CLIMATOLOGICAL TABLES[1]

CONDENSED CLIMATOLOGICAL SUMMARY

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Condensed climatological summary of temperature and precipitation by sections, December, 1928

Section	Temperature								Precipitation					
	Section average	Departure from the normal	Monthly extremes						Section average	Departure from the normal	Greatest monthly		Least monthly	
			Station	Highest	Date	Station	Lowest	Date			Station	Amount	Station	Amount
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	46.7	−0.6	2 stations	78	[2] 3	3 stations	15	[2] 8	2.16	−2.69	Seven Hills	7.03	Tuskegee	0.52
Arizona	43.5	−0.8	Nogales	84	27	2 stations	−14	[2] 16	0.75	−0.56	Prescott	2.65	2 stations	0.00
Arkansas	43.4	+0.9	Calico Rock	87	28	Dutton	10	20	4.41	+0.36	Grannis	8.34	Fort Smith	1.67
California	44.0	−2.1	2 stations	84	27	Helm Creek	−27	14	3.44	−0.73	Upper Mattole	13.00	Amos	0.00
Colorado	23.1	−1.9	Canon City	82	28	Hermit (near)	−31	[2] 17	0.40	−0.53	Garfield	2.91	11 stations	0.00
Florida	59.2	−0.5	Orlando	91	4	3 stations	22	[2] 9	1.45	−1.41	Cottage Hill	3.83	Jupiter	0.09
Georgia	48.4	+0.8	Albany	83	13	Blue Ridge	13	[2] 9	1.92	−2.34	Blakely	3.62	Clayton	0.70
Idaho	22.4	−3.1	2 stations	67	[2] 27	Obsidian	−28	4	1.59	−0.43	Roland	4.50	2 stations	0.16
Illinois	34.0	+3.5	Sparta	73	28	Marengo	−5	21	2.33	+0.09	Effingham	3.61	Galena	1.05
Indiana	34.6	+2.5	Rome	68	28	2 stations	−1	21	2.18	−0.75	Marengo	3.35	Plymouth	0.98
Iowa	28.7	+4.6	Sioux City	57	7	Perry	−15	5	0.89	−0.25	Wever	1.98	Akron	0.12
Kansas	35.8	+4.2	4 stations	76	27	Oberlin	−1	5	0.98	+0.04	Toronto	4.17	4 stations	0.00
Kentucky	39.5	+1.9	Calhoun	72	28	Farmers	5	22	2.32	−1.76	Bowling Green (No. 2).	5.13	Whitesburg	0.79
Louisiana	51.2	−1.1	2 stations	84	4	Tallulah	16	9	4.63	−0.62	Reserve	7.06	Tallulah	2.63
Maryland-Delaware	36.9	+1.8	3 stations	63	17	Oakland, Md	0	22	1.63	−1.66	Crisfield, Md	2.94	Frostburg, Md	0.83
Michigan	29.1	+4.2	Hillsdale	54	11	Humboldt	−14	6	1.59	−0.55	Paw Paw	3.94	Onaway	0.03
Minnesota	22.5	+7.8	Canby	56	12	Roseau	−32	21	0.62	−0.12	Cloquet	1.43	Beardsley	0.06
Mississippi	47.6	−0.5	4 stations	80	4	4 stations	14	9	3.19	−2.34	Pearlington	6.57	Yazoo City	0.68
Missouri	36.2	+2.3	2 stations	81	28	2 stations	0	5	2.24	+0.21	Morehouse	5.04	Maryville	0.23
Montana	23.8	+1.5	Billings	62	27	Outlook	−41	3	0.73	−0.17	Adel	3.30	Valentine	T.
Nebraska	29.1	+3.3	Sidney	74	28	Curtis	−11	8	0.16	−0.58	Mason City	1.00	8 stations	0.00
Nevada	28.7	−2.9	Searchlight	78	13	Beowawe	−21	19	0.54	−0.42	Kimberly	2.35	Millett	T.
New England	31.1	+4.5	Boston, Mass	61	18	Van Buren, Me	−23	23	2.49	−0.88	Machias, Me	5.01	Cornwall, Vt	0.04
New Jersey	36.3	+3.8	New Brunswick	63	18	2 stations	3	22	1.64	−2.29	Elizabeth	4.63	New Milford	0.69
New Mexico	33.0	−0.5	Tucumcari (No. 2)	82	28	Elizabethtown	−23	20	0.48	−0.32	Pesamonta	2.60	3 stations	0.00
New York	31.8	+5.2	2 stations	61	14	Stillwater	−16	22	1.33	−1.65	High Market	3.95	Elmira	0.04
North Carolina	42.7	+0.1	Lumberton	73	17	2 stations	9	[2] 9	2.53	−1.47	Hatteras	10.09	Marshall	0.35
North Dakota	20.7	+7.7	3 stations	57	[2] 9	Hansboro	−30	20	0.28	−0.26	Cooperstown	0.95	2 stations	0.00
Ohio	34.6	+3.4	Middleport	65	13	Summerfield	2	21	2.02	−0.90	Marietta (Best)	2.58	Cortland	0.83
Oklahoma	41.8	+2.5	Hollis	81	28	Boise City	3	18	2.05	+0.48	Idabel	6.48	Elk City	0.37
Oregon	33.1	−1.2	3 stations	66	[2] 9	Harper	−17	23	4.16	−0.25	Valsetz	16.85	2 stations	0.16
Pennsylvania	34.4	+3.3	Elk Lick	68	12	Brookville	−2	[2] 21	1.16	−2.07	Greensboro	2.57	Lawrenceville	0.28
South Carolina	46.1	−0.5	2 stations	78	[2] 4	3 stations	15	[2] 9	1.87	−1.65	Caesar's Head	5.14	Laurens	0.61
South Dakota	27.7	+7.7	Dowling	72	27	Ludlow	−15	4	0.17	−0.44	Hardy Ranger Station.	0.80	Academy	0.00
Tennessee	41.9	+1.4	Carthage	73	[2] 13	Waynesboro	11	9	1.92	−2.65	Tiptonville	4.34	Parksville	0.55
Texas	49.0	−0.8	Pierce	90	4	Dalhart	7	[2] 18	2.72	+0.56	Kaufman	8.32	5 stations	0.00
Utah	23.8	−2.7	2 stations	67	[2] 27	Lucien	−27	22	0.67	−0.56	Silver Lake	3.16	Hanskville	0.00
Virginia	38.8	+0.9	Onley	68	3	Mineral	7	10	1.69	−1.52	Diamond Springs	6.60	2 stations	0.55
Washington	31.6	−0.6	Olympia	64	23	Stockdill Ranch	−9	[2] 3	4.40	−1.16	Quinault	18.42	Alpowa Ranch	0.39
West Virginia	35.4	+2.0	Fairmont	70	13	Terra Alta	1	22	2.08	−1.35	Parsons	5.50	Perry	0.24
Wisconsin	24.9	+4.8	2 stations	55	[2] 7	5 stations	−25	21	1.05	−0.28	Milwaukee County Airport.	2.92	Mondovi	0.09
Wyoming	18.3	−2.1	Torrington	67	27	Riverside	−31	19	0.49	−0.33	Border	1.76	Elk Mountain	0.00
Alaska (November)	19.3	+5.6	2 stations	62	[1] 1	Allakaket	−50	24	3.48	+0.97	Cordova	30.14	White Mountain	0.09
Hawaii	69.9	0.0	Molokai Ranch	93	26	Volcano Observatory	47	27	8.79	−0.86	Papaikou (Mauka)	42.92	2 stations	0.00
Porto Rico	75.5	+1.0	Juncos	95	3	Jayuys	56	28	6.74	+2.01	San Cristobal	23.59	Juncos	1.35

[1] For description of tables and charts, see REVIEW, January, 1928, p. 29.

[2] Other dates also.

