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: DUNCAN, AZ **COOP ID: 022754**

Climate Division: AZ 7 **NWS Call Sign:** **Elevation: 3,660 Feet** **Lat: 32˚45N** **Lon: 109˚07W**

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	60.0	23.7	41.9	80	1950	21	46.9	1993	-2	1962	11	37.4	1976	718	0	.0	.0	28.1	.0	26.0	.1
Feb	65.0	26.5	45.8	85+	1986	26	52.3	1996	-1	1956	3	40.3	1974	539	0	.0	.0	27.1	.3	21.8	.0
Mar	71.0	31.0	51.0	95	1989	10	56.4	1972	9	1951	4	45.7	1977	434	1	.0	.1	30.8	.0	18.5	.0
Apr	79.3	35.6	57.5	100	2000	27	63.3	2000	13	1973	6	51.3	1983	244	19	@	1.9	29.9	.0	10.9	.0
May	87.7	44.6	66.2	108	2000	29	73.1	2000	22+	1979	11	62.3	1975	74	109	.8	12.4	31.0	.0	1.4	.0
Jun	96.9	53.6	75.3	111+	1994	26	81.2	1994	32	1902	2	71.7	1983	8	316	10.6	27.0	30.0	.0	.0	.0
Jul	97.1	63.3	80.2	110	1989	3	83.8	2000	42+	1987	6	77.0	1976	0	471	10.5	28.6	31.0	.0	.0	.0
Aug	94.4	62.2	78.3	107	2000	3	81.7	1994	39	1903	1	75.4	1990	0	412	3.7	26.6	31.0	.0	.0	.0
Sep	90.1	54.2	72.2	103+	2000	13	76.9	1997	34	1905	30	68.8	1985	11	226	1.0	17.9	30.0	.0	.0	.0
Oct	80.3	41.0	60.7	99+	2000	1	65.0	1988	17	1949	21	56.7	1971	166	32	.0	4.6	31.0	.0	5.3	.0
Nov	68.2	28.5	48.4	87	2001	3	53.5	1995	6	1956	21	44.1	1979	499	0	.0	.0	29.5	.0	21.3	.0
Dec	59.6	22.9	41.3	78	1975	10	45.3	1994	-2	1953	24	37.9	1976	736	0	.0	.0	28.1	.1	26.4	@
Ann	79.1	40.6	59.9	111+	Jun 1994	26	83.8	Jul 2000	-2+	Jan 1962	11	37.4	Jan 1976	3429	1586	26.6	119.1	357.5	.4	131.6	.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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1901-2001

(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	.96	.85	1.50	1905	10	4.09	1993	.00+	1999
Feb	.94	1.03	1.36	1980	14	3.12	1980	.00+	1999
Mar	.62	.34	.94	1994	20	1.73	1983	.00+	1996
Apr	.24	.09	.90	1905	1	1.33	1988	.00+	2000
May	.38	.13	1.30	1992	5	3.62	1992	.00+	2000
Jun	.38	.18	2.43	1987	8	2.59	1987	.00+	1995
Jul	2.26	1.86	2.04	1987	21	6.10	1977	.20	2000
Aug	2.18	1.80	2.10	1942	9	6.03	1993	.32	1975
Sep	1.06	.98	1.90	1901	10	2.73	1975	.00+	2000
Oct	1.30	.93	1.84	1989	5	4.40	1972	.00+	1999
Nov	.77	.46	1.40	1994	12	2.71	1994	.00+	1999
Dec	1.19	.66	1.83	1994	5	4.76	1991	.00+	1999
Ann	12.28	12.56	2.43	Jun 1987	8	6.10	Jul 1977	.00+	Sep 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.0	2.8	.5	.1
Feb	4.5	2.6	.6	.1
Mar	4.1	1.8	.2	.0
Apr	1.5	.7	.1	.0
May	1.9	1.1	.2	@
Jun	2.2	1.1	.1	.1
Jul	8.5	5.0	1.3	.5
Aug	8.5	5.2	1.5	.4
Sep	4.6	2.5	.6	.1
Oct	4.4	2.8	.8	.3
Nov	2.9	2.0	.5	.1
Dec	4.7	2.7	.7	.1
Ann	52.8	30.3	7.1	1.8

