1921	32 - 1921
December	4.0	26.6 - 1983	16 - 1919
Year	17.4	80.0 - 1921-1922 (Season)	

NUMBER OF DAYS PER MONTH WITH SNOWFALL
(Normals for the period 1950-1991)

MONTH	NORMAL NUMBER OF DAYS WITH SNOWFALL 1" OR GREATER	MAXIMUM NUMBER OF DAYS WITH SNOWFALL 1" OR GREATER
January	2.6	8 - 1969
February	1.0	3 - 1989*
March	.4	2 - 1989*
April	.1	1 - 1975*
May	0	0
June	0	0
July	0	0
August	0	0
September	0	0
October	.1	1 - 1991*
November	.5	4 - 1985
December	1.4	11 - 1983
Year	6.0	11 - 1983

* LAST OF SEVERAL OCCURRENCES

EARLIEST, LATEST AND MAXIMUM SNOWFALL
(Records for 1899-1992)

EARLIEST SNOWFALL AND AMOUNT

Trace - October 6, 1949 (T)
Measurable - October 27th, 1971 (.2")
1" or greater - October 29th, 1991 (1.7")
5" or greater - November 10, 1985 (5.1")

LATEST SNOWFALL AND AMOUNT

Trace - May 29, 1970 (T)
Measurable - April 20, 1963 (1.0")
1" or greater - April 20, 1963 (1.0")
5" or greater - February 17, 1959* (8.5")

MAXIMUM AND MINIMUM SNOWFALL AND DATES

24 hour maximum - November 20, 1921 (15.0")
Single storm maximum - January 24 - February 6, 1916 (48")
Maximum monthly - January 1950 (41.6")
Maximum seasonal - October 1921 - May 1922 (80.0")
Minimum seasonal - October 1960 - May 1961 (0.5")

* LAST OF SEVERAL OCCURRENCES

TOTAL NUMBER OF DAYS WITH MEASURABLE RAINFALL
(Records for 1960-1991)

DAY		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		7	13	15	9	9	7	4	4	6	4	13	13
2		16	11	12	6	7	6	9	4	5	7	11	17
3		14	11	13	3	11	9	6	2	4	3	7	12
4		10	12	16	10	6	4	3	1	1	1	12	13
5		15	14	10	11	8	8	3	4	2	3	12	10
6		13	14	14	10	7	9	4	3	3	9	8	18
7		14	7	11	5	8	12	4	2	7	7	9	8
8		16	10	13	10	9	9	5	3	2	5	16	12
9		17	13	9	14	7	4	3	2	4	6	14	11
10		17	7	9	12	12	7	4	0	4	7	12	12
11		12	14	13	7	7	6	2	2	4	10	15	7
12		12	15	12	7	7	7	4	3	3	6	14	13
13		12	16	14	6	4	3	3	4	7	5	12	9
14		14	15	13	6	6	7	3	5	6	4	15	15
15		13	18	9	12	8	6	2	6	3	1	12	14
16		16	15	12	9	6	7	2	3	3	2	9	8
17		8	17	8	9	6	7	3	3	6	4	17	10
18		7	14	8	10	5	6	2	4	6	4	15	15
19		14	12	8	11	12	7	2	4	11	2	8	13
20		10	9	8	14	9	5	3	5	8	7	14	15
21		11	12	9	11	6	4	2	6	6	10	11	14
22		11	11	12	14	11	5	2	5	7	10	16	12
23		10	9	10	13	10	4	1	7	8	7	17	7
24		13	10	10	14	9	5	1	5	6	5	18	16
25		17	13	11	8	9	7	3	5	5	9	14	9
26		14	9	13	5	8	4	1	4	5	10	7	12
27		7	9	11	7	7	5	2	3	6	10	16	9
28		11	13	10	11	7	4	2	2	5	9	14	12
29		12	0	11	6	9	3	1	4	5	7	14	10
30		9		10	9	8	3	3	7	3	6	10	9
31		12		10		4		3	3		9		19

HEATING DEGREE DAYS
(Records for 1936-1991)
(Climatological normals for 1951-1980)

