

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
 IN COOPERATION WITH FREMONT CHAMBER OF COMMERCE
 CLIMATOGRAPHY OF THE UNITED STATES NO. 20 - 04

CLIMATOLOGICAL SUMMARY

STATION
 FREMONT, CALIFORNIA

LATITUDE 37° 31'
 LONGITUDE 122° 02'
 LEV. (GROUND) 14 feet

MEANS AND EXTREMES FOR PERIOD 1931-1961

Month	Temperature (°F)								** Mean degree days	Precipitation Totals (Inches)						Mean number of days						Month
	Means			Extremes						Mean	Greatest daily	Year	Snow, Sleet				Precip. .10 inch or more	Temperatures				
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year	Mean					Maximum monthly	Year	Greatest daily	Year		90° and above	32° and below	32° and below	0° and below	
(a)	26	26	26	26		26		26	30	30		30	30		30	29	26	26	26	26		
JAN.	57.9	38.4	48.2	75	1948	22	1950	520	3.21	2.16	1942	0	0		0	7	0	0	6	0	JAN.	
FEB.	60.4	40.9	50.7	78	1943	25	1948	400	2.78	1.51	1944	T	T	1932	T	1932	7	0	0	2	0	FEB.
MAR.	63.8	43.3	53.6	83	1952+	25	1953	350	2.16	1.84	1940	0	0		0	6	0	0	1	0	MAR.	
APR.	67.2	46.0	56.6	87	1957+	32	1945	260	1.07	1.07	1943	0	0		0	3	0	0	*	0	APR.	
MAY	70.4	49.3	59.9	97	1943	35	1950+	180	0.51	1.10	1931	0	0		0	2	*	0	0	0	MAY	
JUNE	73.7	52.4	63.1	104	1960	41	1935+	80	0.10	0.64	1948	0	0		0	*	1	0	0	0	JUNE	
JULY	75.7	54.1	64.9	99	1959+	41	1942	50	T	0.03	1950+	0	0		0	0	1	0	0	0	JULY	
AUG.	75.5	53.8	64.7	99	1946	41	1942	40	0.01	0.20	1935	0	0		0	*	1	0	0	0	AUG.	
SEP.	77.3	52.6	65.0	109	1939	42	1955+	50	0.16	0.57	1939	0	0		0	*	2	0	0	0	SEP.	
OCT.	73.0	49.1	61.1	96	1933	33	1946	130	0.67	1.41	1947	0	0		0	2	*	0	0	0	OCT.	
NOV.	65.8	42.9	54.4	91	1932	26	1946	320	1.37	1.15	1953	0	0		0	3	*	0	1	0	NOV.	
DEC.	59.8	40.0	49.9	79	1933	23	1932	470	2.97	1.82	1955	0	0		0	6	0	0	3	0	DEC.	
Year	68.4	46.9	57.7	109	1939 SEPT.	22	1950 JAN.	2850	15.01	2.16	1942 JAN.	T	T	1932 FEB.	T	1932 FEB.	36	5	0	13	0	Year

(a) Average length of record, years.

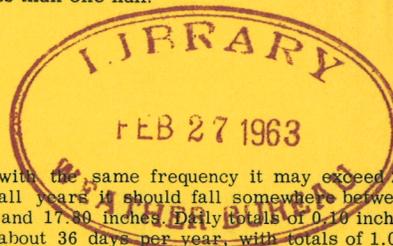
+ Also on earlier dates, months, or years.

T Trace, an amount too small to measure.

* Less than one half.

** Base 65°F (estimated)

THE CLIMATE OF FREMONT



Fremont lies along the east edge of San Francisco Bay near its southern end. To the West, beyond the Bay and at a distance of about 20 miles are the mountains of the San Francisco peninsula, rising to heights of 2800 feet. The Pacific Ocean is some 30 miles west of Fremont. Gaps in this range are found at the Golden Gate, some 22 miles to the northwest and in the vicinity of South San Francisco, some 17 miles to the northwest. Eastward the terrain is made up of a series of ridges, within which lies the Livermore Valley. Elevations of 2500 feet are to be found within 12 miles to the east of Fremont and to 3500 feet at a distance of 18 miles. Much of the land area of Fremont is very close to sea level. At some distance from the Bay, however, the ground within the city rises to elevations of several hundred feet. This variation in terrain results in marked temperature and precipitation differences within the Fremont area. The record summarized below is most representative of the low area close to the water.

inches, and with the same frequency it may exceed 23.00 inches. In one half of all years it should fall somewhere between the limits of 11.80 inches and 17.80 inches. Daily totals of 0.10 inches or more can be expected about 36 days per year, with totals of 1.00 inch or more on only 2 days per year. The distribution of rainfall is such that plants growing without irrigation may be expected to dry up around the first of June in an average year.

