

2.0 Calendar Year 2003 Summary

This section summarizes weather conditions for calendar year 2003 (Table 2.1). More detailed information can be found in Section 3.0 – Temperature Climatology, Section 4.0 – Precipitation Climatology, and Section 5.0 – Wind Climatology.

The 2002-2003-winter season (December 2002, January, and February 2003) was much warmer than normal, averaging 38.4°F, 4.6° above normal (33.8°F). The warmest winter (1966-67) averaged 40.6°F, while the coldest (1948-49) averaged only 24.2°F. Winter season precipitation totaled 5.05 inches, 190% of normal (2.66 inches). The wettest winter (1996-97) received 5.45 inches, while the driest (1946-47) received 0.70 inch.

The 2003 spring season (March, April, and May) was slightly warmer than normal, averaging 54.1°F, 0.3°F above normal (53.8°F). The warmest spring (1992) averaged 58.2°F, while the coolest (1955) averaged 48.0°F. Spring season 2003 precipitation totaled 2.57 inches, 163% of normal and was the sixth wettest spring on record. The wettest (1995) received 3.28 inches, while the driest (1968) received only 0.09 inch.

The 2003 summer season (June, July, and August) averaged 76.4°F, 2.7° above normal (73.7°F), and was the sixth warmest summer on record. The warmest summer (1958) averaged 78.2°F, while the coolest (1980) averaged 70.2°F. The hottest temperature was 108°F on July 28, 29, and 30. Summer precipitation totaled 0.46 inch, 48 percent of normal (0.95 inch). The wettest summer (1950) received 2.99 inches, while the driest (1973) received 0.03 inch.

The 2003 autumn season (September, October, and November) averaged 54.8°F, 1.8° above normal (53.0°F). The warmest autumn (1990) averaged 57.1°F, while the coolest (1985) averaged 44.5°F. Precipitation for autumn 2003 totaled 0.46 inch, 26% of normal (1.80 inches). The wettest autumn (1973) received 4.79 inches, while the driest (1976) received only 0.04 inch.

The following are some additional statistics for 2003:

Category	Number of Days	Normal	Record	
			Maximum	Minimum
Maximum temperatures $\geq 100^{\circ}\text{F}$	19	12	28 (1958)	1 (1954)
Maximum temperatures $\geq 90^{\circ}\text{F}$	72	52	79 (1967)	29 (1980)
Maximum temperatures $\leq 32^{\circ}\text{F}$	5	23	58 (1984-85)	2 (1966-67)
Minimum temperatures $\geq 70^{\circ}\text{F}$	10	7	21 (1958)	0 (1954)
Minimum temperatures $\leq 32^{\circ}\text{F}$	98	105	143 (1984-85)	70 (1991-92)
Minimum temperatures $\leq 0^{\circ}\text{F}$	0	3	18 (1949-50)	0 (2001-02)
Thunderstorms	5	10	23 (1948)	3 (1949)
Fog (visibility ≤ 6 mi)	45	47	84 (1985-86)	22 (1948-49)
Dense fog (visibility ≤ 0.25 mi)	25	24	42 (1950-51)	9 (1948-49)
Peak wind gusts ≤ 12 mph	33	50	87 (1952)	28 (1973)
Peak wind gusts ≥ 25 mph	173	156	192 (1999)	123 (1952)
Peak wind gusts ≥ 40 mph	36	27	57 (1990)	10 (1978)
Peak wind gusts ≥ 50 mph	6	6	18 (1990)	0 (1985)

Table 2.1. 2003 Climatological Data Summary

Month	Temperatures, °F								Degree Days Base 65, °F				Precipitation, inches								Relative Humidity, %	
	Averages				Extremes								Total	Departure ^(b)	Greatest in 24 Hours	Date	Snow, Ice Pellets, inches					
	Daily Maximum	Daily Minimum	Monthly	Departure ^(b)	Highest	Date	Lowest	Date	Heating	Departure ^(b)	Cooling	Departure ^(b)					Total	Departure ^(b)	Greatest in 24 Hours	Date	Average	Departure ^(b)
J	43.2	32.7	38.0	+6.2	67	26	22	10	838	-190	0	0	1.87	+1.00	0.42	11-12	0.7	-3.5	0.7	21-22	86.5	+9.2
F	50.3	29.6	39.9	+2.0	62	21	15	25	705	-62	0	0	0.82	+0.14	0.38	15-16	0	-2.6	0	-	66.3	-4.2
M	60.7	37.4	49.0	+2.9	77	30	27	24 ^(b)	500	-87	0	0	0.26	-0.32	0.10	26	0	-0.4	0	-	55.6	-1.0
A	64.3	40.1	52.2	-1.3	78	8	24	4	381	+31	0	-5	2.23	+1.79	1.24	13-14	0	-T ^(c)	0	-	55.5	-8.2
M	74.4	47.8	61.1	-0.7	93	28	34	19	181	+25	58	+1	0.08	-0.47	0.06	12	0	0	0	-	44.4	+1.4
J	87.6	57.4	72.5	+3.2	100	28	45	21	12	-21	234	+71	T	-0.41	T	1	0	0	0	-	33.3	-6.3
J	97.3	63.1	80.2	+3.9	108	30 ^(b)	52	9	0	-4	475	+120	0	-0.27	0	-	0	0	0	-	28.4	-5.0
A	92.2	60.7	76.5	+1.1	104	1	53	24	0	-5	358	+32	0.46	+0.19	0.36	7	0	0	0	-	36.6	+1.0
S	84.4	53.9	69.2	+3.3	102	4	41	14	47	-28	174	+71	0.24	-0.09	0.24	7-8	0	0	0	-	38.8	-3.5
O	71.0	43.8	57.4	+4.4	89	21	19	31	271	-105	32	+28	0.07	-0.42	0.06	15-16	0	-0.1	0	-	49.1	-7.3
N	48.4	27.1	37.8	-2.3	68	18	13	22	814	+67	0	0	0.15	-0.83	0.06	28-29 ^(b)	T	-2.3	0	-	62.9	-10.8
D	38.7	27.1	32.9	+1.2	51	6	8	30	993	-39	0	0	1.96	+0.85	0.56	13	8.0	+2.2	3.2	9-10	87.0	+6.9
Year Total	67.7	43.4	55.6	+2.0	108	Jul 30 ^(b)	8	Dec 30	4,742	-418	1,331	+316	8.14	+1.16	1.24	Apr 13-14	8.7	-6.7	3.2	Dec 9-10	53.7	-0.9

Table 2.1. (contd)

