COTTON REGION REPORTS.

In connection with the reports from the cotton districts the following table has been prepared, showing the average rainfall, mean maximum and mean minimum temperatures for each month of the growing season, from 1882 to 1886, inclusive.

The Chief Signal Officer is indebted to Mr. J. R. Dodge, statistician of the United States Department of Agriculture, for the information relative to the acreage and yield of cotton in the several states, as exhibited in the table. This table is interesting as showing the influence of rainfall and temperature on the cotton crop.

From the table it will be seen that the yield of cotton in all districts in 1882 was greater than in either of the three succeeding years; this is undoubtedly due to the large precipitation that fell in that year throughout the cotton districts during July and August, the two months during which the soil is most affected by evaporation. In 1884, in Louisiana and Texas, the rainfall of these months was very small and the yield of cotton per acre was correspondingly small. The deficient rainfalls that are noted in the table during other months appear to have but little effect upon the cotton yield when they are counteracted by large rainfalls during July and August:

Rainfall and mean maximum and mean minimum temperatures of the Cotton belt for the years 1882, 1883, 1884, 1885, *and* 1886; *also the acreage and yield during the first four years mentioned.*

Districts.		Rainfall.							Mean maximum temperature.							Mean minimum temperature.							Acres.	Bales.
		Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.		
		Inches	Inches	Inches	Inches	Inches	Inches	Inches	°	°	°	°	°	°	°	°	°	°	°	°	°	°		
North Carolina: Wilmington	1882	3.88	2.52	1.97	5.90	6.24	3.49	3.08	74.2	79.0	90.0	90.2	87.8	81.7	75.2	50.0	54.6	66.2	67.7	67.8	62.8	53.5	1,050,543	463,000
	1883	4.97	2.33	7.30	3.16	2.96	9.36	2.32	70.9	82.6	88.8	93.2	88.7	79.7	75.6	48.7	54.6	66.5	70.2	67.5	61.2	55.2	1,050,543	398,200
	1884	3.17	3.26	6.01	6.01	3.75	3.32	0.64	69.9	82.4	84.4	89.9	88.3	85.8	79.8	46.8	59.0	62.5	68.8	66.7	62.1	55.1	1,061,048	404,100
	1885	.....	6.76	4.87	4.35	4.05	2.99	.....	.....	79.9	87.6	91.9	88.4	81.3	.....	.....	56.2	64.2	68.3	67.3	60.5	.....	1,071,658	407,230
	1886	.....	4.94	7.78	8.43	7.42	2.42	0.70	.....	83.1	85.2	89.3	87.4	84.4	74.6	.....	59.0	66.4	69.2	68.7	64.8	49.7	.....	.....
Means		4.01	3.96	5.59	5.57	4.88	4.32	1.68	71.7	81.4	91.2	90.9	88.1	82.6	76.3	48.5	56.7	65.2	68.8	67.6	62.3	53.6	.....	.....
South Carolina: Augusta, Charleston	1882	2.85	2.32	4.52	6.11	5.16	4.58	3.52	77.8	82.1	90.2	90.0	89.4	84.3	77.8	54.6	57.4	67.5	68.6	68.8	64.6	56.3	1,587,244	630,000
	1883	5.08	3.88	5.01	2.67	4.39	2.35	1.46	76.6	83.1	90.3	94.5	90.2	86.5	78.5	54.8	58.4	68.9	72.4	68.3	62.3	55.9	1,618,989	469,600
	1884	4.48	2.62	6.31	5.41	4.78	4.43	0.25	72.3	85.8	85.0	92.1	89.1	86.6	81.7	54.7	61.3	64.2	70.9	67.6	65.0	56.8	1,716,128	511,800
	1885	.....	4.44	5.45	5.28	7.85	3.92	4.82	.....	82.3	89.5	92.3	90.4	82.7	70.8	.....	58.7	67.1	70.0	69.5	64.0	50.3	1,733,289	554,652
	1886	.....	3.70	9.08	5.73	4.34	1.98	0.46	.....	84.5	86.8	90.1	88.8	85.7	76.0	.....	59.1	68.0	69.5	69.4	65.8	51.0	.....	.....
Means		4.14	3.39	6.07	5.04	5.30	3.45	2.10	75.6	83.6	88.4	91.8	89.6	85.2	77.0	54.7	59.0	67.1	70.3	68.7	64.3	54.1	.....	.....
Georgia: Atlanta, Savannah	1882	4.11	2.52	4.41	5.83	6.10	4.22	3.50	78.7	81.8	89.2	89.4	88.2	81.7	78.1	57.5	57.6	68.3	68.9	69.2	64.7	58.5	2,844,305	942,000
	1883	6.02	3.14	4.41	2.33	5.33	1.91	1.46	77.3	82.3	92.2	94.4	90.0	84.9	79.8	54.5	58.0	69.0	70.0	69.2	63.3	59.5	2,872,748	752,500
	1884	4.16	1.66	8.59	4.88	3.12	1.43	0.47	74.1	86.3	84.1	91.0	89.2	88.0	82.4	51.8	62.4	63.8	70.6	68.1	64.7	57.7	2,958,930	807,400
	1885	.....	4.69	4.02	4.73	0.12	7.08	4.61	.....	81.9	90.2	92.1	89.8	83.1	70.8	.....	59.3	68.5	70.6	70.6	64.3	51.5	3,047,698	960,025
	1886	.....	4.42	8.28	6.60	4.88	1.46	0.56	.....	84.3	88.4	89.5	89.5	86.7	77.1	.....	60.5	69.2	70.4	70.6	67.0	53.1	.....	.....
Means		4.76	3.29	5.94	4.87	5.11	3.22	2.12	76.7	83.3	88.8	91.3	89.3	85.5	77.6	54.6	59.6	67.8	70.1	69.5	64.8	56.1	.....	.....
Alabama: Montgomery, Mobile	1882	7.92	3.85	3.04	5.62	3.98	2.24	2.31	77.3	82.6	93.1	89.5	89.4	85.3	80.7	57.2	58.2	69.1	67.9	69.3	62.4	58.1	2,534,388	810,000
	1883	8.27	2.76	4.78	1.51	2.74	0.72	1.81	79.5	84.7	90.9	96.3	92.9	88.8	82.1	55.4	57.3	69.4	70.4	68.8	61.8	59.1	2,610,420	630,400
