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: SAND MT SUBSTATION, AL **COOP ID: 017207**

Climate Division: AL 2 **NWS Call Sign:** **Elevation: 1,195 Feet** **Lat: 34˚17N** **Lon: 85˚58W**

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	48.3	28.6	38.5	77	1952	1	49.4	1974	-13	1985	21	25.6	1977	823	0	.0	.0	14.7	2.9	19.3	.3
Feb	53.2	31.3	42.3	80	1962	13	49.7	1990	-7	1958	17	33.6	1978	637	0	.0	.0	17.8	1.3	15.7	.1
Mar	61.8	39.2	50.5	85	1982	20	56.5	1973	8	1960	5	44.7	1971	455	5	.0	.0	26.5	.2	8.2	.0
Apr	70.1	46.2	58.2	88+	1986	28	64.2	1981	24+	1992	3	52.6	1983	225	20	.0	.0	29.5	.0	2.0	.0
May	77.5	55.3	66.4	94+	1962	28	70.3	1998	35+	1986	4	59.8	1976	72	115	.0	.1	31.0	.0	.0	.0
Jun	84.6	63.0	73.8	101	1952	28	77.4	1998	40	1956	3	69.9	1976	3	267	.0	5.0	30.0	.0	.0	.0
Jul	88.3	66.5	77.4	107	1952	29	81.3	1980	50+	1967	15	72.5	1976	0	384	.2	12.0	31.0	.0	.0	.0
Aug	87.9	65.1	76.5	103	1983	22	82.1	1980	48	1964	13	72.4	1976	1	358	.3	9.8	31.0	.0	.0	.0
Sep	82.3	59.0	70.7	101	1954	4	75.7	1998	35+	1982	23	65.7	1976	29	198	.0	3.6	30.0	.0	.0	.0
Oct	72.2	46.9	59.6	95	1954	5	65.8	1984	23+	1987	23	52.0	1976	208	40	.0	.0	30.9	.0	1.8	.0
Nov	61.4	39.0	50.2	83+	1974	3	58.2	1985	-1	1950	25	41.7	1976	450	5	.0	.0	25.3	.1	8.7	.0
Dec	51.7	31.4	41.6	76+	1998	8	50.1	1984	-4	1983	25	32.6	1989	726	0	.0	.0	17.9	1.2	17.5	.1
Ann	69.9	47.6	58.8	107	Jul 1952	29	82.1	Aug 1980	-13	Jan 1985	21	25.6	Jan 1977	3629	1392	.5	30.5	315.6	5.7	73.2	.5

\+ 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: 1949-2001

(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	5.49	5.36	5.34	1949	5	10.06	1996	1.21	1981
Feb	5.19	5.42	4.54	1990	16	10.21	1990	1.61	1978
Mar	6.07	5.82	4.35	1951	28	15.99	1980	1.94	1986
Apr	4.75	4.32	4.34	1963	29	11.36	1979	.94	1976
May	4.37	4.19	4.78	1997	3	9.24	1973	1.48	1995
Jun	4.10	3.72	3.28	1957	9	10.48	1999	.60	1988
Jul	4.37	3.23	5.75	1985	28	19.39	1985	.88	2000
Aug	3.44	2.65	3.23	1974	12	9.26	1974	.43	1983
Sep	4.49	3.97	4.85	1979	28	10.21	1977	.15	1984
Oct	3.14	3.02	4.09	1997	26	9.22	1977	.00	1991
Nov	4.58	3.83	3.90	2000	9	8.96	2000	1.73	1971
Dec	5.05	4.79	4.06	1954	29	11.46	1982	.93	1980
Ann	55.04	56.51	5.75	Jul 1985	28	19.39	Jul 1985	.00	Oct 1991

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	12.3	8.7	4.2	1.5
Feb	10.1	7.2	3.6	1.9
Mar	11.7	8.6	4.3	1.9
Apr	10.0	7.2	3.4	1.4
May	10.2	6.8	2.6	1.5
Jun	9.5	6.9	2.9	1.2
Jul	10.1	6.8	3.0	1.1
Aug	9.0	6.1	2.2	1.0
Sep	8.4	5.5	2.5	1.2
Oct	7.1	4.5	2.0	.9
Nov	9.6	6.7	3.2	1.4
Dec	10.9	7.7	3.4	1.6
Ann	118.9	82.7	37.3	16.6