Month	Mean Sky Cover, Tenths		Solar Radiation, Langleys						50-ft Wind					Number of Days							
	Average	Departure ^(a)	Average Daily Total	Departure ^(a)	Greatest Daily Total	Date	Least Daily Total	Date	Average Speed, mph	Departure ^(a)	Peak Gusts			Thunderstorms	Heavy Fog	Precipitation ≥0.10 in.	Snowfall ≥1 in.	Maximum Temperature, °F		Minimum Temperature, °F	
											Speed, mph	Direction	Date					≥90°F	≤32°F	≤32°F	≤0°F
J	9.2	+1.3	57	-50	156	28	12	8	5.2	-1.1	39	S	2	0	7	8	0	0	0	14	0
F	4.1	-3.4	196	+12	293	24	49	13	7.1	0	52	SW	20	0	4	3	0	0	0	17	0
M	7.0	+0.2	261	-59	397	28	80	12	9.3	+1.3	53	W	5	0	0	1	0	0	0	9	0
A	7.3	+0.9	395	-55	586	27	138	24	7.8	-1.0	48	SW	9	2	1	3	0	0	0	4	0
M	6.7	+0.8	482	-67	635	29	239	30	8.2	-0.7	41	W	14	1	0	0	0	2	0	0	0
J	2.4	-2.8	610	+13	689	30	343	18	9.1	+0.1	45	WNW	18	0	0	0	0	12	0	0	0
J	1.1	-1.9	637	+7	685	2	551	24	8.4	-0.2	41	WSW	12	0	0	0	0	26	0	0	0
A	2.5	-0.8	484	-54	578	1	82	22	7.6	-0.4	45	WNW	19	2	0	1	0	23	0	0	0
S	3.6	-0.3	356	-48	482	1	137	8	7.4	+0.1	44	WNW	12	0	0	1	0	9	0	0	0
O	5.5	-0.1	212	-42	314	3	35	16	8.6	+2.1	60	SW	28	0	0	0	0	0	0	3	0
N	6.1	-1.4	116	-8	217	5	25	19	9.9	+3.4	54	SW	18	0	2	0	0	0	1	25	0
D	8.0	-0.1	60	-24	133	3	14	2	5.5	-0.5	36	SSW	6	0	11	5	2	0	4	26	0
Year Total	5.3	-0.6	322	-32	689	Jun 30	12	Jan 8	7.8	+0.2	60	SW	Oct 28	5	25	22	2	72	5	98	0

(a) Departure columns indicate positive or negative departure of meteorological parameters from 30-year (1971-2000) climatological normals.
 (b) Latest date of multiple occurrences.
 (c) Trace of snowfall is normal; no occurrence in April.
 T = Trace.

2.1 Temperature

Calendar year 2003 was warmer than normal at the Hanford Meteorology Station. The average temperature was 55.6°F, 2.0° above normal (53.6°F). The warmest years on record are 1992 and 1998, which averaged 56.4°F; the coldest year on record is 1985, which averaged 49.6°F. The hottest temperature of 2003 was 108°F on July 28, 29, and 30; the coldest was 8°F on December 30. Calendar year 2003 recorded 72 days with maximum temperatures $\geq 90^\circ\text{F}$ compared to a normal of 52 days, a maximum of 79 days in 1967, and a minimum of 29 days in 1980. There were 19 days with maximum temperatures $\geq 100^\circ\text{F}$ compared to a normal of 12 days, a maximum of 28 days in 1958, and a minimum of 1 day in 1954.

Nine months during the year were warmer than normal, and 3 months cooler than normal. Five months departed from normal by more than 3°, with January 6.2° above normal. November 2003 was 2.3° below normal.

The average temperature for January 2003 was much warmer than normal, averaging 38.0°F, 6.2° above normal (31.8°F). The warmest January occurred in 1953 and averaged 42.5°F, while the coldest, in 1950, averaged 12.1°F. Twenty-four days during January 2003 had average temperatures that were normal or above normal.

The average temperature for February 2003 was much warmer than normal, averaging 39.9°F, 2.0° above normal (37.9°F). The warmest February occurred in 1958 and averaged 44.5°F, while the coldest, in 1956, averaged 25.6°F. Twenty-one days during February 2003 had average temperatures that were normal or above normal.

The 2002-2003-winter season (December 2002, January, and February 2003) was much warmer than normal, averaging 38.4°F, 4.6° above normal (33.8°F). The warmest winter (1966-67) averaged 40.6°F, while the coldest (1948-49) averaged only 24.2°F.

The average temperature for March 2003 was warmer than normal, averaging 49.0°F, 2.9° above normal (46.1°F). The warmest March occurred in 1992 and averaged 51.5°F, while the coldest, in 1955, averaged 39.4°F.

The average temperature for April 2003 was cooler than normal, averaging 52.2°F, 1.3° below normal (53.5°F). The warmest April occurred in 1994 and averaged 58.2°F, while the coldest, in 1955, averaged 47.5°F.

The average temperature for May 2003 was cooler than normal, averaging 61.1°F, 0.7° below normal (61.8°F). The warmest May occurred in 1947 and averaged 68.7°F, while the coldest, in 1984, averaged 56.0°F. The first day of 2003 with a maximum of 80°F or greater occurred on May 22, the second latest in any year to reach that temperature.

The 2003 spring season (March, April, and May) was slightly warmer than normal, averaging 54.1°F, 0.3°F above normal (53.8°F). The warmest spring (1992) averaged 58.2°F, while the coolest (1955) averaged 48.0°F.

The average temperature for June 2003 was warmer than normal, averaging 72.5°F, 3.2° above normal (69.3°F). The warmest June occurred in 1992 and averaged 76.8°F, while the coolest, in 1953, averaged 63.0°F. There were been 14 days with maximum temperatures $\geq 90^\circ\text{F}$ through June 30 (normal is 11), and one day above 100°F (normal through June is 1).

The average temperature for July 2003 was much warmer than normal, averaging 80.2°F, 3.9° above normal (76.3°F). It was the seventh warmest July on record and the tenth warmest month of all time. The warmest July occurred in 1985 and averaged 82.2°F, while the coolest, in 1993, averaged 70.5°F. The average maximum temperature for the last two weeks of July was 103.5°F. There were 40 days with maximum temperatures $\geq 90^\circ\text{F}$ through July 31 (normal is 30), and 13 days above 100°F (normal through July is 7).

The average temperature for August 2003 was warmer than normal, averaging 76.5°F, 1.1° above normal (75.4°F). The warmest August occurred in 1967 and averaged 81.5°F, while the coolest, in 1964, averaged 69.8°F. There were 63 days with maximum temperatures $\geq 90^\circ\text{F}$ through August 31 (normal is 47), and 16 days above 100°F (normal through August and for the summer is 12).

The 2003 summer season (June, July, and August) averaged 76.4°F, 2.7° above normal (73.7°F), and was the 6th warmest summer on record. The warmest summer (1958) averaged 78.2°F; while the coolest (1980) averaged 70.2°F. The hottest temperature was 108°F on July 28, 29, and 30.