As a result of the moderating influence of the nearby water areas, temperatures in Fremont are equable throughout the year. Maximum readings in September, the warmest month, average only 77, and extremes seldom exceed 100. Only rarely are higher values observed; one such occasion was in September 1939, when a maximum of 109 was observed. On the average there are only five days per year with maximum readings of 90 or higher. Even during mid-summer, night temperatures regularly drop into the middle 50s.

Rainfall intensities may occasionally be heavy. It is estimated that with a frequency of about once every two years, on the average, intensities may amount to 0.50 inch in 1 hour, 1.30 inches in six hours, and 1.90 inches in 24 hours. These amounts may be increased to 1.00 inch in an hour, 2.60 inches in six hours, and 4.40 inches in 24 hours with a frequency of once in 100 years.

Minimum temperature readings in January average around 38, with afternoon readings in that month around 58. A low of 22 was recorded in January 1950. Such lows are infrequent and of short duration. Minimums drop below 32 only 13 days in an average year. Freeze probabilities are summarized in the accompanying table.

Relative humidity will average in the lower or middle 80s at night throughout most of the year. Daytime readings will typically drop into the 60s during the winter and into the 50s during the summer. Further from the Bay, afternoon readings may average somewhat lower than this.

The moderate temperature provide heating degree day totals averaging 40 to 50 during each month of the summer, with winter totals amounting to only around 500 degree days per month.

Abundant sunshine is the rule in this area during daylight hours. Winter brings periods of cloudiness as storms move through the area, but there are many clear days even during this season. The characteristic pattern of the summer months is for cloudiness to move into the area during the late afternoon hours, remain overnight, and clear out early in the forenoon.

Precipitation is relatively light, averaging only 15 inches per year. Less than 10% of this total falls in the six-month period from May through October. Annual totals can be expected to vary from year to year. As often as once in 20 years the total may be as little as 8.40

Winds are normally lightest during the Winter except for occasional strong winds associated with migrant storms that move through the area. A strong sea breeze on summer afternoons brings the average wind speed up to around 9 miles per hour during the summer months. Extreme winds of around 35 miles per hour can be expected about once every two years, increasing to 80 to 85 miles per hour as often as once in 50 years.

C. Robert Elfrod
 Weather Bureau
 State Climatologist
 San Francisco, California

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 Calif., Fremont, N.A.

