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: ALPINE, AZ **COOP ID: 020159**

Climate Division: AZ 2 **NWS Call Sign:** **Elevation: 8,050 Feet** **Lat: 33˚51N** **Lon: 109˚09W**

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	44.8	13.4	29.1	72	1967	31	35.6	1986	-32	1979	30	24.0	1979	1113	0	.0	.0	9.9	2.5	30.7	3.1
Feb	47.6	16.7	32.2	72	1967	10	38.6	1996	-28	1948	12	26.6	1973	919	0	.0	.0	11.6	1.5	27.6	1.2
Mar	52.3	20.8	36.6	74	1928	26	41.5	1972	-25	1948	4	28.8	1973	881	0	.0	.0	19.7	.4	29.8	.1
Apr	59.7	24.4	42.1	79+	2000	27	46.8	1989	-6	1949	2	35.7	1983	689	0	.0	.0	26.3	.1	26.6	.0
May	67.6	29.7	48.7	92	1983	26	54.6	2000	8+	1950	9	44.5	1977	507	0	.0	@	30.6	.0	20.7	.0
Jun	77.5	36.5	57.0	94	1973	27	60.5	1990	13	1971	2	52.9	1991	244	4	.0	.2	30.0	.0	8.7	.0
Jul	78.4	44.7	61.6	94	1979	11	64.3	1971	27	1997	1	59.6	1992	114	7	.0	.3	31.0	.0	.4	.0
Aug	75.3	43.9	59.6	88+	1958	18	62.9	1995	29+	1976	5	57.0	1976	172	5	.0	.0	31.0	.0	.4	.0
Sep	71.2	37.4	54.3	87+	1950	1	57.2	1997	17+	1955	30	51.7	1973	320	0	.0	.0	30.0	.0	6.4	.0
Oct	62.6	27.9	45.3	86	1928	7	48.3	1988	-1	1929	29	40.9	1984	613	0	.0	.0	29.0	.1	24.1	.0
Nov	52.6	19.7	36.2	77+	1944	3	41.6	1999	-18	1952	26	31.4	2000	866	0	.0	.0	19.2	1.0	28.4	.4
Dec	46.2	14.2	30.2	72	1958	5	35.5	1980	-28	1949	12	23.7	1997	1079	0	.0	.0	11.4	1.9	30.4	2.4
Ann	61.3	27.4	44.4	94+	Jul 1979	11	64.3	Jul 1971	-32	Jan 1979	30	23.7	Dec 1997	7517	16	.0	.5	279.7	7.5	234.2	7.2

\+ 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: 1904-2001

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

Issue Date: February 2004

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Climate Division: AZ 2 **NWS Call Sign:** **Elevation: 8,050 Feet** **Lat: 33°51N** **Lon: 109°09W**

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	1.35	.88	2.40	1930	19	5.13	1993	.00	1972
Feb	1.29	1.12	2.10	1917	19	4.22	1980	.00+	1984
Mar	1.30	1.10	1.81	1930	18	3.59	1991	.00	1972
Apr	.63	.49	1.70	1939	5	2.94	1988	.00+	2000
May	.75	.51	1.02	1992	6	5.72	1992	.00+	2000
Jun	.86	.58	2.00	1937	29	3.73	1972	.00+	1989
Jul	3.43	2.93	2.50	1999	29	9.54	1999	.60	1993
Aug	4.47	4.39	2.77	1999	3	8.30	1999	1.32	1989
Sep	2.41	1.77	2.77	1994	3	6.81	1983	.16	1973
Oct	2.38	1.81	2.83	1962	21	10.08	1972	.00+	1982
Nov	1.44	.93	2.02	1994	12	7.69	1978	.00	1999
Dec	1.35	.83	1.95	1967	20	5.42	1984	.00	1996
Ann	21.66	21.29	2.83	Oct 1962	21	10.08	Oct 1972	.00+	May 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.2	3.1	.7	.2
Feb	6.2	3.4	.7	.2
Mar	6.7	3.5	.6	@
Apr	4.7	2.1	.1	@
May	4.9	2.4	.2	@
Jun	5.3	2.6	.3	@
Jul	16.5	9.8	1.6	.4
Aug	17.4	10.2	2.3	.6
Sep	9.7	5.5	1.3	.3
Oct	6.8	4.3	1.6	.7
Nov	4.5	2.8	.8	.3
Dec	5.1	3.1	.8	.2
Ann	94.0	52.8	11.0	2.9

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	.04	.14	.33	.52	.74	.99	1.28	1.65	2.17	3.03	3.88
Feb	.00	.06	.24	.43	.64	.89	1.20	1.58	2.12	3.04	3.96
Mar	.06	.18	.38	.57	.77	1.00	1.27	1.60	2.05	2.79	3.52
Apr	.00	.01	.07	.15	.25	.38	.54	.75	1.05	1.59	2.13
May	.00	.00	.06	.18	.31	.47	.66	.91	1.27	1.88	2.50
Jun	.00	.00	.18	.33	.48	.64	.84	1.08	1.41	1.95	2.48
Jul	1.30	1.62	2.08	2.46	2.82	3.19	3.59	4.05	4.64	5.55	6.38
Aug	2.21	2.59	3.10	3.52	3.90	4.28	4.68	5.14	5.72	6.59	7.36
Sep	.48	.70	1.05	1.37	1.70	2.05	2.45	2.93	3.56	4.58	5.54
Oct	.00	.09	.38	.72	1.11	1.58	2.15	2.88	3.92	5.70	7.49
Nov	.06	.17	.38	.59	.82	1.07	1.38	1.76	2.29	3.17	4.03
Dec	.01	.05	.16	.32	.53	.79	1.12	1.57	2.24	3.41	4.61
Ann	15.26	16.49	18.07	19.27	20.34	21.37	22.44	23.62	25.06	27.14	28.94