The average temperature for September 2003 was much warmer than normal, averaging 69.2°F, 3.3° above normal (65.9°F). The warmest September occurred in 1990 and averaged 72.4°F, while the coolest, in 1985, averaged 58.8°F. There were 72 days during 2003 with maximum temperatures $\geq 90^\circ\text{F}$, the fourth greatest number on record (normal is 52, the most was 79 in 1967 and least was 29 in 1980). There were 19 days during this calendar year with maximum temperatures $\geq 100^\circ\text{F}$, compared to a normal of 12 (the most was 28 days in 1958 and least was 1 day in 1954).

The average temperature for October 2003 was much warmer than normal, averaging 57.4°F, 4.4° above normal (53.0°F), and the third warmest on record. The warmest October occurred in 1988 and averaged 59.6°F, while the coolest, in 1984, averaged 47.9°F. The period from October 16-28 averaged 10.2° above normal.

The average temperature for November 2003 was cooler than normal, averaging 37.8°F, 2.3° below normal (40.1°F). The warmest November occurred in 1990 and averaged 46.5°F, while the coldest, in 1985, averaged 24.8°F. The period from November 1-7 averaged 12.1° below normal.

The 2003 autumn season (September, October, and November) averaged 54.8°F, 1.8° above normal (53.0°F). The warmest autumn (1990) averaged 57.1°F, while the coolest (1985) averaged 44.5°F.

The average temperature for December 2003 was warmer than normal, averaging 32.9°F, 1.2° above normal (31.7°F). The warmest December occurred in 1957 and averaged 38.5°F, while the coldest, in 1985, averaged 21.0°F.

Table 2.2 lists the daily temperature records for 2003 along with the previous record and year of occurrence. Table 2.1 lists the monthly and annual totals for numerous meteorological variables for 2003. Table 2.3 lists the 2003 monthly and seasonal temperature and precipitation compared to normals and extremes. Table 2.4, Table 2.5, and Table 2.6 list the 2003 monthly and annual average temperature, precipitation, and wind speed, respectively, from the Hanford Meteorological Monitoring Network.

Figure 2.1 depicts the 2003 observed daily maximum and minimum temperatures and the normal maximum, minimum, and mean daily temperatures for the Hanford Meteorology Station.

Table 2.2. 2003 Daily Temperature Records (previous record and year of occurrence in parentheses)

Date	Maximum (°F)		Minimum (°F)	
	High	Low	High	Low
Jan 26	67 (61, 1971)			
Mar 11			44 ^(a) (44, 2002 ^(b))	
Mar 13			49 (44, 1998 ^(b))	
Mar 14			48 (45, 1961)	
Mar 21			47 (46, 1998 ^(b))	
Mar 30	77 (75, 1992)			
Mar 31			49 (47, 1961)	
Apr 4				24 (27, 1950)
May 17		58 (61, 1974)		36 (38, 1988 ^(b))
Jun 21				45 ^(a) (45, 1956)
Jun 28			68 ^(a) (68, 1987)	
Jul 28	108 ^(a) (108, 1998 ^(b))			
Jul 29	108 (107, 1982)			
Jul 30	108 (107, 1971)			
Sep 4	102 ^(a) (102, 1988)			
Sep 5	100 ^(a) (102, 1955)			
Sep 6			68 (65, 1957 ^(b))	
Sep 27			60 ^(a) (60, 1949)	
Sep 29			61 ^(a) (61, 1989)	
Oct 5			56 (52, 1988 ^(b))	
Oct 6	87 (85, 1980)			
Oct 17	79 (77, 1997)		49 ^(a) (49, 1955)	
Oct 18	77 (76, 1973)			
Oct 19			54 (52, 1992)	
Oct 20	80 (74, 1978)		56 (54, 1973)	
Oct 21	89 ^(c) (73, 1991 ^(b))		65 ^(d) (54, 1963)	
Oct 22	81 (74, 1959)		57 (51, 1952)	
Oct 28	80 (68, 1965 ^(b))			
Nov 2		37 (38, 1991)		
Nov 5				18 (20, 1973 ^(b))
Nov 18	68 (64, 1946)		52 (47, 1954)	

(a) Ties record.

(b) Most recent of several occurrences.

(c) Ties all-time record for October (previously recorded October 3, 1958 and October 4, 1980).

(d) All-time record for October (previous record 60°F on October 25, 1945, and October 2 and 15, 1988).

Table 2.3. 2003 Monthly and Seasonal Temperature and Precipitation

Month/ Season	Average Temperature, °F	Departure ^(a)	Normal, °F	Warmest of Record, °F	Year	Coolest of Record, °F	Year	Precipitation, in.	Percent of Normal	Normal	Wettest of Record, in.	Year	Driest of Record, in.	Year
Jan	38.0	+6.2	31.8	42.5	1953	12.1	1950	1.87	215	0.87	2.47	1970	0.08	1977
Feb	39.9	+2.0	37.9	44.5	1958	25.6	1956	0.82	120	0.68	2.10	1961	T	1988 ^(b)
Mar	49.0	+2.9	46.1	51.5	1992	39.4	1955	0.26	45	0.58	1.86	1957	0.02	1968
Apr	52.2	-1.3	53.5	58.2	1994	47.5	1955	2.23	507	0.44	2.23	2003	T	1999 ^(b)
May	61.1	-0.7	61.8	68.7	1947	56.0	1984	0.08	14	0.55	2.03	1972	T	1992 ^(b)
Jun	72.5	+3.2	69.3	76.8	1992	63.0	1953	T	0	0.41	2.92	1950	T	2003 ^(b)
Jul	80.2	+3.9	76.3	82.2	1985	70.5	1993	0	0	0.27	1.76	1993	0	2003
Aug	76.5	+1.1	75.4	81.5	1967	69.8	1964	0.46	170	0.27	1.36	1977	0	1988 ^(b)
Sep	69.2	+3.3	65.9	72.4	1990	58.8	1985	0.24	73	0.33	1.34	1947	0	1999 ^(b)
Oct	57.4	+4.4	53.0	59.6	1988	47.9	1984	0.07	14	0.49	2.72	1957	T	1987 ^(b)
Nov	37.8	-2.3	40.1	46.5	1990	24.8	1985	0.15	15	0.98	2.67	1996	T	1976
Dec	32.9	+1.2	31.7	38.5	1957	21.0	1985	1.96	177	1.11	3.69	1996	0.07	1999
Winter ^(c)	38.4	+4.6	33.8	40.6	1966-67	24.2	1948-49	5.05	190	2.66	5.45	1996-97	0.70	1946-47
Spring	54.1	+0.3	53.8	58.2	1992	48.0	1955	2.57	163	1.58	3.28	1995	0.09	1968
Summer	76.4	+2.7	73.7	78.2	1958	70.2	1980	0.46	48	0.95	2.99	1950	0.03	1973
Autumn	54.8	+1.8	53.0	57.1	1990	44.5	1985	0.46	26	1.80	4.79	1973	0.04	1976
Calendar Year Total	55.6	+2.0	53.6	56.4	1998 ^(b)	49.6	1985	8.14	117	6.98	12.31	1995	2.99	1976

(a) Departure indicates positive or negative departure from 30-year (1971-2000) climatological normals.