FREMONT, CALIFORNIA
Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	49.6	54.8	58.2	63.8	62.8	65.0	62.8	62.2	58.3	51.0	46.9	57.6	57.6
1932	47.4	50.7	56.2	61.0	62.7	62.7	65.4	63.2	61.4	59.2	46.4	56.8	56.8
1933	47.1	50.8	57.6	61.6	64.6	65.0	65.8	63.2	65.0	57.0	51.9	58.1	58.1
1934	51.1	57.0	61.4	64.9	65.0	65.4	65.8	63.9	62.6	58.2	53.0	61.1	61.1
1935	51.0	54.1	59.8	65.2	64.8	65.2	66.9	63.9	62.0	54.4	52.4	59.1	59.1
1936	51.5	54.2	58.2	60.3	65.4	65.0	66.9	63.9	62.0	54.4	52.4	60.1	60.1
1937	41.8	49.4	55.0	55.4	65.0	64.2	65.0	64.0	61.8	56.5	51.8	57.2	57.2
1938	50.7	52.0	56.0	61.2	62.8	63.6	63.4	60.4	62.8	55.2	51.4	58.3	58.3
1939	49.3	49.3	53.6	58.8	61.4	62.8	63.4	60.4	61.8	55.2	51.4	58.3	58.3
1940	51.6	54.4	57.5	59.6	60.0	64.8	66.0	66.2	62.2	54.5	52.6	59.2	59.2
1941	51.8	54.4	57.2	55.4	63.0	63.4	66.6	66.2	62.0	57.0	53.2	59.7	59.7
1942	50.5	51.0	53.1	54.2	57.2	61.4	64.6	64.2	62.2	59.8	52.2	48.1	48.1
1943	47.8	52.2	52.4	56.0	61.2	62.0	65.1	64.8	66.0	60.4	54.7	57.8	57.8
1944	48.0	48.4	52.4	52.7	59.7	61.5	63.6	63.4	60.4	51.6	49.4	56.3	56.3
1945	44.9	50.2	53.8	57.3	63.8	65.2	62.9	64.6	60.7	52.9	49.4	56.2	56.2
1946	46.0	46.2	54.0	57.8	61.4	64.8	63.8	63.9	57.9	51.0	48.1	53.4	53.4
1947	42.8	50.8	54.6	57.2	61.1	65.2	63.7	64.0	63.4	61.4	49.6	47.2	47.2
1948	41.3	48.0	55.7	55.7	62.0	68.4	68.5	67.9	62.6	56.4	47.8	57.1	57.1
1949	47.8	47.0	54.6	62.1	63.4	68.4	68.5	67.9	62.6	56.4	47.8	57.1	57.1
1950	44.3	47.9	56.4	57.2	61.4	64.1	67.3	64.5	60.3	54.0	47.6	56.5	56.5
1951	47.8	49.1	52.5	53.9	59.1	61.9	64.5	64.0	64.3	60.3	52.0	56.7	56.7
1952	46.6	49.7	50.5	53.3	59.3	60.3	66.4	63.9	65.7	61.7	52.0	50.0	50.0
1953	51.0	49.4	51.1	53.9	57.8	60.8	65.5	64.2	67.5	59.2	55.6	47.4	47.4
1954	48.4	50.4	50.2	57.1	59.7	63.2	65.1	64.1	64.1	59.8	47.4	57.2	57.2
1955	48.4	47.7	51.2	59.7	61.5	63.9	63.9	63.6	59.8	56.5	53.0	58.3	58.3
1956	45.2	46.8	50.3	54.2	59.9	64.3	66.4	64.6	62.0	56.5	53.0	57.8	57.8
1957	49.8	55.2	54.8	59.1	62.7	65.4	65.0	68.3	63.9	53.2	48.0	58.3	58.3
1958	51.1	50.7	55.5	59.1	62.7	65.0	66.2	65.7	64.5	60.2	48.1	57.8	57.8
1959	47.3	50.5	54.9	56.9	62.7	66.2	65.7	64.5	60.2	53.9	47.6	57.8	57.8
1960	46.8	53.3	53.0	56.7	62.7	68.2	67.0	65.9	61.5	53.9	47.6	57.8	57.8
1961	46.8	53.3	53.0	56.7	62.7	68.2	67.0	65.9	61.5	53.9	47.6	57.8	57.8

STATION HISTORY

Weather records in the Fremont, Newark, Alvarado area were started on August 1, 1924. The first station was located 1 1/2 miles west of Alvarado at the plant of the Continental Salt and Chemical Company. Instrumentation included the complete set of climatological and evaporation equipment, and Mr. H. M. Bartlett served as observer. The station operated, however, only until December 31, 1925.

On February 17, 1926, the station was reestablished at the Leslie Salt Company plant, 2 miles south of the earlier location, or 3 miles southwest of Alvarado. Mr. Louis Meyer served as observer, and the record continued until April 18, 1942.

Equipment was moved on April 20, 1942 to the Leslie plant 0.8 miles southeast of Newark and approximately six miles southeast of the former location. Various employees of the salt company served as observers. Among the names appearing on the record are: Mr. Bond, Mr. Sillva, Mr. Steale, and Mr. McGrew. Others have also undoubtedly helped maintain the record during this period.

These observers and the companies they represent, have made valuable contributions to the climatological knowledge of this area. Their regular observations of temperature and precipitation data in good weather and bad has made possible the present summary. To them we offer our sincere thanks.

