

LATITUDE 47° 15'
 LONGITUDE 93° 30'
 ELEV. (GROUND) 1281 Feet

CLIMATOLOGICAL SUMMARY

STATION GRAND RAPIDS, MINNESOTA
 NORTH CENTRAL SCHOOL

MEANS AND EXTREMES FOR PERIOD 1928-1957

Month	Temperature (°F)								** Mean degree days	Precipitation Totals (Inches)						Mean number of days						
	Means			Extremes						Mean	Greatest daily	Year	Snow, Sleet			Precip. .10 inch or more	Temperatures				Month	
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year	Mean					Maximum monthly	Year	Greatest daily		Year	90° and above	32° and below	32° and below		0° and below
	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)					(a)	(a)	(a)		(a)	(a)	(a)	(a)		(a)
Jan.	17.9	-4.3	6.9	51	1942	-45	1937	1833	.84	.72	1939	10.9	25.0	1950	9.0	1950	3	0	27	31	18	Jan.
Feb.	23.8	-1.2	11.3	59	1930	-45	1939	1468	.73	.78	1930	8.8	26.0	1955	6.0	1955+	2	0	22	28	15	Feb.
Mar.	35.0	10.9	22.9	80	1946	-34	1955+	1349	1.19	1.15	1946	9.1	31.5	1951	11.0	1957	4	0	12	30	7	Mar.
April	51.9	27.3	39.6	89	1952	-6	1954	741	1.96	1.92	1940	3.9	29.5	1950	12.0	1950	5	0	1	22	*	April
May	66.1	38.9	52.5	101	1934	14	1929	382	3.05	3.14	1955	0.9	9.0	1954	6.0	1950	7	*	*	8		May
June	74.8	49.1	62.0	99	1931	24	1928	179	3.55	3.02	1944	T	T	1945	T	1945	7	1		1		June
July	80.6	54.5	67.5	104	1936	35	1930+	43	3.59	3.85	1953	0	0				6	3				July
Aug.	77.8	52.2	65.0	99	1947	27	1934	83	3.39	3.24	1943	0	0				6	1				Aug.
Sept.	67.5	43.3	55.3	99	1931	15	1942+	298	2.81	3.94	1937	T	0.8	1942	T	1951+	6	*		*	5	Sept.
Oct.	56.1	33.3	44.7	84	1953	-3	1942	596	1.95	2.76	1946	1.7	13.0	1942	11.5	1942	4	0	1	14	*	Oct.
Nov.	35.7	18.9	27.3	69	1931	-25	1940	1093	1.51	2.10	1938	7.6	23.8	1940	9.0	1940	4	0	11	28	3	Nov.
Dec.	23.5	3.8	13.6	58	1939	-45	1946	1592	.79	.86	1946	10.1	26.5	1936	9.5	1946	3	0	24	31	13	Dec.
Year	50.9	27.2	39.1	104	1936	-45	1946+	9654	25.36	3.94	1937	53.0	31.5	1951	12.0	1950	57	5	98	198	56	Year

(a) Average length of record, years.

+ Also on earlier dates, months, or years.

T Trace, an amount too small to measure.

* Less than one half.

** Base 65°F

CLIMATE OF GRAND RAPIDS, MINNESOTA

Grand Rapids, the County Seat of Itasca County, is located on the Mississippi River in north central Minnesota. The surrounding terrain is gently rolling and much of it is covered with second growth timber. It was once heavily forested with pine but only a few scattered patches of the original timber remain. Soils are of glacial drift origin and tend to be sandy with gravelly subsoils. The area is abundantly supplied with lakes and is a mecca for vacationers seeking relaxation in recreational pursuits associated with fresh water lakes in an area with a pleasant summer climate.

Summers are warm but not oppressively so. The average temperature of the summer months of June, July and August is 64.8 degrees. Generally nights are cool even during the warmest months. The warmest month on record was July of 1916 with an average temperature of 73.2 degrees. The month was unusual for this northern location in the maximum temperature reached 80 degrees or higher on all but 2 days of that month and on 12 days reached 90° or higher.

