

Climatology of the United States

No. 20

1971-2000

Station: PHOENIX SKY HRBR INTL AP, AZ

COOP ID: 026481

Climate Division: AZ 6

NWS Call Sign: PHX

Elevation: 1,107 Feet Lat: 33°26N

Lon: 112°00W

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	65.0	43.4	54.2	88	1971	19	59.4	1986	17	1950	5	48.5	1979	322	2	.0	.0	30.7	.0	1.3	.0
Feb	69.4	47.0	58.2	92	1986	27	63.5	1991	25	1949	1	53.5	1975	187	12	.0	.1	27.9	@	.4	.0
Mar	74.3	51.1	62.7	100	1988	26	70.1	1972	25	1966	4	56.1	1973	125	70	@	2.2	31.0	.0	.1	.0
Apr	83.0	57.5	70.2	105+	1992	29	77.2	1989	37	1968	19	62.2	1975	29	199	1.0	10.5	30.0	.0	.0	.0
May	91.9	66.3	79.1	113+	1984	28	86.3	1997	40+	1967	2	73.0	1971	4	457	7.4	23.1	31.0	.0	.0	.0
Jun	102.0	75.2	88.6	122	1990	26	92.2	1994	51	1965	3	84.9	1971	0	724	23.4	29.2	30.0	.0	.0	.0
Jul	104.2	81.4	92.8	121	1995	28	95.2	1996	66	1956	5	90.0	1984	0	878	28.3	30.8	31.0	.0	.0	.0
Aug	102.4	80.4	91.4	116+	1975	4	95.3	1994	61+	1968	23	87.7	1979	0	834	26.8	30.7	31.0	.0	.0	.0
Sep	97.4	74.5	86.0	118	1950	1	90.3	2000	47+	1965	21	80.1	1985	0	646	15.9	28.0	30.0	.0	.0	.0
Oct	86.4	62.9	74.6	107+	1980	2	80.0	1988	34	1971	30	68.5	1971	11	324	3.0	15.3	31.0	.0	.0	.0
Nov	73.3	50.0	61.6	95	2001	4	68.0	1999	27	1948	29	56.8	1979	129	43	.0	.7	30.0	.0	.1	.0
Dec	65.0	43.5	54.3	88	1950	10	59.9	1980	22	1948	5	49.7	1971	318	0	.0	.0	30.6	.0	.9	.0
Ann	84.5	61.1	72.8	122	Jun 1990	26	95.3	Aug 1994	17	Jan 1950	5	48.5	Jan 1979	1125	4189	105.8	170.6	364.2	@	2.8	.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: 1948-2001

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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	Median	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	.83	.65	1.22	1993	8	5.22	1993	.00+	1976	4.2	2.4	.5	@	.00	.01	.08	.18	.30	.47	.68	.97	1.39	2.14	2.92
Feb	.77	.55	1.46	1987	24	2.93	1998	.00+	2000	4.3	2.0	.3	@	.00	.00	.08	.20	.33	.50	.69	.94	1.30	1.89	2.49
Mar	1.07	1.01	1.98	1983	3	3.17	1983	.00+	1984	4.6	2.5	.6	.1	.00	.00	.18	.35	.54	.75	1.01	1.33	1.77	2.53	3.27
Apr	.25	.15	.74	2001	5	1.13	1999	.00+	2000	1.7	.8	.1	.0	.00	.00	.00	.02	.06	.12	.19	.29	.44	.69	.95
May	.16	.02	.91	1976	4	1.06	1976	.00+	2000	1.1	.4	.1	.0	.00	.00	.00	.00	.00	.00	.06	.15	.28	.53	.78
Jun	.09	.00	1.37	1972	22	1.70	1972	.00+	1999	.7	.2	@	@	.00	.00	.00	.00	.00	.00	.00	.03	.10	.24	.44
Jul	.99	.78	1.90	1984	28	5.15	1984	.00+	1995	4.2	2.3	.5	.2	.00	.06	.21	.36	.53	.72	.94	1.22	1.61	2.27	2.92
Aug	.94	.90	2.73	1951	27	3.50	1995	.00+	1975	4.5	2.1	.6	.2	.00	.04	.16	.29	.45	.63	.86	1.14	1.55	2.25	2.95
Sep	.75	.54	2.43	1970	5	3.36	1984	.00+	1988	3.1	1.5	.5	.2	.00	.00	.07	.18	.30	.45	.64	.90	1.26	1.88	2.52
Oct	.79	.44	2.32	1988	14	4.40	1972	.00+	1999	2.9	1.6	.5	.1	.00	.00	.05	.15	.28	.45	.66	.94	1.34	2.04	2.76
Nov	.73	.47	1.58	1993	14	2.79	1993	.00+	1999	2.7	1.6	.5	.1	.00	.00	.05	.16	.28	.44	.63	.88	1.25	1.87	2.49
Dec	.92	.64	1.43	1967	14	3.08	1992	.00+	2000	3.7	1.9	.7	.1	.00	.00	.04	.15	.29	.48	.73	1.06	1.56	2.43	3.33
Ann	8.29	7.90	2.73	Aug 1951	27	5.22	Jan 1993	.00+	Dec 2000	37.7	19.3	4.9	1.0	3.62	4.37	5.40	6.25	7.04	7.84	8.70	9.68	10.92	12.81	14.52

