CORRECTION TO SANTA CRUZ CLIMATOLOGICAL SUMMARY

The third sentence of the third paragraph of the narrative summary should be changed to read:

"There is only a 10% chance of having freezing temperatures after April 2nd or prior to November 18th."

The table in the lower left corner should read:

Probability (per cent)	10	20	30	40	50	60	70	80	90
Spring	4/2	3/21	3/13	3/6	2/27	2/20	2/11	1/30	1/9
Fall	11/18	11/22	11/25	11/30	12/3	12/8	12/15	12/31	#

One year in 10 there is no 32° temperature before Dec. 31.

It should be recognized that minimum temperatures vary markedly within short distances. Near the water frost is rare.

LIBRARY
NOV 22 1961
WEATHER BUREAU

M82.2/73
4587cl
no. 20-4
Calif. - Santa Cruz.

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
In Cooperation With Greater Santa Cruz Chamber of Commerce

LATITUDE 36° 59′ N
LONGITUDE 122° 01′ W
ELEV. (GROUND) 125 feet

CLIMATOLOGICAL SUMMARY

MEANS AND EXTREMES FOR PERIOD OF RECORD 1931 - 1960

CLIMATOGRAPHY OF THE U. S.
STATION - Santa Cruz, California

LIBRARY
NOV 28 1961
WEATHER BUREAU

Month	Temperature (°F) Means: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Record lowest	Mean degree days	Precipitation Totals (Inches): Mean	Greatest daily	Snow, Sleet, Hail: Mean	Maximum monthly	Greatest daily	Mean number of days: Precipitation .10 inch or more	Temperatures Max.: 90° and above	32° and below	Min.: 32° and below	0° and below	Relative Humidity: Clear	Partly Cloudy	Cloudy	8 a. m.	4 p. m.	Month
(a)	29	29	29	29	29	10	29	29	30	30	30	29	29	29	29	29	17	17	17	3	3	(a)
Jan.	59.5	38.2	48.9	80	22	505	6.94	4.26	0.1	2.0	2.0	9	0	0	6	0	15	6	10	82	77	Jan.
Feb.	61.3	40.0	50.7	85	24	399	5.95	5.01	T.	T.	T.	8	0	0	4	0	12	7	9	81	76	Feb.
Mar.	64.3	41.1	52.7	84	28	394	4.33	4.16	0	0	0	7	0	0	1	0	16	8	7	72	72	Mar.
Apr.	67.5	42.8	55.2	83	31	309	2.17	3.46	0	0	0	4	*	0	*	0	15	10	5	73	67	Apr.
May	70.6	45.8	58.2	98	33	205	1.00	1.51	0	0	0	2	*	0	0	0	15	9	7	72	56	May
June	74.3	48.0	61.2	102	36	125	0.20	0.98	0	0	0	1	1	0	0	0	17	9	4	76	56	June
July	75.2	50.7	63.0	105	40	81	0.03	0.53	0	0	0	*	*	0	0	0	20	9	2	80	58	July
Aug.	75.4	50.5	63.0	97	39	92	0.06	0.69	0	0	0	*	1	0	0	0	20	10	1	79	62	Aug.
Sept	77.2	49.4	63.3	106	36	82	0.27	2.71	0	0	0	*	3	0	0	0	21	7	2	73	70	Sept.
Oct.	73.6	46.0	59.8	99	30	170	1.39	2.49	0	0	0	3	1	0	*	0	20	7	4	70	74	Oct.
Nov.	68.2	41.4	54.8	92	26	318	2.76	5.06	0	0	0	4	*	0	1	0	19	6	5	71	75	Nov.
Dec.	61.8	39.4	50.6	87	25	438	6.62	4.56	T.	T.	T.	7	0	0	3	0	14	8	9	74	76	Dec.
Year	69.1	44.4	56.8	106	22	3118	31.72	5.06	0.1	2.0	2.0	45	6	0	15	0	204	96	65	75	68	Year

(a) Average length of record, years.

T Trace, an amount too small to measure.

+ Also on later dates, months or years.

* Less than one half.

THE CLIMATE OF SANTA CRUZ

The city of Santa Cruz lies on the shore of the Pacific Ocean at the north end of Monterey Bay, in an area famous for its flowers and its recreational opportunities. The rugged coastal mountains rise sharply to the north of the city. Ben Lomond Mountain reaches an elevation of a little more than 2500 feet just 13 miles northwest of town, while the Santa Cruz Mountains reach 2500 to 3500 feet about the same distance to the north and northeast. Between these two highlands the San Lorenzo River drops about 2500 feet within a distance of 20 miles, flowing through Santa Cruz as it reaches the sea.

