

U. S. DEPARTMENT OF AGRICULTURE
WEATHER BUREAU

CLIMATOLOGICAL SERVICE

DISTRICT No. 11, CALIFORNIA

PROF. ALEXANDER G. McADIE
DISTRICT EDITOR

REPORT FOR JULY, 1913

Prepared under direction of C. F. MARVIN, Chief U. S. Weather Bureau



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CLIMATOLOGICAL DATA FOR JULY, 1913.

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Prof. ALEXANDER G. McADIE, District Editor.

GENERAL SUMMARY.

July, 1913, was a month of nearly normal temperature; but warmer than July of the preceding year and not quite as warm as July, 1911, or July, 1910. In the matter of precipitation July, 1913, breaks all records for amount of precipitation in a midsummer month. The rain was heavy, although not of long duration. The average for the State as a whole was 0.46 of an inch, which is a departure of more than 0.40 of an inch above the normal.

On July 22d there was heavy rain in the central and northern counties. There were frequent thunderstorms throughout the month in the Sierra and tourists and campers experienced much unpleasant weather where usually extremely dry conditions prevail.

The water supply was somewhat augmented by the unusual rain; but the effect was only temporary and complaints of scarcity of water were common at the end of the month.

From an agricultural point of view weather conditions were fair. There was some slight damage to drying apricots and peaches but no injury to crops in general. Fortunately there were no prolonged periods of desiccating north winds. There was the normal amount of sunshine and less fog than usual on the coast.

TEMPERATURE.

The mean temperature for the State was nearly 1° below the normal. The following table gives the means and departures for each July from 1897 to 1913, inclusive:

Year.	Mean.	Departure.	Year.	Mean.	Departure.
1897.....	74.5	+0.5	1906.....	76.8	+2.8
1898.....	81.4	+7.4	1907.....	73.1	-0.9
1899.....	77.9	+3.9	1908.....	76.4	+2.4
1900.....	75.9	+1.9	1909.....	71.2	-2.8
1901.....	76.0	+2.0	1910.....	75.5	+1.5
1902.....	72.8	-1.2	1911.....	74.1	+0.1
1903.....	71.2	-2.8	1912.....	71.0	-3.0
1904.....	72.2	-1.8	1913.....	73.1	-0.9
1905.....	74.8	+0.8			

The highest temperature recorded at any station was 119° at Heber on the 10th. The lowest temperature was 27° at Deer Creek on the 14th, which is 4° higher than the lowest recorded during the same month last year.

On July 11th unusually warm weather prevailed in the central counties of California. Maximum temperatures exceeding 110° were reported at many points. At St. Helena, Healdsburg, and other points in this section, the temperature reached 115°.

PRECIPITATION.

The rainfall was unusually heavy. All rainfall records for July were broken during the 48 hours of July 22-23, and there were constant showers in the mountains from

the 22d to the 29th. The greatest monthly amount was 4.40 at Madeline and the greatest 24-hour amount was 2.15 inches at Macdoel. There was no rainfall at 31 stations.

The following table gives the average precipitation and departure from the normal for each July from 1897 to 1912, inclusive:

Year.	Mean.	Departure.	Year.	Mean.	Departure.
	<i>Inches.</i>	<i>Inches.</i>		<i>Inches.</i>	<i>Inches.</i>
1897.....	0.01	-0.03	1906.....	0.04	0.00
1898.....	T.	-0.04	1907.....	.03	-0.01
1899.....	T.	-0.04	1908.....	.04	.00
1900.....	.03	-0.01	1909.....	.05	+0.01
1901.....	.01	-0.03	1910.....	.10	+0.06
1902.....	.07	+0.03	1911.....	.10	+0.06
1903.....	.03	-0.01	1912.....	.06	+0.02
1904.....	.09	+0.05	1913.....	.46	+0.42
1905.....	.01	-0.03			

SUNSHINE.

The following table gives the hours of sunshine and percentages of the possible:

Stations.	Hours.	Percentage of possible.	Stations.	Hours.	Percentage of possible.
Eureka.....	215	47	Sacramento.....	409	89
Fresno.....	405	90	San Diego.....	320	73
Los Angeles.....	307	70	San Francisco.....	301	67
Mount Tamalpais.....	407	91	San Jose.....	371	83
Red Bluff.....	372	82	San Luis Obispo.....	327	74

NOTE ON THE WEATHER AT POINT REYES.

By Mr. JAMES JONES, Observer.

During the past 22 years precipitation to the amount of 0.01 inch or more, for the month of July, has occurred only six times. Therefore the 24-hour rainfall of 0.13 on July 22-23 this year is to be considered rather remarkable. Hay crops in this vicinity had just been cut, and not yet stacked when this unseasonable rain came on, but only slight damage resulted.

The monthly mean temperature was, with the exception of that for July, 1896, the highest July mean ever recorded. This high average was caused by slightly higher daily averages throughout the month, as there were no periods of exceptionally warm weather.

There were 21 days with dense fog, but this is not unusual at this station.

The first half of the month was somewhat windy, but after the 15th there was comparatively little wind, not one gale of 40 miles or over being recorded after that date.

Light haze was observed six times during the month. On July 12 there was a light haze all afternoon. The sunset was followed by a reddish-yellow glow and wisps of smoke, visible just above the haze.

NOTES ON THE RIVERS OF SACRAMENTO AND LOWER SAN JOAQUIN WATERSHEDS DURING THE MONTH OF JULY, 1913.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—The rivers in this watershed were generally lower than during any July of which there is a record. In the upper reaches of the Sacramento itself the river averaged slightly above the low water of 1910. From Colusa, however, southward to Walnut Grove the Sacramento averaged from 0.1 of a foot to nearly a foot below all previous low-water stages of which there is a record or a remembrance. At Sacramento City on the 23d the river reached a stage of 4 feet, which is the lowest ever reached in any month of which there is an authentic record.

While there were some heavy rains in the high regions of the Sierra Nevada during the month there was little effect noted in the run-off of the main western feeders or of the trunk stream, the greatest 24-hour rise observed being 0.8 of a foot in the American River.

Tides were common in the Sacramento River during the entire month and were felt for several miles above the mouth of the American. In one instance there was a tide of 1.4 feet in the river at Sacramento City.

Many sand bars have been uncovered during the present low water and, in some cases, channels have changed, making navigation difficult. During the extreme low water the steamer *Empress* struck bottom opposite the city wharf at Sacramento and was unable to reach her berth.

Steamboat men are complaining about the amount of water now being taken out of the river for irrigation purposes, and claim that between 60 and 70 pumps, with capacities ranging from 6 to 12 inch intake, are constantly at work in the Sacramento between the mouth of the American and that of the Feather.

San Joaquin watershed.—The Tuolumne River, while unusually low for the month, averaged about 0.9 of a foot above that of July, 1910. In all other streams the water was the lowest of any July since records have been kept. This was especially so of the Calaveras, which was practically dry during the entire month, and the lower San Joaquin, which averaged between 6 and 7 feet below the July normal and nearly a foot below the previous low water stage, which was in 1910.

