

Climatology of the United States

No. 20

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

Station: SANTA RITA EXP RANGE, AZ

1971-2000

COOP ID: 027593

Climate Division: AZ 7

NWS Call Sign:

Elevation: 4,300 Feet Lat: 31°46N

Lon: 110°51W

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	60.4	37.5	49.0	81+	1971	20	55.2	1986	12	1962	11	43.8	1979	498	0	.0	.0	28.2	@	7.8	.0
Feb	64.3	39.7	52.0	83+	1957	14	56.8	1981	11	1974	8	46.3	1998	366	2	.0	.0	26.7	.0	4.6	.0
Mar	68.6	43.2	55.9	89+	1989	11	63.9	1972	17	1971	2	47.8	1973	307	24	.0	.0	30.1	.0	3.0	.0
Apr	76.0	48.3	62.2	95	1989	22	69.7	1989	24+	1977	6	54.1	1983	156	70	.0	.4	29.9	.0	1.1	.0
May	83.8	55.8	69.8	103	1958	28	75.8	2000	33+	1977	14	64.2	1977	39	188	.2	6.0	31.0	.0	.0	.0
Jun	93.3	64.6	79.0	107+	1980	26	83.1	1974	40	1971	1	74.6	1991	0	418	4.2	21.9	30.0	.0	.0	.0
Jul	92.0	66.8	79.4	106+	1995	28	82.8	1989	38	1976	10	75.3	1976	0	446	3.2	20.3	31.0	.0	.0	.0
Aug	89.1	65.2	77.2	104	1972	1	81.4	1994	44	1983	22	73.1	1990	0	377	.6	15.1	31.0	.0	.0	.0
Sep	86.5	62.3	74.4	102	1950	1	78.0	1989	45+	1970	27	69.8	1976	2	284	@	8.3	30.0	.0	.0	.0
Oct	78.6	54.5	66.6	94+	1979	13	71.4	1999	23	1971	30	60.0	1971	84	132	.0	2.0	31.0	.0	.1	.0
Nov	67.7	42.8	55.3	87	1980	8	63.4	1999	9	1973	26	48.6	2000	307	15	.0	.0	29.3	.0	3.5	.0
Dec	60.7	37.5	49.1	83	1981	9	53.4	1980	11	1978	9	42.9	1971	492	0	.0	.0	28.0	.1	6.9	.0
Ann	76.8	51.5	64.2	107+	Jun 1980	26	83.1	Jun 1974	9	Nov 1973	26	42.9	Dec 1971	2251	1956	8.2	74.0	356.2	.1	27.0	.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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1950-2001

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

080-A

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COOP ID: 027593

Climate Division: AZ 7

NWS Call Sign:

Elevation: 4,300 Feet Lat: 31°46N

Lon: 110°51W

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	1.73	1.72	2.00+	1979	17	4.71	1993	.00+	1972	5.1	3.7	1.5	.3	.00	.12	.38	.65	.94	1.27	1.66	2.14	2.81	3.94	5.04
Feb	1.66	1.63	2.03	1980	14	5.19	1998	.00+	1999	4.7	3.0	1.2	.3	.00	.00	.34	.62	.91	1.23	1.61	2.08	2.71	3.76	4.80
Mar	1.78	1.61	1.75	1954	23	5.21	1973	.00+	1984	5.0	3.2	1.4	.4	.00	.09	.34	.60	.90	1.24	1.66	2.18	2.92	4.17	5.42
Apr	.66	.29	2.65	2001	6	3.11	1999	.00+	2000	2.0	1.5	.5	.1	.00	.00	.00	.00	.11	.29	.51	.79	1.19	1.85	2.52
May	.30	.15	.97	1992	22	1.65	1992	.00+	2000	2.0	1.0	.1	.0	.00	.00	.00	.00	.04	.11	.21	.34	.53	.86	1.20
Jun	.55	.31	4.15	1959	29	3.30	1990	.00+	2000	2.6	1.4	.3	.1	.00	.00	.00	.03	.11	.23	.39	.61	.95	1.57	2.20
Jul	4.83	4.26	3.54	1985	19	11.15	1990	1.12	1997	12.0	8.6	3.1	1.3	1.16	1.61	2.31	2.94	3.57	4.23	4.97	5.85	7.01	8.84	10.56
Aug	4.26	4.59	4.65	1992	24	8.02	1988	.91	1973	12.1	8.1	2.8	1.0	1.44	1.85	2.43	2.93	3.41	3.90	4.44	5.07	5.87	7.12	8.27
Sep	2.40	2.21	3.85	1964	10	8.31	1983	.15	1973	7.0	4.6	1.5	.6	.40	.61	.96	1.29	1.63	2.00	2.42	2.93	3.62	4.73	5.79
Oct	2.06	1.03	3.72	1989	5	7.87	2000	.00+	1999	4.6	2.8	1.0	.5	.00	.00	.15	.45	.80	1.24	1.78	2.49	3.50	5.22	6.98
Nov	1.30	.93	2.46	1963	21	4.36	1978	.00+	1999	3.2	2.2	.9	.3	.00	.12	.35	.55	.77	1.00	1.28	1.61	2.07	2.83	3.57
Dec	1.88	.84	2.80	1967	15	7.29	1984	.00+	1999	5.0	3.7	1.2	.4	.00	.00	.16	.44	.77	1.17	1.66	2.29	3.18	4.70	6.23
Ann	23.41	22.22	4.65	Aug 1992	24	11.15	Jul 1990	.00+	Jun 2000	65.3	43.8	15.5	5.3	14.59	16.21	18.33	19.97	21.45	22.90	24.41	26.10	28.18	31.23	33.90