	1884	3.63	2.59	6.72	5.33	2.16	0.33	1.45	75.3	86.0	86.5	92.8	90.9	90.2	82.7	51.2	61.0	64.7	70.8	66.8	66.0	57.3	2,740,941	648,700
	1885	.....	5.17	3.68	4.73	3.20	4.84	1.86	.....	83.2	91.9	93.0	91.7	84.5	70.1	.....	61.3	71.9	70.5	70.2	66.5	58.2	2,795,760	760,447
	1886	.....	2.91	7.45	4.06	4.00	1.18	0.20	.....	84.7	87.9	90.9	90.7	87.5	78.3	.....	59.0	67.4	69.1	70.0	66.2	53.6	.....	.....
Means		6.61	3.46	5.01	4.25	3.22	1.86	1.53	77.4	84.2	90.1	92.5	91.1	87.3	78.8	54.6	59.4	68.5	69.7	69.0	64.6	57.3	.....	.....
Louisiana: New Orleans	1882	5.63	5.57	2.43	8.30	8.38	2.64	2.64	81.9	84.4	90.6	90.4	89.8	86.7	81.9	59.9	61.1	72.0	71.3	72.0	67.7	62.0	887,524	560,000
	1883	6.99	3.96	8.65	3.30	2.70	1.22	2.60	80.0	84.8	90.2	93.2	91.9	88.4	84.9	59.6	62.9	71.7	74.4	70.4	66.2	65.9	931,900	490,200
	1884	5.54	9.20	4.19	1.62	1.93	2.67	2.93	75.4	82.6	89.4	95.3	92.4	90.6	81.3	56.7	65.0	68.1	74.9	69.3	69.3	59.0	922,581	485,200
	1885	.....	3.12	3.01	3.80	3.58	5.09	1.23	.....	82.9	92.9	94.2	91.1	85.0	73.6	.....	61.4	69.4	73.7	72.6	67.7	50.3	1,005,613	487,722
	1886	.....	1.11	11.20	4.26	2.69	4.14	1.40	.....	86.6	89.3	91.5	92.7	86.8	77.4	.....	65.2	70.3	71.2	71.4	68.8	55.0	.....	.....
Means		6.05	4.59	5.90	4.26	3.86	3.15	2.16	82.4	84.3	90.5	92.9	91.4	87.5	79.8	58.7	63.1	70.3	73.1	71.1	67.9	58.4	.....	.....
Mississippi: Vicksburg, Mobile	1882	7.92	5.85	2.02	8.18	4.31	1.56	3.28	78.8	82.6	94.0	89.9	89.6	85.8	80.7	57.0	60.0	68.6	68.8	69.8	62.2	57.5	2,233,844	1,064,000
	1883	7.86	2.78	4.98	2.43	2.46	0.88	3.76	78.9	84.0	91.6	91.8	93.1	90.9	81.6	56.3	59.0	69.8	71.6	69.3	62.0	60.6	2,278,521	901,300
	1884	4.08	6.37	4.92	4.50	2.51	1.50	1.56	75.3	82.8	87.8	93.8	91.3	90.7	81.7	53.3	61.7	67.0	72.6	67.7	66.7	51.5	2,392,447	883,200
	1885	.....	4.55	2.53	4.91	2.38	6.96	1.63	.....	82.9	92.2	93.5	91.8	85.0	72.5	.....	62.3	76.6	70.4	70.1	67.1	49.3	2,535,994	1,019,470
	1886	.....	2.17	7.97	3.21	2.88	2.98	0.58	.....	84.9	87.6	91.5	91.8	87.8	77.4	.....	60.4	70.0	70.8	70.9	67.7	52.7	.....	.....
Means		6.62	4.34	4.48	4.65	2.91	2.78	2.16	77.7	83.4	90.6	92.7	91.5	88.0	78.8	55.5	60.7	70.4	70.8	69.6	65.1	54.3	.....	.....
Tennessee: Memphis	1882	5.29	7.58	2.89	5.45	4.30	1.69	2.02	74.9	77.7	90.4	88.0	87.1	82.7	78.3	54.0	56.3	67.0	67.1	67.2	60.3	54.6	815,760	337,000
	1883	6.93	4.59	4.52	4.00	3.41	1.05	4.22	74.9	80.3	89.2	91.4	87.5	85.3	76.3	52.7	55.4	67.1	68.3	65.0	56.3	54.7	807,602	310,700
	1884	5.98	3.77	5.29	4.86	1.76	2.06	2.25	69.3	80.5	83.3	90.4	89.0	88.1	78.2	49.5	58.2	65.4	69.1	64.7	64.3	54.4	815,678	313,800
	1885	.....	2.82	4.70	2.88	1.10	4.24	2.09	.....	78.5	89.2	91.5	90.7	82.9	68.6	.....	55.9	67.6	70.4	67.2	61.8	46.1	864,618	321,638
	1886	.....	3.49	7.05	2.21	3.89	3.56	0.66	.....	82.4	85.1	90.5	89.2	84.5	74.8	.....	57.7	65.4	67.1	68.2	63.2	48.1	.....	.....
Means		6.07	4.45	4.89	3.88	2.59	2.52	2.25	73.0	79.9	87.4	90.4	88.7	84.7	75.2	52.1	56.7	66.5	68.4	66.5	61.2	51.6	.....	.....
Arkansas: Little Rock	1882	4.74	11.04	1.58	3.08	3.44	2.32	4.34	75.9	78.7	91.3	89.2	88.3	83.3	78.3	51.9	53.6	64.2	66.0	65.3	59.0	54.5	1,110,790	697,000
	1883	6.78	4.21	3.52	6.66	3.41	0.63	1.79	75.3	82.0	90.0	94.2	91.9	87.7	77.2	53.9	54.6	67.2	64.9	65.6	53.3	50.0	1,188,545	518,500
	1884	6.66	5.59	3.25	2.80	1.54	2.90	0.99	72.2	79.4	87.7	94.7	90.1	88.5	77.3	47.3	58.2	65.8	70.6	64.9	63.0	53.0	1,259,858	531,400
	1885	.....	2.51	2.71	1.95	1.49	1.91	1.01	.....	80.0	90.1	94.0	92.6	84.9	72.0	.....	54.5	66.3	70.4	67.1	62.2	45.7	1,348,048	610,666
	1886	.....	0.80	5.82	2.75	2.05	5.41	1.11	.....	85.5	86.7	91.9	92.7	86.7	75.5	.....	60.0	66.3	68.9	68.9	64.1	50.3	.....	.....
Means		6.06	4.84	3.38	3.33	2.39	2.65	1.85	74.5	81.1	89.2	92.8	91.1	86.2	76.1	51.0	56.2	66.0	68.2	66.4	60.3	50.7	.....	.....
Texas: Galveston	1882	1.58	5.25	0.90	3.74	5.42	3.50	5.73	82.1	83.9	92.7	94.0	91.7	86.8	82.6	57.9	59.9	70.0	71.3	70.2	64.8	60.4	2,810,113	1,326,000
	1883	1.90	2.18	3.48	2.15	0.93	2.58	2.55	79.4	86.6	93.1	94.0	96.3	88.7	83.6	57.2	66.2	72.6	73.7	73.4	65.1	63.4	3,034,922	1,118,000
	1884	4.54	12.20	3.66	0.23	1.61	.....	.....	75.3	82.9	90.8	97.6	93.9	.....	.....	51.8	61.5	67.9	73.8	66.6	.....	.....	3,186,668	995,400
	1885	.....	6.49	.....	2.58	1.34	5.26	1.65	.....	82.1	.....	94.0	94.2	87.4	77.2	.....	61.1	.....	70.9	71.9	67.3	54.4	3,505,335	1,332,027
	1886	.....	0.26	2.30	1.72	2.59	6.75	1.41	.....	87.9	91.8	94.7	95.0	88.2	79.0	.....	64.7	70.4	73.5	73.1	69.5	57.3	.....	.....
Means		2.67	5.28	2.58	2.08	2.38	4.52	2.84	78.9	84.7	92.1	94.9	94.2	87.8	80.6	55.6	62.7	70.2	72.6	71.0	66.7	58.9	.....	.....

