

Climatology of the United States

No. 20

1971-2000

Station: FORT YATES 4 SW, ND

COOP ID: 323207

Climate Division: ND 8

NWS Call Sign:

Elevation: 1,675 Feet Lat: 46° 03N

Lon: 100° 40W

Temperature (°F)

Mean (1)				Extremes										Degree Days (1) Base Temp 65		Mean Number of Days (3)					
Month	Daily Max	Daily Min	Mean	Highest Daily(2)	Year	Day	Highest Month(1) Mean	Year	Lowest Daily(2)	Year	Day	Lowest Month(1) Mean	Year	Heating	Cooling	Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	23.5	3.2	13.4	60+	1990	10	26.0	1990	-39+	1996	19	-1.4	1978	1603	0	.0	.0	1.0	19.9	30.5	13.4
Feb	30.3	10.9	20.6	72	1992	29	31.8	1984	-45	1996	3	2.6	1979	1244	0	.0	.0	3.7	14.4	27.1	7.1
Mar	40.8	20.6	30.7	82	1967	30	38.1	1986	-29	1962	1	22.2	1996	1063	0	.0	.0	9.0	7.0	26.8	2.3
Apr	56.3	32.8	44.6	99	1992	30	53.6	1987	-7	1975	1	34.8	1975	618	4	.0	.3	22.2	.7	14.3	.2
May	69.1	45.7	57.4	96	1987	15	63.6	1977	19+	1967	3	51.9	1979	268	31	.0	.8	30.1	.0	2.1	.0
Jun	78.3	55.1	66.7	107	1988	27	78.6	1988	29	1998	7	61.6	1998	85	136	.2	3.5	30.0	.0	.1	.0
Jul	84.8	60.2	72.5	110	1975	29	77.8	1989	36	1995	1	65.4	1992	20	252	.9	9.3	31.0	.0	.0	.0
Aug	83.8	58.3	71.1	108	1958	10	77.5	1983	32	1992	31	64.3	1974	32	219	.9	9.5	31.0	.0	@	.0
Sep	73.1	46.9	60.0	104+	1959	9	65.8	1978	17	1951	28	55.6	1999	185	36	.2	2.5	29.6	.0	1.9	.0
Oct	60.0	35.2	47.6	95+	1992	1	50.8	2000	-4	1991	31	44.1+	1991	539	0	.0	.2	26.2	.3	10.3	.1
Nov	39.4	20.8	30.1	80	1999	7	38.3	1999	-20	1985	28	17.3	1985	1048	0	.0	.0	8.1	7.7	26.0	1.5
Dec	27.3	8.5	17.9	69	1949	2	29.2	1997	-32+	1989	22	.4	1983	1461	0	.0	.0	1.7	17.1	30.5	8.6
Ann	55.6	33.2	44.4	110	Jul 1975	29	78.6	Jun 1988	-45	Feb 1996	3	-1.4	Jan 1978	8166	678	2.2	26.1	223.6	67.1	169.6	33.2

+ Also occurred on an earlier date(s)

@ Denotes mean number of days greater than 0 but less than .05

Complete documentation available from: www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2000

(3) Derived from 1971-2000 serially complete daily data

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Climatography of the United States

No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: FORT YATES 4 SW, ND

COOP ID: 323207

Climate Division: ND 8

NWS Call Sign:

Elevation: 1,675 Feet Lat: 46°03N

Lon: 100°40W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.24	.20	.52	1949	5	.88	1972	.00+	1991	2.8	1.0	.0	.0	.00	.02	.06	.10	.13	.18	.23	.29	.38	.53	.67
Feb	.30	.20	1.10	1951	28	1.83	1987	.00+	1985	2.9	.9	.1	.0	.00	.02	.06	.11	.16	.22	.28	.37	.49	.68	.88
Mar	.66	.63	1.35	1973	14	1.59	1989	.04+	1999	4.4	1.7	.2	.1	.05	.09	.17	.26	.36	.48	.62	.80	1.05	1.47	1.89
Apr	1.34	1.03	4.00	1974	20	5.62	1974	.09	1987	6.4	3.5	.7	.1	.11	.19	.37	.55	.76	.99	1.27	1.63	2.12	2.94	3.75
May	2.16	1.58	2.35	1957	3	5.80	1999	.40	1997	8.1	5.1	1.6	.4	.43	.63	.94	1.24	1.53	1.85	2.20	2.63	3.20	4.11	4.98
Jun	2.64	2.76	3.81	1988	29	5.45	1971	.08	1974	8.0	5.8	1.6	.4	.43	.65	1.04	1.40	1.78	2.18	2.65	3.22	3.98	5.21	6.40
Jul	2.06	1.87	2.20	1949	28	5.68	1993	.07	1988	6.4	4.3	1.6	.5	.23	.39	.68	.97	1.28	1.62	2.02	2.52	3.20	4.32	5.42
Aug	1.62	1.45	3.40	1984	2	5.43	1998	.17	1971	5.9	3.1	.9	.3	.32	.46	.70	.92	1.14	1.38	1.65	1.97	2.40	3.09	3.75
Sep	1.28	1.04	2.47	1965	3	4.62	1996	.00	1982	4.8	3.0	.8	.3	.07	.20	.40	.58	.78	1.01	1.26	1.58	2.02	2.73	3.42
Oct	1.26	.65	2.63	1971	2	4.60	1998	.00	1988	4.6	2.7	.8	.3	.02	.07	.21	.38	.58	.82	1.12	1.51	2.06	3.01	3.98
Nov	.35	.25	1.35	1956	3	.98	1992	.00+	1990	3.4	1.2	.1	.0	.00	.00	.06	.12	.18	.25	.33	.43	.57	.80	1.03
Dec	.23	.12	.72	1988	26	.93	1972	.00+	1991	3.2	.8	@	.0	.00	.00	.03	.06	.11	.16	.21	.29	.39	.57	.75
Ann	14.14	13.12	4.00	Apr 1974	20	5.80	May 1999	.00+	Dec 1991	60.9	33.1	8.4	2.4	8.85	9.83	11.10	12.09	12.97	13.84	14.75	15.76	17.00	18.83	20.43

