

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

CALIFORNIA SECTION
EDWARD A. BEALS, METEOROLOGIST.

Vol. XXV. SAN FRANCISCO, APRIL, 1921. No. 4

GENERAL SUMMARY.

Temperatures averaged below normal nearly everywhere in California during April, and precipitation, likewise, was deficient. Frosts were of frequent occurrence during the first half of the month, particularly on the mornings of April 4th, 5th and 15th, when the lowest temperatures of the entire month were quite generally recorded. The last decade was marked by rising temperatures, and the closing days were very warm; in fact temperatures on the 28th and 29th at most places reached the highest mark not only for the month but for the season, while in many instances the highest previous April record was approached. The heat was not confined to the interior but extended clear to the coast. At San Francisco, for example, 86° was recorded on the 27th, and at San Diego 88° on the 28th.

The wind movement was high, and there were several days when drying northerly winds prevailed in the great valleys working detriment to grain crops and ranges, retarding germination, and making the soil difficult to work. Northerly winds exceeding thirty miles an hour occurred on five dates at Fresno. The highest velocity reported at any station was 100 miles an hour at Point Reyes on the 3rd.

Rainfall was light in all sections, but the deficiency was most marked in the southern portion. Although light showers occurred on several days, the amounts were not important. As this was the third consecutive month of deficient moisture, conditions from an agricultural standpoint were conspicuously unfavorable. Added to this were the numerous severe frosts which occurred generally and with disastrous effects in the great deciduous fruit and vine growing sections. Notwithstanding the drought much plowing and planting was done, while the dry weather favored the harvesting and securing of hay and alfalfa.

T. R.

PRESSURE.

The mean sea-level pressure, determined from the records of 10 regular Weather Bureau stations, was 30.04 inches. The highest was 30.48 inches at Eureka on the 20th; the lowest was 29.34 inches at Independence on the 3rd; the range for the State was 1.14 inches.

TEMPERATURE.

The monthly mean temperature for the State, as shown by the records of 97 stations was 55.0°, which is 2.0° below the normal.

The highest monthly mean was 69.3°, at Indio; and the lowest was 33.4°, at Summit.

The highest temperature, 104°, occurred at Needles on the 29th, and the lowest, 2°, occurred at Fordyce Dam on the 15th.

The range for the State was 102°.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 229 stations, was 0.57 inch, or 1.22 inches below the normal.

The greatest monthly amount was 6.59 inches, at Helen Mine. No rain fell at 14 stations.

The greatest amount in 24 hours was 2.00 inches at Lytle Creek on the 3rd

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	84	88	217	54
Fresno.....	77	40	58	360	91
Independence.....	40	17	28	349	88
Los Angeles.....	75	52	64	305	78
Mount Tamalpais.....	64	64	64	321	81
Red Bluff.....	74	55	64	321	81
Sacramento.....	80	54	67	350	88
San Diego.....	76	63	70	314	81
San Francisco.....	77	69	71	286	67
San Jose.....	78	48	68	272	69
San Luis Obispo.....	78	57	68	325	84

WIND MOVEMENT.—(Miles.)

Stations.	Total mov. for month.	Ave. hr. velocity.	Maximum velocity.	Direction.	Date.	Prev. dir.
Eureka.....	6,302	8.8	41	nw.	3	n.
Fresno.....	6,293	8.7	35	nw.	24	nw.
Independence.....	6,220	8.6	50	nw.	13	nw.
Los Angeles.....	4,895	6.8	28	nw.	24	sw.
Mount Tamalpais.....	16,555	22.9	96	nw.	22	nw.
Point Reyes.....	18,775	26.1	100	nw.	3	nw.
Red Bluff.....	5,070	7.0	30	nw.	22	nw.
Sacramento.....	6,720	9.3	35	nw.	4	nw.
San Diego.....	6,001	8.3	38	w.	13	nw.
San Francisco.....	7,767	10.3	40	nw.	4	w.
San Jose.....	5,602	7.8	35	nw.	4	nw.
San Luis Obispo.....	3,691	5.1	27	w.	23	nw.