MONTH	MAXIMUM DEGREE DAYS	MINIMUM DEGREE DAYS	NORMAL DEGREE DAYS
July	42 - 1983	0 - 1975*	7
August	43 - 1955	0 - 1986*	27
September	260 - 1970	11 - 1990	120
October	540 - 1970	208 - 1988	388
November	1149 - 1985	550 - 1954	717
December	1402 - 1985	721 - 1973	899
January	1572 - 1937	589 - 1953	998
February	1316 - 1936	502 - 1958	717
March	804 - 1955	463 - 1940	654
April	571 - 1967	299 - 1977	441
May	338 - 1991	91 - 1958	220
June	162 - 1991	20 - 1958	75
Season	6177 - 1978-79	4463 - 1939-40	5263

COOLING DEGREE DAYS
(Records for 1936-1991)
(Climatological normals for 1951-1980)

MONTH	MAXIMUM DEGREE DAYS	MINIMUM DEGREE DAYS	NORMAL DEGREE DAYS
January	--	--	0
February	--	--	0
March	--	--	0
April	16 - 1977	0 - 1991*	0
May	93 - 1958	0 - 1991*	16
June	233 - 1961	8 - 1991	111
July	423 - 1975*	121 - 1986	280
August	459 - 1967	101 - 1980*	235
September	176 - 1967	4 - 1970	84
October	28 - 1943	0 - 1989*	0
November	--	--	0
December	--	--	0
Season	1192 - 1967	417 - 1980	726

* LAST OF SEVERAL OCCURRENCES

NUMBER OF THUNDERSTORMS PER MONTH
(Records for 1951-1991)
(Climatological normals for 1951-1980)

MONTH	NORMAL NUMBER OF DAYS WITH THUNDERSTORMS	MAXIMUM NUMBER OF DAYS WITH THUNDERSTORMS
January	0	0
February	0	1 - 1966*
March	.2	2 - 1958
April	.8	4 - 1987
May	1.8	5 - 1956
June	1.9	6 - 1969
July	1.8	4 - 1987*
August	2.0	7 - 1984*
September	1.1	3 - 1986*
October	.3	1 - 1983*
November	.1	1 - 1990*
December	0	1 - 1957
Year	10.0	16 - 1958

* LAST OF SEVERAL OCCURRENCES

NUMBER OF DAYS PER MONTH WITH CLOUD COVER
(Records for 1951-1991)
(Climatological normals for 1951-1980)

SUNNY DAYS

MONTH	NORMAL NUMBER OF SUNNY DAYS	MAXIMUM NUMBER OF SUNNY DAYS	MINIMUM NUMBER OF SUNNY DAYS
January	2.4	8 - 1963	0 - 1985*
February	2.8	11 - 1964	0 - 1986*
March	4.8	15 - 1965	0 - 1980
April	5.4	16 - 1951	1 - 1981*
May	7.4	13 - 1973	1 - 1960
June	9.7	20 - 1961	5 - 1982*
July	19.5	28 - 1961*	8 - 1982
August	18.0	30 - 1955	6 - 1968
September	15.1	26 - 1990*	1 - 1980
October	10.2	17 - 1978*	2 - 1975
November	3.5	10 - 1957	0 - 1973
December	2.6	7 - 1978*	0 - 1989*
Year	101.4	131 - 1951	74 - 1982*

CLOUDY DAYS

MONTH	NORMAL NUMBER OF CLOUDY DAYS	MAXIMUM NUMBER OF CLOUDY DAYS	MINIMUM NUMBER OF CLOUDY DAYS
January	23.4	28 - 1985*	17 - 1963*
February	19.9	27 - 1979	11 - 1964
March	18.6	25 - 1957	12 - 1965
April	15.2	23 - 1963	9 - 1951
May	12.9	20 - 1962	7 - 1958
June	10.2	16 - 1981*	3 - 1960
July	3.9	11 - 1987	0 - 1953
August	5.2	15 - 1983*	0 - 1969*
September	7.1	27 - 1980	1 - 1990
October	12.9	21 - 1975	5 - 1987
November	20.0	27 - 1980	13 - 1957
December	23.8	29 - 1986*	17 - 1978
Year	173.1	218 - 1980	159 - 1988*

* LAST OF SEVERAL OCCURRENCES

NUMBER OF DAYS PER MONTH WITH CLOUD COVER ...CONTINUED...
(Records for 1951-1991)
(Climatological normals for 1951-1980)

