



NOAA Technical Memorandum NWS WR-226

CLIMATE OF YAKIMA, WASHINGTON

Greg DeVoir
National Meteorological Center
Washington, D.C. (Formerly at WSO Yakima)

David Hogan
National Weather Service Office
Yakima, WA

Jay Neher
National Weather Service Forecast Office
Seattle, WA (Formerly at WSO Yakima)

December 1994

**U.S. DEPARTMENT OF
COMMERCE**

/ National Oceanic and
Atmospheric Administration

/ National Weather
Service



NOAA TECHNICAL MEMORANDA
National Weather Service, Western Region Subseries

The National Weather Service (NWS) Western Region (WR) Subseries provides an informal medium for the documentation and quick dissemination of results not appropriate, or not yet ready, for formal publication. The series is used to report on work in progress, to describe technical procedures and practices, or to relate progress to a limited audience. These Technical Memoranda will report on investigations devoted primarily to regional and local problems of interest mainly to personnel, and hence will not be widely distributed.

Papers 1 to 25 are in the former series, ESSA Technical Memoranda, Western Region Technical Memoranda (WRTM); papers 24 to 59 are in the former series, ESSA Technical Memoranda, Weather Bureau Technical Memoranda (WBTM). Beginning with 60, the papers are part of the series, NOAA Technical Memoranda NWS. Out-of-print memoranda are not listed.

Papers 2 to 22, except for 5 (revised edition), are available from the National Weather Service Western Region, Scientific Services Division, P.O. Box 11188, Federal Building, 125 South State Street, Salt Lake City, Utah 84147. Paper 5 (revised edition), and all others beginning with 25 are available from the National Technical Information Service, U.S. Department of Commerce, Sills Building, 5285 Port Royal Road, Springfield, Virginia 22161. Prices vary for all paper copies; microfiche are \$3.50. Order by accession number shown in parentheses at end of each entry.

ESSA Technical Memoranda (WRTM)

- 2 Climatological Precipitation Probabilities. Compiled by Lucianne Miller, December 1965.
- 3 Western Region Pre- and Post-FP-3 Program, December 1, 1965, to February 20, 1966. Edward D. Diemer, March 1966.
- 5 Station Descriptions of Local Effects on Synoptic Weather Patterns. Philip Williams, Jr., April 1966 (Revised November 1967, October 1969). (PB-17800)
- 8 Interpreting the RAREP. Herbert P. Benner, May 1966 (Revised January 1967).
- 11 Some Electrical Processes in the Atmosphere. J. Latham, June 1966.
- 17 A Digitalized Summary of Radar Echoes within 100 Miles of Sacramento, California. J. A. Youngberg and L. B. Overas, December 1966.
- 21 An Objective Aid for Forecasting the End of East Winds in the Columbia Gorge, July through October. D. John Coparanis, April 1967.
- 22 Derivation of Radar Horizons in Mountainous Terrain. Roger G. Pappas, April 1967.

ESSA Technical Memoranda, Weather Bureau Technical Memoranda (WBTM)

- 25 Verification of Operation Probability of Precipitation Forecasts, April 1966-March 1967. W. W. Dickey, October 1967. (PB-176240)
- 26 A Study of Winds in the Lake Mead Recreation Area. R. P. Augulis, January 1968. (PB-177830)
- 28 Weather Extremes. R. J. Schmidl, April 1968 (Revised March 1986). (PB86 177672/AS). (Revised October 1991 - PB92-116062/AS)
- 29 Small-Scale Analysis and Prediction. Philip Williams, Jr., May 1968. (PB178425)
- 30 Numerical Weather Prediction and Synoptic Meteorology. CPT Thomas D. Murphy, USAF, May 1968. (AD 673365)
- 31 Precipitation Detection Probabilities by Salt Lake ARTC Radars. Robert K. Belesky, July 1968. (PB 179084)
- 32 Probability Forecasting-A Problem Analysis with Reference to the Portland Fire Weather District. Harold S. Ayer, July 1968. (PB 179289)
- 36 Temperature Trends in Sacramento-Another Heat Island. Anthony D. Lentini, February 1963. (PB 183055)
- 37 Disposal of Logging Residues Without Damage to Air Quality. Owen P. Cramer, March 1969. (PB 183057)
- 39 Upper-Air Lows Over Northwestern United States. A.L. Jacobson, April 1969. PB 184296)
- 40 The Man-Machine Mix in Applied Weather Forecasting in the 1970s. L.W. Snellman, August 1969. (PB 185068)
- 43 Forecasting Maximum Temperatures at Helena, Montana. David E. Olsen, October 1969. (PB 185762)
- 44 Estimated Return Periods for Short-Duration Precipitation in Arizona. Paul C. Kangieser, October 1969. (PB 187763)
- 46 Applications of the Net Radiometer to Short-Range Fog and Stratus Forecasting at Eugene, Oregon. L. Yee and E. Bates, December 1969. (PB 190476)
- 47 Statistical Analysis as a Flood Routing Tool. Robert J.C. Burnash, December 1969. (PB 188744)
- 48 Tsunami. Richard P. Augulis, February 1970. (PB 190157)
- 49 Predicting Precipitation Type. Robert J.C. Burnash and Floyd E. Hug, March 1970. (PB 190962)
- 50 Statistical Report on Aeroallergens (Pollens and Molds) Fort Huachuca, Arizona, 1969. Wayne S. Johnson, April 1970. (PB 191743)
- 51 Western Region Sea State and Surf Forecaster's Manual. Gordon C. Shields and Gerald B. Burdwell, July 1970. (PB 193102)
- 52 Sacramento Weather Radar Climatology. R.G. Pappas and C. M. Veliquette, July 1970. (PB 193347)
- 54 A Refinement of the Vorticity Field to Delineate Areas of Significant Precipitation. Barry B. Aronovitch, August 1970.
- 55 Application of the SSARR Model to a Basin without Discharge Record. Vail Schermerhorn and Donal W. Kuehl, August 1970. (PB 194394)
- 56 Areal Coverage of Precipitation in Northwestern Utah. Philip Williams, Jr., and Werner J. Heck, September 1970. (PB 194389)
- 57 Preliminary Report on Agricultural Field Burning vs. Atmospheric Visibility in the Willamette Valley of Oregon. Earl M. Bates and David O. Chilcote, September 1970. (PB 194710)
- 58 Air Pollution by Jet Aircraft at Seattle-Tacoma Airport. Wallace R. Donaldson, October 1970. (COM 71 00017)
- 59 Application of PE Model Forecast Parameters to Local-Area Forecasting. Leonard W. Snellman, October 1970. (COM 71 00016)
- 60 An Aid for Forecasting the Minimum Temperature at Medford, Oregon. Arthur W. Fritz, October 1970. (COM 71 00120)
- 63 700-mb Warm Air Advection as a Forecasting Tool for Montana and Northern Idaho. Norris E. Woerner, February 1971. (COM 71 00349)
- 64 Wind and Weather Regimes at Great Falls, Montana. Warren B. Price, March 1971.
- 65 Climate of Sacramento, California. Tony Martini, April 1990. (Fifth Revision) (PB89 207781/AS)
- 66 A Preliminary Report on Correlation of ARTCC Radar Echoes and Precipitation. Wilbur K. Hall, June 1971. (COM 71 00829)
- 69 National Weather Service Support to Soaring Activities. Ellis Burton, August 1971. (COM 71 00956)
- 71 Western Region Synoptic Analysis-Problems and Methods. Philip Williams, Jr., February 1972. (COM 72 10433)
- 74 Thunderstorms and Hail Days Probabilities in Nevada. Clarence M. Sakamoto, April 1972. (COM 72 10554)
- 75 A Study of the Low Level Jet Stream of the San Joaquin Valley. Ronald A. Willis and Philip Williams, Jr., May 1972. (COM 72 10707)
- 76 Monthly Climatological Charts of the Behavior of Fog and Low Stratus at Los Angeles International Airport. Donald M. Gales, July 1972. (COM 72 11140)
- 77 A Study of Radar Echo Distribution in Arizona During July and August. John E. Hales, Jr., July 1972. (COM 72 11136)
- 78 Forecasting Precipitation at Bakersfield, California, Using Pressure Gradient Vectors. Earl T. Riddiough, July 1972. (COM 72 11146)
- 79 Climate of Stockton, California. Robert C. Nelson, July 1972. (COM 72 10920)
- 80 Estimation of Number of Days Above or Below Selected Temperatures. Clarence M. Sakamoto, October 1972. (COM 72 10021)
- 81 An Aid for Forecasting Summer Maximum Temperatures at Seattle, Washington. Edgar G. Johnson, November 1972. (COM 73 10150)
- 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)
- 83 A comparison of Manual and Semiautomatic Methods of Digitizing Analog Wind Records. Glenn E. Rasch, March 1973. (COM 73 10689)
- 86 Conditional Probabilities for Sequences of Wet Days at Phoenix, Arizona. Paul C. Kangieser, June 1973. (COM 73 11264)
- 87 A Refinement of the Use of K-Values in Forecasting Thunderstorms in Washington and Oregon. Robert Y.G. Lee, June 1973. (COM 73 11276)
- 89 Objective Forecast Precipitation Over the Western Region of the United States. Julia N. Paegle and Larry P. Kierulff, September 1973. (COM 73 11946/3AS)
- 91 Arizona "Eddy" Tornadoes. Robert S. Ingram, October 1973. (COM 73 10465)
- 92 Smoke Management in the Willamette Valley. Earl M. Bates, May 1974. (COM 74 11277/AS)
- 93 An Operational Evaluation of 500-mb Type Regression Equations. Alexander E. MacDonald, June 1974. (COM 74 11407/AS)
- 94 Conditional Probability of Visibility Less than One-Half Mile in Radiation Fog at Fresno, California. John D. Thomas, August 1974. (COM 74 11555/AS)
- 95 Climate of Flagstaff, Arizona. Paul W. Sorenson, and updated by Reginald W. Preston, January 1987. (PB87 143160/AS)
- 96 Map Type Precipitation Probabilities for the Western Region. Glenn E. Rasch and Alexander E. MacDonald, February 1975. (COM 75 10428/AS)
- 97 Eastern Pacific Cut-Off Low of April 21-28, 1974. William J. Alder and George R. Miller, January 1976. (PB 250 711/AS)
- 98 Study on a Significant Precipitation Episode in Western United States. Ira S. Brenner, April 1976. (COM 75 10719/AS)
- 99 A Study of Flash Flood Susceptibility-A Basin in Southern Arizona. Gerald Williams, August 1975. (COM 75 11360/AS)
- 102 A Set of Rules for Forecasting Temperatures in Napa and Sonoma Counties. Wesley L. Tuft, October 1975. (PB 246 902/AS)
- 103 Application of the National Weather Service Flash-Flood Program in the Western Region. Gerald Williams, January 1976. (PB 253 053/AS)
- 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)
- 106 Use of MOS Forecast Parameters in Temperature Forecasting. John C. Plankinton, Jr., March 1976. (PB 254 649)
- 107 Map Types as Aids in Using MOS PoPs in Western United States. Ira S. Brenner, August 1976. (PB 259 594)
- 108 Other Kinds of Wind Shear. Christopher D. Hill, August 1976. (PB 260 437/AS)
- 109 Forecasting North Winds in the Upper Sacramento Valley and Adjoining Forests. Christopher E. Fontana, September 1976. (PB 273 677/AS)
- 110 Cool Inflow as a Weakening Influence on Eastern Pacific Tropical Cyclones. William J. Denney, November 1976. (PB 264 655/AS)
- 112 The MAN/MOS Program. Alexander E. MacDonald, February 1977. (PB 265 941/AS)
- 113 Winter Season Minimum Temperature Formula for Bakersfield, California, Using Multiple Regression. Michael J. Oard, February 1977. (PB 273 694/AS)
- 114 Tropical Cyclone Kathleen. James H. Fors, February 1977. (PB 273 676/AS)
- 116 A Study of Wind Gusts on Lake Mead. Bradley Colman, April 1977. (PB 268 847)
- 117 The Relative Frequency of Cumulonimbus Clouds at the Nevada Test Site as a Function of K-Value. R.F. Quiring, April 1977. (PB 272 831)
- 118 Moisture Distribution Modification by Upward Vertical Motion. Ira S. Brenner, April 1977. (PB 268 740)
- 119 Relative Frequency of Occurrence of Warm Season Echo Activity as a Function of Stability Indices Computed from the Yucca Flat, Nevada, Rawinsonde. Darryl Randerson, June 1977. (PB 271 290/AS)
- 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. Lefwich, August 1977. (PB 272 661)
- 125 Statistical Guidance on the Prediction of Eastern North Pacific Tropical Cyclone Motion - Part II. Preston W. Lefwich 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 261 387/AS)
- 128 Hand Calculator Program to Compute Parcel Thermal Dynamics. Dan Gudgel, April 1978. (PB 283 080/AS)
- 129 Fire whirls. David W. Goens, May 1978. (PB 283 866/AS)
- 130 Flash-Flood Procedure. Ralph C. Hatch and Gerald Williams, May 1978. (PB 286 014/AS)
- 131 Automated Fire-Weather Forecasts. Mark A. Mollner and David E. Olsen, September 1978. (PB 289 916/AS)
- 132 Estimates of the Effects of Terrain Blocking on the Los Angeles WSR-74C Weather Radar. R.G. Pappas, R.Y. Lee, B.W. Finke, October 1978. (PB 289767/AS)
- 133 Spectral Techniques in Ocean Wave Forecasting. John A. Jannuzzi, October 1978. (PB291317/AS)
- 134 Solar Radiation. John A. Jannuzzi, November 1978. (PB291195/AS)
- 135 Application of a Spectrum Analyzer in Forecasting Ocean Swell in Southern California Coastal Waters. Lawrence P. Kierulff, January 1979. (PB292716/AS)
- 136 Basic Hydrologic Principles. Thomas L. Dietrich, January 1979. (PB292247/AS)
- 137 LFM 24-Hour Prediction of Eastern Pacific Cyclones Refined by Satellite Images. John R. Zimmerman and Charles P. Ruscha, Jr., January 1979. (PB294324/AS)
- 138 A Simple Analysis/Diagnosis System for Real Time Evaluation of Vertical Motion. Scott Heflick and James R. Fors, February 1979. (PB294216/AS)
- 139 Aids for Forecasting Minimum Temperature in the Wenatchee Frost District. Robert S. Robinson, April 1979. (PB298339/AS)
- 140 Influence of Cloudiness on Summer-time 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)

NOAA Technical Memorandum NWS WR-226

CLIMATE OF YAKIMA, WASHINGTON

Greg DeVoir
National Meteorological Center
Washington, D.C. (Formerly at WSO Yakima)

David Hogan
National Weather Service Office
Yakima, WA

Jay Neher
National Weather Service Forecast Office
Seattle, WA (Formerly at WSO Yakima)

December 1994

UNITED STATES
DEPARTMENT OF COMMERCE
Ronald H. Brown, Secretary

National Oceanic and
Atmospheric Administration
D. James Baker, Under Secretary
and Administrator

National Weather Service
Elbert W. Friday, Jr., Assistant
Administrator for Weather Services



**This publication has been reviewed
and is approved for publication by
Scientific Services Division,
Western Region**

A handwritten signature in black ink that reads "Ken Mielke". The signature is written in a cursive style with a large, sweeping initial "K".

