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

LATITUDE 38° 30' N.
LONGITUDE 122° 28' W.
ELEV. (GROUND) 255 feet

CLIMATOLOGICAL SUMMARY

STATION St. Helena, California

MEANS AND EXTREMES FOR PERIOD 1931 - 1960

Month	Temperature (°F) Means: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	** Mean degree days	Precipitation Totals (Inches): Mean	Greatest daily	Year	Snow, Sleet: Mean	Maximum monthly	Year	Greatest daily	Year	Mean number of days: Precip. .10 inch or more	Temperatures Max.: 90° and above	32° and below	Min.: 32° and below	0° and below	Month
(a)	30	30	30	30		30		10	30	30		30	30		30		30	30	30	30	30	(a)
Jan.	55.9	35.6	45.8	82	1948	16	1937	572	7.04	4.41	1943	0.3	4.1	1932	4.1	1932	9	0	0	13	0	Jan.
Feb.	60.2	37.8	49.0	84	1932	22	1949+	428	6.33	5.23	1937	T	0.2	1932	0.2	1932	8	0	0	8	0	Feb.
Mar.	65.3	39.5	52.4	88	1934	24	1951	397	4.34	3.09	1940	T	T	1942+	T	1942+	7	0	0	5	0	Mar.
Apr.	71.6	41.9	56.8	96	1931	27	1953	247	2.42	3.10	1941	T	T	1951	T	1951	4	1	0	1	0	Apr.
May	77.3	46.3	61.8	105	1950	31	1933	123	0.96	1.46	1957	0	0		0		2	4	0	*	0	May
June	84.6	49.7	67.2	109	1950	36	1952	29	0.29	0.76	1936	0	0		0		1	8	0	0	0	June
July	90.2	51.3	70.8	114	1931	39	1955	2	0.04	0.49	1958	0	0		0		*	15	0	0	0	July
Aug.	89.2	50.2	69.7	111	1950	38	1942	6	0.05	0.46	1954	0	0		0		*	14	0	0	0	Aug.
Sept	87.2	47.8	67.5	113	1955	35	1945+	22	0.24	3.66	1959	0	0		0		*	12	0	0	0	Sept
Oct.	77.2	43.3	60.8	104	1933	23	1946	132	1.73	2.59	1956	0	0		0		3	3	0	1	0	Oct.
Nov.	67.0	39.3	53.2	92	1955	23	1936+	355	3.07	2.61	1950	0	0		0		5	*	0	6	0	Nov.
Dec.	58.0	36.7	47.4	82	1958	11	1932	525	6.61	5.76	1955	T	1.8	1948	1.8	1948	8	0	0	10	0	Dec.
Year	73.6	43.3	58.5	114	July 1931	11	Dec. 1932	2865	33.12	5.76	Dec. 1955	0.3	4.1	Jan. 1932	4.1	Jan. 1932	47	57	0	94	0	Year

(a) Average length of record, years.

T Trace, an amount too small to measure.

** Base 65°F

+ Also on earlier dates, months, or years.

* Less than one half.

THE CLIMATE OF ST. HELENA

The city of St. Helena lies within the upper half of the Napa River Valley. The valley at this point is at an elevation of about 250 feet, is about 3 miles wide, and drains toward the southeast. Fourteen miles northwest Mt. St. Helena rises to a height of 4344 feet. Mountains parallel the valley on both sides, reaching elevations around 2000 feet about 5 miles to the southwest and 8 miles to the northeast. The valley produces abundantly, with emphasis on fruit trees and grapes, while the nearby mountains provide range for beef production.

The climate of St. Helena is characterized by warm summers, mild winters, and moderate precipitation. The average maximum temperature during July and August is around 90°. During the past 30 years temperatures of over 100° have been observed at some time each month from May through October; the highest reading recorded was 114°. Typically, there are 57 days per year with highs of 90° or warmer, including 11 days with temperatures reaching 100°. During the winter average minimum readings drop to around 36°, with an absolute low of 16°. Heating degree days, computed from a base of 65°, total 2865 per year. Minimums of 32° are recorded about 44 days per year and may occur any time from October through May. The following table shows the probability of receiving 32° or 28° or colder after the given date in the spring or earlier than the given date in the fall.