COMPARATIVE DATA FOR APRIL.

Year	Mean temp.	Ave. precip.	Year	Mean temp.	Ave. precip.	Year	Mean temp.	Ave. precip.	Year	Mean temp.	Ave. precip.
1898.....	60.9	0.41	1904.....	57.2	2.18	1910.....	59.8	0.62	1916.....	57.1	0.52
1899.....	58.1	0.60	1905.....	57.2	1.18	1911.....	54.2	1.93	1917.....	52.8	1.38
1900.....	53.9	2.14	1906.....	56.3	1.63	1912.....	51.9	3.07	1918.....	56.3	0.79
1901.....	55.8	2.16	1907.....	58.2	1.11	1913.....	54.9	1.44	1919.....	57.3	0.84
1902.....	56.2	1.88	1908.....	58.4	0.67	1914.....	56.6	2.14	1920.....	54.8	2.56
1903.....	54.8	1.28	1909.....	57.6	0.12	1915.....	56.0	1.85	1921.....	55.0	0.57

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

Stations.	Data.	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	
Chula Vista**.....	Evaporation.....	.161	.159	.192	.283	.191	.184	.184	.182	.192	.202	.225	.198	.316	.261	.214	.178	.210	.198	.214	.194	.203	.208	.149	.220	.261	.227	.302	.383	.302	.262	.....	6.655
	Wind movement.....	.87	109	261	190	106	86	103	88	100	102	126	118	310	211	108	96	129	125	113	96	93	139	183	122	118	87	70	85	147	156	.....	3.863
Dodgeland*.....	Evaporation.....	.175	.272	.192	.106	.379	.137	.362	.170	.051	.248	.182	.092	.130	.088	.065	.329	.073	.015	.095	.154	.266	.275	.079	.316	.327	.171	.317	.268	.443	.223	.....	5.895
	Wind movement.....	.24	21	68	189	160	57	37	21	22	30	54	31	78	78	22	11	29	13	30	55	34	48	42	158	77	23	95	92	57	86	.....	1.742
Oakdale (near)*.....	Evaporation.....	.116	.016	.226	.171	.312	.088	.209	.256	.166	.168	.164	.213	.075	.225	.170	.147	.105	.176	.199	.230	.261	.296	.358	.355	.340	.284	.405	.354	.517	.307	.....	6.900
	Wind movement.....	.95	55	105	85	225	135	70	40	45	65	70	95	85	80	70	55	65	50	80	100	110	90	150	200	210	100	180	95	155	140	.....	3.100
Tahoe**.....	Evaporation.....	.321	.305	.476	.263	.245	.270	.295	.220	.294	.343	.347	.208	.504	.233	.327	.253	.355	.355	.395	.294	.441	.303	.793	.374	.374	.284	.445	.444	.441	.441	.....	10.978
	Wind movement.....	.159	138	422	398	135	136	151	69	120	268	230	122	497	371	233	131	273	235	184	147	197	166	586	334	257	127	208	118	164	222	.....	6.792

