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: SOUTH PHOENIX, AZ **COOP ID: 028112**

Climate Division: AZ 6 **NWS Call Sign:** **Elevation: 1,155 Feet** **Lat: 33˚23N** **Lon: 112˚04W**

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	66.5	39.1	52.8	87	1971	19	57.6	1986	12	1963	13	48.2	1979	377	0	.0	.0	30.8	.0	4.7	.0
Feb	71.7	42.2	57.0	90+	1986	27	61.8+	1995	21	1964	5	52.8	1998	232	6	.0	.1	27.9	@	1.7	.0
Mar	77.0	45.7	61.4	98	1988	26	67.9	1972	24	1966	4	55.4	1973	160	48	.0	1.8	31.0	.0	.3	.0
Apr	84.8	50.5	67.7	101+	1989	20	73.6	1989	35+	1975	2	60.5	1975	61	140	.5	9.2	30.0	.0	.0	.0
May	92.1	57.9	75.0	110	1983	28	81.4	1997	36+	1975	6	70.5	1977	9	319	3.3	21.6	31.0	.0	.0	.0
Jun	100.6	65.9	83.3	114	1990	26	86.5	1996	48	1965	17	79.5	1982	0	547	18.4	28.9	30.0	.0	.0	.0
Jul	102.3	74.0	88.2	113+	1995	29	90.7	1996	58+	1973	22	85.3	1986	0	717	24.4	30.8	31.0	.0	.0	.0
Aug	101.0	73.6	87.3	113	1972	1	90.3	1998	53	1968	23	83.8	1979	0	692	22.1	30.5	31.0	.0	.0	.0
Sep	96.8	67.0	81.9	109	1983	3	87.4	1983	45+	1965	21	76.5	1985	0	506	9.8	27.5	30.0	.0	.0	.0
Oct	86.6	55.7	71.2	106	1979	3	76.5	1988	29	1971	30	67.5	1984	23	213	1.1	11.7	31.0	.0	@	.0
Nov	73.8	44.4	59.1	91	2001	4	64.3	1995	27+	1964	20	52.6	2000	202	25	.0	.1	30.0	.0	1.0	.0
Dec	66.1	38.8	52.5	83+	1980	16	57.8	1980	20+	1978	9	48.3	1974	389	0	.0	.0	30.7	.0	4.7	.0
Ann	84.9	54.6	69.8	114	Jun 1990	26	90.7	Jul 1996	12	Jan 1963	13	48.2	Jan 1979	1453	3213	79.6	162.2	364.4	@	12.4	.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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1961-2001

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

Issue Date: February 2004

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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	.92	.70	1.53	1993	11	5.05	1993	.00+	2000
Feb	.93	.62	1.39	1978	14	4.34	1998	.00+	2000
Mar	1.25	1.19	1.66	2000	6	3.23	1983	.00+	1997
Apr	.29	.16	1.15	1999	2	1.45	1999	.00+	2000
May	.20	.02	.83	1976	4	1.43	1976	.00+	2000
Jun	.09	.00	1.47	1965	23	1.87	1972	.00+	1999
Jul	.90	.55	1.77	1984	28	3.83	1984	.00+	1995
Aug	1.01	.85	2.05	1990	15	4.47	1990	.02+	1994
Sep	.82	.60	1.58	1983	29	3.36	1983	.00+	2000
Oct	.85	.52	1.96	1972	19	4.51	1972	.00+	1999
Nov	.76	.50	2.05	1995	2	3.36	1993	.00+	1999
Dec	.93	.69	1.90	1967	15	3.27	1994	.00+	2000
Ann	8.95+	8.47+	2.05+	Nov 1995	2	5.05	Jan 1993	.00+	Dec 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.0	2.2	.5	.1
Feb	3.7	2.3	.7	.1
Mar	4.0	2.8	.9	.2
Apr	1.8	1.0	@	@
May	1.2	.6	.1	.0
Jun	.4	.2	@	@
Jul	3.4	1.8	.6	.1
Aug	3.8	2.5	.5	.2
Sep	2.6	1.8	.5	.2
Oct	2.8	1.9	.5	.2
Nov	2.6	1.5	.5	.2
Dec	3.3	1.8	.8	.2
Ann	33.6	20.4	5.6	1.5