FORECASTING THE WATER SUPPLY IN CALIFORNIA.

(From Weather Bureau records of precipitation.)

By Prof. ALEXANDER G. MCADIE.

The writer has in press a somewhat extensive memoir on the "Rainfall of California."¹ From the various records available it appears that no secular periodicity of wet and dry seasons can be found and that excessive rainfalls, also periods of prolonged drought, come and go irregularly. It also appears that there are certain definite relations between excess and deficiency in rainfall and the distribution of atmospheric pressure. Thus the character of a month; and sometimes of a season, is found to bear a direct relation to the position and intensity of certain pressure areas, which for lack of a better name have been called centers of action. This term we believe was originally used by de Bort and has been lately abbreviated by continental writers to action centers. As the term is somewhat awkward and lacks precision, the writer suggests the use of the term hyperbar

for abnormally high seasonal pressure over a given district, and infrabar for a well-marked seasonal depression. The terms pleiobar and meiobar have been suggested by M. A. F. Prestel, but do not seem to be altogether appropriate.

A good illustration of this law of seasonal variation of precipitation and aberration of hyperbars and infrabars is found in the months of January and February, 1902. January, usually a wet month, was abnormally dry, the deficiency in precipitation for California determined by records from nearly 200 stations was approximately 33,000,000 acre-feet. This was a dry winter month and there was every prospect of a shortage of water for the following spring and summer. But what happened? There was a marked change in the position and intensity of the Aleutian low (the infrabar) and also in the location of the continental high (the hyperbar) with the result that February was abnormally wet and even in the short month there was an excess of practically 43,000,000 acre-feet.

The following table gives the approximate precipitation for California in million acre-feet:

	January.	February.	March.	Winter.
1897.....	22	49	33	104
1898.....	9	24	6	39
1899.....	29	4	51	84
1900.....	28	8	19	55
1901.....	42	50	9	101
1902.....	12	68	29	109
1903.....	38	15	48	101
1904.....	12	68	71	149
1905.....	36	35	45	116
1906.....	66	42	77	185
1907.....	63	38	89	190
1908.....	39	36	12	87
1909.....	135	67	28	230
1910.....	40	20	20	80
1911.....	110	29	50	189
1912.....	23	6	43	77
1913.....	42	17	18	77
Mean.....	751 44	574 34	648 38	1,973 116

Attention is called to the winter of 1909, particularly January, when nearly three times the average amount of rain fell. As early as the end of January, notwithstanding floods, excessive runoff, and general waste, it was plain that there would be an abundance of water. Reference to the depth of snow on the ground shows how deep the snow cover was.

The present season (1913) is especially interesting because while January was a month of nearly average water supply, February and March gave only about half the normal precipitation. The amount of water which has fallen as rain is not sufficient for general need and must be supplemented from storage or ground sources.

The depth and extent of the snow cover in the mountains give in a general way a reliable index of the character of the season, the probable water supply, and the river stages. This frozen storage decreases in four ways: First, by melting or run-off; second, by evaporation; third, by percolation or seepage; and fourth, by absorption of forest cover. This water of vegetation in part is reevaporated from the leaf surface by the processes of transpiration; but so far as California is concerned the water is practically lost.

Of these four factors, the second, that is, evaporation, is as effective in dissipating snow as any of the others. There are certain thermodynamic reasons why a current of air in these latitudes moving east from sea level over

¹ To be published by the University of California.

the Coast Range and the Sierra Nevada should lose its load of water vapor in this passage, gaining heat in descending the eastern slope and becoming in effect a desiccating wind of the type of the chinook, foehn, or familiar norther. Such winds are not infrequent in California and some observations show that under such conditions the depth of snow is rapidly decreased, exceeding the normal rate of decrease for a still day, 300 per cent.

After the middle of March the first factor, or ordinary melting, becomes effective. In various publications the writer has discussed the normal rate of melting and given diagrams for comparing rates and seasons, so that the probable date of disappearance of the snow may be determined.

The third and fourth factors are troublesome and uncertain. The writer is of opinion that none of the present forms of measuring devices give reliable records for determining the seepage and the water of vegetation. In his opinion it will be necessary to employ seepage tanks or seasonal snow gages so arranged in the ground as to measure approximately the water of percolation.

In a rough way stream-flow measurements may be utilized for determining what percentage of the total depth of snow on the ground disappears to reappear in the form of run-off. For this purpose I have taken the only available gaging station in the watershed of the American River, Fair Oaks (see Water-Supply Paper No. 298, U. S. Geological Survey), and compared the snow depth, the total precipitation at Summit, and the monthly run-off. The total precipitation is a truer measure of run-off than depth of snow, because of the reasons given above and in addition, the fact that the water content of the snow is and must always be an uncertain quantity, depending upon the age of the snow bank, the action of the wind in packing, the character of the mountain slope with regard to timber and brush, the temperature factor, and the original condition of congelation. The writer had once to deal with a snow bank at Summit 12 feet deep. No snow sampler or density gage measurements as ordinarily made would reliably give the water contents. Fortunately there were tunnels in the snow and samples could be obtained for the entire depth. Twenty inches of snow from the top of the pack when melted made 1 inch of water. Four inches of snow from the bottom of the pack when melted made 1 inch of water.

TOTAL PRECIPITATION AT SUMMIT.

	January.	February.	March.	Season.
	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
1907.....	13.50	4.38	27.36	45.24
1908.....	3.50	4.50	10.20	18.20
1909.....	29.44	8.94	4.60	42.98
1910.....	8.60	5.10	4.98	18.68
1911.....	28.90	5.30	10.63	44.83
1912.....	7.00	4.46	6.10	13.56
1913.....	13.60	2.05	3.20	18.85

ESTIMATED RUN-OFF IN ACRE-FEET.

1907.....	255,000	822,000	1,520,000	2,597,000
1908.....	160,000	113,000	202,000	475,000
1909.....	1,490,000	861,000	397,000	2,748,000
1910.....	524,000	291,000	646,000	1,461,000
1911.....	855,000	589,000	799,000	2,243,000
1912.....	68,200	44,800	118,000	231,000
1913.....				

Attention is called to the amount of precipitation for the two seasons, 1912 and 1913, from which it is evident that the run-off must be small. The seasons of 1907, 1909, and 1911 indicate ample water and run-offs far above the normal.

The following notes are of interest in a general way in connection with the character of the precipitation:

February, 1907, snow very wet.

March, 1907, snow abnormally heavy.

January, 1908, a marked decrease in precipitation at levels above 3,000 feet.

January, 1909, abnormally heavy rain and snow. Also heavy run-off, possibly due to saturated condition of ground.

January, 1911, unusually heavy precipitation, but run-off light. Notwithstanding the fact that more rain fell in the drainage basin of the Sacramento Valley than during any previous January, the water courses were much below the normal. The explanation of this is that the rains were mostly in the nature of warm showers. There was less precipitation in the mountain sections than at sea level. Moreover, the precipitation in the mountain sections did not equal that of January, 1909.

