

# Climatology of the United States

## No. 20 1971-2000

Station: CAREFREE, AZ

COOP ID: 021282

Climate Division: AZ 6

NWS Call Sign:

Elevation: 2,530 Feet Lat: 33°49N

Lon: 111°54W

### 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	62.0	41.1	51.6	84	1971	19	56.7	1986	15+	1971	7	45.6	1979	417	0	.0	.0	30.2	.0	2.9	.0
Feb	65.5	43.6	54.6	86+	1963	6	60.4	1991	20	1990	15	49.3	1998	299	6	.0	.0	27.7	.0	1.2	.0
Mar	69.7	46.7	58.2	93	1988	26	66.9	1972	24	1971	2	50.3	1973	256	44	.0	.3	30.8	.0	.5	.0
Apr	78.7	52.3	65.5	98+	1989	21	73.2	1989	32	1999	2	58.2	1975	109	123	.0	3.3	30.0	.0	.1	.0
May	87.8	60.3	74.1	108	1984	28	81.1	1997	37	1964	5	67.9	1977	17	298	1.7	16.0	31.0	.0	.0	.0
Jun	97.9	69.8	83.9	117	1970	24	87.9	1974	43	1999	12	79.7	1982	0	565	14.3	27.5	30.0	.0	.0	.0
Jul	101.1	75.6	88.4	118	1995	28	90.4	1989	56	1972	17	85.2	1986	0	725	22.3	30.7	31.0	.0	.0	.0
Aug	99.4	74.6	87.0	112	1969	4	90.9	1995	60+	1985	20	84.1	1990	0	682	19.3	30.3	31.0	.0	.0	.0
Sep	94.0	69.7	81.9	108	1983	2	85.7	1997	44	1965	20	75.3	1985	0	506	5.7	24.9	30.0	.0	.0	.0
Oct	83.2	59.6	71.4	100+	1997	1	76.5	1999	32	1971	30	66.1	1971	31	228	.1	8.0	31.0	.0	@	.0
Nov	70.0	47.7	58.9	92	1999	6	67.4	1999	28+	1994	20	52.5	2000	222	38	.0	@	29.9	.0	.4	.0
Dec	62.3	41.4	51.9	80	1965	5	57.6	1980	20	1990	23	46.9	1974	409	2	.0	.0	29.9	.0	3.2	.0
Ann	81.0	56.9	69.0	118	Jul 1995	28	90.9	Aug 1995	15+	Jan 1971	7	45.6	Jan 1979	1760	3217	63.4	141.0	362.5	.0	8.3	.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/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: 1962-2001

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

# Climatography of the United States

## No. 20 1971-2000

Station: CAREFREE, AZ

COOP ID: 021282

Climate Division: AZ 6

NWS Call Sign:

Elevation: 2,530 Feet Lat: 33° 49N

Lon: 111° 54W

### 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	1.70	1.50	1.80	1993	8	9.37	1993	.00	1972	5.4	3.5	1.2	.5	.01	.08	.25	.47	.73	1.06	1.47	2.02	2.81	4.18	5.58	
Feb	1.56	.98	2.20	1987	25	6.22	1998	.00+	1997	4.5	3.1	1.1	.2	.00	.00	.20	.54	.85	1.18	1.56	2.01	2.62	3.59	4.59	
Mar	2.01	1.74	1.91	2000	6	5.20	1978	.00+	1997	5.8	3.5	1.4	.4	.00	.00	.55	.96	1.32	1.70	2.11	2.60	3.26	4.24	5.21	
Apr	.51	.25	1.20	1965	4	3.36	1988	.00+	1996	2.5	1.5	.2	@	.00	.00	.00	.05	.14	.26	.41	.61	.90	1.39	1.89	
May	.16	.00	.70	1982	4	1.28	1982	.00+	2000	1.2	.8	@	.0	.00	.00	.00	.00	.00	.00	.03	.12	.26	.52	.79	
Jun	.14	.00	1.21	2000	23	1.55	1972	.00+	1998	.7	.3	.1	.1	.00	.00	.00	.00	.00	.00	.00	.01	.11	.42	.75	
Jul	1.16	1.04	1.70	1990	24	3.60	1990	.00	1993	4.0	2.5	.8	.2	.03	.11	.26	.43	.61	.83	1.09	1.41	1.87	2.64	3.40	
Aug	1.50	1.14	2.16	1964	1	4.74	1992	.08	1994	4.8	3.0	.9	.2	.20	.33	.54	.75	.97	1.21	1.49	1.83	2.30	3.06	3.79	
Sep	.90	.61	2.02	1995	28	3.54	1984	.00+	1988	3.8	2.2	.4	.2	.00	.00	.06	.17	.31	.49	.72	1.04	1.51	2.35	3.21	
Oct	1.29	.85	3.60	1972	19	7.90	1972	.00+	1999	3.8	2.4	.7	.3	.00	.00	.19	.39	.61	.87	1.19	1.59	2.15	3.11	4.07	
Nov	1.00	.75	1.55	1995	2	3.66	1978	.00+	1999	3.0	2.1	.7	.2	.00	.06	.21	.36	.53	.72	.95	1.23	1.62	2.29	2.94	
Dec	1.35	.94	2.23	1972	28	4.98	1984	.00+	1999	3.7	2.2	.8	.4	.00	.00	.07	.21	.40	.67	1.03	1.53	2.27	3.62	5.03	
Ann	13.28	13.08	3.60	Oct 1972	19	9.37	Jan 1993	.00+	May 2000	43.2	27.1	8.3	2.7	6.57	7.70	9.23	10.46	11.59	12.73	13.93	15.30	17.01	19.59	21.90	

+ 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: 1962-2001

(3) 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)

