U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
IN COOPERATION WITH SANTA ROSA CHAMBER OF COMMERCE
CLIMATOGRAPHY OF THE UNITED STATES NO. 20 — 4

LATITUDE 38° 27' N
LONGITUDE 122° 43' W
ELEV. (GROUND) 167 FEET

CLIMATOLOGICAL SUMMARY

STATION SANTA ROSA, CALIFORNIA

MEANS AND EXTREMES FOR PERIOD 1926 - 1955

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		30	30	30		30	30		30		30	30	30	30	30	
JAN	57.1	35.7	46.4	74	1932	17	1937	580	5.67	3.77	1954	T	T	1952+	T	1952+	9	0	0	12	0	JAN.
FEB	62.3	37.9	50.1	85	1930	20	1929	420	4.79	4.20	1937	0	0		0		7	0	0	8	0	FEB.
MAR	66.6	39.5	53.1	91	1926	26	1955+	370	3.92	3.04	1940	T	T	1951+	T	1951+	7	*	0	5	0	MAR.
APR	70.1	40.1	55.1	95	1931	26	1929	300	2.53	3.06	1926	T	T	1929	T	1929	5	*	0	1	0	APR.
MAY	75.0	44.6	59.8	104	1950	31	1950	170	0.82	1.18	1940	0	0		0		2	2	0	*	0	MAY
JUNE	80.2	47.9	64.1	108	1929	37	1952+	50	0.39	1.36	1929	0	0		0		1	5	0	0	0	JUNE
JULY	83.6	49.2	66.4	109	1931	40	1948	0	0.02	0.20	1946	0	0		0		*	7	0	0	0	JULY
AUG	83.4	48.8	66.1	106	1946	40	1938+	0	0.06	1.15	1954	0	0		0		*	5	0	0	0	AUG.
SEPT	83.3	47.7	65.5	108	1955	34	1950+	50	0.97	0.38	1938	0	0		0		*	7	0	0	0	SEPT.
OCT	77.7	44.3	61.0	103	1933	26	1946	130	1.38	2.05	1944	0	0		0		3	7	0	1	0	OCT.
NOV	67.7	39.2	53.5	91	1932	24	1938+	350	3.62	3.16	1927	0	0		0		5	*	0	6	0	NOV.
DEC	58.4	37.0	47.7	80	1926	15	1932	540	6.04	4.33	1950	T	T	1932	T	1932	8	0	0	10	0	DEC.
Year	72.1	42.7	57.4	109	JULY 1931	15	DEC. 1932	2960	30.21	4.33	DEC. 1950	T	T	JAN. 1952+	T	JAN. 1952+	47	33	0	43	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.

ESTIMATED FROM MEAN TEMPERATURES

CLIMATE OF SANTA ROSA, CALIFORNIA

Santa Rosa is located in the east-central portion of the Petaluma-Santa Rosa-Russian River Valley which extends northwestward from San Pablo Bay becoming a level valley about 8 miles in width at Santa Rosa about 28 miles from San Pablo Bay and 45 miles from the Golden Gate. The Valley lies parallel to the Pacific coast with only low hills, generally ranging from 300 to 500 feet between the Valley and the ocean just 20 miles southwest of Santa Rosa. Hills rise immediately from the eastern edge of the city to elevations of 400 to 500 feet about one mile to the north-northwest through south-southeast except for a narrow break immediately to the east into the Sonoma Valley. The general topography rises eastward to elevations of about 2000 feet in the Mayacamas Range just 10 miles from Santa Rosa, the first of the coastal ranges separating Santa Rosa from the Sacramento Valley 35 miles to the east.

The proximity of the ocean and the surrounding topography, primarily the lack of any effective mountain barrier southwest of Santa Rosa, join with the westerly circulation in producing prevailing southerly flow the year around with a resulting mild, maritime climate. The distance from the ocean and the immediate coastal hills is sufficient, however, to offer considerable modification to Santa Rosa's climate, and there are wide ranges in daily and monthly temperatures. For example the average diurnal range or the range between the average daily maximum and minimum for the year at Santa Rosa is more than 29° compared to only 12° at San Francisco just 50 miles to the south. The mean number of days with temperatures 32° or below in January at Santa Rosa is 12, but in the 1926-1955 period one January had 28 and one only 2. Again, the mean number of days with temperature 90° and above in July is 7, but July 1931 had 21 days, and July 1949 had none. The same wide variation holds for precipitation: Although the mean annual and seasonal precipitation is 30.21 inches, 1939 had only 12.58 inches while 1940 had 52.66 inches; seasonal precipitation has ranged from an all time low of 13.25 inches in 1919-20 to 56.06 inches in 1889-90.