In the table on page 292 are given the means of the maximum and minimum temperatures and the average rainfall for the cotton districts during the month of October.

For the purpose of comparison, the averages for these districts during the four preceding years are also given.

The rainfall of the month, as compared with the averages of four years, is largely deficient in all districts of the cotton region. The means of the maximum and minimum temperatures are also below the normal in nearly all districts:

Table of miscellaneous meteorological data for October, 1886—Signal Service observations.

Stations.	Elevation above sea-level.	Atmospheric pressure (in inches and hundredths). Mean actual barometer.	Departure from normal.	Mean reduced barometer.	Extremes. Highest barometer.	Date.	Lowest barometer.	Date.	Monthly range of barometer.	Temperature of the air (in degrees Fahrenheit). Monthly mean.	Departure from normal.	Extremes. Max.	Date.	Mean max.	Min.	Date.	Mean min.	Monthly range.	Daily ranges. Greatest.	Date.	Least.	Date.	Mean rel. humidity.	Mean dew-point.	Precipitation.	Departure from normal.	Winds. Total movement.	Prevailing direction.	Maximum velocity. Miles p. h.	Direction.	Date.	No. of rainy days.	No. of cloudy days.	No. of fair days.	No. of clear days.
New England.																																			
Eastport	61	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Portland	99	30.04	+.08	30.14	30.60	19	29.60	15	1.00	47.9	−2.3	78.5	9	56.2	27.6	17	40.2	50.9	31.7	9	4.1	27	74.1	39.4	6.70	+3.09	5,781	n.	31	s.	15	10	8	12	11
Mount Washington	6,279	23.84	...	30.16	30.08	19	29.51	15	1.17	31.5	+1.3	48.8	12	37.9	−0.8	17	24.6	49.6	28.4	15	4.4	11	86.8	27.5	5.09	−2.51	21,470	w.	89	w.	22	17	4	14	13
Boston	125	30.02	+.04	30.14	30.57	19	29.66	15	0.91	51.5	−0.5	79.7	9	59.6	27.2	17	44.3	52.5	27.0	9	3.4	27	74.7	42.8	3.27	−1.01	8,558	w.	40	e.	31	9	6	9	16
Block Island	27	30.12	...	30.14	30.54	19	29.75	1	0.80	54.8	−0.3	71.0	9	60.1	35.1	17	49.3	35.9	20.5	1	3.9	27	84.3	49.9	4.71	−0.43	11,349	ne.	42	ne.	30	7	9	11	11
Narragansett Pier	...	...	...	...	...	...	...	...	...	53.3	...	78.0	9	62.1	25.0	17	44.5	53.0	...	...	...	...	...	...	3.95	...	...	...	...	...	...	9	...	...	...
New Haven	107	30.05	...	30.15	30.55	19	29.75	1	0.81	52.8	−0.6	73.4	9	63.2	25.1	17	43.6	53.3	31.9	9	8.9	30	74.6	43.9	1.95	−1.92	5,70[illegible]	ne.	26	ne.	30	9	9	9	13
New London	47	30.09	+.02	30.13	30.54	19	29.73	1	0.81	53.4	−0.2	75.0	9	62.4	29.9	17	45.1	46.1	28.8	9	5.8	27	77.5	46.0	4.14	−0.16	4,868	ne.	22	s.	14	10	8	14	9
Edgartown	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mid. Atlantic States.																																			
Albany	83	30.10	+.08	30.18	30.58	19	29.72	15	0.87	52.2	+1.0	78.6	9	62.4	30.4	24	43.0	48.2	31.6	7	7.3	30	72.2	42.6	2.43	+0.86	4,241	s.	27	se.	14	10	8	14	9
New York City	168	30.00	+.06	30.17	30.52	19	29.79	1	0.73	56.5	+1.0	82.5	9	65.4	34.6	17	49.9	47.9	29.2	9	5.1	29	69.8	45.7	3.90	+0.58	6,048	ne.	28	nw.	16	7	8	8	15
Philadelphia	117	30.06	+.05	30.17	30.53	19	29.81	1	0.73	58.2	+2.0	83.7	10	67.8	35.8	17	50.6	46.9	26.7	12	4.4	30	67.2	45.9	1.89	−1.00	7,015	nw.	28	nw.	15	6	8	7	16
Atlantic City	13	30.14	+.04	30.14	30.49	19	29.78	1	0.70	58.1	+1.1	73.9	9	65.5	36.2	17	51.0	37.7	26.5	1	5.4	31	82.2	52.2	8.16	+5.34	6,526	nw.	25	n.	30	7	7	7	17
Sandy Hook	28	30.13	+.04	30.15	30.52	19	29.77	1	0.75	57.4	+0.6	79.0	12	63.8	38.0	17	51.3	41.0	22.5	1	4.6	27	78.5	50.2	6.70	+3.30	12,943	ne.	48	nw.	15	7	6	15	10
Cape Henlopen	...	...	...	...	...	...	...	...	...	63.0	...	76.6	11	69.0	45.6	30	57.0	31.0	22.1	18	4.9	25	...	...	2.77	...	...	...	...	...	...	6	...	...	...
Baltimore	45	30.13	+.05	30.16	30.49	19	29.81	1	0.68	58.6	+0.9	82.3	12	68.5	36.4	17	50.3	45.9	28.2	12	0.2	14	66.1	45.9	1.39	−1.71	3,796	nw.	20	nw.	15	7	5	10	16
Ocean City	...	...	...	...	...	...	...	...	...	60.8	...	76.5	9	66.9	43.0	2	54.7	33.5	19.5	12	3.4	31	...	...	1.71	...	...	...	...	...	...	4	...	...	...
Washington City	106	30.08	+.07	30.18	30.50	17	29.80	14	0.70	57.6	−0.1	83.2	13	68.6	33.3	17	46.7	49.9	33.9	10	8.9	14	70.0	46.5	1.20	−2.10	3,602	nw.	24	nw.	1	8	6	6	19
Cape Henry	16	30.15	+.05	30.15	30.46	17	29.85	28	0.61	62.5	−0.5	78.7	12	68.4	47.0	30	56.9	31.7	23.3	12	2.5	24	76.6	54.5	0.63	−3.18	9,920	nw.	44	nw.	16	2	1	14	16
Chincoteague	8	30.16	+.06	30.15	30.48	17	29.81	28	0.67	61.0	+0.2	79.0	12	67.6	43.5	17	54.6	35.5	21.6	1	5.5	31	78.5	53.8	1.91	−1.01	7,6[illegible]5	nw.	34	nw.	30	5	2	12	17
Lynchburg	652	29.50	+.08	30.18	30.51	17	29.83	14	0.68	56.2	−2.0	85.5	12	71.3	33.7	17	44.0	51.8	40.4	12	5.7	27	76.6	47.6	1.01	−2.23	1,921	e.	16	nw.	30	4	2	10	19
Norfolk	30	30.15	+.07	30.16	30.47	17	29.86	28	0.61	61.3	+0.1	80.6	12	70.6	44.3	30	54.3	36.3	25.3	12	8.4	6	73.9	51.8	1.31	−2.37	4,148	ne.	21	ne.	6	3	4	12	15
South Atlantic States.																																			
Charlotte	808	29.35	+.09	30.18	30.46	17	29.85	14	0.62	60.4	−2.3	84.5	14	73.1	36.6	30	47.2	47.9	35.6	4	15.7	26	81.8	54.3	0.34	−3.32	3,158	ne.	16	s.	26	1	2	7	22
Fort Macon	11	30.16	+.07	30.14	30.40	17	29.86	28	0.54	64.8	−1.9	80.9	15	71.7	42.2	30	59.3	38.7	20.1	31	7.9	27	80.2	58.1	0.61	−3.15	9,193	ne.	36	n.	2	3	1	9	21