One interesting and new feature comes out of this discussion, namely, that in certain storms in California there is not the usual increase in amount of precipitation with elevation; but on the contrary a maximum rate prevails below the 1,000-meter level. Ordinarily the precipitation increases with elevation up to nearly the 2-kilometer level. This is of some importance in connection with the selection of reservoirs.

TABLE 1.—Climatological data for July, 1913. District No. 11, California.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.			Observers.			
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.		Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.
<i>Oregon.</i>																				
Klamath Falls.....	Klamath.....	4,100	24	64.2	- 3.9	90	8†	36	2†	40	1.37	+ 1.17	0.99	0	4	17	10	4	nw.	Augusta J. Hayden.
Lake View.....	Lake.....	4,825	30	61.6	- 5.0	86	8†	32	13	43	2.09	+ 2.43	1.14	0	5	17	7	7	s.	C. C. Gott.
Merrill.....	Klamath.....	4,070	8	64.2†		96†		20	33	13	42		1.62	0	6	22	0	9	w.	U. S. Reclamation Service.
Yonna.....	do.....	4,146	6	61.1		98	19	30	3	63	1.66		0.89	0	4	15	6	10	w.	Ward Rueck.
<i>California.</i>																				
Alturas.....	Modoc.....	4,400	9	65.8		94	5†	34	14	52	3.00		2.00	0	8	19	7	5	w.	Prof. C. B. Towle.
Angiola.....	Tulare.....	208	13																	Santa Fe Co.
Antioch**.....	Contra Costa.....	46	34	76.7	+ 0.9	101	6	50	23		0.18	+ 0.18	0.12	0	2	29	0	2	nw.	Southern Pacific Co.
Aptos**.....	Santa Cruz.....	102	28	65.5	+ 3.2	80	10	51	26	35	0.48	+ 0.47	0.43	0	2	23	4	4	nw.	Do.
Arrowhead Springs.....	San Bernardino.....	2,000	4	74.4		101	5†	57	19	5†	0.15		0.10	0	2	28	4	1	ne.	Dr. E. J. Erekson.
Auburn.....	Placer.....	1,360	42	73.8	- 3.0	98	8†	54	4	36	0.04	+ 0.03	0.04	0	1	28	2	1	ne.	Southern Pacific Co.
Avalon.....	Los Angeles.....	30	3	65.9		74	7†	57	24	15	T		T	0	0	27	1	3	w.	T. S. Manning.
Azusa.....	do.....	540	11	73.9	+ 0.5	102	7	53	1	45	0.01	+ 0.01	0.01	0	1	28	2	1	w.	A. P. Griffith.
Bagdad.....	San Bernardino.....	784	10	92.3	- 4.0	116	11†	60	24	39	0.00	+ 0.26	0.00	0	0	31	0	0	w.	Santa Fe Co.
Bakersfield.....	Kern.....	404	24	79.7	- 5.6	116	6	49	4	62	0.43	+ 0.42	0.33	0	2	27	0	4	w.	Do.
Barstow.....	San Bernardino.....	2,105	10	84.2	+ 0.8	110	11	58	29†	38	0.35	+ 0.23	0.20	0	2	24	5	2	w.	E. L. White.
Berkeley.....	Alameda.....	317	26	63.6	+ 2.3	95	11	49	14	34	0.19	+ 0.17	0.10	0	2	14	7	10	sw.	State University.
Betteravia.....	Santa Barbara.....			67.2		92	10	46	1	40	0.00		0.00	0	0	21	10	0	w.	Union Sugar Co.
Biggs**.....	Butte.....	98	14	77.9	- 1.5	103	6†	55	3		0.20	+ 0.20	0.20	0	1	22	2	7	s.	Southern Pacific Co.
Bishop.....	Inyo.....	4,450	18																	Paul E. Lodge.
Bishop Creek.....	do.....	8,500	3	58.2		80	7†	39	24†	32						9	8	14		Do.
Blocksburg.....	Humboldt.....	1,700	7	66.7		95	17	40	7	48	0.41		0.27	0	2	19	5	7	nw.	Victor Hope.
Blue Canon.....	Placer.....	4,695	14	63.4	- 1.8	88	8†	42	4†	40	0.52	+ 0.52	0.40	0	2	24	2	5	sw.	Southern Pacific Co.
Blythe.....	Riverside.....	268	4	85.3		116	11	57	28	51	2.20		1.15	0	3	18	5	8	s.	C. L. Suits.
Branscomb.....	Mendocino.....	2,000	13	64.6	- 2.1	98	11	39	2†	45	0.40	+ 0.28	0.40	0	1	22	5	4	n.	A. J. Haun.
Brawley.....	Imperial.....	105	4	86.7		113	11	63	25	40	0.27		0.27	0	1					M. D. Witter.
Burney.....	Shasta.....	3,300	3	63.4		89	10†	34	14†	36	0.75		0.37	0	4	16	9	6	w.	Mrs. M. D. Chambers.
Caluilla.....	Riverside.....	3,600	2								0.50		0.44	0	2	21	7	3	sw.	Dr. W. L. Shawk.
Calixico.....	Imperial.....	0	8	87.0		115	9	64	24†	45	0.11		0.06	0	2	21	7	3	sw.	J. E. Peck.
Callente**.....	Kern.....	1,200	37	81.3	- 3.5	109	5†	65	22†			+ 1.00	1.00	0	2	22	3	6	w.	Southern Pacific Co.
Calistoga**.....	Napa.....	363	41	73.1	+ 0.5	114	11	50	24†		T	- 0.03	T	0	0	26	0	5	sw.	Do.
