

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

CALIFORNIA SECTION.

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GENERAL SUMMARY.

January, 1918, was relatively warm and dry in California. For the State as a whole it was the driest January in 20 years. Mild, spring-like weather prevailed during the greater part of the month. As storms were infrequent, the percentage of the possible sunshine received was much in excess of the normal. While the days were warm and pleasant the nights were cold and frosty. At Fresno frost occurred on 16 days, at Sacramento on 9 days, and at San Jose on 10 days. However, owing to the frequent occurrence of nocturnal radiation fogs, little damage resulted from low temperatures. Most streams remained at the lowest stages ever known during a month of January, and in several instances dry creek-beds were to be found in place of the torrents of former years. At the close of the month the accumulated seasonal rainfall for the State as a whole was but 25 per cent of the normal, the deficiency being especially marked in southern California. At all stations the accumulated rainfall was considerably below that on a corresponding date of the previous year.

The first ten days of the month were rainless in southern California, while scattered showers fell throughout the northern portion of the State. January 1 and 2 were unusually warm; temperatures of 90° or higher occurred at Riverside and San Bernardino, and several persons were overcome by heat at Pasadena. The second decade was unsettled and showery, with moderately heavy rains in the extreme north portion of the State. The last decade was cold and generally fair, though heavy showers fell in the elevated portions of southern California between the 25th and 27th. A violent thunderstorm accompanied by hail and destructive winds occurred in Los Angeles County on the 26th.

As in the preceding month, the outstanding feature of the weather during January from an agricultural viewpoint was the deficient precipitation. With an average precipitation for the State of but 1.14 inches, as compared with a normal January rainfall of 5.41 inches, the deficiency amounted to 79 per cent. Artificial irrigation was necessary throughout the month in the citrus fruit groves of southern California, an almost unprecedented condition for a month of January. The long continued drought has reduced feed on the cattle ranges to a minimum. Cattle suffered severely from lack of water and feed in the San Joaquin, Santa Clara and Salinas Valleys, where the drought has been especially severe. The rainfall in the extreme north portion of the State, though deficient, has been sufficiently heavy to permit an extensive seeding of grain, and the wheat acreage is reported to be larger than usual. However, drought, desiccating winds and frosty nights prevented the germination of much of the winter growing grain, and retarded the growth of that which had previously come up to fair stands. As there has been little or no accumulation of densely packed snow in the mountains, it appears inevitable that there will be a serious shortage of water for irrigation and power purposes during the coming summer. Though the nights were cold, frequent fogs prevented the low temperatures from persisting long enough to injure citrus fruit trees or the unharvested crop. The fine, dry weather was well adapted for field work, and horticulturists were busy spraying and pruning fruit trees. While the rainfall throughout the agricultural regions was scanty, it was sufficiently heavy in most places to loosen the soil and thus to permit plowing on an extensive scale.

A. H. P.

PRESSURE.

The mean sea level pressure, determined from the records of twelve regular Weather Bureau stations, was 30.10 inches. The highest was 30.48 inches at Eureka on the 18th; the lowest was 29.55 inches at Point Reyes on the 25th; the range for the State was 0.93 inch.

TEMPERATURE.

The monthly mean temperature for the State, as shown by the records of 101 stations, was 46.8°, which is 1.0° above the normal.

The highest monthly mean was 55.7°, at Los Angeles; and the lowest was 28.6° at Madeline.

The highest temperature, 92°, occurred at Riverside on the 1st; and the lowest, -2°, occurred at Madeline on the 21st.

The range for the State was 94°.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 231 stations, was 1.14 inches, or 4.27 inches below the normal.

The greatest monthly amount was 7.26 inches, at Crescent City. Three stations reported no precipitation.

The greatest amount in 24 hours was 2.20 inches at Crescent City on the 12th.

RELATIVE HUMIDITY, SUNSHINE AND CLOUDINESS.

Stations.	Relative humidity. (Per cent.)			Sunshine.	
	5 a. m.	5 p. m.	Mean.	Actual No. of hours	Per cent of possible.
Eureka	92	83	87	150	50
Fresno	79	55	67	176	51
Los Angeles	71	59	65	245	78
Mount Tamalpais	61	62	61	182	60
Red Bluff	76	52	64	167	56
Sacramento	77	55	66	153	50
San Diego	72	69	71	234	74
San Francisco	78	63	70	224	73
San Jose	85	59	72	190	62
San Luis Obispo	74	56	65	215	69

WIND MOVEMENT.—(Miles.)

Stations.	Total mov. for month.	Ave. hr. velocity.	Maximum velocity.	Direction.	Date.	Prev. dir.
Eureka.....	5,059	6.8	44	n.	25	se.
Fresno.....	3,405	4.6	18	nw.	7	nw.
Los Angeles.....	4,165	5.6	32	nw.	9	ne.
Mount Tamalpais.....	17,104	23.0	80	nw.	29	n.
Point Reyes.....	14,134	19.0	70	nw.	25	nw.
Red Bluff.....	4,164	5.6	33	n.	25	n.
Sacramento.....	4,183	5.7	37	nw.	9	nw.
San Diego.....	3,982	5.4	35	s.	24	e.
San Francisco.....	4,585	6.2	27	ne.	20	n.
San Jose.....	3,225	4.3	34	nw.	26	w.
San Luis Obispo.....	3,267	4.4	20	n.	22	nw.