Prob. of freeze (%)	10	20	30	40	50	60	70	80	90
Spring 32°	4/28	4/18	4/12	4/7	4/2	3/27	3/21	3/15	3/5
Fall 32°	10/17	10/23	10/26	20/30	11/3	11/5	11/8	11/13	11/19
Spring 28°	3/17	3/7	2/27	2/22	2/17	2/12	2/6	1/31	1/22
Fall 28°	11/10	11/19	11/24	12/1	12/4	12/10	12/15	12/22	12/30

The mean annual precipitation amounts to 33.12 inches, 90% of which falls in the six months from November through April. One year in 10 can be expected to produce more than 47 inches of rain, while a year with less than 20 inches can be expected with the same frequency. One half of the years will experience rainfall totalling somewhere between 25 and 40 inches. Most of the rain is associated with general winter storms; only occasionally do local showers produce significant amounts of precipitation in the area. Rainfall intensity will amount to as much as 0.60 inch in one hour, 2.30 inches in 6 hours, and 4.00 inches in 24 hours with a frequency of about once every 2 years. As often as once in 100 years the intensity may reach 1.40 inches per hour, 4.60 inches in 6 hours, and 8.0 inches in 24 hours. Rainfall of 0.10 inch or more can be expected 47 days per year. The pattern of rainfall will vary rather markedly within short distances in the St. Helena area because of the effect of nearby mountains.

Snow falls infrequently. The yearly average is only 0.3 inch, and 2 out of 3 years receive no snow at all. There have been two occasions when as much as 4 inches of snow fell in a single storm, but the accumulation melted quickly.

The wind appears to blow predominantly from a west or northwest direction during the spring and fall months, while wind from a southeasterly direction is characteristic of the winter and summer period. Winds as strong as 40 mph are likely to occur every other year, and once in 100 years the wind speed may reach 85 mph. In general, however, wind movement in the valley is quite light.

Indications are that relative humidity will average from 50% to 90% during the winter, while summer readings would be from 30% to 50%. The higher values in each case would be characteristic of the night hours. A typical year will show 243 clear days, 37 partly cloudy days, and 85 cloudy days. Fog may occur occasionally at any time of the year.

