

## U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

CALIFORNIA SECTION.  
G. H. WILLSON, District Forecaster.

VOL. XX. SAN FRANCISCO, SEPTEMBER, 1916. No. 9.

## GENERAL SUMMARY.

September, 1916, was abnormally cool in California. Taking the State as a whole, the mean temperature,  $66.4^{\circ}$ , was  $2.1^{\circ}$  below normal. The average precipitation was 0.56 inch, or 0.07 inch more than the usual amount. A total of 8 stations reported no precipitation whatever, while 11 others reported only a trace. Contrary to the usual condition, the south portion of the State received copious rains, while the north portion received little or none. Sunshine was deficient, while wind movement was about normal. As in the preceding month, thunderstorms were of unusual frequency and of extraordinary violence. Observers in the mountain regions report that lightning has been particularly severe throughout the summer. No material damage was caused by frosts, which were limited to the more elevated regions.

The first decade of the month was generally fair, and seasonable temperatures occurred throughout the State. In the extreme north portion thunderstorms on the 2d were accompanied by scattered light showers. The second decade was also fair but considerably warmer, the highest temperatures of the month occurring at most stations between the 13th and 16th. The last decade of the month was one of unsettled and showery weather, with temperatures well below normal. Thunderstorms occurred throughout the central and south portions of the State on the 21st and 22d. Destructive lightning attended these storms, while in the region surrounding Monterey Bay a hailstorm on the 21st was accompanied by hailstones an inch and a half in diameter. In the high Sierra Nevada Mountains lightning discharges on the 22d resulted in numerous forest fires, but the rain which followed was sufficiently heavy to extinguish them. General and wide-spread rains began on the 29th and continued into October.

From an agricultural point of view the weather of September was favorable in certain characteristics and unfavorable in others. At this time of the year there is an inevitable conflict of interests in California regarding the kind of weather desired. Fruit growers who are harvesting and curing their crops want warm, dry weather, while those who are preparing to put in winter-growing crops or orchardists whose fruits ripen in the winter want rain. The weather of September, 1916, came about as near satisfying the varied agricultural interests as is possible in this State. The rains which began near the close of the month and continued into October prepared the soil for early fall plowing, while in large sections they were heavy enough to encourage the sowing of grain on summer-fallow land. They also resulted in an unusually early growth of new grass on the cattle ranges. Citrus fruit trees have been greatly benefitted, and the new crop is well ahead of the season. On the other hand, the early rains have been harmful to raisin and table grapes, beans, sugar beets, olives, and figs. Though ample warnings of the rains were provided, certain conditions over which there was no control brought about serious damage to the raisin crop. According to conservative estimates, 25 per cent of the crop has been lost because of persistent showery and cloudy weather, with subnormal temperatures. The rains have discolored beans which were harvested but not threshed, leached out some of the sugar content of sugar beets, and promoted the spread of mildew. Lack of sunshine during the latter part of the month caused injury to the color of bleaching fruits. However, it is probable that the gain in forage and the early preparation of the soil for new growth have more than offset the damage thus sustained.

A. H. P.

## PRESSURE.

The monthly mean atmospheric pressure for the State, reduced to sea level, was 29.93 inches.

The highest was 30.24 inches at Eureka on the 25th.

The lowest was 29.65 inches at Independence on the 5th.

The range for the State was 0.59 inch.

## TEMPERATURE.

The monthly mean temperature for the State was  $66.4^{\circ}$  degrees, which is  $2.1^{\circ}$  degrees below the normal.

The highest monthly mean was  $90.2^{\circ}$  degrees, at Greenland Ranch; and the lowest was  $49.2^{\circ}$  degrees, at Fordyce Dam.

The highest temperature,  $116^{\circ}$  degrees, occurred at Greenland Ranch on the 1st; and the lowest,  $17^{\circ}$  degrees, occurred at Bridgeport on the 11th.

The range for the State was 99 degrees.

## PRECIPITATION.

The average precipitation for the State was 0.56 inch, or 0.07 inch above the normal.

The greatest monthly amount was 2.36 inches, at Point Reyes. 8 stations reported no precipitation.

The greatest amount in 24 hours was 2.05 inches at Betteravia on the 29th.

## RELATIVE HUMIDITY.—(Per Cent.)

Stations.	5 a.m.	5 p.m.	Mean.
Eureka.....	91	79	85
Fresno.....	60	24	42
Los Angeles.....	92	69	80
Mount Tamalpais.....	49	45	47
Red Bluff.....	51	22	37
Sacramento.....	76	29	52
San Diego.....	91	82	87
San Francisco.....	89	68	79
San Jose.....	91	54	72
San Luis Obispo.....	91	62	76

## SUNSHINE AND CLOUDINESS.

Stations.	Actual hours of sunshine.	Per cent of the possible.
Eureka.....	204	54
Fresno.....	350	94
Los Angeles.....	255	69
Mount Tamalpais.....	398	91
Red Bluff.....	327	88
Sacramento.....	330	88
San Diego.....	229	62
San Francisco.....	260	70
San Jose.....	279	75
San Luis Obispo.....	272	73

## WIND MOVEMENT.—(Miles.)

Stations.	Total movement for month.	Average hourly velocity.	Maximum velocity.	Direction.	Date.
Eureka.....	4,150	5.8	39	n.	26
Fresno.....	5,504	7.6	33	nw.	21
Independence.....	4,206	5.8	33	se.	2
Los Angeles.....	3,518	4.9	14	sw.	
Mount Tamalpais.....	10,735	14.9	72	nw.	8
Point Reyes.....	13,106	18.2	64	nw.	8
Red Bluff.....	3,898	5.4	30	nw.	26
Sacramento.....	5,590	7.8	29	n.	26
San Diego.....	4,199	5.8	19	nw.	12
San Francisco.....	6,132	8.5	32	sw.	29
San Jose.....	3,672	5.1	24	s.	30
San Luis Obispo.....	2,685	8.7	22	w.	25

The prevailing direction of the wind for the State was west.

Climatological Data for September, 1916.