Hatteras	12	30.16	+.08	30.15	30.44	17	29.86	28	0.58	65.3	−1.6	79.1	14	70.7	48.5	30	59.5	30.6	18.4	14	7.4	5	[illegible]2.3	59.5	0.98	−6.01	6,054	n.	23	n.	2	4	4	12	15
Kitty Hawk	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
New River Inlet	...	...	...	...	...	...	...	...	...	65.6	...	83.5	15	70.4	40.0	30	54.9	43.5	...	...	...	...	...	...	0.45	−2.94	...	...	...	...	...	2	...	...	...
Smithville	34	30.13	+.07	30.14	30.37	17	29.87	28	0.50	63.5	−2.2	82.8	15	72.4	35.9	30	52.9	46.9	28.7	7	11.2	27	78.5	56.3	1.16	−4.29	6,080	n.	20	n.	16	3	3	8	20
Wash Woods	...	...	...	...	...	...	...	...	...	64.9	...	80.0	14	72.8	42.0	31	56.9	38.0	...	...	...	...	...	...	0.55	...	...	...	...	...	...	2	...	...	...
Wilmington	52	30.11	+.0[illegible]	30.14	30.40	17	29.87	28	0.54	64.0	−0.1	87.1	13	76.5	38.4	30	53.3	48.7	28.9	12	16.0	27	71.3	53.3	0.48	−3.61	3,879	ne.	16	ne.	2	2	2	10	19
Charleston	52	30.12	+.09	30.14	30.34	17	29.90	1	0.45	66.5	−0.6	86.1	15	75.1	44.9	30	59.6	41.2	24.0	31	9.0	10	75.0	57.7	0.01	−4.89	5,647	ne.	26	ne.	19	1	4	12	15
Augusta	183	30.01	+.08	30.17	30.39	20	29.93	14	0.46	61.7	−2.8	86.0	12	77.3	33.8	30	50.1	52.2	36.6	31	14.2	2	82.4	55.5	0.14	−2.12	2,493	n.	17	ne.	2	2	2	5	24
Savannah	87	30.08	+.08	30.14	30.32	17	29.91	1	0.41	66.2	−0.7	83.3	1	74.3	41.8	30	58.5	41.5	21.1	31	8.4	11	76.6	57.8	0.90	−3.06	4,743	e.	27	e.	19	7	4	10	17
Jacksonville	43	30.09	+.07	30.10	30.24	19	29.93	1	0.31	68.9	−1.1	87.3	15	77.9	44.0	31	62.5	43.3	24.5	31	8.4	10	80.3	61.9	2.47	−3.76	4,571	ne.	20	ne.	2	10	6	12	13
Florida Peninsula.																																			
Cedar Keys	22	30.10	+.08	30.08	30.25	30	29.86	11	0.39	71.2	−2.8	85.1	14	79.5	47.3	29	63.8	37.8	24.2	31	0.2	10	72.6	61.3	2.53	−0.99	7,448	ne.	32	ne.	11	4	4	10	17
Key West	20	30.00	+.03	29.97	30.11	30	29.72	10	0.39	78.3	−0.6	90.7	11	82.3	67.9	26	74.9	22.8	14.8	15	3.3	31	75.8	69.8	3.32	−2.32	9,902	ne.	32	se.	10	10	9	14	8
Sanford	25	30.04	...	30.03	30.18	30	29.87	10	0.31	72.6	−0.8	85.8	1	78.9	56.0	31	67.6	29.8	18.3	14	0.1	20	79.8	65.5	8.75	+2.46	6,702	n.	32	n.	3	17	11	11	9
Eastern Gulf States.																																			
Atlanta	1,129	29.03	+.09	30.18	30.41	20	29.87	14	0.54	62.3	−0.8	83.9	14	73.2	34.2	25	52.1	49.7	29.0	31	9.6	26	61.1	47.4	0.03	−2.61	6,552	e.	24	e.	11	2	2	10	19
Pensacola	30	30.10	+.06	30.08	30.28	31	29.76	11	0.52	69.0	−1.7	84.0	14	78.3	41.4	29	61.6	42.6	25.7	29	7.3	12	71.3	58.7	0.20	−3.76	5,535	e.	27	n.	11	3	3	6	22
Mobile	35	30.11	+.08	30.11	30.31	31	29.82	11	0.49	67.4	−0.5	88.8	14	77.7	37.1	29	58.1	51.7	26.8	29	6.0	12	66.7	54.6	0.13	−3.53	5,639	n.	24	n.	11	2	1	9	21
Montgomery	219	29.93	+.07	30.13	30.32	30	29.89	14	0.43	66.0	+0.2	88.1	14	77.6	37.1	28	56.3	51.0	28.7	31	7.6	26	65.0	52.4	0.03	−2.55	3,786	e.	24	e.	11	1	3	6	21
Vicksburg	222	29.93	+.08	30.14	30.36	31	29.71	13	0.65	65.4	−0.7	85.0	19	77.4	36.3	28	55.7	48.7	33.1	3	9.1	13	69.9	54.1	0.64	−2.71	3,740	s.	25	ne.	13	4	3	6	22
New Orleans	52	30.08	+.09	30.10	30.30	30	29.79	11	0.51	69.5	−0.9	87.4	14	77.9	45.3	28	63.4	42.1	20.8	3	8.4	26	71.8	59.0	0.22	−3.15	6,025	ne.	38	ne.	11	2	0	10	21
Western Gulf States.																																			
Shreveport	227	29.93	+.10	30.13	30.38	26	29.57	13	0.81	64.7	−1.3	84.4	9	76.5	39.4	28	55.9	45.0	30.4	18	6.7	13	77.0	56.2	3.59	−0.13	3,169	se.	25	e.	13	4	0	12	19
Fort Smith	470	29.66	...	30.11	30.42	26	29.54	13	0.89	61.2	−1.5	82.9	12	74.2	31.0	29	51.6	51.9	35.0	29	5.2	13	76.8	52.4	1.53	−2.45	2,894	se.	16	se.	14	5	5	9	17
Little Rock	288	29.85	+.11	30.13	30.39	16	29.60	13	0.78	62.0	−2.7	82.3	24	71.7	33.1	28	52.5	49.2	33.6	31	5.7	13	73.9	52.2	1.07	−2.03	2,151	nw.	18	nw.	14	3	1	14	16
Galveston	40	30.10	+.10	30.10	30.33	26	29.35	12	0.98	71.6	−1.0	83.4	8	77.2	50.2	27	66.4	33.2	15.5	27	7.6	12	72.9	62.1	1.93	−3.58	7,144	e.	55	nw.	12	5	2	6	23
Palestine	533	29.62	+.12	30.15	30.41	26	29.64	13	0.78	64.5	−2.5	84.2	21	75.2	39.5	28	55.7	44.7	20.5	17	7.9	13	70.5	53.5	1.95	−2.39	5,676	ne.	28	nw.	25	5	3	9	19
San Antonio	781	29.31	+.09	30.09	30.40	26	29.73	13	0.67	68.4	−1.6	90.8	13	79.7	43.0	27	58.3	47.8	30.5	18	11.9	21	78.5	60.6	0.62	−1.86	5,566	n.	28	n.	24	4	4	15	12
Rio Grande Valley.																																			
Brownsville	57	30.05	+.10	30.06	30.34	26	29.78	12	0.55	73.1	−2.1	88.6	14	82.7	52.2	28	65.7	36.4	23.0	28	12.7	1	83.0	67.1	0.55	−4.50	4,347	n.	20	se.	19	2	1	8	22
Rio Grande City	230	29.91	+.08	30.10	30.41	26	29.80	13	0.62	73.9	0.0	94.0	14	86.2	47.3	28	64.5	46.7	29.8	17	11.7	1	71.1	62.7	0.13	−2.24	2,418	se.	14	se.	24	1	2	7	22
Ohio Val. & Tenn.																																			
Chattanooga	783	29.39	+.10	30.20	30.42	20	29.82	14	0.60	59.7	−2.9	84.7	14	73.4	36.8	30	48.6	47.9	32.7	5	12.0	27	69.6	48.0	1.28	−2.24	3,370	ne.	22	sw.	14	3	3	10	18
Knoxville	980	29.19	+.10	30.22	30.44	20	29.79	14	0.66	57.2	−0.9	83.0	13	71.5	32.0	31	45.8	51.0	35.2	12	8.0	28	81.1	50.7	0.87	−2.40	2,207	ne.	28	w.	14	4	5	7	19
Memphis	320	29.86	+.12	30.17	30.40	16	29.53	13	0.87	62.3	+0.5	85.0	12	73.8	34.5	28	52.8	50.5	31.6	31	9.6	26	66.6	49.6	0.59	−2.99	4,010	nw.	30	se.	14	4	1	5	25
