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: SAINT JOHNS, AZ **COOP ID: 027435**

Climate Division: AZ 2 **NWS Call Sign:** **Elevation: 5,790 Feet** **Lat: 34˚31N** **Lon: 109˚24W**

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	48.7	19.5	34.1	73+	2000	16	38.6	1978	-29	1971	7	28.5	1992	958	0	.0	.0	15.2	1.7	29.1	.8
Feb	55.0	23.1	39.1	90	1952	22	44.1	1995	-13+	1956	4	34.3	1985	727	0	.0	.0	21.0	.6	24.8	.1
Mar	61.3	29.0	45.2	85	1943	29	51.8	1972	-7	1951	4	40.5	1977	615	0	.0	.0	27.8	.0	21.5	.0
Apr	69.6	33.9	51.8	95	1943	30	58.3	1989	7	1945	5	45.9	1983	400	2	.0	.0	29.0	.0	12.8	.0
May	78.2	42.8	60.5	99	2000	29	67.4	1984	21	1933	12	56.7	1980	180	40	.0	1.1	31.0	.0	1.8	.0
Jun	87.9	51.2	69.6	103+	1940	18	75.0	1974	25	1950	8	66.6	1991	25	161	.6	12.6	30.0	.0	.0	.0
Jul	89.5	58.1	73.8	104+	1923	3	76.7	1996	38	1913	28	71.4	1987	0	272	.4	16.6	31.0	.0	.0	.0
Aug	86.9	56.4	71.7	104	1902	2	74.4	1995	38	1944	30	69.4	1987	1	208	.1	10.3	31.0	.0	.0	.0
Sep	81.7	49.5	65.6	99	1924	3	69.5	1998	23	1912	22	60.5	1986	60	78	.0	2.0	30.0	.0	.1	.0
Oct	71.3	37.6	54.5	92+	1934	8	58.5	1988	13	1945	23	49.3	1984	334	6	.0	.0	30.3	.0	7.3	.0
Nov	58.4	26.2	42.3	82+	1934	10	46.8	1999	-21	1931	23	36.1	2000	681	0	.0	.0	24.4	.1	24.4	.1
Dec	48.9	19.1	34.0	78	1911	1	41.2	1977	-25	1990	23	26.3	1990	961	0	.0	.0	16.2	1.9	29.2	.8
Ann	69.8	37.2	53.5	104+	Jul 1923	3	76.7	Jul 1996	-29	Jan 1971	7	26.3	Dec 1990	4942	767	1.1	42.6	316.9	4.3	151.0	1.8

\+ 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: 1901-2001

(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	.75	.53	1.64	1993	31	3.28	1993	.00+	1999
Feb	.56	.41	1.42	1921	6	1.72	1980	.00+	1999
Mar	.76	.65	1.56	1984	27	2.55	1978	.00+	1999
Apr	.45	.29	.83	1988	17	2.23	1988	.00+	1996
May	.46	.23	1.75	1914	31	2.61	1992	.00+	2000
Jun	.49	.22	1.85	1972	7	3.78	1972	.00+	1999
Jul	1.72	1.74	2.82	1953	16	4.03	1999	.00	1993
Aug	2.33	2.06	2.50	2001	10	8.06	1984	.15	1996
Sep	1.42	1.31	2.25	1913	5	4.83	1996	.00+	1998
Oct	1.17	.92	1.75	1957	12	3.93	1974	.00+	1999
Nov	.66	.55	1.02	1986	2	2.00	1986	.00+	1999
Dec	.70	.64	1.15	1997	2	2.15	1992	.00+	1993
Ann	11.47	11.29	2.82	Jul 1953	16	8.06	Aug 1984	.00+	May 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.6	2.2	.4	.1
Feb	3.6	1.8	.3	.0
Mar	4.0	2.3	.2	.1
Apr	2.5	1.4	.2	.0
May	2.6	1.3	.2	@
Jun	2.7	1.3	.2	@
Jul	7.7	5.0	.9	.1
Aug	8.8	5.5	1.4	.4
Sep	5.4	3.4	.8	.1
Oct	4.1	2.9	.9	.1
Nov	2.8	2.0	.4	.1
Dec	3.3	2.0	.3	@
Ann	51.1	31.1	6.2	1.0

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	.00	.04	.15	.26	.38	.53	.70	.92	1.23	1.74	2.25
Feb	.00	.00	.13	.22	.32	.43	.55	.70	.91	1.24	1.57
Mar	.00	.00	.18	.36	.51	.65	.81	.99	1.23	1.59	1.96
Apr	.00	.00	.04	.10	.18	.27	.39	.54	.76	1.12	1.49
May	.00	.00	.00	.07	.15	.26	.39	.56	.80	1.21	1.63
Jun	.00	.00	.00	.03	.13	.26	.41	.60	.87	1.35	1.82
Jul	.16	.35	.64	.89	1.15	1.42	1.74	2.13	2.64	3.47	4.27
Aug	.47	.68	1.02	1.34	1.65	1.99	2.38	2.84	3.45	4.44	5.37
Sep	.00	.11	.33	.56	.79	1.06	1.37	1.76	2.29	3.19	4.06
Oct	.00	.00	.22	.44	.66	.89	1.16	1.48	1.93	2.63	3.33
Nov	.00	.00	.23	.35	.46	.57	.70	.85	1.03	1.34	1.63
Dec	.00	.06	.18	.29	.41	.54	.69	.87	1.12	1.53	1.93
Ann	6.79	7.63	8.75	9.61	10.40	11.17	11.98	12.89	14.01	15.67	17.13