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

Climatological Data for April, 1921.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.					Precipitation, in inches.				Number of days.			Observers.				
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Snowfall (un-melted).	Precipitation .01 inch or more.		Clear.	Partly cloudy.	Cloudy.	Prevailing direction of wind.
Antioch	Contra Costa	46	41	59.4	-0.3	91	27	36	113	52	.30	-.98	.20	0	2	24	3	3	se.	C. G. McDaniel.
Akersadero	San Luis Obispo	837	4	48.8		86	28	23	5	46	.42		.38	0	2	25	5	0	sw.	Colony Holding Corp.
Bakersfield	Kern	404	31	59.6	-1.9	92	28	36	15	41	.42	+.20	.24	0	2	18	7	5	nw.	Santa Fe Co.
Barstow	San Bernardino	2,105	17	59.2	-3.0	93	2	35	4	46	0	-.07	0	0	0	29	1	0	w.	E. L. White.
Berkeley	Alameda	317	33	55.7	-0.2	91	27	38	14	34	.91	-.45	.58	0	6	17	12	1	nw.	State University.
Blue Canon	Placer	4,695	21	47.0	+0.1	74	27	20	14	34	1.58	-.22	.55	2.0	5	16	8	6	nw.	Southern Pacific Co.
Blythe	Riverside	268	11	68.3		103	29	38	4	46	0		0	0	0	26	3	1	sw.	Palo Verde Water Co.
Bonita	San Diego	110	4	58.4		98	28	35	6	49	.03		.03	0	1	24	4	1	w.	R. M. Allen.
Branscomb	Mendocino	2,000	20	48.1	-1.7	83	127	26	14	40	2.04	-.10	.50	T.	8	15	8	7	n.	A. J. Haun.
Brawley	Imperial	-105	10	67.2		102	29	42	16	46	0		0	0	0	0	0	0	w.	M. D. Witter.
Calexico	Imperial	0	15	67.0	-3.0	102	29	40	16	47	0	-.08	0	0	0	24	6	0	w.	H. M. Rouse.
Chico	Butte	189	50	57.4	-4.2	91	28	28	5	45	.53	-1.09	.40	0	4	20	6	4	nw.	U. S. Bureau Plant Ind.
Chula Vista	San Diego	9	2	56.0		82	28	38	5	25	T.		T.	0	4	20	4	3	nw.	Western Salt Works.
Claremont	Los Angeles	1,200	28	56.6		88	28	32	6	50	.49		.23	0	4	23	4	3	n.	Prof. F. P. Brackett.
Cloverdale	Placer	340	18	55.4	-2.4	88	27	32	15	28	1.05	-.76	.54	0	4	13	8	9	n.	John O. Ogle.
Colfax	Colusa	2,421	49	52.6	-1.7	83	127	29	4	37	.86	-3.10	.50	0.5	3	16	13	1	n.	Southern Pacific Co.
Corona	Riverside	60	17	58.2	-0.6	90	28	33	14	35	.42	-.65	.37	0	2	22	2	6	nw.	E. A. Houchins.
Crescent City	Del Norte	615	6	59.5		100	28	33	5	47	.14		.10	0	2	19	7	4	w.	Edwin T. Brink.
Davis	Yolo	125	6	49.0	-0.9	66	8	29	4	28	3.32	-1.65	1.20	0	8	16	3	9	nw.	Thos. E. Peacock.
Dodge Island	Butte	51	48	56.2	-4.6	92	28	27	14	41	.30		.87	0	2	18	11	1	sw.	Prof. S. H. Beckett.
El Cajon	San Diego	160	25	56.5		90	29	30	14	38	.38		.25	0	3				n.	Dodge Land Co.
Elsinore	Riverside	482	21	57.6	-2.1	101	28	34	16	38	.18	-.45	.18	0	1	25	4	1	sw.	Eugene P. Kessler.
Escondido-1	San Diego	1,300	4	57.8		98	29	31	15	48	.05	-.43	.05	0	1	22	4	4	nw.	W. L. Wilhite.
EUREKA	Humboldt	742	26	56.6	-1.8	100	28	32	17	32	T.	-.85	T.	0	0	21	7	2	w.	H. L. Harlow.
Folsom	Sacramento	252	47	58.3	-2.5	89	28	35	11	34	.33	-1.60	.18	0	2	24	2	4	sw.	U. S. Weather Bureau.
Fontana	San Bernardino	1,925	8	56.6		97	28	36	3	17	1.67	-.26	.57	0	11	9	6	15	n.	Mrs. G. I. Marvin.
Fortyford Dam	Nevada	6,500	26	37.9	+2.6	73	28	2	15	44	.97	-2.52	.60	15.0	6	9	16	0	sw.	Fontana Land Co.
Fort Bidwell	Nevada	4,375	31	45.1	-2.2	73	28	22	14	37	.26	-1.29	.26	0	1	6	24	0	sw.	E. E. Roening.
FRESNO	Fresno	2,303	33	58.2	-2.0	90	28	36	4	36	.15	-.56	.09	0	2	21	6	3	nw.	U. S. Weather Bureau.
Grass Valley	Nevada	2,690	48	51.9	-0.1	84	27	26	4	34	.89	-3.31	.41	1.0	4	17	9	4	sw.	Mrs. L. M. Wentworth.
Greenland Ranch	Inyo	-178	9	67.3		103	29	35	6	40	0		0	0	0	30	0	0	n.	O. A. Denton.
Hanford	Kings	249	20	59.8	-0.8	93	28	31	13	48	.10	-.48	.08	0	2	27	0	3	n.	Santa Fe Co.