Stations.	Counties.	Temperature, in degrees Fahr.										Precipitation, in inches.				Number of days.				Observers.
		Elevation, feet.	Length of record, years.	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, 0.1 inch or more.	Partly cloudy.	Cloudy.	Prevailing direction of wind.				
Alturas.....	Modoc.....	4,400	12	58.4	.....	94 <sup>114</sup>	25	64	0.16	-0.53	0.16	0	1	20	9	1	w.	Prof. C. B. Towle.		
American Camp.....	Tuolumne.....	2,600	1	66.9	.....	96 <sup>113</sup>	45	4	2.30	-0.03	1.84	0	3	26	1	3	sw.	U. S. Forest Service.		
Angiola.....	Tulare.....	208	16	.....	.....	.....	.....	.....	0.32	0.32	0	1	28	1	1	3	Santa Fe Co.			
Antioch.....	Contra Costa.....	46	37	78.7	+7.6	100 <sup>11</sup>	48	114	50	0.15	-0.13	0.15	0	1	28	1	1	e.	C. G. McDaniel.	
Arrowhead Springs.....	San Bernardino.....	2,000	7	71.1	.....	85 <sup>14</sup>	54	125	26	1.34	1.34	0	1	27	0	3	.....	Arrowhead Springs Co.		
Atascadero.....	San Luis Obispo.....	837	.....	65.8	.....	101 <sup>14</sup>	36	18	58	0.82	0.82	0	1	24	4	2	.....	Colony Holding Corp.		
Auberry.....	Fresno.....	2,050	.....	70.2	.....	95 <sup>15</sup>	45	26	39	0.74	0.43	0	2	26	3	3	.....	S. J. & E. Ry. Co.		
Auburn.....	Placer.....	1,360	45	72.6	+1.6	96 <sup>16</sup>	52	24	32	0.20	-0.33	0.20	0	1	27	0	3	.....	Southern Pacific Co.	
Avalon.....	Los Angeles.....	30	6	61.5	.....	77 <sup>29</sup>	24	12	15	0.20	0.17	0.17	0	4	21	9	0	.....	T. S. Manning.	
Azusa.....	do.....	540	14	68.6	-2.4	100 <sup>13</sup>	45	13	55	0.75	+0.47	0.75	0	1	23	4	3	sw.	C. O. Hillis.	
Bagdad.....	San Bernardino.....	784	13	83.6	-2.1	105 <sup>2</sup>	61	12	35	0.00	-0.14	0.00	0	0	26	2	2	.....	Santa Fe Co.	
Bakerfield.....	Kern.....	404	27	73.8	-0.9	104 <sup>15</sup>	48	17	48	0.33	+0.14	0.33	0	1	28	1	1	.....	E. L. White.	
Barstow.....	San Bernardino.....	2,105	13	71.8	-2.5	98 <sup>16</sup>	46	12	39	0.10	-0.06	0.10	0	1	28	1	1	.....	State University.	
Berkeley.....	Alameda.....	317	29	63.4	+2.0	92 <sup>27</sup>	46	14	38	1.35	+0.77	0.74	0	4	15	8	2	.....	Union Sugar Co.	
Betteravia.....	Santa Barbara.....	155	3	60.1	.....	78 <sup>14</sup>	42	15	32	2.09	2.05	0	2	26	2	2	.....	Southern Pacific Co.		
Biggs **.....	Butte.....	98	17	.....	.....	.....	.....	.....	T.	-0.46	T.	0	0	30	0	0	.....	W. A. Chalfant.		
Bishop.....	Inyo.....	4,450	21	.....	.....	.....	.....	.....	T.	0	0	0	0	0	0	0	0	.....	Floyd E. Van Cleave.	
Bishop Creek.....	do.....	8,790	6	51.2	.....	80 <sup>5</sup>	26	11	37	0.50	0.50	0	1	26	3	1	s.	Victor Hope.		
Blacksburg.....	Humboldt.....	1,700	10	.....	.....	.....	.....	.....	.....	.....	.....	0	1	27	1	2	.....	Southern Pacific Co.		
Blue Canon.....	Placer.....	4,695	17	54.4	-5.0	82 <sup>1</sup>	33	19	45	0.80	-0.27	0.80	0	1	19	9	2	.....	G. L. Suits.	
Blythe.....	Riverside.....	268	7	80.6	.....	109 <sup>1</sup>	52	12	52	1.01	1.01	0	1	26	2	2	.....	R. M. Allen.		
Bonita.....	San Diego.....	110	.....	67.0	.....	84 <sup>29</sup>	51	27	26	0.23	0.23	0	1	26	1	3	.....	A. J. Haun.		
Branscomb.....	Mendocino.....	2,000	16	60.8	0	93 <sup>27</sup>	37	22	42	0.64	-0.51	0.48	0	4	26	1	3	.....	M. D. Witter.	
Brawley.....	Imperial.....	-105	6	82.0	.....	108 <sup>1</sup>	56	28	44	1	1	1	0	0	0	0	0	.....	Geo. Delury, Jr.	
Bridgeport.....	Mono.....	6,500	2	49.9	.....	80 <sup>1</sup>	17	11	58	0.30	0.20	0	2	18	7	5	w.	Mrs. M. D. Chambers.		
Burney.....	Shasta.....	3,300	6	57.4	.....	90 <sup>14</sup>	27	18	56	0.40	0.25	0	2	19	7	4	.....	Dr. W. L. Shaw.		
Cahuilla.....	Riverside.....	3,600	5	56.4	.....	94 <sup>13</sup>	20	25	67	0.18	0.18	0	1	26	1	3	.....	U. S. Forest Service.		
Calaveras Ranger Sta.....	Calaveras.....	3,400	.....	62.3	.....	88 <sup>15</sup>	40	13	42	0.69	0.63	0	2	27	0	3	.....	F. R. Spencer.		
Camptonville (near).....	Imperial.....	0	11	83.0	-0.5	110 <sup>1</sup>	57	26	44	0.40	+0.31	0.40	0	1	28	2	0	.....	Pacific Gas & Electric Co.	
Campbell.....	Santa Clara.....	217	19	61.8	-1.2	91 <sup>13</sup>	38	18	47	0.85	+0.42	0.63	0	2	25	0	5	.....	Great Western Power Co.	
Canon Dam.....	Yuba.....	3,500	9	67.4	.....	90 <sup>13</sup>	44	21	35	0.72	0.72	0	1	24	3	3	w.	S. J. & E. Ry. Co.		
Cascade.....	Plumas.....	4,570	2	59.7	.....	91 <sup>13</sup>	34	24	52	0.16	0.16	0	1	26	3	1	.....	T. H. Johnstone.		
Center Ranger Station.....	Fresno.....	4,900	22	65.3	+2.2	90 <sup>15</sup>	42	14	52	0.07	0.07	0	1	13	16	1	.....	U. S. Forest Service.		
Centererville.....	Modoc.....	4,675	22	61.3	+2.2	94 <sup>15</sup>	43	16	47	0.36	0.36	0	1	21	8	1	.....	Pacific Gas & Electric Co.		
Centerville.....	Butte.....	490	2	67.5	.....	94 <sup>13</sup>	43	16	47	0.36	0.36	0	1	28	0	0	.....	U. S. Bureau Plant Ind.		
Chico.....	do.....	189	46	71.1	-3.5	100 <sup>19</sup>	45	10	52	0.40	-0.10	0.40	0	1	24	4	2	se.	O. I. Westerburg.	
