

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: HAPPY JACK RANGER STN, AZ

1971-2000

COOP ID: 023828

Climate Division: AZ 2

NWS Call Sign:

Elevation: 7,480 Feet Lat: 34°45N

Lon: 111°25W

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	40.3	14.6	27.5	63+	1971	30	35.3	1986	-35	1979	30	19.7	1979	1164	0	.0	.0	4.9	5.4	30.6	1.9
Feb	42.6	16.4	29.5	76+	1991	21	41.3	1991	-16	1985	5	24.5	1985	988	0	.0	.0	10.8	2.9	25.5	1.1
Mar	47.0	20.1	33.6	70	1989	9	41.5	1972	-12	1971	2	24.4	1973	976	0	.0	.0	13.2	1.6	30.0	.5
Apr	54.3	26.2	40.3	76+	1996	28	47.0	1989	-2	1975	2	33.2	1975	743	0	.0	.0	22.5	.5	23.8	@
May	63.6	33.3	48.5	85+	2000	30	54.6	2000	12	1975	6	43.0	1977	514	1	.0	.0	29.2	.0	13.4	.0
Jun	75.2	40.6	57.9	97	1994	30	63.8	1974	22	1993	7	52.9	1991	230	18	.0	.4	29.9	.0	2.8	.0
Jul	78.8	48.6	63.7	93+	1995	30	66.6	1996	31+	1992	2	59.9	1992	75	34	.0	.5	31.0	.0	.1	.0
Aug	76.0	47.8	61.9	90	1994	5	66.3	1994	34+	1979	22	59.7+	1989	117	21	.0	@	31.0	.0	.0	.0
Sep	70.5	41.4	56.0	87	2000	15	60.7	2000	24	1985	12	51.0	1986	274	3	.0	.0	29.9	.0	2.1	.0
Oct	60.4	31.1	45.8	79	2000	2	50.7	1988	0	1971	31	39.7	1984	597	0	.0	.2	27.5	.1	17.5	@
Nov	48.2	21.8	35.0	70	1999	1	42.9	1995	-5	1985	19	29.0	1972	900	0	.0	.0	14.1	1.6	27.8	.3
Dec	41.2	15.6	28.4	63	1980	27	34.6	1980	-27	1988	27	21.8	1978	1136	0	.0	.0	5.6	5.2	30.6	1.3
Ann	58.2	29.8	44.0	97	Jun 1994	30	66.6	Jul 1996	-35	Jan 1979	30	19.7	Jan 1979	7714	77	.0	1.1	249.6	17.3	204.2	5.1

+ 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: 1969-2001

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

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1971-2000**

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COOP ID: 023828

Climate Division: AZ 2

NWS Call Sign:

Elevation: 7,480 Feet Lat: 34°45N

Lon: 111°25W

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	3.26	2.36	3.54	1993	8	12.56	1993	.00	1972	6.4	4.9	2.0	.9	.06	.24	.64	1.09	1.61	2.23	2.98	3.95	5.31	7.65	9.98
Feb	3.10	2.94	2.90	1995	15	8.51	1980	.08	1972	6.2	4.5	1.7	.7	.36	.59	1.03	1.46	1.92	2.44	3.04	3.79	4.81	6.49	8.12
Mar	3.69	3.54	3.32	1991	1	11.06	1973	.00+	1997	7.4	6.1	2.8	.8	.00	.00	.93	1.57	2.21	2.90	3.70	4.68	5.95	8.07	10.12
Apr	1.56	1.41	1.60	1988	22	3.97	1988	.00+	1991	4.3	3.1	1.3	.3	.00	.14	.40	.65	.90	1.19	1.53	1.93	2.49	3.42	4.33
May	.96	.75	1.01	1976	8	3.83	1979	.00+	1991	4.8	2.7	.5	.1	.00	.05	.19	.34	.50	.68	.90	1.17	1.56	2.21	2.85
Jun	.44	.17	.84	2000	30	2.87	2000	.00+	1998	2.8	1.5	.2	.0	.00	.00	.00	.02	.09	.18	.31	.49	.76	1.24	1.74
Jul	2.55	2.16	2.07	1986	19	6.05	1986	.10	1993	10.6	6.0	1.5	.5	.48	.71	1.08	1.43	1.78	2.16	2.59	3.11	3.80	4.90	5.96
Aug	3.01	2.58	3.01	1992	23	7.43	1992	.46+	1985	11.3	6.7	1.8	.3	.63	.91	1.35	1.75	2.16	2.59	3.08	3.66	4.44	5.67	6.84
Sep	2.36	2.33	2.47	1970	5	6.55	1996	.01	1973	7.2	5.0	1.7	.5	.13	.26	.55	.86	1.23	1.65	2.17	2.84	3.78	5.38	6.97
Oct	2.04	1.63	2.55	1972	19	9.04	1972	.00+	1999	4.9	3.1	1.2	.7	.00	.21	.57	.89	1.23	1.60	2.03	2.54	3.25	4.42	5.55
Nov	2.13	1.89	3.22	1978	12	6.41	1978	.00+	1989	4.8	3.6	1.3	.6	.00	.19	.54	.88	1.23	1.63	2.09	2.64	3.41	4.69	5.94
Dec	2.43	1.42	3.54	1982	1	7.72	1982	.03	1999	5.0	3.7	1.4	.5	.07	.17	.41	.71	1.08	1.53	2.11	2.87	3.96	5.88	7.84
Ann	27.53+	25.59+	3.54+	Jan 1993	8	12.56	Jan 1993	.00+	Oct 1999	75.7	50.9	17.4	5.9	16.79	18.75	21.32	23.32	25.12	26.89	28.74	30.81	33.36	37.11	40.41