Due to the northward displacement and strengthening of the Pacific high pressure area during the summer months and its weakening and more southerly position during the winter, there are definite winter-rainy and summer-dry seasons. On the average, approximately 85 percent of the annual rainfall occurs between November 1st and April 30th. The average number of days per year with measurable precipitation is 67, the only on 47 of these days is 0.10 inch or more measured. Rainfall intensities of about 0.75 inch in an hour and 3.00 inches in 24-hours can be expected to recur about once in two years. Thunderstorms occur on an average of about three days a year and in any month, and hail occurs on about two days a year.

Snowfall is infrequent, a trace being the most recorded during the 1926-1955 period, and during 24 of these 30 years no snowfall at all occurred. But the unusual can happen, and on January 6, 1907, three inches of snow fell, for the greatest amount in 58 years of record.

The 20 miles of coastal hills and valley between Santa Rosa and the ocean permits considerable land heating and fairly high air temperatures before the cool sea breeze reaches the area in the summer months. Primarily due to this warm summer there is a 27° range between the average daily highs of the warmest month, July, and the coldest month, January, while there is only a 14° difference between the mean minimum temperatures for the same months. The average last date in the spring with temperatures of 32° or below is March 27th, and the average first date in the fall November 7, with 225 days between the last freezing temperature in the spring and the first in the fall. The average last date of 28° or lower in the spring is February 14, and the average first occurrence in the fall November 23, with 282 days between these dates. Temperatures of 24° or below occur in less than one-half of the winters.

A summary of the Santa Rosa AAF 1943-1945 records shows about 10 to 15 sunny days a month occurring even in the winter rainy season with low overcast conditions occurring with the same frequency. Ground fog is fairly common during winter mornings, occurring on about 8 to 10 days a month but generally breaking by noon. The frequency of low cloudiness decreases in March and April and becomes less persistent. With increased frequency and strength of the southwesterly and southerly winds low stratus overcast from the Pacific increases in the summer mornings, occurring on about 15 days a month in July and August but almost always clearing before noon. The frequency of morning stratus then decreases in the fall, and with decreased solar heating again becomes more persistent.

Generally, the prevailing winds are from the northwest in the winter months and southerly the remainder of the year. Average hourly wind speeds from the Santa Rosa AAF station ranged from 4 to 5 mph in the months September to January increasing to more than 7 mph in April, May, and June.

Santa Rosa is the county seat of Sonoma County, an important fruit growing region. The principal crops are apples, cherries, grapes, pears, prunes, and walnuts. The County contains 34 percent of California's apple acreage and about 94 percent of the State's total Gravenstein apple acreage. Sonoma County also has about 17 percent of the State's prune acreage and is famous for its wine grapes.