China Flat.....	Humboldt.....	600	7	63.2	.....	87 <sup>14</sup>	40	11	43	0.27	0.27	0	1	24	3	3	w.	Prof. F. P. Brackett.		
Clarendon.....	Los Angeles.....	1,200	24	65.6	-2.0	101 <sup>14</sup>	47	11	45	0.34	+0.21	0.34	0	1	15	14	1	.....	John O. Ogle.	
Cloverdale.....	Sonoma.....	340	14	68.6	+1.0	97 <sup>12</sup>	41	18	49	0.09	-0.57	0.05	0	2	25	0	5	.....	Producers Trans. Co.	
Coalinga.....	Fresno.....	663	4	73.9	.....	102 <sup>13</sup>	48	9	45	0.28	0.28	0	1	28	0	2	e.	Southern Pacific Co.		
Colfax.....	Colusa.....	2,421	45	66.8	-2.7	92 <sup>29</sup>	44	17	37	0.92	+0.26	0.82	0	2	27	0	3	.....	Cousa Sun.	
Colusa.....	do.....	60	13	68.6	-0.4	86 <sup>1</sup>	50	18	32	0.24	-0.08	0.24	0	1	25	2	3	se.	Edw. N. Munns.	
Converse Nursery.....	San Bernardino.....	6,000	2	60.4	.....	85 <sup>14</sup>	38	23	38	0.62	0.44	0	3	23	6	1	.....	J. W. Garthwaite.		
Corona.....	Riverside.....	615	2	63.3	.....	103 <sup>13</sup>	47	12	48	0.55	-0.14	0.55	0	1	28	0	0	.....	Thos. E. Peacock.	
Crescent City.....	Del Norte.....	125	2	59.8	+4.1	85 <sup>10</sup>	43	24	41	0.88	-1.14	0.38	0	6	19	5	6	.....	Cuyamaca Water Co.	
Cuyamaca.....	San Diego.....	4,677	17	63.3	+3.2	84 <sup>14</sup>	41	24	36	1.35	+0.75	1.05	0	2	25	1	4	w.	S. H. Beckett.	
Davis.....	Yolo.....	51	44	70.4	-1.6	101 <sup>13</sup>	39	18	54	0.17	-0.09	0.17	0	1	25	5	0	.....	Pacific Gas & Electric Co.	
Deer Creek.....	Nevada.....	3,700	9	59.7	.....	86 <sup>14</sup>	35	24	47	1.08	0.88	0	2	27	1	2	w.	Hotel Del Monte.		
Del Monte.....	Monterey.....	25	5	60.4	.....	82 <sup>10</sup>	45	26	34	0.65	0.55	0	2	21	4	5	.....	Southern Pacific Co.		
Delta.....	Shasta.....	1,138	31	67.4	-2.3	97 <sup>15</sup>	41	18	45	T.	-1.11	T.	0	0	18	10	2	.....	J. T. Mason.	
Denair.....	Stanislaus.....	126	16	69.2	-1.9	98 <sup>13</sup>	47	24	45	0.55	+0.38	0.50	0	2	26	0	4	w.	Producers Trans. Co.	
De Sabla.....	Butte.....	2,700	12	66.3	.....	94 <sup>13</sup>	42	15	46	0.22	0.22	0	1	28	0	2	.....	Pacific Gas & Electric Co.		
Dobbins (near).....	Yuba.....	1,650	12	72.4	-0.2	96 <sup>14</sup>	54	13	38	0.68	-0.36	0.67	0	2	22	4	4	s.	I. T. Mason.	
Downtownville.....	Sierra.....	3,150	5	62.0	.....	93 <sup>20</sup>	36	14	54	0.69	0.69	0	1	24	5	1	.....	Producers Trans. Co.		
Dudley.....	Kings.....	595	4	73.9	.....	103 <sup>15</sup>	48	26	44	0.39	0.24	0	2	27	2	2	.....	W. H. Dudley.		
Dudleys.....	Mariposa.....	3,000	7	60.6	.....	88 <sup>14</sup>	37	9	49	0.52	0.42	0	2	25	3	2	nw.	Southern Pacific Co.		
Dunsmuir.....	Siskiyou.....	2,285	27	65.2	+3.9	96 <sup>13</sup>	40	18	48	0.07	-1.07	0.07	0	1	20	0	0	.....	R. W. Durham.	
Durham.....	Butte.....	160	21	69.0	-1.2	95 <sup>16</sup>	46	23	50	0.60	-0.15	0.57	0	2	23	4	3	s.	Santa Fe Co.	
East Park.....	Colusa.....	2	70.0	.....	104 <sup>3</sup>	44	13	60	0.10	0.10	0.10	0	1	26	2	2	.....	J. J. Lea.		
Edison.....	Kern.....	2,500	2	75.5	.....	102 <sup>15</sup>	58	23	31	0.72	0.72	0	1	26	2	2	.....	So. Cal. Edison Co.		
El Cajon.....	San Diego.....	482	17	68.7	-2.2	92 <sup>20</sup>	48	27	37	0.22	+0.10	0.22	0	1	28	1	1	.....	H. H. Kessler.	
Electra.....	Amador.....	725	12	70.0	-1.5	96 <sup>14</sup>	48	17	43	0.53	-0.13	0.53	0	1	26	1	3	.....	Pacific Gas & Electric Co.	
Elsinore.....	Riverside.....	1,300	.....	73.0	.....	104 <sup>14</sup>	47	12	50	0.51	0.51	0	1	28	0	0	.....	U. S. Forest Service.		
Emigrant Gap.....	Placer.....	5,230	42	.....	.....	.....	.....	.....	0.80	+0.31	0.80	0	1	26	0	4	sw.	Southern Pacific Co.		
Escondido.....	San Diego.....	657	22	69.2	+0.7	93 <sup>13</sup>	45	13	48	0.30	+0.22	0.30	0	1	19	10	10	.....	G. T. Marvin.	
EUREKA.....	Humboldt.....	64	30	55.8	+0.9	75 <sup>11</sup>	44	20	26	0.38	-1.00	0.22	0	3	11	9	10	.....	Fountain Co.	
Folsom.....	Sacramento.....	232	44	71.4	-0.4	95 <sup>15</sup>	50	15	41	0.42	+0.02	0.42	0	1	25	2	3	.....	E. E. Roening.	
Fontana.....	San Bernardino.....	1,825	4	69.2	.....	101 <sup>14</sup>	46	10	49	0.57	0.57	0	1	26	2	2	.....	C. R. Deocius.		
Fordyce Dam.....	Nevada.....	6,600	21	49.2	.....	65 <sup>13</sup>	35	3	25	1.00	1.00	0	1	18	12	0	.....	U. S. Weather Bureau.		
Fort Bidwell.....	Modoc.....	4,375	27	60.3	+1.3	89 <sup>16</sup>	32	10	46	0.15	-0.28	0.15	0	1	19	7	4	.....	G. G. Devore.	
FRESNO.....	Fresno.....	2,293	29	73.2	-1.1	100 <sup>15</sup>	52	28	39	0.38	+0.19	0.24	0	2	26	3	1	.....	C. H. Likely.	
Georgetown.....	El Dorado.....	2,650	43	.....	.....	91 <sup>14</sup>	42	26	38	0.45	0.45	0	1	25	3	2	.....	H. P. Ware.		
Glenville.....	Kern.....	3,300	6	65.8	.....	91 <sup>14</sup>	42	26	38	0.45	0.45	0	1	25	3	2	.....	Southern Pacific Co.		
Goffs.....	San Bernardino.....	3,222	17	68.6	-0.6	88 <sup>18</sup>	40	30	30	1.00	+0.14	0.62	0	3	27	0	3	.....	City Engineer.	
Grass Valley.....	Placer.....	2,690	44	66.4	.....	89 <sup>15</sup>	48													

