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: NOGALES 6 N, AZ **COOP ID: 025924**

Climate Division: AZ 7 **NWS Call Sign:** **Elevation: 3,560 Feet** **Lat: 31˚27N** **Lon: 110˚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	63.9	27.1	45.5	85+	2000	17	50.6	1986	8	1971	7	41.3	1973	604	0	.0	.0	29.3	.0	24.2	.0
Feb	67.1	29.8	48.5	88	1957	14	54.1	1996	9	1964	15	43.6	1975	462	0	.0	.0	27.5	.2	19.0	.0
Mar	71.3	34.0	52.7	95	1969	31	59.2	1972	13	1974	10	46.0	1977	388	5	.0	.2	30.6	.0	13.6	.0
Apr	78.3	38.4	58.4	99	1989	20	65.1	1974	7	1975	7	51.8	1975	225	24	.0	1.7	29.9	.0	6.2	.0
May	86.2	45.2	65.7	107	2001	31	71.2	2000	25	1975	8	60.3	1980	84	105	.7	9.9	31.0	.0	.9	.0
Jun	95.7	54.3	75.0	112	1990	26	81.5	1974	34	1967	7	68.8	1983	9	308	9.4	25.7	30.0	.0	.0	.0
Jul	94.2	63.5	78.9	109	1995	28	82.6	1989	44	1973	23	76.1	1984	0	429	6.7	24.7	31.0	.0	.0	.0
Aug	92.2	62.9	77.6	107	1985	24	80.6	1995	40	1954	27	73.7	1979	0	390	2.0	22.6	31.0	.0	.0	.0
Sep	90.2	55.7	73.0	103	1979	4	76.7	1997	30	1965	30	69.4	1976	5	244	.6	18.7	30.0	.0	.0	.0
Oct	82.1	43.5	62.8	101	1974	1	66.6	1988	19	1971	30	58.5	1976	115	46	@	6.3	31.0	.0	2.2	.0
Nov	71.6	32.6	52.1	93	1966	21	56.5	1999	8	1958	17	47.4	2000	388	1	.0	@	29.9	.0	15.5	.0
Dec	64.5	27.7	46.1	84	1983	28	50.1+	1980	-4	1978	8	42.7	1997	586	0	.0	.0	29.2	.0	24.4	@
Ann	79.8	42.9	61.4	112	Jun 1990	26	82.6	Jul 1989	-4	Dec 1978	8	41.3	Jan 1973	2866	1552	19.4	109.8	360.4	.2	106.0	@

\+ 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: 1952-2001

(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	1.31	1.09	1.45	1993	19	5.94	1993	.00+	2000
Feb	1.09	1.04	1.50	1978	11	3.07	1973	.00+	1999
Mar	1.00	.74	1.75	1983	4	3.32	1983	.00+	1984
Apr	.49	.28	1.47	2001	6	2.83	1988	.00+	2000
May	.32	.08	.83	1993	27	1.99	1979	.00+	2000
Jun	.54	.21	1.50	1994	21	5.66	2000	.00+	1998
Jul	4.27	3.86	2.81	1967	27	10.22	1984	.38	1980
Aug	4.24	3.76	3.67	1993	25	12.73	1993	.68	1973
Sep	1.68	1.41	2.15	1966	13	6.85	1983	.00	1973
Oct	1.84	.70	3.75	1977	9	8.80	2000	.00+	1999
Nov	.78	.56	2.75	1994	12	3.85	1994	.00+	1999
Dec	1.47	.64	2.55	1994	6	5.88	1984	.00+	1999
Ann	19.03	18.80	3.75	Oct 1977	9	12.73	Aug 1993	.00+	May 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.2	3.4	.9	.1
Feb	4.5	2.7	.8	.2
Mar	4.2	2.4	.5	.1
Apr	1.7	1.2	.3	.1
May	1.7	1.0	.2	.0
Jun	2.4	1.2	.3	.1
Jul	12.8	8.5	3.1	1.1
Aug	12.5	8.6	2.5	.9
Sep	6.3	3.7	1.1	.4
Oct	4.7	2.5	1.1	.6
Nov	3.2	2.2	.3	.1
Dec	4.8	3.3	1.0	.2
Ann	64.0	40.7	12.1	3.9

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	.00	.00	.15	.36	.60	.88	1.20	1.62	2.21	3.17	4.15
Feb	.00	.00	.14	.38	.59	.82	1.09	1.41	1.84	2.52	3.22
Mar	.00	.00	.13	.28	.45	.65	.90	1.22	1.68	2.45	3.23
Apr	.00	.00	.00	.00	.05	.17	.33	.55	.88	1.44	2.02
May	.00	.00	.00	.00	.00	.08	.19	.35	.58	.98	1.40
Jun	.00	.00	.00	.03	.10	.20	.35	.57	.91	1.54	2.20
Jul	.71	1.08	1.71	2.29	2.90	3.55	4.30	5.21	6.43	8.40	10.28
Aug	1.04	1.44	2.06	2.61	3.15	3.72	4.36	5.12	6.12	7.70	9.18
Sep	.07	.21	.45	.70	.96	1.27	1.62	2.07	2.68	3.70	4.69
Oct	.00	.00	.05	.21	.46	.82	1.32	2.03	3.11	5.06	7.12
Nov	.00	.06	.18	.30	.43	.57	.75	.96	1.25	1.74	2.23
Dec	.00	.00	.06	.23	.46	.76	1.15	1.69	2.49	3.90	5.36
Ann	11.34	12.73	14.56	15.99	17.28	18.55	19.88	21.37	23.21	25.92	28.31

\+ 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: 1952-2001
(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	.0	.0	0	0	.6	1997	6	.6	1997	0	0	0	0	0	@	.0	.0	.0	.0	.0	.0	.0	.0
Feb	#	.0	0	0	#	1975	17	#	1975	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	#	.0	0	0	#	1987	22	#+	1987	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	#	.0	0	0	#	1977	3	#	1977	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	#	1973	24	#	1973	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.3	.0	#	0	7.0	1987	25	7.0	1987	4	1987	25	#	1987	.1	.1	@	@	.0	@	@	.0	.0
Ann	.3	.0	N/A	N/A	7.0	Dec 1987	25	7.0	Dec 1987	4	Dec 1987	25	#	Dec 1987	.1	.1	@	@	.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	5/27	5/21	5/16	5/13	5/09	5/05	5/01	4/27	4/20
32	5/18	5/11	5/05	5/01	4/27	4/22	4/18	4/13	4/05
28	5/01	4/21	4/15	4/09	4/04	3/29	3/23	3/17	3/07
24	4/09	3/31	3/25	3/19	3/14	3/09	3/03	2/25	2/16
20	3/13	2/28	2/19	2/11	2/04	1/27	1/20	1/11	12/29
16	2/24	2/10	1/30	1/20	1/10	12/29	12/12	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	10/20	10/22	10/25	10/27	10/30	11/04
32	10/15	10/19	10/23	10/26	10/28	10/31	11/03	11/06	11/11
28	10/25	10/30	11/02	11/05	11/08	11/11	11/14	11/17	11/22
24	11/04	11/10	11/14	11/17	11/20	11/23	11/27	12/01	12/06
20	11/10	11/19	11/25	11/30	12/05	12/10	12/16	12/22	12/31
16	12/02	12/13	12/22	12/30	1/07	1/17	2/04	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	185	178	174	170	166	162	158	154	147
32	210	201	195	189	184	179	173	167	158
28	246	236	229	223	218	212	206	200	190
24	282	271	264	257	251	244	238	230	219
20	349	331	320	311	302	293	284	274	259
16	>365	>365	>365	>365	>365	353	334	318	299

***** 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	604	462	388	225	84	9	0	0	5	115	388	586	2866
60	449	323	249	124	29	1	0	0	0	41	245	431	1892
57	356	243	178	78	13	0	0	0	0	18	169	339	1394
55	295	193	139	54	6	0	0	0	0	9	126	278	1100
50	155	91	61	17	1	0	0	0	0	1	47	141	514
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	419	462	639	790	1044	1289	1452	1413	1229	954	602	437	10730
55	1	11	65	154	338	599	739	700	539	250	38	2	3436
57	0	5	43	118	282	539	677	638	479	197	22	0	3000
60	0	1	21	73	205	450	584	545	389	127	7	0	2402
65	0	0	5	24	105	308	429	390	244	46	1	0	1552
70	0	0	0	6	41	183	275	237	120	10	0	0	872

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	207	271	406	563	807	1061	1215	1168	1004	727	378	218	207	478	884	1447	2254	3315	4530	5698	6702	7429	7807	8025
45	93	146	264	416	652	911	1060	1013	854	572	240	106	93	239	503	919	1571	2482	3542	4555	5409	5981	6221	6327
50	26	60	144	276	497	761	905	858	704	421	130	32	26	86	230	506	1003	1764	2669	3527	4231	4652	4782	4814
55	0	10	59	154	345	611	750	703	554	279	44	0	0	10	69	223	568	1179	1929	2632	3186	3465	3509	3509
60	0	0	16	61	204	461	595	548	404	146	8	0	0	0	16	77	281	742	1337	1885	2289	2435	2443	2443
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	228	261	342	433	547	628	774	754	633	501	333	238	228	489	831	1264	1811	2439	3213	3967	4600	5101	5434	5672

(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