

Climatology of the United States

No. 20

1971-2000

Station: PAYSON, AZ

COOP ID: 026323

Climate Division: AZ 4

NWS Call Sign: 0E4

Elevation: 4,913 Feet Lat: 34° 14N

Lon: 111° 20W

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	54.4	25.3	39.9	77	1971	18	45.5	1986	-8+	1971	7	33.9	1979	779	0	.0	.0	21.7	.1	27.2	.1
Feb	58.5	27.4	43.0	80	1986	28	49.2	1995	1	1962	28	38.2	1998	619	0	.0	.0	22.6	.4	23.2	.0
Mar	63.0	30.8	46.9	89	1972	19	53.2	1972	3	1966	3	39.4	1973	560	0	.0	.0	27.6	.0	21.2	.0
Apr	71.0	34.8	52.9	91+	2000	27	58.3	1989	15	1955	4	45.3	1975	371	8	.0	.2	29.1	.0	12.2	.0
May	79.7	41.6	60.7	99+	2000	29	66.0	2000	22	1975	6	56.2	1980	175	40	.0	1.9	31.0	.0	2.2	.0
Jun	90.0	49.6	69.8	106+	1990	26	74.3	1996	31	1993	7	65.3	1991	31	174	2.0	15.3	30.0	.0	.1	.0
Jul	92.9	57.9	75.4	107+	1995	28	78.2	1985	39+	1956	5	72.8	1992	0	322	2.9	22.6	31.0	.0	.0	.0
Aug	90.6	57.5	74.1	104	1993	2	77.9	1995	37	1956	31	70.7	1990	2	283	1.1	18.5	31.0	.0	.0	.0
Sep	85.4	50.5	68.0	103	1948	2	73.0	1997	33+	1985	12	62.7	1985	43	131	.0	6.8	30.0	.0	.0	.0
Oct	75.0	40.2	57.6	94	1980	2	62.0	1987	16	1971	30	52.6	1971	244	15	.0	.7	30.7	.0	4.0	.0
Nov	62.5	30.1	46.3	83	1999	7	53.3	1995	6	1975	30	40.8	2000	562	0	.0	.0	27.1	.0	21.4	.0
Dec	54.9	25.2	40.1	76	1958	2	45.3	1980	-7	1968	22	35.3	1974	774	0	.0	.0	22.6	.1	27.5	.1
Ann	73.2	39.2	56.2	107+	1995	28	78.2	1985	-8+	1971	7	33.9	1979	4160	973	6.0	66.0	334.4	.6	139.0	.2

+ 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: 1940-2001

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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	2.33	1.61	2.57	1997	13	9.57	1993	.00	1972	6.4	4.2	1.5	.6	.02	.11	.35	.65	1.01	1.46	2.02	2.77	3.84	5.70	7.60
Feb	2.34	1.75	2.44	1980	15	9.07	1980	.00+	1984	5.9	4.3	1.5	.6	.00	.27	.70	1.08	1.46	1.87	2.35	2.91	3.69	4.96	6.18
Mar	2.68	2.31	2.87	1991	1	7.88	1991	.00+	1997	7.0	5.2	1.7	.5	.00	.17	.58	.99	1.44	1.95	2.55	3.31	4.36	6.13	7.87
Apr	1.15	.81	2.11	1999	5	4.94	1999	.00+	1996	3.9	2.4	.7	.3	.00	.00	.12	.30	.51	.75	1.05	1.42	1.95	2.83	3.71
May	.66	.33	1.15	1967	30	4.26	1992	.00+	2000	3.1	1.8	.5	@	.00	.00	.00	.04	.18	.34	.54	.80	1.16	1.79	2.41
Jun	.37	.11	2.15	1955	13	2.88	1972	.00+	1998	2.2	.9	.2	@	.00	.00	.00	.01	.06	.15	.26	.41	.65	1.06	1.49
Jul	2.42	2.32	2.78	1956	17	6.77	1990	.22	2000	9.6	5.8	1.5	.2	.33	.52	.87	1.20	1.56	1.95	2.40	2.95	3.71	4.93	6.12
Aug	2.97	2.73	3.45	1963	22	6.40	1988	.73	1976	10.6	6.5	1.7	.5	.82	1.11	1.53	1.90	2.27	2.65	3.07	3.57	4.22	5.24	6.18
Sep	1.81	1.36	5.36	1970	5	5.30	1983	.00	1973	6.5	4.1	1.1	.4	.08	.24	.51	.77	1.06	1.38	1.76	2.23	2.88	3.95	5.00
Oct	1.89	1.36	3.89	1972	19	10.32	1972	.00+	1999	4.7	3.4	1.1	.4	.00	.00	.36	.67	1.00	1.37	1.81	2.36	3.11	4.37	5.60
Nov	1.70	1.41	3.19	1978	11	5.30	1982	.00+	1999	4.5	3.1	1.0	.4	.00	.10	.35	.61	.90	1.22	1.61	2.09	2.77	3.91	5.03
Dec	1.75	1.42	2.82	1978	18	5.65	1992	.00	1999	5.1	3.6	1.3	.2	.01	.08	.26	.48	.75	1.08	1.51	2.07	2.88	4.29	5.73
Ann	22.07	21.52	5.36	Sep 1970	5	10.32	Oct 1972	.00+	May 2000	69.5	45.3	13.8	4.1	14.63	16.03	17.85	19.24	20.48	21.69	22.95	24.35	26.06	28.56	30.73