**Kenneth B. Mielke, Chief
Scientific Services Division
Salt Lake City, Utah**

TABLE OF CONTENTS

I. GEOGRAPHY AND CLIMATE	1
II. HISTORY OF OBSERVATIONS	2
- Table 1: Station Location	4
III. TEMPERATURE DATA:	
- Table 2: Extreme Daily Maximum and Minimum by Month	5
- Tables 3A-3L: Record and Normal Maximum and Minimum by Month	6
- Table 4: Average Monthly Temperatures	18
- Table 5: Highest and Lowest Average Monthly Temperatures	19
- Table 6: Number of Days Per Month With Maximum Temperature	20
- Table 7: Number of Days Per Month With Minimum Temperature	21
- Table 8: Consecutive Days of Maximum and Minimum Temperatures	22
- Table 9: Earliest and Latest Dates of High and Low Temperatures	23
- Table 10: Lowest Daily Maximums	24
- Table 11: Heating and Cooling Degree Days	25
- Table 12: High-So-Early, Low-So-Late, High-So-Late, Low- So-Early	26
IV. PRECIPITATION DATA:	
- Table 13: Monthly and Annual Precipitation, Climatological Normals, 1961-1990	27
- Table 14: Average, Maximum, and Minimum Monthly Precipitation	28
- Table 15: Greatest 24-Hour Precipitation	29
- Table 16: Longest Periods Without Measurable Precipitation	29
- Table 17: Number of Days Each Month with Measurable Precipitation	30
- Table 18: Number of Days Per Year With Measurable Precipitation (0.01 inches or more)	31
- Table 19: Average, Maximum and Minimum Monthly Snowfall	32
- Table 20: Seasonal Snowfall (in inches), 1909-1993	33
- Table 21: Greatest and Least Number of Days with Measurable Snow in a Season, 1909-1993	34
- Table 22: Number of Days in Season With Snowfall...1 Inch or More...3 Inches or More	34
- Table 23: Maximum and Minimum Seasonal Snowfall	35
- Table 24: Greatest 24-Hour Snowfall	35
- Table 25: Maximum Seasonal 24-Hour Snowfall	36
- Table 26: Longest Periods With 1 Inch or More of Snow on Ground	36

- Table 27: Greatest Seasonal Depth of Snow on Ground 37
- Table 28: Number of Days with Measurable Snowfall by
Season, 1909-1993 38

V. AGRICULTURAL DATA:

- Table 29: Last Spring Minimum, First Fall Minimum 38
- Table 30: Frost Season: Number of Days With Minimum
Below..... 39
- Table 31: Longest and Shortest Growing Seasons 40

VI. MISCELLANEOUS DATA:

- Table 32: Number of Days Per Month With Dense Fog 40
- Tables 33A & 33B: Consecutive Days of Fog and Dense Fog 41
- Table 34: Foggiest Winters 42
- Table 35: Christmas Weather 42
- Table 36: Number of Days Per Month With Cloud Cover 43
- Table 37: Sunrise and Sunset Data 44
- Table 38: Wind 45

CLIMATE OF YAKIMA, WASHINGTON

Greg DeVoir
National Meteorological Center
Washington, D.C.
(Formerly at WSO Yakima)

David Hogan
National Weather Service Office
Yakima, WA

Jay Neher
National Weather Service Forecast Office
Seattle, WA
(Formerly at WSO Yakima)

ABSTRACT

This study is a summary of climate specifically for the Yakima Valley, one of the West Coast's most productive agricultural areas. It is intended to be of interest to both the general public and the agricultural community as well as a handy reference to weather service personnel in responding to climate inquiries. The summary provides an overview of geography, climate, and history of observations in the area. Tables and charts are broken down into the following four categories, namely temperature, precipitation, agricultural, and miscellaneous data.

I. GEOGRAPHY AND CLIMATE

Yakima lies at an elevation of 1066 feet and is located in a small east-west valley in the upper (northwestern) portion of the Yakima Valley. The Yakima Valley lies along the westernmost border of the Columbia Basin at the base of the eastern slopes of the Cascades. Local topography is complex with a number of minor valleys and ridges varying as much as 1,000 feet. This complex topography results in variations in air drainage, winds, and low temperatures within short distances.

The climate of the Yakima Valley is relatively mild and dry. It has

characteristics of both maritime and continental climates, modified by the Cascades to the west and the Rocky Mountains to the north and east. Summers are dry and rather hot, while winters are cool with only light snowfall. The maritime influence is greatest in winter when the prevailing westerlies are the strongest and most persistent.

The influence of the Pacific Ocean moderates wintertime temperatures while the Rocky Mountains of British Columbia and Idaho shield the area from most of the very cold Canadian air masses. On occasion arctic air moves southward into the Yakima Valley. However, such cold episodes are

uncommon as evidenced by more than half of the winters never experiencing temperatures below zero.

The modifying influence of the Pacific Ocean is less pronounced in summer. Afternoons are hot, but the dry air allows for rapid nighttime cooling. As a result, summer nights are pleasantly cool with low temperatures usually dropping into the 50s°F. Spells of up to seven consecutive days of $\geq 100^\circ\text{F}$ have occurred periodically (see Table 8).

The length of the growing season (see Tables 29-31) varies depending on the immediate topography and the type of crop. Temperatures $\leq 32^\circ\text{F}$ are infrequent during the period from mid-May through September. Temperatures $\leq 40^\circ\text{F}$ during July and August have occurred in about half of the years.

Precipitation follows the pattern of a West Coast marine climate with the typical late fall and early winter maximum (see Tables 13 and 14). However, since Yakima lies in the rain shadow of the Cascades, total amounts are small with annual rainfall just under eight inches. The three months from November through January total nearly half of the annual precipitation. By contrast, the months of June through October are generally very dry (≤ 0.50 inches) with July being significantly dryer than the rest (only 0.16 inches).

Irrigation is necessary for nearly all crops. Water supplies are available from the snowmelt in the Cascade

Mountains, which is collected in storage reservoirs for summer use.

Snowfall in the Yakima area is light, averaging only 20 to 25 inches annually (see Table 19).

Summers are sunny, with about 85 percent of the possible sunshine. Winters are generally cloudy, with only a third of the possible sunshine (see Table 36).

Winds are mostly light, averaging about seven mph for the year, but are somewhat stronger in late spring and weaker in winter (see Table 38). Speeds of 30 to 35 mph are reached at least once per month in about half the months and speeds over 40 mph occur at least once in a five-month period. The most common wind direction in downtown Yakima is northwest, while at the airport the wind is from the west in winter and the west-northwest in summer.

II. HISTORY OF OBSERVATIONS (see Table 1)

March 1, 1909 marked the first day that official weather observations were taken in Yakima, Washington. From this date through November 15, 1928, records were taken by essentially the same cooperative observer, although at two different locations. From March 1, 1909 to June 7, 1922, observations were made by Albert Bender and his wife, Alice Bender (later Alice Spangler), at 703 North 4th Street approximately three and a half miles northeast of the current airport location.

Following the death of Albert Bender and the remarriage of Alice Bender to a Mr. Spangler, Alice Spangler continued the observations, but at her new home at 1009 Cornell Avenue, approximately two miles northeast of the current location.

On November 15, 1928, observation responsibilities were taken over by the U.S. Weather Bureau and the instruments were moved to the roof of the Holtzinger Building at 127 West

Yakima Avenue about two and a half miles northeast of the airport.

On March 1, 1944, the first official weather observations were made at their current location, the Yakima Municipal Airport (now the Yakima Air Terminal). These observations were taken by the Civil Aviation Administration personnel for two and a half years before being handed over to the Weather Bureau on September 1, 1946.

TABLE 1
STATION LOCATION

YAKIMA, WASHINGTON

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										AUTOMATIC OBSERVING EQUIPMENT *	* Type M = AMOS T = ALTOB S = ASOS W = AMOS	REMARKS
						SEA LEVEL		GROUND										
						GROUND TEMPERATURE SITE	WIND INSTRUMENTS	EXTREME THERMOMETERS	PSYCHROMETER	SUNSHINE SWITCH	TIPPING BUCKET RAIN GAGE	WEIGHING RAIN GAGE	8 INCH RAIN GAGE	HYGRO THERMOMETER				
<u>COOPERATIVE</u>																		
703 North 4th Street	3/01/09	6/07/22		46°36'	120°30'	1076		4										
1009 Cornell Avenue	6/07/22	11/15/28	2 mi. SW	46°35'	120°31'	1066		4										
<u>CITY</u>																		
Hotzinger Building 2nd & Yakima Avenues	11/15/28	8/31/46	1 mi. NNE	46°36'	120°30'	1075	67	58	58		51	53	51					First Order Station. Minimum temperatures not considered representative of area.
<u>AIRPORT</u>																		
Municipal Airport (3 miles SW of P.O.) 2102 West Washington	3/01/44	8/31/46		46°34'	120°32'	1058	58	5	5					3				Observations by CAA.
Municipal Airport 2104 West Washington	9/01/46	7/19/50	No change	46°34'	120°32'	1058	58	5	5			7	3					Weather Bureau operation. Instruments not moved.
Administration Building Municipal Airport	7/19/50	1/04/68	500 ft. W	46°34'	120°32'	c1052	a20	6	6			5	4	b4				Instrument exposure excellent. a - 49 feet to 1/10/62. b - 1275 feet SE of thermometer site. Commissioned 9/28/63. c - 1061 feet to 9/28/63.
Weather Bureau Building Municipal Airport + + Yakima Air Terminal effective 12/1973.	1/04/68	Present	390 ft. W	46°34'	120°32'	1052	c20 e33	6	5	NA	NA	5	4	d f g	NA			d - Not moved 1/04/68. e - Effective 5/31/79. f - Effective 7/26/79. g - Minor move & type change 9/24/85.

TABLE 2
 EXTREME DAILY MAXIMUM AND MINIMUM BY MONTH
 (RECORDS FOR 1909-1993)
 (CLIMATOLOGICAL NORMALS FROM 1961-1990)

MONTH	NORMAL DAILY MAXIMUM	HIGHEST DAILY MAXIMUM	DATE OF OCCURRENCE
JANUARY	37.5	68	1977*
FEBRUARY	46.4	70	1932
MARCH	55.2	82	1911
APRIL	63.2	94	1926
MAY	71.6	102	1986
JUNE	79.9	105	1992
JULY	86.7	111	1928
AUGUST	85.7	110	1971
SEPTEMBER	76.8	100	1988*
OCTOBER	64.4	89	1932*
NOVEMBER	48.3	73	1989
DECEMBER	37.5	67	1980

MONTH	NORMAL DAILY MINIMUM	LOWEST DAILY MINIMUM	DATE OF OCCURRENCE
JANUARY	21.8	-21	1950*
FEBRUARY	26.4	-25	1950
MARCH	30.8	-1	1960
APRIL	35.5	20	1985
MAY	42.3	25	1954
JUNE	49.2	30	1976*
JULY	53.1	34	1971
AUGUST	52.3	34	1960
SEPTEMBER	44.6	20	1926
OCTOBER	35.3	11	1971
NOVEMBER	29.0	-13	1985
DECEMBER	22.1	-24	1919

Highest temperature ever recorded -> 111 on July 26, 1928
 Lowest temperature ever recorded -> -25 on February 1, 1950

* LAST OF SEVERAL OCCURRENCES

TABLE 3A
 JANUARY
 (RECORDS FOR 1909-1993)
 (CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	56 - 1939	35	-10 - 1979	21
2	60 - 1913	35	-7 - 1978	21
3	57 - 1989	36	-5 - 1959	21
4	57 - 1990*	36	-10 - 1974	21
5	56 - 1954	36	-7 - 1982	21
6	57 - 1923	36	-13 - 1982	21
7	61 - 1962	36	-11 - 1974	21
8	59 - 1933	36	-18 - 1909	21
9	59 - 1983	36	-21 - 1909	21
10	61 - 1983	36	-6 - 1980*	21
11	60 - 1932	36	-4 - 1949	21
12	58 - 1945	36	-13 - 1909	21
13	60 - 1967	36	-19 - 1909	21
14	59 - 1943	37	-19 - 1950	21
15	58 - 1974*	37	-10 - 1950	21
16	60 - 1920	37	-14 - 1950	21
17	58 - 1920	37	-18 - 1950	22
18	68 - 1977	37	-6 - 1960*	22
19	59 - 1968	38	-10 - 1916	22
20	58 - 1972	38	-19 - 1954	22
21	62 - 1968	38	-19 - 1927	22
22	60 - 1919	38	-14 - 1930*	22
23	61 - 1953	39	-7 - 1969*	22
24	58 - 1935	39	-11 - 1949	23
25	60 - 1962	39	-13 - 1957	23
26	58 - 1971	39	-19 - 1957	23
27	59 - 1976	40	-18 - 1957	23
28	59 - 1931	40	-12 - 1980	23
29	59 - 1974	41	-13 - 1957	23
30	68 - 1971	41	-15 - 1950	24
31	65 - 1971	41	-21 - 1950	24

* LAST OF SEVERAL OCCURRENCES

TABLE 3B
 FEBRUARY
 (RECORDS FOR 1909-1993)
 (CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	59 - 1971	42	-25 - 1950	24
2	58 - 1982	42	-24 - 1950	24
3	62 - 1925	42	-23 - 1950	24
4	62 - 1967	43	-7 - 1985	25
5	63 - 1917	43	-7 - 1949	25
6	60 - 1967	43	0 - 1985	25
7	62 - 1945	44	-6 - 1929	25
8	61 - 1945	44	-11 - 1929	25
9	60 - 1951	45	-11 - 1929	25
10	62 - 1990*	45	-9 - 1929	26
11	63 - 1924	45	-2 - 1929	26
12	67 - 1977	46	-3 - 1929	26
13	63 - 1971	46	-2 - 1949*	26
14	62 - 1982	46	0 - 1929	26
15	61 - 1972	47	-1 - 1923	27
16	67 - 1977	47	2 - 1936	27
17	64 - 1948*	47	3 - 1936	27
18	64 - 1930	48	10 - 1956	27
19	66 - 1991	48	11 - 1986	27
20	63 - 1982	48	8 - 1986	27
21	68 - 1988	49	10 - 1918	28
22	65 - 1947	49	12 - 1918	28
23	69 - 1947	49	14 - 1910	28
24	68 - 1986	50	10 - 1962	28
25	67 - 1986	50	12 - 1917	28
26	70 - 1932	50	10 - 1962	28
27	66 - 1926	50	7 - 1960	28
28	65 - 1988*	51	10 - 1960	29
29	65 - 1965		8 - 1960	