Campbell.....	Santa Clara.....	217	16	66.6	+ 1.7	103	11	41	15	50	0.09	+ 0.09	0.08	0	2	25	4	2	nw.	F. M. Righter.
Camptonville (near).....	Yuba.....	3,500	6	72.2		102	11	50	14	40	0.33		0.25	0	3	20	4	7	s.	Cal. Gas & Electric.
Cedarville.....	Modoc.....	4,675	19	68.0	- 1.6	94	5	40	1†	38	1.44	+ 1.18	0.70	0	5	5	20	6	sw.	T. H. Johnstone.
Chico.....	Butte.....	189	43	79.2	- 4.7	109	12	52	15†	48	0.09	+ 0.06	0.09	0	1	23	2	6	sw.	U. S. Stephenson.
China Flat.....	Humboldt.....	600	4	74.6		104	18†	46	2†	48	0.61		0.24	0	4	19	7	5	w.	O. I. Westberg.
Chino.....	San Bernardino.....	714	21																	Southern Pacific Co.
Cisco**.....	Placer.....	5,939	42																	Do.
Claremont.....	Los Angeles.....	1,200	21	73.1	+ 0.2	103	7	49	30	40	0.04	+ 0.02	0.04	0	1	22	7	2		Prof. F. P. Brackett.
Cloverdale.....	Sonoma.....	340	11	72.6	+ 0.8	110	11	46	8	53	0.39	+ 0.39	0.39	0	1	27	1	3	w.	John O. Ogde.
Coalinga.....	Fresno.....	663	1	81.1		110	7	58	14	42	1.22		1.12	0	2	26	0	5	w.	Union Oil Co.
Colfax.....	Placer.....	2,421	42	73.1	- 2.2	102	12	45	2	38	0.00	- 0.02	0.00	0	0	27	0	4	n.	Southern Pacific Co.
Colusa.....	Colusa.....	60	10	77.0	- 0.1	104	11	53	15	38	T	- 0.02	T	0	0	28	2	4	n.	C. D. McComish.
Corning**.....	Tehama.....	277	27	88.0	+ 4.6	104	11	67	25		0.00	T	0.00	0	0	18	13	0	s.	Southern Pacific Co.
Cuyamaca.....	San Diego.....	4,677	14	68.6	- 0.6	92	11	42	28†	41	0.52	+ 0.25	0.45	0	3	26	2	3	sw.	Cuyamaca Water Co.
Davisville.....	Yolo.....	51	41	75.1	- 2.8	108	11	44	15	54	0.00	- 0.02	0.00	0	0	23	7	1	sw.	S. H. Beckett.
Deer Creek.....	Nevada.....	3,700	6	63.8		107	11	27	14	68	0.93		0.35	0	4	19	9	3	n.	Cal. Gas & Electric.
Del Monte.....	Monterey.....	25	2	60.0		84	10	50	7†	30	0.00		0.00	0	0	25	4	2	n.	H. R. Warner.
Delta.....	Shasta.....	1,138	28																	Southern Pacific Co.
Denair.....	Stanislaus.....	126	13	76.2	- 1.0	103	5†	51	15	41	0.00	0.00	0.00	0	0	30	0	1	n.	Santa Fe Co.
De Saba.....	Butte.....	2,500	9	70.6		98	11	44	16	43	0.20		0.20	0	1	15	15	1	sw.	Cal. Gas & Electric.
Dobbins (near).....	Yuba.....	1,650	9	77.8		112	11	56	15†	40	0.18		0.18	0	1	17	10	4	s.	Do.
Downieville.....	Sierra.....	3,150	2	67.8		100	11	38	15	53	1.41		0.61	0	6	17	2	12	s.	J. T. Mason.
Dudley.....	Kings.....	595	1	86.6		110	5†	58	28	45	0.28		0.20	0	2	25	3	3	sw.	Union Oil Co.
Dudleys.....	Mariposa.....	3,000	4	66.8		96	11	37	15	50	0.09		0.06	0	2	17	11	3	nw.	W. H. Dudley.
Dumlan (near).....	Fresno.....	2,800	1																	U. S. Forest Service.
Dunnigan**.....	Yolo.....	65	36	89.0	+ 7.2	108	11	65	26		0.12	+ 0.12	0.12	0	1	27	1	3	s.	Southern Pacific Co.
Dunsmuir**.....	Siskiyou.....	2,285	24	71.4	+ 0.2	99	30†	55	2†		0.92	+ 0.80	0.54	0	4	22	0	9	n.	Do.
Durham.....	Butte.....	160	18	79.7	+ 1.2	106	12	51	15	44	0.08	+ 0.08	0.08	0	1	22	6	3	s.	R. W. Durham.
El Cajon.....	San Diego.....	482	14	71.6	- 1.0	96	5	52	1†	40	0.20	+ 0.10	0.20	0	1	31	0	0	sw.	H. H. Kessler.
Electra.....	Amador.....	725	9	78.6		109	11	57	15	40	0.00		0.00	0	0	24	2	5	n.	Cal. Gas & Electric.
Emigrant Gap.....	Placer.....	5,230	19	65.2	- 2.3	91	12	31	28	49	T	- 0.03	T	0	0	25	0	6	n.	Southern Pacific Co.
Esccondido.....	San Diego.....	637	19	72.6	+ 0.3	101	20	48	25	43	0.07	+ 0.06	0.07	0	1	9	22	0	w.	A. R. Moon.
Eureka.....	Humboldt.....	64	27	57.2	+ 1.9	69	9	49	19	17	0.28	+ 0.19	0.14	0	9	6	17	8	n.	U. S. Weather Bureau.
Farmington**.....	San Joaquin.....	111	34	80.9	+ 2.7	108	11	60	24	1†	0.15	+ 0.15	0.15	0	1	22	8	1	nw.	Southern Pacific Co.
Folsom.....	Sacramento.....	252	41	81.1	+ 1.2	109	11	60	28†	41	T	- 0.01	T	0	0	20	0	11	s.	F. O. Hutton.
Fordyce Dam.....	Nevada.....	6,500	18	64.2		91	11	29	22	42	3.69	+ 3.51	0.90	0	9	17	7	7	sw.	E. E. Roening.
Fort Bidwell.....	Modoc.....	4,375	24	64.6	- 7.3	92‡	18	38	13†	46	1.52	+ 1.20	0.75	0	5	17	4	10	n.	C. R. Decious

