

1998

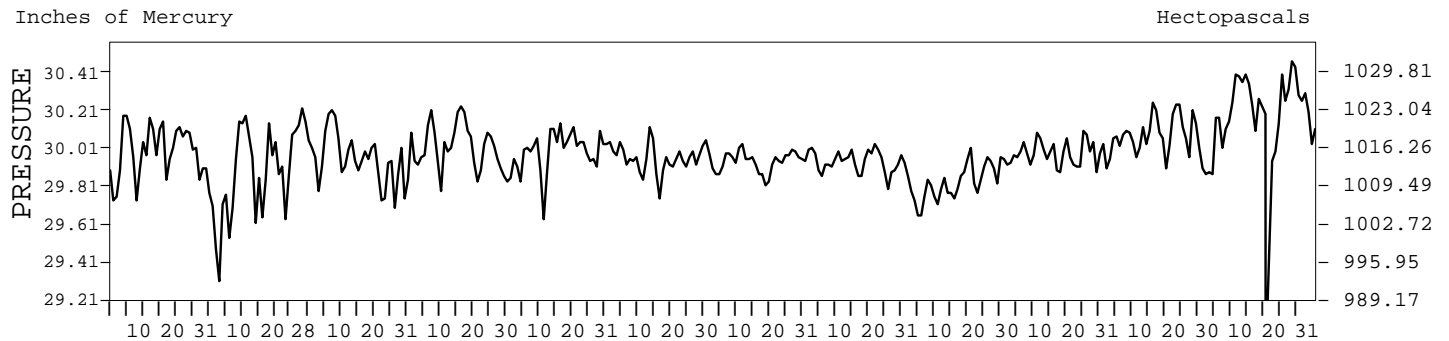
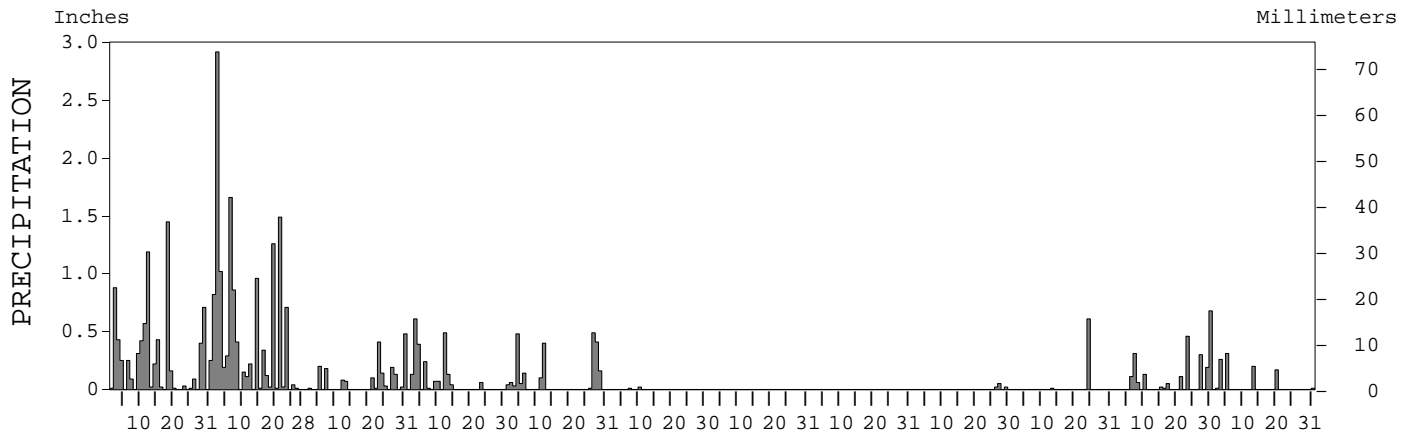
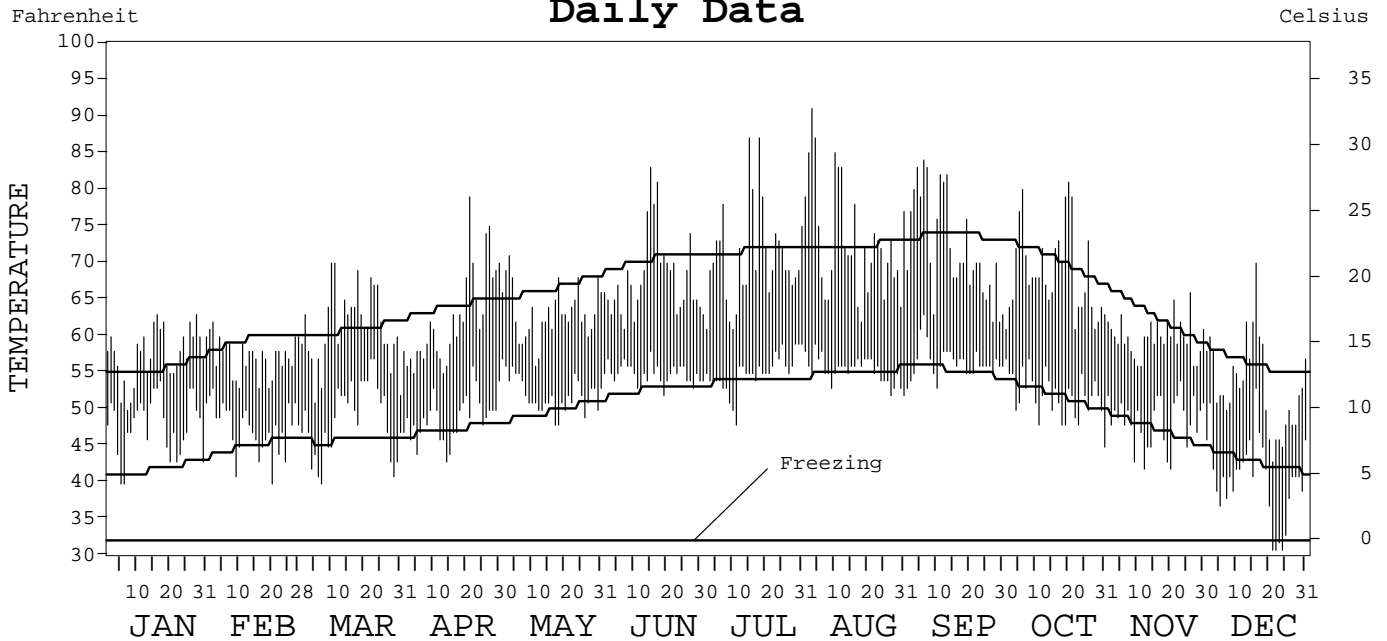
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-0823