* LAST OF SEVERAL OCCURRENCES

TABLE 3C
MARCH
(RECORDS FOR 1909-1993)
(CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	65 - 1925	51	10 - 1939	29
2	66 - 1910	51	13 - 1917	29
3	67 - 1926	52	6 - 1960	29
4	67 - 1986	52	-1 - 1960	29
5	65 - 1949*	52	7 - 1955	29
6	66 - 1979*	52	15 - 1960	29
7	67 - 1953	53	12 - 1951	30
8	69 - 1953*	53	7 - 1951	30
9	72 - 1916	53	4 - 1951	30
10	72 - 1916	54	4 - 1951	30
11	70 - 1930	54	13 - 1951	30
12	72 - 1934*	54	17 - 1956	30
13	75 - 1926	54	17 - 1964	30
14	77 - 1934	55	15 - 1944	31
15	73 - 1947*	55	20 - 1944	31
16	76 - 1947	55	23 - 1991*	31
17	77 - 1947	56	16 - 1920	31
18	78 - 1947	56	15 - 1965	31
19	78 - 1947	56	14 - 1965	31
20	79 - 1947	56	17 - 1955	31
21	76 - 1960*	57	19 - 1913	31
22	78 - 1939	57	20 - 1952	32
23	79 - 1939	57	20 - 1948	32
24	76 - 1960	57	16 - 1965	32
25	80 - 1960	58	16 - 1913	32
26	75 - 1946	58	20 - 1913	32
27	76 - 1930	58	16 - 1944	32
28	80 - 1930	58	18 - 1954	32
29	77 - 1923	59	14 - 1954	33
30	80 - 1911	59	18 - 1954	33
31	82 - 1911	59	22 - 1952*	33

* LAST OF SEVERAL OCCURRENCES

TABLE 3D
 APRIL
 (RECORDS FOR 1909-1993)
 (CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD	NORMAL	RECORD	NORMAL
	HIGH	HIGH	LOW	LOW
1	80 - 1911	59	21 - 1953*	33
2	80 - 1992	60	22 - 1953*	33
3	77 - 1944	60	21 - 1975*	33
4	78 - 1960	60	22 - 1918	33
5	78 - 1977	60	22 - 1975	34
6	81 - 1977	61	24 - 1992*	34
7	84 - 1977	61	23 - 1975	34
8	82 - 1925	61	22 - 1928	34
9	85 - 1925	61	22 - 1972	34
10	84 - 1925	62	22 - 1981	34
11	82 - 1913	62	23 - 1954*	35
12	85 - 1934	62	23 - 1971	35
13	88 - 1947	63	22 - 1972*	35
14	88 - 1947	63	24 - 1967	35
15	90 - 1926	63	22 - 1955	35
16	87 - 1926	63	22 - 1964	36
17	88 - 1936	64	21 - 1964	36
18	86 - 1910	64	23 - 1964	36
19	87 - 1934	64	22 - 1927	36
20	90 - 1934	64	22 - 1985	36
21	90 - 1934	65	20 - 1985	36
22	91 - 1934	65	25 - 1920	37
23	86 - 1977*	65	25 - 1992	37
24	92 - 1977	65	24 - 1986	37
25	90 - 1910	66	25 - 1955	37
26	87 - 1926	66	24 - 1948	38
27	91 - 1926	66	26 - 1970*	38
28	94 - 1926	67	27 - 1984	38
29	92 - 1926	67	24 - 1952	38
30	87 - 1981*	67	25 - 1986	38

* LAST OF SEVERAL OCCURRENCES

TABLE 3E
MAY
(RECORDS FOR 1909-1993)
(CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	85 - 1947*	67	25 - 1954	39
2	88 - 1971*	68	26 - 1952*	39
3	89 - 1945	68	27 - 1988*	39
4	90 - 1966	68	26 - 1975	39
5	94 - 1966	69	27 - 1965*	40
6	93 - 1992	69	28 - 1926	40
7	93 - 1987	69	31 - 1948	40
8	92 - 1949	69	28 - 1922	40
9	95 - 1949	70	30 - 1991*	41
10	95 - 1949	70	29 - 1944	41
11	98 - 1949	70	27 - 1970	41
12	98 - 1949	71	27 - 1985	41
13	96 - 1949	71	28 - 1964	42
14	95 - 1973	71	26 - 1964	42
15	94 - 1924	71	32 - 1986	42
16	92 - 1973	72	27 - 1974	42
17	93 - 1973	72	31 - 1988	43
18	94 - 1954	72	30 - 1972	43
19	90 - 1928	72	29 - 1987	43
20	92 - 1928	73	32 - 1987*	43
21	94 - 1928	73	31 - 1960	43
22	95 - 1958	73	27 - 1960	44
23	95 - 1940	74	26 - 1964	44
24	93 - 1938	74	30 - 1989	44
25	98 - 1928	74	31 - 1984*	45
26	98 - 1958	74	31 - 1973	45
27	98 - 1934	75	32 - 1973	45
28	100 - 1934	75	29 - 1976	45
29	101 - 1983	75	30 - 1976	45
30	102 - 1986	75	32 - 1923*	46
31	99 - 1986	76	31 - 1955	46

* LAST OF SEVERAL OCCURRENCES

TABLE 3F
 JUNE
 (RECORDS FOR 1909-1993)
 (CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	99 - 1986	76	30 - 1984*	46
2	98 - 1924*	76	30 - 1976	46
3	98 - 1970	76	32 - 1976*	47
4	95 - 1978*	77	32 - 1925	47
5	98 - 1949	77	33 - 1976	47
6	100 - 1949	78	35 - 1982	47
7	101 - 1926	78	36 - 1928	48
8	97 - 1948	78	36 - 1974	48
9	97 - 1918	78	36 - 1925	48
10	101 - 1934	78	34 - 1959	48
11	100 - 1934	79	35 - 1988	48
12	97 - 1911	79	36 - 1968	49
13	100 - 1933	79	35 - 1991*	49
14	99 - 1974	79	35 - 1976	49
15	98 - 1961	80	36 - 1978	49
16	103 - 1961	80	35 - 1954	49
17	102 - 1961	80	36 - 1991	50
18	100 - 1961	81	33 - 1954	50
19	99 - 1985	81	36 - 1986	50
20	102 - 1925	81	35 - 1953	50
21	101 - 1925	81	38 - 1953	50
22	102 - 1958	82	37 - 1987*	51
23	105 - 1992	82	38 - 1993	51
24	102 - 1992	82	39 - 1993*	51
25	103 - 1926	82	39 - 1966*	51
26	103 - 1925	83	33 - 1976	51
27	101 - 1925	83	38 - 1964*	51
28	98 - 1948*	83	33 - 1975	51
29	103 - 1948	84	40 - 1971	52
30	100 - 1987	84	34 - 1949	52

* LAST OF SEVERAL OCCURRENCES

TABLE 3G
 JULY
 (RECORDS FOR 1909-1993)
 (CLIMATOLOGICAL NORMALS FOR 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	104 - 1924	84	37 - 1955	52
2	104 - 1942	84	35 - 1979*	52
3	106 - 1922	85	39 - 1990*	52
4	104 - 1975	85	42 - 1980	52
5	107 - 1975	85	38 - 1986	52
6	104 - 1926	85	36 - 1988	52
7	100 - 1945	86	34 - 1971	52
8	100 - 1985	86	39 - 1981	53
9	107 - 1975	86	38 - 1972	53
10	104 - 1926	86	39 - 1972	53
11	108 - 1926	86	38 - 1974	53
12	104 - 1926	86	40 - 1974*	53
13	105 - 1935	87	41 - 1968	53
14	106 - 1935	87	43 - 1993	53
15	106 - 1941	87	41 - 1924	53
16	107 - 1941	87	38 - 1986	53
17	107 - 1941	87	41 - 1986*	53
18	105 - 1960	87	41 - 1986	53
19	104 - 1979	87	43 - 1962*	53
20	107 - 1971	88	44 - 1949	53
21	104 - 1936	88	42 - 1984	53
22	106 - 1938	88	41 - 1973	54
23	104 - 1928	88	39 - 1963	54
24	108 - 1928	88	40 - 1948	54
25	110 - 1928	88	42 - 1949	54
26	111 - 1928	88	42 - 1953	54
27	110 - 1939	88	45 - 1986*	54
28	105 - 1971	88	42 - 1954	54
29	102 - 1982*	88	44 - 1970*	54
30	104 - 1971*	88	44 - 1945	54
31	108 - 1971	88	42 - 1964	54

* LAST OF SEVERAL OCCURRENCES

TABLE 3H
AUGUST
(RECORDS FOR 1909-1993)
(CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	105 - 1971	88	40 - 1987	54
2	100 - 1961	88	39 - 1956	54
3	103 - 1961	88	44 - 1989	54
4	108 - 1961	88	41 - 1954	54
5	102 - 1990	88	41 - 1948	54
6	105 - 1972	87	43 - 1947	54
7	106 - 1972	87	40 - 1946	54
8	106 - 1972	87	41 - 1992	54
9	108 - 1971	87	43 - 1985	53
10	110 - 1971	87	41 - 1947	53
11	108 - 1971	87	43 - 1957	53
12	104 - 1971	87	40 - 1927	53
13	103 - 1977	87	43 - 1984	53
14	102 - 1992	86	43 - 1964*	53
15	102 - 1933	86	43 - 1989*	53
16	103 - 1942	86	40 - 1978	53
17	101 - 1977	86	41 - 1976	52
18	103 - 1977	86	41 - 1987*	52
19	104 - 1942	85	38 - 1947	52
20	103 - 1946	85	40 - 1945	52
21	100 - 1958	85	40 - 1985	52
22	100 - 1946	85	34 - 1960	52
23	98 - 1970*	85	38 - 1992	51
24	100 - 1958	84	36 - 1925	51
25	98 - 1958*	84	36 - 1993	51
26	98 - 1934*	84	38 - 1955	51
27	100 - 1972	83	38 - 1925	50
28	102 - 1972	83	37 - 1980	50
29	98 - 1972	83	36 - 1980	50
30	98 - 1967	83	36 - 1925	50
31	97 - 1949	82	40 - 1993*	49

* LAST OF SEVERAL OCCURRENCES

TABLE 3I
 SEPTEMBER
 (RECORDS FOR 1909-1993)
 (CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	100 - 1949	82	38 - 1924	49
2	98 - 1928	82	39 - 1948	49
3	100 - 1988*	81	36 - 1958	49
4	98 - 1988*	81	37 - 1956	48
5	97 - 1955	81	36 - 1956	48
6	97 - 1955	80	36 - 1960	48
7	99 - 1911	80	33 - 1992	47
8	97 - 1944	79	35 - 1962	47
9	96 - 1944	79	34 - 1964*	47
10	99 - 1944	79	36 - 1989*	46
11	96 - 1973*	78	35 - 1964	46
12	96 - 1922	78	31 - 1921	46
13	94 - 1948	78	28 - 1970	45
14	93 - 1937	77	34 - 1986*	45
15	94 - 1937	77	33 - 1993	45
16	94 - 1981*	77	33 - 1987*	44
17	95 - 1981*	76	30 - 1965	44
18	92 - 1952	76	30 - 1988	44
19	91 - 1918	76	31 - 1971	44
20	90 - 1939	75	30 - 1993	43
21	94 - 1939	75	31 - 1971	43
22	91 - 1966*	74	30 - 1981	43
23	90 - 1952*	74	25 - 1926	42
24	92 - 1952	74	20 - 1926	42
25	93 - 1952	73	21 - 1926	42
26	90 - 1952*	73	21 - 1926	41
27	91 - 1963	73	24 - 1926	41
28	92 - 1918	72	30 - 1983*	40
29	86 - 1935	72	24 - 1985	40
30	86 - 1935	72	26 - 1985	40

* LAST OF SEVERAL OCCURRENCES

TABLE 3J
OCTOBER
(RECORDS FOR 1909-1993)
(CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	88 - 1992	71	23 - 1950	39
2	89 - 1932	71	28 - 1953	39
3	84 - 1988*	70	28 - 1989*	39
4	85 - 1958*	70	26 - 1928	38
5	86 - 1980	70	28 - 1927	38
6	86 - 1980	69	26 - 1974	38
7	89 - 1917	69	25 - 1990*	38
8	87 - 1945	68	23 - 1985	37
9	84 - 1936*	68	20 - 1985	37
10	85 - 1945*	67	26 - 1924	37
11	85 - 1945	67	24 - 1990	36
12	86 - 1945	67	26 - 1986*	36
13	82 - 1945	66	19 - 1928	36
14	82 - 1917	66	22 - 1969	36
15	81 - 1945*	65	23 - 1992	35
16	79 - 1963	65	23 - 1946	35
17	78 - 1928	64	19 - 1971	35
18	83 - 1940	64	22 - 1984	35
19	81 - 1940	63	17 - 1949	34
20	77 - 1927	63	21 - 1961	34
21	79 - 1927	62	21 - 1987*	34
22	78 - 1942	62	20 - 1984	34
23	76 - 1944	61	23 - 1945	33
24	76 - 1926	61	23 - 1912	33
25	74 - 1944	60	12 - 1919	33
26	72 - 1944*	59	20 - 1978	33
27	81 - 1944	59	17 - 1919	33
28	72 - 1915	58	14 - 1971	33
29	70 - 1910	58	11 - 1971	32
30	70 - 1967	57	16 - 1972	32
31	74 - 1967	56	17 - 1984	32

* LAST OF SEVERAL OCCURRENCES

TABLE 3K
 NOVEMBER
 (RECORDS FOR 1909-1993)
 (CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	68 - 1949	56	13 - 1935	32
2	69 - 1949	55	14 - 1935	32
3	72 - 1975	55	9 - 1935	32
4	68 - 1975	54	16 - 1935*	31
5	69 - 1949	54	15 - 1971*	31
6	68 - 1921	53	15 - 1971	31
7	65 - 1921*	53	15 - 1959	31
8	65 - 1989	52	16 - 1945	31
9	70 - 1955	51	18 - 1975*	31
10	73 - 1989	51	13 - 1986	30
11	65 - 1959	50	5 - 1911	30
12	65 - 1990	50	7 - 1985	30
13	62 - 1990	49	5 - 1959	30
14	63 - 1923*	49	0 - 1955	30
15	62 - 1953	48	-3 - 1955	29
16	63 - 1949	48	10 - 1955	29
17	68 - 1976*	47	9 - 1961	29
18	67 - 1911	47	9 - 1985*	29
19	69 - 1962	46	4 - 1985	28
20	62 - 1925	46	1 - 1985	28
21	66 - 1917	45	0 - 1985	28
22	66 - 1959	45	-11 - 1985	28
23	69 - 1959	45	-13 - 1985	27
24	67 - 1990	44	-11 - 1985	27
25	64 - 1949	44	-7 - 1985	27
26	64 - 1949	43	-5 - 1985	26
27	60 - 1949	43	3 - 1985	26
28	60 - 1973	42	7 - 1931	26
29	61 - 1909	42	7 - 1931	26
30	63 - 1939	42	10 - 1985*	25