Headlandsburg	Sonoma	110	27			95	28	31	14	40	.93	-1.81	.58	0	2				nw.	Dr. F. J. Kinley.
Hollister	San Benito	284	46	54.6	-3.6	90	28	32	5	43	1.00	-.05	.35	0	5	21	6	3	w.	Grangers' Union.
INDEPENDENCE	Inyo	3,957	24	54.4	-2.3	85	29	27	6	41	T.	-.13	T.	0	0	19	10	1	nw.	U. S. Weather Bureau.
Indio	Riverside	-20	42	69.8	-2.7	103	29	43	26	45	0	-.07	0	0	0	20	10	0	nw.	U. S. Bureau Plant Ind.
Inskip	Butte	4,975	13	43.4	-1.7	70	28	20	4	26	1.92	-2.36	1.14	6.0	3	11	10	9	n.	Pacific Gas & Electric Co.
Kennett	Shasta	730	8	58.4		93	28	32	11	40	.64	-3.24	.27	0	3	15	4	11	ne.	Mammoth Copper Mine.
La Porte	Plumas	5,000	26	38.2	-4.0	70	28	12	14	42	1.16	-5.41	.64	5.0	4	13	7	10	sw.	Wm. Schuld.
Lemon Cove	Tulare	600	25	57.8	-4.6	93	29	32	14	41	.11	-1.47	.69	0	2	22	4	4	nw.	T. E. Bence.
Lick Observatory	Santa Clara	4,209	31	45.6	-0.8	70	28	23	14	24	.53	-1.28	.28	T.	5	15	7	7	n.	Lick Observatory.
Long Beach	Los Angeles	384	6	56.1		94	28	32	16	45	.51		.07	0	2	19	6	5	nw.	Basil Prior.
LOS ANGELES	Los Angeles	60	43	59.0	-0.4	95	28	42	5	32	.28	-.85	.15	0	2	18	8	4	sw.	George D. West.
McCloud	Siskiyou	3,270	10	46.1		78	28	18	14	42	.82		.57	T.	2	17	12	1	n.	U. S. Weather Bureau.
Marysville	Yuba	67	49	57.8	-4.2	90	28	33	14	38	.35	-1.05	.25	0	2	22	4	4	sw.	McCloud River Lbr. Co.
Mecca	Riverside	-185	14	68.3	-1.3	101	29	41	5	48	T.	-.12	T.	0	0	15	15	0	se.	Southern Pacific Co.
Merced	Merced	173	46	58.8	-1.2	90	28	37	16	39	.02	-.95	.02	0	1	23	7	0	nw.	Cooperative Date Garden.
MT. TAMALPAIS	Marin	2,375	21	49.6	+0.1	79	28	30	4	23	.96	-.47	.57	0	6	20	7	3	nw.	Santa Fe Co.
Mount Wilson	Los Angeles	5,704	3	47.9		79	28	18	4	30	1.06		.50	3.0	6	18	9	3	nw.	U. S. Weather Bureau.
Napa	Napa	20	43	55.7	-1.1	95	28	30	11	47	.64	-1.27	.60	0	3	16	11	3	sw.	Solar Observatory.
Needles	San Bernardino	477	28	69.4	-2.3	104	29	40	16	50	.32	+.24	.32	0	1	18	6	6	w.	State Hospital.
Nevada City	Nevada	2,850	28	48.7	-1.8	86	27	23	14	32	.95	-3.35	.45	1.0	3	10	17	3	sw.	Santa Fe Co.
Newman	Stanislaus	91	31	55.0	-7.1	89	128	29	15	32	.00	-.70	.00	0	0				sw.	B. H. Preston.
Oakdale (near)	Stanislaus	215	32	55.9	-1.7	89	29	30	14	42	.07	-1.07	.05	0	2	19	9	2	nw.	E. H. Wengenheim.
Oakland	Alameda	322	44	53.9	-1.5	85	27	38	14	35	.41	-1.15	.32	0	4	13	13	4	n.	S. San Joaquin Irr. Dist.
Ojai	Ventura	900	14	54.7	-2.8	97	28	27	5	50	.39	-.39	.34	0	2	24	4	2	sw.	Chabot Observatory.
Orland	Glenn	254	38	58.2	-5.2	92	28	32	14	40	.24	-.92	.20	0	2	20	8	2	n.	W. H. Duncan.
Oroville (near)	Butte	250	36	57.6	-1.9	90	29	32	22	41	.50	-1.30	.34	0	2	22	7	1	n.	U. S. Rec. Service.
Osadena	Los Angeles	805	30	57.1	-3.0	97	28	33	15	48	.56	+.28	.29	0	3	22	3	5	w.	William Noyer.
Paso Robles-1	San Luis Obispo	800	33	54.8	-3.0	93	28	30	15	45	.66	+.01	.55	0	3	21	4	5	sw.	Morris S. Jones.
Petaluma	Sonoma	9	6	58.0		91	27	41	15	32	.35	-1.52	.28	0	3	21	5	4	sw.	Mrs. A. Z. Campbell.
Placerville	El Dorado	1,925	31	52.2	0.0	83	28	24	4	41	.55	-3.70	.40	T.	2	15	0	15	n.	John Landis.
POINT REYES	Marin	490	28	49.3	-2.5	65	27	39	14	19	.45	-.89	.23	0	6	11	12	7	nw.	O. E. Bailey.
Pomona	Los Angeles	857	6	56.4		98	28	29	16	55	.31		.20	0	3	14	12	4	n.	U. S. Weather Bureau.
Porterville	Tulare	464	31	58.8	-4.1	92	28	32	14	43	.35	-.44	.27	0	2	22	5	3	nw.	J. E. Adanson.
RED BLUFF	Tehama	307	43	58.1	-1.0	91	28	36	14	37	.43	-1.42	.20	0	4	22	7	1	nw.	Santa Fe Co.
Redding	Shasta	522	45	56.5	-1.1	95	29	31	14	46	.23	-.46	.12	0	4	20	4	6	w.	U. S. Weather Bureau.
Redlands	San Bernardino	1,332	27	56.5	-4.2	95	29	31												