C. Robert Elford
Weather Bureau State Climatologist

ST.HELENA, CALIFORNIA

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	46.6	51.6	55.6	59.0	63.3	65.8	72.2	68.4	63.4	57.6	50.0	44.0	58.1
1932	45.0	47.4	55.0	54.5	62.4	67.9	69.9	69.8	67.9	60.5	57.8	42.2	58.4
1933	41.1	46.6	52.6	56.0	55.6	64.0	70.4	70.0	65.3	63.4	56.1	46.6	57.3
1934	48.7	50.2	58.8	58.6	63.5	65.7	68.8	69.6	66.4	60.7	53.9	47.3	59.4
1935	45.4	48.8	47.4	55.8	59.8	69.6	68.6	69.1	65.6	58.9	50.8	47.0	57.2
1936	49.0	49.2	54.2	56.4	62.8	67.6	70.2	71.2	67.1	62.0	52.6	45.3	59.0
1937	37.8	46.6	52.6	53.6	62.7	67.0	70.6	70.3	66.2	62.4	55.3	50.5	58.0
1938	45.8	48.4	49.4	54.8	62.9	67.6	70.4	68.8	67.8	59.2	52.2	49.3	58.0
1939	46.4	47.0	52.6	60.6	63.3	67.4	71.4	69.8	69.6	61.4	54.4	50.4	59.5
1940	49.0	51.8	54.6	57.9	64.1	69.5	69.4	69.5	65.1	61.3	52.0	50.3	59.5
1941	49.0	51.2	54.9	54.9	62.3	66.0	71.8	69.2	66.7	59.4	54.0	47.9	58.9
1942	47.1	48.9	51.2	55.2	58.9	67.7	71.2	69.8	65.2	60.8	51.8	47.3	57.9
1943	48.1	50.6	53.7	58.0	64.6	64.5	70.2	69.3	68.9	60.2	54.2	48.8	59.3
1944	46.3	48.2	53.8	53.6	61.9	65.0	69.2	69.9	69.1	61.4	50.6	49.5	58.2
1945	45.6	50.8	48.7	58.6	59.4	69.0	72.6	69.5	68.2	62.0	51.8	47.6	58.6
1946	45.9	45.0	51.2	56.8	61.3	65.7	71.2	69.8	67.4	58.9	50.8	47.0	57.6
1947	42.2	51.0	54.2	60.0	64.9	68.0	69.2	69.2	68.9	60.5	50.4	45.2	58.6
1948	49.8	46.4	48.5	52.1	58.4	67.0	69.6	68.8	66.4	60.5	52.1	42.0	56.8
1949	39.2	44.9	51.1	59.4	61.7	68.2	69.8	68.0	68.5	59.3	56.6	44.9	57.6
1950	41.7	49.0	50.6	58.6	62.6	66.0	72.0	72.5	68.0	60.9	57.2	50.0	59.1
1951	46.2	48.6	52.7	56.1	62.8	66.4	70.2	69.2	67.6	60.2	52.8	45.4	58.2
1952	43.2	48.4	49.4	57.7	63.0	63.5	72.2	70.4	69.3	62.1	50.7	47.5	58.1
1953	50.9	51.3	51.8	54.8	57.8	64.7	71.8	68.4	69.4	60.3	53.6	49.4	58.7
1954	46.2	50.1	49.2	58.5	63.5	66.8	71.9	67.1	65.8	60.0	52.4	44.8	58.0
1955	43.3	47.5	52.0	51.1	62.8	66.1	69.4	70.0	68.4	61.8	52.6	49.4	57.9
1956	47.5	46.9	52.1	55.7	61.2	67.9	70.3	69.2	67.6	59.2	55.5	46.9	58.3
1957	43.0	51.2	53.1	57.9	60.8	70.5	71.0	69.1	67.6	58.8	51.4	47.3	58.5
1958	47.4	53.2	48.6	57.2	63.3	67.3	70.8	73.5	71.5	64.2	55.6	52.7	60.5
1959	49.4	48.9	56.3	61.7	61.7	70.5	73.0	71.1	67.4	65.5	54.3	48.1	60.6
1960	46.1	50.6	54.8	56.7	61.3	71.1	72.4	70.3	67.6	61.7	51.3	47.0	59.2