SAN FRANCISCO, CALIFORNIA
INTERNATIONAL AIRPORT (SFO)

Daily Data



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Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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 ASHEVILLE, NORTH CAROLINA

METEOROLOGICAL DATA FOR 1998

SAN FRANCISCO AP, CA (SFO)

LATITUDE: 37° 37' 11" N LONGITUDE: 122° 23' 53" W ELEVATION (FT): GRND: 8 BARO: 90 TIME ZONE: PACIFIC (UTC+ 8) WBAN: 23234

	ELEMENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	57.6	57.2	61.3	62.5	63.3	68.2	70.6	73.1	72.1	68.6	59.9	53.3	64.0	
	HIGHEST DAILY MAXIMUM	63	62	70	79	71	83	87	91	84	81	66	70	91	
	DATE OF OCCURRENCE	28+	02	11+	21	03	15	18+	03	06	20	26	16	AUG 03	
	MEAN DAILY MINIMUM	48.0	47.4	48.7	48.9	52.1	54.9	55.0	55.4	56.5	52.0	48.4	40.6	50.7	
	LOWEST DAILY MINIMUM	40	40	40	43	48	52	48	52	53	45	42	31	31	
	DATE OF OCCURRENCE	06+	20	07	14	18+	19	11	31+	10+	31	20+	24+	DEC 24+	
	AVERAGE DRY BULB	52.8	52.3	55.0	55.7	57.7	61.6	62.8	64.3	64.3	60.3	54.2	47.0	57.3	
	MEAN WET BULB	50.9	49.5	51.0	51.2	53.2	56.2	57.1	58.1	59.0	53.9	51.4	44.2	53.0	
	MEAN DEW POINT	49.4	46.8	47.9	48.0	49.5	52.9	54.1	55.3	56.6	49.0	48.8	40.1	49.9	
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	MAXIMUM ≤ 32°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MINIMUM ≤ 32°	0	0	0	0	0	0	0	0	0	0	0	4	4	4
MINIMUM ≤ 0°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H/C	HEATING DEGREE DAYS	370	348	301	269	218	109	81	59	57	147	320	550	2829	
	COOLING DEGREE DAYS	0	0	0	0	0	13	23	44	45	6	0	0	131	
RH	MEAN (PERCENT)	89	83	79	79	77	77	80	81	83	72	83	78	80	
	HOUR 04 LST	94	88	86	88	86	86	90	93	93	81	90	84	88	
	HOUR 10 LST	89	84	76	77	72	74	75	75	79	71	82	75	77	
	HOUR 16 LST	80	75	70	68	68	67	68	66	70	57	76	70	70	
	HOUR 22 LST	88	82	82	84	81	82	87	89	89	76	86	79	84	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	3	0	0	0	0	0	0	0	0	0	1	5	9	
	THUNDERSTORMS	0	3	0	2	0	0	0	0	0	0	0	0	5	
CLOUDINESS	SUNRISE-SUNSET: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
	MIDNIGHT-MIDNIGHT: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
NUMBER OF DAYS WITH:															
CLEAR															
PARTLY CLOUDY															
CLOUDY															
PR	MEAN STATION PRESS. (IN.)	29.99	29.89	29.97	30.02	29.99	29.96	29.95	29.94	29.84	29.99	30.07			
	MEAN SEA-LEVEL PRESS. (IN.)	30.01	29.90	29.99	30.04	30.01	29.98	29.97	29.96	29.86	30.01	30.09			
WINDS	RESULTANT SPEED (MPH)	2.8	3.7	5.0	7.6	9.3	10.0	10.5	11.3	8.7	7.8	3.7	1.3	6.1	
	RES. DIR. (TENS OF DEGS.)	15	17	25	25	25	25	27	27	26	26	22	27	25	
	MEAN SPEED (MPH)	7.3	9.9	9.4	11.6	12.5	11.7	13.3	12.8	10.6	9.8	8.3	6.6	10.3	
	PREVAIL. DIR. (TENS OF DEGS.)	12	12	27	27	26	25	28	28	28	26	27	27	27	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	33	43	39	38	36	31	34	31	30	32	41	43	43	
	DIR. (TENS OF DEGS.)	25	26	26	27	27	25	27	27	26	26	18	29	29	
	DATE OF OCCURRENCE	18	19	26	11	09	10	16	28+	18	09	30	05	DEC 05	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	40	47	45	46	40	36	43	37	36	41	47	51	51	
DIR. (TENS OF DEGS.)	25	26	27	28	27	25	25	25	26	26	20	30	30		
DATE OF OCCURRENCE	18	19	26	11	09	10	01	17	18	09	30+	05	DEC 05		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	8.20	13.64	2.05	2.24	2.37	0.03	T	0.00	0.09	0.62	2.43	0.96	32.63	
	GREATEST 24-HOUR (IN.)	1.75	3.41	0.50	0.65	0.61	0.02	T	0.00	0.05	0.61	0.69	0.31	3.41	
	DATE OF OCCURRENCE	11-12	02-03	30-31	03-04	27-28	10	30+		27	24	29-30	05	FEB 02-03	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	23	23	14	11	12	2	0	0	3	2	12	6	108	
PRECIPITATION ≥ 0.10	15	17	8	6	7	0	0	0	0	1	8	4	66		
PRECIPITATION ≥ 1.00	2	5	0	0	0	0	0	0	0	0	0	0	7		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)														
	GREATEST 24-HOUR (IN.)														
	DATE OF OCCURRENCE														
	MAXIMUM SNOW DEPTH (IN.)														
	DATE OF OCCURRENCE														
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0															