Grand Rapids has a climate typical of locations in the center of a great land mass in middle latitudes. Winters are cold, sometimes severely so, and summers warm but comfortable. The annual range of average temperature between the warmest and coldest month is 60 degrees. A range of 44 degrees between the highest and lowest temperature in any one year is not uncommon. Precipitation is ample for the economy of the region with most of it falling during the warmest months.

The following table gives occurrences of some critical temperatures:

Temperature	Average Date of Last in Spring	Average Date of First in Fall	Average Number of Days Between	Values
32° or below	May 30	Sept. 9		102
28° or below	May 17	Sept. 23		128
24° or below	May 6	Oct. 3		149
20° or below	April 27	Oct. 13		169
16° or below	April 14	Oct. 26		195

The Gulf of Mexico is the principal source region for moisture for this area. Warm moisture laden air lifted convectively during the heat of summer sets off thunderstorms that contribute the bulk of the precipitation, approximately 75 per cent falls during the period April through September. Measurable amounts of precipitation fall on an average of 110 days a year. On the average there are 4 days with an inch or more. Total annual amounts have varied from as much as 36.21 inches in 1953 down to 15.08 inches in 1929. The greatest in any one month was 9.04 inches in July of 1953. On the first two days of that month there was a total of 6.06 inches.

The latest spring occurrence of a temperature of 32 degrees is June 18 and the earliest in fall August 18. The probability of a killing frost after April 30 is 50 years in 50; after May 10, 44 years in 50; after May 20, 37 years in 50; after May 30th, 27 years in 50. The probability of a killing frost before September 1 is 9 years in 50; before September 10, 18 years in 50; before September 20, 39 years in 50 and before October 1, 48 years in 50.

Snow has been reported in all months except July and August. The ground is usually snow covered from mid-November to mid-April. The greatest snowfall in any one year was 95.0 inches in 1950.

The cool climate along with the generally sandy soil and predominance of forested land limits crop production to small grains and hay with much of the land in pasture. As a result dairying and logging, along with the tourist trade, are the principal activities of this region.

Polar continental air masses frequently cover this area in winter bringing extremely low temperatures. Usually the wind is calm, or of low velocity, on days of record cold and thus these temperatures are bearable. The mean temperature of the winter months of December, January and February is 10.6 degrees. The lowest temperature ever recorded is 51 degrees below zero on January 27, 1927. The lowest temperature ever reported in the state, 59 below zero, occurred only a few miles west of Grand Rapids at Pokegama Dam in 1903. The coldest month on record was January of 1929 with an average temperature of 6.6 degrees below zero which was 13.5 degrees below the normal for that month.

Although the Mississippi River flows through Grand Rapids there is no serious hazard due to high water. High stages do cause some sewer backup at Cohasset and Deer River northwest of Grand Rapids. A few low county roads, as well as some adjacent farmland, are subject to overflow. The main trunk highways are not subject to flooding.

Joseph H. Strub, Jr.
 Weather Bureau State Climatologist
 Weather Bureau Office
 Minneapolis, Minnesota