Nashville	549	29.61	+.11	30.18	30.42	16	29.70	14	0.72	58.9	−1.6	84.1	13	72.1	33.2	28	47.3	50.9	39.9	23	5.7	27	69.4	47.2	0.51	−2.51	3,384	e.	28	s.	14	3	3	7	21
Louisville	551	29.62	+.12	30.20	30.47	16	29.56	14	0.91	58.4	0.0	83.4	12	70.6	30.3	30	47.5	53.1	34.4	31	5.0	27	63.7	44.2	0.64	−2.86	3,255	n.	38	sw.	14	5	4	8	19
Greencastle	897	29.24	...	30.18	30.49	16	29.37	14	1.11	56.4	...	79.3	13	65.9	34.6	1	48.4	44.7	25.3	17	5.7	27	70.4	46.1	0.62	...	3,527	se.	30	w.	14	5	4	7	20
Indianapolis	766	29.39	+.13	30.20	30.40	16	29.39	14	1.10	55.3	+0.2	82.3	13	67.4	31.7	2	44.7	50.6	36.0	31	5.0	27	66.3	42.5	1.20	−2.17	3,161	s.	26	w.	14	4	4	7	20
Cincinnati	628	29.54	+.12	30.20	30.48	16	29.52	14	0.96	56.2	−1.3	83.4	13	68.1	32.5	27	45.7	50.9	33.0	13	0.5	29	72.1	46.0	0.82	−2.11	4,275	se.	40	w.	14	5	4	9	18
Columbus	805	29.33	+.09	30.19	30.48	16	29.55	14	0.93	54.3	−1.5	80.7	13	65.8	32.0	27	42.9	48.7	34.3	17	7.0	26	66.5	41.8	1.13	−2.34	4,047	sw.	45	sw.	14	5	6	9	16
Pittsburg	847	29.27	+.06	30.16	30.43	3	29.47	14	0.90	55.1	+0.9	79.2	13	66.6	35.5	3	46.1	43.7	29.5	19	5.9	28	72.2	45.0	1.06	−1.01	3,852	nw.	30	s.	14	7	7	8	16
Lower lake region.																																			
Buffalo	690	29.42	+.10	30.17	30.51	25	29.38	14	1.13	52.0	+1.2	71.2	20	59.3	33.9	16	45.4	37.3	25.6	24	4.7	28	79.1	45.2	1.67	−2.29	8,070	sw.	63	sw.	14	14	11	11	9
Oswego	335	29.73	+.06	30.15	30.51	26	29.52	14	0.99	50.3	−0.9	71.7	20	58.1	29.1	17	42.6	42.6	27.1	15	4.1	29	77.1	43.0	2.12	−1.34	7,790	s.	35	s.	14	12	14	8	9
Rochester	621	29.49	+.09	30.17	30.52	26	29.50	14	1.02	50.2	−0.1	76.0	10	59.4	28.0	17	42.6	48.6	29.5	7	3.1	5	82.0	44.3	2.30	−0.91	8,461	sw.	44	s.	14	16	13	10	8
Erie	681	29.44	+.10	30.17	30.46	16	29.36	14	1.10	53.3	0.0	73.0	20	63.5	33.4	26	45.2	44.6	29.0	3	8.7	5	74.1	43.6	1.73	−2.81	6,554	s.	36	sw.	14	14	10	11	10
Cleveland	690	29.43	+.09	30.17	30.16	16	29.37	14	1.10	53.9	+0.9	80.0	13	63.7	35.1	17	44.7	44.9	34.6	20	6.7	30	69.7	43.3	0.47	−2.63	6,621	s.	44	sw.	14	7	9	11	11
Sandusky	638	29.51	+.12	30.19	30.50	16	29.38	14	1.12	54.0	−1.0	82.9	13	63.9	34.9	28	46.1	48.0	33.0	17	4.9	26	73.5	44.9	1.24	−1.94	9,304	w.	53	w.	14	8	11	6	14
Toledo	651	29.49	+.13	30.19	30.52	16	29.35	14	1.18	53.4	...	80.2	13	63.9	33.8	2	44.4	46.4	30.3	17	6.0	26	69.4	42.3	1.60	−1.20	5,222	sw.	44	sw.	14	5	7	10	14
Detroit	662	29.46	+.10	30.17	30.52	26	29.23	14	1.29	54.8	+2.9	77.0	12	62.8	35.7	10	48.0	41.3	21.5	17	5.4	26	73.4	40.0	1.04	−1.69	5,145	sw.	52	w.	14	7	8	8	15
Upper lake region.																																			
Green Bay	616	29.46	...	30.13	30.66	26	29.19	14	1.47	51.6	...	77.7	10	61.3	27.1	29	42.1	50.6	32.8	29	8.2	23	81.8	45.8	5.40	...	6,457	s.	36	nw.	14	8	12	9	10
Alpena	609	29.47	+.10	30.14	30.64	26	29.00	14	1.65	48.1	+2.9	78.3	8	57.9	29.0	16	40.5	49.3	32.2	3	6.8	13	81.2	41.9	1.80	−2.86	6,325	w.	36	w.	15	14	12	10	9
Escanaba	608	29.45	+.10	30.12	30.67	26	29.13	14	1.54	48.2	+3.3	70.5	8	55.5	24.4	20	39.3	46.1	30.5	20	5.0	12	81.5	42.5	3.03	−0.84	6,037	sw.	27	n.	24	8	8	11	12
Grand Haven	620	29.47	+.10	30.15	30.60	26	29.12	14	1.48	52.3	+2.0	73.0	13	60.2	28.0	26	44.0	45.0	29.5	19	6.0	22	76.7	44.8	2.50	−0.54	8,412	s.	52	nw.	14	8	10	14	7
Mackinaw City	605	29.45	+.06	30.12	30.64	25	28.93	14	1.71	50.3	+3.2	76.5	8	57.7	28.0	27	42.7	48.5	27.9	19	5.4	13	74.5	41.9	3.13	+0.22	6,478	sw.	35	w.	14	10	9	10	12
Marquette	672	29.36	+.07	30.10	30.68	25	29.20	14	1.48	50.3	+4.7	80.3	7	60.8	27.0	27	40.6	53.3	36.1	5	6.5	12	73.2	41.2	2.15	−1.62	7,734	w.	34	w.	3	10	8	12	11
Port Huron	633	29.48	+.10	30.16	30.54	26	29.19	14	1.35	52.3	+2.7	77.8	12	61.6	31.4	2	43.5	46.4	30.0	19	4.1	28	79.6	45.6	1.31	−1.86	6,426	s.	50	sw.	14	9	10	11	10
Chicago	661	29.46	+.11	30.16	30.55	16	29.18	14	1.33	56.6	+3.9	79.4	12	64.7	32.1	1	49.3	47.4	22.6	3	4.6	27	71.2	46.8	1.42	−2.42	5,501	s.	37	sw.	14	7	8	4	19
Milwaukee	697	29.39	+.11	30.11	30.59	16	29.17	14	1.42	52.7	+4.1	82.3	12	63.0	31.3	2	44.5	51.0	29.5	31	6.8	18	69.1	42.1	2.31	−0.46	7,408	sw.	48	nw.	14	6	6	13	12
Duluth	672	29.34	+.06	30.08	30.69	25	29.43	14	1.25	46.9	+2.1	80.2	7	58.2	27.2	26	39.3	53.0	37.1	19	5.3	12	74.3	38.1	2.45	−0.53	4,156	ne.	30	sw.	20	11	5	13	13
Extreme northwest.																																			
Moorhead	923	29.01	+.02	30.03	30.71	25	29.51	19	1.20	48.4	+6.2	83.0	9	62.2	10.2	1	35.9	72.8	47.7	1	8.5	11	70.0	37.6	2.21	−0.67	8,953	s.	44	s.	19	8	12	11	8
Saint Vincent	804	29.14	+.01	30.04	30.72	25	29.54	19	1.18	45.7	+6.0	81.6	9	58.1	14.9	1	33.5	66.7	46.3	4	6.0	10	76.1	37.9	1.36	−1.07	7,366	s.	30	s.	26	7	8	12	11
Bismarck	1,694	28.21	+.03	30.03	30.74	25	29.59	23	1.15	47.3	+4.0	81.5	4	60.4	19.2	25	36.1	62.3	43.4	1	8.4	11	66.1	34.8	0.65	−0.59	5,489	n.	33	nw.	14	6	4	11	16
Fort Buford	1,930	27.97	+.01	29.97	30.58	24	29.49	23	1.09	44.8	+2.6	85.0	4	58.2	22.3	15	33.2	62.7	45.3	4	6.5	15	80.4	38.1	1.57	+0.73	5,383	s.	30	nw.	14	6	8	14	9
Fort Totten	1,487	28.40	...	30.03	30.73	25	29.55	19	1.18	46.0	...	80.5	4	57.7	20.3	25	35.1	60.2	42.9	1	6.0	11	68.9	34.8	1.16	...	9,639	s.	45	nw.	14	9	11	11	9
Fort Yates	...	...	...	...	...	...	...	...	...	50.0	...	85.8	2	63.7	17.4	25	36.2	68.4	...	...	...	...	...	...	0.50	−0.21	...	...	...	...	...	9	...	...	...