As a result of its proximity to the ocean the Santa Cruz area is characterized by mild temperatures. The mean maximum temperature ranges through the middle 70s from June through October, dropping to around 60 in mid-winter. Extremes occasionally reach into the upper 90s or slightly above 100° for a day or two at a time from May through November, but prolonged hot weather is unknown. Typically the hot spells are accompanied by low humidities, making the warm weather more comfortable as a result. Temperatures of 90° or higher can be expected about 6 days per year.

At the location of the present observing station, some distance inland from the water, minimum temperatures average 38° in January and 51° in July and August. A low of 22 has been measured, and freezing temperatures have been reported in each month from October through April. There is only a 10% chance of having freezing temperatures after April 8th or prior to August 8th. The table below shows the probability of experiencing 32° temperatures later than the tabulated spring dates or earlier than the tabulated fall dates.

Probability (per cent)	10	20	30	40	50	60	70	80	90
Spring	4/8	3/29	3/21	3/11	3/1	2/17	1/31	+	+
Fall	8/8	9/4	9/20	10/8	10/24	11/8	11/26	12/16	#

\+ One year in 5 there is no 32° temperature after Jan. 1st.
\# One year in 8 there is no 32° temperature before Dec. 31.
It should be recognized that minimum temperatures vary markedly within short distances. Near the water frost is rare.

Rainfall averages nearly 32 inches per year, 91% of which falls in the six months November through April. Summer precipitation is limited, for the most part, to occasional drizzle from the low clouds that are characteristic of the night hours during that season. The annual total varies considerably. One year in 10 the total can be expected to fall below 19 inches, while with the same frequency rainfall in excess of 45 inches may be anticipated. Santa Cruz occasionally receives heavy precipitation from winter storms moving through the area, and the near-by mountains sometimes experience very heavy precipitation from these storms. Studies of available data suggest that in the city itself rainfall intensities may reach values of 0.70 inch in one hour, 2.00 inches in 6 hours, and 3.50 inches in 24 hours with a frequency of about once every two years. The same figures, adjusted to the 100-year return period would be 1.30 inches in one hour, 5.20 inches in 6 hours, and 9.10 inches in 24 hours. Snowfall has seldom fallen in measurable amounts, although it has covered the ground for brief periods on a few occasions.

Humidity measurements are made by the Wm. Wrigley, Jr. Company in Santa Cruz, and a study of a short period of their record suggests that the relative humidity averages from 70% to 85% at night, dropping into the 50s during the mid-day period in the summer.

The predominant wind direction is from the west or southwest. Winds are quite persistent, but usually not strong, although winter storms occasionally bring damaging winds to the area. Studies suggest that speeds approaching 30 MPH can be expected at 2-year intervals, while speeds up to 80 MPH might occur once in 50 years.

Clear days dominate the weather pattern at Santa Cruz. The percentage of possible sunshine ranges from around 55% in winter to 65% most of the rest of the year.

C. Robert Elford
Weather Bureau State Climatologist
San Francisco, Calif.

M 8 2.2/73
U587cl
no. 20-
Calif.