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1928	7.4	12.6	22.8	30.5	55.6	58.4	66.6	64.4	52.7	44.4	32.3	20.0	39.3
1929	5.5	4.1	21.6	40.5	48.0	59.4	67.0	63.5	53.3	44.2	23.5	10.6	36.3
1930	-1.8	17.9	21.4	44.1	52.4	62.0	67.1	67.1	55.3	42.2	30.5	17.3	39.7
1931	16.4	23.8	27.4	42.8	51.6	65.4	68.2	63.5	61.2	50.0	34.5	23.6	43.9
1932	14.0	11.9	15.2	40.8	44.2	65.6	67.2	65.5	54.8	40.5	22.0	10.3	38.8
1933	13.6	4.1	31.3	33.5	54.2	68.5	69.2	63.4	60.2	39.0	24.4	6.2	38.5
1934	13.2	9.0	39.6	39.6	58.8	63.1	66.4	62.1	53.0	47.2	33.4	7.7	39.1
1935	1.7	19.0	24.4	36.8	49.2	58.0	71.6	64.9	53.3	43.2	19.6	12.4	37.8
1936	-2.4	-8.2	23.4	33.2	56.5	60.2	72.1	66.3	56.0	36.4	22.2	14.0	36.3
1937	-2.6	8.0	19.1	37.0	54.6	61.3	64.1	70.2	56.0	40.2	26.8	10.5	37.5
1938	6.0	15.9	31.3	36.4	50.6	62.3	66.5	69.0	55.6	44.6	24.2	12.6	40.3
1939	11.1	2.2	20.4	37.0	56.0	62.4	68.2	66.2	56.8	42.2	32.5	23.6	39.9
1940	3.8	15.0	18.0	37.6	51.6	60.0	67.4	63.0	59.2	47.2	23.0	15.8	38.5
1941	10.0	11.0	21.2	47.4	57.7	64.2	69.2	64.2	57.3	45.4	30.0	19.2	41.5
1942	15.0	12.4	30.0	47.2	50.0	60.2	64.2	64.6	52.0	44.0	25.4	8.1	39.1
1943	1.3	17.2	17.2	39.0	50.0	62.8	69.1	64.7	52.5	44.8	23.4	15.6	37.6
1944	10.2	10.2	20.6	37.5	54.6	62.6	66.0	65.0	54.7	45.7	32.4	13.0	40.1
1945	7.2	11.6	33.0	36.4	45.4	56.3	64.4	64.4	53.6	42.2	25.2	9.2	37.4
1946	8.5	8.1	35.6	43.6	59.0	61.0	66.6	62.0	54.6	43.3	27.1	11.6	39.3
1947	12.4	7.7	21.0	36.3	47.6	58.8	68.2	70.4	52.4	38.7	22.8	12.4	38.7
1948	3.7	8.4	23.9	43.7	53.0	64.2	67.9	65.3	61.6	46.2	29.5	12.9	39.9
1949	10.5	7.7	21.6	43.8	54.3	64.6	67.5	68.2	53.5	45.7	31.8	11.6	40.0
1950	-1.2	11.6	13.3	30.8	49.6	61.2	64.7	60.5	57.5	46.5	23.5	7.1	35.9
1951	4.6	12.4	19.5	37.9	57.2	59.5	66.1	62.3	52.3	43.9	23.5	9.6	37.1
1952	6.3	20.6	22.2	45.8	53.2	65.1	67.1	62.6	56.8	39.6	30.6	20.2	40.9
1953	10.5	12.2	28.5	37.6	47.3	63.1	65.4	65.5	50.9	34.1	34.1	14.4	40.7
1954	1.6	25.2	21.2	38.3	47.1	63.2	65.8	63.7	51.9	43.3	34.4	19.7	39.9
1955	8.4	9.0	15.6	47.6	56.9	63.2	68.8	64.5	45.5	45.6	20.3	5.2	39.0
1956	11.0	9.2	20.2	35.8	50.5	64.6	62.4	62.7	51.2	30.8	30.8	15.3	38.9
1957	1.0	12.1	23.3	40.2	53.0	60.7	70.1	64.1	53.6	44.3	29.4	17.7	39.1