(b) Latest of multiple occurrences.

(c) Winter is December 2002, January and February 2003.

T = Trace.

Table 2.4. 2003 Monthly and Annual Average Temperatures (°F) from the Hanford Meteorological Monitoring Network

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1 PROS	38.6	39.4	49.5	53.1	61.6	72.8	80.1	76.1	67.6	56.3	37.9	33.8	55.7
2 EOC	38.6	40.2	49.3	51.8	60.4	71.9	79.9	76.6	69.9	58.2	39.4	34.2	55.9
3 ARMY	38.8	39.9	49.9	53.2	61.7	73.4	81.0	77.0	69.4	57.9	38.7	34.0	56.4
4 RSPG	38.6	39.6	49.5	52.3	60.5	72.3	80.0	76.4	68.5	57.0	38.2	33.6	55.6
5 EDNA	38.3	39.4	48.7	52.7	61.0	72.5	79.8	75.7	67.7	56.5	37.5	33.9	55.5
6 200E	38.6	40.7	50.2	53.7	62.5	74.2	82.1	78.1	70.7	58.8	39.4	34.3	57.0
7 200W	38.0	38.9	49.5	52.8	61.0	72.7	80.6	76.3	68.5	56.3	37.2	33.2	55.5
8 BVLY	38.1	40.3	48.7	53.1	61.5	72.5	79.8	75.5	68.2	56.9	39.2	34.5	55.8
9 FFTF	38.4	39.8	49.6	52.9	61.4	72.6	80.3	76.5	68.8	57.3	38.6	34.0	55.9
10 YAKB	38.0	39.9	49.0	52.3	61.4	73.6	83.3	77.7	70.5	57.8	38.6	33.4	55.9
11 300A	39.4	39.7	50.1	53.5	61.4	72.0	79.3	76.1	67.7	56.9	38.7	34.9	55.8
12 WYEB	38.5	39.9	49.8	53.2	61.8	73.2	80.9	76.8	69.0	57.4	38.4	34.0	56.2
13 100N	37.7	39.3	47.9	52.2	60.7	72.3	79.2	75.6	68.7	57.1	38.0	33.9	55.2
14 WPPS	38.6	39.0	49.3	52.8	61.1	72.7	80.4	76.1	68.3	56.9	37.9	34.3	55.7
15 FRNK	38.2	39.5	48.9	51.4	59.3	69.4	76.1	72.3	65.7	55.3	38.1	33.6	54.1
16 GABL	37.9	40.6	48.9	52.1	60.8	72.5	80.6	77.0	70.2	58.7	39.1	33.7	56.1
17 RING	38.5	39.2	48.5	51.9	59.5	69.7	75.6	72.6	65.5	55.2	37.9	34.2	54.1
18 RICH	40.0	40.9	51.4	54.1	61.8	72.5	80.2	76.8	68.6	57.9	40.0	35.4	56.7
19 PFP	38.0	39.8	49.6	52.9	61.5	73.4	81.1	77.2	69.8	57.9	38.4	33.5	56.2
20 RMTN	32.8	32.5	39.4	41.9	50.8	62.9	72.3	68.6	61.7	50.6	31.1	29.1	47.9
21 HMS	38.0	39.9	49.0	52.2	61.1	72.5	80.2	76.5	69.2	57.4	37.8	32.9	55.6
22 PASC	39.9	39.8	51.3	54.3	62.0	72.5	80.2	76.6	67.6	57.0	39.4	35.0	56.4
23 GABW	37.6	38.6	48.1	52.1	60.8	72.7	80.4	75.9	68.0	56.0	36.5	33.2	55.1
24 100F	38.1	39.1	48.5	52.7	61.2	72.7	79.9	75.8	68.0	56.6	37.5	33.9	55.4
25 VERN	38.9	40.7	49.2	53.2	61.9	73.4	81.2	77.7	70.5	58.6	40.0	35.1	56.8
26 BENT	38.8	39.6	48.6	51.8	60.8	70.3	77.7	73.9	67.5	56.1	38.0	33.6	54.8
27 VSTA	40.7	41.4	51.8	54.5	61.2	72.5	80.7	77.0	68.9	58.3	40.7	36.2	56.7
28 SURF	40.7	40.8	49.6	52.5	60.7	71.2	80.1	75.7	68.5	57.3	40.5	37.4	56.3
29 100K	38.3	39.8	48.6	52.8	61.7	73.1	80.3	76.5	69.3	57.4	38.2	34.1	55.9
30 HAMR	39.3	40.0	50.5	53.6	61.6	72.2	80.0	76.4	68.3	57.3	39.1	34.7	56.2

Table 2.5. 2003 Monthly and Annual Precipitation (inches) from the Hanford Meteorological Monitoring Network^(a)

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1 PROS	1.56	0.69	0.28	0.95	0.20	0.00	0.00	0.58	0.29	0.06	0.16	1.27	6.04
2 EOC	1.98	0.73	0.63	1.12	0.35	0.00	0.00	0.89	0.02	0.15	0.37	1.74	7.98
3 ARMY	0.59	0.50	0.20	1.32	0.33	0.00	0.00	0.53	0.24	0.20	0.14	1.38	5.43
4 RSPG	1.51	0.62	0.25	1.57	0.40	0.00	0.00	0.34	0.13	0.10	0.16	1.75	6.83
6 200E	1.57	0.61	0.27	1.89	0.08	0.00	0.00	0.35	0.19	0.05	0.10	1.22	6.33
7 200W	1.73	0.78	0.21	1.93	0.25	0.00	0.00	0.30	0.08	0.04	0.11	1.41	6.84
8 BVLY	1.02	0.31	0.11	1.53	0.09	0.00	0.00	0.21	0.04	0.02	0.01	1.07	4.41
9 FFTF	1.08	0.54	0.19	1.16	0.34	0.00	0.00	0.40	0.22	0.08	0.17	0.65	4.83
10 YAKB	1.76	0.85	0.27	2.07	0.15	0.00	0.00	0.32	0.09	0.04	0.04	1.70	7.29
11 300A	1.31	0.55	0.48	1.13	0.14	0.00	0.00	0.10	0.29	0.06	0.29	1.36	5.71
12 WYEB	1.73	0.70	0.29	1.25	0.39	0.00	0.00	0.49	0.13	0.14	0.28	1.58	6.98
13 100N	1.79	0.49	0.21	1.56	0.00	0.00	0.00	0.37	0.05	0.05	0.14	1.37	6.03
14 WPPS	1.69	0.72	0.28	1.43	0.29	0.00	0.00	0.47	0.17	0.14	0.30	1.54	7.03
17 RING	1.83	0.62	0.53	1.47	0.05	0.00	0.00	0.25	0.09	0.11	0.48	1.51	6.94
18 RICH	1.17	0.52	0.22	0.54	0.18	0.00	0.00	0.17	0.20	0.10	0.22	1.15	4.47
20 RMTN	1.88	0.70	0.36	0.85	0.61	0.00	0.00	0.84	0.15	0.18	0.15	0.87	6.59
21 HMS	1.87	0.82	0.26	2.23	0.08	0.00	0.00	0.46	0.24	0.07	0.15	1.96	8.14
22 PASC	1.81	0.84	0.31	0.86	0.51	0.00	0.00	0.02	0.23	0.21	0.30	1.41	6.50
24 100F	1.65	0.56	0.44	1.79	0.00	0.00	0.00	0.42	0.11	0.14	0.16	1.97	7.24
26 BENT	2.03	0.97	0.64	1.40	0.12	0.00	0.00	0.56	0.19	0.24	0.31	1.89	8.35
27 VSTA	1.47	0.67	0.24	0.43	0.43	0.00	0.00	0.10	0.16	0.22	0.28	1.41	5.41
28 SURF	2.42	0.72	0.82	0.89	0.20	0.00	0.00	0.44	0.05	0.45	0.63	1.93	8.55
29 100K	--	--	0.26	2.05	0.01	0.00	0.00	0.30	0.10	0.15	0.16	1.74	^(b)