Robert F. Dale
Weather Bureau State Climatologist
San Francisco, California

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1926	43.4	52.2	56.7	59.6	61.9	65.1	67.5	66.5	62.1	62.5	57.6	47.4	58.5
27	48.6	51.4	51.8	54.4	59.5	64.6	65.5	64.9	64.4	61.2	54.5	46.6	57.3
28	47.3	50.7	55.4	55.2	60.5	64.5	64.0	64.0	63.2	58.5	52.0	44.6	56.7
29	43.8	47.6	51.6	51.4	58.6	64.4	65.2	65.4	63.4	61.6	52.8	51.0	56.4
30	45.6	53.3	54.4	56.0	55.8	62.8	63.4	65.0	62.8	60.7	54.6	45.8	56.7
31	48.3	53.6	55.2	57.7	64.0	65.5	70.4	66.4	63.2	59.6	51.8	45.9	58.5
32	46.0	49.0	55.6	54.0	59.2	64.0	65.6	65.2	66.4	60.2	57.1	43.0	57.1
33	43.1	47.2	53.2	54.8	55.2	61.6	66.6	65.6	63.9	63.8	55.0	47.0	56.4
34	48.9	53.0	59.0	58.7	61.1	63.8	65.2	66.5	65.6	60.5	54.6	49.0	58.8
35	46.4	50.6	50.2	57.8	60.9	67.3	66.4	67.4	65.4	60.4	50.8	47.6	57.6
36	50.6	50.6	56.1	57.8	63.2	66.2	70.1	68.4	68.0	63.5	53.8	47.5	59.6
37	41.0	48.1	53.9	54.7	61.6	65.5	68.0	67.7	66.3	63.8	55.5	52.3	58.2
38	49.5	51.4	51.8	-	-	-	-	66.4	67.1	61.0	51.7	51.2	-
39	48.6	49.4	53.4	58.8	61.7	64.4	67.3	66.8	69.0	62.8	54.8	51.4	59.0
40	50.4	52.9	55.8	58.4	60.6	65.5	66.1	66.5	64.5	60.6	52.3	51.4	58.8
41	50.2	52.2	55.4	54.6	61.4	64.3	67.5	66.6	65.6	60.7	54.8	49.2	58.5
42	48.2	50.0	53.1	55.8	58.2	64.6	67.7	66.2	64.4	62.0	53.8	48.8	57.7
43	48.6	51.8	54.6	56.8	62.4	62.0	66.0	66.1	67.6	61.0	55.3	49.4	58.5
44	47.2	49.5	54.2	53.1	59.4	52.4	64.2	66.4	67.0	62.0	51.6	48.3	57.1
45	46.2	52.6	49.8	57.5	57.6	66.8	67.1	66.4	66.8	61.4	53.4	48.0	57.8
46	46.0	46.4	51.8	54.8	58.0	63.3	67.4	65.2	65.6	58.6	50.6	46.6	56.2
47	43.0	51.1	54.3	58.6	61.5	65.8	66.2	66.3	66.5	60.4	50.5	45.6	57.4
48	47.9	46.8	48.9	52.2	56.4	63.0	65.2	65.6	64.2	60.2	52.2	42.9	55.5
49	39.7	45.3	51.9	57.5	59.2	65.2	64.8	64.7	66.2	58.4	55.5	44.8	56.1
50	52.9	48.9	50.8	56.5	59.0	62.5	66.1	68.5	66.1	60.6	56.9	50.9	57.5
51	46.6	48.8	52.6	53.7	60.0	62.3	65.2	65.9	64.9	60.7	53.1	46.3	56.7
52	44.1	49.9	48.8	55.8	60.5	60.3	66.6	65.9	67.3	61.8	50.3	47.4	56.6
53	49.9	50.5	50.7	53.7	56.4	62.1	67.4	65.6	67.5	59.8	53.4	48.5	57.1
54	46.4	49.8	49.3	57.2	60.1	64.7	68.0	64.6	65.0	60.4	51.7	43.9	56.8
55	43.1	47.6	51.2	51.6	60.3	62.6	66.6	66.0	65.3	60.4	51.4	49.3	56.3
* 56	47.5	46.1	51.3	54.8	59.6	65.6	65.6	66.8	65.8	58.4	52.7	45.3	56.6
* 57	43.0	50.2	52.0	57.1	59.0	68.1	67.7	66.8	67.0	59.0	51.1	46.5	57.3

* Not included in Means and Extremes Table.

STATION HISTORY

The first weather station at Santa Rosa was established July 1, 1888, at the Southern Pacific Railroad Depot, approximately ¼ mile west of the post office. Instruments consisted of a thermometer on the outside depot wall and a 3-inch rain gage. On June 1, 1902, a standard Cotton Region shelter with maximum and minimum thermometers with floor 4 feet above ground and a standard 8-inch rain gage with top 3 feet above ground, were installed in a vacant lot across the right-of-way from the depot. Observations were made at this location by the station agent until July 31, 1923.

In August of 1923 the instruments were moved approximately ½ mile north-northeast to another ground exposure in the rear of a lot at 913 College Avenue, about ⅜ mile north of the Post Office. Mr. M. W. Allen took weather observations at this location until May of 1928, when the instruments were moved about ½ mile east to the Newberry residence, 626 Monroe Street, seven blocks northeast of the Post Office. The shelter and rain gage were located in the yard, the floor of the shelter 4 feet above ground and the top of the rain gage 3 feet above ground. With the exception of a move 40 feet south-southwest for a better exposure on November 25, 1941, the station has continued in the same location, and Mrs. C. S. Newberry has taken the observations at this location continuously to the present time.