COMPARATIVE DATA FOR JANUARY.

Year.	Mean temp.	Ave. precip.	Year.	Mean temp.	Ave. precip.	Year.	Mean temp.	Ave. precip.	Year.	Mean temp.	Ave. precip.
1897.....	45.5	2.69	1903.....	46.6	4.56	1909.....	47.8	16.17	1915.....	44.2	7.58
1898.....	41.0	1.08	1904.....	45.8	1.38	1910.....	41.9	4.86	1916.....	39.8	15.61
1899.....	46.4	3.53	1905.....	48.3	4.37	1911.....	45.7	13.20	1917.....	39.2	2.71
1900.....	47.9	3.30	1906.....	47.5	7.86	1912.....	47.7	3.58	1918.....	46.8	1.14
1901.....	43.9	5.21	1907.....	43.9	7.46	1913.....	41.6	5.06			
1902.....	44.5	1.38	1908.....	46.7	4.63	1914.....	46.9	13.09			

Explanation of Reference Marks Used in This Publication.

The departures from the normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete reports are used in determining section or division means.
 † Also on other dates. T., Precipitation is less than 0.01 inch rain or melted snow.
 a, b, c, etc., indicate respectively, 1, 2, 3, etc., days missing from the record.
 Station at Liano formerly known as Valyermo; station at Lytle Creek formerly known as Rialto (near).

Climatological Data for January, 1918.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Snowfall, Precipitation of inch or more, Partly cloudy, Cloudy), Number of days (Clear, Partly cloudy, Cloudy), Prevailing direction of wind, and Observers. The table lists 100 stations across California with their respective data for January 1918.

Daily Temperature for January, 1918.

Table with 32 columns (Stations 1-31, Mean) and 32 rows (Stations 1-32). Columns represent days of the month and rows represent different stations. Each cell contains a temperature value for a specific station on a specific day.

SUPPLEMENTAL PRECIPITATION TABLE.

Table with 10 columns (Stations, Watersheds, Precip. inches) and 32 rows. Columns represent different stations and watersheds, and rows represent precipitation amounts in inches for each location.

SNOWFALL IN THE MOUNTAINS.

On January 1 the only snow on the ground in California was that on the isolated peaks and that above the 8,000-foot level in the Sierra Nevada Mountains. Up to that time the winter had been relatively warm and dry, and the snowfall had been far below the normal. The unseasonably warm and dry weather continued throughout January, which is normally the coldest month of the year, as well as the month of heaviest precipitation.

During the first ten days of January there was little or no precipitation, except in the extreme north portion of the State, where moderately heavy showers occurred. No snow fell in the mountains during this period. During the second decade of the month general precipitation occurred throughout the State. Owing to the relatively high temperatures, however, the precipitation was mostly in the form of rain in the Coast Ranges and in the mountains of southern California. In the northern Sierras the accompanying temperatures were below freezing, and there was a light but wide-spread fall of snow. Most of this came between the 12th and 14th, when 12 inches of snow fell at the 5,000-foot level, and 32 inches fell at the 7,000-foot level. During the last ten days of the month no new snow was added except in the higher portions of the Sierras, where a few inches of snow fell on the 25th. Owing to the bright sunshine and the relatively high temperatures of this period rapid melting occurred. At the close of the month there was little or no snow on the ground in the Coast Ranges or in the mountains of southern California. In the Sierras the snow had disappeared from the lower slopes, while there was only a foot or two of snow on the ground at the higher levels.

Up to the close of January the winter had been abnormally warm and dry. Streams maintained the lowest stages on record during this month. No station in California received its normal snowfall during December or January, and at most stations the fall of snow was far below the normal. Present conditions indicate an inevitable shortage of water for irrigation and power purposes during the coming summer. Even if the normal precipitation occurs during the remainder of the wet season there is certain to be a deficient supply of water. If the precipitation continues to be deficient the shortage during the coming summer is likely to be serious. Because of deficient precipitation during the previous season there is no reserve supply in the mountain reservoirs. California agriculture is largely dependent upon irrigation, while power development is partially dependent upon the water derived from the melting of the snow which accumulates in the mountains. The deficiency in snowfall is therefore causing much anxiety at the present time. The little snow which remained on the ground at the close of January was of light density, and was melting rapidly. At none of the 325 stations from which data were received was there an accumulation of the densely packed snow usually to be found in great quantities at this time of the year, and which in past seasons has been relied upon to produce the only available water supply during its slow melting in the spring and summer months.

A. H. P.

COMPARATIVE SNOWFALL DATA FOR JANUARY.

(Amount on the Ground.)

