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: CASCABEL, AZ **COOP ID: 021330**

Climate Division: AZ 7 **NWS Call Sign:** **Elevation: 3,145 Feet** **Lat: 32˚19N** **Lon: 110˚25W**

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	64.7	30.6	47.7	87	1971	20	51.8	1986	6	1971	7	44.1	1973	538	0	.0	.0	30.0	.0	19.6	.0
Feb	68.6	32.8	50.7	88	1989	24	55.2	1996	9	1999	11	46.6	1998	400	0	.0	.0	27.7	.2	13.8	.0
Mar	73.6	35.7	54.7	96+	1989	10	61.6	1972	13	1971	3	49.5	1973	326	5	.0	.6	30.9	.0	9.6	.0
Apr	82.0	39.7	60.9	103+	1989	21	66.8	1989	20	1983	5	54.9	1983	168	44	.2	4.8	30.0	.0	4.3	.0
May	90.5	46.7	68.6	109	1996	12	73.1	2000	25	1988	2	65.1	1975	37	148	2.4	17.1	31.0	.0	.4	.0
Jun	100.0	55.6	77.8	116+	1990	26	82.1	1994	38+	1999	5	74.2	1983	1	384	15.8	28.3	30.0	.0	.0	.0
Jul	99.7	65.2	82.5	115	1995	28	85.8	1971	48	1992	2	79.6	1999	0	541	15.8	28.9	31.0	.0	.0	.0
Aug	96.9	64.6	80.8	109+	1995	10	84.0	1994	52+	1999	11	77.3	1990	0	489	8.5	28.1	31.0	.0	.0	.0
Sep	93.7	58.0	75.9	108	1983	3	79.1	1997	41	1999	29	72.3	1986	0	326	3.3	23.5	30.0	.0	.0	.0
Oct	84.2	46.9	65.6	101+	1980	2	69.7	1988	20	1971	30	62.1	1984	71	87	.2	7.9	31.0	.0	1.3	.0
Nov	72.8	35.1	54.0	90+	1999	11	59.0	1999	12	1992	26	48.3	2000	335	4	.0	.1	29.9	.0	10.2	.0
Dec	64.9	30.3	47.6	84	1980	27	52.8	1980	6	1978	8	44.1	1974	540	0	.0	.0	29.9	.0	20.1	.0
Ann	82.6	45.1	63.9	116+	Jun 1990	26	85.8	Jul 1971	6+	Dec 1978	8	44.1+	Dec 1974	2416	2028	46.2	139.3	362.4	.2	79.3	.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

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1969-2001

(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	1.27	.95	1.88	1993	8	6.63	1993	.01	1986
Feb	1.23	1.34	1.86	1980	14	4.56	1998	.00+	1999
Mar	.91	.65	1.20	1970	2	2.99	1983	.00+	1984
Apr	.31	.18	.78	1999	2	1.41	1987	.00+	2000
May	.35	.14	1.05	1973	31	1.78	1992	.00+	2000
Jun	.42	.29	1.28	1980	30	2.46	1972	.00+	1995
Jul	2.35	1.76	4.12	1999	15	9.02	1999	.69	1997
Aug	2.79	2.61	5.03	1992	24	8.56	1992	.39	1975
Sep	1.42	1.29	1.70	1983	29	5.55	1983	.02	1973
Oct	1.33	.81	1.83	1978	21	5.09	2000	.00+	1999
Nov	.74	.62	1.39	1994	12	2.34	1994	.00+	1999
Dec	1.21	.65	1.63	1994	5	4.37	1994	.00+	2000
Ann	14.33	14.55	5.03	Aug 1992	24	9.02	Jul 1999	.00+	Dec 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.7	3.3	.7	.1
Feb	5.2	2.9	.8	.1
Mar	4.8	2.7	.5	.0
Apr	2.2	.9	.1	.0
May	2.1	1.1	.1	@
Jun	2.5	1.1	.2	.1
Jul	10.5	5.8	1.2	.3
Aug	10.2	6.0	1.5	.7
Sep	6.1	3.2	.9	.3
Oct	4.8	2.7	.8	.2
Nov	3.4	2.0	.3	.1
Dec	4.9	2.9	.8	.2
Ann	62.4	34.6	7.9	2.1