NORMALS, MEANS, AND EXTREMES

SAN FRANCISCO AP, CA (SFO)

LATITUDE: 37° 37' 11" N LONGITUDE: 122° 23' 53" W ELEVATION (FT): GRND: 8 BARO: 90 TIME ZONE: PACIFIC (UTC+ 8) WBAN: 23234

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	55.6	59.4	60.8	63.9	66.5	70.3	71.6	72.3	73.6	70.1	62.4	56.1	65.2
	MEAN DAILY MAXIMUM	53	55.6	59.1	61.0	63.9	66.4	69.9	71.3	71.9	73.4	70.2	62.8	56.2	65.1
	HIGHEST DAILY MAXIMUM	71	72	78	85	92	97	106	105	100	103	99	85	75	106
	YEAR OF OCCURRENCE		1948	1930	1952	1989	1984	1961	1988	1993	1971	1987	1967	1958	JUN 1961
	MEAN OF EXTREME MAXS.	53	64.5	68.4	72.8	78.9	83.9	88.1	86.7	86.0	89.9	86.0	74.0	64.6	78.7
	NORMAL DAILY MINIMUM	30	41.8	45.0	45.8	47.2	49.7	52.6	53.9	55.0	55.2	51.8	47.1	42.7	49.0
	MEAN DAILY MINIMUM	53	41.9	44.5	45.8	47.3	49.8	52.4	53.7	54.6	54.4	51.5	46.9	42.7	48.8
	LOWEST DAILY MINIMUM	71	24	25	30	31	36	41	43	42	38	34	25	20	20
	YEAR OF OCCURRENCE		1928	1929	1929	1929	1929	1932	1928	1935	1929	1929	1931	1932	DEC 1932
	MEAN OF EXTREME MINS.	53	33.3	36.7	38.6	41.2	44.6	48.1	49.9	50.6	49.4	44.9	38.9	34.4	42.5
	NORMAL DRY BULB	30	48.7	52.2	53.3	55.6	58.1	61.5	62.7	63.7	64.5	61.0	54.8	49.4	57.1
	MEAN DRY BULB	53	48.8	51.8	53.4	55.6	58.2	61.2	62.5	63.3	63.9	60.9	54.9	49.5	57.0
	MEAN WET BULB	15	47.2	48.8	50.4	51.6	53.4	55.3	57.2	57.8	57.2	55.1	50.7	46.3	52.6
	MEAN DEW POINT	15	43.9	45.1	46.4	47.2	48.8	50.8	53.2	54.2	53.6	50.7	46.2	42.4	48.5
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°	30	0.0	0.0	0.0	0.1	0.4	0.9	0.7	0.3	1.4	0.4	0.0	0.0	4.2	
MAXIMUM ≤ 32°	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
MINIMUM ≤ 32°	30	1.2	0.1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.3	
MINIMUM ≤ 0°	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
H/C	NORMAL HEATING DEG. DAYS	30	505	358	363	287	218	121	92	68	79	135	306	484	3016
	NORMAL COOLING DEG. DAYS	30	0	0	0	5	0	16	21	28	64	11	0	0	145
RH	NORMAL (PERCENT)	30	78	76	73	71	71	71	73	74	72	72	75	78	74
	HOUR 04 LST	30	86	84	81	81	83	84	86	86	83	82	84	85	84
	HOUR 10 LST	30	79	75	70	65	63	63	65	67	65	68	72	77	69
	HOUR 16 LST	30	66	64	62	59	59	58	59	61	58	59	63	67	61
	HOUR 22 LST	30	80	78	77	76	78	79	82	82	78	77	77	80	79
S	PERCENT POSSIBLE SUNSHINE														
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	61	3.5	2.6	0.4	0.1	0.1	0.0	0.0	0.2	0.6	1.3	2.1	3.0	13.9
	THUNDERSTORMS	71	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.2	2.5
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	55	5.0	5.0	4.6	4.2	3.6	3.0	2.4	2.6	2.6	3.1	4.2	4.7	3.8
	MIDNIGHT-MIDNIGHT (OKTAS)	32	4.7	4.9	4.6	3.9	3.4	3.2	2.6	2.8	2.6	3.0	4.0	4.3	3.7