+ Also occurred on an earlier date(s)

Denotes amounts of a trace

@ Denotes mean number of days greater than 0 but less than .05

** Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2000

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Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: FORT YATES 4 SW, ND

COOP ID: 323207

Climate Division: ND 8

NWS Call Sign:

Elevation: 1,675 Feet

Lat: 46°03N

Lon: 100°40W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										Snow Fall >= Thresholds					Snow Depth >= Thresholds			
Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10
Jan	4.0	2.9	4	3	6.0	1997	3	19.0	1997	17	1997	17	13	1997	2.1	1.9	.6	.2	.0	13.3	9.1	3.6	.0
Feb	4.1	3.3	3	1	7.0	1995	26	19.0	1987	18	1987	28	12	1979	2.2	1.9	.5	.1	.0	8.0	4.3	1.8	.1
Mar	4.7	2.6	2	1	16.0	1982	20	19.0+	1982	19	1975	30	11	1987	1.9	1.7	.8	.3	@	5.1	4.2	3.1	2.2
Apr	1.4	.0	#	0	7.0	1997	5	8.0+	1997	8+	1997	7	2	1997	.6	.5	.2	.2	.0	1.3	.7	.4	.0
May	.3	.0	#	0	7.0	1991	3	7.0	1991	4	1991	3	#+	1991	.1	.1	@	@	.0	.1	@	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.1	.0	#	0	2.0	1984	23	2.0	1984	2	1984	23	#	1984	.1	@	.0	.0	.0	.1	.0	.0	.0
Oct	.2	.0	#	0	4.0	1992	15	4.0+	1992	4	1992	15	#+	1996	.1	.1	@	.0	.0	.2	@	.0	.0
Nov	3.0	1.0	1	#	9.0	1986	7	15.0	1996	16	1993	26	8	1993	1.5	1.2	.5	.1	.0	4.8	2.8	1.4	.4
Dec	2.3	2.4	3	1	12.0	1988	26	12.0	1988	13+	1997	25	9	1997	2.5	2.0	.6	.1	@	10.0	7.0	4.0	.8
Ann	20.1	12.2	N/A	N/A	16.0	Mar 1982	20	19.0+	Jan 1997	19	Mar 1975	30	13	Jan 1997	11.1	9.4	3.2	1.0	@	42.9	28.1	14.3	3.5

+ Also occurred on an earlier date(s) #Denotes trace amounts

@ Denotes mean number of days greater than 0 but less than .05

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

(1) Derived from Snow Climatology and 1971-2000 daily data

(2) Derived from 1971-2000 daily data

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Lat: 46° 03N

Lon: 100° 40W

Freeze Data									
Spring Freeze Dates (Month/Day)									
Temp (F)	Probability of later date in spring (thru Jul 31) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	6/05	5/30	5/25	5/21	5/18	5/14	5/10	5/06	4/29
32	5/25	5/20	5/16	5/13	5/09	5/06	5/03	4/29	4/23
28	5/12	5/08	5/04	5/01	4/29	4/26	4/23	4/20	4/15
24	5/02	4/27	4/23	4/20	4/17	4/14	4/11	4/07	4/02
20	4/23	4/18	4/14	4/11	4/08	4/06	4/03	3/30	3/25
16	4/15	4/09	4/05	4/02	3/30	3/26	3/23	3/19	3/14
Fall Freeze Dates (Month/Day)									
Temp (F)	Probability of earlier date in fall (beginning Aug 1) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	9/02	9/07	9/11	9/15	9/18	9/21	9/25	9/29	10/04
32	9/10	9/15	9/19	9/22	9/25	9/28	10/01	10/05	10/10
28	9/19	9/25	9/29	10/03	10/07	10/11	10/14	10/19	10/25
24	9/24	10/01	10/06	10/10	10/14	10/18	10/22	10/27	11/02
20	9/30	10/07	10/12	10/16	10/20	10/24	10/28	11/02	11/08
16	10/16	10/22	10/26	10/29	11/02	11/05	11/08	11/12	11/18
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	151	141	134	128	123	117	111	104	94
32	165	156	149	143	138	132	126	120	110
28	187	178	171	166	160	155	150	143	134
24	207	197	190	184	179	173	167	160	151
20	219	210	204	198	193	188	183	177	168
16	240	232	226	221	216	211	206	200	192

* Probability of observing a temperature as cold, or colder, later in the spring or earlier in the fall than the indicated date.

