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: KINSTON AG RESEARCH, NC **COOP ID: 314689**

Climate Division: NC 7 **NWS Call Sign:** **Elevation: 60 Feet** **Lat: 35˚22N** **Lon: 77˚33W**

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	55.9	33.2	44.6	78+	1990	25	55.9	1974	-2	1985	21	33.4	1977	643	0	.0	.0	21.4	.8	14.7	@
Feb	59.9	34.5	47.2	84	1997	27	54.8	1990	3	1996	5	36.4	1978	498	0	.0	.0	21.7	.3	12.5	.0
Mar	67.8	40.6	54.2	89+	1997	1	58.3	1997	8	1980	4	49.4	1971	340	6	.0	.0	29.7	.0	6.7	.0
Apr	76.2	47.6	61.9	95	1990	27	66.0	1985	24+	1985	10	58.0+	1997	135	42	.0	.9	29.9	.0	1.0	.0
May	83.4	56.8	70.1	100	1996	19	73.8	1991	34	1966	11	65.9	1992	17	175	@	4.1	31.0	.0	.0	.0
Jun	88.9	65.0	77.0	101	1985	10	80.4	1981	42	1997	5	72.9	1997	0	358	.1	12.1	30.0	.0	.0	.0
Jul	91.7	70.0	80.9	103	1977	20	84.3	1993	52+	1988	2	78.1	2000	0	492	.7	19.0	31.0	.0	.0	.0
Aug	90.4	68.3	79.4	103+	1983	22	82.3	1978	47	1976	31	77.1	1994	0	445	.3	15.9	31.0	.0	.0	.0
Sep	85.7	62.9	74.3	102	1983	11	78.3	1980	38	1981	24	70.5	1994	4	283	.1	6.2	30.0	.0	.0	.0
Oct	77.1	50.9	64.0	96+	1986	4	70.2	1971	24	1976	29	57.2	1988	121	90	.0	.3	31.0	.0	.8	.0
Nov	68.7	42.9	55.8	87	1974	2	65.2	1985	17	1970	25	48.4	1976	295	18	.0	.0	29.0	.0	6.2	.0
Dec	59.3	36.1	47.7	83	1991	3	57.3	1971	-3	1989	25	36.5	1989	544	7	.0	.0	24.5	.2	13.1	@
Ann	75.4	50.7	63.1	103+	Aug 1983	22	84.3	Jul 1993	-3	Dec 1989	25	33.4	Jan 1977	2597	1916	1.2	58.5	340.2	1.3	55.0	.0

\+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1966-2001

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

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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	4.30	4.30	3.15	1992	3	9.19	1978	1.60	1981
Feb	3.53	3.05	3.80	1984	14	7.69	1979	.98	1976
Mar	4.40	4.34	3.48	2000	17	7.30	1984	1.29	1981
Apr	3.19	2.92	4.75	1973	1	8.30	1973	.48	1985
May	3.87	3.90	3.36	1977	24	9.93	1990	.76	1987
Jun	4.48	4.13	4.99	1995	6	16.13	1995	.87	1990
Jul	5.28	4.80	3.23	1997	2	10.97	1984	1.84	1983
Aug	5.36	4.73	5.02	1997	6	15.15	1992	1.79	1983
Sep	5.62	4.43	12.40	1999	16	25.88	1999	.32	1986
Oct	3.32	2.79	4.90	1996	8	8.13	1971	.00	2000
Nov	2.93	2.63	4.61	1969	2	6.78	1972	.72	1981
Dec	3.30	3.50	3.17	1973	9	7.02	1983	.14	1988
Ann	49.58	48.66	12.40	Sep 1999	16	25.88	Sep 1999	.00	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.6	7.8	3.2	1.1
Feb	9.0	6.2	2.6	.9
Mar	10.1	7.2	3.1	1.1
Apr	7.2	5.3	2.0	.8
May	9.8	7.1	2.5	.9
Jun	8.6	6.7	3.1	1.5
Jul	12.2	8.7	3.7	1.4
Aug	10.4	7.5	3.5	1.6
Sep	7.9	5.6	3.0	1.6
Oct	6.6	4.3	2.0	.9
Nov	7.1	5.1	2.2	.6
Dec	8.4	5.7	2.5	.8
Ann	107.9	77.2	33.4	13.2