* LAST OF SEVERAL OCCURRENCES

TABLE 3L
 DECEMBER
 (RECORDS FOR 1909-1993)
 (CLIMATOLOGICAL NORMALS FROM 1961-1990)

DAY	RECORD HIGH	NORMAL HIGH	RECORD LOW	NORMAL LOW
1	67 - 1980*	41	7 - 1984	25
2	64 - 1975	41	6 - 1984	25
3	64 - 1918	41	-1 - 1985	24
4	58 - 1918	40	2 - 1984	24
5	56 - 1927*	40	1 - 1984	24
6	62 - 1936	39	0 - 1984	24
7	58 - 1973	39	-2 - 1956	23
8	54 - 1938	39	-7 - 1972	23
9	57 - 1979	39	1 - 1972	23
10	64 - 1946	38	-5 - 1972	23
11	61 - 1921	38	-6 - 1922	22
12	66 - 1924	38	-22 - 1919	22
13	65 - 1924	38	-24 - 1919	22
14	60 - 1924	37	-18 - 1919	22
15	62 - 1959	37	-14 - 1922	22
16	58 - 1917	37	-15 - 1964*	22
17	56 - 1990*	37	-17 - 1964	21
18	63 - 1936	37	-10 - 1984	21
19	52 - 1936	36	-9 - 1984	21
20	58 - 1933	36	-7 - 1984	21
21	65 - 1933	36	-9 - 1990	21
22	56 - 1949	36	-10 - 1983*	21
23	55 - 1950	36	-13 - 1983	21
24	54 - 1922	36	-8 - 1924	21
25	60 - 1972	36	-9 - 1924	21
26	67 - 1980	36	-6 - 1924	21
27	62 - 1980	36	-2 - 1948	21
28	57 - 1949*	36	-2 - 1990	21
29	62 - 1917	36	-16 - 1990	21
30	57 - 1938	35	-10 - 1968	21
31	56 - 1938	35	-7 - 1978	21

* LAST OF SEVERAL OCCURRENCES

TABLE 4
 AVERAGE MONTHLY TEMPERATURES
 (RECORDS FOR 1909-1993)
 (CLIMATOLOGICAL NORMALS FOR 1961-1990)

MONTH	NORMAL AVERAG TEMP	HIGHEST AVERAGE TEMP	YEAR	LOWEST AVERAGE TEMP	YEAR
JANUARY	29.7	39.9	1981	12.5	1950
FEBRUARY	36.4	43.8	1934	22.8	1965*
MARCH	43.0	51.2	1934	37.1	1955
APRIL	49.4	61.0	1934	43.8	1955
MAY	57.0	65.2	1924	52.4	1984
JUNE	64.6	72.2	1922	58.7	1953
JULY	69.9	78.8	1941	63.0	1993
AUGUST	69.0	76.6	1942	62.8	1964
SEPTEMBER	60.7	69.8	1938	55.3	1985
OCTOBER	49.9	58.8	1944	45.8	1946
NOVEMBER	38.6	43.8	1966	23.0	1985
DECEMBER	31.9	38.4	1939*	19.1	1985

AVERAGE YEARLY TEMPERATURES
 (RECORDS FOR 1909-1992)
 (CLIMATOLOGICAL NORMALS FOR 1961-1990)

HIGHEST YEARLY AVERAGES	LOWEST YEARLY AVERAGES
56.0 IN 1934	46.4 IN 1985
54.3 IN 1939	47.1 IN 1955
54.0 IN 1967	47.9 IN 1964

NORMAL AVERAGE YEARLY TEMPERATURE...49.8

* LAST OF SEVERAL OCCURRENCES

TABLE 5
 HIGHEST AND LOWEST AVERAGE MONTHLY TEMPERATURES
 (Records for 1909-1993)

	HIGHEST	YEAR	LOWEST	YEAR		HIGHEST	YEAR	LOWEST	YEAR
JAN	39.9	1981	12.5	1950	JUL	78.8	1941	63.0	1993
	39.2	1934	14.6	1949		78.1	1938	65.7	1986
	38.9	1953	14.8	1979		76.2	1928	66.2	1916
	38.6	1967	15.0	1937		76.0	1925*	66.6	1954
	37.6	1983	16.0	1957		75.9	1937	66.9	1957
FEB	43.8	1934	22.8	1956*	AUG	76.6	1942	62.8	1964
	42.8	1958	23.4	1929		75.1	1939*	65.0	1957
	41.5	1991*	26.4	1989		74.6	1929	65.3	1968
	41.3	1967	28.5	1969		74.3	1977*	65.4	1954
	40.7	1961	28.8	1993		73.6	1961	65.8	1959
MAR	51.2	1934	37.1	1955	SEP	69.8	1938	55.3	1985
	49.8	1941	37.9	1951		68.5	1943	55.5	1971
	49.7	1910	38.4	1917		67.9	1935	56.5	1926
	49.2	1940	38.7	1971		66.5	1966	57.1	1964
	48.1	1992	39.1	1976		65.4	1990	58.6	1933
APR	61.0	1934	43.8	1955	OCT	58.8	1944	45.8	1946
	56.7	1926	44.9	1967		56.7	1937*	46.7	1985
	56.0	1936	45.5	1972*		55.9	1933	46.8	1990
	55.8	1941	45.8	1971		55.7	1952	47.1	1971*
	53.7	1947	46.2	1970		55.1	1988	47.3	1949
MAY	65.2	1924	52.4	1984	NOV	43.8	1966	23.0	1985
	65.0	1947	52.7	1977		43.6	1954	31.2	1955
	64.3	1931	53.1	1959		43.5	1949	31.4	1993
	64.2	1936	53.6	1964		43.4	1937*	32.3	1978
	63.7	1910	53.7	1962		42.4	1983*	33.1	1952
JUN	72.2	1922	58.7	1953	DEC	38.4	1939*	19.1	1985
	71.6	1940	59.7	1954		38.0	1917	20.1	1984
	70.4	1918	59.9	1976		36.4	1966*	21.0	1919
	70.1	1948	60.1	1991		35.9	1962	22.2	1983
	70.0	1938	60.7	1971		35.4	1941*	22.8	1990

* LAST OF SEVERAL OCCURRENCES

TABLE 6
NUMBER OF DAYS PER MONTH WITH MAXIMUM TEMPERATURE...
(CLIMATOLOGICAL NORMALS FOR 1951-1980)
(RECORDS FOR 1909-1993)

90 DEGREES OR HIGHER

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	0.04	4 IN 1926
MAY	1.4	7 IN 1958*
JUNE	4.7	14 IN 1926
JULY	13.5	26 IN 1925
AUGUST	10.7	22 IN 1958*
SEPTEMBER	2.3	9 IN 1952*
OCTOBER	0	0
NOVEMBER	0	0
DECEMBER	0	0

32 DEGREES OR LOWER

MONTH	NORMAL NUMBER OF DAYS WITH MAX TEMP 32 DEGREES OR LOWER	GREATEST NUMBER OF DAYS WITH MAX TEMP 32 DEGREES OR LOWER
JANUARY	10	30 IN 1979
FEBRUARY	2.4	19 IN 1936
MARCH	0.1	3 IN 1960
APRIL	0	0
MAY	0	0
JUNE	0	0
JULY	0	0
AUGUST	0	0
SEPTEMBER	0	0
OCTOBER	0	2 IN 1935
NOVEMBER	1.6	16 IN 1985
DECEMBER	8.5	24 IN 1985

* LAST OF SEVERAL OCCURRENCES

TABLE 7
NUMBER OF DAYS PER MONTH WITH MINIMUM TEMPERATURE...
(CLIMATOLOGICAL NORMALS FOR 1951-1980)
(RECORDS FOR 1909-1993)

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	28	31 IN 1991*
FEBRUARY	23.7	28 IN 1989*
MARCH	20.6	27 IN 1955
APRIL	11.9	22 IN 1972
MAY	2.8	8 IN 1984
JUNE	0.1	3 IN 1976
JULY	0	0
AUGUST	0	0
SEPTEMBER	1	8 IN 1926
OCTOBER	10.9	19 IN 1987*
NOVEMBER	21.1	30 IN 1946
DECEMBER	27.8	31 IN 1992*

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	2.3	16 IN 1949
FEBRUARY	0.5	7 IN 1929
MARCH	0.04	1 IN 1960
APRIL	0	0
MAY	0	0
JUNE	0	0
JULY	0	0
AUGUST	0	0
SEPTEMBER	0	0
OCTOBER	0	0
NOVEMBER	0.2	6 IN 1985
DECEMBER	0.9	7 IN 1990

* LAST OF SEVERAL OCCURRENCES

TABLE 8
 CONSECUTIVE DAYS OF MAXIMUM TEMPERATURE 100 DEGREES OR HIGHER
 (Records for 1909-1993)

DURATION	DATES OF OCCURRENCE
7	August 7 - 13, 1981*
6	August 7 - 12, 1971*
5	July 14 - 18, 1941*

CONSECUTIVE DAYS OF MAXIMUM TEMPERATURE 90 DEGREES OR HIGHER
 (Records for 1909-1993)

DURATION	DATES OF OCCURRENCE
32	July 13 - August 13, 1971
26	July 16 - August 10, 1927
20	July 22 - August 10, 1972

CONSECUTIVE DAYS OF MAXIMUM TEMPERATURE 32 DEGREES OR LOWER
 (Records for 1909-1993)

DURATION	DATES OF OCCURRENCE
26	January 5 - February 1, 1930
24	December 27, 1978 - January 15, 1979
21	December 30, 1984 - January 19, 1985

CONSECUTIVE DAYS OF MINIMUM TEMPERATURE 0 DEGREES OR LOWER
 (Records for 1909-1993)

DURATION	DATES OF OCCURRENCE
9	January 6 - 14, 1909
8	January 23 - 30, 1957*
7	January 28 - February 3, 1950*

* LAST OF SEVERAL OCCURRENCES

TABLE 9
 EARLIEST AND LATEST DATES OF HIGH AND LOW TEMPERATURES
 (Records for 1909-1993)

EARLIEST DATE WITH READING OF:		LATEST DATE WITH READING OF:
70 or higher-	February 26	November 10
80 or higher-	March 25	October 27
90 or higher-	April 15	September 28
100 or higher-	May 28	September 3
105 or higher-	June 23	August 11
110 or higher-	July 25	August 10
EARLIEST DATE WITH READING OF:		LATEST DATE WITH READING OF:
32 or lower-	September 12	June 4
20 or lower-	September 24	April 21
10 or lower-	November 3	March 10
0 or lower-	November 14	March 4
-10 or lower-	November 22	February 9
-15 or lower-	December 12	February 3

TABLE 10
 LOWEST DAILY MAXIMUMS
 (Record for 1909-1993)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	10 1968	8 1950	25 1993	40 1936	53 1933*	60 1936*	61 1954	75 1976	60 1971	55 1978	31 1935	15 1985
2	14 1924	6 1989	23 1960	43 1936	56 1964	57 1917	69 1916*	72 1941*	64 1941	50 1940*	37 1955	20 1965
3	16 1950	9 1989	23 1960	42 1936	57 1938	56 1968	70 1916	70 1941	67 1941	52 1950	39 1935	24 1965
4	13 1959	18 1985	26 1960	39 1948	53 1963	58 1951	67 1986	69 1933	66 1919	52 1950	41 1935	24 1972
5	16 1909	22 1965	34 1961*	45 1929	50 1961	58 1968*	69 1977	74 1933	58 1911	51 1957	42 1919	21 1972
6	12 1909	24 1929	34 1957	51 1929*	55 1962	53 1914	61 1923	74 1946	60 1911	51 1948	42 1942	18 1956
7	6 1909	11 1936	39 1912	41 1945	50 1916	60 1950	70 1961*	72 1976	65 1978	49 1957	40 1942	16 1956
8	8 1912	13 1936	33 1951	46 1920	53 1918	65 1939	69 1946	75 1918	60 1965	57 1957	32 1945	15 1932
9	0 1909	14 1929	38 1951*	48 1920	54 1948	66 1942	71 1972*	75 1932	60 1933	51 1958	33 1965	11 1919
10	4 1909	16 1933*	40 1933*	51 1929	53 1937	65 1972	63 1974	71 1932	65 1927	54 1959*	33 1965	16 1919
11	10 1909	20 1933	38 1956	51 1944	54 1943	62 1993	65 1943	71 1932	64 1921	50 1955	25 1911	12 1919
12	2 1909	22 1929	37 1923	48 1944	56 1943	57 1943	72 1920	71 1927	63 1970*	54 1943	21 1955	1 1919
13	7 1909	17 1936	38 1921	47 1922	56 1955	67 1961*	67 1993	70 1913	57 1920	52 1935	15 1955	1 1918
14	10 1909	11 1923	40 1949	50 1958	57 1955	63 1935	70 1962*	71 1993*	61 1963	53 1930	19 1955	4 1919
15	13 1950	20 1936	38 1949	52 1955	56 1974*	66 1954*	66 1962*	68 1976	61 1959	52 1930	20 1955	12 1919
16	12 1930	21 1956*	42 1963	54 1964*	54 1955	63 1941	62 1966	62 1912	59 1914	51 1930	17 1955	12 1922
17	8 1950	18 1936	43 1946	47 1963	54 1959*	59 1938	70 1967	68 1918	56 1966	48 1920	21 1955	16 1924
18	11 1943*	23 1936	42 1950	52 1960	59 1933	63 1938	71 1967	71 1924*	52 1963	46 1949	25 1955	14 1964
19	11 1957*	24 1936	44 1913	46 1951	56 1962	61 1937	71 1993	68 1918	62 1963*	46 1930	21 1921	10 1964
20	8 1935	24 1936	38 1913	46 1963	57 1960	60 1991*	67 1965	65 1918	64 1945	46 1947	18 1921	12 1964
21	12 1954*	27 1910	40 1913	52 1960	59 1960	60 1964	70 1965	70 1960	62 1933*	47 1933*	18 1965	15 1964*
22	11 1990*	22 1910	35 1938	49 1961	56 1964	67 1963	73 1963	67 1975	53 1934	46 1957*	21 1965	14 1963
23	8 1930	24 1922	39 1964	43 1946	59 1962*	66 1967*	69 1962	68 1960	52 1934	40 1937	14 1965	11 1963
24	15 1930	29 1917	38 1955	53 1955	57 1962	63 1978	72 1963	70 1954*	54 1934*	39 1919	12 1965	19 1924
25	15 1950*	28 1993	35 1955	54 1970	55 1964	62 1942	72 1990	64 1920	54 1923	42 1919	15 1965	15 1924
26	10 1957	24 1993	45 1955	51 1955	59 1953	65 1974*	64 1945	70 1954	50 1948	44 1919	9 1965	15 1924
27	5 1957	25 1993	34 1931	52 1951*	64 1942	65 1916	70 1948	64 1920	54 1919	46 1956	18 1965	20 1916
28	10 1929	28 1962	40 1954	55 1955	62 1948	62 1963	72 1950	64 1951	60 1971	40 1946	13 1965	18 1916
29	10 1957	38 1960	39 1936	50 1915	61 1955	63 1962	68 1915	69 1951*	58 1959	36 1935	15 1965	4 1968
30	14 1969		36 1936	44 1940	60 1930	62 1976	73 1937	61 1937	53 1919	28 1935	19 1965	1 1968
31	5 1950		39 1936		65 1955*		73 1967	66 1971		28 1935		4 1968