TABLE 1.—*Climatological data for Weather Bureau Stations, December, 1928*

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station, reduced to mean of 24 hours	Pressure: Sea level, reduced to mean of 24 hours	Pressure: Departure from normal	Temperature of the air: Mean max. + mean min. ÷ 2	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Mean wet thermometer	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Days with 0.01, or more	Wind: Total movement	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month
	Ft.	Ft.	Ft.	In.	In.	In.	° F.	° F.	° F		° F	° F.		° F	° F	° F	° F	%	In.	In.		Miles								0–10	In.	In.
New England							**34.7**	**+5.3**										**74**	**2.16**	**−1.2**										**5.5**		
Eastport	76	67	85	29.90	29.98	0.00	31.6	+5.3	53	18	38	9	22	26	23	29	24	73	2.74	−1.0	13	8,877	w.	42	ne.	10	8	4	19	6.7	4.2	0.0
Greenville, Me.	1,070	6		28.80	30.01		24.0		47	18	31	−8	23	17	39				3.27		9		nw.			30	12	14	5		19.5	4.0
Portland, Me.	103	82	117	29.94	30.06	+.03	33.5	+5.9	51	16	40	10	22	27	30	29	24	71	3.55	−0.4	11	5,813	n.	26	w.	18	18	3	10	4.3	3.0	0.0
Concord	289	70	79	29.71	30.04	−.02	31.6	+4.8	59	17	40	4	23	23	37				1.61	−1.5	7	3,718	nw.	24	w.	30	15	6	10	5.0	T.	0.0
Burlington	403	11	48	29.60	30.06	+.01	30.2	+5.8	54	18	36	8	22	24	26				0.31	−1.6	6	7,164	s.	35	s.	19	3	6	22	7.9	1.7	0.0
Northfield	876	12	60		30.08	+.03	27.0	+6.6	54	18	35	4	23	19	37			82	1.15	−1.6	9	4,201	n.	23	se.	18	2	11	18	7.6	13.5	2.2
Boston	125	115	188	29.93	30.06	+.01	38.5	+6.0	61	18	45	17	22	32	27	34	29	72	2.61	−0.8	11	6,669	w.	28	w.	30	15	8	8	4.7	4.6	0.0
Nantucket	12	14	90	30.05	30.06	+.01	39.2	+3.4	54	18	44	21	22	34	20	36	32	80	3.61	0.0	12	10,345	w.	54	ne.	8	12	10	9	5.5	T.	0.0
Block Island	26	11	46	30.04	30.07	+.01	39.3	+3.3	56	17	44	21	22	34	18	36	31	74	2.85	−1.0	11	12,231	w.	48	w.	30	12	10	9	4.7	0.5	0.0
Providence	160	215	251	29.90	30.08	+.02	37.2	+5.6	58	18	44	16	22	30	24	32	27	69	2.87	−0.5	11	7,953	nw.	58	nw.	30	14	8	9	4.6	1.0	0.0
Hartford	159	122		29.93	30.11	+.04	36.5	+6.7	57	17	44	13	23	29	28				0.92	−3.0	8		sw.				16	5	10	4.4	0.4	0.0
New Haven	106	74	153	29.99	30.11	+.04	37.2	+4.7	56	17	44	16	22	30	25	32	26	68	1.60	−2.4	8	5,685	n.	28	s.	17	14	8	9	4.7	0.9	0.0
Middle Atlantic States							**38.6**	**+3.1**										**72**	**1.34**	**−1.7**										**5.6**		
Albany	97	107	115	30.00	30.11	+.03	34.2	+5.7	56	17	41	14	22	28	23	30	26	75	0.40	−0.2	6	4,275	sw.	26	s.	5	9	11	11	5.7	T.	0.0
Binghamton	871	10	84	29.13	30.09	.00	33.6	+5.4	57	18	40	11	22	27	28				0.16	−2.3	7	3,805	nw.	22	w.	18	7	6	18	6.9	0.6	T.
New York	314	414	454	29.78	30.13	+.04	39.4	+4.4	58	17	46	20	22	33	25	34	29	68	0.85	−2.8	7	10,799	nw.	48	sw.	18	10	10	11	5.7	2.3	0.0
Bellefonte	1,050	5	36	28.99	30.13		32.3		54	13	42	5	22	23	35	28	24	81	0.39		3		w.				10	9	12	5.9	T.	0.0
Harrisburg	374	94	104	29.75	30.17	+.05	37.0	+4.3	58	17	44	16	22	30	28	32	25	65	0.62	−2.0	3	3,915	w.	26	sw.	17	11	10	10	5.4	T.	0.0
Philadelphia	114	123	367	30.02	30.16	+.05	40.8	+4.5	60	17	47	21	22	34	25	36	30	68	1.50	−1.9	7	7,881	nw.	46	sw.	18	10	8	13	5.5	3.2	0.0
Reading	325	81	98	29.78	30.15		38.1		59	17	46	18	22	31	28	33	28	73	0.76	−2.6	7	3,923	w.	21	nw.	5	11	8	12	5.7	0.5	0.0
Scranton	805	111	119	29.24	30.14	+.04	35.2	+4.5	58	17	42	12	22	28	27	31	26	72	0.49	−2.1	7	4,427	sw.	28	nw.	30	6	7	18	7.0	0.4	0.0
Atlantic City	52	37	172	30.08	30.14	+.04	39.4	+3.0	56	1	46	21	22	33	22	35	31	77	2.03	−1.9	8	9,712	nw.	42	s.	17	14	6	11	4.7	3.9	0.0
Cape May	17	13	49				38.3	+0.3	57	1	46	18	22	31	23	35	32	82	2.25		10		nw.				14	7	10		9.6	0.0
Sandy Hook	22	10	55	30.10	30.12		38.8		58	17	44	22	22	34	22	35	31	76	1.07		9	9,793	w.	41	n.	8	11	9	11	5.1	2.4	0.0
Trenton	190	159	183	29.92	30.13		38.2		60	17	46	17	22	31	26	33	28	73	1.19	−2.0	8	6,146	nw.	34	nw.	18	11	7	13	5.6	1.7	0.0
Baltimore	123	100	113	30.02	30.15	+.02	41.0	+3.8	63	17	48	22	22	34	27	35	29	67	1.22	−2.2	7	5,587	sw.	36	w.	18	14	8	9	4.7	0.3	0.0
Washington	112	62	85	30.04	30.17	+.04	39.2	+2.6	62	17	48	20	22	30	30	33	28	70	1.21	−2.1	3	3,591	nw.	32	nw.	18	16	5	10	4.9	T.	0.0
Cape Henry	18	8	54	30.11	30.13		43.2		66	17	49	29	10	37	29	40	36	78	3.98	+0.5	13	9,082	n.	43	n.	8	12	7	12	5.7	T.	0.0
Lynchburg	681	153	188	29.40	30.17	+.03	40.6	+1.1	62	17	51	20	24	30	35	34	27	65	1.02	−2.2	6	3,588	w.	26	nw.	18	12	11	8	5.3	T.	0.0
Norfolk	91	170	205	30.06	30.16	+.03	44.6	+1.5	65	1	51	29	9	38	27	39	34	72	3.85	+0.5	12	8,156	ne.	32	nw.	18	10	5	16	5.9	T.	0.0
Richmond	144	11	52	30.01	30.18	+.04	41.0	+1.2	63	17	51	18	10	31	33	35	30	74	1.46	−1.8	8	4,305	ne.	29	sw.	17	13	5	13	5.4	1.2	0.0
Wytheville	2,304	49	55	27.72	30.18	+.03	36.4	+1.1	60	4	46	15	23	26	34	30	26	73	0.76	−2.2	8	3,941	w.	25	w.	17	12	7	12	5.4	1.2	0.0
South Atlantic States							**48.0**	**+0.6**										**74**	**2.42**	**−0.8**										**5.3**		
Asheville	2,253	70	84	27.75	30.18	+.02	39.0	+1.2	61	4	49	19	10	29	34	33	29	73	0.55	−2.5	7	5,386	nw.	28	se.	17	16	3	12	4.7	1.1	0.0
Charlotte	779	55	62	29.31	30.17	+.01	44.3	+1.3	67	4	53	26	9	35	30	39	34	72	0.88	−3.0	5	3,268	ne.	18	w.	29	13	7	11	5.0	T.	0.0
Greensboro	886	5	56	29.20	30.18		39.0		63	4	51	14	10	27	37	33	30	80	0.55		5	4,382	ne.	29	sw.	17	14	5	12	5.4	T.	0.0
Hatteras	11	11	50	30.09	30.10	−.03	49.2	−0.9	71	17	55	32	11	44	23	46	44	87	10.09	+5.9	18	10,521	n.	42	w.	7	11	6	14	5.9	0.0	0.0
Raleigh	376	103	110	29.75	30.17	+.02	44.3	+1.3	64	17	53	25	22	36	27	39	34	73	1.48	−1.7	8	4,256	ne.	20	sw.	17	10	8	13	5.8	0.1	0.0
