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: TUBA CITY, AZ **COOP ID: 028792**

Climate Division: AZ 2 **NWS Call Sign:** **Elevation: 5,030 Feet** **Lat: 36˚08N** **Lon: 111˚14W**

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	45.4	22.2	33.8	76	1972	6	39.9	1986	-15	1913	7	26.5	1974	967	0	.0	.0	9.8	1.6	29.5	.8
Feb	53.0	26.4	39.7	76	1904	24	45.7	1995	-9+	1975	24	36.0	1985	710	0	.0	.0	19.1	.5	23.1	.6
Mar	60.1	32.2	46.2	84	1907	19	52.0	1989	5	1975	31	40.9	1973	584	0	.0	.0	25.3	.0	18.9	.0
Apr	68.3	38.0	53.2	94	1958	23	60.1	1989	13	1974	29	43.8	1975	370	9	.0	@	29.0	.0	6.4	.0
May	77.7	47.2	62.5	100	1951	27	68.8	1984	10+	1974	23	58.3	1995	137	58	.0	1.0	31.0	.0	1.5	.0
Jun	88.8	55.5	72.2	110	1940	20	76.2	1994	30+	1975	24	68.0	1995	13	227	1.5	13.3	30.0	.0	.4	.0
Jul	93.4	62.5	78.0	110	1940	15	81.2	1996	34+	1974	25	74.1	1992	0	401	4.4	24.8	31.0	.0	.0	.0
Aug	90.7	60.9	75.8	108	1902	2	79.1	1995	40	1973	31	73.3	1979	0	335	1.2	18.6	31.0	.0	.0	.0
Sep	83.4	53.0	68.2	103	1948	3	72.0	1979	20+	1974	27	62.8	1986	35	131	.2	5.9	30.0	.0	.5	.0
Oct	71.9	40.8	56.4	92+	1963	2	61.9	1988	11	1974	29	51.4	1984	283	15	.0	.1	30.3	.0	3.8	.0
Nov	56.3	30.0	43.2	80	1922	11	47.8	1973	-4	1931	24	36.7	2000	657	0	.0	.0	21.8	.1	20.5	.0
Dec	46.0	21.5	33.8	71	1958	5	39.9	1980	-13	1961	12	24.2	1992	969	0	.0	.0	9.1	2.0	29.3	.2
Ann	69.6	40.9	55.3	110+	Jul 1940	15	81.2	Jul 1996	-15	Jan 1913	7	24.2	Dec 1992	4725	1176	7.3	63.7	297.4	4.2	133.9	1.6

\+ 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: 1900-2001

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

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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	.55	.42	1.88	1936	7	3.57	1993	.00+	1972
Feb	.52	.41	1.03	1965	8	1.67	1993	.00+	1975
Mar	.59	.57	1.38	1993	1	1.76	1973	.00+	1999
Apr	.27	.14	1.27	1988	17	2.13	1988	.00+	2000
May	.32	.23	.64	1948	27	2.77	1992	.00+	2000
Jun	.17	.10	1.21	1927	12	1.12	1972	.00+	1998
Jul	.66	.59	1.20	1921	31	1.93	1975	.00	1993
Aug	.69	.60	1.05	1943	12	1.76	1999	.12	1975
Sep	.98	.82	3.40	1926	27	2.81	1998	.00	1989
Oct	.85	.54	2.00	1925	5	7.69	1972	.00+	1995
Nov	.43	.35	2.40	1947	23	1.44	1978	.00+	1999
Dec	.32	.12	1.30	1942	25	1.47	1991	.00	1973
Ann	6.35	5.93	3.40	Sep 1926	27	7.69	Oct 1972	.00+	May 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.2	2.3	.3	.1
Feb	3.6	1.6	.2	@
Mar	5.3	2.8	.3	.1
Apr	2.3	.7	.1	@
May	3.2	1.4	.1	@
Jun	2.3	1.0	.1	.0
Jul	6.3	2.3	.1	@
Aug	6.8	3.5	.5	.1
Sep	4.7	2.1	.3	.1
Oct	4.1	2.2	.5	.1
Nov	3.1	1.4	.2	@
Dec	3.6	1.7	.1	@
Ann	49.5	23.0	2.8	.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	.02	.08	.15	.24	.35	.48	.65	.90	1.34	1.78
Feb	.00	.02	.09	.17	.25	.35	.48	.63	.85	1.23	1.60
Mar	.00	.00	.10	.23	.35	.47	.61	.77	.99	1.32	1.67
Apr	.00	.00	.00	.03	.07	.13	.21	.31	.46	.72	.99
May	.00	.00	.03	.08	.13	.20	.28	.39	.54	.80	1.07
Jun	.00	.00	.01	.03	.06	.09	.14	.20	.29	.45	.61
Jul	.06	.14	.25	.34	.44	.55	.67	.81	1.01	1.32	1.63
Aug	.16	.23	.33	.42	.51	.61	.71	.84	1.01	1.27	1.52
Sep	.06	.16	.32	.46	.61	.78	.97	1.20	1.52	2.04	2.55
Oct	.00	.00	.11	.23	.38	.55	.76	1.04	1.43	2.09	2.76
Nov	.00	.05	.13	.20	.27	.34	.43	.54	.68	.92	1.14
Dec	.00	.01	.03	.07	.12	.18	.26	.37	.54	.83	1.14
Ann	3.24	3.77	4.49	5.06	5.58	6.10	6.66	7.29	8.07	9.25	10.30