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931											2.35	11.90	--
1932	4.15	5.22	0.93	0.71	1.31	0.03	0.05	0.02	0.01	0.02	1.13	3.75	17.33
1933	9.98	1.51	3.35	0.30	1.47	0.06	0.02	0.03	0.08	1.43	0	7.48	25.71
1934	0.61	6.54	0.02	0.40	0.32	1.32	0	0.02	0.25	1.33	3.90	5.95	20.66
1935	6.23	0.79	4.60	6.40	0.05	0	T	0.69	0.06	2.74	0.66	4.68	26.90
1936	6.30	11.98	1.55	1.69	1.72	0.84	0.53	T	0	1.10	0.06	7.20	32.97
1937	7.39	7.49	9.49	0.92	0.08	0.31	0	0	0.01	0.93	2.82	9.31	38.75
1938	7.35	11.92	8.10	2.02	0.23	0.02	0	T	0.12	3.02	1.36	1.36	35.50
1939	4.71	4.06	3.93	0.25	1.21	0	0	0	1.32	1.07	0.68	1.61	18.84
1940	19.13	10.85	8.21	0.71	1.15	0.02	0.12	T	0.24	2.09	1.06	12.83	56.41
1941	13.61	14.41	7.61	7.66	1.77	0.22	0	T	0.03	0.86	2.22	15.02	63.41
1942	6.96	7.18	3.04	4.34	2.50	0	T	0	0.07	1.62	7.97	7.00	40.68
1943	8.80	4.23	7.87	2.01	0	T	0	0	0	1.58	0.81	3.33	28.63
1944	7.90	8.13	1.41	2.17	1.55	0.51	T	0	T	2.59	8.58	3.62	36.46
1945	2.22	8.58	5.95	0.44	1.13	0.08	0	T	0	2.15	3.43	13.48	37.46
1946	1.73	3.96	3.64	0	1.72	0	0.04	0	0.11	0.38	6.47	2.89	20.94
1947	0.94	3.20	4.01	0.22	0.55	0.40	0	T	0	5.22	1.37	2.61	18.52
1948	1.38	2.77	4.71	5.07	1.39	0.05	0	0.04	0	0.74	0.70	10.49	27.34
1949	4.23	5.13	8.19	0.02	0.36	T	0.03	0.07	0.08	0.05	2.11	4.91	25.18
1950	11.72	7.11	2.48	1.87	0.76	0.03	0.01	0	0.35	1.97	11.39	9.35	47.04
1951	5.31	4.20	3.60	1.46	1.00	0.03	0	0.04	0	1.49	2.11	15.79	35.03
1952	13.60	3.24	5.87	1.38	0.33	0.77	0	0	0	0	2.86	7.82	35.87
1953	3.53	0	4.10	4.97	0.69	0.22	0	0.22	0	0.33	3.73	0.73	18.52
1954	4.60	3.79	6.65	2.56	0.64	0.47	0	0.34	0	0.10	5.61	4.82	29.58
1955	6.58	1.88	0.48	3.58	0.83	0	T	0	0	0.05	3.74	21.07	38.21
1956	9.34	1.46	0.26	1.89	1.49	0	0.07	0.02	0.28	1.83	0.02	0.96	17.62
1957	5.90	4.90	2.03	1.96	4.03	0.16	0.06	0.05	0.29	5.34	0.97	5.48	31.17
1958	7.70	13.86	10.06	5.75	0.43	0.18	0	T	0.32	0.06	0.37	0.75	39.48
1959	10.40	7.13	1.01	0.56	T	0	0	0.09	4.40	0	0	0.78	24.37
1960	8.98	7.03	2.44	1.67	0.39	0.02	0.02	0.02	0.08	0.31	4.35	1.76	27.07