Wilmington	78	81	91	30.07	30.16	+.01	48.8	−0.3	71	17	57	30	10	41	26	44	41	82	3.58	+0.8	13	4,583	n.	20	sw.	18	8	9	14	6.1	0.0	0.0
Charleston	48	11	92	30.10	30.15	.00	52.3	+0.6	73	14	59	34	10	45	23	46	41	72	1.09	−1.6	6	6,851	n.	25	n.	8	6	14	11	5.8	0.0	0.0
Columbia, S. C.	351	41	57	29.79	30.18	+.02	47.3	+0.1	70	5	57	27	10	38	30	41	35	70	1.82	−1.1	5	3,990	ne.	24	s.	17	10	13	8	5.0	0.0	0.0
Due West	711	10	55	29.40	30.20		44.4		68	5	54	22	10	34	33				1.20		6	5,416	ne.	30	w.	17	12	8	11	4.8	0.0	0.0
Greenville, S. C.	1,039	139	146	29.04	30.16		44.8	+2.6	66	4	53	25	9	36	32	38	32	66	1.51		8	5,149	ne.	30	sw.	17	14	6	11	4.8	T.	0.0
Augusta	182	62	77	29.97	30.17	+.01	48.8	+0.7	72	4	59	26	10	39	32	42	37	74	2.34	−0.9	6	2,925	nw.	20	w.	29	14	10	7	4.6	0.0	0.0
Savannah	65	150	194	30.09	30.16	+.01	53.4	+1.0	76	29	62	32	23	45	29	46	41	72	1.08	−1.8	5	7,005	ne.	31	nw.	29	12	7	12	5.2	0.0	0.0
Jacksonville	43	209	245	30.10	30.15	+.01	55.6	−0.7	75	29	63	32	23	48	28	49	45	76	1.34	−1.7	7	7,018	n.	32	w.	27	12	7	12	5.4	0.0	0.0
Florida Peninsula							**66.0**	**−0.4**										**79**	**1.19**	**−0.7**										**3.8**		
Key West	22	10	64	30.08	30.10	+.02	69.4	−0.9	83	2	75	53	9	64	16	64	62	84	2.26	+0.6	2	5,926	ne.	25	n.	8	24	7	0	2.5	0.0	0.0
Miami	25	71	164	30.09	30.12		67.3	−0.7	81	2	74	46	29	60	25	61	58	77	0.74	−1.3	2	6,565	nw.	23	nw.	25	15	13	3	3.7	0.0	0.0
Tampa	35	79	87	30.10	30.13	+.01	61.4	+0.3	82	5	70	38	23	53	29	54	51	77	0.56	−1.5	4	3,898	ne.	19	e.	13	15	5	11	4.7	0.0	0.0
Titusville	44	5		30.07	30.12		59.6		82	20	67	35	10	52	31				0.64		4		nw.				13	7	11	4.4	0.0	0.0
East Gulf States							**49.3**	**−0.2**										**72**	**2.77**	**−1.9**										**4.9**		
Atlanta	1,173	190	216	28.91	30.17	+.01	45.2	+0.5	67	4	53	21	9	37	28	39	34	69	0.82	−3.9	8	7,057	nw.	31	nw.	17	13	8	10	4.8	T.	0.0
Macon	370	78	87	29.78	30.18	+.02	47.6	+0.1	71	13	59	25	23	37	34	41	36	73	2.75	−1.7	7	3,807	nw.	19	nw.	18	15	6	10	4.7	T.	0.0
Thomasville	273	49	58	29.86	30.17	+.02	52.9	+0.4	75	29	62	30	9	44	29	46	41	74	1.84	−1.8	7	2,825	n.	16	sw.	29	12	6	13	5.4	0.0	0.0
Apalachicola	36	42	49	30.12	30.16		54.3		73	29	61	33	9	48	23	50	47	82	2.07		6	5,272	n.	25	e.	13	14	8	9	4.5	0.0	0.0
Pensacola	56	149	185	30.12	30.18	+.03	53.2	−0.8	69	29	60	28	9	46	21	48	43	73	3.60	−1.0	8	8,597	n.	35	e.	13	11	6	14	5.4	0.0	0.0
Anniston	741	9	57	29.40	30.21	+.05	44.2	0.0	72	4	56	19	9	32	38				1.31	−3.2	8	3,249	nw.	19	nw.	17	15	10	6	4.0	0.0	0.0
Birmingham	700	11	48	29.41	30.20	+.04	46.6	+0.2	70	4	56	22	9	37	33	40	34	69	0.91	−3.7	5	4,375	n.	34	se.	13	13	11	7	4.6	0.0	0.0
Mobile	57	125	161	30.12	30.18	+.03	52.3	+0.1	74	29	61	26	9	44	28	47	42	74	5.82	+0.8	7	6,166	n.	29	se.	13	11	7	13	5.4	0.0	0.0
Montgomery	223	100	112	29.94	30.20	+.04	49.3	−0.1	71	4	59	27	9	40	30	43	37	68	1.96	−2.9	7	3,868	n.	26	se.	13	13	10	8	4.7	T.	0.0
Corinth	469	6					45.0		71	4	56	19	9	34	38				1.28		6		s.				10	18	3		T.	0.0
Meridian	375	87	95	29.78	30.19	+.03	47.0	−0.7	74	4	58	21	9	36	35	41	36	73	1.70	−3.5	8	3,404	nw.	21	se.	12	11	11	9	5.0	0.0	0.0
Vicksburg	247	65	73	29.91	30.20	+.05	49.2	−0.8	73	4	58	27	9	40	24	43	36	67	3.66	−1.7	6	4,641	se.	24	nw.	17	13	10	8	4.5	0.0	0.0
New Orleans	53	76	84	30.12	30.18	+.05	54.7	−0.9	76	4	62	33	9	47	25	49	44	75	6.06	+1.3	7	4,012	ne.	20	ne.	20	11	7	13	5.4	0.0	0.0
West Gulf States							**50.3**	**−0.1**										**73**	**3.92**	**+1.0**										**4.5**		
Shreveport	249	77	93	29.91	30.19	+.06	49.4	+0.3	75	4	59	28	8	40	27	42	36	66	4.86	+0.6	6	4,362	se.	22	nw.	17	19	6	6	3.6	0.0	0.0
Bentonville	1,303	11	44	28.73	30.14	+.01	39.8	+2.3	72	28	50	16	8	30	28				2.96		8		s.				15	10	6		1.0	1.0
Fort Smith	457	79	94	29.66	30.16	+.03	43.1	+1.0	74	28	53	23	20	34	38	37	32	72	1.67	−1.1	6	5,766	e.	34	w.	26	17	4	10	4.3	T.	0.0
Little Rock	357	136	144	29.78	30.16	+.02	44.2	0.0	70	28	53	25	9	36	30	38	32	67	5.68	+1.4	8	6,004	sw.	31	nw.	26	19	5	7	3.8	0.0	0.0
Austin	605	136	148	29.52	30.16		50.8	−0.2	81	4	62	29	21	40	35	44	39	71	2.68	0.0	8	4,985	n.	28	nw.	17	14	7	10	4.5	0.0	0.0
Brownsville	57	53	61	30.07	30.13		60.6	−0.6	81	4	69	36	23	53	25	55	53	83	1.64	+0.1	9	4,768	n.	25	n.	17	9	8	14	5.8	0.0	0.0
Corpus Christi	20	11	73	30.14	30.16	+.04	57.0	−1.0	76	4	64	35	21	50	26	53	50	83	4.78	+3.5	8	6,215	n.	34	nw.	17	8	8	15	6.2	0.0	0.0
Dallas	512	220	227	29.61	30.17		47.4		78	28	57	25	20	38	34				6.68		9	8,299	se.	41	w.	31	22	2	7	3.5	0.0	0.0
Fort Worth	670	106	114	29.43	30.16	+.04	48.2	+0.7	81	28	58	29	20	38	34	42	36	67	5.50	+3.7	7	5,549	nw.	27	nw.	31	16	6	9	4.4	0.0	0.0
Galveston	54	106	114	30.12	30.18	+.02	54.8	−1.6	75	4	61	38	22	49	20	51	48	81	4.20	+0.4	9	6,132	n.	34	nw.	17	13	13	5	4.0	0.0	0.0
Groesbeck	461	11	56	29.67	30.16		48.4		75	4	59	27	9	38	32				4.97		7	6,588	n.	27	nw.	16	14	9	8	4.1	0.0	0.0
Houston	138	292	314	30.03	30.18		54.0	−0.4	80	4	62	33	8	45	25				4.37	+0.1	11	8,418	nw.	39	nw.	17	11	9	11	5.0	0.0	0.0
Palestine	510	64	72	29.64	30.18	+.06	49.2	−0.7	76	4	60	26	8	39	30	43	37	69	5.56	+1.9	7	4,815	s.	24	nw.	17	16	8	7	3.8	0.0	0.0
Port Arthur	34	58	66	30.14	30.17		53.8		75	4	62	33	23	46	26				3.24		9	4,470	n.	29	n.	17	11	9	11	5.2	0.0	0.0
San Antonio	693	119	132	29.42	30.17	+.06	53.5	−0.2	85	4	63	31	20	44	33	46	40	69	2.95	+1.3	12	4,104	ne.	27	nw.	17	12	9	10	5.0	0.0	0.0
Taylor	583	55	63	29.58	30.21	+.10	49.3	−1.3	79	4	60	28	21	39	35				3.19	+0.6	9	4,919	nw.	25	sw.	28	13	11	7	4.4	0.0	0.0