* LAST OF SEVERAL OCCURRENCES

TABLE 11
HEATING DEGREE DAYS
(Records for 1928-1993)
(Climatological normals for 1961-1990)

MONTH	MAXIMUM DEGREE DAYS	MINIMUM DEGREE DAYS	NORMAL DEGREE DAYS
July	80 - 1993	0 - 1985*	19
August	94 - 1964	0 - 1967*	38
September	286 - 1985	22 - 1938	169
October	590 - 1946	191 - 1944	468
November	1255 - 1985	629 - 1966	792
December	1416 - 1985	824 - 1933	1091
January	1625 - 1950	773 - 1981	1094
February	1224 - 1936	594 - 1934	801
March	858 - 1955	426 - 1934	682
April	631 - 1955	162 - 1934	468
May	384 - 1984	71 - 1947	255
June	186 - 1953	12 - 1940	90
Season	6913 - 1985/86	4187 - 1933/34	5967

COOLING DEGREE DAYS
(Records for 1969-1993)
(Climatological normals for 1961-1990)

MONTH	MAXIMUM DEGREE DAYS	MINIMUM DEGREE DAYS	NORMAL DEGREE DAYS
January	--	--	0
February	--	--	0
March	--	--	0
April	14 - 1987	0 - 1993*	0
May	72 - 1983	0 - 1978*	7
June	89 - 1992	13 - 1991	78
July	314 - 1975	26 - 1993	171
August	319 - 1977	71 - 1985	162
September	66 - 1981	1 - 1971	40
October	5 - 1992	0 - 1993*	0
November	--	--	0
December	--	--	0
Season	639 - 1977	282 - 1993	458

* LAST OF SEVERAL OCCURRENCES

TABLE 12
 HI-SO-EARLY, LOW-SO-LATE, HI-SO-LATE, AND LOW-SO-EARLY

DAY	HI-SO-EARLY			LOW-SO-LATE			HI-SO-LATE			LOW-SO-EARLY			DAY
	MAR	APR	MAY	MAR	APR	MAY	SEP	OCT	NOV	SEP	OCT	NOV	
1	65					25				38			1
2	66												2
3	67						100		72	36		9	3
4				-1									4
5													5
6													6
7		84						89		33			7
8	69							87					8
9	72		95						70				9
10				4			99						10
11			98	13								5	11
12		85					96	86		31			12
13	75	88								28	19		13
14	77											0	14
15		90										-3	15
16													16
17							95						17
18	78							83					18
19											17		19
20	79												20
21					20		94						21
22		91										-11	22
23						26			69	25		-13	23
24		92							67	20			24
25	80						93				12		25
26									64				26
27								81					27
28		94	100			29	92						28
29			101	14	24	30					11		29
30			102	18					63				30
31	82					31		74					31

TABLE 13
MONTHLY AND ANNUAL PRECIPITATION,
CLIMATOLOGICAL NORMALS (1961-1990)

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL
1961	0.55	2.46	2.04	0.86	0.96	0.52	0.25	0.22	T	0.31	0.51	1.27	9.95
1962	0.16	1.48	0.65	0.62	1.09	0.07	0.01	0.33	0.30	1.49	0.79	0.47	7.46
1963	1.42	0.52	0.84	1.62	0.43	0.26	0.69	0.13	0.08	0.05	1.13	1.00	8.17
1964	0.60	T	0.14	0.25	0.03	1.18	0.08	0.20	0.03	0.15	0.70	4.19	7.55
1965	1.33	0.08	0.10	0.48	0.05	0.51	0.27	0.21	0.04	0.06	1.43	1.39	5.95
1966	1.73	0.11	0.81	T	0.10	0.17	0.71	T	0.87	0.41	2.14	0.95	8.00
1967	0.60	T	0.45	1.03	0.16	1.12	T	0.01	0.09	0.21	0.30	0.55	4.52
1968	1.76	0.88	0.11	T	0.47	0.02	1.71	1.71	0.32	0.02	1.32	1.91	9.46
1969	1.52	0.91	0.16	0.27	0.54	0.61	T	0.01	0.32	0.24	0.08	2.28	6.94
1970	3.66	0.49	0.22	0.16	0.06	0.01	0.13	T	0.07	0.54	1.25	1.41	8.00
1971	1.48	T	1.56	0.47	0.54	0.20	0.04	0.14	0.73	0.27	0.97	1.45	7.65
1972	0.88	0.31	1.05	0.09	0.60	1.50	0.04	0.65	0.06	0.12	0.72	1.31	7.33
1973	1.19	0.24	0.01	0.04	0.08	0.02	T	0.01	0.81	1.52	2.83	2.22	8.97
1974	1.67	0.85	1.21	1.46	0.80	0.12	0.18	T	0.02	0.45	0.30	1.14	8.20
1975	2.28	1.16	0.49	0.40	0.23	0.22	0.18	2.10	T	0.79	0.43	0.55	8.83
1976	0.56	0.78	0.70	0.33	0.09	0.69	0.26	0.50	0.13	0.07	T	0.07	4.18
1977	0.13	0.69	0.23	0.01	0.68	0.46	T	1.16	0.89	0.17	0.70	2.80	7.92
1978	2.30	1.30	0.52	0.91	0.28	0.32	0.29	0.38	0.64	0.00	0.94	0.14	8.02
1979	0.91	0.54	0.23	0.14	0.04	0.57	0.04	0.42	0.36	0.74	1.53	1.33	6.85
1980	2.23	1.30	0.29	0.80	0.84	1.12	T	0.29	0.48	0.23	1.00	2.69	11.27
1981	0.95	0.65	0.10	0.01	0.68	0.39	0.29	0.09	0.59	1.16	1.36	2.38	8.65
1982	0.58	1.48	0.34	0.30	0.37	1.70	0.12	0.39	1.08	1.46	0.90	2.15	10.67
1983	1.97	1.59	1.95	0.66	0.30	0.77	0.29	0.44	0.33	0.23	2.77	1.92	13.22
1984	0.13	0.92	1.04	1.05	0.51	1.45	0.13	0.04	0.46	0.16	2.62	0.51	9.02
1985	0.09	0.68	0.62	T	0.46	0.37	0.12	0.03	0.84	0.75	0.92	1.02	5.90
1986	1.82	1.26	0.54	0.05	0.94	0.08	0.25	0.11	2.07	0.38	0.64	0.89	9.03
1987	1.46	0.25	1.44	0.57	0.10	0.05	0.40	T	0.00	0.02	0.68	3.30	8.27
1988	0.68	T	0.21	1.41	0.18	1.00	T	T	0.13	0.05	1.12	0.67	5.45
1989	0.19	1.29	1.71	0.85	0.63	0.05	0.07	0.41	0.09	0.67	0.72	0.21	6.89
1990	1.47	0.11	0.21	0.18	1.13	0.31	0.02	2.00	0.04	0.45	T	0.24	6.16
MONTHLY AVERAGES	1.21	0.74	0.67	0.50	0.45	0.53	0.16	0.40	0.40	0.47	1.03	1.41	7.96

TABLE 14
 AVERAGE *, MAXIMUM AND MINIMUM MONTHLY PRECIPITATION TOTALS
 (IN INCHES) 1909-1993

	MAXIMUM	YEAR	MINIMUM	YEAR		MAXIMUM	YEAR	MINIMUM	YEAR
JANUARY	3.66	1970	0.09	1985	JULY	1.97	1923	0.00	1922 #
AVERAGE MONTHLY *	3.25	1956	0.13	1984 #	AVERAGE MONTHLY *	1.35	1916	T	1988 #
1.21	2.67	1953	0.16	1962	0.16	0.71	1966	0.01	1962 #
	2.45	1950	0.19	1989		0.69	1963	0.02	1990 #
	2.30	1978	0.23	1922		0.58	1993	0.03	1954 #
FEBRUARY	3.11	1940	T	1988 #	AUGUST	2.10	1975	0.00	1955 #
AVERAGE MONTHLY *	2.46	1961	0.01	1929	AVERAGE MONTHLY *	2.00	1990	T	1988 #
0.74	1.84	1958	0.04	1920	0.40	1.71	1968	0.01	1973 #
	1.77	1938	0.05	1928		1.16	1977	0.02	1921 #
	1.60	1916	0.07	1943		0.80	1923	0.03	1985
MARCH	2.63	1957	0.01	1973	SEPTEMBER	2.21	1911	0.00	1987
AVERAGE MONTHLY *	2.04	1961	0.02	1942 #	AVERAGE MONTHLY *	2.07	1986	T	1975 #
0.67	1.95	1983	0.03	1914	0.40	1.18	1920	0.02	1974
	1.71	1989	0.05	1936		1.08	1982	0.03	1993 #
	1.56	1971	0.10	1981 #		0.98	1957	0.04	1990 #
APRIL	1.62	1963 #	T	1985 #	OCTOBER	2.22	1950	0.00	1978
AVERAGE MONTHLY *	1.46	1974 #	0.01	1981 #	AVERAGE MONTHLY *	1.83	1947	T	1917
0.50	1.41	1988 #	0.02	1931	0.47	1.52	1973	0.01	1952
	1.21	1928	0.03	1954 #		1.51	1914	0.02	1987
	1.09	1953	0.04	1973 #		1.49	1962	0.05	1988
MAY	2.76	1948	T	1937 #	NOVEMBER	3.11	1926	T	1990 #
AVERAGE MONTHLY *	1.28	1915	0.03	1964 #	AVERAGE MONTHLY *	2.86	1942	0.01	1939
0.45	1.19	1957	0.04	1992 #	1.03	2.83	1973	0.04	1911
	1.13	1990	0.05	1965		2.77	1983	0.08	1969
	1.10	1911	0.06	1970		2.62	1984	0.09	1956
JUNE	2.73	1937	T	1922	DECEMBER	4.19	1964	0.06	1927
AVERAGE MONTHLY *	2.53	1991	0.01	1970	AVERAGE MONTHLY *	3.75	1931	0.07	1976
0.53	2.10	1948	0.02	1973 #	1.41	3.30	1987	0.08	1943
	2.03	1951	0.03	1945		3.22	1955	0.11	1946
	1.81	1956	0.04	1924 #		2.80	1977	0.14	1978
					ANNUAL	13.22	1983	4.18	1976
					AVERAGE YEARLY	11.87	1948	4.13	1929
					7.96	11.69	1955	4.08	1922
						11.69	1950	4.02	1935
						11.56	1937	3.90	1930

* CLIMATOLOGICAL AVERAGE 1961-1990
 # MOST RECENT OF SEVERAL OCCURRENCES
 T TRACE AMOUNT - LESS THAN 0.01 INCH

TABLE 15
 GREATEST 24-HOUR PRECIPITATION (INCHES)
 1909-1993

AMOUNT	DATE(S)
1.74	August 20-21, 1990
1.58	December 12-13, 1977
1.56	June 29-30, 1982
1.51	June 19-20, 1991
1.49	September 15-16, 1986
1.47	August 17-18, 1975
1.40	December 21-22, 1964
1.37	December 9, 1987
1.37	January 31, 1963
1.27	December 20-21, 1955

TABLE 16
 LONGEST PERIODS WITHOUT MEASURABLE PRECIPITATION
 (Records for 1909-1993)

DURATION (days)	MONTHS AND YEAR
104	July - October, 1987
95	June - September, 1979
88	June - September, 1925
85	June - September, 1988
77	July - October, 1916
"	May - August, 1922
"	August - October, 1945
73	June - September, 1931
70	July - September, 1930
68	April - June, 1931

TABLE 17
NUMBER OF DAYS PER MONTH WITH MEASURABLE PRECIPITATION
MONTHLY TOTALS AND CLIMATOLOGICAL NORMALS 1961-1990

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL TOTAL
1961	7	11	12	4	9	4	3	3	0	3	6	9	71
1962	4	11	6	7	10	2	1	4	3	5	10	9	72
1963	3	8	5	12	4	5	2	2	4	2	9	9	65
1964	6	0	2	1	1	7	3	2	1	5	8	15	51
1965	9	3	1	5	2	3	1	4	1	2	10	8	49
1966	8	4	10	0	1	3	5	0	8	6	10	11	66
1967	4	0	7	9	6	5	0	1	1	4	5	8	50
1968	11	8	3	0	4	1	1	9	4	6	9	15	71
1969	16	9	3	7	5	5	0	1	4	3	1	15	69
1970	17	3	4	2	2	1	2	0	2	5	14	10	62
1971	6	0	13	4	4	4	1	1	3	6	10	11	63
1972	10	8	10	2	5	6	3	5	3	3	9	13	77
1973	7	4	1	1	2	2	0	1	6	7	17	16	64
1974	6	4	10	5	4	2	3	0	1	3	5	12	55
1975	14	13	6	4	6	5	4	5	0	10	7	7	81
1976	4	4	3	7	5	4	4	8	2	3	0	3	47
1977	5	3	5	1	8	3	0	7	8	3	11	14	68
1978	20	12	5	8	6	3	4	6	6	0	8	1	79
1979	7	4	4	2	3	1	2	4	3	5	9	15	59
1980	13	13	6	9	7	9	0	2	3	3	7	13	85
1981	9	8	4	1	8	4	2	2	5	7	10	12	72
1982	11	8	5	4	4	7	3	3	7	4	6	12	74
1983	13	17	14	6	5	7	8	4	2	5	16	12	109
1984	4	11	9	11	6	6	1	1	4	5	15	6	79
1985	4	6	4	0	5	4	1	2	5	3	10	4	48
1986	13	10	9	4	4	5	6	2	8	3	6	11	81
1987	11	5	9	3	3	3	2	0	0	1	5	12	54
1988	8	0	4	8	6	10	0	0	2	2	15	8	63
1989	5	10	6	6	6	2	1	3	4	3	7	6	59
1990	8	3	8	6	8	6	1	5	1	6	0	4	56
CLIMO AVG 1961-199	9	7	6	5	5	4	2	3	3	4	9	10	67

