

Climatography of the United States

No. 20

1971-2000

Station: TEMPE A S U, AZ

COOP ID: 028499

Climate Division: AZ 6

NWS Call Sign:

Elevation: 1,170 Feet Lat: 33°25N

Lon: 111°56W

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	68.1	40.1	54.1	87	1971	20	60.7	1986	21+	1971	6	48.1	1979	344	6	.0	.0	30.7	.0	4.8	.0
Feb	72.3	42.9	57.6	92	1963	8	64.0	1991	19	1955	20	52.9	1975	224	16	.0	.2	27.9	@	2.6	.0
Mar	76.9	47.0	62.0	99	1988	26	69.1	1997	24	1971	3	54.1	1973	169	74	.0	2.2	31.0	.0	.7	.0
Apr	84.5	52.2	68.4	105	1989	20	76.0	1989	30	1977	3	59.6	1975	82	182	.6	11.2	30.0	.0	.1	.0
May	92.2	60.3	76.3	112+	1974	28	84.2	1997	35+	1975	6	68.5	1977	22	370	6.6	23.4	31.0	.0	.0	.0
Jun	101.4	68.0	84.7	119	1970	26	89.7	1994	45	1971	3	79.0	1971	0	592	22.7	29.3	30.0	.0	.0	.0
Jul	103.6	76.1	89.9	118+	1995	28	93.4	1996	53	1969	7	86.8	1974	0	772	28.1	31.0	31.0	.0	.0	.0
Aug	102.7	75.2	89.0	119	1972	2	93.6	1994	52	1968	23	84.4	1978	0	742	26.6	30.7	31.0	.0	.0	.0
Sep	98.7	68.8	83.8	113	1970	2	88.6	1997	45+	1965	30	79.6	1976	0	562	16.1	28.4	30.0	.0	.0	.0
Oct	88.8	57.6	73.2	108	1980	1	80.0	1988	26	1971	30	66.6	1971	23	277	3.1	16.0	31.0	.0	.1	.0
Nov	76.5	45.5	61.0	95+	2001	4	68.0	1999	23	1956	20	54.7	1972	179	59	.0	1.0	30.0	.0	1.1	.0
Dec	68.2	39.5	53.9	85+	1996	9	57.5	1980	20	1954	28	49.0	1974	347	3	.0	.0	30.7	.0	5.0	.0
Ann	86.2	56.1	71.2	119+	Aug 1972	2	93.6	Aug 1994	19	Feb 1955	20	48.1	Jan 1979	1390	3655	103.8	173.4	364.3	@	14.4	.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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1953-2001

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

093-A

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: TEMPE A S U, AZ

COOP ID: 028499

Climate Division: AZ 6

NWS Call Sign:

Elevation: 1,170 Feet Lat: 33°25N

Lon: 111°56W

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	1.01	.80	1.20	1993	11	5.22	1993	.00+	2000	4.5	2.4	.6	.1	.00	.00	.09	.23	.39	.60	.86	1.20	1.70	2.57	3.45
Feb	1.04	.72	1.32	1994	8	4.29	1998	.00+	2000	4.6	2.4	.7	.1	.00	.00	.09	.24	.43	.65	.92	1.27	1.77	2.62	3.48
Mar	1.15	1.19	1.55	1983	3	4.23	1992	.00+	1997	4.9	3.2	.7	.2	.00	.00	.23	.45	.67	.90	1.15	1.47	1.90	2.57	3.23
Apr	.25	.10	.92	2001	6	1.55	1988	.00+	2000	1.5	.8	.1	.0	.00	.00	.00	.00	.02	.08	.16	.27	.44	.74	1.04
May	.21	.06	1.21	1957	12	1.31	1976	.00+	2000	1.4	.6	.1	.0	.00	.00	.00	.00	.01	.04	.11	.20	.35	.63	.92
Jun	.07	.01	.72	1967	19	.45	1972	.00+	1998	.8	.3	.0	.0	.00	.00	.00	.00	.00	.01	.02	.06	.11	.22	.33
Jul	.89	.53	1.61	2001	30	2.69	1999	.00+	1995	3.8	2.0	.5	.1	.00	.08	.23	.37	.52	.68	.87	1.10	1.42	1.95	2.46
Aug	1.20	1.14	2.01	1964	3	2.80	1997	.00+	1975	4.5	2.4	.8	.2	.00	.09	.28	.47	.67	.89	1.15	1.48	1.93	2.68	3.42
Sep	.86	.71	3.87	1969	15	2.68	1984	.00+	2000	3.2	1.9	.5	.1	.00	.00	.06	.22	.38	.57	.79	1.08	1.47	2.11	2.78
Oct	.85	.65	1.56	1959	30	4.11	1972	.00+	1999	3.1	1.7	.7	.2	.00	.00	.06	.22	.38	.56	.79	1.06	1.45	2.08	2.74
Nov	.80	.63	1.80	1987	1	3.04	1993	.00+	1999	2.5	1.6	.5	.1	.00	.00	.08	.21	.35	.52	.72	.98	1.34	1.96	2.57
Dec	1.03	.78	1.97	1967	15	4.19	1992	.00+	2000	3.8	2.0	.7	.2	.00	.00	.03	.16	.34	.56	.84	1.22	1.76	2.70	3.68
Ann	9.36	8.71	3.87	Sep 1969	15	5.22	Jan 1993	.00+	Dec 2000	38.6	21.3	5.9	1.3	4.48	5.29	6.39	7.27	8.10	8.92	9.79	10.79	12.04	13.93	15.62