TABLE 1.—*Climatological data for Weather Bureau stations, December, 1928*—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station reduced to mean of 24 hours	Pressure: Sea level, reduced to mean of 24 hours	Pressure: Departure from normal	Temperature of the air: Mean max. + mean min. ÷ 2	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Mean wet thermometer	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Days with 0.01, or more	Wind: Total movement	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month
	Ft.	Ft.	Ft.	In.	In.	In.	° F.	° F.	° F		° F	° F.		° F	° F	° F	° F	%	In.	In.		Miles								0–10	In.	In.
Ohio Valley and Tennessee							**38.8**	**+2.2**										**72**	**2.18**	**−1.4**										**5.4**		
Chattanooga	762	190	215	29.36	30.19	+.03	43.6	+0.3	68	4	53	24	9	35	35	37	29	60	1.52	−3.6	9	4,504	sw.	31	nw.	17	13	9	9	4.9	0.0	0.0
Knoxville	995	102	111	29.10	30.19	+.03	41.5	+1.2	65	4	51	23	10	32	31	36	32	75	1.15	−3.4	8	3,464	ne.	28	sw.	28	11	7	13	5.5	T.	0.0
Memphis	399	76	97	29.73	30.16	+.01	44.8	+1.2	70	28	52	23	8	37	23	39	33	67	4.13	−0.4	7	5,116	sw.	25	nw.	17	18	5	8	4.0	0.0	0.0
Nashville	546	168	191	29.59	30.19	+.04	42.8	+1.8	71	28	53	22	6	33	43	37	30	66	1.38	−2.8	7	5,647	w.	34	w.	17	13	9	9	4.4	T.	0.0
Lexington	989	193	230	29.09	30.19	+.05	39.4	+3.6	60	28	47	14	21	32	31				1.92	−1.4	10	8,262	sw.	40	nw.	17	14	6	11	4.5	T.	0.0
Louisville	525	188	234	29.59	30.19	+.05	39.2	+1.6	63	28	47	15	21	31	32	35	31	76	3.31	−0.4	8	6,131	s.	30	w.	17	16	6	9	4.3	T.	0.0
Evansville	431	76	116	29.70	30.19	+.06	39.8	+2.7	66	28	47	18	21	32	33	35	30	72	2.78	−0.8	9	5,831	s.	29	sw.	28	15	6	10	4.9	0.4	0.0
Indianapolis	822	194	230	29.23	30.14	+.02	35.4	+3.2	55	2	42	8	21	28	23	31	27	73	2.19	−0.8	10	6,810	s.	34	w.	20	9	8	14	6.1	0.5	0.0
Royal Center	736	11	55	29.31	30.14		31.8		51	11	39	3	21	24	28				1.77		8	6,075	sw.	35	w.	20	6	9	16	6.9	0.7	0.0
Terre Haute	575	96	129	29.51	30.14		35.5		56	28	43	9	21	28	26	32	27	75	1.91		9	5,596	s.	24	s.	26	11	7	13	5.8	2.9	0.0
Cincinnati	627	11	51	29.46	30.17	+.04	36.8	+3.4	58	13	45	9	21	29	29	32	29	77	2.56	−0.4	9	4,283	sw.	24	w.	17	11	7	13	5.5	1.1	0.0
Columbus	822	179	222	29.25	30.15	+.03	36.4	+4.0	58	13	43	9	21	30	21	32	28	76	2.07	−0.7	8	5,999	s.	33	w.	18	10	5	16	5.7	T.	0.0
Dayton	899	137	173	29.16	30.15		36.3	+3.7	59	13	43	9	21	30	26	32	27	73	2.09	−0.7	7	5,374	sw.	28	sw.	3	9	9	13	5.7	T.	0.0
Elkins	1,947	59	67	28.06	30.21	+.09	33.8	+1.1	63	13	45	9	22	23	40	28	24	82	2.68	−0.7	9	2,840	w.	27	w.	17	8	6	17	6.7	2.7	0.0
Parkersburg	637	77	82	29.51	30.18	+.04	37.2	+2.0	62	13	46	14	21	28	34	31	26	72	1.59	−1.2	9	3,021	sw.	24	nw.	17	11	5	15	6.2	0.1	0.0
Pittsburgh	842	353	410	29.22	30.15	+.04	35.8	+1.6	58	13	43	10	21	29	26	32	26	70	1.18	−1.7	7	6,036	sw.	37	w.	17	10	8	13	5.9	T.	0.0
Lower Lake Region							**33.6**	**+4.4**										**76**	**1.30**	**−1.5**										**7.4**		
Buffalo	767	247	280	29.23	30.08	+.02	33.5	+3.7	51	13	38	11	22	29	17	31	28	80	1.87	−1.5	16	11,993	w.	58	w.	21	3	7	21	7.8	13.2	T.
Canton	448	10	61	29.57	30.06		28.6	+5.9	51	17	35	3	21	23	25				1.22	−2.4	11	6,380	sw.	34	w.	18	6	4	21	7.5	4.5	T.
Ithaca	836	5	100	29.16	30.10		33.2		54	17	39	9	22	27	24	29	25	75	0.13	−2.2	5	6,103	nw.	34	se.	3	5	9	17	7.0	0.3	0.0
Oswego	335	76	91	29.71	30.09	+.03	33.6	+4.6	55	17	39	11	22	28	26	31	27	80	1.76	−1.7	10	7,113	s.	31	nw.	21	3	7	21	8.1	11.4	0.0
Rochester	523	86	102	29.52	30.11	+.05	34.0	+4.7	53	17	39	10	22	29	18	30	25	72	0.78	−1.9	12	5,198	sw.	30	w.	18	4	5	22	7.6	2.6	0.0
Syracuse	596	65	79	29.45	30.11	+.04	34.6	+6.3	57	17	40	15	9	29	27				0.91	−1.7	9	4,968	sw.	26	sw.	21	4	8	19	7.4	7.5	1.0
Erie	714	130	166	29.32	30.11	+.04	35.4	+3.5	57	13	40	15	22	30	20	31	26	70	0.66	−2.2	8	9,191	s.	42	sw.	20	4	3	24	8.1	3.8	0.0
Cleveland	762	190	201	29.28	30.13	+.04	35.2	+4.0	59	13	41	11	21	29	19	31	26	71	1.41	−1.0	10	8,152	sw.	44	w.	20	7	4	20	6.9	1.9	0.0
Sandusky	629	5	67	29.43	30.14	+.05	34.1	+2.9	51	17	40	9	21	28	23				1.81	−0.5	11	5,710	sw.	30	w.	20	6	6	19	7.1	0.7	0.0
Toledo	628	208	243	29.43	30.13	+.05	34.0	+3.6	52	13	40	9	21	28	21	30	26	75	2.36	0.0	11	8,335	sw.	38	w.	20	8	6	17	6.6	1.0	0.0
Fort Wayne	856	113	124	29.16	30.12		33.4	+6.1	53	11	40	6	21	26	25	30	26	79	1.75		6	5,533	sw.	28	w.	20	7	7	17	6.8	1.1	0.0
Detroit	730	218	258	29.30	30.11	+.04	32.9	+3.6	53	13	38	9	21	28	23	31	28	83	1.38	−1.0	11	6,839	sw.	36	sw.	20	4	8	19	7.4	2.6	T.
Upper Lake Region							**28.3**	**+3.8**										**84**	**1.54**	**−0.6**										**7.5**		
Alpena	609	13	92	29.36	30.05	+.03	29.2	+4.4	48	11	34	5	21	24	23	27	24	83	0.94	−1.1	10	6,619	sw.	33	se.	3	4	9	18	7.5	5.6	0.0
Escanaba	612	54	60	29.36	30.05	+.02	25.8	+3.4	49	16	31	−2	21	20	20	24	20	79	0.20	−1.6	4	6,007	sw.	23	nw.	20	7	7	17	6.3	1.9	1.0
Grand Haven	632	54	89	29.37	30.08	+.03	32.1	+2.8	47	12	37	13	23	27	22	30	27	83	2.63	+0.1	10	7,969	w.	40	w.	20	4	2	25	8.5	3.3	0.0
Grand Rapids	707	70	87	29.30	30.10	+.05	31.7	+3.2	48	12	37	9	21	27	24	29	26	80	2.79	+0.2	10	3,792	w.	28	w.	20	1	6	24	8.8	8.0	6.0
Houghton	668	64	99	29.25	30.00	−.02	25.6	+3.8	45	10	31	5	20	20	28				1.27	−1.2	11	5,814	w.	31	w.	16	4	4	23	8.0	11.4	1.6
Lansing	878	6	49	29.12	30.09		29.1	+1.9	46	11	35	2	22	23	23	28	27	92	1.81	−0.3	12	3,444	sw.	23	w.	20	6	3	22	7.7	8.2	T.
Ludington	637	60	66	29.34	30.05		32.2		47	12	36	12	21	28	18	31	29	87	1.55		11	7,386	w.	29	n.	20	4	7	20	7.7	6.4	0.0