Table of miscellaneous meteorological data for October, 1886—Signal Service observations—Continued.

Stations.	Elevation above sea-level.	Atmospheric pressure (in inches and hundredths). Mean actual barometer.	Departure from normal.	Mean reduced barometer.	Extremes. Highest barometer	Date.	Lowest barometer	Date.	Monthly range of barometer.	Temperature of the air (in degrees Fahrenheit). Monthly mean.	Departure from normal.	Extremes. Max.	Date.	Mean max.	Min.	Date.	Mean min.	Monthly range.	Daily ranges. Greatest.	Date.	Least.	Date.	Mean rel. humidity.	Mean dew-point.	Precipitation.	Departure from normal.	Winds. Total movement.	Prevailing direction.	Maximum velocity. Miles p. h.	Direction.	Date.	No. of rainy days.	No. of cloudy days.	No. of fair days.	No. of clear days.
Upper Miss. Valley.																																			
Saint Paul	831	29.18	+.07	30.08	30.66	25	29.46	13	1.20	52.9	+ 6.0	82.0	7	65.2	20.9	27	41.4	61.1	37.4	21	6.2	12	69.1	41.9	0.72	— 1.42	4,483	e.	29	s.	19	4	7	11	13
La Crosse	725	29.36	+.12	30.14	30.71	26	29.32	14	1.39	51.7	+ 4.7	81.0	12	64.5	26.0	27	46.0	54.4	28.8	29	5.8	23	73.3	45.7	1.71	— 0.88	6,013	s.	27	nw.	14	6	4	13	14
Davenport	615																																		
Des Moines	849	29.22	+.08	30.12	30.61	25	29.43	13	1.18	57.3	+ 4.5	84.1	11	68.4	27.1	28	47.6	57.0	30.2	29	9.3	13	73.3	46.2	2.12	— 2.03	3,804	sw.	22	sw.	19	7	4	14	13
Dubuque	665	29.43		30.14	30.62	26	29.17	14	1.45	54.8	+ 3.6	85.2	11	66.8	26.5	27	44.1	58.7	37.2	3	5.8	23	68.0	43.2	4.08	+ 0.95	3,287	s.	25	nw.	14	4	4	9	18
Keokuk	618	29.50	+.11	30.15	30.53	26	29.32	14	1.22	57.6	+ 3.1	81.1	11	68.1	33.3	28	48.7	47.8	26.8	29	7.6	26	66.1	45.4	2.38	— 1.18	5,595	s.	31	w.	14	5	3	11	17
Cairo	359	29.83	+.12	30.19	30.46	16	29.59	13	0.87	59.5	— 0.1	82.6	12	70.5	32.0	28	49.8	50.6	35.4	31	8.0	26	68.1	46.9	0.45	— 2.83	4,441	n.	32	sw.	14	4	3	10	18
Springfield	644	29.51	+.12	30.19	30.51	16	29.44	14	1.07	57.9	+ 0.9	82.7	13	68.5	34.0	28	47.9	48.7	28.7	31	8.0	26	67.2	46.4	0.80	— 3.80	5,155	s.	34	sw.	14	6	4	7	20
Saint Louis	571	29.58	+.11	30.17	30.49	16	29.51	14	0.98	61.8	+ 4.1	82.7	13	70.3	35.0	28	52.4	47.7	32.8	30	10.6	27	56.4	44.9	0.85	— 2.22	6,232	s.	52	sw.	14	5	4	10	17
Missouri Valley.																																			
Lamar	1,028																																		
Leavenworth	842	29.26	+.09	30.14	30.58	26	29.56	13	1.02	59.7	+ 4.2	86.0	11	72.7	26.8	28	48.9	59.2	34.7	2	7.9	25	69.0	48.2	1.80	— 1.63	4,847	s.	28	s.	19	6	5	7	19
Omaha	1,113	28.95	+.06	30.12	30.67	26	29.56	13	1.10	58.3	+ 5.7	85.2	11	70.0	15.9	27	47.4	69.3	36.7	27	12.2	24	64.9	45.0	1.33	— 1.82	5,598	s.	30	s.	19	6	6	12	13
Valentine	2,604	27.33		30.03	30.68	25	29.53	1	1.16	52.0		81.2	6	65.8	23.0	20	38.2	58.3	41.1	4	9.8	12	63.5	37.5	0.27		9,397	sw.	48	nw.	23	2	5	10	16
Huron	1,307	28.64	+.03	30.04	30.68	25	29.54	23	1.14	50.7	+ 4.6	84.7	6	66.2	19.5	26	37.9	65.2	48.9	21	10.3	22	67.4	37.9	1.26	— 0.73	6,880	se.	34	sw.	19	6	4	9	18
Yankton	1,234	28.72	+.02	30.04	30.66	26	29.58	23	1.08	55.3	+ 6.4	82.6	8	69.7	19.9	26	42.3	62.7	45.6	2	13.0	24	66.0	42.7	0.31	— 1.45	6,414	s.	37	s.	19	2	5	10	16
Northern slope.																																			
Fort Assiniboine	2,690	27.19	+.04	30.04	30.46	24	29.65	28	0.81	45.9	+ 4.4	81.4	4	57.0	19.5	24	35.2	61.9	43.0	1	7.0	10	59.0	31.1	0.51	— 0.04	8,194	sw.	48	w.	13	4	11	9	11
Fort Benton	2,661																																		
Fort Custer	3,040	26.86	+.04	30.03	30.57	24	29.05	8	0.91	46.6	+ 0.4	84.7	4	59.1	24.0	25	34.9	60.7	44.9	4	4.3	12	66.3	33.4	1.63	+ 0.75	4,508	n.	37	n.	23	9	7	14	10
Fort Maginnis	4,340	25.58		30.00	30.44	24	29.64	28	0.80	44.6	+ 3.5	79.7	3	56.8	23.5	16	36.5	56.2	40.4	1	7.5	31	59.5	29.6	0.19	— 1.26	7,659	nw.	46	nw.	23	5	6	13	12
Fort Shaw *	3,550	26.38		30.03	30.45	24	29.72	12	0.74	46.4	+ 4.6	83.6	1	60.3	22.7	16	36.6	60.9	50.3	1	5.8	10	61.3	34.1	0.94	— 0.08	2,112	w.	29	w.	7	10	10	6	11
Helena	4,069	25.85	.00	30.03	30.52	25	29.69	8	0.83	43.3	+ 0.2	73.5	3	53.0	23.5	17	34.6	50.0	30.7	3	7.9	11	7.1	32.2	1.57	+ 0.56	4,984	sw.	28	sw.	23	10	9	14	8
Poplar River	2,030	27.87		30.01	30.61	25	29.49	8	1.12	44.0		86.5	4	60.0	15.8	17	29.7	70.7	50.1	1	7.0	11	75.2	35.8	0.40	— 0.49	5,047	n.	37	n.	23	4	6	13	12
Deadwood	4,600	25.40	+.01	30.06	30.71	25	29.65	22	1.06	47.7	+ 4.1	78.0	2	58.2	24.7	25	39.5	53.3	29.9	1	6.9	11	67.7	30.0	0.96	— 0.60	2,627	ne.	21	sw.	13	7	4	8	19
Cheyenne	6,105																																		
North Platte	2,841	27.12	+.02	30.05	30.65	25	29.59	19	1.06	54.2	+ 4.7	77.3	8	66.7	25.6	26	43.4	51.7	38.6	1	9.7	9	67.6	42.3	0.59	— 0.73	6,062	s.	60	s.	18	3	1	13	17
Fort Laramie										49.9		81.5	2	66.8	22.3	27	32.9	59.2							0.35							7			
Middle slope.																																			
Denver	5,294	24.76	—.01	29.67	30.56	25	29.35	18	1.20	52.5	+ 2.3	77.0	1	66.8	22.6	26	37.0	54.4	42.0	1	11.3	12	50.1	31.9	0.33	— 0.41	5,182	s.	32	s.	21	4	2	13	16
Pike's Peak	14,134	17.85		30.09	30.60	25	29.52	19	1.08	22.1	+ 0.6	57.3	1	28.9	3.6	13	17.0	53.7	30.8	1	6.0	28	78.2	16.0	1.31	— 0.18	15,401	sw.	76	sw.	19	8	1	1	17
Las Animas	3,899	26.68	+.03	29.98	30.60	26	29.52	19	1.18	55.2	+ 3.4	88.8	10	74.0	24.3	26	38.9	64.5	50.3	10	9.1	25	63.4	41.4	0.20	— 0.44	4,450	w.	28	sw.	18	3	1	14	16
Concordia	1,384	28.63		30.08	30.65	26	29.51	13	1.14	59.7		86.9	10	72.8	25.4	27	47.2	61.5	39.7	5	9.5	25	63.0	46.3	1.25		6,312	s.	36	s.	19	3	3	14	14
Dodge City	2,523	27.47	+.04	30.08	30.64	26	29.60	13	1.04	58.8	+ 3.9	86.4	11	71.5	28.3	26	48.2	58.1	35.4	2	6.3	21	68.5	46.7	0.45	— 0.87	7,506	se.	33	se.	18	5	4	10	17
Fort Reno										63.1		86.2	11	75.7	28.0	27	50.5	58.2							3.54	+ 0.40						7			
Fort Supply										61.5		84.3	17	76.6	31.2	27	52.4	53.1							1.54	+ 0.07						4			
Fort Elliott	2,700	27.33	+.01	30.02	30.54	25	29.53	13	1.02	58.8		82.9	10	70.8	33.2	27	49.5	49.7	31.0	6	8.3	21	72.8	48.0	5.04		8,085	se.	36	se.	18	6	4	12	13
Southern slope.																																			
Fort Sill	1,200	28.90	+.09	30.13	30.58	26	29.64	13	0.95	62.6	+ 0.5	81.0	10	74.4	35.2	27	52.2	47.8	31.6	6	9.6	21	71.4	51.6	7.10	+ 4.73	6,951	s.	36	s.	19	7	4	7	20
Abilene	1,745	28.32		30.10	30.56	26	29.72	13	0.84	64.9		86.9	13	75.7	41.3	27	55.9	44.6	28.6	14	10.7	20	67.1	52.3	2.24		8,076	s.	36	sw.	19	3	2	9	20
