

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

CALIFORNIA SECTION.

EDWARD A. BEALS, METEOROLOGIST.

Vol. XXIV. SAN FRANCISCO, DECEMBER, 1920. No. 12

GENERAL SUMMARY.

December was somewhat colder than normal in California. Markedly deficient sunshine throughout northern California and cold nights in the southern portion of the State kept the mean temperature relatively low.

Precipitation was irregularly distributed. It was an abnormally wet month in northern California, while in southern California little or no rain fell. Abundant snow fell in the Sierra Nevada Mountains, while in the elevated portions of the south the snowfall was light, and little unmelted snow remained on the ground at the close of the month.

Agriculturally, the generous rains in northern California were beneficial, while deficient precipitation in the south was harmful. Farm work was generally backward, due in the north to the fact that excessive rainfall saturated the soil so that it could not be worked to advantage, while in the south lack of moisture caused it to become too hard for plowing.

A. H. P.

PRESSURE.

The mean sea-level pressure, determined from the records of 12 regular Weather Bureau stations, was 30.09 inches. The highest was 30.48 inches at Independence on the 15th; the lowest was 29.49 inches at Point Reyes on the 19th; the range for the State was 0.99 inch.

TEMPERATURE.

The monthly mean temperature for the State, as shown by the records of 98 stations, was 45.7°, which is 1.0° below the normal. The highest monthly mean was 55.8°, at Los Angeles; and the lowest was 21.6°, at Madeline.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 249 stations, was 5.73 inches, or 1.70 inches above the normal. The greatest monthly amount was 23.47 inches, at Wright's. No rain fell at 5 stations. The greatest amount in 24 hours was 6.07 inches at Wright's on the 9th-10th.

RELATIVE HUMIDITY, SUNSHINE AND CLOUDINESS.

Table with columns: Stations, Relative humidity Per cent. (5 a.m., 5 p.m., Mean), Sunshine (Actual No. of hours, Per cent of possible). Rows include Eureka, Fresno, Independence, Los Angeles, Mount Tamalpais, Red Bluff, Sacramento, San Diego, San Francisco, San Jose, San Luis Obispo.

WIND MOVEMENT.—(Miles.)

Table with columns: Stations, Total mov. for month, Ave. hr. velocity, Maximum velocity, Direction, Date, Prev. dir. Rows include Eureka, Fresno, Independence, Los Angeles, Mount Tamalpais, Point Reyes, Red Bluff, Sacramento, San Diego, San Francisco, San Jose, San Luis Obispo.

COMPARATIVE DATA FOR DECEMBER.

Table with columns: Year, Mean temp., Ave. precip., Year, Mean temp., Ave. precip., Year, Mean temp., Ave. precip., Year, Mean temp., Ave. precip. Rows include years 1897-1920.

Daily evaporation (inches) and wind movement (miles) for December.

Table with columns: Stations, Data, Day of Month (1-31), Total. Rows include Chula Vista, Dodgeland, Oakdale, Tahoe.

* Observations taken at 7 a. m.; ** at 8 a. m. † Included in the next following entry.

Climatological Data for December, 1920.

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), Number of days (Precipitation, Clear, Partly cloudy, Cloudy), Prevailing direction of wind, Observers.

Daily Precipitation for December, 1920.

Table with columns for Stations, Watersheds, Day of Month (1-31), and Total. Rows list various locations such as Antioch, Atascadero, Bakersfield, etc., with their corresponding precipitation values for each day of the month.

Except as otherwise indicated observations are generally made late in the afternoon, near sunset, and precipitation recorded is for the 24 hours ending at the time of observation. *** Regular Weather Bureau station; precipitation is for the 24-hour period, midnight to midnight. † Precipitation measured in the morning; amount then recorded is for the preceding 24 hours. * Precipitation included in the next following measurement. ‡ Separate dates of fall not recorded. T., trace, or less than 0.01 inch.

Daily Temperature for December, 1920.

Table with 32 columns (Stations 1-31, Mean) and 32 rows (Stations 1-31, Mean). Each station row contains two sub-rows for Maximum and Minimum temperatures across the 31 days and a final Mean column.

SUPPLEMENTAL PRECIPITATION TABLE.

Table with 12 columns: Stations, Watersheds, Precip. inches. It lists various locations and their corresponding precipitation amounts in inches.

Data obtained from 3-inch rain gage.

SNOWFALL IN THE MOUNTAINS.

Light snow fell in the Sierra Nevada Mountains during September and October, 1920, and moderately heavy snow fell during November. At the close of November there was about 22 inches of snow on the ground at the 8,000-foot level, and deeper snow at greater altitudes.

During December heavy snow fell throughout the Sierra Nevada. About 100 inches of snow fell at the 7,000-foot level, and larger amounts fell at greater heights. Most of the precipitation in the higher mountains came in the form of snow. The month was cold, and temperatures below zero were common. As a result, there was little run-off from melting snow in the Sierras. At the close of the month the snow was well packed, and there was more snow on the ground than on any similar date since 1916. The greatest snowfall reported for the month was 125 inches at Tamarack, Alpine County, altitude 8,000 feet. The greatest amount of unmelted snow on the ground at the close of the month was 96 inches at Twin Lakes, Alpine County, altitude 7,970 feet.

The higher levels of the Coast Range of mountains were snow-covered on several occasions during December, and moderately heavy snow fell throughout the northern portion. Most of it melted before the close of the month.

Little snow fell in the mountains of southern California, and only scattered patches of snow covered the highest peaks at the close of the month. Precipitation was markedly deficient throughout the southern portion of the State, and the accumulated seasonal amount was less than half of the normal on January 1st, 1921.