## Climatological Data for September, 1916.—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.				Number of days.			Prevailing direction of wind.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Snowfall (unlimited).	Precipitation of 1 inch or more.	Clear.	Partly cloudy.	Cloudy.		
La Porte.....	Plumas.....	5,000	22	56.0	+0.8	80	20	32	8	37	0.70	-1.19	0.70	0	1	26	1	3	n.s.	C. W. Hendel.
Las Plumas.....	Butte.....	506	2	73.4	-7.9	94	113	54	25	30	0.31	-0.31	0.31	0	1	24	2	4	s.	Great Western Power Co.
Le Grande.....	Merced.....	255	16	64.7	-1.8	95	15	35	22	55	0.37	+0.14	0.27	0	2	29	0	1	ne.	Santa Fe Co.
Lemon Cove.....	Tulare.....	600	21	73.1	-2.2	97	115	51	26	38	T	-0.45	T	0	0	28	1	1	n.w.	T. E. Bence.
Lick Observatory.....	Santa Clara.....	4,209	27	60.4	-2.2	88	16	40	25	26	0.69	+0.33	0.35	0	3	28	2	0	n.w.	The Director.
Lindsay.....	Tulare.....	384	2	73.2	-0.5	103	15	48	7	49	0.03	-0.03	0.03	0	1	27	3	0	n.w.	Basil Prior.
Livermore.....	Alameda.....	485	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	E. G. Still.	
Lompoc (near).....	Santa Barbara.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A. R. Poett.	
Lone Pine.....	Inyo.....	3,728	11	63.4	-2.1	93	1	37	12	51	0.00	-0.30	0.00	0	0	28	2	0	s.	G. F. Marsh.
Los ANGELES.....	Los Angeles.....	293	39	65.2	-1.3	83	29	53	8	27	0.77	+0.69	0.77	0	1	19	8	3	sw.	U. S. Weather Bureau.
Los Gatos.....	Santa Clara.....	600	29	66.4	+0.8	95	13	45	18	41	0.61	+0.04	0.27	0	3	23	2	5	n.	F. H. McCullagh.
McCloud.....	Siskiyou.....	3,270	6	57.4	-	88	13	28	18	54	T	-	T	0	0	23	5	2	s.	F. F. Spencer.
Madeline.....	Butte.....	5,270	7	58.0	-	88	6	24	11	54	0.20	-0.20	0.17	0	1	17	7	6	sw.	J. H. Williams.
Mazatla.....	Maricopa.....	2,321	12	66.8	+0.5	94	12	40	14	46	0.54	-1.71	0.44	0	2	22	0	8	n.	Southern Pacific Co.
Maricopa.....	Kern.....	640	5	71.8	-	105	15	53	25	44	0.59	-	0.50	0	2	26	0	4	s.	Producers Trans. Co.
Marysville.....	Yuba.....	67	45	71.7	-2.3	97	115	48	4	46	T	-0.34	T	0	0	26	3	1	s.	Southern Pacific Co.
Mecca.....	Riverside.....	-185	10	83.4	-	110	1	55	12	47	T	-	T	0	0	23	5	2	se.	E. A. Palmer.
Merced.....	Merced.....	173	42	70.8	-2.9	99	15	48	10	47	0.25	+0.03	0.20	0	2	26	2	2	n.	Santa Fe Co.
Middlewater.....	Kern.....	803	5	76.2	-	101	1	54	12	39	0.67	-	0.67	0	1	24	1	5	n.	Producers Trans. Co.
Mill Creek—1.....	Amador.....	2,500	9	64.4	-	94	15	43	16	47	0.60	-	0.54	0	2	26	2	2	n.	Pacific Gas & Electric Co.
Milton (near).....	Calaveras.....	660	25	72.0	+0.4	97	15	50	18	34	0.65	+0.25	0.50	0	2	26	3	1	n.w.	J. H. Southwick.
Mineral.....	Tehama.....	1	53.6	-	-	83	13	28	24	46	0.14	-	0.07	0	2	18	9	3	s.	U. S. Forest Service.
Mokelumne Hill.....	Calaveras.....	1,550	23	70.4	+2.6	95	15	48	25	35	0.45	-0.14	0.45	0	1	24	0	6	n.	C. E. Prindle.
Montague.....	Siskiyou.....	2,450	28	64.0	-2.3	94	115	35	11	53	0.39	+0.07	0.29	0	2	17	10	3	w.	I. E. De Boy.
MOUNT TAMALPAIS.....	Marin.....	2,375	17	65.6	-0.5	89	14	46	25	23	1.29	+0.77	0.68	0	4	23	4	3	w.	U. S. Weather Bureau.
Napa City.....	Napa.....	20	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Thos. Hull.	
Needles.....	San Bernardino.....	477	24	79.2	-4.5	104	1	56	112	36	0.78	+0.54	0.78	0	1	27	0	3	s.	Santa Fe Co.
Nellie.....	San Diego.....	5,350	7	67.6	-	96	15	43	23	30	0.50	-0.47	0.47	0	2	22	4	4	sw.	Esther P. Hewlett.
Nevada City.....	Nevada.....	2,850	24	63.2	+1.0	93	113	39	18	51	0.73	-0.04	0.73	0	1	26	2	2	sw.	S. W. Marsh.
Newman.....	Stanislaus.....	91	27	69.9	-3.7	95	12	40	26	50	0.26	+0.06	0.16	0	2	-	-	-	n.	E. S. Wangenheim.
North Bloomfield.....	Nevada.....	3,214	19	64.4	+0.6	89	114	39	24	42	0.82	-0.30	0.82	0	1	23	2	5	w.	J. R. McIntosh.