Marquette	734	77	111	29.19	30.02	.00	27.0	+4.4	49	16	33	0	21	21	24	24	21	82	1.13	−1.5	12	6,487	w.	28	sw.	22	5	3	23	7.9	10.0	2.1
Port Huron	638	70	120	29.38	30.09	+.03	31.4	+3.8	48	11	36	9	22	26	22	29	26	84	1.19	−0.8	10	6,753	sw.	31	w.	20	5	7	19	7.1	3.5	0.0
Sault Sainte Marie	614	11	52	29.31	30.03	+.03	27.0	+6.5	41	16	32	−1	21	22	26	25	23	88	1.39	−0.9	15	5,287	se.	27	nw.	29	0	4	27	9.2	14.1	3.3
Chicago	673	7	131	29.36	30.11	+.03	32.2	+3.4	50	11	38	3	21	27	19	29	26	78	2.63	+0.6	15	6,500	sw.	32	sw.	3	8	6	17	6.5	3.3	0.0
Green Bay	617	109	141	29.37	30.06	+.02	26.2	+3.9	45	16	32	−6	21	20	23	25	22	83	0.92	−0.9	9	6,758	s.	24	nw.	20	6	10	15	6.7	1.9	0.4
Milwaukee	681	125	221	29.32	30.08	+.02	30.2	+4.1	52	11	36	−2	21	24	22	27	24	79	1.97	+0.2	8	8,540	sw.	43	se.	2	9	6	16	6.6	1.2	T.
Duluth	1,133	5	47	28.76	30.04	−.01	20.2	+4.3	40	24	27	−13	21	14	29	18	16	87	1.16	0.0	9	8,291	nw.	35	nw.	26	9	6	16	6.2	11.4	1.5
North Dakota							**20.9**	**+8.5**										**83**	**0.39**	**−0.2**										**6.8**		
Moorhead	940	50	58	28.99	30.05	−.03	22.2	+10.7	46	10	30	−15	21	14	30	20	18	85	0.44	−0.3	8	5,726	s.	25	nw.	26	10	9	12	6.0	5.2	1.7
Bismarck	1,674	8	57	28.21	30.07	−.01	22.5	+7.8	48	27	32	−12	4	12	36	20	16	80	0.24	−0.3	8	5,478	nw.	32	nw.	18	10	10	11	5.6	2.8	T.
Devils Lake	1,478	11	44	28.39	30.03	−.03	19.0	+9.5	45	10	27	−17	20	11	32	17	15	86	0.31	−0.1	10	6,266	sw.	34	n.	18	11	7	13	5.6	3.5	1.0
Ellendale	1,457	10	56	28.43	30.05		22.2		51	27	32	−10	21	12	32				0.39		10	8,846	nw.	37	nw.	18	12	12	7	5.1	4.7	0.4
Grand Forks	833	12	67				20.6		47	10	28	−17	21	13	28	19			0.47		9		nw.		s.	8	6	11	14		7.4	2.6
Williston	1,878	41	48	28.01	30.07	+.01	19.8	+6.0	44	10	30	−21	4	10	31	18	15	80	0.56	0.0	5	4,938	w.	28	w.	26	12	8	11	5.0	5.6	0.3
Upper Mississippi Valley							**31.0**	**+4.2**										**81**	**1.58**	**−0.1**										**5.9**		
Minneapolis	918	102	208	29.03	30.04		25.6	+6.0	45	10	33	−11	21	18	31				0.43	−0.6	9	7,204	s.	33	nw.	26	7	9	15	6.4	3.6	0.4
St. Paul	837	236	261	29.12	30.06	−.02	25.0	+6.0	46	10	32	−8	21	18	30				0.41	−0.6	10	7,197	se.	31	nw.	26	6	8	17	6.8	5.2	0.8
La Crosse	714	11	48	29.28	30.08	.00	26.9	+4.6	47	12	34	−10	21	20	31	25	22	83	1.10	−0.2	8	3,509	s.	14	nw.	20	9	6	16	6.5	2.5	T.
Madison	974	70	78	29.01	30.10	+.02	27.0	+4.2	51	11	33	−4	21	20	23	25	23	85	1.64	0.0	9	5,515	s.	22	sw.	3	7	8	16	6.3	0.5	T.
Wausau	1,247	4	64		30.06		24.2		43	12	30	−11	21	18	27				0.46		8	4,225	w.	18	e.	2	6	8	17		3.0	1.0
Charles City	1,015	10	51	28.98	30.10	.00	26.3	+5.9	46	11	33	1	20	19	24	24	22	86	1.13	−0.2	3	4,655	nw.	21	nw.	18	8	6	17	6.5	T.	T.
Davenport	606	71	79	29.43	30.12	+.02	31.3	+4.2	53	11	38	5	5	25	22	28	25	80	1.64	+0.2	10	4,433	s.	22	w.	3	11	7	13	5.7	2.6	T.
Des Moines	861	84	97	29.16	30.10	−.01	29.8	+3.8	50	27	38	0	5	22	32	27	24	83	1.03	−0.2	5	4,478	sw.	23	sw.	26	9	7	15	6.0	1.6	0.0
Dubuque	700	81	96	29.32	30.10	.00	29.1	+4.4	50	11	36	1	21	22	26	26	23	81	1.09	−0.4	4	4,092	s.	19	n.	31	6	11	14	6.5	0.9	0.0
Keokuk	614	64	78	29.44	30.14	+.02	33.0	+3.4	52	26	40	5	5	26	25	30	26	78	1.85	+0.4	6	4,948	s.	34	w.	3	12	5	14	5.5	2.3	T.
Cairo	358	87	93	29.77	30.16	+.01	40.6	+2.8	67	28	49	21	8	33	30	36	31	74	3.26	−0.1	8	5,497	s.	29	s.	26	14	7	10	4.6	T.	0.0
Peoria	609	11	45	29.45	30.14	+.03	32.0	+3.9	53	11	39	5	5	25	25	29	27	85	2.53	+0.8	8	4,409	s.	30	w.	3	11	7	13	5.6	1.3	0.0
Springfield, Ill	636	154	191	29.42	30.12	.00	34.6	+2.9	57	28	42	9	21	27	22	31	28	83	1.94	−0.2	9	7,975	s.	34	w.	3	9	9	13	5.9	0.2	0.0
Hannibal	534	74	109	29.54	30.13	+.01	34.8	+3.3	56	28	43	11	5	27	29				1.92	+0.3	7	5,574	sw.	31	sw.	2	13	6	12	5.0	1.9	0.0
St. Louis	568	265	303	29.52	30.14	+.01	38.6	+3.9	75	28	46	16	5	31	35	34	29	72	2.22	0.0	8	8,030	s.	36	sw.	26	14	6	11	4.8	T.	0.0
Missouri Valley							**32.7**	**+4.9**										**75**	**0.97**	**−0.1**										**5.2**		
Columbia, Mo	784	6	84	29.26	30.12	.00	36.2	+3.0	66	28	44	14	5	28	29				2.04	0.0	8	5,369	sw.	23	w.	2	10	9	12	5.4	2.1	0.9
Kansas City	963	161	181	29.07	30.13	+.01	36.6	+4.1	57	28	44	15	22	30	22	32	27	72	1.83	+0.5	8	6,989	s.	32	w.	2	11	8	12	5.4	6.1	3.7
St. Joseph	967	11	49	29.05	30.12		34.7		54	27	42	13	22	28	26	31	27	77	0.50		6	5,635	nw.	28	nw.	3	12	7	12	5.3	1.3	0.6
Springfield, Mo	1,324	98	104	28.71	30.15	+.02	38.0	+1.8	75	28	47	15	5	30	33	33	28	74	2.70	0.0	7	7,004	nw.	32	nw.	26	15	5	11	4.7	0.6	0.5
Iola	984	11	50	29.05	30.14	+.02	37.2	+3.3	64	28	46	14	5	28	30				2.23	+1.2	9	3,866	s.	24	nw.	26	11	6	14	5.8	2.7	1.0
Topeka	987	92	107				36.6	+4.6	61	27	44	15	31	29	29				1.24	+0.4	4	6,532	sw.	26	nw.	26	11	7	13	5.1	6.6	3.8
Lincoln	1,189	11	81	28.81	30.12	.00	31.2	+3.6	57	27	39	9	31	23	29	28	23	75	0.03	−0.6	2	6,192	s.	31	w.	2	11	7	13	5.5	T.	0.0
Omaha	1,105	115	122	28.90	30.12	+.01	31.3	+4.9	55	27	38	9	5	24	26	28	24	74	0.40	−0.5	5	5,337	nw.	30	nw.	31	12	7	12	5.1	1.4	0.0
Valentine	2,598	47	54	27.32	30.13	+.03	29.7	+5.1	67	27	42	1	31	17	45	24	19	72	0.66	0.0	9	5,877	w.	32	nw.	26	15	8	8	3.9	9.9	0.2
Sioux City	1,135	94	164	28.85	30.11	−.01	29.9	+6.8	57	27	38	6	5	22	31	27	23	78	0.14	−0.6	3	7,696	nw.	36	nw.	26	10	10	11	5.5	1.5	T.
Huron	1,306	59	74	28.65	30.10	.00	26.4	+7.7	62	27	37	−2	5	16	44	23	19	77	0.09	−0.5	4	5,596	nw.	25	nw.	18	13	10	8	4.8	0.9	T.
Pierre	1,572	70	75		30.12	+.02	28.4	+6.6	66	27	39	−2	4	18	42			76	0.19	−0.3	4	5,142	nw.	34	nw.	18	17	5	9		2.4	T.
Yankton	1,233	49	57	28.73	30.09	−.02	30.4	+7.6	64	27	40	3	31	21	39				0.10	−0.7	4	5,149	nw.	27	nw.	18	10	10	11	5.6	0.6	0.0