(a) Stations 5, 15, 16, 19, 23, and 25 are solar powered; therefore, insufficient power is available to operate the heated tipping-bucket precipitation gauges.

(b) Incomplete data.

NOTE: Dashes indicate no data are available.

Table 2.6. 2003 Monthly and Annual Average Wind Speed (mph) from the Hanford Meteorological Monitoring Network

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1 PROS	5.3	6.8	9.2	7.9	8.0	7.7	6.7	6.4	6.3	7.6	8.8	6.8	7.3
2 EOC	6.9	9.9	12.5	9.8	9.0	8.2	7.0	7.5	9.0	10.9	12.8	8.0	9.3
3 ARMY	3.7	5.3	7.4	7.1	7.2	7.2	5.3	5.6	6.1	7.8	7.5	5.1	6.3
4 RSPG	4.8	7.8	9.3	8.1	8.0	8.0	7.5	7.6	7.7	8.8	8.6	5.4	7.6
5 EDNA	4.3	5.6	7.3	6.6	6.5	7.3	6.6	6.0	5.9	7.2	6.7	4.9	6.2
6 200E	4.4	6.5	8.7	7.7	8.1	9.3	8.4	7.6	7.5	8.2	7.6	5.4	7.5
7 200W	3.9	5.5	8.1	6.9	6.9	7.8	6.8	6.1	5.8	7.1	6.7	4.4	6.3
8 BVLY	4.5	5.5	6.5	5.9	6.1	7.4	6.4	5.8	5.3	5.9	5.9	4.9	5.8
9 FFTF	5.8	7.9	10.0	8.6	8.5	8.6	7.3	7.3	7.5	9.1	9.5	6.8	8.1
10 YAKB	4.9	7.1	8.9	7.9	8.6	9.8	8.7	7.9	7.4	8.4	8.0	5.6	7.8
11 300A	5.6	7.3	9.4	8.2	8.3	7.9	7.0	6.8	6.3	8.1	9.1	6.6	7.5
12 WYEB	5.0	6.9	8.6	7.8	7.8	8.1	7.0	6.7	6.9	8.5	8.2	6.0	7.3
13 100N	3.7	5.6	6.7	6.3	6.7	7.6	6.5	5.6	5.8	6.6	5.9	4.0	5.9
14 WPPS	5.0	6.4	8.4	7.6	7.1	7.4	6.4	6.2	6.3	7.7	7.9	5.8	6.8
15 FRNK	5.3	7.0	8.6	7.2	6.6	6.4	5.6	5.4	5.7	7.0	7.9	5.8	6.5
16 GABL	7.0	9.8	13.1	11.5	11.5	12.8	11.7	10.7	11.2	12.5	12.1	8.2	11.0
17 RING	4.7	6.3	7.8	6.5	6.4	6.2	5.4	5.3	5.7	7.3	7.7	5.2	6.2
18 RICH	4.5	6.0	8.1	6.9	6.8	6.2	5.2	5.2	5.1	6.5	7.4	5.6	6.1
19 PFP	3.3	4.3	6.6	5.5	5.5	6.0	5.1	4.7	4.5	5.9	5.1	3.4	5.0
20 RMTN	15.9	19.3	24.2	18.3	15.6	13.6	11.0	12.8	16.8	22.8	22.9	17.9	17.6
21 HMS	5.2	7.1	9.3	7.8	8.2	9.1	8.4	7.6	7.4	8.6	9.9	5.5	7.8
22 PASC	3.9	4.9	7.6	6.4	6.1	5.6	4.6	4.5	4.3	5.7	6.4	4.3	5.4
23 GABW	4.1	5.7	7.3	6.7	7.1	8.5	7.6	6.5	6.2	6.9	6.1	4.3	6.4
24 100F	3.6	5.4	6.9	6.5	6.4	7.4	6.3	5.8	5.7	7.0	6.2	4.0	5.9
25 VERN	5.3	6.8	7.6	7.3	8.3	9.7	8.8	7.9	7.3	7.5	7.0	5.9	7.4
26 BENT	4.7	6.9	7.6	6.5	6.1	6.1	5.6	5.6	5.8	6.7	6.4	4.9	6.1
27 VSTA	4.2	5.2	8.4	7.0	6.5	6.3	5.3	5.3	5.0	6.0	7.0	4.8	5.9
28 SURF	5.1	9.1	11.1	10.3	11.6	12.6	12.1	10.8	9.3	9.1	8.9	6.9	9.7
29 100K	3.8	5.4	7.1	6.6	7.1	8.1	6.8	6.0	5.8	6.7	5.7	4.1	6.1
30 HAMR	4.9	6.6	8.4	7.4	7.4	7.2	5.9	6.0	5.9	7.2	8.4	6.2	6.8

