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: MURPHY 2 NE, NC **COOP ID: 316001**

Climate Division: NC 3 **NWS Call Sign:** **Elevation: 1,640 Feet** **Lat: 35˚07N** **Lon: 84˚00W**

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	48.0	25.7	36.9	76	1985	1	47.1	1974	-16+	1985	22	26.5	1977	873	0	.0	.0	15.5	2.4	22.4	.4
Feb	52.4	27.6	40.0	81+	1996	24	46.1	1990	-4+	1996	6	34.0	1978	700	0	.0	.0	17.8	1.0	19.7	.1
Mar	60.5	33.8	47.2	85	1985	31	52.2	1997	-3+	1980	4	41.7	1996	553	0	.0	.0	26.3	.2	15.4	.1
Apr	69.6	40.6	55.1	92	1986	28	60.6	1977	18	1987	1	49.5	1983	305	7	.0	.1	29.0	.0	8.1	.0
May	76.4	49.8	63.1	90+	1970	25	68.1	1975	25	1971	4	58.2	1989	127	67	.0	.0	31.0	.0	.9	.0
Jun	82.8	58.1	70.5	97+	1988	26	73.7	1994	33	1984	1	67.1	1972	11	175	.0	2.5	30.0	.0	.0	.0
Jul	86.1	62.8	74.5	98+	1991	3	78.9	1991	46	1972	7	69.8	1976	0	294	.0	8.1	31.0	.0	.0	.0
Aug	85.5	62.0	73.8	99	1983	23	76.6	1995	48+	1997	24	70.4	1981	0	270	.0	5.2	31.0	.0	.0	.0
Sep	80.2	56.0	68.1	96	1975	5	72.7	1978	28	1967	30	64.8	1981	36	129	.0	1.8	30.0	.0	.0	.0
Oct	71.0	42.8	56.9	87+	1986	4	64.0	1984	21	1974	23	49.4	1987	278	26	.0	.0	30.8	.0	6.4	.0
Nov	60.6	34.3	47.5	84	1984	1	57.3	1985	6	1970	25	40.6	1976	529	1	.0	.0	25.6	.1	15.9	.0
Dec	51.4	27.9	39.7	75	1998	7	49.2	1971	-4+	1989	25	30.4	1989	786	0	.0	.0	18.9	1.2	21.7	.2
Ann	68.7	43.5	56.1	99	Aug 1983	23	78.9	Jul 1991	-16+	Jan 1985	22	26.5	Jan 1977	4198	969	.0	17.7	316.9	4.9	110.5	.8

\+ 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: 1948-2001

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

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	5.81	6.07	3.73	1996	27	9.90	1996	1.20	1981
Feb	5.07	4.88	3.90	1990	16	10.92	1990	.85	1978
Mar	5.86	5.30	4.40	1975	30	14.17	1980	1.87	1985
Apr	4.58	4.75	4.01	1957	5	8.64	1998	1.48	1976
May	4.85	4.87	3.90	1976	15	9.81	1976	1.42	1988
Jun	4.76	4.22	3.50	1976	20	12.25	1989	.94	1988
Jul	4.94	4.82	3.31	2001	30	8.24	1982	1.75	1983
Aug	4.66	4.78	7.30	1979	23	10.15	1991	1.14	1999
Sep	3.92	3.82	4.20	1997	25	9.72	1989	.37	1984
Oct	3.13	2.87	4.10	1949	30	6.78	1986	.06	2000
Nov	4.57	4.81	4.18	1948	28	7.98	1992	.50	1981
Dec	4.91	4.79	3.51	1961	12	9.24	1990	.85	1980
Ann	57.06	58.30	7.30	Aug 1979	23	14.17	Mar 1980	.06	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.8	9.5	4.6	1.8
Feb	9.8	8.2	3.7	1.6
Mar	11.5	9.3	4.6	1.7
Apr	9.5	7.7	3.7	1.1
May	10.2	8.5	3.3	1.2
Jun	10.9	8.7	3.6	1.2
Jul	11.5	9.0	3.5	1.4
Aug	10.1	8.1	3.2	1.3
Sep	8.6	6.7	2.8	1.1
Oct	6.8	5.1	2.4	1.1
Nov	9.6	7.8	3.4	1.4
Dec	11.1	8.7	3.7	1.3
Ann	121.4	97.3	42.5	16.2

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	2.24	2.78	3.55	4.19	4.80	5.42	6.09	6.86	7.85	9.36	10.74
Feb	1.47	1.95	2.68	3.30	3.91	4.55	5.26	6.09	7.16	8.84	10.41
Mar	2.24	2.78	3.56	4.21	4.82	5.45	6.13	6.92	7.92	9.46	10.86
Apr	1.73	2.15	2.77	3.28	3.76	4.26	4.80	5.42	6.21	7.44	8.55
May	1.90	2.35	2.99	3.52	4.02	4.53	5.08	5.72	6.53	7.77	8.90
Jun	1.29	1.74	2.43	3.03	3.62	4.24	4.93	5.74	6.80	8.46	10.01
Jul	1.95	2.40	3.05	3.59	4.10	4.61	5.17	5.82	6.64	7.89	9.04
Aug	1.45	1.90	2.55	3.12	3.66	4.23	4.85	5.58	6.52	7.98	9.33
Sep	.91	1.28	1.85	2.36	2.88	3.42	4.03	4.75	5.71	7.22	8.65
Oct	.39	.64	1.09	1.52	1.98	2.50	3.09	3.83	4.82	6.46	8.04
Nov	1.66	2.09	2.71	3.23	3.72	4.22	4.77	5.41	6.23	7.48	8.64
Dec	1.57	2.04	2.73	3.32	3.88	4.47	5.11	5.86	6.83	8.34	9.74
Ann	40.69	43.86	47.93	51.01	53.74	56.39	59.12	62.14	65.80	71.10	75.69

