U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

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: WINONA 5 E, MS **COOP ID: 229743**

Climate Division: MS 5 **NWS Call Sign:** **Elevation: 390 Feet** **Lat: 33˚29N** **Lon: 89˚38W**

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	51.4	28.5	40.0	79+	1972	25	47.0	1974	-9	1966	30	29.2	1977	777	0	.0	.0	18.5	1.9	20.9	.2
Feb	56.6	31.2	43.9	84	1996	24	50.3	1976	0	1996	4	33.9	1978	591	0	.0	.0	20.2	1.0	16.7	@
Mar	64.8	38.5	51.7	87+	1955	11	57.4	1974	9+	1980	3	45.8	1971	418	5	.0	.0	28.2	.1	9.6	.0
Apr	72.0	45.1	58.6	92	1987	22	64.9	1981	24	1987	4	53.4	1983	213	19	.0	.1	29.8	.0	2.8	.0
May	78.6	55.0	66.8	96	1953	27	71.3	1987	35+	1971	5	61.1	1976	60	117	.0	.9	31.0	.0	.0	.0
Jun	85.3	62.9	74.1	101	1954	28	77.6	1998	40	1984	1	69.9	1974	2	275	@	8.5	30.0	.0	.0	.0
Jul	88.6	67.0	77.8	104+	1986	30	81.0	1980	49+	1972	7	74.7	1972	0	395	.4	17.3	31.0	.0	.0	.0
Aug	88.5	65.0	76.8	105	2000	31	80.9	2000	50+	1992	29	73.3	1992	0	365	.6	17.9	31.0	.0	.0	.0
Sep	83.4	58.5	71.0	104	1954	4	75.7	1998	34+	1967	29	66.4	1974	21	200	.1	7.7	30.0	.0	.0	.0
Oct	74.2	45.5	59.9	97+	1954	1	66.1	1984	26+	1976	21	54.1	1976	199	39	.0	.5	30.9	.0	2.8	.0
Nov	63.6	37.2	50.4	87+	1955	13	56.6	1985	12	1976	30	41.9	1976	439	2	.0	.0	27.3	.1	11.1	.0
Dec	54.6	30.9	42.8	82+	1971	13	52.1	1984	-2+	1989	23	33.2	1989	690	0	.0	.0	21.4	.9	18.3	.1
Ann	71.8	47.1	59.5	105	Aug 2000	31	81.0	Jul 1980	-9	Jan 1966	30	29.2	Jan 1977	3410	1417	1.1	52.9	329.3	4.0	82.2	.3

\+ 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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1953-2001

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Issue Date: February 2004

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Precipitation (inches)

Precipitation Totals

Month	Means/ Medians(1) Mean	Means/ Medians(1) Median	Extremes Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	5.41	4.65	4.79	1999	23	12.54	1999	.60	1986
Feb	4.65	4.04	4.98	1966	10	9.42	1971	1.14	1972
Mar	6.36	5.81	9.07	1973	16	18.25	1973	1.83	1982
Apr	5.52	5.16	4.96	1969	14	16.94	1991	.69	1987
May	5.05	4.64	5.55	1983	19	15.66	1983	1.02	1992
Jun	4.27	3.67	4.33	1997	10	14.25	1989	.08	1988
Jul	4.48	4.26	4.06	1992	16	11.58	1989	.38	2000
Aug	3.16	2.88	5.76	1995	5	8.09	1995	.31	1981
Sep	3.62	3.53	3.30	2000	21	8.37	1977	.35	1984
Oct	3.32	2.83	4.07	1975	17	11.46	1984	.13	1978
Nov	5.07	4.08	4.00	1979	10	12.35	1973	1.60	1999
Dec	6.13	4.93	6.66	1983	3	19.35	1982	.72	1980
Ann	57.04	55.26	9.07	Mar 1973	16	19.35	Dec 1982	.08	Jun 1988

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.0	7.9	3.7	1.5
Feb	7.6	6.5	3.5	1.6
Mar	8.5	7.3	4.2	2.3
Apr	6.7	6.1	3.5	2.0
May	8.2	6.9	3.2	1.4
Jun	7.5	6.4	2.8	1.4
Jul	8.0	6.9	3.1	1.4
Aug	5.6	4.6	2.2	1.0
Sep	6.4	5.5	2.5	1.1
Oct	5.5	4.3	2.2	1.2
Nov	8.0	6.8	3.5	1.7
Dec	8.6	7.4	4.0	2.0
Ann	89.6	76.6	38.4	18.6

Precipitation Probabilities (1)

Probability that the monthly/annual precipitation will be equal to or less than the indicated amount

Monthly/Annual Precipitation vs Probability Levels
These values were determined from the incomplete gamma distribution

Month	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	1.45	1.96	2.74	3.43	4.10	4.81	5.59	6.52	7.74	9.63	11.41
Feb	1.32	1.76	2.43	3.01	3.58	4.17	4.83	5.60	6.60	8.18	9.64
Mar	2.31	2.91	3.77	4.49	5.18	5.88	6.65	7.54	8.68	10.43	12.04
Apr	.91	1.39	2.19	2.95	3.73	4.58	5.55	6.74	8.32	10.88	13.33
May	1.02	1.48	2.22	2.90	3.59	4.32	5.15	6.15	7.46	9.57	11.58
Jun	.74	1.12	1.74	2.32	2.92	3.57	4.31	5.21	6.41	8.35	10.20
Jul	.89	1.30	1.96	2.56	3.17	3.82	4.56	5.45	6.63	8.52	10.32
Aug	.57	.85	1.31	1.74	2.18	2.66	3.20	3.86	4.73	6.14	7.48
Sep	.86	1.19	1.72	2.20	2.67	3.16	3.72	4.39	5.26	6.64	7.94
Oct	.38	.64	1.10	1.57	2.06	2.61	3.25	4.05	5.14	6.93	8.67
Nov	1.51	1.99	2.71	3.33	3.94	4.57	5.26	6.08	7.14	8.79	10.33
Dec	1.29	1.85	2.75	3.57	4.39	5.27	6.26	7.45	9.02	11.53	13.90
Ann	39.24	42.65	47.03	50.37	53.35	56.24	59.23	62.55	66.59	72.46	77.56