Fort Davis	4,928	25.76	+.08	30.02	30.45	26	29.76	7	0.69	63.3	+ 2.4	83.2	12	77.1	43.0	26	52.0	40.2	34.8	14	17.5	4	55.7	44.7	0.71	— 1.43	4,323	sw.	20	sw.	7	2	2	6	23
Fort Stanton	6,150	24.05		29.96	30.37	25	29.65	18	0.72	49.0		74.5	16	65.7	26.5	15	37.2	48.0	42.5	15	14.9	13	68.0	38.1	1.32		4,209	nw.	35	nw.	13	6	3	5	23
Southern plateau.																																			
El Paso	3,764	26.32	+.05	30.01	30.39	26	29.74	18	0.64	62.8	— 0.8	84.0	18	77.4	41.2	24	50.0	42.8	36.9	15	12.6	4	66.3	50.3	0.80	— 0.64	2,756	w.	20	w.	13	3	1	8	22
Lava																																			
Santa Fé	7,026	23.35	+.05	30.06	30.51	26	29.68	18	0.83	49.6	+ 0.1	69.0	10	61.1	3.0	13	40.2	39.0	28.0	14	9.7	4	52.9	31.0	1.06	+ 0.04	4,861	e.	24	n.	13	4	1	8	22
Fort Apache	5,050	25.08	+.06	30.05	30.34	26	29.73	18	0.61	54.0	+ 0.4	79.7	1	70.5	27.8	20	38.7	51.9	44.0	14	14.7	11	53.9	35.4	1.66	— 0.01	5,164	e.	28	sw.	11	5	1	10	20
Fort Bowie										58.8		78.0	1	72.4	41.0	21	45.3	37.0							0.36							3			
Fort Grant	4,856	25.27		30.02	30.24	26	29.78	18	0.46	61.2	— 0.9	79.8	1	72.9	39.1	13	51.9	40.7	30.2	27	14.7	11	41.0	35.0	0.57	— 0.36	5,462	e.	36	e.	26	3	1	6	24
Fort McDowell										66.8		97.0	1	84.5	37.8	20	49.0	59.2							0.27							3			
Fort Thomas	2,710	27.25		29.96	30.20	26	29.67	18	0.53	61.4	+ 1.5	88.3	1	78.5	34.5	4	47.3	53.8	43.2	24	12.8	21	69.6	50.0	1.12	+ 0.82	2,489	s.	21	s.	18	4	1	6	24
Fort Verde										60.9		89.3	1	77.2	33.0	13	44.5	56.3							0.13	— 0.43						4			
Maricopa										74.0		99.2	2	84.3	40.2	20	53.7	56.0							0.70							2			
Phœnix																																			
Prescott	5,389	24.76	+.04	30.01	30.31	26	29.66	18	0.65	51.2	— 1.3	77.2	1	67.3	20.1	12	37.9	51.1	42.8	24	12.0	10	55.6	33.8	0.23	— 0.35	4,951	sw.	36	sw.	18	7	1	8	22
San Carlos										62.1		92.0	1	80.1	35.3	24	44.1	56.7							0.46	— 0.32						3			
Willcox										60.4		92.0	10	82.3	25.0	23	38.4	67.0							0.36							3			
Yuma	141	29.81	+.07	29.93	30.14	22	29.73	9	0.40	67.4	— 4.9	92.6	1	81.3	46.7	23	55.2	45.9	34.9	27	14.2	10	52.6	47.0	1.11	+ 1.07	3,707	ne.	30	o.	3	2	0	4	27
Middle plateau.																																			
Fort Bidwell	4,615	25.42		30.10	30.38	25	29.84	29	0.54	44.6		78.8	3	56.5	21.8	31	32.8	57.0	37.4	3	10.6	11	65.1	32.4	1.56		3,101	w.	28	sw.	27	9	7	13	11
Winnemucca	4,358	25.64	+.01	30.05	30.37	25	29.74	9	0.63	44.2	— 3.1	76.7	4	58.6	16.7	9	32.3	60.0	48.5	7	10.3	11	58.5	28.1	1.72	+ 1.17	4,750	sw.	34	sw.	8	9	4	17	10
Frisco	6,406	23.72		29.91	30.29	25	29.46	9	0.82	47.1		67.4	4	56.2	25.8	19	39.0	41.6	24.4	18	10.7	6	52.3	29.2	0.66		9,433	sw.	50	sw.	9	3	2	6	23
Salt Lake City	4,348	25.65	—.02	30.00	30.4	25	29.49	9	0.95	51.8	— 0.3	77.3	1	62.4	28.6	20	41.1	48.7	33.4	29	8.1	22	62.7	37.8	1.98	+ 0.27	4,193	se.	28	s.	16	8	4	11	16
Montrose	5,780	24.34		30.00	30.44	26	29.50	18	0.63	48.5		76.0	1	63.6	25.2	20	36.3	50.8	38.4	15	13.7	6	58.0	32.2	0.95		4,468	se.	34	s.	18	7	2	15	14
Fort Bridger	6,643	23.53		30.06	30.57	25	29.57	10	0.70	39.6		68.8	1	53.3	10.1	20	27.6	58.7	40.1	8	10.0	19	72.3	30.0	0.93		5,184	sw.	33	n.	1	10	3	18	10
Northern plateau.																																			
Boise City	2,750																																		
Cœur d'Alene										47.2		79.0	4	58.7	20.0	10	35.8	51.0							2.57	+ 0.06						13			
Ashland										50.7		81.0	3	63.1	28.0	30	28.0	55.0							1.65							11			
Fort Klamath										59.9		74.0	3	54.8	11.0	31	25.1	63.0							1.53							9			
Lakeview										44.4		70.0	3	55.0	20.5	12	33.8	54.5	35.2	12	5.5	28			1.51							12			
Linkville										46.9		77.1	3	58.5	15.9	30	35.3	51.2							1.53							8			
Fort Spokane																																			
Spokane Falls	1,909																																		
N. Pac. coast region.																																			
Fort Canby	179	29.83	+.02	30.03	30.28	31	29.61	14	0.67	52.4		62.4	4	57.4	40.2	31	48.1	22.2	14.4	26	6.2	15	87.6	48.6	5.24		6,721	s.	50	s.	27	15	9	11	11
Neah Bay																																			
Olympia	36	30.04	+.05	30.08	30.36	11	29.71	15	0.64	48.6	— 0.4	66.2	2	56.5	34.0	12	41.7	32.2	27.3	25	4.6	17	90.4	45.7	4.15	— 1.06	2,132	s.	20	w.	27	15	13	11	7
Port Angeles	14	30.04		30.06	30.32	20	29.70	27	0.62	45.0		58.7	3	52.6	39.3	31	37.8	29.4	23.1	11	4.7	1	92.7	42.9	1.88		2,475	s.	15	w.	27	13	10	15	6
Pysht										46.4		68.0	7	52.9	31.0	31	39.9	37.0							4.85							12			
Tatoosh Island	86	29.93	+.03	30.03	30.30	20	29.65	15	0.66	50.2		60.5	3	54.2	40.7	29	46.8	19.8	12.1	25	4.5	18	87.5	46.5	7.81		7,630	e.	39	se.	6	17	10	12	9
Astoria										51.7		67.0	1	57.4	40.0	11	46.0	27.0							5.57							21			
Portland	80	29.99	+.03	30.08	30.36	31	29.72	14	0.64	51.4	— 1.6	76.0	3	60.2	33.9	12	44.4	42.1	33.0	3	7.6	14	82.5	45.7	2.87	— 1.78	3,097	s.	2	s.	15	14	9	13	9
Roseburg	523	29.55	+.04	30.11	30.39	31	29.75	14	0.64	50.7	— 0.5	82.0	3	61.9	32.7	12	42.9	49.3	40.4	3	7.8	23	82.6	45.0	3.43	— 0.66	1,077	ne.	16	sw.	27	19	11	13	7
Walla Walla	1,018	29.00		30.10	30.42	24	29.84	14	0.58	50.2		77.9	3	60.7	33.4	25	43.0	44.5	28.7	3	8.7	18	83.3	39.0	1.95		3,805	sw.	26	sw.	13	16	5	15	11
Sitka	63																																		
Mid. Pac. coast reg.																																			
Cape Mendocino	637																																		
Red Bluff	332	29.68	+.02	30.02	30.25	22	29.76	29	0.40	60.7	— 2.2	92.6	3	72.1	38.5	31	49.1	54.1	37.5	2	13.2	30	53.0	40.8	1.76	+ 0.48	3,038	n.	18	n.	9	8	7	7	17
Sacramento	64	29.97	+.04	30.02	30.28	31	29.80	20	0.48	57.1	— 3.7	86.5	2	70.9	38.5	21	46.7	47.0	30.0	2	4.8	30	69.7	46.2	0.68	— 0.25	3,583	nw.	17	nw.	20	3	0	9	22
San Francisco	60	30.01	+.05	30.05	30.29	31	29.84	28	0.45	57.1	— 2.1	78.9	3	66.1	46.0	13	51.1	32.9	28.9	3	6.3	9	76.7	49.1	1.48	+ 0.28	5,440	w.	28	w.	3	5	4	11	16
Keeler	3,622	26.32		29.92	30.23	25	29.50	9	0.7	58.2		81.4	4	68.6	33.6	31	46.8	47.8	27.6	7	15.3	20	29.6	24.6	0.01		5,512	sw.	40	sw.	9	1	1	6	24
S. Pac. coast region.																																			
Los Angeles	339	29.68	+.08	30.01	30.23	21	29.89	9	0.35	59.3	— 3.5	82.2	25	71.9	41.1	27	48.3	41.1	39.4	25	8.2	29	80.0	52.4	0.02	— 0.54	4,076	w.	24	w.	18	1	2	14	15
San Diego	67	29.97	+.08	30.01	30.24	21	29.90	25	0.34	59.7	— 3.1	75.0	13	66.6	46.6	23	53.3	28.4	20.5	13	6.5	9	81.8	53.8	0.05	— 0.42	4,047	nw.	19	nw.	25	1	4	16	11