	MEAN NO. DAYS WITH:														
	CLEAR	69	8.5	7.8	9.5	10.8	13.5	16.2	20.3	18.8	17.9	15.5	11.1	9.4	159.3
PARTLY CLOUDY	69	7.5	7.3	8.7	9.3	9.7	8.6	7.5	8.6	8.2	8.9	8.3	7.5	100.1	
CLOUDY	69	15.0	13.1	12.8	9.9	7.8	5.2	2.8	3.3	3.6	6.5	10.6	14.1	104.7	
PR	MEAN STATION PRESSURE (IN)	26	30.09	30.05	30.03	30.03	29.97	29.95	29.95	29.94	29.93	30.00	30.08	30.11	30.01
	MEAN SEA-LEVEL PRES. (IN)	15	30.12	30.07	30.06	30.05	30.00	29.96	29.96	29.96	29.94	30.01	30.11	30.12	30.03
WINDS	MEAN SPEED (MPH)	40	7.7	9.0	11.0	12.5	13.9	14.1	13.7	12.8	11.5	9.7	8.1	7.9	11.0
	PREVAIL. DIR (TENS OF DEGS)	24	30	30	29	29	29	28	30	30	30	30	30	30	30
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	2	43	43	39	44	37	43	38	32	32	40	41	43	44
	DIR. (TENS OF DEGS)		17	01	26	26	26	26	26	18	26	26	18	29	26
	YEAR OF OCCURRENCE		1997	1997	1998	1997	1997	1997	1997	1997	1997	1997	1998	1998	APR 1997
	MAXIMUM 5-SECOND:														
SPEED (MPH)	2	56	48	46	52	44	53	44	38	39	49	47	51	56	
DIR. (TENS OF DEGS)		16	27	26	27	26	26	26	19	25	29	20	30	16	
YEAR OF OCCURRENCE		1997	1997	1997	1997	1997	1997	1997	1997	1997	1997	1998	1998	JAN 1997	
PRECIPITATION	NORMAL (IN)	30	4.35	3.17	3.06	1.37	0.19	0.11	0.03	0.05	0.20	1.22	2.86	3.09	19.70
	MAXIMUM MONTHLY (IN)	71	11.26	13.64	9.01	6.36	3.81	0.86	0.35	0.66	2.30	7.30	12.30	13.64	
	YEAR OF OCCURRENCE		1993	1998	1958	1958	1957	1967	1977	1976	1959	1962	1973	1955	FEB 1998
	MINIMUM MONTHLY (IN)	71	0.24	T	T	T	T	0.00	0.00	0.00	T	T	0.00	0.01	0.00
	YEAR OF OCCURRENCE		1991	1953	1934	1977	1992	1928	1930	1996	1995	1978	1929	1989	AUG 1996
	MAXIMUM IN 24 HOURS (IN)	71	5.71	3.41	2.46	2.66	1.54	0.83	0.35	0.60	2.30	3.74	2.43	3.33	5.71
	YEAR OF OCCURRENCE		1982	1998	1982	1958	1957	1967	1977	1997	1959	1962	1994	1955	JAN 1982
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	9.8	8.9	10.4	6.1	2.3	0.7	0.4	0.6	1.4	3.6	8.1	9.4	61.7	
PRECIPITATION ≥ 1.00	30	1.4	0.8	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.7	4.6	
SNOWFALL	NORMAL (IN)	30	0.1	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.1
	MAXIMUM MONTHLY (IN)	69	1.5	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.5
	YEAR OF OCCURRENCE		1962	1996	1995									1932	JAN 1962
	MAXIMUM IN 24 HOURS (IN)	69	1.5	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.5
	YEAR OF OCCURRENCE		1962	1996	1995	1987								1932	JAN 1962
	MAXIMUM SNOW DEPTH (IN)	48	0	0	0	0	0	0	0	0	0	0	0	0	0
	YEAR OF OCCURRENCE														
NORMAL NO. DAYS WITH:															
SNOWFALL ≥ 1.0	30	0.*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