Max R. McDonough
Assistant State Climatologist

FREEMONT, CALIFORNIA
Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	4.13	1.48	.79	.35	1.54	.33	0	T	T	.14	2.29	6.15	17.20
1932	2.05	3.12	.51	.31	.38	.01	T	T	T	.43	.20	2.82	9.75
1933	5.11	1.96	1.16	.80	.01	0	0	0	T	.43	.01	2.82	11.75
1934	3.71	2.86	T	.30	.50	.35	0	0	T	.50	2.31	2.82	10.92
1935	3.74	2.92	3.18	.12	.22	.12	T	.03	T	.54	.01	1.13	13.76
1936	1.89	5.86	2.92	.84	.22	.12	T	0	0	1.06	2.32	2.90	19.50
1937	3.13	2.60	4.68	1.44	.47	.18	0	0	0	1.19	.81	1.56	9.30
1938	2.14	2.16	1.87	.37	.16	0	T	0	0	.57	1.19	.21	5.61
1939	6.90	4.93	3.18	3.28	.60	0	0	0	0	.58	.91	6.39	26.36
1940	5.22	4.69	1.32	2.37	1.20	0	0	T	T	.18	1.04	5.61	24.88
1941	5.44	2.60	2.43	1.45	T	.01	T	T	T	.51	2.71	2.08	18.87
1942	3.87	3.22	3.36	.27	.60	.23	0	0	0	1.19	3.56	2.07	16.82
1943	1.99	5.88	4.3	.67	.43	0	0	0	0	1.08	1.96	3.57	14.31
1944	4.44	3.22	3.36	.27	.60	.23	0	0	0	1.10	2.36	2.40	11.12
1945	1.63	1.80	1.95	.20	.76	.46	.11	0	.22	0	0	0	10.37
1946	1.61	1.73	2.51	.20	.31	.64	.11	0	.08	0	0	0	12.91
1947	4.2	1.58	2.82	3.28	.19	.01	0	0	0	.59	1.17	1.67	11.21
1948	.97	2.45	4.33	0	.19	.01	0	0	0	1.36	1.22	1.67	11.21
1949	5.18	1.69	1.76	.96	.15	0	0	.03	.05	1.36	3.15	4.19	18.32
1950	2.42	1.88	1.83	.75	.41	.04	0	0	.01	.86	3.14	6.44	17.78
1951	6.63	1.15	4.00	1.38	.04	.17	0	0	T	.25	1.77	6.05	21.76
1952	2.62	1.15	4.00	1.38	.04	.17	0	0	T	.25	1.77	6.05	21.76
1953	2.02	1.15	.93	1.23	.63	.16	0	.12	0	.02	1.29	1.04	8.17
1954	2.42	1.37	2.84	.74	.16	.29	0	0	0	.01	0	1.29	12.05
1955	4.44	1.75	.87	.87	.80	0	0	0	0	.25	1.61	.51	15.25
1956	6.16	.97	1.35	1.35	.83	0	0	0	0	.25	1.61	.51	15.25
1957	2.31	1.96	1.63	1.26	2.38	0	0	0	0	.25	1.61	.51	15.25
1958	4.27	5.53	4.45	3.23	.63	.10	0	.02	0	.05	.04	.16	.85
1959	2.78	3.26	.30	.06	.45	0	0	T	2.61	.05	0	1.24	10.30
1960	5.33	3.41	.98	.93	.45	0	T	T	.02	.17	3.82	1.15	16.26
1961	3.36	1.12	1.92	.82	.74	.18	0	T	.30	.05	2.95	.91	12.44

FREEZE PROBABILITIES

Probability of receiving freezing temperatures after given date in Spring of before given date in Fall.

Season and Temperature	Percentage Probability									Growing Season
	10%	20%	30%	40%	50%	60%	70%	80%	90%	
Spring 280	2/11	2/1	1/24	1/13	1/5	1/1	#	#	#	360
Fall 280	12/13	12/21	12/30	*	*	*	*	*	*	
Spring 320	3/27	3/15	3/6	2/25	2/19	2/12	2/4	1/27	1/15	293
Fall 320	11/17	11/24	11/30	12/4	12/19	12/14	12/19	12/26	*	

Earlier than 1/1.
* Later than 12/31.