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	.09	.22	.38	.58	.81	1.11	1.50	2.06	3.05	4.04
Feb	.00	.00	.19	.47	.72	.97	1.26	1.60	2.06	2.77	3.51
Mar	.00	.07	.22	.36	.51	.68	.88	1.13	1.47	2.04	2.59
Apr	.00	.00	.01	.04	.09	.15	.24	.35	.53	.84	1.16
May	.00	.00	.00	.00	.00	.13	.31	.49	.70	1.02	1.31
Jun	.00	.00	.00	.05	.12	.22	.34	.50	.73	1.14	1.55
Jul	.48	.70	1.04	1.36	1.67	2.01	2.40	2.86	3.47	4.44	5.37
Aug	.56	.82	1.23	1.60	1.98	2.39	2.84	3.40	4.13	5.30	6.41
Sep	.11	.20	.39	.59	.80	1.05	1.35	1.73	2.25	3.12	3.99
Oct	.00	.00	.18	.38	.61	.88	1.21	1.63	2.22	3.23	4.24
Nov	.00	.08	.22	.33	.45	.58	.74	.92	1.17	1.57	1.97
Dec	.00	.00	.03	.18	.38	.64	.98	1.42	2.07	3.20	4.37
Ann	8.91	9.91	11.21	12.22	13.13	14.02	14.95	15.99	17.26	19.14	20.79

\+ 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: 1969-2001
(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	.9	.0	#	0	6.5	1997	6	11.0	1997	2	1997	6	#+	1997	.4	.3	.1	@	.0	.1	.0	.0	.0
Feb	.7	.0	#	0	4.0	1985	3	7.5	1985	#+	1990	19	#+	1990	.3	.3	.1	.0	.0	.0	.0	.0	.0
Mar	.2	.0	0	0	3.2	1976	4	3.2	1976	0	0	0	0	0	.2	.1	@	.0	.0	.0	.0	.0	.0
Apr	#	.0	0	0	#	1999	4	#+	1999	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	#	1972	31	#	1972	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	#	.0	#	0	#	2000	7	#+	2000	#	2000	7	#	2000	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.4	.0	#	0	6.3	1987	25	6.3	1987	4	1987	25	#+	1990	.2	.1	.1	@	.0	.1	@	.0	.0
Ann	2.2	.0	N/A	N/A	6.5	Jan 1997	6	11.0	Jan 1997	4	Dec 1987	25	#+	Nov 2000	1.1	.8	.3	@	.0	.2	@	.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	5/24	5/18	5/13	5/09	5/06	5/02	4/29	4/24	4/18
32	5/11	5/05	4/30	4/27	4/23	4/20	4/16	4/11	4/05
28	4/30	4/21	4/15	4/09	4/04	3/30	3/24	3/17	3/08
24	4/06	3/26	3/18	3/11	3/05	2/27	2/20	2/12	2/01
20	3/25	3/09	2/26	2/17	2/08	1/30	1/21	1/10	12/26
16	2/20	2/06	1/27	1/17	1/07	12/26	12/04	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	10/10	10/15	10/18	10/21	10/24	10/27	10/30	11/02	11/07
32	10/15	10/21	10/25	10/28	10/31	11/03	11/06	11/10	11/16
28	10/25	10/30	11/02	11/06	11/09	11/12	11/15	11/18	11/24
24	11/07	11/12	11/15	11/18	11/21	11/23	11/26	11/30	12/04
20	11/14	11/21	11/25	11/29	12/03	12/06	12/10	12/15	12/21
16	11/29	12/12	12/23	1/01	1/12	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	188	182	178	174	170	167	163	159	152
32	215	206	200	195	190	185	180	174	166
28	250	239	231	224	218	212	205	197	186
24	295	283	274	267	260	253	245	237	224
20	343	325	313	304	295	286	277	266	251
16	>365	>365	>365	>365	>365	352	338	327	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	538	400	326	168	37	1	0	0	0	71	335	540	2416
60	383	264	191	83	8	0	0	0	0	22	203	385	1539
57	291	187	127	47	3	0	0	0	0	9	137	293	1094
55	231	142	92	30	1	0	0	0	0	4	100	234	834
50	101	58	30	8	0	0	0	0	0	0	36	108	341
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	485	524	702	866	1133	1374	1564	1512	1316	1040	659	483	11658
55	3	21	81	206	421	684	851	799	626	331	68	5	4096
57	1	11	54	163	361	624	789	737	566	273	45	2	3626
60	0	3	26	109	273	534	696	644	476	194	21	0	2976
65	0	0	5	44	148	384	541	489	326	87	4	0	2028
70	0	0	0	12	59	242	386	334	184	26	0	0	1243

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	257	328	462	633	888	1137	1318	1264	1078	792	427	254	257	585	1047	1680	2568	3705	5023	6287	7365	8157	8584	8838
45	126	195	314	484	733	987	1163	1109	928	637	285	128	126	321	635	1119	1852	2839	4002	5111	6039	6676	6961	7089
50	41	90	180	336	578	837	1008	954	778	485	163	43	41	131	311	647	1225	2062	3070	4024	4802	5287	5450	5493
55	3	25	79	204	425	687	853	799	628	336	68	1	3	28	107	311	736	1423	2276	3075	3703	4039	4107	4108
60	0	0	21	97	273	537	698	644	478	202	16	0	0	0	21	118	391	928	1626	2270	2748	2950	2966	2966
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	236	285	371	470	560	641	803	789	668	515	347	239	236	521	892	1362	1922	2563	3366	4155	4823	5338	5685	5924

(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