TABLE 18
NUMBER OF DAYS PER YEAR WITH MEASURABLE PRECIPITATION (0.01 INCHES OR MORE)
1909-1993

YEAR	# OF DAYS	YEAR	# OF DAYS	YEAR	# OF DAYS	YEAR	# OF DAYS
1909	45	1931	63	1953	64	1975	81
1910	54	1932	59	1954	59	1976	47
1911	51	1933	79	1955	73	1977	68
1912	62	1934	64	1956	55	1978	79
1913	60	1935	60	1957	77	1979	59
1914	56	1936	61	1958	78	1980	85
1915	81	1937	78	1959	78	1981	72
1916	60	1938	71	1960	72	1982	75
1917	41	1939	53	1961	71	1983	109
1918	45	1940	86	1962	72	1984	79
1919	54	1941	91	1963	71	1985	48
1920	52	1942	78	1964	51	1986	81
1921	56	1943	56	1965	49	1987	54
1922	49	1944	56	1966	66	1988	63
1923	58	1945	66	1967	50	1989	59
1924	59	1946	57	1968	71	1990	56
1925	52	1947	76	1969	69	1991	76
1926	51	1948	79	1970	62	1992	72
1927	63	1949	56	1971	63	1993	71
1928	66	1950	103	1972	77		
1929	42	1951	74	1973	64	RECORD	65
1930	54	1952	63	1974	55	AVERAGE	

TABLE 19
 AVERAGE *, MAXIMUM AND MINIMUM MONTHLY SNOWFALL TOTALS
 (IN INCHES) 1909-1993

	MAXIMUM	YEAR	MINIMUM	YEAR		MAXIMUM	YEAR	MINIMUM	YEAR
JANUARY AVERAGE MONTHLY 7.7	26.6	1950	0.2	1985	JULY NORMAL MONTHLY 0.0				
	26.2	1956	0.3	1992					
	21.8	1954	0.4	1990 #					
	21.3	1929	0.5	1923					
	20.2	1969	0.7	1934					
FEBRUARY AVERAGE MONTHLY 2.7	18.5	1916	0.0	1974 #	AUGUST AVERAGE MONTHLY 0.0				
	16.5	1949	T	1991 #					
	13.4	1937	0.1	1982 #					
	11.4	1989	0.2	1929					
	10.8	1975	0.4	1968 #					
MARCH AVERAGE MONTHLY 1.3	10.8	1971	0.0	1992 #	SEPTEMBER AVERAGE MONTHLY 0.0				
	9.9	1951	T	1990 #					
	6.7	1957	0.1	1937					
	6.1	1960	0.2	1939 #					
	5.5	1972	0.5	1923					
APRIL AVERAGE MONTHLY T	2.0	1920	0.0	1990 #	OCTOBER AVERAGE MONTHLY 0.1	2.9	1991	0.0	1992 #
	0.2	1993 #				2.4	1973	T	1993 #
	T	1992 #				1.1	1971		
						0.5	1955 #		
						0.4	1957		
MAY AVERAGE MONTHLY 0.0	T	1986 #	0.0	1993 +	NOVEMBER AVERAGE MONTHLY 2.2	25.4	1921	0.0	1990 #
						21.2	1955	T	1991 #
						11.7	1946	0.2	1956 #
						11.5	1984	0.3	1986
						10.0	1985	0.4	1980
JUNE AVERAGE MONTHLY 0.0					DECEMBER AVERAGE MONTHLY 9.5	37.5	1964	T	1946 #
						30.4	1992	0.2	1989
						29.9	1931	0.5	1962 #
						20.6	1981	0.6	1991
						19.2	1955	0.7	1976

* CLIMATOLOGICAL NORMALS 1961-1990
 # MOST RECENT OF SEVERAL OCCURRENCES
 T TRACE AMOUNT - LESS THAN 0.1 INCH

SEASONAL SNOWFALL

1908-1992

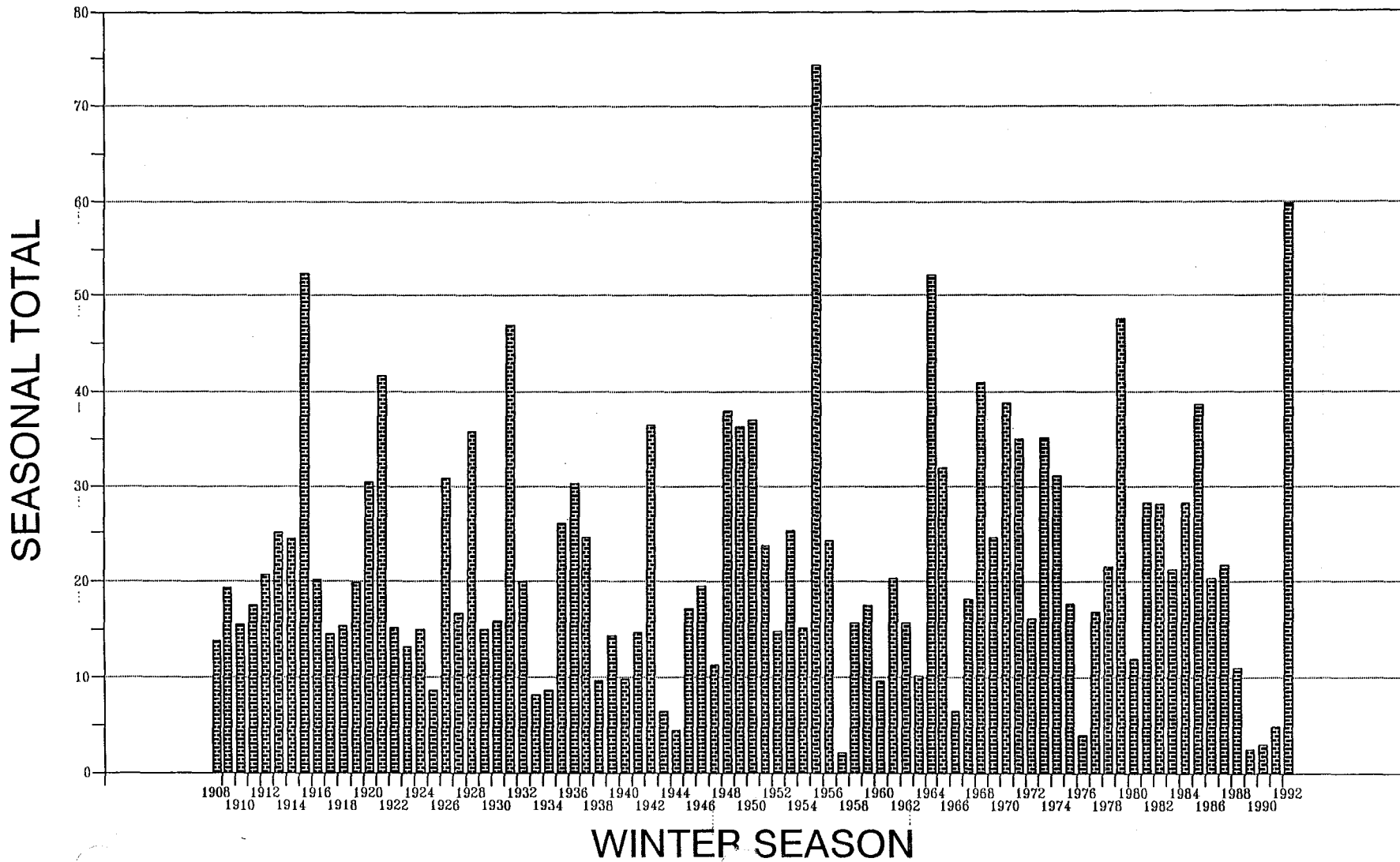


Table 20

TABLE 21
 GREATEST AND LEAST NUMBER OF DAYS
 WITH MEASURABLE SNOW IN A SEASON
 1909-1910 through 1992-1993 (0.1 INCHES OR MORE)

TOP TEN		BOTTOM 10	
SEASON	# OF DAYS	SEASON	# OF DAYS
1992-1993	38	1957-1958	4
* 1968-1969	35	* 1990-1991	5
1915-1916	34	* 1991-1992	6
* 1979-1980	31	* 1944-1945	7
1936-1937	27	* 1981-1982	8
* 1985-1986	25	1963-1964	9
1935-1936	24	* 1960-1961	10
* 1974-1975	23	* 1989-1990	11
* 1988-1989	22	* 1987-1988	12
* 1959-1960	21	* 1965-1966	13

* Denotes most recent of several occurrences.

TABLE 22
 NUMBER OF DAYS EACH SEASON WITH SNOWFALL...
 (1 INCH OR MORE) / (3 INCHES OR MORE)
 1950-1951 TO 1992-1993

SEASON	1 INCH OR MORE	3 INCHES OR MORE	SEASON	1 INCH OR MORE	3 INCHES OR MORE
1950-1951	14	2	1973-1974	10	3
1951-1952	9	2	1974-1975	11	5
1952-1953	7	1	1975-1976	5	2
1953-1954	6	3	1976-1977	1	0
1954-1955	4	1	1977-1978	6	1
1955-1956	25	8	1978-1979	4	2
1956-1957	7	3	1979-1980	13	7
1957-1958	1	0	1980-1981	3	2
1958-1959	4	2	1981-1982	8	3
1959-1960	4	2	1982-1983	8	1
1960-1961	4	1	1983-1984	10	2
1961-1962	8	2	1984-1985	9	2
1962-1963	1	1	1985-1986	12	3
1963-1964	4	1	1986-1987	8	1
1964-1965	14	4	1987-1988	8	2
1965-1966	9	3	1988-1989	4	1
1966-1967	3	1	1989-1990	1	0
1967-1968	6	1	1990-1991	1	0
1968-1969	13	6	1991-1992	1	0
1969-1970	9	4	1992-1993	20	9
1970-1971	11	4	CLIMATOLOGICAL NORMALS 1961-1990	8	2
1971-1972	16	2			
1972-1973	7	3			

TABLE 23
 GREATEST SEASONAL SNOWFALL (in inches)
 1909-1910 through 1992-1993

GREATEST		LEAST	
SEASON	AMOUNT	SEASON	AMOUNT
1955-195	74.4	1957-195	2.1
1992-199	59.8	1989-199	2.5
1915-191	52.4	1990-199	3.0
1964-196	52.3	1976-197	3.9
1979-198	47.6	1944-194	4.4
1931-193	46.8	1991-199	4.7
1921-192	41.6	1966-196	6.4
1968-196	41.0	1943-194	6.4
1970-197	38.8	1933-193	8.2
1985-198	38.6	1925-192	8.6

TABLE 24
 GREATEST 24-HOUR SNOWFALL (in inches)
 1909-1910 through 1992-1993

AMOUNT	DATE(S)
14.0	December 20-21, 1964
13.6	January 31, 1963
12.1	Dec 14-15, 1981
11.2	November 26-27, 1984
11.0*	November 20, 1921
10.9	January 9-10, 1979
10.6	January 3, 1966
10.3	January 14-15, 1971
10.1	December 26-27, 1973
9.2*	February 2, 1916

* Records for dates before September 1, 1946 are based on "single day" snowfall, not on any "24-hour" period.

TABLE 25
 MAXIMUM SEASONAL 24-HOUR SNOWFALL (in inches)
 1909-1910 through 1992-1993

YEAR	AMT	DATE	YEAR	AMT	DATE	YEAR	AMT	DATE
1909-1910	4.0	Dec	1937-1938	4.7	Dec	1965-1966	10.6	Jan 3
1910-1911	3.0	Feb	1938-1939	2.0	Feb	1966-1967	3.2	Dec 24-25
1911-1912	7.0	Jan	1939-1940	3.9	Jan	1967-1968	5.0	Jan 8-9
1912-1913	3.4	Feb	1940-1941	1.9	Jan	1968-1969	7.0	Jan 25-26
1913-1914	7.9	Jan	1941-1942	2.8	Jan	1969-1970	4.6	Nov 10-11
1914-1915	6.2	?	1942-1943	7.1	Jan	1970-1971	10.3	Jan 14-15
1915-1916	9.2	Feb	1943-1944	2.6	Jan	1971-1972	4.8	Dec 28-29
1916-1917	4.5	Dec	1944-1945	1.7	Jan	1972-1973	3.4	Dec 11-12
1917-1918	4.0	Nov	1945-1946	7.3	Jan	1973-1974	10.1	Dec 26-27
1918-1919	2.5	Dec	1946-1947	5.4	Jan	1974-1975	5.0	Jan 3-4
1919-1920	5.6	Dec	1947-1948	4.6	Feb	1975-1976	4.0	Feb 27
1920-1921	3.8	Jan	1948-1949	6.2	Dec	1976-1977	1.7	Jan 11
1921-1922	11.0	Nov	1949-1950	6.7	Jan	1977-1978	3.5	Dec 29-30
1922-1923	3.6	Dec	1950-1951	7.4	Mar 7-8	1978-1979	10.9	Jan 9-10
1923-1924	4.5	Dec	1951-1952	3.3	Jan 11	1979-1980	5.7	Nov 24
1924-1925	3.6	Nov	1952-1953	4.7	Jan 1-2	1980-1981	6.5	Dec 2
1925-1926	2.5	Jan	1953-1954	7.9	Jan 27	1981-1982	12.1	Dec 14-15
1926-1927	7.0	Dec	1954-1955	3.6	Mar 25	1982-1983	3.5	Dec 20-21
1927-1928	7.8	Jan	1955-1956	8.5	Jan 14-15	1983-1984	4.3	Dec 28-29
1928-1929	8.0	Dec	1956-1957	6.5	Jan 19	1984-1985	11.2	Nov 26-27
1929-1930	3.7	Dec	1957-1958	1.3	Dec 19	1985-1986	5.7	Nov 21-22
1930-1931	4.5	Nov	1958-1959	4.3	Feb 9-10	1986-1987	3.1	Dec 13
1931-1932	7.3	Dec	1959-1960	4.7	Jan 7-8	1987-1988	4.9	Dec 15-16
1932-1933	6.6	Dec	1960-1961	4.2	Mar 5	1988-1989	3.9	Mar 5
1933-1934	6.4	Dec	1961-1962	5.3	Dec 16	1989-1990	1.7	Feb 16-17
1934-1935	1.9	Mar	1962-1963	13.6	Jan 31	1990-1991	1.3	Jan 6-7
1935-1936	4.7	Jan	1963-1964	3.3	Dec 7-8	1991-1992	2.4	Oct 28
1936-1937	6.0	Feb	1964-1965	14.0	Dec 20-21	1992-1993	7.3	Dec 9-10