\+ 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: 1948-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	2.4	.0	#	0	7.0	1987	22	10.0	1987	5	1997	11	1	1977	1.1	.8	.1	.1	.0	.8	.2	.0	.0
Feb	1.9	.0	#	0	6.0	1979	19	8.9	1979	6	1980	10	1	1980	.5	.5	.3	.1	.0	.4	.2	.1	.0
Mar	.1	.0	#	0	1.0	1987	12	1.0	1987	19	1993	14	2	1993	.1	.1	.0	.0	.0	.0	.0	.0	.0
Apr	#	.0	#	0	#	1995	5	#	1995	#	1995	5	#	1995	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	#	.0	0	0	#	1989	21	#	1989	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.2	.0	#	0	3.0	2000	20	3.3	2000	3	2000	20	#	2000	.1	.1	.1	.0	.0	.1	.1	.0	.0
Dec	.6	.0	#	0	4.0	1997	31	7.0	1997	1	1996	19	#+	1999	.4	.3	.1	.0	.0	.0	.0	.0	.0
Ann	5.2	.0	N/A	N/A	7.0	Jan 1987	22	10.0	Jan 1987	19	Mar 1993	14	2	Mar 1993	2.2	1.8	.6	.2	.0	1.3	.5	.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	5/26	5/20	5/16	5/12	5/09	5/05	5/02	4/27	4/21
32	5/16	5/10	5/06	5/02	4/29	4/26	4/22	4/18	4/12
28	4/30	4/25	4/21	4/17	4/14	4/11	4/08	4/04	3/29
24	4/12	4/06	4/02	3/29	3/26	3/22	3/19	3/14	3/09
20	4/01	3/25	3/19	3/14	3/10	3/05	3/01	2/23	2/15
16	3/19	3/10	3/04	2/27	2/22	2/17	2/12	2/06	1/28

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	9/26	9/30	10/03	10/06	10/08	10/10	10/13	10/16	10/20
32	10/04	10/07	10/10	10/13	10/15	10/17	10/20	10/22	10/26
28	10/09	10/15	10/19	10/22	10/26	10/29	11/02	11/06	11/12
24	10/25	10/30	11/03	11/06	11/10	11/13	11/16	11/20	11/25
20	11/07	11/14	11/19	11/23	11/27	12/01	12/06	12/11	12/18
16	11/20	11/29	12/05	12/10	12/15	12/20	12/25	1/01	1/09

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	175	167	161	156	152	147	142	136	128
32	191	183	177	173	168	164	159	153	145
28	220	211	204	199	194	189	183	177	168
24	252	244	238	233	228	224	219	213	205
20	289	279	273	267	262	257	251	244	235
16	328	317	309	302	296	289	282	274	263

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	873	700	553	305	127	11	0	0	36	278	529	786	4198
60	718	560	404	180	55	1	0	0	9	168	388	631	3114
57	631	476	319	120	28	0	0	0	3	117	308	546	2548
55	573	420	266	88	16	0	0	0	1	89	259	488	2200
50	431	289	155	31	3	0	0	0	0	38	156	350	1453
32	87	17	2	0	0	0	0	0	0	0	5	50	161

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	238	242	472	692	963	1153	1317	1293	1083	772	467	287	8979
55	10	0	23	90	267	463	604	580	394	147	31	12	2621
57	6	0	14	62	216	403	542	518	336	113	20	8	2238
60	0	0	6	32	150	315	449	425	251	72	10	0	1710
65	0	0	0	7	67	175	294	270	129	26	1	0	969
70	0	0	0	1	20	68	154	129	44	7	0	0	423

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	88	127	267	455	715	917	1067	1044	841	526	262	121	88	215	482	937	1652	2569	3636	4680	5521	6047	6309	6430
45	41	62	158	314	560	767	912	889	691	373	154	62	41	103	261	575	1135	1902	2814	3703	4394	4767	4921	4983
50	11	24	74	195	407	617	757	734	541	237	83	25	11	35	109	304	711	1328	2085	2819	3360	3597	3680	3705
55	1	5	30	102	262	467	602	579	392	127	35	7	1	6	36	138	400	867	1469	2048	2440	2567	2602	2609
60	0	0	4	42	144	318	447	424	250	53	6	0	0	0	4	46	190	508	955	1379	1629	1682	1688	1688
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	61	104	196	315	467	614	728	713	553	355	192	88	61	165	361	676	1143	1757	2485	3198	3751	4106	4298	4386

(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