ST.HELENA, CALIFORNIA

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	6.88	1.60	3.02	0.85	1.31	0.78	0	0	0	2.26	2.50	14.38	33.58
1932	3.47	1.95	1.05	1.08	1.83	0.08	0	0	0	0.06	1.16	4.53	15.21
1933	7.86	1.17	4.52	0.07	2.03	T	0	T	0.11	2.72	T	8.98	27.46
1934	2.26	5.36	0.75	0.98	1.60	0.56	0	0.08	0.07	2.17	5.53	3.51	22.89
1935	8.92	2.51	6.51	6.24	T	0	T	0.25	0.02	1.32	1.22	3.26	30.25
1936	9.63	14.91	1.81	2.28	0.32	1.36	0.07	0.01	T	0.37	T	2.92	33.68
1937	5.45	10.61	6.46	1.35	0.05	0.77	0.16	0	0	0.90	5.94	8.24	39.93
1938	6.45	13.32	9.70	2.67	0.05	0	0	0	0.37	1.55	2.09	1.87	38.07
1939	4.39	1.73	2.96	0.17	1.04	T	T	0	T	0.21	0.41	3.31	14.22
1940	13.48	14.10	7.96	1.69	1.33	0.04	0	0	0.13	1.77	2.87	17.02	60.39
1941	11.72	9.83	6.39	6.06	1.39	0.49	0	0.03	0.04	1.58	3.43	12.11	53.07
1942	7.92	9.43	4.55	6.73	1.78	0	0	0	0.01	1.00	6.31	5.16	42.89
1943	11.92	2.18	3.34	2.54	0.02	0.05	0	0	0	0.72	1.27	2.50	24.54
1944	5.56	7.78	3.68	2.58	1.39	0.25	0	0	T	2.27	6.36	3.43	33.30
1945	3.14	6.53	4.68	0.47	1.19	T	T	T	0	5.32	5.81	11.79	38.93
1946	1.59	2.59	2.77	0.42	0.43	0	0.15	0	0.05	0.22	5.20	3.27	16.69
1947	1.22	3.76	6.07	0.51	0.45	1.28	0	0	T	5.96	0.74	1.22	21.21
1948	2.76	1.64	5.18	7.17	0.97	0.18	0	T	0.12	0.87	1.65	5.33	25.87
1949	2.71	3.74	7.41	0.02	0.42	T	0.02	0.13	T	T	2.89	3.02	20.36
1950	10.32	5.26	3.28	1.43	0.58	T	0	0	0.01	4.71	7.67	9.58	42.84
1951	6.77	3.31	1.77	1.52	1.35	T	0	0.03	0.05	2.93	6.27	10.09	34.09
1952	14.19	4.12	5.68	1.16	0.16	0.76	0.02	0	T	0.02	3.21	17.33	46.65
1953	7.86	0.07	4.94	4.23	1.28	0.48	0	0.13	T	1.13	5.03	1.21	26.36
1954	9.54	5.66	5.73	3.15	0.35	6.20	0.15	0.70	0.02	0.44	5.24	5.17	36.35
1955	3.31	2.09	0.57	3.81	T	0.02	T	T	0.53	0.27	3.08	24.32	38.00
1956	11.97	10.88	0.34	1.90	0.88	0.04	0.01	0	0.15	3.30	0.11	0.48	30.06
1957	4.94	8.22	3.28	2.40	4.53	0.50	0	0	1.70	7.14	1.19	5.70	39.60
1958	8.98	15.74	8.59	6.90	0.86	0.93	0.49	T	0.04	0.08	0.27	2.43	45.31
1959	8.90	8.16	1.54	0.44	0.30	0	T	T	3.66	T	0.03	2.45	25.48
1960	7.14	11.51	5.66	1.81	1.01	0	T	0	0.01	0.67	4.69	3.63	36.13

STATION HISTORY

The first weather station at St. Helena was established October 20, 1907. Standard Weather Bureau equipment, consisting of maximum and minimum thermometers, a Cotton Region Shelter, and a 8-inch rain gauge, was located within the city limits on Main Street between Adams and South Pine. The elevation was reported to be 255 feet. Observations were made at this location until June 1910 by Mr. B. F. Kettlewell and were continued here by Mr. Frank Kettlewell until August 31, 1911. The station was relocated at that time, but the exact location of the new site is unknown. Mr. E. E. Hooper served as observer until August 1916, and Mr. Bornhorst succeeded him until May 1918.

The station was then moved to the residence of Mr. F. B. Mackinder, owner and publisher of the St. Helena Star. This location was reported to be 0.4 mile northwest of the previous location and 0.2 mile northwest of the post office. The equipment was located on the ground in a yard at the rear of the Mackinder residence.

STATION HISTORY - (con't)

On July 1, 1921, Mr. Edwin Paulson, then a linotype operator, assumed the duties of official observer, and the station was moved to the Paulson Ranch, approximately 0.6 mile east northeast of the post office. The station has remained at this location until the present time, except for moving the rain gauge about 80 feet in November 1950. In addition to his monthly reports to the Weather Bureau, Mr. Paulson, assisted by his brothers, has furnished weekly data for the California Weekly Weather and Crop Bulletin and for newspaper publication. Since the present summary covers a 30-year period, it is made up entirely of data observed by Mr. Paulson.

It is only as a result of the generous public service of these observers that this description of the climate of St. Helena is possible. We are grateful to them.

Max R. McDonough
Assistant State Climatologist