TABLE 26
 LONGEST PERIODS WITH ONE INCH
 MORE OF SNOW ON THE GROUND
 1909-1910 through 1992-1993

YEAR	DURATION (# of days)
1955-195	100
1984-198	86
1931-193	83
1968-196	74
1948-194	73
1942-194	73
1979-198	66
1928-192	65
1992-199	64
1985-198	61

TABLE 27
GREATEST SEASONAL DEPTH OF SNOW ON GROUND (INCHES)
1909-1993

SEASON	DEPTH	DATE	SEASON	DEPTH	DATE	SEASON	DEPTH	DATE
1909-1910	8	12/11	1938-1939	2	2/6	1967-1968	5	1/9
1910-1911	3	2/12	1939-1940	5	1/26	1968-1969	18	1/27
1911-1912	10	1/12	1940-1941	2	1/7	1969-1970	6	1/19
1912-1913	7	1/18	1941-1942	3	1/24	1970-1971	10	1/15
1913-1914	7	1/21	1942-1943	11	1/27 *	1971-1972	6	1/31
1914-1915	6	1/13	1943-1944	3	1/1	1972-1973	4	1/12
1915-1916	15	2/7	1944-1945	2	1/31	1973-1974	12	12/30 *
1916-1917	8	12/23	1945-1946	7	1/23	1974-1975	8	2/10
1917-1918	4	12/29	1946-1947	9	11/22	1975-1976	4	2/27
1918-1919	3	12/20	1947-1948	5	2/20	1976-1977	2	1/13 *
1919-1920	7	12/15 *	1948-1949	10	12/9	1977-1978	5	12/30
1920-1921	6	12/26	1949-1950	15	2/7	1978-1979	11	1/11
1921-1922	18	11/22	1950-1951	7	3/9 *	1979-1980	13	1/13
1922-1923	4	12/10 *	1951-1952	10	1/27 *	1980-1981	5	12/2
1923-1924	5	12/25	1952-1953	6	1/2	1981-1982	14	12/15
1924-1925	3	11/14	1953-1954	16	1/28 *	1982-1983	8	1/3
1925-1926	2	12/21	1954-1955	4	3/25	1983-1984	10	12/30 *
1926-1927	7	1/14 *	1955-1956	13	1/31	1984-1985	10	11/27
1927-1928	8	1/2	1956-1957	7	1/19	1985-1986	13	1/5
1928-1929	17	2/1 *	1957-1958	1	12/19	1986-1987	6	1/26 *
1929-1930	7	1/29	1958-1959	4	2/10 *	1987-1988	12	12/11
1930-1931	3	1/5	1959-1960	5	3/5 *	1988-1989	7	12/26
1931-1932	17	12/31	1960-1961	3	3/6 *	1989-1990	1	2/17
1932-1933	5	12/18	1961-1962	9	12/17 *	1990-1991	1	1/11
1933-1934	6	12/26	1962-1963	14	2/1 *	1991-1992	2	10/29
1934-1935	2	3/4	1963-1964	3	12/8	1992-1993	16	12/31
1935-1936	5	1/3	1964-1965	22	12/21			
1936-1937	17	2/4	1965-1966	15	1/4			
1937-1938	5	2/3 *	1966-1967	3	12/25			

AVERAGE GREATEST SEASONAL SNOW DEPTH (NEAREST INCH) 9
(CLIMATOLOGICAL AVERAGE - 1961-1990)

* INDICATES LAST OF SEVERAL OCCURRENCES

TABLE 28
 NUMBER OF DAYS WITH MEASURABLE SNOWFALL BY SEASON
 (0.1 INCHES OR MORE)
 1909-1993

SEASON	# OF DAYS	SEASON	# OF DAYS	SEASON	# OF DAY
1909-1910	15	1938-1939	17	1967-1968	17
1910-1911	16	1939-1940	14	1968-1969	35
1911-1912	14	1940-1941	17	1969-1970	18
1912-1913	20	1941-1942	18	1970-1971	25
1913-1914	15	1942-1943	22	1971-1972	22
1914-1915	13	1943-1944	8	1972-1973	18
1915-1916	34	1944-1945	7	1973-1974	20
1916-1917	13	1945-1946	13	1974-1975	23
1917-1918	8	1946-1947	6	1975-1976	15
1918-1919	11	1947-1948	11	1976-1977	8
1919-1920	11	1948-1949	25	1977-1978	19
1920-1921	18	1949-1950	23	1978-1979	16
1921-1922	17	1950-1951	25	1979-1980	31
1922-1923	15	1951-1952	21	1980-1981	16
1923-1924	7	1952-1953	10	1981-1982	8
1924-1925	12	1953-1954	10	1982-1983	15
1925-1926	5	1954-1955	17	1983-1984	15
1926-1927	13	1955-1956	35	1984-1985	17
1927-1928	14	1956-1957	16	1985-1986	25
1928-1929	20	1957-1958	4	1986-1987	16
1929-1930	15	1958-1959	20	1987-1988	12
1930-1931	17	1959-1960	21	1988-1989	22
1931-1932	31	1960-1961	10	1989-1990	11
1932-1933	16	1961-1962	15	1990-1991	5
1933-1934	6	1962-1963	6	1991-1992	6
1934-1935	17	1963-1964	9	1992-1993	38
1935-1936	24	1964-1965	23	CLIMATOLOGICAL AVERAGE (1961-1990)	
1936-1937	27	1965-1966	13	17	
1937-1938	22	1966-1967	5		

TABLE 29
 FROST SEASON
 (RECORDS FROM 1946-1993)

LAST SPRING MINIMUM AT OR BELOW...

	RECORD LATEST	RECORD EARLIEST	MEDIAN DATE
24 F	April 29th, 1952	Feb 7th, 1983	April 2nd
28 F	May 23rd, 1964	March 26th, 1957	April 21st
32 F	June 3rd, 1976*	April 11th, 1980	May 13th

FIRST FALL MINIMUM AT OR BELOW...

	RECORD EARLIEST	RECORD LATEST	MEDIAN DATE
32 F	Sep 13th, 1970	Oct 22nd, 1947	Oct 3rd
28 F	Sep 13th, 1970	Nov 10th, 1966	Oct 15th
24 F	Sep 29th, 1985	Dec 4th, 1964	Oct 31st

Table 30
 FROST SEASON (MAR 1 - MAY 31)
 NUMBER OF DAYS WITH MINIMUM BELOW...

	32 F	28 F	24 F	20 F		32 F	28 F	24 F	20 F
1946	38	17	4	0	1970	40	23	4	0
1947	24	4	2	0	1971	41	21	10	4
1948	43	16	11	2	1972	42	29	9	1
1949	32	8	0	0	1973	34	17	6	0
1950	42	26	7	0	1974	23	13	5	2
1951	44	24	13	8	1975	45	29	9	2
1952	40	29	15	3	1976	39	24	10	6
1953	41	19	8	3	1977	34	19	2	0
1954	46	26	14	3	1978	27	8	0	0
1955	49	36	22	5	1979	30	20	1	0
1956	28	20	8	3	1980	22	8	0	0
1957	24	12	2	0	1981	29	12	3	0
1958	38	18	10	10	1982	46	26	3	0
1959	31	19	4	1	1983	18	5	0	0
1960	38	20	8	6	1984	31	9	1	0
1961	29	12	5	1	1985	42	17	4	1
1962	34	19	10	3	1986	36	15	2	0
1963	29	15	8	1	1987	30	17	6	1
1964	50	34	13	6	1988	39	25	11	1
1965	36	26	9	3	1989	28	18	6	3
1966	25	14	4	0	1990	30	15	8	4
1967	38	22	9	1	1991	40	24	10	1
1968	26	13	1	0	1992	31	13	1	0
1969	34	18	4	1	1993	35	13	4	2

The number of days with minimum below 32 degrees varies from 18 to 50 with an average of 35 days.
 The number of days with minimum below 28 degrees varies from 4 to 36 with an average of 18 days.
 The number of days with minimum below 24 degrees varies from 0 to 22 with an average of 6 days.
 The number of days with minimum below 20 degrees varies from 0 to 20 with an average of 2 days.

TABLE 31
 LONGEST AND SHORTEST GROWING SEASONS
 (based on ≤ 32 degrees)
 (Records for 1946-1993)

LONGEST GROWING SEASONS

SHORTEST GROWING SEASONS

LENGTH	DATES OF OCCURRENCE
186	April 20 - October 22, 1947
181	April 11 - October 9, 1980
180	April 20 - October 17, 1979
172	May 1 - October 19, 1967
170	May 3 - October 19, 1963

LENGTH	DATES OF OCCURRENCE
114	May 31 - September 22, 1955
115	June 1 - September 24, 1984
120	May 29 - September 26, 1951
123	May 13 - September 13, 1970
124	May 17 - September 18, 1988

TABLE 32
 NUMBER OF DAYS PER MONTH WITH DENSE FOG
 (Records for 1965-1992)
 (Dense fog is visibility of 1/4 mile or less)

MONTH	MEAN NUMBE OF DAYS WIT DENSE FOG	MAXIMUM NUMBE OF DAYS WITH DENSE FOG
January	4.5	11 - 1986*
February	2.4	8 - 1963
March	0.5	4 - 1986
April	<0.1	1 - 1984*
May	0.1	2 - 1957
June	0	--
July	<0.1	1 - 1986
August	0	--
September	0.1	2 - 1986*
October	0.7	4 - 1962
November	3.4	11 - 1979
December	6.8	14 - 1989
Year	18.6	35 - 1979

* last of several occurrences

Average first day in fall with dense fog:

November 3

Average last day in winter with dense fog:

February 26

TABLE 33A
 CONSECUTIVE DAYS OF FOG
 (Records for 1965-1992)

DURATIO	DATES OF OCCURRENCE
31	December 4, 1986 - January 3, 1987
21	December 29, 1985 - January 18, 1986
20	December 25, 1983 - January 13, 1984
"	December 13, 1989 - January 1, 1990
18	December 9 - 26 1980
"	January 9 - 26, 1965
14	December 23, 1979 - January 5, 1980
"	January 24 - February 6, 1979

TABLE 33B
 CONSECUTIVE DAYS OF DENSE FOG
 (Records for 1965-1992)

DURATIO	DATES OF OCCURRENCE
8	January 14 - 21, 1965
7	December 10 - 16, 1983
6	December 24 - 29, 1989
"	November 22 - 27, 1979
5	February 11 - 15, 1963
"	November 29 - December 3, 1982
"	February 10 - 14, 1991

TABLE 34
 FOGGIEST WINTERS
 (Records for 1965-1993)
 (prior to 1965 records were not kept on light fog events)

NUMBER OF DAYS WITH FOG	WINTER
90	1992-1993
84	1986-1987
"	1979-1980
80	1985-1986
78	1980-1981

TABLE 35
 CHRISTMAS WEATHER
 (Records for 1950-1992)

NORMALS

High Temperature - 36
 Low Temperature - 21
 Mean Temperature - 28
 Mean Precipitation - .03
 Frequency of Measurable Snowfall - 19%
 Frequency of Dense Fog - 37%

EXTREMES

Warmest Christmas:
 1972 -- High..60 Low..28
 Coldest Christmas:
 1990 -- High..19 Low..3
 Snowiest Christmas:
 Snowfall: 1966 -- 3.1"
 Snow on Ground at 4 am: 1964 -- 13"

Only 2 Christmas' since 1970 have experienced measurable snowfall

TABLE 36
NUMBER OF DAYS PER MONTH WITH CLOUD COVER
(Records and Normals for 1961-1990)

	NORMALS			EXTREMES			
	CLR	PC	CDY	CLEAR		CLOUDY	
				MAX	MIN	MAX	MIN
January	4	5	22	9-1963	1-1989	27-1985	15-1984
February	4	6	18	10-1968	0-1984	28-1980	11-1964
March	6	9	16	11-1985	1-1989	21-1968	12-1990
April	6	9	15	11-1962	1-1963	22-1963	9-1973
May	9	11	12	14-1975	2-1988	17-1988	8-1983
June	11	10	9	20-1961	4-1966	17-1964	3-1979
July	18	8	5	26-1969	10-1987	14-1987	1-1969
August	17	8	6	27-1970	10-1990	15-1968	0-1969
September	15	8	7	25-1975	3-1978	15-1978	1-1975
October	9	9	13	17-1986	2-1975	20-1975	8-1986
November	5	6	19	13-1967	1-1972	25-1965	13-1967
December	4	5	21	8-1978	1-1985	28-1985	13-1978
Year	9	8	14	27-Aug 1970	0-Feb 1984	28-Feb 1980	0-Aug 1969

Table 37.

