

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
 IN COOPERATION WITH GREELEY CHAMBER OF COMMERCE
 CLIMATOGRAPHY OF THE UNITED STATES NO. 20 - 5
CLIMATOLOGICAL SUMMARY

LATITUDE 40° 26' N
 LONGITUDE 104° 41' W
 ELEV. (GROUND) 4648 feet

STATION: GREELEY, COLORADO

MEANS AND EXTREMES FOR PERIOD 1931 - 1960

Month	Temperature (°F)								** Mean degree days	Precipitation Totals (Inches)							Mean number of days					Month				
	Means				Extremes					Mean	Greatest daily	Year	Snow, Sleet					Temperatures								
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year	Precip. .10 inch or more					Greatest daily	Year	Mean	Maximum monthly	Year	Greatest daily	Year	Max.			Min.			
																				90° and above	32° and below		32° and below	32° and below	0° and below	
(a)	30	30	30	30		30		30	30	30																
Jan.	40.1	8.1	24.1	70	1943+	-36	1942	1270	0.35	0.55	1944	4.6	16.0	1949	6.0	1944	1	0	8	31	7	Jan.				
Feb.	43.4	13.3	28.4	77	1932	-39	1951	1020	0.36	0.70	1931	5.0	12.0	1942	8.0	1932	1	0	6	28	4	Feb.				
Mar.	50.5	21.4	36.0	82	1946	-30	1932	900	0.72	0.83	1946	7.7	18.0	1959	10.0	1959	2	0	3	29	1	Mar.				
Apr.	61.9	32.2	47.1	86	1938	-2	1945	540	1.45	1.61	1944	5.0	27.5	1945	11.0	1944	4	0	1	15	*	Apr.				
May	71.2	42.8	57.0	96	1942+	23	1954+	270	2.49	2.19	1936	0.1	1.0	1943+	2.0	1950	6	1	*	3	0	May				
June	83.3	51.2	67.3	106	1954	31	1947	60	1.42	1.15	1935	T	T	1937	T	1937	4	10	0	*	0	June				
July	91.1	56.3	73.7	107	1936	40	1952+	0	1.19	3.00	1932	0	0	-	0	-	3	20	0	0	0	July				
Aug.	88.9	54.5	71.7	105	1938	39	1956	10	0.81	1.09	1951	0	0	-	0	-	2	16	0	0	0	Aug.				
Sept.	80.1	44.0	62.1	99	1954+	23	1945+	130	0.76	1.19	1940	0.3	4.0	1959+	4.0	1935	2	6	0	2	0	Sept.				
Oct.	67.4	32.2	49.8	90	1947+	8	1935	470	0.85	1.76	1947	1.1	9.5	1942	9.0	1942	2	*	*	16	0	Oct.				
Nov.	51.4	18.8	35.1	82	1934+	-18	1952	900	0.39	0.89	1946	4.0	21.5	1946	10.0	1946	1	0	3	29	1	Nov.				
Dec.	43.0	12.1	27.6	75	1939	-30	1932	1160	0.33	1.02	1937	4.0	13.5	1941	7.0	1958	1	0	6	31	4	Dec.				
Year	64.4	32.2	48.3	107	1936	-39	Feb. 1951	6730	11.12	3.00	July 1932	31.8	27.5	April 1945	11.0	April 1944	29	53	27	184	17	Year				

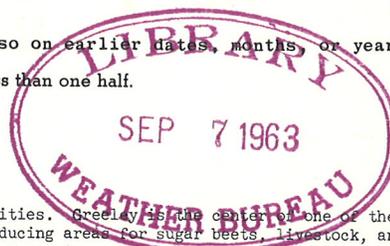
(a) Average length of record, years.

T Trace, an amount too small to measure.

** Base 65°F (Estimated)

+ Also on earlier dates, months, or years.

* Less than one half.



Greeley is located in the northern high plains of Colorado, near their western edge. The foothills of the Rocky Mountains rise from the plains about 25 miles to the west, and the main ranges of mountains along the Continental Divide rise to altitudes between 11,000 and 12,000 feet, with peaks over 14,000 feet, at a distance of about 50 miles west of Greeley. The Cache la Poudre River flows along the northeastern edge of the city, and joins the South Platte River about 5 miles east. Elevations in Greeley reach over 4800 feet at the southwestern edge, and slope gradually downward toward the northeast to about 4630 feet along the river.