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1926	8.84	6.88	0.25	9.58	0.40	T	0.02	0.03	0.02	1.37	12.64	2.91	42.94
27	6.82	10.93	3.68	3.47	0.43	0.40	0.01	0.01	0.01	1.98	7.48	3.71	38.93
28	3.10	3.52	6.96	1.97	0.18	0	0	0	T	0.34	4.28	5.02	25.37
29	1.48	2.10	2.10	1.30	0.13	2.48	0	0	0	0.04	0	12.47	22.10
30	5.40	3.91	2.53	1.53	0.62	0	0	0	0.44	0.87	1.40	0.62	17.32
31	6.52	1.87	2.94	0.49	0.90	0.67	0	0	0	1.40	2.27	11.29	28.35
32	3.45	1.49	1.21	1.43	1.65	0	T	0	0	0.08	1.69	4.06	15.06
33	6.40	1.51	4.64	0.12	2.23	T	0.02	0	0.17	2.02	0	8.14	25.25
34	1.75	4.69	1.13	0.73	1.39	1.00	0	T	0.03	2.28	5.19	3.45	21.64
35	7.36	3.50	6.31	6.87	0	0	0	0.12	0.23	1.02	1.47	3.09	29.97
36	7.77	11.81	1.58	1.86	0.61	0.80	T	0.03	0	0.22	0.02	2.90	27.60
37	4.92	8.59	6.31	1.87	0.19	1.28	0.05	0	T	1.06	7.47	5.40	37.14
38	4.77	9.66	8.03	2.45	0.06	0	0.02	0	0.38	2.18	2.22	2.14	31.91
39	3.36	1.61	2.41	0.14	1.12	T	0	0	0.08	0.52	0.46	2.88	12.58
40	10.87	12.31	7.14	1.84	1.96	0.07	0	0	0.50	1.82	2.59	13.56	52.66
41	11.02	8.22	5.59	6.71	1.84	0.30	0	T	0.13	1.53	2.98	9.12	47.44
42	6.50	8.65	3.78	5.58	1.67	T	0.02	0	0.15	1.23	5.75	5.80	39.13
43	9.28	2.73	4.85	2.67	0.05	T	0.03	0	0	0.68	1.16	2.38	23.83
44	5.07	7.66	2.25	2.15	1.58	0.28	0	0	0.02	2.45	5.90	4.22	31.58
45	3.13	4.92	5.82	0.33	1.39	T	T	0	T	2.91	4.23	10.37	33.10
46	2.32	2.98	2.20	0.10	0.47	0	0.20	0	0.06	0.28	4.08	3.66	16.35
47	0.76	3.82	4.94	0.65	0.40	1.63	0	0	T	5.28	1.55	1.22	20.25
48	4.18	1.51	5.57	7.61	1.03	0.25	0.06	T	0.13	0.85	1.87	4.67	27.73
49	1.39	3.32	6.83	0.08	0.74	0	0.05	0.04	0.02	0.02	2.12	2.79	17.40
50	10.12	5.15	3.29	1.31	0.56	0.06	0	0	0	3.46	7.19	9.38	40.52
51	5.14	2.84	1.25	1.27	1.48	T	0	0.01	0.04	2.68	6.26	8.01	28.98
52	10.19	2.88	4.62	0.84	0.57	1.38	0.04	0	0.05	0.08	2.73	14.72	38.10
53	6.74	0.08	3.17	3.91	0.57	0.97	0	0.17	0	1.31	4.64	0.96	22.52
54	7.80	3.19	5.75	3.23	0.37	0.27	T	1.35	T	0.90	5.64	4.43	32.91
55	3.63	1.22	0.60	3.68	0.01	0	0	0	0.45	0.51	3.28	17.89	31.27
* 56	11.78	6.15	0.31	2.48	1.28	.10	.00	.00	0.17	2.28	0.23	0.38	25.16
* 57	3.85	5.57	2.49	2.32	3.93	.08	.00	.00	2.16	6.16	0.93	3.99	31.48

* Not included in Means and Extremes Table.

STATION HISTORY – Cont.

Since only one move of the station was made during the 30-year period from 1926 to 1955, and records at the two locations are compatible, a complete 30 years have been used in the means and extremes table. Due to a defective minimum thermometer, however, the minimum temperatures from April through July of 1938 were not used in computing the means, and those months are omitted from the average temperature table.

Additional aviation weather observations were made by the U. S. Navy at the Naval Air Station, Steiner Field about 3 miles NNW of Santa Rosa, and at Cotati, about 6 miles south of Santa Rosa and by the U. S. Army Air Force at the Air Field about 6½ miles northwest of Santa Rosa, but exact instrumentation and periods of record are unknown. A supplementary aviation weather reporting station was established at the Sonoma County Airport, near the former location of the Army Air Force Station, 6½ miles northwest of Santa Rosa on February 1, 1947, with anemometer, which was installed in August, 1949, 63 feet above ground and psychrometer, installed in June 1950, 16 feet above ground. Observational records for these stations are on file at the National Weather Records Center, Asheville, North Carolina.