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931												48.0	--
1932	46.8	49.3	54.0	54.0	57.8	60.5	62.5	61.8	61.4	60.4	58.6	46.5	56.1
1933	45.6	47.7	52.8	53.6	54.2	58.6	59.4	62.4	59.3	60.7	56.6	49.6	55.0
1934	51.0	53.1	57.9	57.0	60.3	60.2	65.0	63.6	62.6	58.4	55.3	51.4	58.0
1935	51.2	53.3	49.1	56.4	57.9	62.3	64.0	62.8	62.2	59.0	52.6	50.8	56.8
1936	51.4	51.5	55.1	55.4	60.0	64.2	65.8	64.8	65.2	62.3	56.6	50.0	58.5
1937	42.8	49.0	52.6	56.2	59.4	61.0	64.3	63.2	64.2	62.4	55.8	52.5	57.0
1938	52.4	52.2	52.2	55.4	58.5	60.6	64.4	66.0	63.9	60.4	54.4	52.6	57.8
1939	50.8	47.8	51.6	56.2	59.0	60.9	63.6	64.8	67.5	62.3	56.4	53.7	57.9
1940	52.8	53.6	55.2	57.4	58.2	61.0	63.4	61.9	63.2	58.8	53.7	55.2	57.9
1941	53.0	54.7	57.8	55.8	62.4	61.5	61.0	65.6	64.2	58.9	56.6	52.7	58.7
1942	51.4	50.6	53.2	54.8	56.6	61.1	63.8	61.8	61.8	59.1	53.6	48.6	56.4
1943	49.5	52.6	54.2	56.0	59.3	60.4	60.8	63.5	66.0	59.9	57.0	51.4	57.6
1944	50.2	49.6	54.4	54.5	58.0	60.7	62.2	63.4	63.0	61.8	53.9	53.8	57.1
1945	50.2	52.8	49.2	53.8	57.4	61.4	65.0	64.0	64.8	60.4	52.0	49.9	56.7
1946	49.0	48.0	52.8	56.0	56.4	63.8	64.3	62.4	64.4	57.4	52.2	49.7	56.4
1947	46.0	52.7	55.0	56.8	59.6	64.2	65.6	64.2	62.2	59.8	51.0	49.2	57.2
1948	51.6	48.5	49.4	54.2	56.8	61.6	62.4	63.2	61.4	60.0	53.5	45.3	55.7
1949	41.6	46.0	51.5	56.3	58.4	61.0	60.3	61.9	63.7	56.8	57.9	47.3	55.3
1950	44.7	49.2	51.0	53.8	54.8	60.4	61.7	62.6	63.8	60.0	59.2	53.4	56.2
1951	48.1	50.4	51.9	53.5	58.1	58.8	62.4	60.9	63.1	60.2	54.6	48.3	55.9
1952	46.3	50.5	48.6	55.4	59.2	59.8	63.2	62.6	64.1	59.0	52.3	49.7	55.9
1953	52.3	49.6	51.3	51.9	55.8	58.8	61.6	62.3	62.7	59.3	54.3	50.5	55.9
1954	47.9	54.1	50.4	55.2	57.8	60.4	63.0	61.6	62.1	58.4	55.3	49.4	56.3
1955	45.7	48.5	52.4	51.0	57.2	59.5	60.5	60.6	59.3	59.0	52.6	51.1	54.8
1956	49.4	46.4	50.8	53.7	58.2	60.7	60.9	60.6	64.1	57.2	56.2	49.9	55.7
1957	45.6	53.3	54.2	56.2	58.8	63.3	63.7	62.5	64.2	60.6	53.5	50.9	57.3
1958	50.3	53.9	50.3	56.2	61.0	63.3	63.7	64.3	66.9	62.1	54.6	55.7	58.5
1959	51.6	49.9	56.0	57.1	58.2	62.1	64.2	64.8	62.3	62.3	56.5	51.5	58.0
1960	47.8	50.8	54.7	55.7	58.6	62.3	63.5	61.5	62.3	58.2	52.4	49.6	56.5

STATION HISTORY

The recording of climatic data in Santa Cruz began January 1, 1873. At first the records were taken by an agent of the S. P. Railroad, but prior to 1891 the responsibility was assigned to Mr. W. R. Springer, and the instruments were installed at his home at 87 Garfield Street at a ground elevation of 20 feet. This was a point about 0.4 mile east of the Post Office. At that time the instrumentation consisted of a simple thermometer and a 3-inch rain gage. On December 1, 1891, the equipment was augmented with the installation of a standard Cotton Region Shelter, maximum and minimum thermometers, and a standard 8-inch rain gage. Records were continued by Mr. Springer until October 25, 1931, just two days before his death. He served at least 40 years as the official observer in addition to an unestablished length of service prior to 1891.

On November 16, 1931, the station was moved about 1.5 miles east northeast to the residence of Mr. Robert E. Burton, then Science Instructor at the Santa Cruz High School. The elevation at the new location was 125 feet, and the shelter was placed over cultivated ground adjoining a large lawn bordered by a low growing hedge and by shrubbery. The ground sloped gently from northwest to southeast. In 1939 a psychrometer and an anemometer were added to the equipment.

Mr. Burton has served almost continuously since 1931. He was away for a short period from May 1944 to September 1945 for duty in the Armed Forces, and he was away again for a time in 1947. During these periods the records were continued by Mr. Sidney B. House, and for a part of the time the station was moved to the residence of Mr. House, a distance of about 300 feet. In the 30 years during which Mr. Burton has been the observer he has had the assistance at various times of his wife, his son Walter, and his neighbors, Mr. House and Mr. Reutter.

The time given to this program by these public spirited citizens would be hard to estimate. It is certain, however, that in a community where climate is an important natural resource there has been a continual demand for information from Mr. Burton and those who have worked with him. To them we owe a debt of gratitude. The records they have accumulated increase in value as the length of the record increases. Without their help the present summary would be impossible.

Max R. McDonough
Assistant State Climatologist