\+ 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: 1901-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	4.1	3.5	#	#
Feb	1.9	.0	#	0
Mar	2.6	.0	#	0
Apr	1.1	.0	#	0
May	#	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.3	.0	#	0
Nov	1.6	1.0	#	0
Dec	3.4	2.0	#	0
Ann	15.0	6.5	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	7.5	1974	2	13.0	1974	7	1974	3	2	1971
Feb	6.0	1975	21	13.0	1975	8	1989	5	1	1987
Mar	8.0	1980	28	14.5	1976	5	1984	27	#+	1998
Apr	8.0	1973	20	8.0	1973	3	1988	17	#+	1999
May	#	1998	14	#+	1998	8	1978	6	#+	1998
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	5.0	1991	30	5.0	1991	1	1986	12	#+	2000
Nov	11.5	1976	27	12.0	1976	12	1976	27	1	1976
Dec	8.0	1992	5	18.0	1992	5	1988	26	1	1971
Ann	11.5	Nov 1976	27	18.0	Dec 1992	12	Nov 1976	27	2	Jan 1971

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.1	1.0	.4	.2	.0
Feb	.8	.5	.2	.1	.0
Mar	1.0	.9	.3	.2	.0
Apr	.4	.3	.1	@	.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	.1	.1	.1	@	.0
Nov	.6	.5	.1	.1	@
Dec	1.1	1.0	.4	.1	.0
Ann	5.1	4.3	1.6	.7	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.2	1.0	.7	.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	.3	.2	.2	.1
Dec	.8	.3	.0	.0
Ann	2.3	1.5	.9	.1

+ 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	6/06	5/31	5/27	5/23	5/20	5/16	5/13	5/08	5/03
32	5/20	5/16	5/13	5/10	5/08	5/05	5/03	4/30	4/25
28	5/08	5/03	4/28	4/25	4/22	4/18	4/15	4/11	4/05
24	4/25	4/19	4/15	4/11	4/07	4/04	3/31	3/26	3/20
20	4/15	4/07	4/01	3/28	3/23	3/19	3/14	3/08	2/28
16	3/28	3/19	3/13	3/07	3/02	2/25	2/20	2/13	2/04

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	9/22	9/26	9/30	10/02	10/05	10/08	10/10	10/14	10/18
32	9/30	10/05	10/09	10/12	10/15	10/17	10/20	10/24	10/29
28	10/08	10/13	10/17	10/20	10/23	10/26	10/29	11/02	11/07
24	10/15	10/21	10/24	10/27	10/30	11/02	11/05	11/09	11/14
20	10/23	10/28	11/01	11/04	11/07	11/09	11/12	11/16	11/21
16	11/05	11/10	11/14	11/17	11/20	11/23	11/27	11/30	12/06

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	160	152	147	142	137	133	128	122	115
32	178	171	167	163	159	155	151	147	140
28	207	199	193	188	184	179	174	168	160
24	233	223	217	211	206	200	194	188	178
20	250	242	237	232	228	223	219	213	206
16	294	283	275	268	262	256	249	241	231

***** 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	958	727	615	400	180	25	0	1	60	334	681	961	4942
60	803	587	462	263	88	5	0	0	16	201	531	806	3762
57	710	503	373	191	51	1	0	0	6	136	441	713	3125
55	648	447	316	149	33	0	0	0	2	100	382	651	2728
50	493	310	190	70	8	0	0	0	0	37	242	496	1846
32	65	11	3	0	0	0	0	0	0	0	6	79	164

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	130	208	411	593	883	1127	1295	1229	1008	695	315	141	8035
55	0	0	11	52	203	437	582	516	320	82	1	0	2204
57	0	0	6	33	159	378	520	454	263	56	0	0	1869
60	0	0	2	15	103	291	427	361	184	29	0	0	1412
65	0	0	0	2	40	161	272	208	78	6	0	0	767
70	0	0	0	0	10	67	126	75	19	1	0	0	298

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	23	72	196	370	644	893	1053	991	776	461	135	24	23	95	291	661	1305	2198	3251	4242	5018	5479	5614	5638
45	1	19	92	236	490	743	898	836	626	315	55	0	1	20	112	348	838	1581	2479	3315	3941	4256	4311	4311
50	0	2	31	126	336	593	743	681	476	189	11	0	0	2	33	159	495	1088	1831	2512	2988	3177	3188	3188
55	0	0	3	44	194	443	588	526	326	80	0	0	0	0	3	47	241	684	1272	1798	2124	2204	2204	2204
60	0	0	0	10	86	296	433	371	187	21	0	0	0	0	0	10	96	392	825	1196	1383	1404	1404	1404
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	53	109	194	304	444	566	678	643	506	341	153	53	53	162	356	660	1104	1670	2348	2991	3497	3838	3991	4044

(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