CLIMATOLOGICAL DATA FOR AUGUST, 1912.

DISTRICT No. 11, CALIFORNIA.

Prof. ALEXANDER G. McADIE, District Editor.

GENERAL SUMMARY.

August, 1912, was cooler than the average August. With the exception of August, 1911, the mean temperature for the State as a whole was lower than that of any similar month since records have been kept. The month is normally one of high afternoon temperature, much sunshine, except along the coast, and little rain. This month there was a little more rain than during August, 1911, or August, 1910, and there was less sunshine, except at San Francisco, Sacramento, and San Jose. There were no excessively high temperatures, that is, temperatures exceeding 120°. In this respect the month closely resembled last August.

The month was a pleasant one, and notwithstanding unusually low water in the rivers, mountain streams, and watercourses lessened their attractiveness, visitors and tourists were not subjected to inconveniences due to heat on the one hand or thunderstorms and cloudbursts on the other. During August, 1911, the waterfalls were running full; but this year during the same period the volume of moving water was small and the streams lower than has been known for many years. There was very little snow in the mountains, even in those places where the snow usually remains throughout the year.

The weather was favorable for crops, although the season was a late one and fruits did not ripen as early or as abundantly as in previous seasons.

There were no unusual features connected with pressure distribution or storm movement. At the beginning of the month a slow-moving depression over the Great Basin resulted in unsettled weather and occasional thunderstorms in the Sierra. A moderate warm spell occurred on August 6, when afternoon temperatures reached 100° at Sacramento, 102° at Red Bluff and 104° at Fresno. This was followed by a succession of pleasant days without extreme conditions. On August 24, instead of the usual inversion of temperature so characteristic of the coast section near San Francisco Bay, there occurred a marked cooling at a height of 3,000 feet. Surface temperatures were approximately 10° higher than the temperatures at the height mentioned. Usually they are 10° or more lower. The condition was followed by cloudy weather along the coast, but no rain, and the return to usual conditions occurred August 29.

The only other feature of interest was rain at San Diego August 29 and 30.

The usual summer depression over the Valley of the Colorado was less extensive and less deep than might have been expected, and with the exception of a disturbance near the close of the month, there were no Sonora storms.

TEMPERATURE.

The temperature for the State was 2.6° below the normal. The following table gives the mean temperature for California for each August during the time for which records have been kept.

The highest temperature recorded was 115° at Indio on the 7th. The highest temperature reported at any station in California last August was 114° at Mammoth. The lowest temperature was 20° at Madeline on the 20th. This was 8° lower than the lowest recorded during August, 1911. The highest mean temperature was 96.3° at Bagdad. It is interesting to notice that the mean temperature at Greenland Ranch, our new station in Death Valley, was 96°. Another high mean temperature was 93.8° at Mammoth Tank. The stations at which these high temperatures occurred are respectively in the Mojave Desert, the Death Valley section, and the Salton Desert. The highest mean temperature last August was 96.6° at Bagdad, and nearly all the stations in the Colorado Desert had mean temperatures in excess of 90°. The lowest mean temperature was 51.6° at Summit, Placer County.

Years.	Mean.	Departure.	Years.	Mean.	Departure.
	°F.	°F.		°F.	°F.
1897	73.9	+1.1	1905	73.4	+0.6
1898	74.5	+1.7	1906	73.6	+0.8
1899	70.8	−2.0	1907	71.0	−1.8
1900	71.0	−1.8	1908	73.3	+0.5
1901	75.6	+2.8	1909	72.1	−0.7
1902	71.8	−1.0	1910	72.5	−0.3
1903	72.6	−0.2	1911	70.1	−2.7
1904	73.9	+1.1	1912	70.2	−2.6

PRECIPITATION.

The average monthly precipitation for California for August with departures from the normal is as follows:

Years.	Mean.	Departure.	Years.	Mean.	Departure.
	Inch.	Inch.		Inch.	Inch.
1897	0.03	−0.05	1905	0.03	−0.05
1898	.02	− .06	1906	.13	+ .05
1899	.11	+ .03	1907	.11	+ .03
1900	.02	− .06	1908	.12	+ .04
1901	.12	+ .04	1909	.19	+ .11
1902	.06	− .02	1910	.01	− .07
1903	.02	− .06	1911	.00	− .08
1904	.17	+ .09	1912	.06	− .02

The greatest monthly precipitation was 1.05 inches at Nellie. Two hundred stations reported no rain during the month.

SUNSHINE.