PRECIPITATION (inches) 1998 SAN FRANCISCO, CALIFORNIA CA (SFO)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	8.92	8.62	1.34	1.87	T	0.06	T	T	0.02	1.96	0.69	4.59	28.07
1970	8.33	2.18	1.22	0.22	0.01	0.36	T	T	T	0.75	6.41	6.21	25.69
1971	1.27	0.26	2.68	0.77	0.25	T	T	T	0.11	0.03	0.99	3.44	9.80
1972	1.09	1.35	0.18	1.20	T	0.06	T	T	0.30	5.24	5.15	2.40	16.97
1973	8.32	6.82	2.93	0.11	0.07	T	T	T	0.04	1.60	7.94	3.55	31.38
1974	3.21	1.70	4.21	2.32	T	0.14	0.23	T	T	0.93	0.50	2.36	15.60
1975	2.60	3.94	5.91	1.66	0.02	0.04	0.13	0.21	T	2.27	0.26	0.21	17.25
1976	0.37	2.13	1.22	0.92	T	0.01	T	0.66	0.30	0.34	1.37	2.70	10.02
1977	2.22	1.04	2.01	T	0.41	T	0.35	T	0.47	0.15	2.20	3.69	12.54
1978	8.90	4.92	4.90	4.50	0.02	T	T	T	0.26	T	1.67	0.64	25.81
1979	6.61	5.87	2.74	0.69	0.13	T	0.09	T	T	2.20	1.94	4.30	24.57
1980	4.85	7.62	2.65	0.90	0.24	0.03	0.10	T	T	0.10	0.12	1.73	18.34
1981	5.92	2.21	3.60	0.24	0.07	T	T	T	0.28	2.35	4.89	3.91	23.47
1982	8.81	2.82	7.63	3.25	T	0.06	T	T	0.96	1.95	5.34	3.99	34.81
1983	6.83	6.64	8.50	3.11	0.32	T	0.01	T	0.57	0.10	6.03	6.23	38.34
1984	0.46	1.47	1.36	0.68	T	0.03	T	0.11	0.05	1.96	6.12	1.89	14.13
1985	0.74	2.35	3.30	0.12	0.05	0.29	0.03	0.02	0.18	0.69	3.19	1.61	12.57
1986	4.04	8.09	5.84	0.39	0.15	T	0.01	T	0.47	0.02	0.06	1.66	20.73
1987	2.80	3.52	1.98	0.16	0.06	T	T	T	T	0.93	1.64	4.51	15.60
1988	3.92	0.38	0.05	2.02	0.29	0.60	T	T	0.03	0.42	2.31	3.65	13.67
1989	1.25	1.28	4.00	0.78	0.04	0.01	T	T	1.24	1.40	1.34	0.01	11.35
1990	3.06	2.28	0.79	0.20	1.55	T	0.01	T	0.20	0.19	0.28	1.79	10.35
1991	0.24	3.76	6.07	0.61	0.21	0.11	T	0.27	0.04	1.73	0.23	2.70	15.97
1992	2.04	6.44	4.12	0.25	T	0.39	0.00	0.14	T	1.12	0.15	6.04	20.69
1993	11.26	4.68	2.34	0.41	0.55	0.16	T	T	T	0.45	1.47	2.19	23.51
1994	2.50	5.26	0.24	1.12	1.52	0.03	T	T	0.10	0.33	5.73	2.49	19.32
1995	8.89	0.38	8.75	1.41	0.93	0.60	T	T	T	0.03	0.02	6.41	27.42
1996	6.92	6.03	2.89	1.40	1.24	T	T	0.00	T	0.76	2.56	6.97	28.77
1997	7.52	0.31	0.25	0.30	0.21	0.24	T	0.60	T	0.68	6.41	3.87	20.39
1998	8.20	13.64	2.05	2.24	2.37	0.03	T	0.00	0.09	0.62	2.43	0.96	32.63
POR= 71 YRS	4.34	3.47	2.94	1.30	0.39	0.13	0.00	0.01	0.10	0.90	2.17	3.51	19.26