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	.04	.17	.31	.47	.66	.88	1.17	1.57	2.25	2.93
Feb	.00	.02	.12	.25	.40	.59	.82	1.13	1.56	2.33	3.10
Mar	.00	.02	.10	.18	.28	.41	.56	.75	1.02	1.50	1.97
Apr	.00	.00	.00	.00	.02	.08	.16	.26	.42	.70	.98
May	.00	.00	.00	.01	.07	.15	.26	.42	.65	1.08	1.51
Jun	.00	.00	.00	.03	.09	.17	.28	.44	.66	1.07	1.48
Jul	.50	.70	1.03	1.33	1.63	1.95	2.31	2.74	3.31	4.21	5.06
Aug	.42	.61	.93	1.23	1.53	1.85	2.21	2.65	3.24	4.18	5.07
Sep	.00	.14	.34	.51	.68	.86	1.07	1.32	1.66	2.20	2.73
Oct	.00	.00	.21	.42	.64	.90	1.22	1.61	2.16	3.08	4.00
Nov	.00	.03	.13	.24	.37	.52	.70	.94	1.27	1.84	2.41
Dec	.00	.00	.07	.26	.49	.75	1.06	1.47	2.03	2.98	3.96
Ann	7.56	8.42	9.55	10.43	11.22	12.00	12.81	13.71	14.83	16.47	17.91

\+ 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: 1901-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	.0	#	0	2.0	1979	29	2.0	1979	#	1977	9	#	1977	.1	.1	.0	.0	.0	.0	.0	.0	.0
Feb	.1	.0	0	0	1.5	1973	22	1.5	1973	0	0	0	0	0	.1	.1	.0	.0	.0	.0	.0	.0	.0
Mar	#	.0	0	0	#	1985	3	#+	1985	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	#	.0	0	0	#	1973	27	#	1973	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.3	.0	0	0	4.5	1986	10	4.5	1986	0	0	0	0	0	.1	.1	@	.0	.0	.0	.0	.0	.0
Ann	.5	.0	N/A	N/A	4.5	Dec 1986	10	4.5	Dec 1986	#	Jan 1977	9	#	Jan 1977	.3	.3	@	.0	.0	.0	.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

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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	6/05	5/29	5/24	5/20	5/16	5/13	5/09	5/04	4/27
32	5/19	5/13	5/09	5/06	5/03	4/30	4/26	4/23	4/17
28	5/11	5/04	4/30	4/25	4/22	4/18	4/14	4/09	4/02
24	4/26	4/18	4/12	4/06	4/02	3/28	3/23	3/16	3/08
20	4/09	3/30	3/23	3/18	3/12	3/07	3/01	2/22	2/13
16	3/24	3/11	3/02	2/22	2/14	2/07	1/30	1/20	1/07

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	10/01	10/06	10/09	10/12	10/15	10/17	10/20	10/23	10/28
32	10/08	10/13	10/16	10/19	10/22	10/24	10/27	10/30	11/04
28	10/12	10/18	10/22	10/25	10/28	10/31	11/04	11/07	11/13
24	10/26	10/30	11/03	11/06	11/09	11/11	11/14	11/18	11/22
20	10/31	11/05	11/09	11/13	11/16	11/19	11/23	11/27	12/02
16	11/13	11/19	11/23	11/27	11/30	12/04	12/07	12/12	12/18

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	172	165	159	155	150	146	142	136	129
32	191	184	179	175	171	167	163	158	151
28	213	205	199	194	189	184	179	173	165
24	250	240	232	226	220	214	208	201	191
20	279	268	261	254	248	242	236	228	217
16	333	315	304	295	286	278	269	258	244

***** 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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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	718	539	434	244	74	8	0	0	11	166	499	736	3429
60	563	399	286	136	24	1	0	0	1	72	351	581	2414
57	470	317	206	87	10	0	0	0	0	37	266	488	1881
55	408	264	159	61	5	0	0	0	0	22	214	426	1559
50	257	145	70	19	0	0	0	0	0	4	105	273	873
32	0	0	0	0	0	0	0	0	0	0	0	1	1

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	305	385	590	764	1058	1297	1494	1435	1205	889	491	289	10202
55	0	5	36	135	349	607	781	722	515	198	15	0	3363
57	0	2	21	101	292	547	719	660	455	151	7	0	2955
60	0	0	8	60	214	458	626	567	366	93	2	0	2394
65	0	0	1	19	109	316	471	412	226	32	0	0	1586
70	0	0	0	4	42	190	317	259	111	6	0	0	929

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	104	189	354	531	816	1067	1254	1195	973	652	271	96	104	293	647	1178	1994	3061	4315	5510	6483	7135	7406	7502
45	33	84	207	383	661	917	1099	1040	823	499	149	26	33	117	324	707	1368	2285	3384	4424	5247	5746	5895	5921
50	2	21	96	245	506	767	944	885	673	349	57	1	2	23	119	364	870	1637	2581	3466	4139	4488	4545	4546
55	0	0	28	124	352	617	789	730	523	213	11	0	0	0	28	152	504	1121	1910	2640	3163	3376	3387	3387
60	0	0	2	40	209	467	634	575	373	101	0	0	0	0	2	42	251	718	1352	1927	2300	2401	2401	2401
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	167	231	336	441	548	624	772	755	616	471	284	165	167	398	734	1175	1723	2347	3119	3874	4490	4961	5245	5410

(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