TABLE 1.—*Climatological data for Weather Bureau stations, December, 1928*—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station reduced to mean of 24 hours	Pressure: Sea level, reduced to mean of 24 hours	Pressure: Departure from normal	Temperature of the air: Mean max. + mean min. ÷ 2	Temperature: Departure from normal	Temperature: Maximum	Temperature: Date	Temperature: Mean maximum	Temperature: Minimum	Temperature: Date	Temperature: Mean minimum	Temperature: Greatest daily range	Mean wet thermometer	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Days with 0.01, or more	Wind: Total movement	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month
	Ft.	Ft.	Ft.	In.	In.	In.	° F.	° F.	° F		° F	° F.		° F	° F	° F	° F	%	In.	In.		Miles								0–10	In.	In.
Northern Slope							**23.3**	**−0.6**										**75**	**0.50**	**−0.4**										**5.2**		
Billings	3,140	5					27.2		62	27	38	−11	4	16	40				0.62		5		nw.				17	7	7		6.4	2.5
Havre	2,505	11	44	27.38	30.11	+0.06	23.9	+3.5	52	23	35	−31	4	13	50	21	17	76	0.85	+0.2	7	5,477	sw.	28	sw.	17	4	18	9	5.9	11.2	4.2
Helena	4,110	87	112	25.85	30.20	+.07	23.7	−0.7	51	27	33	−10	4	15	30	21	17	76	0.94	+0.1	9	4,096	sw.	31	sw.	25	4	15	12	6.6	13.3	2.1
Kalispell	2,973	48	56	27.04	30.22	+.15	22.0	−2.9	46	9	28	−3	4	16	25	21	19	87	1.00	−0.8	11	2,709	nw.	23	sw.	25	2	7	22	8.4	11.8	7.3
Miles City	2,371	48	55	27.51	30.16	+.06	23.5	+2.5	49	27	34	−16	4	13	32	21	17	78	0.40	−0.2	10	3,662	s.	30	nw.	18	10	11	10	5.2	5.9	1.2
Rapid City	3,259	50	58	26.62	30.15	+.06	30.8	+3.9	66	27	43	−1	4	19	43	25	17	59	0.10	−0.4	5	5,314	nw.	34	n.	18	15	11	5	4.0	1.0	0.4
Cheyenne	6,088	84	101	23.99	30.17	+.08	26.8	−1.7	60	27	37	−3	4	16	32	21	12	56	0.17	−0.4	4	9,199	w.	39	w.	25	20	6	5	3.0	2.2	0.2
Lander	5,372	60	68	24.68	30.35	+.20	11.0	−9.4	53	27	24	−20	4	−2	45	8	6	88	0.16	−0.5	3	2,321	w.	35	sw.	27	18	11	2	3.4	1.7	7.0
Sheridan	3,790	10	47	26.12	30.18		21.6		62	27	34	−13	4	10	36	19	14	74	0.36		9	2,923	s.	28	nw.	18	12	11	8	4.9	4.4	2.5
Yellowstone Park	6,241	11	48	23.92	30.30	+.14	19.6	−2.0	42	27	29	−1	19	10	30	16	12	75	0.84	−1.0	12	4,845	s.	32	sw.	27	5	10	16	6.8	10.7	6.4
North Platte	2,821	11	51	27.12	30.16	+.06	28.3	+1.6	63	27	39	3	5	18	39	24	20	77	0.08	−0.4	2	4,385	w.	24	n.	18	16	7	8	4.1	0.8	T.
Middle Slope							**35.4**	**+1.8**										**69**	**0.78**	**0.0**										**4.0**		
Denver	5,292	106	113	24.75	30.18	+.10	31.2	−1.1	70	27	43	2	5	20	43	24	14	56	0.06	−0.7	2	4,709	s.	26	w.	26	20	11	0	2.4	0.1	T.
Pueblo	4,685	80	86	25.34	30.17	+.09	30.7	−0.8	71	27	44	2	5	17	44	24	18	64	0.21	−0.2	3	3,760	nw.	37	nw.	28	23	7	1	2.1	0.9	0.0
Concordia	1,392	50	58	28.64	30.16	+.05	35.3	+4.6	63	27	44	15	31	26	33	30	24	71	0.01	−0.6	1	5,193	s.	33	nw.	26	11	8	12	5.1	T.	0.0
Dodge City	2,509	11	51	27.50	30.18	+.08	35.7	+3.1	69	27	46	13	18	25	43	30	25	74	0.82	+0.2	4	5,758	nw.	30	nw.	2	18	6	7	3.5	5.1	0.4
Wichita	1,358	139	158	28.66	30.14	+.03	37.6	+3.0	65	28	46	17	31	30	28	34	30	79	1.58	+0.8	5	7,858	s.	38	nw.	26	14	8	9	4.4	5.3	3.8
Broken Arrow	765	11	56	29.31	30.15		40.4		72	28	50	20	5	31	33				1.23		6	8,008	n.	34	nw.	26	12	7	12	5.2	0.3	T.
Oklahoma City	1,214	10	47	28.84	30.16	+.05	41.6	+2.3	71	28	51	21	5	32	35	36	30	72	2.01	+0.3	8	6,755	s.	23	nw.	26	12	10	9	5.0	0.5	0.2
Southern Slope							**44.3**	**+0.2**										**66**	**0.61**	**−0.3**										**3.9**		
Abilene	1,738	10	52	28.32	30.18	+.07	46.0	0.0	78	28	58	22	20	34	39	38	30	64	0.83	−0.5	5	5,918	s.	25	s.	15	16	4	11	4.5	0.0	0.0
Amarillo	3,676	10	49	26.34	30.16	+.07	39.6	+2.6	70	28	50	19	5	29	36	32	27	68	0.51	−0.3	4	5,461	nw.	30	w.	28	19	3	9	3.5	3.0	0.0
Del Rio	944	64	71	29.14	30.15	+.05	51.3	−0.9	76	4	62	27	23	41	37	44	38	67	0.47	−0.4	7	4,655	se.	29	nw.	12	17	6	8	4.2	0.0	0.0
Roswell	3,566	75	85	26.45	30.15	+.08	40.4	−0.8	74	28	54	13	20	26	45	33	26	64	0.64	+0.1	3	3,483	n.	28	w.	28	16	11	4	3.4	T.	0.0
Southern Plateau							**41.2**	**−0.5**										**54**	**0.31**	**−0.3**										**2.4**		
El Paso	3,778	152	175	26.28	30.14	+.11	44.8	−0.1	69	28	56	19	20	34	34	36	25	51	0.13	−0.4	5	5,445	w.	39	nw.	11	20	6	5	2.7	T.	0.0
Santa Fe	7,013	38	53	23.27	30.19	+.13	30.8	+0.1	59	27	42	3	20	20	34	22	14	57	0.23	−0.5	5	3,871	ne.	20	n.	26	19	9	3	2.7	2.1	0.0
Flagstaff	6,907	10	59	23.38	30.15	+.09	26.0	−2.4	59	27	40	−14	17	12	52	21		69	1.65		7		e.		nw.	30	17	12	2		19.5	T.
Phoenix	1,108	10	82	28.91	30.09	+.05	51.4	−0.6	77	27	65	28	20	38	39	42	32	54	1.01	+0.4	5	1,799	e.	14	se.	11	21	6	4	2.4	0.0	0.0
Yuma	141	9	54	29.96	30.11	+.06	55.4	+0.2	75	9	67	35	15	44	32	44	29	40	T.	−0.5	0	4,287	n.	22	n.	30	24	5	2	1.9	0.0	0.0
Independence	3,957	6	27	26.08	30.20	+.08	39.0	−0.3	65	28	52	16	17	26	36	39			0.19	−0.6	4		nw.				20	5	6		T.	0.0
Middle Plateau							**27.0**	**−3.2**										**72**	**0.57**	**−0.3**										**4.0**		
Reno	4,532	74	81	25.57	30.24	+.09	31.8	−1.9	63	26	43	5	23	20	38	28	23	69	0.32	−0.7	8	3,375	w.	39	w.	10	16	8	7	4.0	2.0	0.0
Tonopah	6,090	12	20				27.5		47	7	32	8	18	23	16	24	17	62	0.58		4		se.									
Winnemucca	4,344	18	56	25.76	30.29	+.11	27.8	−2.2	59	27	42	−3	22	14	46	23	17	67	0.35	−0.7	8	4,028	ne.	35	ne.	28	14	15	2	3.7	1.9	0.0
Modena	5,473	10	43	24.71	30.26	+.14	22.7	−5.4	56	27	36	−11	20	9	38	18	15	81	0.52	−0.1	6	5,155	w.	36	sw.	13	19	8	4	3.1	9.6	T.
Salt Lake City	4,360	163	203	25.78	30.28	+.13	28.6	−3.3	60	27	35	9	20	23	31	25	21	75	0.54	−0.9	8	3,422	nw.	36	nw.	25	6	14	11	5.6	6.2	0.1
Grand Junction	4,602	60	68	25.54	30.26	+.16	24.2	−3.3	44	13	34	−2	18	14	31	21	18	79	1.12	+0.7	9	2,622	se.	21	se.	13	19	6	6	3.4	12.6	0.6
Northern Plateau							**28.8**	**−2.7**										**79**	**1.04**	**−0.6**										**6.7**		
Baker	3,471	48	53	26.59	30.30	+.14	23.8	−3.5	51	27	33	−1	21	15	26	22	18	78	0.51	−1.0	10	4,331	se.	21	se.	25	8	9	14	6.0	6.5	1.2
Boise	2,739	78	86	27.37	30.34	+.14	28.3	−3.8	61	27	37	4	22	20	43	25	20	74	1.11	−0.5	8	3,006	se.	24	se.	24	13	8	10	5.1	2.7	T.
Lewiston	757	40	48	29.39	30.23	+.10	34.4	−1.3	57	29	41	16	5	28	22				0.39	−1.1	9	2,226	e.	19	nw.	1	5	7	19	7.3	0.9	0.0
Pocatello	4,477	60	68	25.60	30.31	+.12	22.5	−5.2	51	27	30	−10	21	14	26	20	16	77	1.10	+0.2	13	5,714	se.	36	sw.	28	12	6	13	5.5	14.0	3.0
Spokane	1,929	101	110	28.12	30.24	+.16	29.6	−0.9	52	9	35	10	4	24	17	29	26	84	1.81	−0.4	9	3,009	sw.	29	sw.	25	3	5	23	8.3	8.0	0.7
Walla Walla	991	57	65	29.13	30.24	+.12	34.0	−1.5	60	10	39	16	6	29	28	31	28	80	1.32	−0.7	10	2,762	s.	25	s.	10	4	7	20	7.8	3.7	0.3
North Pacific Coast Region							**41.8**	**−0.4**										**84**	**4.69**	**−2.8**										**7.5**		
North Head	211	11	56	29.86	30.10	+.07	44.2	+0.1	53	22	49	33	18	40	14	42	40	88	4.75	−3.6	16	11,175	se.	72	s.	9	10	5	16	6.3	0.0	0.0
Port Angeles	29	8	53		30.09		39.4		52	12	44	25	5	34	17				2.85	−2.3	14	3,834	sw.	25	w.	25	5	4	22		0.0	0.0
Seattle	125	215	250	29.98	30.11	+.10	41.4	−0.3	54	9	46	29	20	37	18	39	35	78	3.49	−1.9	16	5,537	se.	40	s.	25	5	5	21	7.4	0.0	0.0
Tacoma	194	172	201	29.92	30.13	+.12	40.2	−0.4	56	8	46	24	5	35	19				3.25	−3.6	14	4,589	s.	35	s.	25	5	4	22	7.7	0.0	0.0
Tatoosh Island	86	9	53	29.94	30.04	+.08	43.9	0.0	53	7	46	36	3	42	7	42	41	89	6.53	−8.1	19	12,770	e.	52	s.	8	9	4	18	6.9	0.0	0.0
Yakima	1,076	58	67	29.04	30.23		30.3		53	9	37	11	5	24	29	28	25	82	1.81		10		n.				5	4	22	7.7	14.3	7.8
Medford	1,425	4	80	28.63	30.18		36.6		58	26	44	16	23	29	29	34	32	87	2.84		9		se.	31	se.	24	1	9	21	8.2	T.	0.0
Portland, Oreg.	153	68	106	29.99	30.16	+.09	40.1	−1.1	59	9	45	25	19	35	18	37	34	80	7.51	+0.8	17	3,908	se.	17	e.	6	5	6	20	7.6	0.2	0.0
Roseburg	510	75	99	29.60	30.16	+.05	40.8	−1.0	63	9	47	22	23	34	27	39	36	84	4.46	−0.9	13	2,630	s.	19	sw.	29	0	9	22	8.3	0.0	0.0
Middle Pacific Coast Region							**46.2**	**−2.1**										**80**	**4.13**	**+0.1**										**4.9**		
Eureka	62	73	89	30.09	30.16	+.04	48.1	−0.1	64	7	56	32	17	40	27	45	42	80	7.82	+1.5	12	3,729	se.	28	sw.	25	10	5	16	5.9	0.0	0.0
Red Bluff	330	54	58	29.83	30.20	+.06	43.3	−2.8	69	6	53	24	23	34	33	40	36	77	2.87	−1.5	7	3,232	nw.	24	s.	10	12	7	12	5.2	0.7	0.0
Sacramento	69	106	117	30.12	30.19	+.05	43.3	−2.9	62	4	50	25	22	36	29	42	40	88	2.66	−0.4	8	3,600	se.	30	se.	10	8	9	14	5.5	0.0	0.0
San Francisco	155	208	243	30.00	30.17	+.05	49.6	−1.7	63	5	55	36	23	44	19	46	42	76	4.89	+0.9	8	3,983	n.	42	nw.	10	15	8	8	4.3	0.0	0.0
San Jose	141	12	110	30.02	30.18		46.8	−3.1	69	27	58	27	23	36	31				2.40	−0.2	7	3,212	s.	30	se.	12	19	5	7	3.4	0.0	0.0
South Pacific Coast Region							**53.0**	**+0.1**										**67**	**2.20**	**+0.2**										**3.8**		
Fresno	327	89	98	29.84	30.21	+.08	44.1	−2.1	66	26	52	26	21	37	26	42	40	85	1.47	0.0	7	2,829	nw.	28	nw.	10	11	6	14	6.3	0.0	0.0
Los Angeles	338	159	191	29.75	30.12	+.05	58.8	+2.2	82	26	68	42	17	50	29	48	38	51	2.70	+0.1	5	3,638	ne.	28	nw.	11	21	5	5	2.4	0.0	0.0
San Diego	87	62	70	30.01	30.10	+.03	56.1	+0.1	74	26	65	38	19	47	27	49	42	64	2.42	+0.6	7	3,316	nw.	27	w.	11	19	8	4	2.7	0.0	0.0
West Indies																																
San Juan, P. R.	82	9	54	28.89	29.97		76.4	+0.1	87	9	81	68	16	72	17				4.75	−1.4	22	8,609	e.	35	e.	14	4	23	4	5.5	0.0	0.0