A. H. P.

COMPARATIVE SNOWFALL DATA FOR DECEMBER.

(Amount on the Ground.)

	FORDYCE DAM.			SUMMIT.			TAMARACK.		
	1st.	15th.	End of mo.	1st.	15th.	End of mo.	1st.	15th.	End of mo.
1906.....	2	60	60	5	70	46	55	101	125
1907.....	0	30	72	0	42	87	0	39	74
1908.....	11	27	21	24	32	21	29	43	32
1909.....	2	25	43	2	24	45	28	52	65
1910.....	5	2	0	7	4	4	8	21	24
1911.....	4	1	44	1	2	56	3	5	45
1912.....	6	22	30	T.	14	19	3	29	42
1913.....	35	35	60	31	24	80	35	41	110
1914.....	8	40	31	12	46	26	10	31	27
1915.....	9	57	45	6	67	40	3	67	48
1916.....	15	42	74	14	16	77	7	32	86
1917.....	4	0	0	6	0	0	16	8	8
1918.....	17	23	23	20	17	16	17	27	32
1919.....	18	50	35	34	52	37	35	48	29
1920.....	15	55	54	18	66	67	29	83	85

T. means trace.

Snowfall Data. [In inches.]

WATERSHED, COUNTY, STATION.	Elevation, feet.	Total snowfall.	Comp'd with normal.	Am't on ground 15th.	Am't on ground end mo.
Klamath Watershed.					
<i>Siskiyou County.</i>					
Yreka.....	2,625	9	.....	0	0
<i>Trinity County.</i>					
Hayfork.....	2,300	25	.....	0	0
Ruth.....	2,925	.....	.....	.....	.....
Weaverville.....	2,162	11	.....	T.	0
Mountain Lakes.					
<i>Inyo County.</i>					
Bishop Creek.....	8,390	21	- 7	0	0
Independence.....	3,907	0	.....	0	0
<i>Lassen County.</i>					
Madeline.....	5,270	32	+21	8	8
Standish.....	4,000	7	.....	0	0
<i>Modoc County.</i>					
Alturas.....	4,400	.....	.....	.....	.....
Cedarville.....	4,675	16	+ 5	3	1
Fort Bidwell.....	4,375	18	.....	1	0
<i>Nevada County.</i>					
Grass Valley.....	2,690	2	.....	0	0
Nevada City.....	2,850	4	+ 1	0	0
North Bloomfield.....	3,214	8	+ 1	0	0
<i>Placer County.</i>					
Tahoe.....	6,230	59	+36	28	27
<i>Mono County.</i>					
Shields Ranch.....	3,500	7	.....	3	0
Sacramento Watershed.					
<i>Butte County.</i>					
De Saba.....	2,500	8	- 2	0	0
Inskip.....	4,975	88	+47	30	43
West Branch.....	3,216	16	- 5	2	0
<i>Nevada County.</i>					
Deer Creek.....	3,700	29	+ 6	12	7
Fordyce Dam.....	6,500	93	+40	55	54
Lake Spaulding.....	4,600	91	+37	40	30
<i>Placer County.</i>					
Blue Canon.....	4,695	68	+39	34	20
Emigrant Gap.....	5,230	80	+41	35	21
Summit.....	7,017	110	+38	66	67
<i>Fumas County.</i>					
Canon Dam.....	4,570	47	.....	22	25
Chester.....	4,550	75	+46	22	26
La Porte.....	5,000	66	+29	36	35
Portola.....	4,832	33	.....	8	5
Quincy.....	3,400	25	+16	3	T.
<i>Sierra County.</i>					
Downieville.....	3,150	14	- 3	0	0
Sierraville.....	5,000	17	- 1	10	5
<i>Siskiyou County.</i>					
McCloud.....	3,270	48	+19	14	20
Sisson.....	3,555	45	+21	10	2
<i>Yuba County.</i>					
Camptonville.....	3,500	20	+ 7	0	0
San Joaquin Watershed.					
<i>Alpine County.</i>					
Markleeville.....	5,525	19	.....	7	T.
Tamarack.....	8,000	125	+30	83	85
Twin Lakes.....	7,970	116	.....	60	96
<i>Calaveras County.</i>					
Calaveras Ranger Station.....	3,400	.....	.....	.....	.....
<i>Fresno County.</i>					
Camp Seven.....	6,980	35	.....	20	24
Cascada.....	4,900	22	.....	0	0
Hume.....	5,306	.....	.....	.....	.....
Huntington Lake.....	6,950	56	.....	19	28
<i>Kern County.</i>					
Glennville.....	3,300	T.	- 7	0	0
<i>Mariposa County.</i>					
Dudley's.....	3,000	7	.....	0	0
Glacier Point.....	7,000	47	.....	21	20
Yosemite.....	3,945	19	+ 2	7	9
<i>Tulare County.</i>					
Hot Springs.....	3,300	0	- 2	0	0
Springville.....	4,000	11	- 1	0	0
<i>Tuolumne County.</i>					
Hetch Hetchy.....	3,665	37	+30	0	1
Lake Eleanor.....	4,700	38	+14	13	T.
Mountains of Southern California.					
Cuyamaca.....	4,677	0	- 2	0	0
Julian.....	4,222	1	.....	0	0
Mount Wilson.....	5,704	3	.....	0	T.
Nellie.....	5,350	1	.....	0	0
Seven Oaks.....	5,000	6	- 6	0	0
Squirrel Inn.....	5,280	5	- 6	0	0