TABLE I.—Climatological data for July, 1913. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	Prevailing wind direction.
California—Continued.																			
Independence.....	Inyo.....	3,907	17	75.4	- 3.1	103	10	51	25	41	1.56	+ 1.45	1.33	0	6	15	10	6	U. S. Weather Bureau.
Indian Wells.....	Kern.....	2,500																	I. D. McCoy.
Indio.....	Riverside.....	—20	35	89.4	- 5.1	117	11	65	30	40	0.26	+ 0.26	0.26	0	1	18	12	1	F. N. Johnson.
Inskip.....	Butte.....	4,975	6	64.8				50	3	22	0.77		0.31	0	4	15	6	10	Cal. Gas & Elect.
Ione**.....	Amador.....	287	35	82.6	+ 4.0	108	5	62	15		0.00	0.00	0.00	0	0	28	0	3	Southern Pacific Co.
Jamestown.....	Tuolumne.....	1,471	10	75.1	+ 2.0	105	11	47	15	46	0.00	0.00	0.00	0	0	25	0	6	Seira Railway Co.
Kennett.....	Shasta.....	730	1	78.8		106	12	53	16	48	0.62		0.44	0	2	16	14	1	ne.
Kentfield.....	Marin.....	65	25	70.6		112	11	47	14	53	0.19	+ 0.18	1.10	0	2	26	3	2	C. H. Kremers.
King City.....	Monterey.....	333	26	73.7	+ 6.2	113	13	41	16	58	0.00	0.00	0.00	0	0	31	0	0	Miss M. E. Parsons.
Lake Eleanor.....	Tuolumne.....	4,700	3	65.6				42	15	45	0.52		0.28	0	4	18	6	8	Southern Pacific Co.
La Porte.....	Plumas.....	5,000	19	61.6	- 0.8	86	10	40	13	36	1.57	+ 1.43	0.38	0	6	19	8	8	C. J. Todd.
Le Grand.....	Merced.....	255	13	78.2	+ 2.1	110	12	52	2	47	0.25	+ 0.25	0.20	0	2	28	0	3	W. R. Hendel.
Lemoore.....	Tulare.....	600	18	82.9	+ 1.3	112	6	56	3	46	0.22	+ 0.21	0.22	0	1	18	7	6	Santa Fe Co.
Lick Observatory.....	Santa Clara.....	4,209	24	67.0	+ 1.7	87	11	47	26	24	0.06	+ 0.06	0.05	0	2	25	2	4	W. R. Park.
Livermore.....	Alameda.....	485	42	71.8	+ 2.1	110	11	48	14	53	0.27	+ 0.26	0.20	0	3	27	3	1	The Director.
Lone Pine.....	Inyo.....	2,728	8	74.2		105	11	47	30	46	0.52		0.19	0	3	18	10	3	E. G. Still.
Long Valley.....	Lassen.....	4,400	4											0	3	18	10	3	G. F. Marsh.
Los Angeles.....	Los Angeles.....	293	36	70.5	+ 3.1	89	10	58	30	26	T.	- 0.02	T.	0	0	13	15	3	A. G. Evans.
Los Baños**.....	Merced.....	121	26	78.0	+ 2.0	105	11	57	25		0.17	+ 0.16	0.17	0	1	22	0	9	U. S. Weather Bureau.
Los Gatos.....	Santa Clara.....	600	26	69.3	+ 1.5	107	11	46	27	48	0.17	+ 0.17	0.13	0	2	25	4	2	Southern Pacific Co.
McCloud.....	Siskiyou.....	3,410	3	64.2		93	31	34	14	47	0.97		0.36	0	5	23	6	2	F. H. McCullagh.
Macdoel.....	do.....	4,528	8	62.0		88	18	33	15	47	3.15		2.15	0	3	24	2	5	F. F. Spencer.
Madeline.....	Lassen.....	5,270	4	59.0				31	8	57	4.48		1.70	0	9	21	7	3	Butte Valley Land Co.
Magalia.....	Butte.....	2,321	9	72.2		103	11	45	14	45	0.17		0.17	0	1	21	8	2	J. H. Williams.
Mammoth Tank.....	Imperial.....	257	35	92.4	- 6.1	118	10	65	28	37	0.00	- 0.06	0.00	0	0	27	3	1	Butte Co. R. R. Co.
Maricopa.....	Kern.....	640	2	82.4		111	12	61	27	38	0.18		0.16	0	2	20	3	7	Southern Pacific Co.
Marysville.....	Yuba.....	67	42	78.1	- 1.9	107	12	52	15	47	T.	- 0.00	T.	0	0	24	0	7	Union Oil Co.
Mecca.....	Riverside.....	-185	7	88.8	+ 5.2	114	9	65	28	36	T.	+ 0.01	T.	0	0	26	0	5	Southern Pacific Co.
Menlo Park**.....	San Mateo.....	64	37	72.9	+ 3.5	108	11	62	6	49	0.24	+ 0.23	0.20	0	2	24	2	5	Santa Fe Co.
Merced.....	Merced.....	173	39	72.9	+ 3.5	107	12	55	16	49	0.24	+ 0.23	0.20	0	2	24	2	5	Union Oil Co.
Middlewater.....	Kern.....	803	2	83.6		109	12	53	14	43	0.28		0.20	0	2	24	0	7	Cal. Gas & Elect.
Mill Creek No. 1.....	Amador.....	2,500	6	68.0		94	11	43	15	44	0.24		0.21	0	2	19	6	6	J. H. Southwick.
Milton (near).....	Calaveras.....	660	22	78.6	+ 0.7	110	11	53	16	42	0.04	+ 0.04	0.04	0	1	26	4	1	Southern Pacific Co.
Modesto**.....	Stanislaus.....	90	41	76.2	+ 5.3	105	9	60	2		0.00	- 0.01	0.00	0	0				Do.