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	.10	.22	.38	.56	.80	1.11	1.54	2.30	3.07
Feb	.00	.00	.11	.27	.44	.63	.86	1.16	1.58	2.26	2.95
Mar	.00	.00	.22	.46	.69	.94	1.23	1.58	2.07	2.84	3.60
Apr	.00	.00	.00	.00	.08	.16	.26	.37	.52	.77	1.00
May	.00	.00	.00	.00	.00	.00	.07	.18	.35	.64	.93
Jun	.00	.00	.00	.00	.00	.00	.00	.00	.04	.26	.52
Jul	.00	.07	.22	.36	.51	.67	.87	1.11	1.45	2.01	2.55
Aug	.02	.06	.16	.28	.43	.62	.86	1.18	1.65	2.47	3.31
Sep	.00	.00	.09	.22	.37	.54	.75	1.01	1.39	2.01	2.63
Oct	.00	.00	.08	.20	.36	.53	.75	1.04	1.44	2.12	2.81
Nov	.00	.00	.08	.18	.30	.46	.65	.91	1.27	1.91	2.55
Dec	.00	.00	.04	.17	.34	.54	.80	1.13	1.60	2.40	3.23
Ann	4.20	4.97	6.04	6.91	7.71	8.51	9.37	10.35	11.58	13.44	15.12

\+ 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: 1961-2001
(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	.0	0	0	.0	0	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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	.0	.0	N/A	N/A	.0	0	0	.0	0	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

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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	4/03	3/24	3/16	3/10	3/04	2/25	2/19	2/11	2/01
32	3/07	2/26	2/19	2/13	2/08	2/02	1/27	1/20	1/11
28	2/13	2/02	1/25	1/17	1/10	1/02	12/22	0/00	0/00
24	1/15	1/02	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	11/08	11/13	11/17	11/20	11/23	11/26	11/29	12/03	12/08
32	11/12	11/20	11/26	11/30	12/05	12/09	12/14	12/19	12/27
28	12/08	12/17	12/25	1/01	1/07	1/15	1/27	0/00	0/00
24	12/26	1/12	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	296	285	277	270	264	257	251	243	232
32	333	322	313	306	299	293	285	277	265
28	>365	>365	>365	>365	>365	349	336	325	312
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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	377	232	160	61	9	0	0	0	0	23	202	389	1453
60	229	117	75	19	1	0	0	0	0	4	101	242	788
57	149	68	39	8	0	0	0	0	0	1	59	162	486
55	106	42	23	4	0	0	0	0	0	0	38	119	332
50	31	8	5	0	0	0	0	0	0	0	9	40	93
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	646	698	911	1069	1333	1537	1740	1715	1496	1213	813	635	13806
55	38	96	221	383	620	847	1027	1002	806	500	161	40	5741
57	20	66	175	327	558	787	965	940	746	439	122	22	5167
60	6	31	118	248	466	697	872	847	656	349	74	8	4372
65	0	6	48	140	319	547	717	692	506	213	25	0	3213
70	0	0	14	64	190	397	562	537	358	106	5	0	2233

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	407	502	673	841	1096	1306	1501	1476	1265	980	579	395	407	909	1582	2423	3519	4825	6326	7802	9067	10047	10626	11021
45	255	359	518	691	941	1156	1346	1321	1115	825	429	249	255	614	1132	1823	2764	3920	5266	6587	7702	8527	8956	9205
50	128	223	366	541	786	1006	1191	1166	965	671	287	119	128	351	717	1258	2044	3050	4241	5407	6372	7043	7330	7449
55	42	106	215	391	631	856	1036	1011	815	517	161	35	42	148	363	754	1385	2241	3277	4288	5103	5620	5781	5816
60	5	35	104	249	476	706	881	856	665	365	68	2	5	40	144	393	869	1575	2456	3312	3977	4342	4410	4412
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	265	328	434	534	684	785	936	932	802	629	376	261	265	593	1027	1561	2245	3030	3966	4898	5700	6329	6705	6966

(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