Separated from the Pacific Ocean by distance and a high mountain barrier, and located a long distance from any other major source of moisture, the climate of Greeley is characterized by low humidity, low average precipitation, and abundant sunshine. The prevailing air movement is from the west, with most of the moisture lost in passage over the mountains. Invasions of cold air from the north in winter are also relatively dry, so that winter precipitation averages are low. Circulation patterns interrupt the westerly flow and bring moist air from the Gulf of Mexico into the area, most frequently in the spring and summer. Spring and summer thunderstorms are occasionally severe and accompanied by heavy hail, although the frequency of severe storms is less for the Greeley area than for areas farther to the east. Tornadoes may occur in the area, but are also less frequent and less severe than they are farther to the east. Precipitation varies widely from year to year. The driest years on record were 1893 (5.40 inches), 1954, and 1939. The wettest year was 1915, with 20.89 inches of precipitation, and the only other year with a total of more than 20 inches was 1909, with 20.13 inches.

Extremes in temperature come with interruptions of the prevailing westerly flow of air -- cold outbreaks from the north in the winter, and dry desert air reaching the area from the southwest in the summer. The highest temperature in the entire Greeley record was 107° in July 1936, and the lowest was 45° below zero in February 1899. In more than 60 years of record, the maximum temperature for the summer has been less than 100° in one year out of two. Winter temperature minimums have reached lower than 18° below zero in one year out of two.

Although the average annual rainfall of less than 12 inches places the area in a semi-arid classification, heavier precipitation and winter snow accumulations in the mountains to the west provide a supply of water for an extensive irrigation system which has transformed the region into one of the highest producing agricultural areas in the country. The dry and generally mild climate, with warm summers and open winters, together with an abundant water supply, provide unusually favorable conditions for a wide variety of agricul-

tural activities. Greeley is the center of one of the nation's largest producing areas for sugar beets, livestock, and livestock feeding and fattening. Weld County, of which Greeley is the county seat, is one of the 100 leading counties in the country in total agricultural production, and is among the first ten in the nation in a number of crops.

THE SEASONS

SPRING is the wettest, windiest, and cloudiest season. Severe storms usually come from the north with northeasterly winds. About 42% of the annual precipitation occurs in spring, and much of it falls as snow. Stormy periods are usually of short duration and are often followed by sunny and mild weather that removes much of the snow cover.

SUMMER precipitation amounts to about 31% of the annual total, and much of it falls from scattered thundershowers during the afternoons and evenings. Mornings are usually clear and sunny. Cloudiness increases markedly after mid-morning, and is noteworthy because of the moderating effect on the afternoon temperatures.

AUTUMN is the most pleasing season. Precipitation during this period amounts to only 18% of the annual total. Local summer thunderstorms are over and invasions of cold air from the north are infrequent. There is less cloudiness and a greater percentage of possible sunshine than at any other time of the year. Periods of unpleasant weather are usually brief.

WINTER has less precipitation than any other season, with about 9% of the annual total, almost all in the form of snow. Winter storms are at times severe but are usually of short duration. There is more cloudiness than in autumn but somewhat less than in the spring months.