Daily Temperatures - 2003 Hanford Meteorological Station

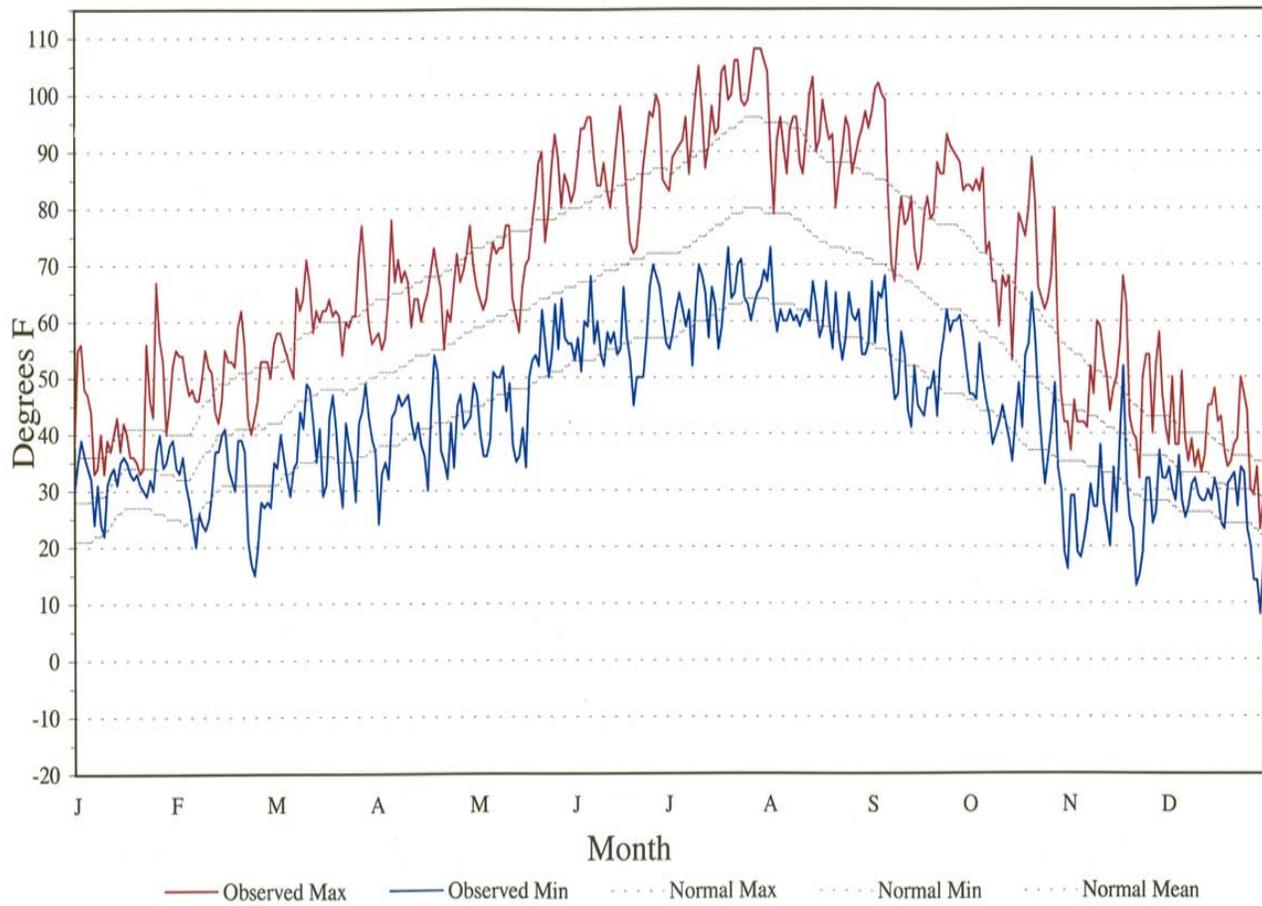


Figure 2.1. 2003 Observed Daily Temperatures from the Hanford Meteorology Station

2.2 Precipitation

Precipitation for 2003 totaled 8.14 inches, 117% of normal (6.98 inches). The wettest year was 1995 with 12.31 inches; the driest was 1976 with only 2.99 inches. Calendar year snowfall totaled 8.7 inches, compared to an annual normal snowfall of 15.4 inches. The greatest calendar year snowfall was 57.5 inches (1996); the least was 0.6 inch (1999).

Precipitation for January 2003 was 1.87 inches, 215% of normal (0.87 inch). This was the fifth wettest January on record. The wettest, in 1970, received 2.47 inches, while the driest, in 1977, received 0.08 inch. Snowfall for January 2003 totaled 0.7 inch, compared to a normal of 4.2 inches. Total snow season snowfall is only 1.3 inches, compared to a normal through January of 12.4 inches.

Precipitation for February 2003 was 0.82 inch, 120% of normal (0.68 inch). The wettest February occurred in 1961 and received 2.10 inches, while the driest, in 1988 and earlier years, received only a trace. There was no snow recorded in February 2003, compared to a normal of 2.6 inches. Total snow season snowfall is only 1.3 inches, compared to a normal through February of 15.0 inches.

Winter season precipitation totaled 5.05 inches, 190% of normal (2.66 inches). The wettest winter (1996-97) received 5.45 inches, while the driest (1946-47) received 0.70 inch.

Precipitation for March 2003 was 0.26 inches, 45% of normal (0.58 inch). The wettest March occurred in 1957 and received 1.86 inches, while the driest, in 1968, received 0.02 inch. There was no snow recorded in March 2003, compared to a normal of 0.4 inch. Total snow season snowfall was only 1.3 inches, compared to a normal of 15.4 inches.

April 2003 established several precipitation records. Precipitation for the month totaled 2.23 inches, 507% of normal (0.44 inches), the wettest April on record. The previous wettest April occurred in 1995 and received 1.54 inches, while the driest, in 1999 and earlier years, received only a trace. It was also the thirteenth wettest month at the Hanford Meteorological Station since record keeping began in December 1944. The wettest month ever was December 1996 with 3.69 inches. There were two days in April 2003 with precipitation totals >0.50 inch (an April record), with one 24-hour period receiving 1.24 inches, a record 24-hour precipitation total for any April, and the fifth greatest 24-hour amount in the history of the Hanford Meteorological Station. The greatest 24-hour precipitation amount was 1.91 inches on October 1-2, 1957.

Precipitation for May 2003 was 0.08 inch, 14% of normal (0.55 inch). The wettest May occurred in 1972 and received 2.03 inches, while the driest May, in 1992 and earlier years, received only a trace.

Spring season 2003 precipitation totaled 2.57 inches, 163% of normal and was the sixth wettest spring on record. The wettest (1995) received 3.28 inches, while the driest (1968) received only 0.09 inch.

Precipitation for June 2003 totaled only a trace, compared to a June normal of 0.41 inch. June 1979 and 1986 also received only a trace of precipitation. The wettest June occurred in 1950 and received 2.92 inches.

There was no precipitation recorded during July 2003, compared to a July normal of 0.27 inch. This is the first time that any July has been totally without rainfall; numerous previous months of July have received only a trace. This was also only the fifth month not to receive any precipitation – that also happened in August 1955, August 1988, September 1991, and September 1999. The last July to record only a trace was in 1980. The wettest July on record, in 1993, received 1.73 inches. The last measurable precipitation at the Hanford Meteorology Station occurred on May 16 (a period of 76 days, and currently the third longest period on record without measurable precipitation).

Precipitation for August 2003 totaled 0.46 inch, 170% of normal (0.27 inch). The wettest August on record, in 1977, received 1.36 inches; and the driest, in 1988 and 1955, received no precipitation. The period from June 2 through August 1 (61 days) was the second longest period on record with no precipitation (the longest period was 66 days, from July 14, 1988 through September 17, 1988).

Precipitation for September 2003 totaled 0.24 inch, 73% of normal (0.33 inch). The wettest September on record, in 1947, received 1.34 inches; and the driest, in 1991 and 1999, received no precipitation.