Mojave.....	Kern.....	2,751	36	80.9	- 4.8	112	11	62	25		1.75	+ 1.69	1.75	0	1	25	5	1	C. E. Prindle.
Mokelumne Hill.....	Calaveras.....	1,550	20	76.3	- 0.5	105	11	51	28	37	T.	0.00	T.	0	0	23	4	4	Herbert Lathrop.
Mono Ranch.....	Ventura.....	3,210	7	67.8		97	9	40	30	44	T.	0.00	T.	0	0	24	4	3	I. E. De Boy.
Montague.....	Siskiyou.....	2,450	25	67.0	- 10.2	102	20	41	10	60	3.57	+ 3.34	2.07	0	3	7	12	12	Southern Pacific Co.
Monterey**.....	Monterey.....	15	48	67.7	+ 6.7	90	11	56	3		0.00	0.00	0.00	0	0	26	5	0	John C. Knecht.
Monterio.....	Kern.....	4,500	14											0	2	24	5	3	U. S. Weather Bureau.
Mount Tamalpais.....	Marin.....	2,375	14	67.2	- 3.3	96	11	49	28	23	0.09	+ 0.08	0.09	0	2	24	5	3	Alex. Hull.
Napa City.....	Napa.....	20	36	66.2	+ 2.2	98	4	39	11	48	0.00	- 0.01	0.00	0	1	28	0	6	A. R. Edgar.
Napa (S. H.).....	do.....	80	35	71.0	+ 3.4	106	11	52	14	42	0.01	+ 0.29	0.40	0	2	23	3	5	Santa Fe Co.
Needles.....	San Bernardino.....	4,777	21	91.8	- 2.8	114	11	73	28	31	0.56	+ 0.49	0.40	0	2				T. O. Bailey.
Nellis.....	San Diego.....	5,350	4	67.9		90	11	39	24	36	0.45		0.25	0	2				S. W. Marsh.
Nevada City.....	Nevada.....	2,850	21	68.4	+ 0.4	102	11	40	15	49	0.24	+ 0.22	0.24	0	1	19	10	2	Southern Pacific Co.
Newhall**.....	Los Angeles.....	1,200	36	90.6	+ 14.0	111	6	68	28		0.01	+ 0.01	0.01	0	1	26	3	2	E. S. Wengenheim.
Newman.....	Stanislaus.....	91	24	78.9	+ 3.1	112	5	41	14	58	0.18	+ 0.18	0.18	0	1	29	0	2	J. R. McIntosh.
North Bloomfield.....	Nevada.....	3,214	16	74.8	+ 3.3	104	11	54	15	31	0.40	+ 0.33	0.40	0	1	19	3	9	U. S. Forest Service.
North Fork.....	Madera.....	3,000	9	72.6		103	13	49	16	49	0.69		0.50	0	3	21	8	2	Southern Pacific Co.
Oakdale**.....	Stanislaus.....	156	19	79.5	+ 1.2	108	6	63	31		0.02	+ 0.02	0.02	0	1	25	0	6	B. L. Johnson.
Oak Grove.....	San Diego.....	2,751	3											0	3	16	9	6	Chabot Observatory.
Oakland.....	Alameda.....	36	37	65.4	+ 3.6	95	11	52	14	31	0.12	+ 0.10	0.08	0	1	19	9	3	H. D. Brodie.
Oceanside.....	San Diego.....	60	3	69.8		78	5	56	30	20	0.05		0.05	0	0	23	6	2	W. H. Duncan.
Ojai Valley.....	Ventura.....	900	7	71.5		102	10	45	30	47	T.		T.	0	0	23	6	2	U. S. Reclamation Service.
Orland.....	Glenn.....	254	31	81.4	- 5.0	109	12	56	14	48	0.04	+ 0.03	0.04	0	1	21	8	2	F. T. Hale.
Oroville.....	Humboldt.....	520	10	76.8	- 2.8	107	18	52	15	45	0.92	+ 0.74	0.52	0	3	23	0	3	E. D. Fairchild.
Oroville (near).....	Butte.....	250	29	79.4	- 0.8	107	6	51	18	49	0.05	+ 0.05	0.04	0	2	23	6	2	Western Pacific Co.
Palermo.....	do.....	213	22	75.4	- 2.8	110	28	32	6	50	0.08		0.08	0	0				Southern Pacific Co.
Palmd Springs**.....	Riverside.....	584	24	88.5	+ 6.0	114	8	66	26	26	T.	0.02	T.	0	0				E. D. Sorver.
Pasadena.....	Los Angeles.....	827	23	69.6	- 1.8	97	7	46	30	38	0.01	+ 0.01	0.01	0	1	24	5	2	Dr. F. W. Sawyer.
Paso Robles.....	San Luis Obispo.....	800	26	70.8	+ 1.2	110	12	38	16	57	0.00	0.00	0.00	0	0	21	8	2	E. H. Parnell.
Peachland.....	Sonoma.....	190	17	66.8	+ 1.2	111	11	41	15	53	0.01	- 0.01	0.01	0	2	17	13	1	John Landis.
Petaluma.....	do.....			66.2		108	11	42	14	51	0.11		0.07	0	1	23	0	8	A. E. May.
Placerville.....	El Dorado.....	1,875	24	71.6	- 1.0	100	11	46	15	44	0.15	+ 0.13	0.15	0	1	23	0	8	John Hyslop.
Point Lobos.....	San Francisco.....	250	20											0	4	10	7	14	U. S. Weather Bureau.
Point Reyes.....	Marin.....	490	21	55.2	+ 1.7	68	31	48	18	15	0.16	+ 0.09	0.13	0	1	10	3	18	J. E. Adamson.
Pomona.....	Los Angeles.....			72.6		101	7	46	30	46	0.01		0.01	0	1	21	6	4	Leslie McAniff.
Porterville.....	Tulare.....	464	24	83.4	- 1.4	114	12	58	2	45	0.30	+ 0.27	0.30						