TABLE 1.—*Climatological data for Weather Bureau stations, December, 1928*—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station reduced to mean of 24 hours	Pressure: Sea level, reduced to mean of 24 hours	Pressure: Departure from normal	Temperature of the air: Mean max. + mean min. ÷ 2	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Mean wet thermometer	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Days with 0.01, or more	Wind: Total movement	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month
	Ft.	Ft.	Ft.	In.	In.	In.	° F.	° F.	° F.		° F.	° F.		° F.	° F.	° F.	° F.	%	In.	In.		Miles.								0-10	In.	In.
Panama Canal																																
Balboa Heights	118	7	97	[1] 29.75	[2] 29.83	−.01	79.8	−0.1	91	13	87	69	5	73	19	74	73	[2] 85	6.95	+2.6	16	[3] 4,703	nw.	[2] 27	nw.	8	1	20	10	6.6	0.0	0.0
Colon	38	7	97	[1] 29.84	[2] 29.84	−.01	80.5	+0.5	89	14	86	72	9	76	14	75	74	[2] 84	16.43	+5.3	27	[3] 8,448	n.	[2] 35	nw.	28	6	11	14	6.5	0.0	0.0
Alaska																																
Juneau	80	11	50	[4] 29.68	[4] 29.77	------	34.4	------	45	6	38	20	31	31	11	33	30	83	10.41	------	22	6,465	se.	35	e.	21	3	2	26	8.7	7.9	0.0
Hawaiian Islands																																
Honolulu	38	86	100	[4] 30.04	[4] 30.08	------	73.3	------	82	1	77	67	5	69	11	66	62	69	2.17	−1.8	15	7,521	e.	42	ne.	25	12	16	3	4.3	0.0	0.0