+ 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: 1950-2001

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

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Station: SANTA RITA EXP RANGE, AZ

COOP ID: 027593

Climate Division: AZ 7

NWS Call Sign:

Elevation: 4,300 Feet

Lat: 31°46N

Lon: 110°51W

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	.6	.0	#	0	5.5	1997	7	7.5	1990	2	1995	17	#+	1999	.3	.3	.1	@	.0	.0	.0	.0	.0
Feb	1.0	.0	#	0	6.0	1971	20	12.0	1990	#+	1998	21	#+	1998	.3	.2	.2	.1	.0	.0	.0	.0	.0
Mar	.5	.0	#	0	3.3	1997	1	8.0	1991	3	2000	7	#+	2000	.2	.2	.1	.0	.0	.0	.0	.0	.0
Apr	.1	.0	#	0	2.0	1971	15	2.0	1971	2	1999	4	#	1999	@	@	.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	#	2000	7	#	2000	.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	.1	.0	#	0	1.0	1993	13	2.0	1993	1	1993	15	#	1993	.2	.1	.0	.0	.0	.1	.0	.0	.0
Dec	1.6	.0	#	0	10.0	1971	9	24.0	1971	3	1988	26	#+	1998	.4	.3	.2	.1	@	@	.0	.0	.0
Ann	3.9	.0	N/A	N/A	10.0	Dec 1971	9	24.0	Dec 1971	3+	Mar 2000	7	#+	Aug 2000	1.4	1.1	.6	.2	@	.1	.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

Complete documentation available from:

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No. 20 1971-2000

Station: SANTA RITA EXP RANGE, AZ

COOP ID: 027593

Climate Division: AZ 7

NWS Call Sign:

Elevation: 4,300 Feet

Lat: 31° 46N

Lon: 110° 51W

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	5/01	4/23	4/18	4/13	4/09	4/05	3/31	3/26	3/18
32	4/20	4/08	3/30	3/23	3/16	3/09	3/02	2/21	2/09
28	3/19	3/05	2/23	2/15	2/06	1/29	1/20	1/09	12/23
24	2/27	2/09	1/26	1/11	12/24	0/00	0/00	0/00	0/00
20	2/05	1/21	1/06	0/00	0/00	0/00	0/00	0/00	0/00
16	1/15	12/27	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	10/26	10/31	11/04	11/08	11/11	11/14	11/18	11/22	11/27
32	10/31	11/07	11/12	11/17	11/21	11/25	11/30	12/05	12/12
28	11/13	11/22	11/29	12/05	12/11	12/17	12/24	1/01	1/17
24	11/22	12/06	12/17	12/29	1/14	0/00	0/00	0/00	0/00
20	12/15	1/02	1/22	0/00	0/00	0/00	0/00	0/00	0/00
16	12/17	1/08	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	243	233	226	221	215	210	204	197	188
32	290	276	266	257	249	241	232	222	208
28	>365	346	327	315	305	295	285	273	258
24	>365	>365	>365	>365	>365	>365	344	311	286
20	>365	>365	>365	>365	>365	>365	>365	>365	318
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

Complete documentation available from:
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COOP ID: 027593

Climate Division: AZ 7 NWS Call Sign: Elevation: 4,300 Feet Lat: 31°46N Lon: 110°51W

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	498	366	307	156	39	0	0	0	2	84	307	492	2251
60	348	237	192	80	11	0	0	0	0	34	188	344	1434
57	262	168	138	47	4	0	0	0	0	17	130	259	1025
55	209	130	107	31	2	0	0	0	0	10	98	208	795
50	106	57	45	10	0	0	0	0	0	2	40	107	367
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	525	560	740	905	1172	1408	1469	1400	1272	1070	698	531	11750
55	21	45	134	246	461	718	756	687	582	367	106	25	4148
57	12	28	103	201	401	658	694	625	522	312	78	15	3649
60	5	12	64	144	315	568	601	532	432	236	46	6	2961
65	0	2	24	70	188	418	446	377	284	132	15	0	1956
70	0	0	7	25	92	273	292	228	150	59	3	0	1129

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	295	364	493	671	928	1174	1234	1159	1040	826	469	299	295	659	1152	1823	2751	3925	5159	6318	7358	8184	8653	8952
45	166	232	346	522	773	1024	1079	1004	890	671	329	172	166	398	744	1266	2039	3063	4142	5146	6036	6707	7036	7208
50	73	123	217	376	618	874	924	849	740	517	202	79	73	196	413	789	1407	2281	3205	4054	4794	5311	5513	5592
55	24	51	109	242	463	724	769	694	590	369	103	21	24	75	184	426	889	1613	2382	3076	3666	4035	4138	4159
60	0	11	46	132	315	574	614	539	440	233	39	0	0	11	57	189	504	1078	1692	2231	2671	2904	2943	2943
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	179	222	302	431	604	763	824	788	707	532	286	182	179	401	703	1134	1738	2501	3325	4113	4820	5352	5638	5820

(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