TABLE 1.—Climatological data for July, 1913. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.			
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	Prevailing wind direction.	
<i>California—Contd.</i>																					
Santa Rosa.....	Sonoma.....	181	24	67.6	+ 1.3	112	11	43	8†	51	0.07	+ 0.02	0.05	0	2	17	5	9	s.	Southern Pacific Co.	
Selma **.....	Fresno.....	311	27	79.1	- 5.5	107	12	60	3†	...	0.19	+ 0.19	0.19	0	1	29	0	2	w.	Do.	
Seven Oaks.....	San Bernardino.....	5,000	3	61.2	.....	88	10	36	29	32	1.56	.....	0.75	0	4	12	10	0	s.	M. Lewis.
Sierra Madre.....	Los Angeles.....	1,400	18	72.3	+ 0.1	96	7	54	30	32	0.03	+ 0.02	0.03	0	1	18	11	1	s.	Mrs. A. E. Gregory.	
Sierraville.....	Sierra.....	5,000	3	59.8	.....	93	5	29	15	52	3.91	.....	1.73	0	1	16	3	12	sw.	C. D. Johnson.
Sisson.....	Siskiyou.....	3,555	24	64.0	- 5.9	89	31	37	12	45	0.55	+ 0.45	0.55	0	1	24	1	6	n.	Southern Pacific Co.	
Soledad **.....	Monterey.....	188	39	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	.....	.....	.....	.....	Do.
Sonora.....	Tuolumne.....	1,825	2	75.2	.....	100	11†	54	15†	40	0.08	+ 0.06	0.08	0	1	26	4	1	w.	Chas. P. Jones.
S. E. Farallon.....	San Francisco.....	30	10	55.3	+ 1.6	67	25	48	18	10	0.06	+ 0.06	0.05	0	2	9	10	12	nw.	U. S. Weather Bureau.	
Springville.....	Tulare.....	4,000	6	69.0	.....	98	11	43	9	47	1.25	.....	0.37	0	4	19	6	6	.....	D. L. Wishon.
Squirrel Inn.....	San Bernardino.....	5,280	3	64.4	.....	88	10	42	28	26	0.49	.....	0.31	0	2	28	1	2	s.	A. D. Frantz.
Stanwood.....	Butte.....	2,140	9	70.0	.....	102	12	42	22†	42	0.22	.....	0.09	0	7	16	7	8	n.	Cal. Gas & Elect.
Stirling City.....	do.....	3,525	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	.....	.....	.....	.....	Butte Co. R. R. Co.
Stockton (S. H.).....	San Joaquin.....	23	42	75.1	+ 2.5	108	11	53	15	38	0.14	+ 0.14	0.14	0	1	24	6	1	nw.	State Hospital.	
Storey.....	Madera.....	296	13	77.9	- 0.8	107	12	54	15	43	0.30	+ 0.30	0.30	0	1	28	0	3	.....	Santa Fe Co.
Suisun **.....	Solano.....	20	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	.....	.....	.....	.....	Southern Pacific Co.
Sulphur Banks.....	Lake.....	1,350	1	75.0	.....	106	11	50	2	46	0.04	.....	0.04	0	1	18	12	1	w.	L. S. Lorenzen.
Summit.....	Placer.....	7,017	40	57.2	- 3.8	79	10	38	1†	36	2.45	+ 2.29	1.00	0	5	15	2	14	s.	Southern Pacific Co.	
Susanville.....	Lassen.....	4,175	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	.....	.....	.....	.....	C. M. Penry.
Tamarack.....	Alpine.....	8,000	7	52.4	.....	78	17†	30	3	47	4.22	+ 3.59	0.65	0	15	13	14	4	sw.	Cal. Gas & Elect.
Tehachapi **.....	Kern.....	3,964	26	75.5	- 0.9	96	6†	64	4†	.....	2.00	+ 1.99	2.00	0	1	.....	.....	.....	.....	Southern Pacific Co.
Tehama.....	Tehama.....	220	42	86.5	+ 2.4	101	12	64	16	.....	0.00	- 0.06	0.00	0	0	26	0	5	s.	Do.
Tejon Rancho.....	Kern.....	1,500	10	80.6	- 0.2	101	13	60	25†	28	1.00	+ 1.00	1.00	0	1	.....	.....	.....	.....	Do.
Three Rivers.....	Tulare.....	870	3	77.7	.....	106	5†	54	15	44	0.87	.....	0.55	0	4	19	7	5	sw.	S. E. Bailey.
Towle.....	Placer.....	3,704	27	75.8	+ 5.1	102	12	55	15	34	0.06	+ 0.04	0.04	0	2	27	3	1	ne.	J. H. Pierce.	
Tracy **.....	San Joaquin.....	64	33	84.8	+ 4.9	107	11	64	28	.....	0.18	+ 0.18	0.18	0	1	.....	.....	.....	.....	Southern Pacific Co.
Ukiah.....	Mendocino.....	620	20	73.2	+ 1.9	110	11	44	8	55	0.18	+ 0.16	0.13	0	2	22	5	4	nw.	Do.	
Upper Lake.....	Lake.....	1,350	28	72.4	- 1.5	107	11	44	13	52	0.17	+ 0.15	0.17	0	1	26	2	3	nw.	Dr. Geo. McCowen.	
Vacaville.....	Solano.....	175	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	.....	.....	.....	.....	C. M. Hammond.
Valley Springs **.....	Calaveras.....	673	24	80.0	- 0.0	108	11	66	15†	.....	0.00	- 0.01	0.00	0	0	24	6	1	nw.	G. O. Coburn.
Visalia.....	Tulare.....	334	25	76.2	- 3.8	109	12	48	30	56	0.00	- 0.02	0.00	0	0	26	0	5	.....	Southern Pacific Co.
Warner Springs.....	San Diego.....	3,165	5	71.3	.....	98	5	45	28	39	0.44	.....	0.35	0	2	24	7	0	.....	Santa Fe Co.
Wasco.....	Kern.....	336	13	82.2	- 0.1	109	5	58	14	44	0.00	.....	0.00	0	0	11	0	20	nw.	Mrs. F. S. Sandford.
Watsonville.....	Santa Cruz.....	23	17	63.4	+ 1.0	105	11	40	14†	58	0.38	+ 0.38	0.30	0	3	9	20	2	w.	Santa Fe Co.	
Weaverville.....	Trinity.....	2,162	1	69.6	.....	100	22	41	2†	49	0.69	+ 0.56	0.52	0	3	24	1	6	.....	Spreckels Sugar Co.
Weitchpec.....	Humboldt.....	1,700	3	66.4	.....	95	18	43	2†	39	1.51	.....	1.07	0	3	22	5	4	s.	U. S. Forest Service.
Weitsley **.....	Stanislaus.....	90	24	81.7	- 1.0	106	11	60	20†	.....	0.15	+ 0.13	0.15	0	1	23	6	2	n.	M. E. Lathrop.
Wheatland.....	Yuba.....	84	26	77.8	+ 1.1	107	11	54	15	39	0.08	+ 0.07	0.08	0	1	19	8	4	s.	Southern Pacific Co.	
Willows.....	Glenn.....	136	34	81.0	- 1.9	108	11†	44	3	49	T.	.....	0.00	0	0	27	2	2	n.	Wm. Lumbard.
Yorba Linda.....	Orange.....	73.0	.....	.....	.....	99	7	53	28	39	T.	.....	T.	0	0	26	4	1	w.	E. C. Mills.
Yosemite.....	Mariposa.....	3,945	9	67.4	.....	101	11†	33	1	59	1.36	.....	0.57	0	6	23	3	5	s.	S. J. Walker.
																					J. P. Kelly.