PARTLY CLOUDY DAYS

MONTH	NORMAL NUMBER OF PARTLY CLOUDY DAYS	MAXIMUM NUMBER OF PARTLY CLOUDY DAYS	MINIMUM NUMBER OF PARTLY CLOUDY DAYS
January	5.2	11 - 1956	1 - 1977
February	5.6	11 - 1988	1 - 1979
March	7.6	11 - 1989*	3 - 1971*
April	9.4	13 - 1985	4 - 1978*
May	10.7	14 - 1966	5 - 1956
June	10.1	17 - 1972	3 - 1951
July	7.6	18 - 1982	2 - 1961
August	7.8	14 - 1985	1 - 1955
September	7.8	13 - 1958	2 - 1980*
October	7.9	12 - 1974	3 - 1978
November	6.5	10 - 1988	2 - 1985*
December	4.6	10 - 1989	1 - 1986*
Year	90.8	110 - 1974*	69 - 1967*

* LAST OF SEVERAL OCCURRENCES

NUMBER OF DAYS PER MONTH WITH DENSE FOG
(Records for 1935-1991)
(Climatological normals for 1951-1980)
(Dense fog is visibility of 1/4 or less)

MONTH	NORMAL NUMBER OF DAYS OF DENSE FOG	MAXIMUM NUMBER OF DAYS OF DENSE FOG
January	7.3	18 - 1981
February	4.7	13 - 1963
March	1.7	9 - 1957
April	.3	2 - 1984*
May	.2	3 - 1963*
June	.1	1 - 1985*
July	0	0
August	0	1 - 1962
September	.2	3 - 1985*
October	1.0	7 - 1950
November	6.1	14 - 1980
Decmeber	8.6	21 - 1963
Year	30.3	56 - 1986

* LAST OF SEVERAL OCCURRENCES

CONSECUTIVE DAYS OF FOG
(Records for 1965-1992)

DURATION	DATES OF OCCURRENCE
25	November 28 - December 22, 1986
23	December 5 - 27, 1985
22	December 31, 1978 - January 21, 1979
21	January 31 - February 20, 1980
18	January 6 - 23, 1981
16	November 25 - December 10, 1969
15	January 14 - 28, 1985*

CONSECUTIVE DAYS OF DENSE FOG
(Records for 1965-1992)

DURATION	DATES OF OCCURRENCE
14	December 6 - 19, 1985
11	December 21 - 31, 1989
10	January 8 - 17, 1978
8	January 27 - February 3, 1986*
7	November 5 - 11, 1991*
6	January 5 - 10, 1992*

* LAST OF SEVERAL OCCURRENCES

CHRISTMAS WEATHER
(Records for 1949-1991)
(Climatological normals for 1949-1991)

NORMALS

Average high temperature - 40
Average low temperature - 26
Average mean temperature - 33
Average snowfall - 0.9"

EXTREMES

Warmest Christmas
1980 -- High..61 Low..53

Coldest Christmas
1990 -- High..19 Low..0

Snowiest Christmas
1983 -- Snowfall..2.7"
Depth of snow on ground at 4 am..5"

Measurable snowfall has occurred on 4 Christmas' in the last 43 years

PENDLETON AIRPORT VFR FLYING DAYS

MONTH	TOTAL POSSIBLE	VFR DAYS	IFR DAYS	PERCENT VFR
JANUARY	31	23	8	74
FEBRUARY	28	26	4	93
MARCH	31	30	1	97
APRIL	30	30	0	100
MAY	31	31	0	100
JUNE	30	30	0	100
JULY	31	31	0	100
AUGUST	31	31	0	100
SEPTEMBER	30	30	0	100
OCTOBER	31	30	1	97
NOVEMBER	30	27	3	90
DECEMBER	31	22	9	71
YEAR	365	347	26	95

NOTE:
DATA WAS TAKEN FROM TEN YEARS OF PENDLETON AIRPORT RECORDS. A TEN HOUR PERIOD FROM 7:00 AM TO 5:00 PM OR NORMAL DAY LIGHT HOURS WAS USED. FIVE OR MORE HOURS CONSTITUTES A VFR DAY. VFR IS DETERMINED WHEN THE CEILING IS 1000 FEET OR HIGHER AND THE VISIBILITY IS 3 MILES OR GREATER. ALL MONTHS HAD AT LEAST SOME IFR CONDITIONS DURING THE SAMPLING.