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Miles City (March)	2,371	48	55	27.46	30.04	+0.02	38.0	+9.4	80	22	48	12	4	28	41	32	25	66	0.54	−0.2	6	3,206	s.	29	w.	24	8	11	12	6.2	3.7	0.0
Yakima (May)	1,071	5	----	------	------	------	63.8	------	98	25	81	28	2	47	46	50	----	49	0.20	------	4	------	nw.	----	------	----	16	14	1	3.7	0.0	0.0
Titusville (August)	44	5	----	29.97	30.02	------	81.6	------	98	22	90	70	19	73	28	----	----	----	7.32	------	12	------	e.	----	------	----	10	10	11	5.4	0.0	0.0
Billings (October)	3,140	5	----	------	------	------	45.4	------	86	9	60	19	30	31	48	----	----	----	2.35	------	7	------	nw.	----	------	----	18	4	9	----	----	----

[1] 8 a. m. observation only. [2] Observations taken bi-hourly. [3] 4-cup anemometer. [4] Pressure not reduced to mean of 24 hours.

TABLE 2.—*Data furnished by the Canadian Meteorological Service, December, 1928*

Station	Altitude above mean sea level, Jan. 1, 1919	Pressure: Station reduced to mean of 24 hours	Pressure: Sea level reduced to mean of 24 hours	Pressure: Departure from normal	Temperature of the air: Mean max. + mean min. ÷ 2	Temperature of the air: Departure from normal	Temperature of the air: Mean maximum	Temperature of the air: Mean minimum	Temperature of the air: Highest	Temperature of the air: Lowest	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Total snowfall
	Feet	Inches	Inches	Inches	°F.	°F.	°F.	°F.	°F.	°F.	Inches	Inches	Inches
Cape Race, N. F.	99	------	------	------	35.0	------	43.6	26.4	54	13	7.90	------	0.1
Sydney, C. B. I.	48	29.89	29.94	+0.05	32.2	+4.0	37.7	26.6	55	14	7.03	+2.40	5.5
Halifax, N. S.	88	29.89	30.00	+.04	33.5	+5.9	40.1	26.9	55	10	4.70	−0.42	2.4
Yarmouth, N. S.	65	29.88	29.95	−.03	35.4	+4.7	41.1	29.7	54	15	6.33	+1.56	T.
Charlottetown, P. E. I.	38	29.85	29.89	−.05	30.0	+5.7	35.0	25.0	52	10	3.47	−0.19	6.5
Chatham, N. B.	28	29.83	29.87	−.07	23.0	+6.0	30.9	15.1	50	−8	2.93	−0.29	17.6
Father Point, Que.	20	------	------	------	------	------	------	------	------	------	------	------	------
Quebec, Que.	296	29.69	30.03	+.02	23.3	+8.1	28.4	18.2	44	−4	2.95	−0.74	18.1
Doucet, Que.	1,236	------	------	------	17.0	------	24.9	9.1	38	−27	2.81	------	28.0
Montreal, Que.	187	29.82	30.04	+.01	26.8	+8.5	32.2	21.4	46	2	2.20	−1.45	13.0
Ottawa, Ont.	236	29.80	30.08	+.06	25.0	+8.0	31.6	18.4	46	−4	2.06	−0.85	15.5
Kingston, Ont.	285	29.76	30.08	+.04	31.3	+7.6	36.1	26.5	46	6	1.93	−1.31	1.0
Toronto, Ont.	379	29.66	30.09	+.04	32.8	+5.8	37.5	28.2	47	13	1.25	−1.66	1.7
Cochrane, Ont.	930	------	------	------	17.5	------	23.1	11.9	40	−24	0.85	------	6.8
White River, Ont.	1,244	28.60	29.96	−.01	17.1	+7.4	24.4	9.8	42	−30	1.02	−0.69	8.2
London, Ont.	808	------	------	------	29.9	------	35.1	24.6	48	3	2.83	------	9.5
Southampton, Ont.	656	29.31	30.04	+.02	30.2	+3.5	35.1	25.4	44	4	3.43	−0.55	15.6
Parry Sound, Ont.	688	29.32	30.03	+.02	26.7	+5.5	32.1	21.3	40	−5	4.65	+0.17	35.0
Port Arthur, Ont.	644	29.29	30.02	+.03	21.4	+8.2	27.7	15.1	46	−7	0.58	−0.29	2.2
Winnipeg, Man.	760	------	------	------	------	------	------	------	------	------	------	------	------
Minnedosa, Man.	1,690	28.12	30.01	−.01	16.4	+10.7	24.5	8.3	41	−24	0.43	−0.19	4.3
Le Pas, Man.	860	------	------	------	11.1	------	20.2	2.1	42	−30	0.35	------	3.5
Qu'Appelle, Sask.	2,115	27.68	30.02	+.02	17.7	+10.3	25.2	10.1	43	−20	0.20	−0.32	2.0
Moose Jaw, Sask.	1,759	------	------	------	20.7	------	29.8	11.6	48	−26	0.50	------	5.0
Swift Current, Sask.	2,392	27.37	29.99	.00	22.2	+6.2	32.8	11.6	51	−30	0.66	−0.12	6.6
Medicine Hat, Alb.	2,144	------	------	------	------	------	------	------	------	------	------	------	------
Calgary, Alb.	3,428	------	------	------	------	------	------	------	------	------	------	------	------
Banff, Alb.	4,521	------	------	------	------	------	------	------	------	------	------	------	------
Prince Albert, Sask.	1,450	28.38	30.03	+.02	13.5	+10.7	23.3	3.7	44	−28	0.42	−0.32	4.0
Battleford, Sask.	1,592	28.20	30.01	+.02	17.3	+11.9	26.6	8.1	47	−24	0.22	−0.10	2.0
Edmonton, Alb.	2,150	------	------	------	------	------	------	------	------	------	------	------	------
Kamloops, B. C.	1,262	------	------	------	------	------	------	------	------	------	------	------	------
Victoria, B. C.	230	29.83	30.09	+.12	41.1	−0.1	44.1	38.2	49	29	2.63	−5.35	0.0
Barkerville, B. C.	4,180	------	------	------	------	------	------	------	------	------	------	------	------
Estevan Point, B. C.	20	------	------	------	------	------	------	------	------	------	------	------	------
Prince Rupert, B. C.	170	------	------	------	------	------	------	------	------	------	------	------	------
Hamilton, Ber.	151	30.03	30.20	+.08	65.4	+0.7	71.8	59.1	76	52	7.56	+3.07	0.0

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Sydney, C. B. I.	48	29.78	29.83	−.12	37.6	+0.5	43.3	31.8	58	22	4.88	−0.56	0.0
Halifax, N. S.	88	29.79	29.90	−.11	37.6	+0.3	44.5	30.8	61	15	2.95	−2.71	2.2
Yarmouth, N. S.	65	29.78	29.85	−.17	39.4	−0.5	45.1	33.8	55	19	2.54	−1.95	T.
Charlottetown, P. E. I.	38	29.75	29.79	−.17	35.4	−0.1	40.1	30.7	55	14	2.45	−1.52	7.6
Chatham, N. B.	28	29.76	29.79	−.18	29.0	−2.0	36.3	21.7	49	0	2.28	−1.47	3.2
Moose Jaw, Sask.	1,759	------	------	------	31.6	------	44.5	18.7	59	6	0.01	------	0.0
Medicine Hat, Alb.	2,144	27.66	29.96	−.04	35.5	+8.1	48.2	22.8	62	6	T.	−0.92	T.
Calgary, Alb.	3,428	26.36	30.01	+.03	33.3	+7.5	47.2	19.5	64	5	0.22	−0.66	2.2
Banff, Alb.	4,521	25.38	30.09	+.13	28.4	+2.6	36.9	19.8	50	5	0.26	−2.01	2.3
Edmonton, Alb.	2,150	27.58	29.91	−.06	30.4	+7.5	42.2	81.6	53	9	0.01	−0.57	T.
Kamloops, B. C.	1,262	28.79	30.12	+.16	38.2	+4.8	44.0	32.5	56	23	0.28	−1.18	0.2
Barkerville, B. C.	4,180	25.60	29.97	+.07	28.8	+5.2	35.9	21.8	54	6	2.20	−1.09	21.5
Estevan Point, B. C.	20	------	------	------	46.6	------	51.6	41.7	64	32	17.06	------	0.0
Prince Rupert, B. C.	170	------	------	------	43.8	------	48.2	39.3	66	29	9.84	------	0.0