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
 ** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
 † Also on other dates.
 T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for July, 1913. District No. 11, California—Continued.

Stations.	Watershed.	Day of month.																														Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		31	
<i>California—Contd.</i>																																		
Upper Mattole.....	Coast.....																																	
Yacaville.....	Sacramento																																	
Valley Springs.....	San Joaquin.																																	
Visalia.....	do.....																																	
Warner Springs.....	Coast.....							T.								T.					.35	.09												
Wasco.....	San Joaquin.																																	
Watsonville.....	Coast.....																					.06				.30	.02							
Weaverville.....	do.....		T.	.04																			T.	.52	.13									
Weitchpec.....	Klamath.....																						T.	.05	.39									
West Branch.....	Sacramento				.10																													
Westley.....	San Joaquin.																																	
West Point.....	do.....																																	
West Saticoy.....	Coast.....																																	
Wheatland.....	Sacramento																																	
Willows.....	do.....																																	
Yorba Linda.....	Coast.....																																	
Yosemite.....	San Joaquin.																																	

* Precipitation included in that of the next measurement.
 † Separate dates of falls not recorded.
 ‡ Precipitation for the 24 hours ending on the morning when it is measured.
 T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for July, 1913. District No. 11, California.

Date.	Lake View, Oreg.		California.																									
			Alturas.		Barstow.		Branscomb.		Brawley.		Colusa.		Eureka.		Fresno.		Independence.		Los Angeles.		Mount Tamalpais.		Nevada City.		Porterville.		Red Bluff.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	70	45	77	42	101	68	72	40	107	67	88	59	61	54	97	63	96	59	87	61	75	58	86	46	102	61	91	65
2.....	68	37	77	40	102	71	70	39	103	67	88	60	61	53	94	61	96	64	82	60	70	53	84	44	97	58	88	62
3.....	59	47	72	51	100	78	64	39	103	72	89	61	64	55	92	68	92	67	77	60	64	52	77	49	96	59	86	66
4.....	41	84	43	100	72	70	40	103	67	93	59	62	55	94	60	92	59	79	61	78	56	88	45	99	61	87	64	64
5.....	83	45	94	42	105	73	88	45	103	70	99	61	60	55	103	70	98	60	83	62	90	71	94	47	109	64	102	67
6.....	83	52	90	48	108	79	88	49	108	77	101	68	66	55	106	76	97	70	84	66	81	72	95	47	110	70	103	69
7.....	84	51	92	47	105	85	85	50	105	80	100	64	62	54	106	73	98	66	89	64	83	68	99	53	109	71	102	70
8.....	86	47	93	45	105	81	88	48	109	76	99	61	62	52	104	72	98	72	87	66	78	68	95	53	108	70	102	69
9.....	77	47	88	43	108	84	75	47	112	75	97	61	69	52	103	68	98	68	84	64	78	62	93	49	105	67	97	68
10.....	79	41	85	46	108	82	94	50	111	75	102	78	62	54	104	67	103	70	89	65	85	62	94	48	103	65	99	72
11.....	79	40	90	43	110	74	98	53	113	77	104	80	62	51	108	71	102	72	86	63	96	76	102	53	113	70	102	80
12.....	79	43	88	42	109	74	90	46	109	77	103	66	59	52	109	75	100	64	78	62	89	66	92	56	114	73	105	74
13.....	66	32	81	41	104	73	80	43	101	74	90	60	59	50	95	66	98	71	77	64	77	55	86	52	109	69	89	69
14.....	72	37	79	34	101	74	85	44	101	73	89	58	61	49	94	64	94	60	76	64	71	55	83	43	106	63	89	62
15.....	73	36	82	38	101	70	88	47	102	71	89	53	60	52	93	58	90	56	77	63	75	55	85	40	97	59	93	63
16.....	78	41	86	38	102	68	90	50	103	71	91	56	59	53	98	62	95	54	77	61	78	65	88	42	101	58	94	62
17.....	83	40	93	41	98	65	90	50	103	73	96	58	58	52	102	64	92	60	78	61	83	70	92	44	102	59	100	65
18.....	86	52	92	48	95	67	87	55	100	73	95	63	58	50	93	68	83	62	79	63	81	70	77	49	102	65	96	68
19.....	86	54	82	60	90	70	87	56	97	74	94	65	58	49	102	67	81	65	78	61	79	62	92	56	105	66	102	80
20.....	85	57	89	53	86	68	87	57	98	74	92	62	58	53	95	63	80	64	79	64	74	56	90	61	105	74	99	75
21.....	84	59	89	58	85	65	84	53	99	70	91	62	61	53	91	68	80	60	82	63	67	54	87	57	106	66	94	71
22.....	83	53	85	55	92	67	73	52	98	74	88	68	65	54	86	69	77	59	78	60	66	55	84	55	96	70	93	74
23.....	73	57	70	59	93	68	68	50	99	79	84	67	62	57	95	67	82	60	78	61	74	59	74	55	100	68	77	69
24.....	64	52	71	56	92	66	64	50	99	66	90	63	60	56	91	64	80	55	74	60	67	51	86	48	98	66	89	63
25.....	59	51	68	50	87	63	65	51	99	63	83	59	61	56	76	63	74	51	74	59	62	50	73	48	86	59	79	61
26.....	73	52	76	53	86	64	72	52	90	70	84	-59	60	56	85	61	82	52	73	60	65	49	79	51	88	64	86	68
27.....	77	45	84	54	93	62	73	48	93	64	87	58	63	56	88	58	78	56	75	60	66	50	82	50	98	60	86	64
28.....	75	49	81	55	93	64	75	49	97	66	87	57	59	55	89	60	78	58	72	61	67	49	83	49	92	66	91	61
29.....	73	47	79	51	92	58	84	51	99	67	85	57	60	52	90	61	83	58	75	61	68	49	85	50	95	66	91	64
30.....	78	42	86	48	96	58	85	52	98	65	91	59	60	52	96	63	86	53	73	58	74	63	91	49	101	63	98	66
31.....	85	47	94	54	97	65	75	53	96	68	83	57	64	53	98	64	90	54	77	59	70	51	92	49	102	65	95	68
Mns.	76.7	46.4	83.8	47.8	98.2	70.1	80.5	48.7	101.9	71.5	92.1	61.9	61.2	53.2	96.0	65.8	89.5	61.3	79.2	61.8	75.2	59.1	87.2	49.6	101.7	65.0	94.0	67.7

Date.	California.																										
	Redlands.		Sacramento.		San Diego.		San Francisco.		San Jose.		San Luis Obispo.		Santa Barbara.		Santa Rosa.		Sisson.		Stockton.		Summit.		Susanville.		Yosemite.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	94	59	85	57	75	60	66	52	75	48	80	55	80	57	89	49	70	43	88	58	66	38	.....	.....	90	33
2.....	93	58	87	56	71	61	69	52	76	46	73	49	75	55	88	47	71	42	86	57	68	38	.....	.....	89	40
3.....	88	54	80	60	69	61	66	55	77	52	84	52	70	55	81	54	78	43	80	58	63	44	.....	.....	85	41
4.....	90	55	93	53	71	62	69	53	84	55	85	52	74	62	87	49	79	44	84	57	68	38	.....	.....	97	40
5.....	100	58	100	63	75	61	84	54	95	50	87	53	78	60	97	50	80	44	100	63	77	48	.....	.....	100	41
6.....	100	63	97	67	74	65	66	52	85	55	88	54	80	61	96	49	84	46	101	68	76	52	.....	.....	98	41
7.....	102	63	98	65	78	65	69	54	89	56	85	56	85	60	92	49	84	43	96	68	75	43	.....	.....	100	41
8.....	95	61	96	62	75	66	61	52	84	51	90	54	80	63	85	43	83	43	95	64	75	50	.....	.....	96	50
9.....	97	61	95	62	75	66	70	53	84	50	96	52	81	58	96	48	78	51	97	60	75	45	.....	.....	100	48
10.....	102	63	100	66	76	63	75	53	90	55	90	61	80	59	103	62	78	53	103	68	79	43	.....	.....	100	48
11.....	97	65	104	76	74	64	90	62	103	59	91	62	75	59	112	61	81	57	108	74	78	48	.....	.....	101	47
12.....	91	59	98	65	74	65	66	54	90	61	80	54	68	65	88	55	82	37	96	70	76	50	.....	.....	100	48
13.....	84	58	91	57	71	66	66	52	82	56	75	57	75	63	85	43	71	42	93	63	75	52	.....	.....	100	48
14.....	82	61	84	55	74	66	63	50	78	51	72	55	73	64	86	43	75	42	84	58	67	46	.....	.....	101	48
15.....	91	58	97	54	73	66	65	51	81	49	70	49	72	56	85	45	75	53	89	53	67	39	.....	.....	95	38
16.....	91	59	92	58	72	65	65	51	82	48	70	51	72	59	83	45	84	49	91	61	56	69	.....	.....	93	37
17.....	93	59	96	61	71	62	62	51	87	50	76	52	70	61	90	47	87	56	97	59	78	40	.....	.....	94	38
18.....	90	61	97	59	72	62	60	51	79	52	72	53	68	59	78	48	87	57	90	60	70	50	.....	.....	96	40
19.....	87	60	88	58	72	62	61	52	79	53	74	49	72	60	74	51	86	56	89	60	70	52	.....	.....	95	47
20.....	75	63	86	57	74	66	63	52	79	53	73	54	70	62	73	51	85	54	86	59	70	50	.....	.....	94	46
21.....	89	63	86	60	74	65	67	56	81	57	77	57	78	60	80	52	81	57	86	60	66	51	.....	.....	95	48
22.....	91	59	75	66	73	66	66	56	78	60	78	57	76	62	73	58	77	50	82	64	75	50	.....	.....	80	50
23.....	87	55	84	65	72	65	70	57	83	60	74	54	78	64	83	58	62	52	89	63	68	48	.....	.....	73	53
24.....	82	54	81	59	73	63	6																				

Total Precipitation, July, 1913.



Departure of the Mean Temperature from the Normal, July, 1913.