WBAN : 23234

AVERAGE TEMPERATURE (°F) 1998 SAN FRANCISCO, CALIFORNIA CA (SFO)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	47.1	48.9	52.1	54.0	59.5	61.1	62.3	63.0	63.9	61.2	56.1	53.7	56.9
1970	52.4	54.8	56.3	53.7	60.5	60.5	62.9	61.6	65.4	58.5	55.9	48.7	57.6
1971	48.3	50.0	52.1	53.0	56.4	60.1	60.7	65.2	66.2	57.0	53.2	46.1	55.7
1972	45.6	52.0	55.3	55.4	57.6	60.9	64.3	64.0	62.6	61.0	53.2	44.9	56.4
1973	48.0	52.9	51.4	56.7	58.7	63.5	62.1	60.7	63.5	60.7	53.9	50.0	56.8
1974	48.6	49.7	53.4	54.8	56.2	60.4	63.0	63.7	62.5	62.0	53.8	48.6	56.4
1975	47.4	50.9	51.4	50.6	58.4	59.8	61.8	63.0	61.4	58.8	52.2	49.3	55.4
1976	48.5	50.5	51.0	53.3	58.3	63.2	62.5	64.3	63.3	61.3	57.0	48.8	56.8
1977	47.0	53.2	50.9	55.5	55.8	60.4	62.4	64.1	63.5	60.5	55.3	52.3	56.7
1978	52.5	52.8	57.0	54.9	60.4	60.4	61.4	63.2	65.8	61.1	52.5	46.0	57.3
1979	47.5	50.3	54.5	55.5	60.4	61.0	63.8	63.7	67.3	62.6	54.1	50.9	57.6
1980	50.5	54.4	53.0	55.9	56.3	59.9	63.0	61.5	63.2	61.2	55.6	50.7	57.1
1981	51.1	54.0	53.2	56.2	59.0	65.0	61.7	63.0	62.7	58.6	56.3	52.2	57.8
1982	45.1	51.7	51.3	54.6	57.4	59.7	61.7	63.3	64.0	61.1	52.3	48.9	55.9
1983	48.0	53.4	54.1	54.7	57.8	61.5	65.1	66.9	68.3	64.4	55.5	53.4	58.6
1984	51.3	52.9	57.0	56.0	61.8	61.3	65.6	64.4	69.7	60.4	53.8	47.7	58.5
1985	46.4	51.6	51.4	59.0	58.6	65.2	64.8	64.0	63.2	60.7	52.0	47.1	57.0
1986	53.7	56.3	57.1	56.2	58.6	62.5	62.4	61.2	62.9	61.4	57.1	50.3	58.3
1987	49.3	53.3	54.9	59.2	61.6	62.4	63.1	65.1	64.0	63.9	57.0	50.5	58.7
1988	50.6	54.5	56.5	58.1	59.5	62.5	65.3	65.0	63.1	61.4	56.5	50.4	58.6
1989	48.3	48.4	54.9	60.8	59.8	62.7	62.8	64.0	61.4	60.8	56.4	50.1	57.5
1990	49.9	49.2	53.3	58.5	59.0	62.4	64.5	66.3	66.4	63.1	56.0	46.4	57.9
1991	50.1	55.3	52.2	55.7	56.9	59.4	63.7	64.4	62.9	62.8	57.5	50.8	57.6
1992	48.9	56.1	57.4	60.6	63.4	63.6	65.8	63.8	65.3	65.4	56.8	49.8	59.7
1993	49.3	52.5	57.5	58.1	62.2	64.8	64.8	67.3	63.1	63.4	56.3	50.1	59.1
1994	51.5	50.6	56.0	56.8	58.5	61.5	62.1	64.5	64.1	60.1	49.9	48.0	57.0
1995	52.2	54.1	53.9	55.0	57.0	60.8	64.8	63.0	63.2	62.5	58.4	53.7	58.2
1996	51.8	54.9	56.0	59.1	60.4	61.5	63.2	62.7	63.0	60.9	56.3	53.9	58.6
1997	50.9	53.4	56.1	58.2	64.4	62.3	64.0	66.9	68.3	61.8	57.7	51.1	59.6
1998	52.8	52.3	55.0	55.7	57.7	61.6	62.8	64.3	64.3	60.3	54.2	47.0	57.3
POR= 71 YRS	48.6	51.5	53.3	55.2	57.9	60.8	62.1	62.7	63.4	60.5	54.6	49.6	56.7

HEATING DEGREE DAYS (base 65°F) 1998 SAN FRANCISCO, CALIFORNIA CA (SFO)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	86	70	54	113	261	341	384	277	260	331	168	133	2478
1970-71	92	117	59	203	265	495	513	414	394	354	258	154	3318
1971-72	133	21	47	252	349	579	594	368	294	282	226	135	3280
1972-73	64	42	75	131	350	613	521	334	416	241	197	103	3087
1973-74	100	129	76	128	327	459	501	424	354	298	270	145	3211
1974-75	83	54	101	117	329	499	540	387	415	424	220	151	3320
1975-76	109	75	120	188	377	480	504	415	427	344	222	136	3397
1976-77	72	38	79	127	231	494	549	326	432	278	278	141	3045
1977-78	103	48	55	139	284	385	381	335	238	295	161	135	2559
1978-79	111	65	32	143	371	581	536	406	319	277	148	132	3121
1979-80	55	56	13	85	320	431	441	298	366	269	261	155	2750
1980-81	76	109	74	145	275	436	424	301	358	279	180	53	2710
1981-82	112	65	71	197	252	389	611	364	416	307	241	154	3179
1982-83	100	63	47	130	376	491	521	322	330	301	225	113	3019
1983-84	33	1	18	43	281	354	415	342	242	269	124	115	2237
1984-85	43	34	5	147	328	527	570	370	416	180	192	27	2839
1985-86	49	51	60	158	382	546	343	236	239	260	191	78	2593
1986-87	77	113	62	122	228	447	477	320	309	168	128	85	2536
1987-88	60	16	40	70	233	445	440	296	259	212	184	78	2333
1988-89	40	29	71	128	246	447	511	455	308	162	160	94	2651
1989-90	70	38	103	138	249	454	459	437	356	189	185	94	2772
1990-91	33	13	8	77	262	570	454	265	387	273	244	166	2752
1991-92	57	44	65	96	223	434	494	252	226	133	52	58	2134
1992-93	20	49	34	40	235	466	480	346	225	201	100	54	2250
1993-94	33	11	71	67	256	455	408	396	273	238	200	118	2526
1994-95	91	43	46	154	446	522	388	301	338	293	242	143	3007
1995-96	48	79	73	98	192	344	398	289	270	187	149	128	2255
1996-97	75	73	71	155	255	333	431	317	270	194	76	74	2324
1997-98	32	8	2	109	222	422	370	348	301	269	218	109	2410
1998-	81	59	57	147	320	550							