Precipitation for October 2003 totaled 0.07 inch, 14% of normal (0.49 inch). The wettest October on record, in 1957, received 2.72 inches; and the driest (1972, 1978, and 1987) received only a trace.

Precipitation for November 2003 totaled 0.15 inch, 15% of normal (0.98 inch). The wettest November on record, in 1996, received 2.67 inches; and the driest (1976) received only a trace. A trace of snow was received in November 2003 (normal for November is 2.3 inches; the greatest November total was 18.3 inches in 1985).

Precipitation for autumn 2003 totaled 0.46 inch, 26% of normal (1.80 inches). The wettest autumn (1973) received 4.79 inches, while the driest (1976) received only 0.04 inch.

Precipitation for December 2003 totaled 1.96 inches, 177% of normal (1.11 inches). The wettest December on record, in 1996, received 3.69 inches; and the driest (1999) received 0.07 inch. The period from November 28 through December 14 (17 days) established a new record for consecutive days with precipitation. The previous record was 15 days from December 19, 1985 through January 2, 1986 (and three previous occasions). Snowfall for December 2003 totaled 8.0 inches, compared to a normal of 5.8 inches. Total snowfall for the 2003-2004 snow season (through December) was 8.0 inches, compared to a normal of 8.2 inches.

2.3 Wind

The average wind speed for 2003 was 7.8 miles per hour (mph), which was 0.2 mph above normal (7.6 mph). The windiest year was 1999, which averaged 8.8 mph, while 1957 was the year with the lightest winds, averaging 6.3 mph. The peak gust for 2003 was 60 mph on October 28.

The average wind speed for January 2003 was 5.2 mph, 1.1 mph below normal (6.3 mph). The windiest January on record averaged 10.3 mph (1972), while the January with the lightest winds (1985) averaged 2.9 mph. The peak gust for the month was 39 mph on January 2. The record wind gust for January was 80 mph in 1972.

The average wind speed for February 2003 was 7.1 mph, right at normal (7.1 mph). The windiest February on record averaged 11.1 mph (1999), while the February with the lightest winds (1963) averaged 4.6 mph. The peak gust for the month was 52 mph on February 20. The record wind gust for February was 65 mph in 1971.

The average wind speed for March 2003 was 9.3 mph, 1.3 mph above normal (8.0 mph). The windiest March on record averaged 10.7 mph (1977 and earlier years), while the March with the lightest winds (1958) averaged 5.9 mph. The peak gust for the month was 53 mph on March 5. The record wind gust for March was 70 mph in 1956.

The average wind speed for April 2003 was 7.8 mph, 1.0 mph below normal (8.8 mph). The windiest April on record averaged 11.1 mph (1972 and earlier years), while the April with the lightest winds (1958 and earlier years) averaged 7.4 mph. The peak gust for the month was 48 mph on April 9. The record wind gust for April was 73 mph in 1972.

The average wind speed for May 2003 was 8.2 mph, 0.7 mph below normal (8.9 mph). The windiest May on record averaged 10.7 mph (1983), while the May with the lightest winds (1957) averaged 5.8 mph. The peak gust for the month was 41 mph on May 14. The record wind gust for May was 71 mph in 1948.

The average wind speed for June 2003 was 9.1 mph, 0.1 mph above normal (9.0 mph). The windiest June on record averaged 10.7 mph (1983), while the June with the lightest winds (1950) averaged 7.7 mph. The peak gust for the month was 45 mph on June 18. The record wind gust for June was 72 mph in 1957.

The average wind speed for July 2003 was 8.4 mph, 0.2 mph below normal (8.6 mph). The windiest July on record averaged 10.7 mph (1983), while the July with the lightest winds (1955) averaged 6.8 mph. The peak gust for the month was 41 mph on July 12. The record wind gust for July was 69 mph in 1979.

The average wind speed for August 2003 was 7.6 mph, 0.4 mph below normal (8.0 mph). The windiest August on record averaged 9.5 mph (1996), while the August with the lightest winds (1956) averaged 6.0 mph. The peak gust for the month was 45 mph on August 19. The record wind gust for July was 66 mph in 1961.

The average wind speed for September 2003 was 7.4 mph, 0.1 mph above normal (7.3 mph). The windiest September on record averaged 9.2 mph (1961), while the September with the lightest winds (1957) averaged 5.4 mph. The peak gust for the month was 44 mph on September 12 and 19. The record wind gust for September was 65 mph in 1953.

The average wind speed for October 2003 was 8.6 mph, 2.1 mph above normal (6.5 mph). The windiest October on record averaged 9.1 mph (1946), while the October with the lightest winds (1952) averaged 4.4 mph. The peak gust for the month was 60 mph on October 28. The 8 days with peak gusts ≥ 40 mph tied the record for that category, also occurring in 1967. The record wind gust for October was 72 mph in 1997.

The average wind speed for November 2003 was 9.9 mph, 3.4 mph above normal (6.5 mph). The windiest November on record averaged 10.0 mph (1990), while the November with the lightest winds (1956) averaged 2.9 mph. The peak gust for the month was 54 mph on November 18. The record wind gust for November was 67 mph in 1993.

The average wind speed for December 2003 was 5.6 mph, 0.4 mph below normal (6.0 mph). The windiest December on record averaged 8.3 mph (1968), while the December with the lightest winds (1985) averaged 3.3 mph. The peak gust for the month was 36 mph on December 6. The record wind gust for December was 71 mph in 1955.

Figure 2.2 and Figure 2.3 give a composite of the wind roses (at the 30-foot and 60-meter levels, respectively) from the Hanford Meteorological Monitoring Network for 2003. The Appendix B gives the individual 2003 wind roses from the Hanford Meteorological Monitoring Network stations.