\+ 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: 1900-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	.8	.0	#	#
Feb	.8	.0	#	#
Mar	.1	.0	#	0
Apr	.0	.0	#	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.0	.0	#	0
Nov	#	.0	#	0
Dec	.9	.0	#	0
Ann	2.6	.0	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	2.0	1992	4	4.5	1992	7	1974	2	4	1974
Feb	3.1	1988	3	3.1	1988	9	1990	19	1	1990
Mar	1.3	1973	21	1.3	1973	5	1993	1	#+	2000
Apr	.0	0	0	.0	0	1	1999	1	#+	1999
May	.0	0	0	.0	0	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	.0	0	0	.0	0	#	1991	30	#	1991
Nov	#	1973	19	#	1973	2	1990	7	#+	2000
Dec	3.5	1992	13	4.0	1991	7	1992	5	4	1992
Ann	3.5	Dec 1992	13	4.5	Jan 1992	9	Feb 1990	19	4+	Dec 1992

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.6	.4	.0	.0	.0
Feb	.4	.2	.1	.0	.0
Mar	.1	.1	.0	.0	.0
Apr	.0	.0	.0	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	.0	.0	.0	.0	.0
Dec	.9	.6	.1	.0	.0
Ann	2.0	1.3	.2	.0	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.5	.0	.0	.0
Feb	.2	.0	.0	.0
Mar	.0	.0	.0	.0
Apr	.0	.0	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.0	.0	.0	.0
Dec	.6	.2	.0	.0
Ann	1.3	.2	.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	6/08	5/30	5/24	5/18	5/13	5/08	5/03	4/26	4/18
32	5/21	5/12	5/06	4/30	4/25	4/20	4/15	4/09	3/31
28	5/06	4/27	4/20	4/14	4/09	4/03	3/28	3/22	3/12
24	4/22	4/10	4/02	3/25	3/19	3/12	3/04	2/24	2/12
20	4/08	3/25	3/15	3/07	2/27	2/19	2/10	1/31	1/17
16	3/23	3/07	2/23	2/13	2/03	1/25	1/14	1/01	12/13

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	9/23	9/30	10/04	10/08	10/11	10/15	10/19	10/23	10/29
32	10/05	10/11	10/16	10/20	10/24	10/27	10/31	11/05	11/11
28	10/12	10/19	10/24	10/28	10/31	11/04	11/08	11/13	11/20
24	10/19	10/27	11/01	11/05	11/09	11/14	11/18	11/23	11/30
20	11/02	11/09	11/15	11/19	11/24	11/28	12/03	12/08	12/16
16	11/07	11/17	11/24	12/01	12/06	12/12	12/19	12/27	1/08

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	188	175	166	158	151	143	135	126	113
32	214	203	194	187	180	174	167	158	146
28	244	231	221	213	205	197	189	179	166
24	283	267	255	245	235	226	215	203	187
20	326	307	293	280	269	258	246	231	212
16	>365	365	337	319	304	290	275	258	236

***** 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	967	710	584	370	137	13	0	0	35	283	657	969	4725
60	812	570	434	242	61	2	0	0	7	165	507	814	3614
57	719	486	347	178	33	0	0	0	2	110	419	721	3015
55	657	430	292	141	20	0	0	0	1	80	362	659	2642
50	502	292	174	70	5	0	0	0	0	31	231	505	1810
32	78	8	2	0	0	0	0	0	0	0	8	92	188

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	134	222	442	629	944	1204	1424	1357	1086	755	342	146	8685
55	0	0	19	80	251	514	711	644	397	122	5	0	2743
57	0	0	11	57	202	454	649	582	338	90	2	0	2385
60	0	0	5	31	137	366	556	489	253	52	1	0	1890
65	0	0	0	9	58	227	401	335	131	15	0	0	1176
70	0	0	0	1	17	115	248	188	47	3	0	0	619

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	16	88	188	401	670	964	1177	1086	841	499	136	17	16	104	292	693	1363	2327	3504	4590	5431	5930	6066	6083
45	1	27	93	260	515	814	1022	931	691	354	57	1	1	28	121	381	896	1710	2732	3663	4354	4708	4765	4766
50	0	7	39	148	364	664	867	776	541	218	12	0	0	7	46	194	558	1222	2089	2865	3406	3624	3636	3636
55	0	0	5	67	229	515	712	621	394	113	0	0	0	0	5	72	301	816	1528	2149	2543	2656	2656	2656
60	0	0	0	19	111	369	557	466	255	41	0	0	0	0	0	19	130	499	1056	1522	1777	1818	1818	1818
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	25	81	158	280	446	617	743	701	545	342	114	20	25	106	264	544	990	1607	2350	3051	3596	3938	4052	4072

(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