WBAN : 23234

COOLING DEGREE DAYS (base 65°F) 1998 SAN FRANCISCO, CALIFORNIA CA (SFO)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	0	0	0	0	3	3	8	15	26	2	0	0	57
1970	0	0	0	0	34	3	32	21	77	8	0	0	175
1971	0	0	0	0	0	12	5	34	91	11	0	0	153
1972	0	0	1	0	7	14	49	16	8	14	0	0	109
1973	0	0	0	0	7	64	18	2	37	1	0	0	129
1974	0	0	0	0	6	11	27	22	31	30	0	0	127
1975	0	0	0	0	21	4	15	19	19	2	0	0	80
1976	0	0	0	0	21	88	4	23	33	23	0	0	192
1977	0	0	0	0	0	10	30	26	17	5	0	0	88
1978	0	0	0	0	24	0	7	18	62	33	0	0	144
1979	0	0	0	0	11	19	25	21	88	18	0	0	182
1980	0	0	0	0	0	10	22	7	30	33	1	0	103
1981	0	0	0	17	1	61	17	7	7	3	0	0	113
1982	0	0	0	1	12	5	7	15	23	12	0	0	75
1983	0	0	0	0	7	16	42	66	119	32	0	0	282
1984	0	0	0	4	33	10	70	24	152	9	0	0	302
1985	0	0	0	8	1	38	50	28	11	33	0	0	169
1986	0	0	1	2	0	11	5	0	7	16	0	0	42
1987	0	0	0	4	29	15	9	26	17	43	0	0	143
1988	0	0	0	11	19	8	55	34	23	24	0	0	174
1989	0	0	0	40	6	35	8	15	2	16	0	0	122
1990	0	0	0	1	3	23	23	58	58	24	0	0	190
1991	0	0	0	0	0	6	21	29	13	33	2	0	104
1992	0	0	0	9	10	21	53	18	49	58	0	0	218
1993	0	0	0	0	18	58	33	91	19	26	1	0	246
1994	0	0	0	0	4	18	4	30	27	8	0	0	91
1995	0	0	0	0	0	26	48	26	25	29	0	0	154
1996	0	0	0	18	16	30	22	9	21	36	0	0	152
1997	0	0	1	0	65	1	5	78	107	15	7	0	279
1998	0	0	0	0	0	13	23	44	45	6	0	0	131

SNOWFALL (inches) 1998 SAN FRANCISCO, CALIFORNIA CA (SFO)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	T
1971-72	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	T
1972-73	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	T	0.0	0.0	0.0	T
1973-74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1974-75	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	T
1975-76	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	T	0.0	0.0	0.0	T
1976-77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1977-78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1978-79	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	T
1979-80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T
1980-81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	T
1981-82	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	T	0.0	0.0	0.0	T
1982-83	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	T	0.0	0.0	0.0	T
1983-84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984-85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985-86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986-87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	T
1987-88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988-89	0.0	0.0	0.0	0.0	0.0	T	T	T	0.0	0.0	0.0	0.0	T
1989-90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990-91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1991-92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T
1992-93	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	0.0	T
1993-94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	T
1994-95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T
1995-96	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	T
1996-97	0.0	0.0	0.0										
1997-98													
1998-													
POR= 68 YRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	T	0.0	0.0	0.0	T

WBAN : 23234

REFERENCE NOTES:

<p>PAGE 1: THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).</p> <p>PAGE 2 AND 3: H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE. PR INDICATES PRESSURE. CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).</p> <p>GENERAL: T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE. + INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. NORMALS ARE 30-YEAR AVERAGES (1961 - 1990). ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH. POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING. WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS, THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED. 0.* OR * INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05. CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET AND ON SATELLITE DATA FOR CLOUDS ABOVE 12,000 FEET. THE NUMBER OF DAYS WITH CLEAR, PARTLY CLOUDY, AND CLOUDY CONDITIONS FOR ASOS STATIONS IS THE SUM OF THE CEILOMETER AND SATELLITE DATA FOR THE SUNRISE TO SUNSET PERIOD.</p>	<p>GENERAL CONTINUED: CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED. WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65° F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY.</p> <p>ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTHS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.</p>
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1998
SAN FRANCISCO, CALIFORNIA
INTERNATIONAL AIRPORT (SFO)