North Fork.....	Madera.....	3,000	12	65.6	-	96	18	42	12	52	0.47	-	0.44	0	2	26	0	4	sw.	U. S. Forest Service.
Oak Grove.....	San Diego.....	2,751	6	67.4	-	99	113	37	10	54	0.06	-	0.06	0	1	21	0	9	w.	U. S. Forest Service.
Oakland.....	Alameda.....	36	40	63.4	+2.2	88	27	50	15	32	1.45	-	0.73	0	4	16	5	9	w.	Chabot Observatory.
Oceanside.....	San Diego.....	60	6	63.4	-	78	29	56	13	59	0.48	-	0.48	0	1	26	2	2	sw.	H. D. Brodie.
Ojai Valley.....	Ventura.....	900	10	66.4	-	100	13	46	17	46	0.27	-	0.13	0	1	23	3	4	s.	W. H. Duncan.
Orland.....	Glen.....	254	34	73.8	-2.9	100	113	46	17	46	0.27	-	0.13	0	1	24	0	6	sw.	U. S. Rec. Service.
Orleans.....	Humboldt.....	376	13	67.8	-3.1	93	114	43	24	43	0.17	-1.01	0.12	0	2	24	0	6	sw.	F. W. Gent.
Oroville (near).....	Butte.....	250	32	71.8	-1.2	100	12	47	117	46	0.62	-0.09	0.58	0	2	22	3	5	sw.	E. D. Fairchild.
Pacific.....	El Dorado.....	3,400	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	U. S. Forest Service.	
Pasadena.....	Los Angeles.....	827	26	67.0	-2.6	95	13	41	27	50	0.47	+0.32	0.47	0	1	26	3	1	sw.	Harlan W. Hall.
Paso Robles.....	San Luis Obispo.....	800	29	69.4	+3.3	108	15	35	18	65	0.78	+0.49	0.78	0	1	27	2	1	s.	Dr. F. W. Sawyer.
Peachland.....	Sonoma.....	190	20	65.2	+1.5	97	111	38	18	54	0.25	-0.45	0.20	0	4	23	4	3	sw.	E. H. Parnell.
Petaluma.....	El Dorado.....	2	64.3	-	-	95	12	39	19	56	0.73	-	0.40	0	3	17	10	3	n.	John Landis.
Point Loma.....	San Diego.....	1,875	27	63.6	+0.1	86	13	46	19	36	0.36	-0.36	0.36	0	1	19	8	3	w.	A. Baring Gould.
POINT REYES.....	San Diego.....	302	10	63.4	-	76	29	57	14	31	0.21	-	0.21	0	1	6	13	11	n.	Fred J. Dick.
Pomona.....	Marin.....	490	24	55.8	-0.4	80	27	45	12	27	2.36	+1.52	1.71	0	4	10	9	11	n.	U. S. Weather Bureau.
Porterville.....	Los Angeles.....	857	2	68.3	-	98	13	43	13	55	0.26	-	0.26	0	1	11	0	19	n.	J. E. Adamson.
Portola.....	Tulare.....	464	27	73.6	-1.5	100	15	46	17	53	0.05	-0.24	0.05	0	1	25	0	5	sw.	Leslie McAuliffe.
Quincy.....	Plumas.....	3,400	21	59.0	+1.8	92	15	26	24	57	0.52	-0.81	0.52	0	1	26	0	4	s.	Western Pacific Co.
REED BLUFF.....	Tehama.....	307	39	73.1	-0.8	98	19	48	17	42	0.08	-0.59	0.06	0	2	24	4	2	se.	U. S. Weather Bureau.
Redding.....	Shasta.....	552	41	73.0	-1.0	100	113	48	17	42	0.10	-0.68	0.10	0	1	25	4	1	n.w.	J. H. Buck.
Redlands.....	San Bernardino.....	1,352	23	71.0	-1.2	101	14	47	25	48	1.82	+1.48	1.27	0	2	25	2	3	w.	P. W. Moore.
Reedley.....	Fresno.....	347	16	71.4	-0.8	99	113	51	10	43	0.25	-0.40	0.22	0	2	24	0	6	e.	Santa Fe Co.
Rialto (near).....	San Bernardino.....	2,250	10	70.5	-	100	14	47	23	38	0.79	-	0.79	0	1	26	2	2	sw.	So. Cal. Edison Co.
Riverside.....	Placer.....	851	34	69.6	-2.5	105	14	40	12	61	0.99	+0.85	0.86	0	3	22	6	2	sw.	J. H. D. Cox.
Rocklin.....	Placer.....	249	45	69.6	-3.1	98	13	43	9	46	0.45	+0.18	0.45	0	1	26	3	6	n.w.	Southern Pacific Co.
Rohnerville.....	Humboldt.....	75	13	69.8	-	93	11	40	120	48	0.65	-	0.45	0	3	21	3	6	n.w.	W. D. Gray.
Ruth.....	Trinity.....	2,925	2	60.0	-	91	14	32	12	55	0.23	-	0.18	0	2	24	4	2	s.	U. S. Forest Service.
SACRAMENTO.....	Sacramento.....	71	39	70.2	+1.1	96	13	48	24	38	0.16	-0.20	0.15	0	2	25	3	3	sw.	U. S. Weather Bureau.
St. Helena.....	Monterey.....	255	8	65.8	+0.1	96	13	42	18	48	0.34	-	0.32	0	2	25	3	2	w.	do.
Salinas.....	Monterey.....	40	42	61.2	+0.1	88	27	40	18	42	1.28	+1.08	0.81	0	3	20	3	7	w.	Capt. W. G. Waters.
San Bernardino.....	San Bernardino.....	1,054	24	71.1	0	104	14	45	12	57	1.06	-0.92	1.06	0	1	21	8	3	n.w.	So. Cal. Edison Co.
SAN DIEGO.....	San Diego.....	87	45	64.4	-2.5	80	29	56	14	55	0.25	+0.19	0.25	0	1	14				