+ 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: 1940-2001

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

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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	4.8	3.0	#	#	12.0	1988	18	24.0	1979	15	1979	29	2	1992	1.7	1.7	.8	.4	@	2.5	1.4	.6	.1
Feb	5.0	2.0	1	#	19.0	1987	24	26.0	1987	26	1987	26	5	1979	1.3	1.3	.6	.4	.1	1.7	1.1	.9	.5
Mar	4.7	2.0	#	#	10.0	1973	29	37.0	1973	16	1973	14	5	1973	1.7	1.7	.6	.2	@	1.0	.4	.2	@
Apr	2.9	.0	#	0	16.0	1999	2	37.0	1999	20	1999	2	2	1999	.7	.7	.4	.2	@	.3	.2	.2	@
May	#	.0	#	0	#	1995	7	#	1995	#+	1995	7	#+	1995	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	#	2000	17	#	2000	.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	1.0	1971	29	1.0+	2000	1	1971	29	#+	1996	.1	.1	.0	.0	.0	@	.0	.0	.0
Nov	2.2	.0	#	0	11.0	1991	30	12.0	1975	12	1975	29	1	1975	.7	.6	.4	.1	@	.3	.2	.1	.1
Dec	3.6	2.0	#	#	10.0	1985	12	16.0	1974	13	1985	12	2	1990	1.2	1.2	.6	.3	@	2.0	1.1	.7	.1
Ann	23.3	9.0	N/A	N/A	19.0	Feb 1987	24	37.0+	Apr 1999	26	Feb 1987	26	5+	Feb 1979	7.4	7.3	3.4	1.6	.1	7.8	4.4	2.7	.8

+ Also occurred on an earlier date(s) #Denotes trace amounts

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-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	6/07	6/02	5/29	5/26	5/23	5/20	5/16	5/13	5/07
32	5/29	5/24	5/19	5/16	5/13	5/09	5/06	5/01	4/26
28	5/15	5/08	5/02	4/27	4/23	4/18	4/14	4/08	3/31
24	5/03	4/23	4/16	4/10	4/05	3/30	3/24	3/17	3/08
20	4/04	3/25	3/17	3/10	3/04	2/26	2/19	2/12	2/01
16	3/15	3/01	2/20	2/12	2/05	1/28	1/20	1/11	12/28
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	9/25	10/01	10/05	10/09	10/13	10/16	10/20	10/24	10/30
32	10/07	10/11	10/15	10/18	10/20	10/23	10/26	10/30	11/03
28	10/17	10/22	10/26	10/29	10/31	11/03	11/06	11/10	11/15
24	10/29	11/03	11/06	11/09	11/12	11/14	11/17	11/20	11/25
20	11/10	11/16	11/20	11/23	11/26	11/29	12/03	12/07	12/13
16	11/16	11/25	12/02	12/08	12/13	12/18	12/24	12/31	1/11
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	165	157	152	147	142	138	133	127	120
32	178	172	167	164	160	157	153	148	142
28	219	209	202	196	191	185	179	172	163
24	249	239	232	226	220	214	208	201	191
20	301	289	281	273	266	259	252	243	231
16	>365	338	324	315	306	298	289	279	265

* 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	Ann
65	779	619	560	371	175	31	0	2	43	244	562	774	4160
60	624	479	411	241	85	7	0	0	10	129	414	619	3019
57	531	395	326	176	48	2	0	0	3	78	329	526	2414
55	469	340	272	139	31	1	0	0	1	53	275	464	2045
50	318	212	159	67	7	0	0	0	0	15	159	312	1249
32	9	3	1	0	0	0	0	0	0	0	2	8	23

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	253	308	464	627	888	1134	1345	1304	1079	794	430	258	8884
55	0	2	22	76	205	445	632	591	390	134	14	0	2511
57	0	0	14	53	161	386	570	529	332	97	7	0	2149
60	0	0	6	28	105	301	477	436	249	54	2	0	1658
65	0	0	0	8	40	174	322	283	131	15	0	0	973
70	0	0	0	0	10	80	172	144	53	2	0	0	461

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	62	118	221	391	639	896	1097	1058	839	546	202	66	62	180	401	792	1431	2327	3424	4482	5321	5867	6069	6135
45	14	41	105	252	484	746	942	903	689	393	93	10	14	55	160	412	896	1642	2584	3487	4176	4569	4662	4672
50	0	3	36	135	334	596	787	748	539	253	27	0	0	3	39	174	508	1104	1891	2639	3178	3431	3458	3458
55	0	0	4	52	193	446	632	593	390	133	2	0	0	0	4	56	249	695	1327	1920	2310	2443	2445	2445
60	0	0	0	9	85	299	477	438	247	45	0	0	0	0	0	9	94	393	870	1308	1555	1600	1600	1600
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	96	140	204	318	452	559	684	676	544	390	195	96	96	236	440	758	1210	1769	2453	3129	3673	4063	4258	4354

(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