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	1.94	2.32	2.85	3.28	3.68	4.08	4.51	5.01	5.63	6.57	7.43
Feb	.93	1.26	1.77	2.22	2.67	3.13	3.65	4.26	5.06	6.31	7.49
Mar	1.74	2.15	2.73	3.20	3.65	4.11	4.61	5.18	5.91	7.02	8.04
Apr	.66	.95	1.42	1.85	2.28	2.73	3.25	3.87	4.70	6.01	7.25
May	1.19	1.56	2.10	2.57	3.03	3.50	4.02	4.63	5.42	6.65	7.79
Jun	1.10	1.52	2.17	2.75	3.33	3.94	4.62	5.43	6.49	8.16	9.73
Jul	2.02	2.51	3.21	3.79	4.35	4.91	5.52	6.23	7.13	8.51	9.78
Aug	1.61	2.12	2.88	3.54	4.18	4.84	5.57	6.43	7.54	9.27	10.89
Sep	.74	1.19	1.99	2.78	3.60	4.51	5.56	6.86	8.62	11.50	14.29
Oct	.41	.82	1.38	1.86	2.33	2.84	3.41	4.09	4.99	6.43	7.80
Nov	.94	1.22	1.63	1.98	2.31	2.66	3.05	3.50	4.08	4.98	5.81
Dec	.73	1.04	1.52	1.96	2.40	2.86	3.39	4.01	4.83	6.14	7.38
Ann	38.05	40.35	43.26	45.44	47.36	49.20	51.10	53.17	55.67	59.27	62.35

\+ 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

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(2) Derived from station's available digital record: 1966-2001
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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	.4	.0	#	0	5.0	1973	8	5.0	1973	5	1973	8	#	1973	.1	.1	.1	.1	.0	@	@	@	.0
Feb	.5	.0	0	0	7.9	1973	10	7.9	1973	0	0	0	0	0	.1	.1	.1	.1	.0	.0	.0	.0	.0
Mar	.5	.0	0	0	5.1	1983	25	5.1	1983	0	0	0	0	0	.1	.1	.1	.1	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	#	.0	#	0	#	1976	8	#+	1976	#	1973	11	#	1973	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	1.4	.0	N/A	N/A	7.9	Feb 1973	10	7.9	Feb 1973	5	Jan 1973	8	#+	Dec 1973	.3	.3	.3	.3	.0	@	@	@	.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	5/02	4/25	4/21	4/17	4/14	4/10	4/06	4/02	3/27
32	4/15	4/10	4/05	4/02	3/30	3/26	3/23	3/19	3/13
28	4/08	4/01	3/27	3/22	3/18	3/14	3/09	3/04	2/24
24	3/25	3/17	3/11	3/06	3/01	2/24	2/19	2/13	2/04
20	3/03	2/23	2/17	2/12	2/07	2/02	1/27	1/20	1/07
16	2/16	2/08	2/02	1/28	1/22	1/16	1/04	0/00	0/00

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	10/09	10/14	10/18	10/21	10/24	10/26	10/29	11/02	11/07
32	10/16	10/21	10/26	10/29	11/02	11/05	11/09	11/13	11/19
28	10/28	11/04	11/09	11/13	11/16	11/20	11/24	11/29	12/06
24	11/11	11/20	11/27	12/03	12/08	12/14	12/20	12/27	1/05
20	12/04	12/13	12/20	12/25	12/31	1/05	1/12	1/19	2/03
16	12/19	12/27	1/03	1/09	1/16	1/25	0/00	0/00	0/00

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	218	209	203	197	192	187	182	175	166
32	244	234	228	222	216	211	205	198	189
28	274	263	256	249	243	237	230	222	212
24	315	302	293	286	280	273	266	258	247
20	>365	360	342	333	325	318	311	303	293
16	>365	>365	>365	>365	>365	354	340	328	315

***** 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	643	498	340	135	17	0	0	0	4	121	295	544	2597
60	499	370	206	56	2	0	0	0	0	55	181	401	1770
57	417	295	142	27	0	0	0	0	0	30	128	322	1361
55	367	250	106	15	0	0	0	0	0	19	97	275	1129
50	256	156	42	3	0	0	0	0	0	5	41	177	680
32	31	7	0	0	0	0	0	0	0	0	0	11	49

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	419	433	688	897	1181	1348	1515	1468	1269	992	713	498	11421
55	42	31	81	222	468	658	802	755	579	298	120	48	4104
57	31	21	55	174	406	598	740	693	519	247	91	34	3609
60	19	11	26	113	315	508	647	600	429	179	54	19	2920
65	0	0	6	42	175	358	492	445	283	90	18	7	1916
70	0	0	0	9	71	215	337	290	151	34	4	0	1111

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	203	251	439	651	922	1092	1248	1199	1008	722	462	265	203	454	893	1544	2466	3558	4806	6005	7013	7735	8197	8462
45	113	153	301	502	767	942	1093	1044	858	567	331	158	113	266	567	1069	1836	2778	3871	4915	5773	6340	6671	6829
50	55	83	185	358	612	792	938	889	708	418	210	83	55	138	323	681	1293	2085	3023	3912	4620	5038	5248	5331
55	21	39	95	227	457	642	783	734	558	276	118	43	21	60	155	382	839	1481	2264	2998	3556	3832	3950	3993
60	3	11	38	127	308	492	628	579	408	159	51	16	3	14	52	179	487	979	1607	2186	2594	2753	2804	2820
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	126	167	284	423	606	743	860	827	687	470	297	165	126	293	577	1000	1606	2349	3209	4036	4723	5193	5490	5655

(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