## Climatological Data for September, 1916.—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.					Precipitation, in inches.			Number of days.	Prevailing direction of wind.	Observers.					
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Snowfall (unmeasured).					
Ukiah.....	Mendocino.....	620	23	65.9	+0.3	97	113	39	18	0.15	-0.42	0.10	0	2	19	0	11	nw.	Dr. George McCowen.
Vacaville.....	Solano.....	175	28	68.1	-2.7	95	27	94	23	0.15	-0.28	0.15	0	1	26	2	2	.....	J. E. Bassford.
Valyermo.....	Los Angeles.....	3,750	.....	65.8	.....	94	14	39	12	0.39	.....	0.39	0	1	26	2	2	.....	U. S. Forest Service.
Visalia.....	Tulare.....	334	28	73.6	+1.9	94	15	51	22	0.26	-0.16	0.18	0	2	26	0	4	nw.	Santa Fe Co.
Walnut Creek.....	Contra Costa.....	149	2	70.0	+1.2	97	15	50	14	0.43	-0.14	0.38	0	2	26	0	4	.....	R. L. Nougaret.
Warner Springs.....	San Diego.....	3,165	8	70.5	.....	100	14	41	10	0.52	0.14	0.10	0	3	25	0	5	.....	J. A. Ream.
Wasco.....	Kern.....	336	16	72.2	-0.4	99	15	50	24	0.80	+0.47	0.80	0	1	27	0	3	nw.	Santa Fe Co.
Watsonville.....	Santa Cruz.....	23	20	60.8	+0.3	92	27	38	17	0.44	+1.05	0.98	0	3	10	16	4	sw.	Spreckels Sugar Co.
Weaverville.....	Trinity.....	2,162	4	64.4	.....	98	13	33	19	0.61	0.33	0.33	0	1	21	6	3	.....	U. S. Forest Service.
Weitchpec.....	Humboldt.....	1,700	6	63.8	.....	92	14	40	23	0.44	0.43	0.28	0	2	25	2	3	w.	G. S. Garnett.
West Branch.....	Butte.....	3,216	2	62.2	.....	90	13	34	10	0.47	0.36	0.36	0	1	22	3	5	n.	Pacific Gas & Electric Co.
Wheatland.....	Yuba.....	84	29	70.0	+0.1	93	112	47	18	0.40	0.27	0.27	0	1	22	6	2	s.	Wm. Lombard.
Willows.....	Glenn.....	136	37	72.8	-2.8	99	19	48	25	0.49	0.38	+0.07	0	1	25	3	2	n.	F. E. Barnhouse.
Yorba Linda.....	Orange.....	405	2	67.6	.....	92	13	46	3	0.44	0.56	0.56	0	1	26	2	2	w.	S. J. Walker.
Yosemite.....	Mariposa.....	3,960	12	65.2	.....	89	14	38	13	0.51	1.84	0.81	0	3	20	3	7	s.	Supt. National Park.
Yreka.....	Siskiyou.....	2,625	27	61.8	.....	93	15	33	13	0.16	0.13	0	0	2	15	8	7	ne.	U. S. Forest Service.
Means and Extremes.....	.....	.....	.....	66.4	-2.1	116	1	17	11	0.56	+0.07	2.05	0	2	23	4	3	w.	.....