SUNRISE AND SUNSET AT YAKIMA, WASHINGTON

PACIFIC STANDARD TIME

NO. 1313

DAY	JAN.		FEB.		MAR.		APR.		MAY		JUNE		JULY		AUG.		SEPT.		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	7 46	4 25	7 26	5 06	6 42	5 48	5 42	6 31	4 48	7 11	4 13	7 47	4 13	7 59	4 42	7 34	5 22	6 42	6 00	5 42	6 44	4 47	7 25	4 17
2	7 46	4 26	7 25	5 07	6 40	5 49	5 40	6 32	4 46	7 13	4 12	7 48	4 13	7 59	4 44	7 32	5 23	6 40	6 02	5 40	6 45	4 46	7 27	4 16
3	7 46	4 27	7 24	5 09	6 38	5 51	5 38	6 34	4 45	7 14	4 12	7 49	4 14	7 58	4 45	7 31	5 24	6 38	6 03	5 39	6 47	4 44	7 28	4 16
4	7 46	4 28	7 22	5 10	6 37	5 52	5 36	6 35	4 43	7 15	4 11	7 50	4 14	7 58	4 46	7 29	5 25	6 36	6 04	5 37	6 48	4 43	7 29	4 16
5	7 46	4 29	7 21	5 12	6 35	5 54	5 34	6 36	4 42	7 16	4 11	7 51	4 15	7 58	4 47	7 28	5 27	6 34	6 06	5 35	6 49	4 42	7 30	4 15
6	7 46	4 30	7 20	5 13	6 33	5 55	5 32	6 38	4 40	7 18	4 10	7 52	4 16	7 57	4 49	7 27	5 28	6 32	6 07	5 33	6 51	4 40	7 31	4 15
7	7 46	4 32	7 18	5 15	6 31	5 56	5 31	6 39	4 39	7 19	4 10	7 52	4 17	7 57	4 50	7 25	5 29	6 30	6 08	5 31	6 52	4 39	7 32	4 15
8	7 45	4 33	7 17	5 16	6 29	5 58	5 29	6 40	4 38	7 20	4 09	7 53	4 17	7 56	4 51	7 24	5 31	6 28	6 10	5 29	6 54	4 37	7 33	4 15
9	7 45	4 34	7 15	5 18	6 27	5 59	5 27	6 42	4 36	7 22	4 09	7 54	4 18	7 56	4 52	7 22	5 32	6 26	6 11	5 27	6 55	4 36	7 34	4 15
10	7 45	4 35	7 14	5 20	6 25	6 01	5 25	6 43	4 35	7 23	4 09	7 54	4 19	7 55	4 54	7 20	5 33	6 24	6 12	5 25	6 57	4 35	7 35	4 15
11	7 44	4 36	7 12	5 21	6 23	6 02	5 23	6 44	4 34	7 24	4 09	7 55	4 20	7 55	4 55	7 19	5 34	6 22	6 14	5 23	6 58	4 34	7 36	4 15
12	7 44	4 38	7 11	5 23	6 21	6 03	5 21	6 46	4 32	7 25	4 08	7 55	4 21	7 54	4 56	7 17	5 36	6 20	6 15	5 21	7 00	4 32	7 37	4 15
13	7 43	4 39	7 09	5 24	6 19	6 05	5 19	6 47	4 31	7 27	4 08	7 56	4 22	7 53	4 57	7 16	5 37	6 18	6 17	5 20	7 01	4 31	7 38	4 15
14	7 43	4 40	7 08	5 26	6 17	6 06	5 17	6 48	4 30	7 28	4 08	7 56	4 23	7 53	4 59	7 14	5 38	6 16	6 18	5 18	7 03	4 30	7 39	4 15
15	7 42	4 41	7 06	5 27	6 15	6 08	5 16	6 50	4 28	7 29	4 08	7 57	4 24	7 52	5 00	7 12	5 40	6 14	6 19	5 16	7 04	4 29	7 39	4 15
16	7 42	4 43	7 05	5 29	6 14	6 09	5 14	6 51	4 27	7 30	4 08	7 57	4 25	7 51	5 01	7 11	5 41	6 12	6 21	5 14	7 05	4 28	7 40	4 15
17	7 41	4 44	7 03	5 30	6 12	6 10	5 12	6 52	4 26	7 32	4 08	7 58	4 26	7 50	5 02	7 09	5 42	6 10	6 22	5 12	7 07	4 27	7 41	4 16
18	7 40	4 45	7 01	5 32	6 10	6 12	5 10	6 54	4 25	7 33	4 08	7 58	4 27	7 49	5 04	7 07	5 43	6 08	6 24	5 10	7 08	4 26	7 42	4 16
19	7 39	4 47	7 00	5 33	6 08	6 13	5 08	6 55	4 24	7 34	4 08	7 58	4 28	7 48	5 05	7 06	5 45	6 06	6 25	5 09	7 10	4 25	7 42	4 16
20	7 39	4 48	6 58	5 35	6 06	6 14	5 06	6 56	4 23	7 35	4 09	7 59	4 29	7 48	5 06	7 04	5 46	6 04	6 26	5 07	7 11	4 24	7 43	4 17
21	7 38	4 50	6 56	5 36	6 04	6 16	5 05	6 58	4 22	7 36	4 09	7 59	4 30	7 47	5 08	7 02	5 47	6 02	6 28	5 05	7 12	4 23	7 43	4 17
22	7 37	4 51	6 55	5 38	6 02	6 17	5 03	6 59	4 21	7 37	4 09	7 59	4 31	7 46	5 09	7 00	5 49	6 00	6 29	5 03	7 14	4 22	7 44	4 18
23	7 36	4 53	6 53	5 39	6 00	6 19	5 01	7 01	4 20	7 38	4 09	7 59	4 32	7 44	5 10	6 58	5 50	5 58	6 31	5 02	7 15	4 22	7 44	4 18
24	7 35	4 54	6 51	5 40	5 58	6 20	5 00	7 02	4 19	7 40	4 09	7 59	4 33	7 43	5 11	6 57	5 51	5 56	6 32	5 00	7 16	4 21	7 45	4 19
25	7 34	4 55	6 49	5 42	5 56	6 21	4 58	7 03	4 18	7 41	4 10	7 59	4 34	7 42	5 13	6 55	5 52	5 54	6 33	4 58	7 18	4 20	7 45	4 20
26	7 33	4 57	6 48	5 43	5 54	6 23	4 56	7 05	4 17	7 42	4 10	7 59	4 35	7 41	5 14	6 53	5 54	5 52	6 35	4 57	7 19	4 19	7 45	4 20
27	7 32	4 58	6 46	5 45	5 52	6 24	4 54	7 06	4 16	7 43	4 11	7 59	4 36	7 40	5 15	6 51	5 55	5 50	6 36	4 55	7 20	4 19	7 46	4 21
28	7 31	5 00	6 44	5 46	5 50	6 25	4 53	7 07	4 16	7 44	4 11	7 59	4 38	7 39	5 17	6 49	5 56	5 48	6 38	4 53	7 22	4 18	7 46	4 22
29	7 30	5 01	6 43	5 47	5 48	6 27	4 51	7 09	4 15	7 45	4 12	7 59	4 39	7 38	5 18	6 47	5 58	5 46	6 39	4 52	7 23	4 18	7 46	4 22
30	7 29	5 03			5 46	6 28	4 50	7 10	4 14	7 46	4 12	7 59	4 40	7 36	5 19	6 45	5 59	5 44	6 41	4 50	7 24	4 17	7 46	4 23
31	7 28	5 04			5 44	6 29			4 13	7 47			4 41	7 35	5 20	6 44			6 42	4 49			7 46	4 24

Add one hour for Daylight Saving Time if and when in use.

TABLE 38
WIND

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
Mean Speed (mph)	5.7	6.4	7.9	8.6	8.5	8.2	7.8	7.4	7.4	6.6	5.8	5.2	7.1
Prevailing Direction through 1963	W	W	W	WNW	WNW	NW	WNW	WNW	WNW	WNW	W	W	WNW
Fastest Observed 1-Minute:													
-Direction	25	28	23	29	18	20	24	29	30	31	29	23	28
-Speed (mph)	44	48	48	46	46	47	43	35	38	41	45	48	48
-Year	1962	1967	1956	1961	1961	1955	1968	1988	1992	1988	1955	1955	1967*
Peak Gust:													
-Direction	W	W	W	S	NE	SE	SW	M	NW	SW	NW	W	NE
-Speed (mph)	55	56	51	52	69	51	54	43	55	54	58	61	69
-Year	1988	1985	1988	1989	1985	1987	1990	1989	1992	1990	1989	1991	1985

M = missing

Mean Speed based on period 1954-1992

Fastest Observed 1-Minute wind records based on period 1955-1992

Peak Gust records based on period 1984-1992

* = Last of several occurrences

- 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 220466)
- 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 Spatial 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)
- 186 Annual Data and Verification Tabulation eastern North Pacific Tropical Storms and Hurricanes 1983. E.B. Gunther, March 1984. (PB85 109635)
- 187 500 Millibar Sign Frequency Teleconnection Charts - Fall. Lawrence B. Dunn, May 1984. (PB85 110930)
- 188 The Use and Interpretation of Isentropic Analyses. Jeffrey L. Anderson, October 1984. (PB85 132694)
- 189 Annual Data & Verification Tabulation Eastern North Pacific Tropical Storms and Hurricanes 1984. E.B. Gunther and R.L. Cross, April 1985. (PB85 187887AS)
- 190 Great Salt Lake Effect Snowfall: Some Notes and An Example. David M. Carpenter, October 1985. (PB86 119153/AS)
- 191 Large Scale Patterns Associated with Major Freeze Episodes in the Agricultural Southwest. Ronald S. Hamilton and Glenn R. Lussky, December 1985. (PB86 144474AS)
- 192 NWR Voice Synthesis Project: Phase I. Glen W. Sampson, January 1986. (PB86 145604/AS)
- 193 The MCC - An Overview and Case Study on Its Impact in the Western United States. Glenn R. Lussky, March 1986. (PB86 170651/AS)
- 194 Annual Data and Verification Tabulation Eastern North Pacific Tropical Storms and Hurricanes 1985. E.B. Gunther and R.L. Cross, March 1986. (PB86 170941/AS)
- 195 Radiol Interpretation Guidelines. Roger G. Pappas, March 1986. (PB86 177680/AS)
- 196 A Mesoscale Convective Complex Type Storm over the Desert Southwest. Darryl Randerson, April 1986. (PB86 190998/AS)
- 197 The Effects of Eastern North Pacific Tropical Cyclones on the Southwestern United States. Walter Smith, August 1986. (PB87 106258AS)
- 198 Preliminary Lightning Climatology Studies for Idaho. Christopher D. Hill, Carl J. Gorski, and Michael C. Conger, April 1987. (PB87 180196/AS)
- 199 Heavy Rains and Flooding in Montana: A Case for Slantwise Convection. Glenn R. Lussky, April 1987. (PB87 185229/AS)
- 200 Annual Data and Verification Tabulation Eastern North Pacific Tropical Storms and Hurricanes 1986. Roger L. Cross and Kenneth B. Mielke, September 1987. (PB88 110895/AS)
- 201 An Inexpensive Solution for the Mass Distribution of Satellite Images. Glen W. Sampson and George Clark, September 1987. (PB88 114038/AS)
- 202 Annual Data and Verification Tabulation Eastern North Pacific Tropical Storms and Hurricanes 1987. Roger L. Cross and Kenneth B. Mielke, September 1988. (PB88 101935/AS)
- 203 An Investigation of the 24 September 1986 "Cold Sector" Tornado Outbreak in Northern California. John P. Monteverdi and Scott A. Braun, October 1988. (PB89 121297/AS)
- 204 Preliminary Analysis of Cloud-To-Ground Lightning in the Vicinity of the Nevada Test Site. Carven Scott, November 1988. (PB89 128649/AS)
- 205 Forecast Guidelines For Fire Weather and Forecasters - How Nighttime Humidity Affects Wildland Fuels. David W. Goens, February 1989. (PB89 162549/AS)
- 206 A Collection of Papers Related to Heavy Precipitation Forecasting. Western Region Headquarters, Scientific Services Division, August 1989. (PB89 230633/AS)
- 207 The Las Vegas McCarran International Airport Microburst of August 8, 1989. Carven A. Scott, June 1990. (PB90-240268)
- 208 Meteorological Factors Contributing to the Canyon Creek Fire Blowup, September 6 and 7, 1985. David W. Goens, June 1990. (PB90-245085)
- 209 Stratus Surge Prediction Along the Central California Coast. Peter Felsch and Woodrow Whitlatch, December 1990. (PB91-129239)
- 210 Hydrotools. Tom Egger, January 1991. (PB91-151787/AS)
- 211 A Northern Utah Soaker. Mark E. Struthwolf, February 1991. (PB91-168716)
- 212 Preliminary Analysis of the San Francisco Rainfall Record: 1849-1990. Jan Null, May 1991. (PB91-208439)
- 213 Idaho Zone Preformat, Temperature Guidance, and Verification. Mark A. Moliner, July 1991. (PB91-227405/AS)
- 214 Emergency Operational Meteorological Considerations During an Accidental Release of Hazardous Chemicals. Peter Mueller and Jerry Galt, August 1991. (PB91-235424)
- 215 WeatherTools. Tom Egger, October 1991. (PB93-184950)
- 216 Creating MOS Equations for RAWs Stations Using Digital Model Data. Dennis D. Gettman, December 1991. (PB92-131473/AS)
- 217 Forecasting Heavy Snow Events in Missoula, Montana. Mike Richmond, May 1992. (PB92-196104)
- 218 NWS Winter Weather Workshop in Portland, Oregon. Various Authors, December 1992. (PB93-146785)
- 219 A Case Study of the Operational Usefulness of the Sharp Workstation in Forecasting a Mesocyclone-Induced Cold Sector Tornado Event in California. John P. Monteverdi, March 1993. (PB93-178697)
- 220 Climate of Pendleton, Oregon. Claudia Bell, August 1993. (PB93-227536)
- 221 Utilization of the Bulk Richardson Number, Helicity and Sounding Modification in the Assessment of the Severe Convective Storms of 3 August 1992. Eric C. Evenson, September 1993. (PB94-131943)
- 222 Convective and Rotational Parameters Associated with Three Tornado Episodes in Northern and Central California. John P. Monteverdi and John Quadros, September 1993. (PB94-131943)
- 223 Climate of San Luis Obispo, California. Gary Ryan, February 1994. (PB94-162062)
- 224 Climate of Wenatchee, Washington. Michael W. McFarland, Roger G. Buckman, and Gregory E. Matzen, March 1994. (PB94-164308)
- 225 Climate of Santa Barbara, California. Gary Ryan, December 1994.

NOAA SCIENTIFIC AND TECHNICAL PUBLICATIONS

The National Oceanic and Atmospheric Administration was established as part of the Department of Commerce on October 3, 1970. The mission responsibilities of NOAA are to assess the socioeconomic impact of natural and technological changes in the environment and to monitor and predict the state of the solid Earth, the oceans and their living resources, the atmosphere, and the space environment of the Earth.

The major components of NOAA regularly produce various types of scientific and technical information in the following kinds of publications.

PROFESSIONAL PAPERS--Important definitive research results, major techniques, and special investigations.

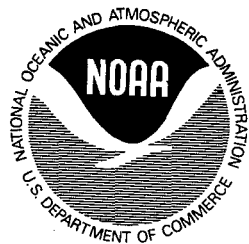
CONTRACT AND GRANT REPORTS--Reports prepared by contractors or grantees under NOAA sponsorship.

ATLAS--Presentation of analyzed data generally in the form of maps showing distribution of rainfall, chemical and physical conditions of oceans and atmosphere, distribution of fishes and marine mammals, ionospheric conditions, etc.

TECHNICAL SERVICE PUBLICATIONS--Reports containing data, observations, instructions, etc. A partial listing includes data serials; prediction and outlook periodicals; technical manuals, training papers, planning reports, and information serials; and miscellaneous technical publications.

TECHNICAL REPORTS--Journal quality with extensive details, mathematical developments, or data listings.

TECHNICAL MEMORANDUMS--Reports of preliminary, partial, or negative research or technology results, interim instructions, and the like.



Information on availability of NOAA publications can be obtained from:

NATIONAL TECHNICAL INFORMATION SERVICE

U. S. DEPARTMENT OF COMMERCE

5285 PORT ROYAL ROAD

SPRINGFIELD, VA 22161