\+ 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: 1904-2001
(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	7.4	2.2	3	1
Feb	6.8	1.0	2	#
Mar	5.8	1.5	1	#
Apr	1.4	.0	#	0
May	.2	.0	#	0
Jun	#	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	#	.0	0	0
Oct	1.4	.0	#	0
Nov	4.0	3.0	#	0
Dec	5.8	3.6	1	#
Ann	32.8	11.3	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	18.0	1995	5	30.6	1997	24	1997	14	18	1978
Feb	14.0	1997	28	32.3	1997	17	1994	8	10	1988
Mar	8.0	1989	3	44.0	1991	11	1993	1	6	1993
Apr	7.0	1999	1	7.0	1999	6	1976	16	#+	1999
May	6.5	1990	2	6.5	1990	7	1990	2	#	1990
Jun	#	1993	7	#	1993	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	#	1986	24	#	1986	0	0	0	0	0
Oct	9.0	1996	26	18.2	1996	15	1996	27	1	1996
Nov	8.0	1998	29	13.0	1991	9	1996	30	1+	2000
Dec	18.0	1997	22	22.0	1971	22	1990	23	7	1997
Ann	18.0+	Dec 1997	22	44.0	Mar 1991	24	Jan 1997	14	18	Jan 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.2	1.5	.7	.4	.2
Feb	2.3	1.8	.8	.5	.1
Mar	2.1	1.5	1.0	.4	.0
Apr	1.0	.6	.1	.1	.0
May	.1	@	@	@	.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	.6	.4	.2	@	.0
Nov	1.4	1.0	.7	.2	.0
Dec	1.9	1.5	.9	.4	@
Ann	11.6	8.3	4.4	2.0	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	3.8	2.8	2.2	.1
Mar	2.6	1.4	.6	.0
Apr	.4	.1	.1	.0
May	.1	.1	.1	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.5	.2	.2	.1
Nov	.8	.6	.2	.0
Dec	1.7	.7	.3	.0
Ann	-9.9	-9.9	-9.9	-9.9

+ 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	7/18	7/13	7/09	7/06	7/04	7/01	6/28	6/24	6/19
32	7/07	7/02	6/29	6/26	6/23	6/20	6/17	6/13	6/09
28	7/04	6/28	6/23	6/20	6/16	6/13	6/09	6/05	5/30
24	6/17	6/10	6/05	6/01	5/28	5/24	5/20	5/15	5/09
20	6/04	5/28	5/23	5/19	5/15	5/11	5/07	5/02	4/25
16	5/16	5/07	5/01	4/26	4/21	4/16	4/11	4/05	3/27

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	8/11	8/18	8/23	8/27	8/30	9/03	9/07	9/12	9/18
32	8/27	9/02	9/06	9/10	9/13	9/17	9/20	9/25	10/01
28	9/17	9/21	9/23	9/25	9/27	9/29	10/01	10/04	10/07
24	9/22	9/26	9/30	10/03	10/06	10/08	10/11	10/15	10/19
20	10/03	10/08	10/12	10/15	10/19	10/22	10/25	10/29	11/03
16	10/10	10/16	10/20	10/23	10/26	10/29	11/02	11/06	11/11

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	82	73	67	62	57	52	47	41	32
32	106	98	92	86	82	77	72	66	58
28	122	115	110	106	102	98	94	89	82
24	154	145	139	134	130	125	120	114	105
20	184	175	168	162	156	150	144	137	127
16	218	207	200	193	187	181	175	168	157

***** 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	1113	919	881	689	507	244	114	172	320	613	866	1079	7517
60	958	779	726	539	354	121	22	59	179	458	716	924	5835
57	865	695	633	449	267	69	4	22	109	365	626	831	4935
55	803	639	571	389	213	44	1	9	71	304	566	769	4379
50	648	499	419	249	103	9	0	0	16	163	416	614	3136
32	146	91	42	5	0	0	0	0	0	0	34	121	439

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	55	96	184	307	516	750	916	856	670	411	158	65	4984
55	0	0	0	0	16	104	204	152	51	1	0	0	528
57	0	0	0	0	8	69	145	102	29	0	0	0	353
60	0	0	0	0	2	32	70	47	9	0	0	0	160
65	0	0	0	0	0	4	7	5	0	0	0	0	16
70	0	0	0	0	0	0	0	0	0	0	0	0	0

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	1	6	35	108	268	508	663	608	431	183	33	0	1	7	42	150	418	926	1589	2197	2628	2811	2844	2844
45	0	0	4	34	134	360	508	453	282	74	1	0	0	0	4	38	172	532	1040	1493	1775	1849	1850	1850
50	0	0	2	3	45	214	353	298	143	16	0	0	0	0	2	5	50	264	617	915	1058	1074	1074	1074
55	0	0	0	0	10	95	199	145	40	0	0	0	0	0	0	0	10	105	304	449	489	489	489	489
60	0	0	0	0	0	23	68	31	1	0	0	0	0	0	0	0	0	23	91	122	123	123	123	123
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	27	36	74	153	273	410	436	395	312	204	83	36	27	63	137	290	563	973	1409	1804	2116	2320	2403	2439

(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