

Climatography of the United States No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: CANYON DE CHELLY, AZ

1971-2000

COOP ID: 021248

Climate Division: AZ 2

NWS Call Sign:

Elevation: 5,610 Feet Lat: 36°09N

Lon: 109°32W

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	44.4	19.6	32.0	70	1986	29	38.0	1999	-24	1974	3	23.8	1992	1023	0	.0	.0	9.2	3.2	28.9	1.0
Feb	51.7	24.3	38.0	72+	1986	26	44.2	1995	-11	1989	7	31.9	1974	755	0	.0	.0	16.5	.8	24.8	.3
Mar	60.9	30.4	45.7	85	1989	9	50.6	1972	7+	1975	28	41.2	1973	600	0	.0	.0	26.6	@	20.8	.0
Apr	69.8	36.6	53.2	90+	2000	27	58.6	1989	13	1971	2	48.0	1983	359	4	.0	.1	28.7	.0	11.5	.0
May	79.2	45.1	62.2	98	2000	29	66.6	1984	22+	1986	9	57.5	1995	132	42	.0	1.3	30.9	.0	2.4	.0
Jun	90.0	53.4	71.7	104	1990	25	75.4	1994	31+	1976	16	67.5	1983	13	212	.7	14.2	30.0	.0	.1	.0
Jul	93.2	61.1	77.2	104+	1995	29	79.5	1996	39+	1978	6	74.2	1997	0	376	1.6	21.8	31.0	.0	.0	.0
Aug	90.4	60.2	75.3	101+	2000	2	78.9	1994	38	1978	28	73.1	1987	0	319	.3	14.5	31.0	.0	.0	.0
Sep	83.3	51.0	67.2	99	1995	1	70.1	1997	23+	1999	29	63.0	1985	41	105	.0	3.3	30.0	.0	.6	.0
Oct	71.1	38.6	54.9	88+	2001	1	58.8	1988	15	1980	24	50.2	1984	318	4	.0	.0	30.2	.0	8.9	.0
Nov	56.0	28.1	42.1	79	1980	9	46.8	1981	-3	1976	28	35.1	2000	689	0	.0	.0	21.3	.1	23.0	@
Dec	45.4	19.6	32.5	67	1995	1	39.3	1977	-14+	1990	25	24.6	1990	1007	0	.0	.0	10.3	3.2	28.7	1.2
Ann	69.6	39.0	54.3	104+	Jul 1995	29	79.5	Jul 1996	-24	Jan 1974	3	23.8	Jan 1992	4937	1062	2.6	55.2	295.7	7.3	149.7	2.5

+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1970-2001

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

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Climate Division: AZ 2

NWS Call Sign:

Elevation: 5,610 Feet Lat: 36°09N

Lon: 109°32W

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	.81	.45	5.00	1983	17	5.57	1983	.00+	1994	4.2	2.1	.2	.1	.00	.01	.06	.14	.26	.41	.62	.91	1.35	2.13	2.95
Feb	.64	.45	1.40	1983	4	1.95	1983	.00+	1991	4.5	2.3	.2	@	.00	.00	.11	.22	.33	.46	.61	.79	1.05	1.48	1.91
Mar	.73	.68	.90	1975	16	2.73	2000	.00+	1999	5.7	2.9	.2	.0	.00	.00	.11	.23	.36	.50	.68	.91	1.21	1.74	2.26
Apr	.58	.27	1.31	1997	5	2.93	1988	.00	1989	3.6	1.4	.2	.1	.00	.02	.06	.12	.21	.32	.47	.66	.95	1.48	2.01
May	.57	.33	.89	1982	4	2.43	1992	.00+	1998	3.4	1.9	.3	.0	.00	.00	.04	.15	.26	.38	.53	.71	.97	1.39	1.82
Jun	.33	.10	1.25	1988	28	2.05	1988	.00+	1998	2.2	.9	.2	@	.00	.00	.00	.01	.06	.13	.22	.36	.57	.94	1.33
Jul	1.09	.70	1.92	1988	11	3.38	1988	.00+	1993	7.1	3.2	.4	.1	.00	.10	.29	.46	.64	.84	1.07	1.35	1.74	2.38	2.99
Aug	1.33	.94	1.64	1994	19	4.84	1982	.31	1975	7.6	3.5	.5	.2	.22	.34	.53	.71	.90	1.11	1.34	1.62	2.00	2.61	3.20
Sep	.92	.78	1.54	1994	3	2.22	1990	.01	1989	5.7	2.8	.3	.1	.07	.13	.25	.38	.52	.68	.88	1.12	1.46	2.03	2.59
Oct	1.06	.84	1.28	1979	21	4.45	1972	.00+	1999	5.1	3.0	.5	.1	.00	.07	.24	.40	.58	.78	1.02	1.31	1.72	2.40	3.06
Nov	.82	.64	1.22	1986	1	2.23	1985	.00+	1999	4.3	2.5	.4	.1	.00	.07	.20	.33	.47	.62	.80	1.01	1.32	1.81	2.30
Dec	.65	.39	1.00	1984	13	2.74	1982	.00+	1999	4.1	2.2	.3	@	.00	.00	.08	.17	.28	.41	.58	.79	1.09	1.61	2.13
Ann	9.53	9.14	5.00	Jan 1983	17	5.57	Jan 1983	.00+	Dec 1999	57.5	28.7	3.7	.8	4.64	5.45	6.56	7.46	8.28	9.10	9.98	10.98	12.22	14.10	15.79