PENDLETON ROUNDUP WEATHER

YEAR	PARADE DAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY		
	HI	LO	RAIN	HI	LO	RAIN	HI	LO	RAIN	HI	LO	RAIN	HI	LO	RAIN
1955	85	45		58	49		63	46	0.10	67	50		64	45	
1956	86	44		77	42		84	41		90	43		91	43	
1958	94	44		89	49		82	48		69	45	0.22	73	52	T
1959	98	47		68	38		76	41		76	55		71	54	0.32
1960	88	48		90	48		86	49		81	39		84	42	
1961	84	37		81	33		78	40		88	48		79	48	
1962	72	34		68	36	T	73	50	0.01	77	51		81	43	
1963	85	55		92	49		84	56		78	57	0.25	72	51	
1964	82	33		91	51		70	51		70	36		80	33	
1965	80	41		64	59	0.18	61	36		63	26		70	28	
1966	83	50		75	55	0.08	78	55		79	53		86	50	
1967	93	52		73	47		82	38		86	49		93	45	
1968	86	60		87	51		88	58		73	49	0.07	75	55	0.09
1969	86	38		89	56		93	57		92	58		72	56	
1970	65	38		81	42		83	46		67	55		72	51	
1971	78	50		77	35		77	35		75	33		80	31	
1972	70	52		80	48		85	41		90	43		85	60	
1973	78	48		88	54		85	45	T	85	52		69	38	
1974	92	46		74	43		74	37		81	34		88	36	
1975	93	48		89	48		82	48		92	44		92	47	
1976	82	47		76	51		86	57		75	59		78	41	
1977	78	48		78	56		65	49		60	57	0.01	70	43	T
1978	74	52	0.10	69	48	T	71	53		67	50		64	45	
1979	76	54		81	47		82	48		94	50		92	53	
1980	90	53	T	75	58	0.01	85	54		72	52	0.03	74	54	0.41
1981	86	56		93	57		94	59		89	62	T	69	48	0.03
1982	78	54		64	38		72	41		78	47		82	52	
1983	66	47	0.03	76	54		79	48		76	52		64	47	
1984	78	60		69	47		73	44		74	52		79	57	
1985	67	44	0.01	58	50	0.23	70	48		66	49		65	49	0.04
1986	77	49		74	51		69	43		65	44		68	51	
1987	84	52		66	42		74	40		78	45		79	49	
1988	67	48		86	52		91	56		65	52	T	63	45	
1989	72	46		85	50		86	52		90	60		79	55	
1990	86	60		76	52		82	45		83	50		75	54	
1991	79	56		82	52		85	54		76	52		71	43	
AVG	78.9	46.9		75.6	47.0		76.9	46.2		75.3	47.4		74.3	45.8	

FOR THE 37 YEAR RECORD:
AVERAGE HIGH TEMPERATURE – 79
AVERAGE LOW TEMPERATURE – 47
AVERAGE TEMPERATURE – 63

MEASURABLE RAINFALL OCCURRED ON
18 DAYS OR 10% OF THE TIME.