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Year	Total Precipitation (Inches)												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	.00	.89	.55	.63	1.38	.77	.33	1.13	.35	1.23	.56	.12	7.94
1932	.02	.72	.83	.52	1.47	2.31	3.34	4.43	.25	2.26	.10	.14	10.37
1933	.15	.71	.42	1.53	3.56	.00	1.28	1.34	.92	.06	T	T	4.47
1934	T	.01	1.17	.96	1.23	2.33	2.02	.28	.55	.00	T	T	6.69
1935	.07	.56	.29	.92	5.79	1.57	.66	1.13	2.02	.47	.45	T	12.93
1936	T	.16	.59	.85	2.92	1.43	.79	1.12	.83	1.21	.08	.36	10.39
1937	.43	.33	.35	1.40	1.21	2.85	1.53	1.13	.52	.38	.38	.38	11.32
1938	.13	.10	.35	1.89	2.04	.38	.71	.38	2.70	.31	.51	.39	10.89
1939	.35	.34	1.17	.36	1.23	.75	.22	.28	2.47	.12	.07	.24	5.66
1940	.51	.37	1.00	1.22	1.51	.81	.90	.48	2.31	.85	.29	.35	10.60
1941	.81	.02	1.05	3.04	1.87	2.17	2.07	1.66	1.02	1.14	.11	1.02	16.00
1942	.50	1.18	.31	3.19	2.92	2.20	2.05	.38	.40	2.68	.40	.01	16.25
1943	.05	.32	.45	1.56	4.45	.77	.62	.27	T	.07	.19	.15	8.90
1944	.91	.13	1.56	4.32	1.66	.74	2.26	.42	.20	.24	.51	.24	13.19
1945	.68	.32	.21	3.07	3.50	2.52	2.04	2.00	.69	1.30	.03	.36	16.72
1946	.09	.19	.88	.77	2.05	.50	1.01	1.08	.90	1.73	2.06	T	11.31
1947	.24	.64	.79	1.32	2.78	2.83	1.09	.41	.21	2.95	.62	.38	14.26
1948	1.22	.40	.81	.38	1.13	1.33	.34	.15	.12	.26	.26	.54	7.14
1949	.79	.05	1.39	1.01	2.97	3.67	.67	.05	.42	1.07	.80	.08	12.14
1950	.44	.10	.25	1.89	2.32	1.34	1.09	.44	.86	.27	.24	.04	9.28
1951	.63	.55	.42	1.27	3.57	1.99	2.36	2.03	.46	1.96	.24	.77	15.85
1952	.05	.14	.88	1.66	3.18	.45	.55	1.02	.25	.34	.69	.03	9.24
1953	.33	.35	1.13	1.65	2.28	.76	1.08	.20	.00	.08	.83	.04	8.73
1954	.05	T	.32	.15	.98	.69	.62	.97	.49	.27	.66	.45	5.65
1955	.44	.42	.71	.09	1.64	2.70	.62	1.70	1.37	.33	1.19	.21	11.42
1956	.51	.49	.46	.67	1.84	.28	1.24	3.77	.10	T	.58	.49	10.43
1957	.54	.30	.22	2.60	4.95	1.50	.77	6.4	.65	1.76	.23	T	14.16
1958	.10	.30	1.08	1.42	3.45	1.50	1.59	.94	.81	.28	.33	.88	12.56
1959	.15	.26	1.36	1.39	2.24	.92	.60	.21	2.00	2.41	T	.01	11.86
1960	.30	.38	.37	1.60	1.64	.65	1.35	.16	.92	2.28	.12	.61	10.36
1961	.05	.18	2.65	.12	3.85	1.87	3.73	2.23	3.22	.44	.19	.15	18.68
1962	.45	.26	.16	.11	1.89	3.99	1.10	1.58	.23	.68	.39	.12	10.96

STATION HISTORY

One of the earliest weather stations in Colorado was established in Greeley on November 1, 1887, as a part of the volunteer observer corps of the Army Signal Service. The station was located in the vicinity of the State Normal School (now Colorado State College), which began in operation in 1890. The station remained at the college until it was taken over by the Greeley Fire Department in June 1945, and continued in operation at the fire station until March 1947. The only extensive break in the long record at Greeley occurred in the period from April to October 1917. The station was reopened on October 12, 1917, at the Great Western Sugar Company plant, about eight-tenths of a mile southeast of the post office. The station has continued in operation at the same location to the present time, with observing services provided by the Great Western Sugar Company.