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.

\*\* 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.

a, b, c, etc., indicate respectively, 1, 2, 3, etc., days missing from the record.

## COMPARATIVE DATA FOR SEPTEMBER.

## MEAN MONTHLY TEMPERATURE FOR THE STATE.

1897.....	67.7	1907.....	65.6
1898.....	69.2	1908.....	68.1
1899.....	70.9	1909.....	68.2
1900.....	65.4	1910.....	67.3
1901.....	66.0	1911.....	63.9
1902.....	70.7	1912.....	66.5
1903.....	68.7	1913.....	70.7
1904.....	70.3	1914.....	66.2
1905.....	68.6	1915.....	66.2
1906.....	68.6	1916.....	66.4

## AVERAGE PRECIPITATION FOR THE STATE.

1897.....	0.08	1907.....	0.18
1898.....	0.64	1908.....	0.49
1899.....	0.03	1909.....	0.52
1900.....	0.22	1910.....	0.69
1901.....	0.94	1911.....	0.19
1902.....	0.01	1912.....	1.65
1903.....	0.10	1913.....	0.07
1904.....	2.66	1914.....	0.23
1905.....	0.16	1915.....	0.06
1906.....	0.25	1916.....	0.56

## DELAYED REPORTS.

Stations.	Month.	Temperature.					Total precipitation.
		Mean	Max.	Date.	Min.	Date.	
Brawley.....	July.	89.6	111	30	63	4	0.00
Delta.....	"	73.1	102	23	45	1	0.30
Dunsmuir.....	"	.....	.....	.....	.....	.....	1.59
Glenn Ranch.....	"	.....	.....	.....	.....	.....	0.00
Los Alamos.....	"	.....	.....	.....	.....	.....	0.00
Mariposa.....	"	.....	.....	.....	.....	.....	0.01
Meadow Valley.....	"	77.7	102	10	53	2	0.66
Milton (near).....	"	.....	.....	.....	.....	.....	T.
Phoenix Dam.....	"	.....	.....	.....	.....	.....	0.00
Reedley.....	"	74.4	109	23	43	3	0.00
Auberry.....	August.	74.4	98	3	42	18	0.18
Canon Dam.....	"	65.2	101	24	33	18	T.
Coalinga.....	"	78.3	109	4	48	19	0.00
Davis.....	"	73.2	103	12	46	9	0.02
Delta.....	"	71.8	100	12	42	16	0.00
Denair.....	"	73.6	100	2	47	19	0.00
Dunsmuir.....	"	.....	.....	.....	.....	.....	0.64
Glenn Ranch.....	"	.....	.....	.....	.....	.....	0.45
Le Grand.....	"	.....	.....	.....	.....	.....	0.00
Los Alamos.....	"	.....	.....	.....	.....	.....	T.
Meadow Valley.....	"	.....	.....	.....	.....	.....	0.00
Newman.....	"	74.8	100	17	46	23	0.00
Ozona.....	"	.....	.....	.....	.....	.....	0.00
Pattaway.....	"	.....	.....	.....	.....	.....	0.30
Priest Valley.....	"	.....	.....	.....	.....	.....	0.00
Santa Anita Forest Station.....	"	.....	.....	.....	.....	.....	0.00
Wells Meadows.....	"	.....	.....	.....	.....	.....	1.04

## DATES OF MISCELLANEOUS PHENOMENA.

Thunderstorms.—Abbotts, 22; Alturas, 2, 16; Auberry, 22; Berkeley, Big Sur, Bridgeport, 21; Burney, 2; Cahuilla, 18, 19; Calaveras, 22, 30; Campbell, 21; Camptonville (near), 22; Center Ranger Station, 21, 22, 30; Centerville, 22; Cloverdale, 21, 23; Coalinga, 30; Cuyamaca, 8, 16, 19; Deer Creek, 21, 22; Denair, 21; Dobbins (near), 21, 22; Downieville, 22, 30; Dudleys, 21, 22; Durham, 21; Electra, 22; Fordyce Dam, Fresno, Gridley, Hetch Hetchy, Hollister, Hullville (near), 21; Jolon, 20, 29, 30; Kennett, 2; Kinsley, Lake Eleanor, 21; La Porte, 22; Las Plumas, Lick Observatory, Lindsay, 21; Los Angeles, 30; Los Gatos, 21; McCloud, 2; Magalia, 2, 22; Merced, Middlewater, Mill Creek (No. 1), 21; Mill Creek (No. 2), 19; Mills College, Milton (near), 21; Mitchell Mill, 22; Mokelumne Hill, 21; Montague, 2, 24; Mount Tamalpais, 21, 30; Nellie, 19; Nevada City, North Bloomfield, 22; Oakland, 21; Oak Grove, 16, 18, 19; Oceanside, Pasadena, 19; Peachland, Petaluma, 21; Point Reyes, 21, 30; Redding, 2; Riverside, 19; Sacramento, Salinas, San Francisco, Santa Clara, Santa Cruz, San Jose, Stanwood, Stockton, Stevenson Creek, Stirling City, Sulphur Banks, 21; Seven Oaks, 16; Sterling, 8; Summit (No. 1), 22; Tamarack, Three Rivers, Twin Valley, West Branch, Wheatland, 21; West Point, 21, 30.

Earthquakes.—Holcomb, 1; Spreckels, 6, 8; Hollister 27; Arrowhead Springs, Beaumont, Cahuilla, Calexico, El Cajon, Indio, Julian, La Jolla, Mecca, Nellie, Point Loma, Redlands, Riverside, San Diego, Warner Springs, 29.

## ERRATA. AUGUST, 1916.

Inskip, pages 94 and 98, greatest precipitation in 24 hours, 0.08, should be 0.07; total precipitation, 0.16, should be 0.15.  
Seven Oaks, page 95, mean temperature, 63.9°, should be 64.0°.

Daily Precipitation for September, 1916.

SEPTEMBER, 1916.

Daily Precipitation for September, 1916.—Continued.

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.

Note: Stations indicated thus [ ] in the above table are located as follows:

## Daily Temperature for September, 1916.

Stations.	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	Mean.	
Alturas.....	85	77	74	80	77	85	80	74	69	71	86	89	92	94	91	94	86	86	91	92	92	81	72	77	67	77	87	88	78	82.4			
	Minimum.....	39	46	43	35	40	35	37	41	35	27	25	29	31	34	34	32	25	27	30	38	47	39	32	31	37	30	27	31	40	31.4		
Bakersfield.....	99	95	92	91	90	90	90	93	92	88	100	100	101	101	104	103	90	92	97	101	96	89	85	86	89	97	102	93	74	93.2			
	Minimum.....	59	52	54	55	49	55	52	51	51	50	52	53	52	58	57	58	48	53	58	59	60	58	56	51	51	50	51	55	61	61	54.3	
Barstow.....	96	94	92	90	88	89	89	87	84	80	80	85	86	95	98	94	92	91	90	92	78	85	86	80	85	88	86	87	70	88.0			
	Minimum.....	62	60	60	56	59	55	53	56	57	55	54	46	53	58	56	60	56	58	60	62	60	58	54	50	50	52	50	51	50	55	55.5	
Blocksburg.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Calexico.....	110	107	104	103	104	103	100	95	101	98	96	100	106	102	101	102	100	94	100	103	95	91	99	97	93	93	95	89	90	99.4			
	Minimum.....	73	68	66	67	65	60	69	79	73	68	65	60	62	65	74	71	71	73	67	61	59	59	57	60	60	67	70	60	66	66.7		
Chico.....	90	84	88	93	86	90	85	84	86	90	95	97	98	99	98	91	88	94	100	98	92	80	76	81	82	90	92	96	98	82	89.8		
	Minimum.....	62	62	48	52	56	53	56	52	48	45	46	52	50	56	54	45	46	48	50	52	60	57	50	54	52	54	55	50	52	54.2		
Colfax.....	80	75	76	81	76	80	75	77	49	84	86	88	90	86	81	85	80	88	85	76	70	79	73	88	85	91	92	78	82.4				
	Minimum.....	55	48	45	47	51	47	50	45	49	49	50	54	55	56	55	50	44	54	56	53	59	48	46	48	52	45	53	56	55	51.1		
Colusa.....	86	85	82	84	80	80	80	78	84	83	86	84	86	80	82	80	84	90	91	84	81	85	87	80	89	85	83	81	89	80.1			
	Minimum.....	60	57	55	55	56	53	55	61	57	55	59	52	50	53	58	50	53	58	61	56	52	52	53	57	56	55	57	56	57.1			
Escondido.....	90	85	85	80	80	83	83	86	82	80	84	90	93	91	93	84	81	84	90	91	82	76	78	71	77	82	90	86	67	83.4			
	Minimum.....	50	52	54	57	59	55	58	59	56	54	51	45	48	51	51	56	53	54	58	56	51	51	50	51	50	51	50	51	55.1			
Eureka.....	68	65	64	64	65	62	65	63	62	65	75	63	66	55	58	57	59	60	59	59	60	59	61	60	63	51	61	64	61	64.1			
	Minimum.....	57	57	55	51	53	57	57	54	51	47	49	51	48	51	46	48	50	47	44	51	51	45	45	50	48	48	48	48	50.2			
Fresno.....	92	84	84	90	86	88	87	85	86	87	92	96	97	98	100	98	88	92	95	95	90	74	79	84	77	80	90	97	86	75	88.4		
	Minimum.....	63	61	57	57	62	56	56	55	57	64	57	60	61	63	62	58	53	59	61	60	58	52	58	61	62	61	61	62	58.1			
Hanford.....	98	94	90	98	96	98	96	90	94	90	99	94	96	98	92	94	90	92	70	70	80	84	90	94	91	88	90	89	91.7				
	Minimum.....	62	58	54	60	60	50	52	55	50	50	56	50	58	50	56	52	52	48	50	52	50	42	38	40	42	36	40	42	36	51.6		
Hollister.....	81	77	80	84	74	71	70	76	86	87	83	88	96	93	81	67	70	75	84	87	74	72	74	66	68	72	74	67	78.2				
	Minimum.....	55	50	52	48	48	55	55	50	46	47	46	46	45	46	45	46	43	49	51	55	54	46	43	50	47	56	48	48	48.8			
Independence.....	90	90	82	85	84	84	86	84	84	78	75	84	88	89	88	87	86	85	86	84	74	80	80	77	76	81	84	84	83.2				
	Minimum.....	54	57	45	48	45	55	46	45	44	47	44	48	44	46	47	46	45	50	51	52	44	48	52	51	44	48	55	48.0				
Indio.....	111	107	104	101	104	102	100	91	98	98	99	102	108	109	105	97	100	101	102	96	99	93	94	95	95	95	95	98	89	91.1			
	Minimum.....	80	77	71	66	71	71	71	63	72	59	62	62	71	71	68	69	69	70	65	66	67	64	61	59	61	60	67	60	67.0			
La Porte.....	73	66	67	70	67	71	70	68	66	66	75	75	78	78	74	74	68	73	78	80	74	64	68	65	70	76	76	76	76	71.1			
	Minimum.....	36	33	37	33	35	34	32	37	44	41	45	45	50	46	47	44	43	46	49	43	38	35	40	42	40	46	46	49	41.0			
Lemon Cove.....	91	91	86	84	85	86	86	86	87	85	84	93	94	95	97	95	90	91	91	91	91	85	85	84	84	84	84	84	84	85.9			
	Minimum.....	66	62	61	61	63	61	63	55	57	60	63	67	66	64	64	65	57	55	54	61	60	60	64	61	62	60	63	60.3				
Los Angeles.....	76	74	75	76	75	76	75	75	74	73	74	76	80	80	76	72	72	81	82	75	75	69	73	73	75	74	73	75	74.2				
	Minimum.....	56	56	53	56	57	56	58	58	56	57	56	53	53	54	54	55	54	56	57	56	55	56	53	53	56	56	55	56.1				
Merced.....	86	88	84	89	85	86	83	83	85	86	94	96	97	97	99	94	85	88	94	95	88	84	87	88	87	88	87	88	87.8				
	Minimum.....	59	55	57	54	56	56	55	52	53	54	52	54	52	54	52	53	52	52	52	54	53	54	53	54	53	54	53	54	53.9			
Mokelumne Hill.....	83	78	80	85	83	82	78	80	80	84	92	91	94	95	89	83	86	92	91	80	78	84	88	92	90	78	84	80	84.0				
	Minimum.....	62	51	50	50	53	51	50	54	56	62	65	65	65	65	65	65	65	65	65	65	65	65	64	60	58	60	58	56.9				
Needles.....	104	102	99	100	100	98	98	85	85	86	81	92	93	95	97	95	91	93	93	95	95	93	93	95	93	95	93	95	93.3				
	Minimum.....	74	71	72	70	76	75	65	72	72	68	56	59	59	62	64	65	66	66	61	61	60	60	60	58	58	60	58	61.1				
North Fork.....	88	88	89	81	83	82	81	84	80	80	82	88	89	90	90	90	94	94	98	98	86	70	78	74	76	86	90	88	85.2				
	Minimum.....	52	42	47	42	45	42	45	46	46	45	44	44	45	44	45	44	47	45	46	44	43	49	51	42	47	46	44	49.5				
Oakland.....	72	68	72	76	66	64	63	70	76	73	83	84	86	80	72	62	62	70	78	68	60	63	63	65	64	63	62	60	71.9				
	Minimum.....	59	58	58	63	57	56	57	54	54	56	56	56	56	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52.0				
Orland.....	95	84	85	91	86	92	87	85	84	97	97	97	97	93	97	93	100	99	95	95	90	94	92	81	80	89	88	87	90.7				
	Minimum.....	55	57	54	59	56	54	60	55	55	58	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56.8				
Orleans.....	79	64	78	76	82	77	81	76	83	87	80	91	93	93	87	85	86	86	86	8													