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

Stations.	Hours.	Percentage of possible.	Stations.	Hours.	Percentage of possible.
Eureka	115	27	Sacramento	422	100
Fresno	416	99	San Diego	281	68
Los Angeles	319	77	San Francisco	335	79
Mount Tamalpais	402	95	San Jose	364	87
Red Bluff	396	93	San Luis Obispo	329	79

NOTES ON THE RIVERS OF THE SACRAMENTO AND LOWER SAN JOAQUIN WATERSHEDS DURING AUGUST, 1912.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—The rivers of this watershed continued to fall slowly during the month and, at most points, all previous low-water records were broken.

From Red Bluff to Tehama the Sacramento River, while much below the normal stage, averaged slightly above the low-water stages that prevailed during the corresponding month in 1908–1910. South of Tehama the Sacramento was the lowest ever recorded.

At Colusa the average stage, 0.9 of a foot, was 1.2 feet below the August normal and 0.2 of a foot below the previous lowest average. The average at Knights Landing was 0.8 of a foot below the zero of the gage, 2.1 feet below the normal, and nearly 1 foot lower than the previous lowest average for any month. At Sacramento City the river averaged 4.7 feet, which is 2.9 feet below the usual August stage and 0.8 of a foot below any previous monthly average. The extreme low-water stage at Sacramento during the month was 4.1 feet, which is 1 foot lower than any previous low-water record.

The influence of the tides was felt for some distance above the mouth of the American River, and at Sacramento City it amounted to as much as 1.1 feet.

In the lower reaches of the river there was little departure from the usual August stages.

Numerous sandbars formed between the mouth of the American River and Vernon, resulting in frequent interruptions to navigation and grounding among the upriver craft.

In all streams tributary to the Sacramento, especially in the Feather, Yuba, and American Rivers, the water was the lowest ever known. At Oroville on the Feather and Marysville on the Yuba the river averaged 0.4 of a foot below all previous low-water averages.

Lower San Joaquin watershed.—In the tributaries of this watershed there was little or no departure from the stages usually maintained during the month of August, and in no case were any of the feeders of the trunk stream as low as during the corresponding month in the past three years. In the San Joaquin itself, however, especially between the mouth of the Stanislaus and that of the Calaveras, the river averaged about 3 feet below the August normal stage.

NOTES ON STREAMS AND WEATHER OF THE UPPER SAN JOAQUIN WATERSHED.

By W. E. BONNETT, Local Forecaster.

Daily gage readings at the several river stations in this district show a low but remarkably uniform stage in all of the streams. In the Merced at Merced Falls and at Firebaugh on the San Joaquin the range between lowest and highest stages was but 0.2 foot and at Piedra on Kings River 0.5 foot, showing a more uniform flow than for any other August of the six covered by the record.

Average stages in the Merced were much lower in August, 1908 and 1910, and in 1909 the average was the same as that for this month, namely, 0.3 foot. At Friant the average stage was lower only in 1910, the respective stages for 1910 and 1912 being −1.1 and −0.2 feet. In the Kings River the shortage of irrigation water has been particularly grave. Holders of second-class water rights were compelled to discontinue the use of water by the middle of July, and by August 1 the head of water was so small that it could be supplied only by turning it alternately into the larger ditches.

The shortage of irrigation water in itself would not have been so serious, but the light rainfall of the preceding wet season had not replenished the groundwater so that sections not usually irrigated are beginning to suffer. Vines in some places are withering, and in others both fruit and vine, and late cuttings of hay will be very light.

The unusually cool weather of August was a continuation of subnormal temperature conditions which began with March. This includes practically all of the growing season to date in which the temperature for each month has been more or less below normal and in which the accumulated temperature deficiency is 414° or 2.3° per day.

Aside from making the summer a pleasant one, so far as personal comfort is concerned, the cool weather may also have been of benefit agriculturally, for with the normal heat of summer this year or the abnormal heat that comes in some years, the effects of drought would have been greatly intensified.

NOTE ON FORMATION OF A CLOUD DURING FOREST FIRE.

By FORD H. CARPENTER, Local Forecaster.

On August 23, at 3.48 p. m., a brush fire in the northern foothills sent up a straight column of smoke. When the fire reached its maximum intensity a small but well-developed cumulus cloud was seen to cap the ascending column. When the smoke column disappeared the cloud lasted two or three minutes. It was an interesting instance of cumulus cloud formed by ascending currents. The sky was free from cloud all day except for this solitary cumulus, which had an existence of less than five minutes.