+ 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: 1969-2001

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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: HAPPY JACK RANGER STN, AZ

COOP ID: 023828

Climate Division: AZ 2

NWS Call Sign:

Elevation: 7,480 Feet

Lat: 34° 45N

Lon: 111° 25W

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	25.7	14.8	7	3	28.0	1997	14	84.5	1979	58	1997	15	22	1992	4.6	3.9	2.6	1.5	.6	-9.9	-9.9	-9.9	-9.9
Feb	19.5	21.0	9	7	32.0	1987	25	40.1	1987	48	1985	5	38	1980	3.5	3.1	1.8	1.0	.4	-9.9	-9.9	-9.9	-9.9
Mar	12.5	4.0	6	2	25.0	1991	1	50.5	1998	45	1998	30	30	1998	3.7	3.3	2.3	1.0	.4	-9.9	-9.9	-9.9	-9.9
Apr	9.6	3.8	1	#	16.5	1976	16	41.5	1999	45	1998	2	25	1998	1.9	1.9	1.1	.7	.2	1.1	.8	.3	.0
May	.7	.0	#	0	5.0	1979	9	7.5	1979	4	1995	7	#+	1999	.4	.2	.1	@	.0	.2	.1	.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	#	1976	25	#	1976	.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	1.0	1982	28	1.0	1982	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Oct	.6	.0	#	0	5.5	1974	29	7.0	1998	10	1971	17	5	1998	.5	.4	.1	.1	.0	.8	.3	.1	.0
Nov	8.5	1.0	1	#	18.0	1993	15	36.0	1993	36	1993	16	7	1993	1.8	1.6	1.0	.7	.2	2.6	1.3	1.0	.5
Dec	15.7	6.0	4	1	15.0	1972	5	46.0	1992	33	1992	21	19	1992	2.8	2.5	1.6	.8	.2	-9.9	-9.9	-9.9	-9.9
Ann	92.8	50.6	N/A	N/A	32.0	Feb 1987	25	84.5	Jan 1979	58	Jan 1997	15	38	Feb 1980	19.2	16.9	10.6	5.8	2.0	-9.9	-9.9	-9.9	-9.9

+ 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: HAPPY JACK RANGER STN, AZ

COOP ID: 023828

Climate Division: AZ 2

NWS Call Sign:

Elevation: 7,480 Feet

Lat: 34° 45N

Lon: 111° 25W

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	7/07	7/02	6/28	6/25	6/22	6/19	6/16	6/12	6/07
32	6/25	6/20	6/16	6/13	6/10	6/07	6/04	5/31	5/26
28	6/12	6/06	6/02	5/30	5/26	5/23	5/20	5/15	5/10
24	6/02	5/27	5/23	5/20	5/17	5/14	5/10	5/06	5/01
20	5/18	5/12	5/07	5/02	4/28	4/24	4/20	4/15	4/08
16	5/05	4/27	4/21	4/17	4/12	4/08	4/03	3/28	3/21
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	8/20	8/27	9/01	9/05	9/08	9/12	9/16	9/21	9/28
32	9/09	9/14	9/18	9/21	9/24	9/27	10/01	10/04	10/10
28	9/24	9/29	10/03	10/06	10/09	10/12	10/15	10/19	10/24
24	10/03	10/09	10/13	10/16	10/20	10/23	10/27	10/31	11/06
20	10/13	10/19	10/23	10/27	10/30	11/03	11/06	11/10	11/16
16	10/24	10/30	11/03	11/06	11/09	11/12	11/16	11/20	11/25
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	104	95	88	83	78	73	67	60	51
32	128	120	115	110	106	101	97	91	84
28	156	149	144	139	135	131	127	121	114
24	172	167	162	159	155	152	148	144	138
20	211	202	195	189	184	179	173	167	158
16	240	230	222	216	210	205	198	191	181

* 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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1971-2000**

Station: HAPPY JACK RANGER STN, AZ

COOP ID: 023828

Climate Division: AZ 2 NWS Call Sign: Elevation: 7,480 Feet Lat: 34° 45N Lon: 111° 25W

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	1164	988	976	743	514	230	75	117	274	597	900	1136	7714
60	1009	848	821	593	364	124	14	34	144	443	750	981	6125
57	916	764	728	504	281	77	3	11	85	353	660	888	5270
55	854	708	666	447	230	53	1	4	56	296	600	826	4741
50	699	568	515	310	125	16	0	0	13	171	452	671	3540
32	193	140	104	26	1	0	0	0	0	3	63	174	704

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	52	76	151	273	510	777	982	927	719	429	153	61	5110
55	0	0	0	4	27	141	270	218	85	9	0	0	754
57	0	0	0	1	16	105	210	163	54	4	0	0	553
60	0	0	0	0	6	61	127	93	23	1	0	0	311
65	0	0	0	0	1	18	34	21	3	0	0	0	77
70	0	0	0	0	0	3	3	1	0	0	0	0	7

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	0	45	26	110	291	553	745	691	488	232	38	0	0	45	71	181	472	1025	1770	2461	2949	3181	3219	3219
45	0	21	0	41	158	403	590	536	338	113	2	0	0	21	21	62	220	623	1213	1749	2087	2200	2202	2202
50	0	2	0	6	63	259	435	381	197	39	0	0	0	2	2	8	71	330	765	1146	1343	1382	1382	1382
55	0	0	0	0	14	133	280	227	83	10	0	0	0	0	0	0	14	147	427	654	737	747	747	747
60	0	0	0	0	1	53	133	89	17	0	0	0	0	0	0	0	1	54	187	276	293	293	293	293
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	10	52	43	110	231	391	475	425	321	196	55	9	10	62	105	215	446	837	1312	1737	2058	2254	2309	2318

(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 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