	FORDYCE DAM.			SUMMIT.			TAMARACK.		
	1st.	15th.	End of mo.	1st.	15th.	End of mo.	1st.	15th.	End of mo.
1907.....	58	106	94	45	142	148	125	175	180
1908.....	69	63	68	87	72	87	75	94	104
1909.....	25	68	107	28	90	172	35	150	190
1900.....	60	78	67	54	87	68	72	96	106
1911.....	0	99	124	4	136	218	24	130	310
1912.....	49	39	59	60	46	41	44	50	55
1913.....	28	73	78	17	79	88	40	98	118
1914.....	63	95	107	80	132	192	116	178	274
1915.....	30	59	67	24	56	80	26	50	116
1916.....	54	140	161	44	178	215	62	158	203
1917.....	37	68	73	79	74	85	87	82	65
1918.....	0	15	8	0	26	2	8	25	20

T. means trace.

Snowfall Data. [In inches.]

WATERSHED, COUNTY, STATION.	Elevation, feet.	Total snowfall.	Compr'd with normal.	Am't on ground 15th.	Am't on ground end mo.
Klamath Watershed.					
<i>Siskiyou County.</i>					
Yreka.....	2,625	T.		0	0
<i>Trinity County.</i>					
Hayfork.....	2,300	0		0	0
Ruth.....	2,925	0		0	0
Weaverville.....	2,162	1		1	0
Mountain Lakes.					
<i>Modoc County.</i>					
Cedarville.....	4,675	7	-8	4	0
Fort Bidwell.....	4,375	7		0	0
<i>Lassen County.</i>					
Engle Lake.....	5,000	4	-49	2	0
Madeine.....	5,270	10	-12	4	0
<i>Nevada County.</i>					
Grass Valley.....	2,690	2		0	0
Nevada City.....	2,850	2	-7	0	0
North Bloomfield.....	3,214	2	-13	0	0
Truckee.....	5,817	6	-37	0	0
<i>Mono County.</i>					
Bridgeport.....	6,500				
<i>Placer County.</i>					
Gold Run.....	3,222	2	-21	0	0
Tahoe.....	6,230	10		9	3
<i>Inyo County.</i>					
Bishop Creek.....	8,500	1	-51	0	0
Lone Pine.....	3,728	0		0	0
Wells Meadow.....	5,280	T.		0	0
Sacramento Watershed.					
<i>Siskiyou County.</i>					
McCloud.....	3,270	10	-52	6	0
Sisson.....	3,555	11	-26	0	0
<i>Modoc County.</i>					
Alturas.....	4,400	4	-10	0	0
<i>Shasta County.</i>					
Burney.....	3,300	T.	-25	0	0
<i>Plumas County.</i>					
Burks.....	5,515	15	-110	9	0
Canon Dam.....	4,570	5		5	0
Chester.....	4,350	8	-66	5	0
Clover Valley.....	5,700	8	-46	2	0
La Porte.....	5,000	19	-44	10	0
Portola.....	4,832	2		0	0
Quincy.....	3,400	2	-27	0	0
<i>Butte County.</i>					
De Sabla.....	2,500	3	-15	1	0
Inskip.....	4,975	12	-66	9	0
Stirling City.....	3,525	4	-28	0	0
West Branch.....	3,216	3	-43	2	0
<i>Yuba County.</i>					
Camptonville.....	3,500	5	-27	1	0
<i>Sierra County.</i>					
Downsville.....	3,150	3	-32	0	0
Sierraville.....	5,000	T.	-50	0	0
Table Rock.....	5,980	10	-87	10	0
<i>Nevada County.</i>					
Deer Creek.....	3,700	7	-47	4	0
Fordyce Dam.....	6,500	22	-76	15	8
Lake Spaulding.....	4,600	17	-41	13	0
<i>Placer County.</i>					
Blue Canon.....	4,695	12	-42	12	0
Emigrant Gap.....	5,230	14	-40	10	0
Summit.....	7,017	33	-46	26	2
San Joaquin Watershed.					
<i>Alpine County.</i>					
Tamarack.....	8,000	21	-166	25	20
<i>Tuolumne County.</i>					
Lake Eleanor.....	4,700	9	-42	4	0
<i>Kern County.</i>					
Glennville.....	3,300	0	-4	0	0
<i>Mariposa County.</i>					
Yosemite.....	3,945	5	-34	4	0
<i>Fresno County.</i>					
Camp Seven.....	6,980	8		6	4
Cascade.....	4,900	4		2	0
Hume.....	5,300	4		0	0
Huntington Lake.....	6,950	9		8	0
Stevenson Creek.....	4,250	0		0	0
<i>Tulare County.</i>					
Hot Springs.....	3,300	0	-2	0	0
Springville.....	4,000	2	-13	0	0
Mountains of Southern California.					
Bear Valley Dam.....	6,700	10	-17	2	5
Cuyamaca.....	4,677	1	-7	0	0
Julian.....	4,222	0		0	0
Mount Wilson.....	5,704	T.		0	0
Nelle.....	5,350	4		0	0
Seven Oaks.....	5,000	2	-12	0	0
Squirrel Inn.....	5,280	T.	-9	0	0