* Record for 27 days.

† Record for 28 days.

Temperature and rainfall data for the cotton districts, October.

Districts.	Rainfall.			Temperature.						
				Maximum.			Minimum.			Extremes for Oct., 1886.
	Average for October of four preceding years.	Average for October, 1886.	Departures.	Mean for Oct. of four preceding years.	Mean for Oct. 1886.	Departures.	Mean for Oct. of four preceding years.	Mean for Oct. 1886.	Departures.	Max. / Min.
	Inch.	Inch.	Inch.	°	°	°	°	°	°	° / °
New Orleans	2.35	1.40	— 0.95	80.7	77.4	— 3.3	59.3	55.0	— 4.3	88 / 30
Savannah	2.35	1.04	— 1.31	80.7	78.8	— 1.9	59.5	56.6	— 2.9	92 / 31
Charleston	2.62	0.68	— 1.94	77.3	76.5	— 0.8	54.9	52.0	— 2.9	88 / 31
Atlanta	2.66	0.09	— 2.57	75.3	75.4	+ 0.1	54.2	49.7	— 4.5	88 / 23
Wilmington *	2.01	0.70	— 1.31	76.9	74.6	— 2.3	54.6	49.7	— 4.9	89 / 30
Memphis	2.65	0.66	— 1.99	75.4	74.8	— 0.6	52.4	48.1	— 4.3	88 / 24
Galveston *	3.31	1.41	— 1.90	81.1	79.0	— 2.1	59.4	57.3	— 2.1	91 / 34
Vicksburg	2.99	0.90	— 2.09	78.6	76.8	— 1.8	55.9	54.2	— 1.7	85 / 31
Montgomery	1.60	0.13	— 1.47	79.2	78.5	— 0.7	59.9	55.9	— 4.0	90 / 33
Augusta	2.36	0.25	— 2.11	77.1	75.5	— 1.6	54.8	50.0	— 4.8	88 / 30
Little Rock	2.03	1.11	— 0.92	76.1	75.5	— 0.6	50.8	50.3	— 0.5	93 / 22
Mobile	2.13	0.27	— 1.86	79.7	78.1	— 1.6	56.3	51.3	— 5.0	89 / 28

* Averages for three years only.

ATMOSPHERIC ELECTRICITY.

AURORAS.

Mount Washington, New Hampshire: a faint auroral light became visible at 9.20 p. m. of the 5th, it gradually increased in brilliancy and extent. At 9.50 p. m. a well-defined arch was formed from which slender streamers rose to an altitude of 50° above the horizon. The dark segment upon which the arch usually rests was replaced by a slightly luminous atmosphere. The aurora was most brilliant at 10.10 p. m. At 9.40 p. m. of the 6th an aurora was observed which had attained considerable brilliancy; an arch of about four degrees width, and extending ten degrees east and west of the magnetic meridian, rested upon a dark segment. Slender luminous beams rose from the arch at intervals, those west of north being the most brilliant and of greatest duration. The maximum brilliancy occurred at 10.45 p. m., after which it faded gradually and disappeared in the early morning of the 7th. An auroral light was also visible on the 7th from 9.30 to 11.15 p. m.; it was without arch, streamers, or other distinctive features.

Eastport, Maine: an auroral arch was observed at 10 p. m. of the 5th, altitude 15°; the light disappeared at 1.50 a. m. of the 6th. Auroras were also visible on the 7th, 8th, 18th, 26th, and 27th. The aurora of the 8th was visible from 7.15 to 9 p. m. in the form of an arch from which beams of white light shot upward, appearing and disappearing very rapidly.

Fort Totten, Dakota: a brilliant auroral display occurred between 10.30 and 11 p. m. of the 7th with streamers extending upward to the altitude of 45°; azimuth of aurora 90°. Waves of light, red at their bases and green at the upper extremities, moved with great speed along the arch. Auroral lights were also seen on the 21st, 27th, 28th, 29th, 30th.

Duluth, Minnesota: an aurora was visible at 12.45 a. m. of the 8th; the display was characterized by constantly shifting vertical bands of pale yellow light in the northwest and broad horizontal waves of the same color in the north. It was only faintly visible at 1.15 a. m. and had disappeared at 1.35 a. m. An aurora was also seen on the 22d in the form of a broad belt of light stretching along the northern horizon, with waving streamers flashing upward from the lower portion of the belt to an altitude of 15°. The display disappeared at 2 a. m.

Fort Buford, Dakota: a fine auroral display began at 9.45 p. m. of the 7th and continued throughout the night. It at first presented the appearance of a number of white and rose colored curtains moving rapidly across the sky from the northwestern to the northeastern horizon and extending to a height of 45°. At 10.15 p. m. long streamers began shooting upward from the dark portions of the sky. A faint auroral light was visible during the night of the 8-9th.

Poplar River, Montana: an aurora was seen at 8.10 p. m. of the 7th. It appeared in the form of slender luminous beams of pale yellow light rising to an altitude of 40°. The aurora changed its form several times during the night and disappeared at dawn of the 8th.

Fort Custer, Montana: a faint aurora consisting of a few pale streamers was visible from 10.25 to 10.50 p. m. of the 7th. It extended from azimuth 150° to 210° and altitude 23°.

Bismarck, Dakota: an auroral light, extending from azimuth 140° to 225° and to an altitude of 40°, was visible from midnight to 4.40 a. m. of the 8th. On the 28th, at 9.30 p. m., an aurora, consisting of streamers of white light, extending from azimuth 150° to 230°, and to an altitude of 30°, was observed; it disappeared at 12.20 a. m. of the 29th.

Saint Vincent, Minnesota: at 12.20 a. m. of the 21st a faint white auroral light was visible in the north. It rapidly increased in brilliancy and, at 1.15 a. m., numerous beams were constantly falling and rising, while the "merry dancers" incessantly played backward and forward. The display ended at 2 a. m. An aurora was seen at 11.45 p. m. of the 27th; no streamers or "merry dancers" were seen, but a varying degree of brightness was a very noticeable feature, the light at times being strong and brilliant and again dull and faint. No change in the outline or position of the aurora occurred. The display continued until the early morning of the 28th; altitude, 30°; azimuth, 60°. An aurora also became visible on the 28th at 9.15 p. m., rising up in the north in the form of a pale white light. At a later hour the display became more brilliant and at midnight numerous streamers shot up to the zenith.

Moorhead, Minnesota: an aurora was observed at 9.35 p. m. of the 28th, consisting of two arches of white light, tinged with green. The arches were five degrees apart and at the highest point 45° above the northern horizon.

Mackinaw City, Michigan: at 8.10 p. m. of the 28th an aurora was observed, azimuth, 50°; altitude, 20°. At 9.30 p. m. the light began to increase in altitude, forming an arch, with bright streamers shooting up to an altitude of 40°. From 10.12 to 10.35 p. m. the display appeared in the form of two parallel arches, shortly afterwards it began to fade and had disappeared at 11.30 p. m.

Auroral displays were also observed during the month, as follows:

1st.—Milton and Blue Hill Observatory, Massachusetts; Cornish, Kent's Hill, and Orono, Maine; Mackinaw City, Michigan; Moorhead, Minnesota; Poplar River, Montana.

2d.—Kent's Hill, Maine; Poplar River, Montana.

4th.—Pekin, Illinois; Des Moines, Iowa.

5th.—Gardiner, Maine; Burlington, Vermont.

6th.—Blue Hill Observatory and Milton, Massachusetts; Cornish, Maine; Berlin Mills, New Hampshire; Newport and Burlington, Vermont.

7th.—Cresco, Iowa; Gardiner, Maine; Marquette and Mackinaw City, Michigan; Nashua, New Hampshire.

8th.—North Colebrook, Connecticut; Cottage City and Cambridge, Massachusetts; Cornish, Maine; Berlin Mills and Nashua, New Hampshire; Oswego, New York; Walla Walla, Washington Territory.

9th.—Marquette, Michigan; Moorhead, Minnesota.

10th.—Pekin, Illinois.

12th.—Pekin, Illinois; Portland, Maine.

16th.—Pekin, Illinois.

17th.—Richmond, Kentucky.

18th.—Cornish, Gardiner, and Orono, Maine; Marquette, Michigan; Newport and Post Mills, Vermont.

21st.—Marquette, Michigan.

22d.—Nashua, New Hampshire.

24th.—Poplar River, Montana.

25th.—Gardiner, Maine.

26th.—Mackinaw City and Escanaba, Michigan; Poplar River, Montana.

27th.—Henry, Dakota; Mackinaw City, Escanaba, and Traverse City, Michigan; Poplar River, Montana; Delavan and Madison, Wisconsin.

28th.—Yankton, Dakota; Riley, Illinois; Bancroft, Cresco, Independence, and West Union, Iowa; Gardiner, Kent's Hill,