142 The Usefulness of Data from Mountaintop Fire Lookout Stations in Determining Atmospheric Stability. Jonathan W. Corey, April 1979. (PB298899/AS)
143 The Depth of the Marine Layer at San Diego as Related to Subsequent Cool Season Precipitation Episodes in Arizona. Ira S. Brenner, May 1979. (PB298817/AS)
144 Arizona Cool Season Climatological Surface Wind and Pressure Gradient Study. Ira S. Brenner, May 1979. (PB298900/AS)
146 The BART Experiment. Morris S. Webb, October 1979. (PB80 155112)
147 Occurrence and Distribution of Flash Floods in the Western Region. Thomas L. Dietrich, December 1979. (PB80 160344)
149 Misinterpretations of Precipitation Probability Forecasts. Allan H. Murphy, Sarah Lichtenstein, Baruch Fischhoff, and Robert L. Winkler, February 1980. (PB80 174576)
150 Annual Data and Verification Tabulation - Eastern and Central North Pacific Tropical Storms and Hurricanes 1979. Emil B. Gunther and Staff, EPHC, April 1980. (PB80 220486)
151 NMC Model Performance in the Northeast Pacific. James E. Overland, PMEL-ERL, April 1980. (PB80 196033)
152 Climate of Salt Lake City, Utah. Wilbur E. Figgins (Retired) and Alexander R. Smith. Fifth Revision, July 1992. (PB92 220177)
153 An Automatic Lightning Detection System in Northern California. James E. Rea and Chris E. Fontana, June 1980. (PB80 225592)
154 Regression Equation for the Peak Wind Gust 6 to 12 Hours in Advance at Great Falls During Strong Downslope Wind Storms. Michael J. Oard, July 1980. (PB91 108367)
155 A Raininess Index for the Arizona Monsoon. John H. Ten Harkel, July 1980. (PB81 106494)
156 The Effects of Terrain Distribution on Summer Thunderstorm Activity at Reno, Nevada. Christopher Dean Hill, July 1980. (PB81 102501)
157 An Operational Evaluation of the Scofield/Oliver Technique for Estimating Precipitation Rates from Satellite Imagery. Richard Ochoa, August 1980. (PB81 108227)
158 Hydrology Practicum. Thomas Dietrich, September 1980. (PB81 134033)
159 Tropical Cyclone Effects on California. Arnold Court, October 1980. (PB81 133779)
160 Eastern North Pacific Tropical Cyclone Occurrences During Intraseasonal Periods. Preston W. Leftwich and Gail M. Brown, February 1981. (PB81 205494)
161 Solar Radiation as a Sole Source of Energy for Photovoltaics in Las Vegas, Nevada, for July and December. Darryl Randerson, April 1981. (PB81 224503)
162 A Systems Approach to Real-Time Runoff Analysis with a Deterministic Rainfall-Runoff Model. Robert J.C. Burnash and R. Larry Ferral, April 1981. (PB81 224495)
163 A Comparison of Two Methods for Forecasting Thunderstorms at Luke Air Force Base, Arizona. LTC Keith R. Cooley, April 1981. (PB81 225393)
164 An Objective Aid for Forecasting Afternoon Relative Humidity Along the Washington Cascade East Slopes. Robert S. Robinson, April 1981. (PB81 23078)
165 Annual Data and Verification Tabulation, Eastern North Pacific Tropical Storms and Hurricanes 1980. Emil B. Gunther and Staff, May 1981. (PB82 230336)
166 Preliminary Estimates of Wind Power Potential at the Nevada Test Site. Howard G. Booth, June 1981. (PB82 127036)
167 ARAP User's Guide. Mark Mathewson, July 1981, Revised September 1981. (PB82 196783)
168 Forecasting the Onset of Coastal Gales Off Washington-Oregon. John R. Zimmerman and William D. Burton, August 1981. (PB82 127051)
169 A Statistical-Dynamical Model for Prediction of Tropical Cyclone Motion in the Eastern North Pacific Ocean. Preston W. Leftwich, Jr., October 1981. (PB82195298)
170 An Enhanced Plotter for Surface Airways Observations. Andrew J. Spry and Jeffrey L. Anderson, October 1981. (PB82 153883)
171 Verification of 72-Hour 500-MB Map-Type Predictions. R.F. Quiring, November 1981. (PB82 158098)
172 Forecasting Heavy Snow at Wenatchee, Washington. James W. Holcomb, December 1981. (PB82 177783)
173 Central San Joaquin Valley Type Maps. Thomas R. Crossan, December 1981. (PB82 196064)
174 ARAP Test Results. Mark A. Mathewson, December 1981. (PB82 198103)
176 Approximations to the Peak Surface Wind Gusts from Desert Thunderstorms. Darryl Randerson, June 1982. (PB82 253089)
177 Climate of Phoenix, Arizona. Robert J. Schmidli, April 1969 (Revised December 1986). (PB87 142063/AS)
178 Annual Data and Verification Tabulation, Eastern North Pacific Tropical Storms and Hurricanes 1982. E.B. Gunther, June 1983. (PB85 106078)
179 Stratified Maximum Temperature Relationships Between Sixteen Zone Stations in Arizona and Respective Key Stations. Ira S. Brenner, June 1983. (PB83 249904)
180 Standard Hydrologic Exchange Format (SHEF) Version I. Phillip A. Pasteris, Vernon C. Bissel, David G. Bennett, August 1983. (PB85 106052)
181 Quantitative and Spacial Distribution of Winter Precipitation along Utah's Wasatch Front. Lawrence B. Dunn, August 1983. (PB85 106912)
182 500 Millibar Sign Frequency Teleconnection Charts - Winter. Lawrence B. Dunn, December 1983. (PB85 106276)
183 500 Millibar Sign Frequency Teleconnection Charts - Spring. Lawrence B. Dunn, January 1984. (PB85 111367)
184 Collection and Use of Lightning Strike Data in the Western U.S. During Summer 1983. Glenn Rasch and Mark Mathewson, February 1984. (PB85 110534)
185 500 Millibar Sign Frequency Teleconnection Charts - Summer. Lawrence B. Dunn, March 1984. (PB85 111359)
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