+ 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: 1953-2001

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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: TEMPE A S U, AZ

COOP ID: 028499

Climate Division: AZ 6

NWS Call Sign:

Elevation: 1,170 Feet

Lat: 33°25N

Lon: 111°56W

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	#	.0	0	0	#	1987	16	#	1987	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	#	.0	0	0	#	1985	11	#	1985	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	#	.0	N/A	N/A	#+	Jan 1987	16	#+	Jan 1987	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.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

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

**Climatography
of the United States
No. 20
1971-2000**

Station: TEMPE A S U, AZ

COOP ID: 028499

Climate Division: AZ 6

NWS Call Sign:

Elevation: 1,170 Feet

Lat: 33°25N

Lon: 111°56W

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	4/13	3/28	3/17	3/07	2/26	2/17	2/08	1/28	1/12
32	3/18	3/02	2/19	2/10	2/01	1/22	1/11	12/27	0/00
28	2/19	2/07	1/28	1/18	1/05	0/00	0/00	0/00	0/00
24	1/17	12/21	0/00	0/00	0/00	0/00	0/00	0/00	0/00
20	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	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	11/05	11/12	11/17	11/21	11/26	11/30	12/04	12/09	12/16
32	11/11	11/22	11/30	12/08	12/15	12/23	1/01	1/14	0/00
28	11/25	12/11	12/25	1/09	2/03	0/00	0/00	0/00	0/00
24	12/22	1/05	0/00	0/00	0/00	0/00	0/00	0/00	0/00
20	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	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	332	311	296	283	271	259	246	231	210
32	>365	>365	>365	338	317	301	286	270	249
28	>365	>365	>365	>365	>365	>365	331	310	288
24	>365	>365	>365	>365	>365	>365	>365	>365	>365
20	>365	>365	>365	>365	>365	>365	>365	>365	>365
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

**Climatography
of the United States
No. 20
1971-2000**

Station: TEMPE A S U, AZ

COOP ID: 028499

Climate Division: AZ 6 NWS Call Sign: Elevation: 1,170 Feet Lat: 33° 25N Lon: 111° 56W

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	344	224	169	82	22	0	0	0	0	23	179	347	1390
60	208	123	89	34	7	0	0	0	0	6	94	208	769
57	143	78	52	19	3	0	0	0	0	2	58	139	494
55	108	53	34	13	1	0	0	0	0	1	39	103	352
50	39	15	11	2	0	0	0	0	0	0	12	34	113
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	685	716	928	1091	1371	1582	1795	1765	1552	1277	870	679	14311
55	79	125	250	413	659	892	1082	1052	862	565	219	68	6266
57	52	94	205	360	599	832	1020	990	802	504	178	43	5679
60	25	55	149	285	510	742	927	897	712	415	124	19	4860
65	6	16	74	182	370	592	772	742	562	277	59	3	3655
70	0	3	29	104	248	445	617	587	413	162	21	0	2629

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	431	521	694	872	1151	1376	1580	1540	1327	1029	629	429	431	952	1646	2518	3669	5045	6625	8165	9492	10521	11150	11579
45	283	376	539	722	996	1226	1425	1385	1177	874	479	281	283	659	1198	1920	2916	4142	5567	6952	8129	9003	9482	9763
50	146	240	385	573	841	1076	1270	1230	1027	719	335	151	146	386	771	1344	2185	3261	4531	5761	6788	7507	7842	7993
55	55	123	242	425	686	926	1115	1075	877	564	204	51	55	178	420	845	1531	2457	3572	4647	5524	6088	6292	6343
60	15	46	124	288	532	776	960	920	727	416	98	6	15	61	185	473	1005	1781	2741	3661	4388	4804	4902	4908
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	289	345	448	559	718	818	970	958	826	654	413	290	289	634	1082	1641	2359	3177	4147	5105	5931	6585	6998	7288

(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

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
- 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">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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