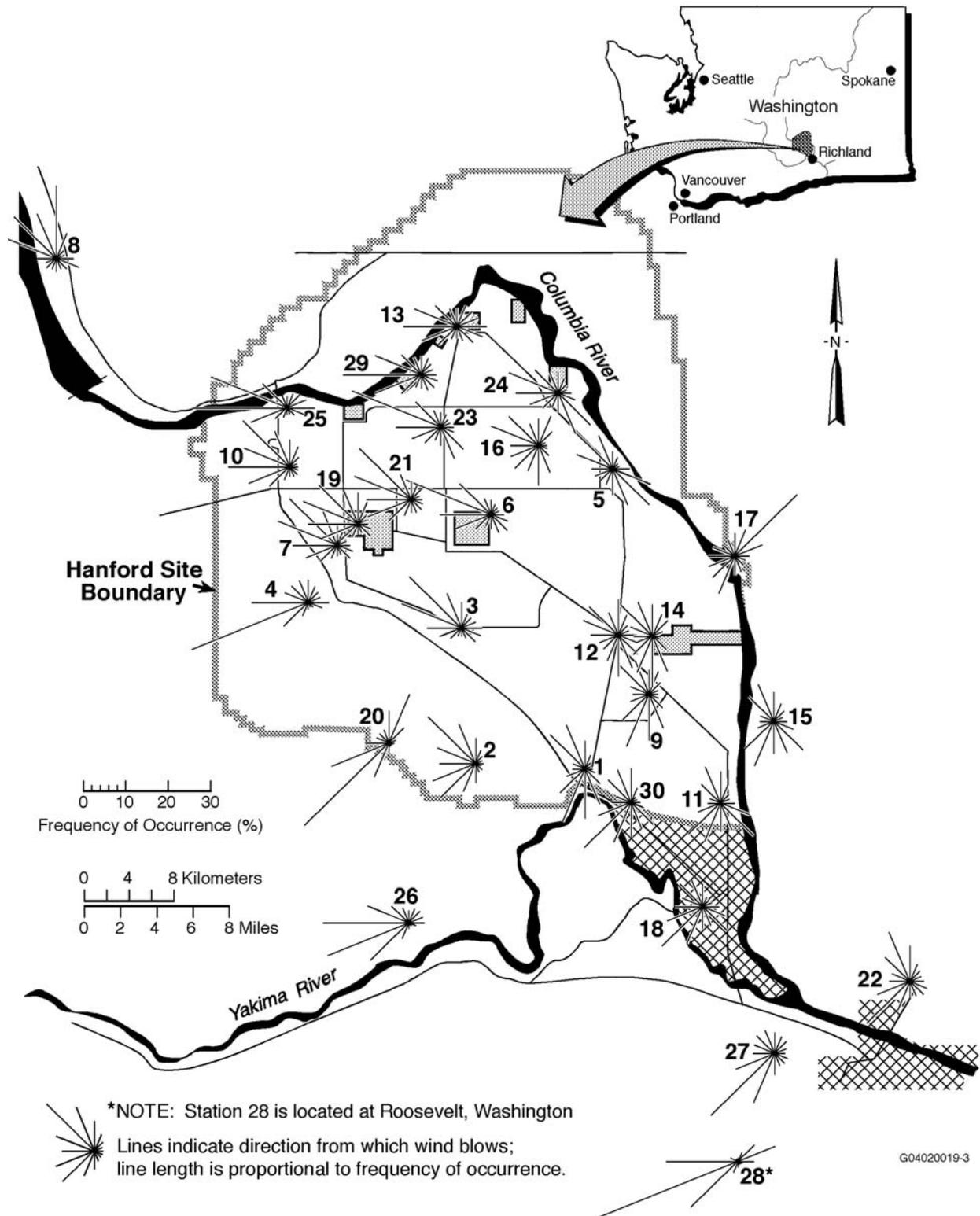
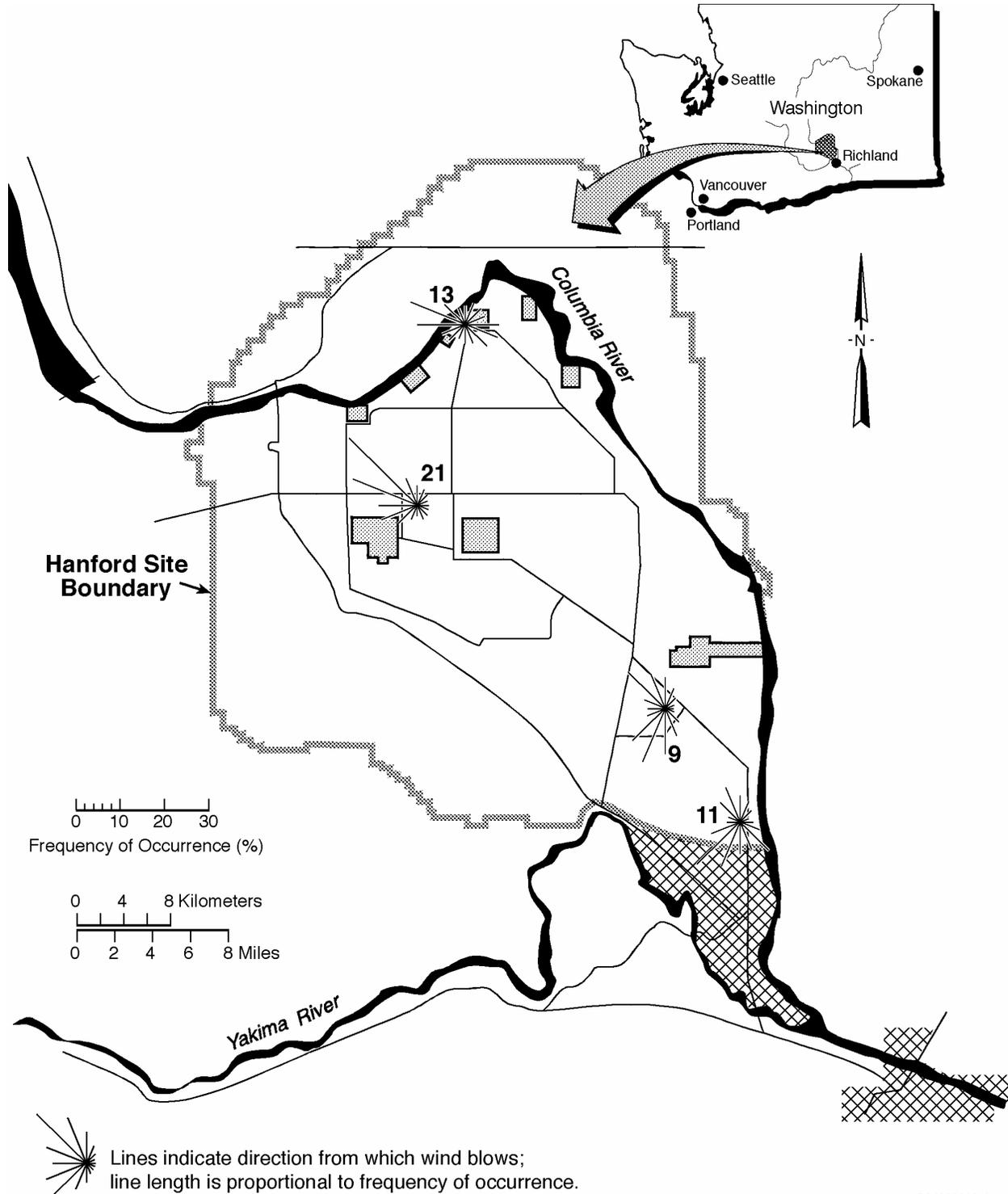


Figure 2.2. 2003 Hanford Meteorological Monitoring Network Wind Roses at 30 Feet (Refer to Table 1.1 for the names of the numbered locations on this map; see Appendix B for station-specific wind rose.)



G04020019-4

Figure 2.3. 2003 Hanford Meteorological Monitoring Network Wind Roses at 60-Meter Level (Refer to Table 1.1 for the names of the numbered locations on this map; see Appendix B for station-specific wind rose.)