Year	Average Temperature (°F)												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	29.4	34.7	35.1	46.6	54.6	70.8	74.6	70.9	64.8	51.2	32.8	25.0	49.2
1932	22.5	37.4	37.4	48.8	58.6	65.4	74.6	71.1	61.8	45.2	37.4	33.9	46.7
1933	26.1	31.3	39.6	44.3	54.0	71.2	75.3	69.6	51.8	39.2	35.0	28.0	46.7
1934	33.2	31.8	41.0	44.8	64.6	69.6	76.6	78.2	67.0	53.3	39.9	30.4	52.0
1935	29.1	35.0	39.4	45.0	49.9	65.7	74.4	71.7	60.3	47.3	32.4	28.6	48.1
1936	25.6	36.7	36.7	49.0	59.9	70.0	76.6	72.0	62.6	47.0	36.7	28.0	48.4
1937	3.5	28.6	33.4	47.0	59.2	65.2	74.0	75.4	65.0	50.6	35.8	22.8	46.9
1938	24.9	32.4	42.0	47.8	55.6	67.8	73.6	73.6	64.0	52.8	32.0	23.3	49.2
1939	22.9	21.0	28.4	45.0	61.0	67.2	76.4	70.7	64.4	49.8	37.2	33.2	49.7
1940	15.3	31.3	41.6	46.0	58.6	69.2	73.8	70.2	64.0	52.4	30.7	26.3	48.3
1941	26.8	32.2	35.2	46.4	59.6	65.4	72.0	70.0	58.6	47.9	36.8	24.6	48.0
1942	15.0	33.4	33.4	49.0	54.9	65.7	73.0	70.2	60.0	49.0	37.2	32.2	46.2
1943	29.0	35.4	31.2	53.2	53.0	65.3	75.1	74.2	61.2	49.4	36.4	28.3	49.4
1944	24.8	29.2	31.0	42.2	54.4	66.6	71.8	72.8	61.2	50.5	36.4	24.5	47.4
1945	28.0	29.8	36.6	41.4	56.6	63.0	73.4	71.2	50.7	37.8	29.5	23.5	47.8
1946	23.2	31.0	43.2	54.6	53.6	67.6	74.4	70.8	61.6	48.0	28.8	22.4	49.5
1947	26.2	29.6	33.4	45.8	55.4	63.2	73.2	74.0	66.0	54.1	30.9	20.8	48.3
1948	21.6	25.1	37.8	53.0	61.0	69.2	73.8	71.4	66.1	48.6	34.1	23.6	48.2
1949	12.0	22.1	29.1	49.1	57.5	65.4	72.8	71.7	60.3	48.0	45.3	27.3	47.7
1950	21.6	36.2	36.7	47.7	52.8	66.7	69.9	68.8	61.1	54.0	35.2	32.7	48.6
1951	25.0	27.7	34.9	43.7	57.1	62.1	72.6	69.3	60.0	49.3	31.1	25.1	46.7
1952	25.7	32.1	32.3	48.6	56.5	71.8	71.9	70.9	61.9	47.6	28.2	24.6	47.7
1953	32.2	30.9	39.8	40.8	52.5	68.2	72.8	71.2	64.7	52.4	38.8	26.9	49.2
1954	28.2	36.9	41.5	51.5	56.3	67.5	76.8	70.3	64.7	47.9	38.2	27.4	50.1
1955	14.8	19.1	34.6	48.6	58.5	63.4	75.9	73.2	63.7	50.7	30.3	27.2	46.6
1956	29.5	18.4	36.3	45.2	60.3	72.7	73.0	68.8	62.1	51.9	30.7	20.7	48.6
1957	19.7	35.9	37.7	44.5	54.1	65.5	73.9	71.9	59.0	48.5	34.0	33.1	47.9
1958	27.5	33.4	31.0	44.0	61.5	68.4	70.2	72.5	64.0	50.3	35.2	26.9	48.7
1959	22.9	23.8	36.6	44.7	57.2	70.6	72.0	72.3	59.1	45.0	32.8	31.4	47.3
1960	22.3	24.4	34.4	49.6	57.2	67.7	72.2	70.7	63.0	50.4	36.9	25.6	47.9
1961	26.2	33.3	37.0	45.4	56.2	67.1	71.5	71.0	55.4	48.1	32.2	23.5	47.3
1962	12.3	29.6	33.8	50.6	59.7	65.6	71.9	69.9	61.7	53.1	39.7	30.0	48.2

PROBABILITIES OF OCCURRENCE OF LOW TEMPERATURES LATE IN THE SPRING AND EARLY IN THE FALL

TEMPERATURE OF	AVERAGE DATE OF LAST SPRING OCCURRENCE	PROBABILITY OF 1 YEAR IN 10 FOR OCCURRENCE		AVERAGE DATE OF FIRST FALL OCCURRENCE	PROBABILITY OF 1 YEAR IN 10 FOR OCCURRENCE	
		LATER THAN	EARLIER THAN		LATER THAN	EARLIER THAN
32	May 10	May 25	May 11	September 28	September 14	
28	April 14	April 28	April 11	October 5	September 21	
24	April 7	April 22	April 5	October 19	October 4	
20	March 29	April 13	March 16	October 29	October 15	
16				November 7	October 23	

The average number of days between the last spring and the first fall occurrence of indicated temperature is: 32° - 141 days, 28° - 162 days, 24° - 188 days, 20° - 205 days, 16° - 222 days.