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	2.20	2.70	3.42	4.01	4.57	5.14	5.75	6.45	7.35	8.72	9.97
Feb	1.80	2.29	3.00	3.60	4.18	4.77	5.41	6.17	7.13	8.62	9.99
Mar	2.16	2.73	3.56	4.25	4.92	5.60	6.35	7.21	8.32	10.03	11.60
Apr	1.43	1.88	2.55	3.14	3.70	4.29	4.94	5.70	6.69	8.22	9.65
May	1.42	1.84	2.45	2.97	3.47	3.99	4.55	5.22	6.07	7.39	8.62
Jun	.93	1.32	1.92	2.46	3.00	3.57	4.21	4.98	5.98	7.59	9.10
Jul	.95	1.35	1.99	2.57	3.15	3.77	4.47	5.31	6.41	8.16	9.82
Aug	.80	1.12	1.63	2.08	2.53	3.00	3.54	4.17	5.01	6.33	7.58
Sep	.56	.91	1.55	2.17	2.83	3.57	4.42	5.48	6.91	9.27	11.55
Oct	.19	.49	.98	1.44	1.93	2.47	3.10	3.88	4.93	6.66	8.34
Nov	1.87	2.29	2.88	3.37	3.83	4.29	4.79	5.37	6.10	7.22	8.24
Dec	1.51	1.99	2.71	3.33	3.93	4.56	5.25	6.06	7.11	8.75	10.27
Ann	40.88	43.67	47.21	49.89	52.25	54.53	56.87	59.44	62.56	67.05	70.91

\+ 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: 1949-2001
(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	.8	.0	#	0	4.0	1988	8	6.0	1988	1	1992	19	#+	2000	.6	.2	.1	.0	.0	.1	.0	.0	.0
Feb	.7	.0	#	0	2.5	1985	12	2.5+	1996	2	1971	9	#+	1998	.5	.4	.0	.0	.0	.1	.0	.0	.0
Mar	.2	.0	#	0	1.5	1971	25	1.5	1971	1	1996	21	#	1996	.1	.1	.0	.0	.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	.5	1975	23	.5	1975	0	0	0	0	0	.1	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.1	.0	#	0	1.0	2000	17	1.0	2000	3	1997	30	#	1997	.1	.1	.0	.0	.0	.0	.0	.0	.0
Ann	1.8	.0	N/A	N/A	4.0	Jan 1988	8	6.0	Jan 1988	3	Dec 1997	30	#+	Jan 2000	1.4	.8	.1	.0	.0	.2	.0	.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	4/29	4/25	4/21	4/19	4/16	4/14	4/11	4/08	4/03
32	4/18	4/13	4/10	4/07	4/04	4/02	3/30	3/27	3/22
28	4/09	4/03	3/30	3/27	3/23	3/20	3/17	3/12	3/07
24	3/23	3/16	3/11	3/06	3/02	2/26	2/22	2/16	2/09
20	3/15	3/07	2/28	2/23	2/18	2/13	2/08	2/02	1/24
16	3/06	2/25	2/19	2/13	2/08	2/03	1/28	1/21	1/10

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	10/09	10/12	10/14	10/16	10/18	10/21	10/24
32	10/11	10/16	10/21	10/24	10/27	10/31	11/03	11/07	11/13
28	10/24	10/30	11/03	11/07	11/10	11/13	11/17	11/21	11/27
24	11/01	11/09	11/16	11/21	11/26	12/01	12/06	12/13	12/21
20	11/19	11/28	12/04	12/10	12/15	12/20	12/26	1/01	1/11
16	11/30	12/11	12/19	12/26	1/01	1/08	1/15	1/23	2/05

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	196	191	186	183	180	176	173	169	163
32	227	219	214	210	205	201	197	191	184
28	255	247	241	236	231	226	221	215	207
24	296	286	279	274	268	263	257	250	241
20	337	322	313	305	298	291	283	275	263
16	>365	358	340	330	322	314	307	298	287

***** 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	823	637	455	225	72	3	0	1	29	208	450	726	3629
60	678	497	314	120	24	0	0	0	7	112	315	576	2643
57	591	417	239	74	10	0	0	0	2	71	242	489	2135
55	534	365	196	50	5	0	0	0	1	49	200	433	1833
50	402	242	108	15	0	0	0	0	0	16	114	303	1200
32	88	16	1	0	0	0	0	0	0	0	2	37	144

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	289	303	574	785	1066	1254	1407	1380	1159	855	548	334	9954
55	21	8	56	145	358	564	694	667	470	191	56	17	3247
57	16	3	38	109	301	504	632	605	411	151	38	11	2819
60	10	0	20	65	221	414	539	512	326	99	20	5	2231
65	0	0	5	20	115	267	384	358	198	40	5	0	1392
70	0	0	0	3	44	137	234	214	100	11	0	0	743

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	120	178	367	564	832	1021	1163	1139	924	614	334	154	120	298	665	1229	2061	3082	4245	5384	6308	6922	7256	7410
45	61	101	244	418	677	871	1008	984	774	461	220	79	61	162	406	824	1501	2372	3380	4364	5138	5599	5819	5898
50	28	47	146	280	522	721	853	829	624	320	122	39	28	75	221	501	1023	1744	2597	3426	4050	4370	4492	4531
55	7	17	72	169	368	571	698	674	475	195	58	13	7	24	96	265	633	1204	1902	2576	3051	3246	3304	3317
60	0	0	28	87	228	421	543	519	330	99	23	1	0	0	28	115	343	764	1307	1826	2156	2255	2278	2279
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	65	109	220	346	537	705	805	785	616	389	200	87	65	174	394	740	1277	1982	2787	3572	4188	4577	4777	4864

(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

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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