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1928	.43	.27	.36	2.97	.73	4.40	5.04	6.64	4.32	2.48	.26	.57	29.07
1929	1.23	.13	.94	.67	.90	2.16	.74	2.04	3.43	1.94	.16	.74	15.08
1930	.35	1.32	.51	.57	3.91	3.34	.90	.22	3.57	1.56	.28	.18	18.71
1931	.09	.09	1.21	.54	2.44	5.76	2.11	1.65	1.71	1.49	.60	.48	20.25
1932	.64	.56	.78	1.19	4.39	3.97	4.71	5.47	.73	1.94	.39	.39	27.99
1933	.80	.68	.49	1.99	3.92	.75	.79	2.08	2.44	3.47	1.21	1.72	20.30
1934	.52	.31	.76	1.30	.83	4.11	4.21	1.72	1.57	2.44	.99	.36	19.72
1935	1.54	.44	1.60	2.07	1.94	2.32	5.59	3.44	1.37	3.03	1.35	.50	24.89
1936	.72	1.17	1.24	1.19	2.91	1.79	.61	1.95	2.36	1.45	1.45	.59	18.52
1937	1.43	1.51	1.30	3.32	2.91	2.52	3.51	2.47	5.93	.43	1.16	.51	26.20
1938	.63	.61	1.30	3.78	5.08	1.97	1.17	2.32	2.25	.65	5.38	.68	26.62
1939	1.89	1.76	1.03	.75	5.77	5.79	.75	3.39	1.07	2.54	.07	.37	21.31
1940	.35	.99	1.70	4.06	2.11	2.02	4.23	2.34	.77	3.01	3.62	.31	25.51
1941	1.15	.31	1.06	2.67	2.53	4.94	2.88	5.64	5.32	2.75	.18	.18	29.85
1942	.32	.29	1.49	1.66	4.42	2.58	2.40	5.02	2.50	2.34	.96	1.00	24.97
1943	.71	1.01	1.12	1.37	4.50	5.41	3.63	7.60	2.48	1.71	1.13	.16	31.30
1944	.39	.27	1.02	.83	5.77	7.69	4.90	5.40	2.50	.24	1.92	.38	31.36
1945	.96	1.28	1.32	2.55	1.39	2.76	4.72	3.44	4.68	1.25	1.22	.95	26.49
1946	.69	.59	2.30	1.53	2.80	3.82	3.41	2.05	3.28	4.97	1.55	1.34	28.33
1947	.42	.44	.62	2.55	2.73	3.57	1.82	4.15	6.50	1.34	1.99	.51	26.74
1948	.79	.79	1.23	3.24	1.48	2.84	3.66	2.36	.78	.67	1.34	1.59	26.01
1949	1.12	.69	.53	1.15	4.55	5.48	7.96	4.06	2.11	4.64	1.42	.74	33.46
1950	2.13	.20	1.98	4.05	4.81	2.91	4.12	1.18	3.75	2.18	1.04	.84	29.32
1951	.47	1.70	2.32	2.23	1.89	3.54	1.91	4.29	4.59	2.39	.33	1.72	27.78
1952	.87	.05	1.30	.73	.39	6.10	6.14	5.33	.66	.15	1.31	.33	23.26
1953	1.04	1.19	1.19	2.78	5.37	3.74	9.04	5.69	3.54	1.70	1.10	1.10	36.21
1954	1.23	1.36	1.47	2.57	3.05	.90	2.74	1.72	2.50	1.17	.94	.16	19.91
1955	.74	1.54	1.44	.93	6.76	2.53	6.57	.85	3.36	2.07	1.75	.85	29.39
1956	.81	.37	1.07	1.58	2.08	.60	5.28	5.59	1.57	2.78	1.16	1.13	20.99
1957	.36	1.07	1.22	2.98	2.22	5.99	5.24	1.59	2.72	1.48	1.00	.36	26.13

STATION HISTORY

The cooperative climatological station was established at the Grand Rapids North Central School and Station in June 1915. This is an agricultural school and experiment station of the University of Minnesota, Institute of Agriculture. It is located about 2 miles northeast of the Grand Rapids post office. Equipment consists of a standard instrument shelter with self-ventilating thermometers and a standard rain gauge. The station has always been located in a typical rural setting and, except for minor relocations, approximately at the same site at the experiment station. Observers have been employees of the school. Their names and dates of service are as follows:

June 1915	-	July 1917	C. E. Sisler
July 1917	-	November 1926	Emil Ostrom
December 1926	-	August 1927	B. W. Borback
September 1927	-	August 1937	Van Loon
September 1937	-	Present	H. W. Staneck

STATION HISTORY - Cont'd.

All records for the station are on file at the Weather Bureau Office, 504 U. S. Court House, Minneapolis, Minnesota. Daily values of temperature extremes and precipitation have been published in "Climatological Data, Minnesota" since records began. Records prior to 1948 include amount of cloudiness and prevailing wind direction. Summarized climatological data for Grand Rapids is found in "Climate Summary of the United States, Section 44-Northern Minnesota for Years Prior to 1931; for the years 1931-1952 in "Climatic Summary of the United States, Minnesota No. 17".

Official weather records have also been maintained at Pokerman Dam, 3 miles west of Grand Rapids, by the U. S. Engineers, St. Paul District, since 1887. Prior to 1948 this station was known as Pokerman Falls. Hourly amounts of precipitation for Pokerman Dam are available since 1940. All records for this station are also on file at Minneapolis.