0/00 Indicates that the probability of occurrence of threshold temperature is less than the indicated probability.

Derived from 1971-2000 serially complete daily data

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Degree Days to Selected Base Temperatures (°F)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1603	1244	1063	618	268	85	20	32	185	539	1048	1461	8166
60	1448	1104	908	478	161	33	4	9	89	385	898	1306	6823
57	1355	1020	815	399	111	17	1	3	48	294	808	1213	6084
55	1293	969	754	349	84	10	0	1	30	237	748	1151	5626
50	1143	839	608	240	36	1	0	0	5	120	606	997	4595
32	641	415	183	25	0	0	0	0	0	2	192	500	1958

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	62	95	143	401	787	1041	1255	1210	841	486	135	62	6518
55	0	6	1	35	158	362	542	498	180	8	0	0	1790
57	0	0	0	25	123	308	481	437	139	3	0	0	1516
60	0	0	0	14	80	235	391	350	89	1	0	0	1160
65	0	0	0	4	31	136	252	219	36	0	0	0	678
70	0	0	0	0	9	65	141	118	11	0	0	0	344

Growing Degree Units (2)																								
Base	Growing Degree Units (Monthly)												Growing Degree Units (Accumulated Monthly)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
40	0	8	39	221	576	830	1036	996	639	300	38	0	0	8	47	268	844	1674	2710	3706	4345	4645	4683	4683
45	0	1	10	131	424	680	881	841	490	182	13	0	0	1	11	142	566	1246	2127	2968	3458	3640	3653	3653
50	0	0	1	69	284	531	726	686	353	94	5	0	0	0	1	70	354	885	1611	2297	2650	2744	2749	2749
55	0	0	0	32	168	382	571	531	226	42	0	0	0	0	0	32	200	582	1153	1684	1910	1952	1952	1952
60	0	0	0	11	89	246	417	377	124	11	0	0	0	0	0	11	100	346	763	1140	1264	1275	1275	1275
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	8	41	155	352	530	684	649	407	199	33	0	0	8	49	204	556	1086	1770	2419	2826	3025	3058	3058

(1) Derived from the 1971-2000 Monthly Normals

(2) Derived from 1971-2000 serially complete daily data

Note: For corn, temperatures below 50 are set to 50, and temperatures above 86 are set to 86

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

Notes

- a. The monthly means are simple arithmetic averages computed by summing the monthly values for the period 1971-2000 and dividing by thirty. Prior to averaging, the data are adjusted if necessary to compensate for data quality issues, station moves or changes in station reporting practices. Missing months are replaced by estimates based on neighboring stations.
- b. The median is defined as the middle value in an ordered set of values. The median is being provided for the snow and precipitation elements because the mean can be a misleading value for precipitation normals.
- c. Only observed validated values were used to select the extreme daily values.
- d. Extreme monthly temperature/precipitation means were selected from the monthly normals data.
Monthly snow extremes were calculated from daily values quality controlled to be consistent with the Snow Climatology.
- e. Degree Days were derived using the same techniques as the 1971-2000 normals.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/usnormals.html
- f. Mean "number of days statistics" for temperature and precipitation were calculated from a serially complete daily data set.
Documentation of the serially complete data set is available from the link below:
- g. Snowfall and snow depth statistics were derived from the Snow Climatology.
Documentation for the Snow Climatology project is available from the link under references.

Data Sources for Tables

Several different data sources were used to create the Clim20 climate summaries. In some cases the daily extremes appear inconsistent with the monthly extremes and or the mean number of days statistics. For example, a high daily extreme value may not be reflected in the highest monthly value or the mean number of days threshold that is less than and equal to the extreme value. Some of these difference are caused by different periods of record. Daily extremes are derived from the station's entire period of record while the serial data and normals data were for the 1971-2000 period. Therefore extremes observed before 1971 would not be included in the 1971-2000 normals or the 1971-2000 serial daily data set. Inconsistencies can also occur when monthly values are adjusted to reflect the current observing conditions or were replaced during the 1971-2000 Monthly Normals processing and are not reconciled with the Summary of the Day data.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html
Snow Climatology Project Description, www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html
Eischeid, J. K., P. Pasteris, H. F. Diaz, M. Plantico, and N. Lott, 2000: Creating a serially complete, national daily time series of temperature and precipitation for the Western United States. J. Appl. Meteorol., 39, 1580-1591,
www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf