

# Climatology of the United States No. 20

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

Station: ORACLE 2 SE, AZ

1971-2000

COOP ID: 026119

Climate Division: AZ 6

NWS Call Sign:

Elevation: 4,510 Feet Lat: 32° 36N

Lon: 110° 44W

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	56.2	35.0	45.6	78+	1971	19	51.5	1986	5	1979	30	40.1	1979	602	0	.0	.0	24.9	.1	11.1	.0
Feb	59.8	36.8	48.3	83	1957	13	55.3	1972	11	1956	3	41.4	1998	466	0	.0	.0	24.9	.1	8.0	.0
Mar	64.5	39.6	52.1	86	1989	10	59.8	1972	18+	1971	2	45.7	1991	410	8	.0	.0	29.7	.0	5.9	.0
Apr	72.3	45.4	58.9	90+	1989	20	66.1	1989	22	1976	16	52.6	1983	224	40	.0	@	29.7	.0	1.9	.0
May	82.0	53.8	67.9	101	1951	26	74.3	2000	30	1950	5	61.7	1980	72	162	.0	3.5	31.0	.0	.1	.0
Jun	91.9	63.8	77.9	107+	1970	25	84.8	1974	38	1955	2	73.7+	1991	3	387	2.5	20.0	30.0	.0	.0	.0
Jul	92.1	66.8	79.5	109	1995	28	83.8	1971	46	1984	21	75.1	1984	0	447	1.9	21.4	31.0	.0	.0	.0
Aug	89.4	65.6	77.5	102	1962	11	81.2	1994	52+	1980	17	73.4	1979	0	386	.5	16.4	31.0	.0	.0	.0
Sep	85.9	61.5	73.7	101+	1952	3	76.9	1973	42+	1978	19	68.5	1985	4	265	.0	7.1	30.0	.0	.0	.0
Oct	76.3	51.1	63.7	94+	1980	2	68.5	1999	25	1971	30	58.6	1984	121	80	.0	.9	31.0	.0	.5	.0
Nov	64.2	40.6	52.4	85+	1984	5	58.8	1999	15	1956	20	45.1	2000	382	4	.0	.0	28.4	.0	4.7	.0
Dec	56.2	34.8	45.5	78+	1954	4	51.6	1980	6	1978	8	40.2	1997	604	0	.0	.0	25.2	.2	11.2	.0
Ann	74.2	49.6	61.9	109	Jul 1995	28	84.8	Jun 1974	5	Jan 1979	30	40.1	Jan 1979	2888	1779	4.9	69.3	346.8	.4	43.4	.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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1950-2001

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

059-A

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## No. 20

### 1971-2000

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Station: ORACLE 2 SE, AZ

COOP ID: 026119

Climate Division: AZ 6

NWS Call Sign:

Elevation: 4,510 Feet Lat: 32°36N

Lon: 110°44W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	2.48	1.92	2.22	1978	15	10.96	1993	.00	1972	6.6	4.4	1.8	.6	.05	.20	.52	.86	1.26	1.72	2.29	3.01	4.02	5.75	7.47
Feb	2.60	2.52	3.03	1994	8	8.47	1998	.00+	1984	6.4	4.5	1.8	.6	.00	.21	.63	1.04	1.47	1.96	2.53	3.23	4.20	5.81	7.39
Mar	2.51	2.15	2.45	1983	19	8.20	1983	.00+	1984	6.3	4.5	2.0	.5	.00	.14	.51	.89	1.31	1.79	2.37	3.09	4.10	5.80	7.48
Apr	.91	.80	1.90	1965	4	2.82	1984	.00+	1993	3.1	2.0	.7	.2	.00	.00	.07	.25	.43	.62	.86	1.15	1.55	2.21	2.89
May	.62	.37	1.74	1981	1	2.59	1992	.00+	2000	2.8	1.7	.2	.1	.00	.00	.00	.09	.20	.34	.51	.74	1.07	1.64	2.21
Jun	.40	.18	.88	1950	22	2.76	2000	.00+	1998	2.2	1.1	.1	.0	.00	.00	.00	.00	.08	.18	.30	.47	.71	1.13	1.55
Jul	3.26	2.72	2.48	1975	17	10.38	1999	.55	1995	9.6	6.3	2.3	.8	.77	1.08	1.55	1.98	2.40	2.85	3.35	3.94	4.73	5.97	7.13
Aug	4.09	4.08	3.18	1979	7	8.02	1993	.43	1975	11.2	7.2	2.6	1.0	1.01	1.39	1.99	2.52	3.04	3.60	4.21	4.95	5.91	7.43	8.85
Sep	1.96	2.13	3.23	1954	23	6.85	1996	.00	1989	6.1	3.9	1.0	.4	.11	.30	.60	.89	1.20	1.53	1.93	2.41	3.07	4.16	5.21
Oct	2.01	1.58	2.56	1983	1	6.75	1972	.00+	1982	5.0	3.6	1.4	.5	.00	.11	.40	.70	1.03	1.42	1.89	2.47	3.29	4.67	6.04
Nov	1.83	1.70	2.55	1983	21	4.17	1978	.00	1999	4.1	2.8	1.4	.5	.08	.23	.50	.77	1.06	1.39	1.77	2.25	2.91	4.00	5.07
Dec	2.25	1.77	2.60	1978	17	7.40	1992	.00+	1981	6.0	4.0	1.6	.6	.00	.05	.27	.56	.91	1.36	1.92	2.66	3.74	5.61	7.52
Ann	24.92	23.94	3.23	Sep 1954	23	10.96	Jan 1993	.00+	May 2000	69.4	46.0	16.9	5.8	15.87	17.55	19.74	21.42	22.94	24.42	25.97	27.69	29.80	32.90	35.61

+ 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: 1950-2001

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

Complete documentation available from:

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**Station: ORACLE 2 SE, AZ**

**COOP ID: 026119**

**Climate Division: AZ 6**

**NWS Call Sign:**

**Elevation: 4,510 Feet**

**Lat: 32° 36N**

**Lon: 110° 44W**

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	3.0	.0	#	0	15.0	1979	29	17.0	1979	#	1974	2	#	1974	.7	.7	.4	.2	@	.0	.0	.0	.0
Feb	2.8	.0	#	0	14.0	1987	25	19.5	1987	#+	1998	25	#+	1998	.8	.8	.4	.2	@	.0	.0	.0	.0
Mar	2.4	.0	#	0	10.0	1991	21	21.0	1991	6	1976	4	#+	2000	.6	.6	.4	.2	@	.1	.1	.1	.0
Apr	1.0	.0	#	0	7.0	1976	16	13.5	1999	#+	1998	15	#+	1998	.3	.3	.2	.1	.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	.6	.0	0	0	4.0	1975	29	4.0+	1991	0	0	0	0	0	.3	.3	.1	.0	.0	.0	.0	.0	.0
Dec	2.6	.0	#	0	12.0	1971	8	23.0	1971	#+	1997	22	#+	1997	.8	.8	.3	.2	.1	.0	.0	.0	.0
Ann	12.4	.0	N/A	N/A	15.0	Jan 1979	29	23.0	Dec 1971	6	Mar 1976	4	#+	Mar 2000	3.5	3.5	1.8	.9	.1	.1	.1	.1	.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

Complete documentation available from:

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**NWS Call Sign:**

**Elevation: 4,510 Feet**

**Lat: 32°36N**

**Lon: 110°44W**

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	5/08	5/02	4/28	4/24	4/21	4/17	4/13	4/09	4/03
32	5/01	4/22	4/15	4/09	4/04	3/29	3/23	3/16	3/07
28	4/13	4/01	3/24	3/17	3/10	3/03	2/24	2/16	2/04
24	3/19	3/04	2/21	2/12	2/03	1/25	1/15	1/04	12/17
20	2/18	2/02	1/20	1/08	12/23	0/00	0/00	0/00	0/00
16	1/26	1/11	0/00	0/00	0/00	0/00	0/00	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	10/15	10/21	10/25	10/29	11/01	11/04	11/08	11/12	11/18
32	10/27	11/01	11/04	11/07	11/09	11/12	11/15	11/18	11/23
28	11/04	11/11	11/17	11/21	11/26	11/30	12/05	12/10	12/18
24	11/22	11/30	12/06	12/11	12/15	12/20	12/26	1/01	1/14
20	12/02	12/15	12/25	1/05	1/21	0/00	0/00	0/00	0/00
16	1/03	2/04	0/00	0/00	0/00	0/00	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	218	210	204	198	194	189	183	177	169
32	250	239	232	225	219	213	207	199	188
28	297	285	275	267	260	252	245	235	222
24	>365	>365	344	325	312	300	289	277	260
20	>365	>365	>365	>365	>365	>365	349	323	304
16	>365	>365	>365	>365	>365	>365	>365	>365	>365

\* 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

Complete documentation available from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

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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	602	466	410	224	72	3	0	0	4	121	382	604	2888
60	447	329	273	130	28	0	0	0	0	53	248	449	1957
57	355	252	203	86	13	0	0	0	0	28	179	360	1476
55	298	203	163	62	8	0	0	0	0	17	139	303	1193
50	165	105	83	23	1	0	0	0	0	4	63	176	620
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	421	458	621	806	1113	1374	1470	1409	1251	983	613	420	10939
55	6	17	71	177	408	684	757	696	561	287	62	10	3736
57	1	9	49	142	351	624	695	634	501	236	41	5	3288
60	0	3	26	95	272	534	602	541	412	168	20	1	2674
65	0	0	8	40	162	387	447	386	265	80	4	0	1779
70	0	0	1	13	81	249	294	236	137	28	0	0	1039

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	205	262	388	572	871	1141	1226	1168	1015	743	385	205	205	467	855	1427	2298	3439	4665	5833	6848	7591	7976	8181
45	94	148	251	426	717	991	1071	1013	865	588	253	102	94	242	493	919	1636	2627	3698	4711	5576	6164	6417	6519
50	30	59	134	289	562	841	916	858	715	436	139	37	30	89	223	512	1074	1915	2831	3689	4404	4840	4979	5016
55	6	16	61	171	407	691	761	703	565	296	59	2	6	22	83	254	661	1352	2113	2816	3381	3677	3736	3738
60	0	0	23	79	261	542	606	548	415	168	14	0	0	0	23	102	363	905	1511	2059	2474	2642	2656	2656
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	117	159	240	362	566	748	819	794	687	469	230	120	117	276	516	878	1444	2192	3011	3805	4492	4961	5191	5311

(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:  
[www.ncdc.noaa.gov/oa/climate/normals/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html)

## 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.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/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 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.

- |   |   |
|---|---|
| <ol style="list-style-type: none"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)