\+ 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: 1953-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	.7	.0	#	0
Feb	.1	.0	#	0
Mar	.1	.0	0	0
Apr	#	.0	0	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.0	.0	0	0
Nov	#	.0	0	0
Dec	#	.0	#	0
Ann	.9	.0	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	6.0	2000	28	6.0	2000	5	1992	19	1	1985
Feb	1.0	1971	8	1.0	1971	3	1985	4	1	1985
Mar	2.0	1980	2	2.0	1980	0	0	0	0	0
Apr	#	1971	7	#	1971	0	0	0	0	0
May	.0	0	0	.0	0	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	.0	0	0	.0	0	0	0	0	0	0
Nov	#	1992	28	#+	1992	0	0	0	0	0
Dec	#	1990	24	#+	1990	#+	1990	25	#+	1990
Ann	6.0	Jan 2000	28	6.0	Jan 2000	5	Jan 1992	19	1+	Feb 1985

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.4	.2	.1	.1	.0
Feb	.1	@	.0	.0	.0
Mar	.1	@	.0	.0	.0
Apr	.0	.0	.0	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	.0	.0	.0	.0	.0
Dec	.0	.0	.0	.0	.0
Ann	.6	.2	.1	.1	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.2	.1	@	.0
Feb	.0	.0	.0	.0
Mar	.0	.0	.0	.0
Apr	.0	.0	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.0	.0	.0	.0
Dec	.0	.0	.0	.0
Ann	.2	.1	@	.0

+ 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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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	4/28	4/24	4/21	4/18	4/16	4/14	4/11	4/08	4/04
32	4/20	4/16	4/13	4/11	4/08	4/06	4/04	4/01	3/28
28	4/10	4/05	4/01	3/29	3/26	3/23	3/19	3/16	3/10
24	3/24	3/17	3/13	3/08	3/05	3/01	2/25	2/20	2/13
20	3/13	3/07	3/02	2/26	2/22	2/18	2/14	2/09	2/02
16	3/05	2/24	2/18	2/13	2/08	2/03	1/28	1/20	1/07

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	10/03	10/07	10/10	10/12	10/14	10/17	10/19	10/22	10/25
32	10/09	10/15	10/19	10/22	10/26	10/29	11/02	11/06	11/11
28	10/25	10/29	11/02	11/05	11/08	11/10	11/13	11/17	11/22
24	11/07	11/13	11/17	11/21	11/24	11/28	12/02	12/06	12/12
20	11/14	11/23	11/30	12/05	12/11	12/16	12/22	12/29	1/07
16	11/25	12/06	12/14	12/21	12/27	1/02	1/10	1/19	2/06

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	197	191	187	184	181	177	174	170	165
32	220	213	208	204	200	196	191	186	179
28	249	241	236	231	226	222	217	211	204
24	289	281	274	269	264	259	254	247	239
20	323	312	304	298	291	285	279	271	260
16	>365	>365	336	325	317	310	302	294	283

***** 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	777	591	418	213	60	2	0	0	21	199	439	690	3410
60	626	452	279	109	17	0	0	0	4	103	301	544	2435
57	540	373	206	65	7	0	0	0	1	63	227	458	1940
55	482	322	165	42	3	0	0	0	0	43	183	403	1643
50	348	205	83	11	0	0	0	0	0	12	97	279	1035
32	51	10	0	0	0	0	0	0	0	0	1	32	94

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	297	343	610	796	1079	1263	1418	1388	1169	863	553	364	10143
55	15	11	62	148	369	573	705	675	479	193	46	23	3299
57	11	7	41	111	311	513	643	613	420	151	29	16	2866
60	4	1	20	65	228	423	550	520	333	99	14	9	2266
65	0	0	5	19	117	275	395	365	200	39	2	0	1417
70	0	0	0	3	44	140	241	215	96	11	0	0	750

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	144	208	402	584	863	1058	1209	1181	973	657	360	192	144	352	754	1338	2201	3259	4468	5649	6622	7279	7639	7831
45	78	124	272	437	708	908	1054	1026	823	504	238	115	78	202	474	911	1619	2527	3581	4607	5430	5934	6172	6287
50	41	61	164	302	553	758	899	871	673	357	144	63	41	102	266	568	1121	1879	2778	3649	4322	4679	4823	4886
55	17	30	85	185	398	608	744	716	525	223	77	30	17	47	132	317	715	1323	2067	2783	3308	3531	3608	3638
60	0	7	34	97	256	458	589	561	377	123	33	5	0	7	41	138	394	852	1441	2002	2379	2502	2535	2540
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	103	157	277	385	569	723	832	802	649	445	251	137	103	260	537	922	1491	2214	3046	3848	4497	4942	5193	5330

(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:
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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.
Compete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normals/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 are 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.

a. Temperature/ Precipitation Tables
   1. 1971-2000 Monthly Normals
   2. Cooperative Summary of the Day
   3. National Weather Service station records
   4. 1971-2000 serially complete daily data

b. Degree Day Table
   1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals
   2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data

c. Snow Tables
   1. Snow Climatology
   2. Cooperative Summary of the Day

d. Freeze Data Table
   1971-2000 serially complete daily data

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normals.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normals/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