Daily Temperature for April, 1921.

Table with 32 columns for stations (1-31) and a Mean column. Rows list stations like Bakersfield, Calexico, Chico, Escondido, Eureka, Fresno, Independence, Los Angeles, Merced, Mount Tamalpais, Oakland, Orland, Oroville, Paso Robles, Point Reyes, Pomona, Porterville, Red Bluff, Redlands, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, San Luis Obispo, Santa Barbara, Santa Rosa, and Stockton, with their respective maximum and minimum temperatures.

SUPPLEMENTAL PRECIPITATION TABLE.

Table with 11 columns: Stations, Drainage-basin, Precip. inches. Lists precipitation data for various locations such as Abbotts, Aguanga, Amago, Angiola, Antelope Valley, Arrowhead Springs, Auberry, Auburn, Avalon, Bagdad, Barrett Dam, Beaumont, Beaumont (near), Bellota, Benson's Ferry, Betteravia, Big Bar, Big Sur, Bishop Creek, Calaveras R. S., Campbell, Canby, Camptonville, Canon Dam, Cascada, Cedarville, Centerville Pwr. H., Chester, China Flat, Churn Creek, Clovis, Coalinga, Colgate, Crockett, Cuyamaca, Deer Creek, Del Monte, Denair, De Saba, and Dinuba.

* Data obtained from 3-inch rain gage.