+ 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: 1970-2001

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Station: CANYON DE CHELLY, AZ

COOP ID: 021248

Climate Division: AZ 2

NWS Call Sign:

Elevation: 5,610 Feet

Lat: 36°09N

Lon: 109°32W

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	1.2	.0	#	0	8.0	1997	6	11.0	1974	8	1974	3	2	1974	.7	.5	.2	.1	.0	.8	.5	.3	.0
Feb	1.0	.0	#	0	6.0	1989	5	9.0	1989	8	1989	7	2	1982	.4	.2	.1	.1	.0	.2	.1	.0	.0
Mar	1.1	.0	#	0	5.0	1985	29	10.5	1973	1+	1998	29	#+	1998	.3	.3	.2	@	.0	.1	.0	.0	.0
Apr	.0	.0	#	0	1.0	1994	27	1.0	1994	#+	1997	4	#+	1997	.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	.1	.0	#	0	1.1	1972	30	1.6	1972	#	1972	31	#	1972	.1	@	.0	.0	.0	.0	.0	.0	.0
Nov	.3	.0	#	0	2.4	1996	29	2.4	1996	1	1997	15	#+	1997	.3	.1	.0	.0	.0	.0	.0	.0	.0
Dec	1.6	.0	#	0	8.0	1987	24	12.3	1987	3	1984	14	1	1971	1.0	.6	.2	.1	.0	.6	.2	.0	.0
Ann	5.3	.0	N/A	N/A	8.0+	Jan 1997	6	12.3	Dec 1987	8+	Feb 1989	7	2+	Feb 1982	2.9	1.7	.7	.3	.0	1.7	.8	.3	.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:

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No. 20 1971-2000

Station: CANYON DE CHELLY, AZ

COOP ID: 021248

Climate Division: AZ 2

NWS Call Sign:

Elevation: 5,610 Feet

Lat: 36°09N

Lon: 109°32W

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	6/21	6/14	6/08	6/03	5/30	5/25	5/21	5/15	5/07
32	6/02	5/25	5/18	5/13	5/08	5/04	4/28	4/22	4/14
28	5/20	5/12	5/07	5/02	4/28	4/23	4/19	4/13	4/06
24	5/10	5/01	4/25	4/19	4/14	4/09	4/04	3/28	3/19
20	4/20	4/12	4/06	4/01	3/27	3/23	3/18	3/12	3/04
16	3/30	3/21	3/13	3/07	3/02	2/24	2/18	2/11	2/01
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	9/15	9/20	9/23	9/26	9/29	10/01	10/04	10/07	10/12
32	9/20	9/26	9/30	10/03	10/06	10/09	10/12	10/16	10/21
28	9/26	10/02	10/07	10/11	10/15	10/19	10/23	10/27	11/03
24	10/04	10/11	10/17	10/22	10/26	10/30	11/04	11/09	11/17
20	10/23	10/29	11/02	11/05	11/08	11/12	11/15	11/19	11/25
16	11/01	11/07	11/12	11/16	11/19	11/23	11/27	12/01	12/08
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	148	139	132	126	121	116	110	103	94
32	182	171	163	156	150	143	136	128	117
28	205	193	184	176	169	162	155	146	134
24	233	219	210	202	194	186	178	169	155
20	253	243	237	231	225	220	214	207	198
16	298	286	277	269	262	255	247	238	226

* 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:

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COOP ID: 021248

Climate Division: AZ 2

NWS Call Sign:

Elevation: 5,610 Feet Lat: 36°09N

Lon: 109°32W

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	1023	755	600	359	132	13	0	0	41	318	689	1007	4937
60	868	615	447	225	52	2	0	0	8	183	539	852	3791
57	775	531	357	159	25	0	0	0	2	118	449	759	3175
55	713	475	301	121	13	0	0	0	1	83	391	697	2795
50	561	338	176	52	2	0	0	0	0	28	254	544	1955
32	134	26	2	0	0	0	0	0	0	0	12	123	297

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	134	195	425	636	933	1189	1399	1341	1055	709	313	139	8468
55	0	0	11	67	233	499	686	628	365	79	2	0	2570
57	0	0	6	44	183	439	624	566	307	52	0	0	2221
60	0	0	2	21	117	351	531	473	223	24	0	0	1742
65	0	0	0	4	42	212	376	319	105	4	0	0	1062
70	0	0	0	0	9	102	222	170	33	0	0	0	536

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	17	58	183	366	637	898	1103	1044	782	440	120	15	17	75	258	624	1261	2159	3262	4306	5088	5528	5648	5663
45	0	15	83	235	486	748	948	889	632	296	49	1	0	15	98	333	819	1567	2515	3404	4036	4332	4381	4382
50	0	0	29	122	335	598	793	734	483	171	11	0	0	0	29	151	486	1084	1877	2611	3094	3265	3276	3276
55	0	0	4	48	201	448	638	579	336	70	0	0	0	0	4	52	253	701	1339	1918	2254	2324	2324	2324
60	0	0	0	13	92	304	483	424	201	17	0	0	0	0	0	13	105	409	892	1316	1517	1534	1534	1534
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	27	73	175	289	440	574	700	682	517	330	121	33	27	100	275	564	1004	1578	2278	2960	3477	3807	3928	3961

(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