# Climatology of the United States

## No. 20 1971-2000

Station: CAREFREE, AZ

COOP ID: 021282

Climate Division: AZ 6

NWS Call Sign:

Elevation: 2,530 Feet

Lat: 33° 49N

Lon: 111° 54W

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	#	1975	2	#+	1975	#	1973	21	#	1973	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	#	.0	0	0	#	1990	14	#	1990	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	.1	.0	#	0	2.3	1973	23	2.3	1973	1	1998	29	#+	1998	.1	.1	.0	.0	.0	.0	.0	.0	.0
Apr	.1	.0	#	0	1.0	1999	2	1.0	1999	#	1999	2	#	1999	.1	.1	.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	#	1974	26	#	1974	#	1974	25	#	1974	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	.2	.0	N/A	N/A	2.3	Mar 1973	23	2.3	Mar 1973	1	Mar 1998	29	#+	Apr 1999	.2	.2	.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](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

# Climatology of the United States

## No. 20 1971-2000

Station: CAREFREE, AZ

COOP ID: 021282

Climate Division: AZ 6

NWS Call Sign:

Elevation: 2,530 Feet

Lat: 33° 49N

Lon: 111° 54W

<b>Freeze Data</b>									
<b>Spring Freeze Dates (Month/Day)</b>									
<b>Temp (F)</b>	<b>Probability of later date in spring (thru Jul 31) than indicated(*)</b>								
	<b>.10</b>	<b>.20</b>	<b>.30</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>	<b>.70</b>	<b>.80</b>	<b>.90</b>
<b>36</b>	4/13	3/29	3/19	3/10	3/02	2/22	2/13	2/03	1/20
<b>32</b>	3/20	3/06	2/24	2/15	2/06	1/29	1/20	1/08	12/22
<b>28</b>	2/12	1/29	1/18	1/08	12/28	12/14	0/00	0/00	0/00
<b>24</b>	1/26	1/07	12/17	0/00	0/00	0/00	0/00	0/00	0/00
<b>20</b>	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
<b>16</b>	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
<b>Fall Freeze Dates (Month/Day)</b>									
<b>Temp (F)</b>	<b>Probability of earlier date in fall (beginning Aug 1) than indicated(*)</b>								
	<b>.10</b>	<b>.20</b>	<b>.30</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>	<b>.70</b>	<b>.80</b>	<b>.90</b>
<b>36</b>	11/01	11/08	11/14	11/19	11/23	11/28	12/02	12/08	12/16
<b>32</b>	11/18	11/26	12/02	12/08	12/13	12/18	12/24	12/31	1/14
<b>28</b>	11/30	12/11	12/20	12/28	1/06	1/18	0/00	0/00	0/00
<b>24</b>	12/24	1/10	2/01	0/00	0/00	0/00	0/00	0/00	0/00
<b>20</b>	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
<b>16</b>	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
<b>Freeze Free Period</b>									
<b>Temp (F)</b>	<b>Probability of longer than indicated freeze free period (Days)</b>								
	<b>.10</b>	<b>.20</b>	<b>.30</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>	<b>.70</b>	<b>.80</b>	<b>.90</b>
<b>36</b>	317	299	286	275	265	255	244	231	213
<b>32</b>	>365	346	328	316	306	297	287	276	261
<b>28</b>	>365	>365	>365	>365	>365	347	334	323	311
<b>24</b>	>365	>365	>365	>365	>365	>365	>365	>365	344
<b>20</b>	>365	>365	>365	>365	>365	>365	>365	>365	>365
<b>16</b>	>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)

# Climatology of the United States

## No. 20 1971-2000

**Station: CAREFREE, AZ**

**COOP ID: 021282**

**Climate Division: AZ 6**

**NWS Call Sign:**

**Elevation: 2,530 Feet**

**Lat: 33° 49N**

**Lon: 111° 54W**

### 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
65	417	299	256	109	17	0	0	0	0	31	222	409	1760
60	270	177	157	50	4	0	0	0	0	9	125	266	1058
57	190	120	110	28	1	0	0	0	0	3	82	189	723
55	144	88	82	18	0	0	0	0	0	2	59	146	539
50	60	30	33	5	0	0	0	0	0	0	20	64	212
32	0	0	0	0	0	0	0	0	0	0	0	0	0

### Cooling Degree Days (1)

Base	Cooling Degree Days (1)												
	Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
32	606	631	811	1005	1304	1555	1748	1705	1496	1221	806	616	13504
55	37	75	180	333	592	865	1035	992	806	509	175	49	5648
57	21	50	146	282	531	805	973	930	746	449	138	30	5101
60	8	24	100	214	440	715	880	837	656	361	91	13	4339
65	0	6	44	123	298	565	725	682	506	228	38	2	3217
70	0	0	17	58	179	417	570	527	357	122	12	0	2259

### 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	381	447	602	778	1073	1324	1507	1472	1268	975	578	386	381	828	1430	2208	3281	4605	6112	7584	8852	9827	10405	10791
45	238	307	447	628	918	1174	1352	1317	1118	820	428	241	238	545	992	1620	2538	3712	5064	6381	7499	8319	8747	8988
50	110	169	299	480	763	1024	1197	1162	968	665	287	119	110	279	578	1058	1821	2845	4042	5204	6172	6837	7124	7243
55	37	73	168	333	608	874	1042	1007	818	515	164	37	37	110	278	611	1219	2093	3135	4142	4960	5475	5639	5676
60	5	22	69	205	455	724	887	852	668	363	77	4	5	27	96	301	756	1480	2367	3219	3887	4250	4327	4331
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	220	255	360	498	694	829	956	939	833	642	345	221	220	475	835	1333	2027	2856	3812	4751	5584	6226	6571	6792

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