The station is located in the central Terminal Building of the San Francisco International Airport, which is on flat filled tideland on the west shore of San Francisco Bay. The bay borders the airport from the north to the south-southeast. San Bruno Mountain, 5 miles to the north-northwest, rises to 1,300 feet. A north-south trending ridge of coastal mountains, 4 miles to the west, varies in elevation from 700 to 1,900 feet, being highest southward along the peninsula. The Pacific Ocean west of the ridge is 6 miles from the airport. A broad gap to the northwest of the station, between San Bruno Mountain and the coastal mountains, allows a strong flow of marine air over the station and dominate the local climate.

San Francisco Airport enjoys a marine-type climate characterized by mild and moderately wet winters and by dry, cool summers. Winter rains, occurring from November through March, account for over 80 percent of the annual rainfall, and measurable precipitation occurs on an average of 10 days per month during this period. However, there are frequent dry periods lasting well over a week. Severe winter storms with gale winds and heavy rains occur only occasionally. Thunderstorms average two a year and may occur in any month.

The daily and annual range in temperature is small. A few frosty mornings occur during the winter but the temperature seldom drops below freezing. Winter temperatures generally rise to the high 50s in the early afternoon.

The summer weather is dominated by a cool sea breeze resulting in an average summer wind speed of nearly 15 mph. Winds are light in the early morning but normally reach 20 to 25 mph in the afternoon.

A sea fog, arriving over the station during the late evening or night as a low cloud, is another persistent feature of the summer weather. This high fog, occasionally producing drizzle or mist, usually disappears during the late forenoon. Despite the morning overcast, summer days are sunny. On the average a total of only 14 days during the four months from June through September are classified as cloudy.

Daytime temperatures are held down both by the morning low overcast and the afternoon strengthening sea breeze, resulting in daily maximum readings averaging about 70 degrees from May through August. However, during these months occasional hot spells, lasting a few days, are experienced without the usual high fog and sea breeze. September, when the sea breeze becomes less pronounced, is the warmest month with highs in the 70s. Low temperatures during the summer are in the mid-50s.

A strong temperature inversion with its base usually about 1,500 feet persists throughout the summer. Inversions close to the ground are infrequent in summer but rather common in fall and winter. As a consequence of these factors and the continued population and economic growth of the area, atmospheric pollution has become a problem of increasing importance.

STATION LOCATION

SAN FRANCISCO, CALIFORNIA
INTERNATIONAL AIRPORT

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	NORTH	WEST	ELEVATION ABOVE											REMARKS
						SEA LEVEL	GROUND										
							WIND INSTRUMENT	BAROMETER	HYGROMETER	STATION HEIGHT	SEA SURFACE	RAIN GAGE	WIND INSTRUMENT	RAIN GAGE	8 INCH RAIN GAGE	HYGROMETER	
Administration Building San Francisco Airport	7/?/27	8/?/33		37° 37'	122°23'	1	34	5	5						3	2nd Order Airway Station.	
Administration Building San Francisco Airport	8/?/33	12/02/37	No Change	37° 37'	122°23'	1	43	28	28						27	Instruments relocated. Office moved to 2nd floor. addition (Control Tower).	
Administration Building San Francisco Airport	12/03/37	6/29/55	No Change	37° 37'	122°23'	1	70	41	41			a40		40	b	New Administration Building on same site. 1st Order WB station established 12/22/38. a - Installed May 1944. b - Telepsychrometer (5') 3/14/50.	
New Terminal & Administration Building International Airport	6/29/55	11/01/59	.7 mi. SE	37° 37'	122°23'	8	26	99	99		3	97		97	*	* - Telepsychrometer (5').	
New Terminal & Administration Building International Airport	11/01/59	6/30/61	No Change	37° 37'	122°23'	8	21	99	99		3	97		97	c	Wind equipment relocated to a site 4500 ft. ENE of Terminal Building. c - Telepsychrometer moved 2200' NNE of previous location.	
New Terminal & Administration Building International Airport	6/30/61	Present	No Change	37° 37'	122°23'	8	20 g33	99 h98	99 h98	NA	3 i3	e97		97	df4 14 j4	NA	Tipping bucket rain gage relocated 1650 ft. ENE of Terminal Building. Wind equipment moved to site 4000 ft. E of Terminal Building. d - Hygrothermometer comm. 7/16/63 on telepsychrometer site. e - Decommissioned 7/14/69. f - Telepsychrometer decommissioned 7/14/63. g - Moved 2400' SE 3/10/81. h - Moved 5' NW 2/19/81. i - Moved 4800' SE 2/19/81. j - Moved 4850' WNW & type change 9/30/85.
															S	ASOS Commissioned 10/01/96	

SUBSCRIPTION: Price and ordering information available through: National Climatic Data Center, Federal Building, Asheville, North Carolina 28801.
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