+ 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

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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	15	#	1987	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	#	.0	0	0	#	1985	4	#	1985	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	#	.0	0	0	#	1976	3	#	1976	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	0	.2	1990	21	.4	1990	0	0	0	0	0	.1	.0	.0	.0	.0	.0	.0	.0	.0
Ann	#	.0	N/A	N/A	.2	Dec 1990	21	.4	Dec 1990	0	0	0	0	0	.1	.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

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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	2/26	2/15	2/07	1/31	1/25	1/19	1/12	1/04	12/24
32	2/09	1/26	1/14	1/02	12/16	0/00	0/00	0/00	0/00
28	1/07	12/17	0/00	0/00	0/00	0/00	0/00	0/00	0/00
24	0/00	0/00	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	11/19	11/28	12/05	12/11	12/16	12/21	12/27	1/04	1/15
32	12/09	12/21	1/01	1/12	1/30	0/00	0/00	0/00	0/00
28	12/27	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
24	0/00	0/00	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	>365	361	340	328	319	311	302	293	280
32	>365	>365	>365	>365	>365	>365	>365	333	309
28	>365	>365	>365	>365	>365	>365	>365	>365	>365
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

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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
65	322	187	125	29	4	0	0	0	0	11	129	318	1125
60	197	104	74	17	1	0	0	0	0	3	71	199	666
57	130	60	41	8	0	0	0	0	0	1	39	133	412
55	94	37	26	4	0	0	0	0	0	0	24	97	282
50	29	8	8	0	0	0	0	0	0	0	5	32	82
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	723	768	994	1187	1501	1735	1924	1882	1658	1358	920	721	15371
55	74	147	288	499	788	1045	1211	1169	968	646	243	73	7151
57	46	108	233	440	726	985	1149	1107	908	584	194	43	6523
60	18	60	160	355	633	895	1056	1014	818	493	129	15	5646
65	2	12	70	199	457	724	878	834	646	324	43	0	4189
70	0	2	21	119	329	595	746	704	518	216	11	0	3261

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	484	577	753	954	1262	1503	1687	1645	1426	1121	690	481	484	1061	1814	2768	4030	5533	7220	8865	10291	11412	12102	12583
45	335	432	598	804	1107	1353	1532	1490	1276	966	540	331	335	767	1365	2169	3276	4629	6161	7651	8927	9893	10433	10764
50	191	289	443	654	952	1203	1377	1335	1126	811	390	191	191	480	923	1577	2529	3732	5109	6444	7570	8381	8771	8962
55	77	161	294	506	797	1053	1222	1180	976	657	251	77	77	238	532	1038	1835	2888	4110	5290	6266	6923	7174	7251
60	22	67	166	363	642	903	1067	1025	826	504	136	15	22	89	255	618	1260	2163	3230	4255	5081	5585	5721	5736
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	279	341	459	617	818	936	1057	1043	926	737	423	274	279	620	1079	1696	2514	3450	4507	5550	6476	7213	7636	7910

(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

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 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
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