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: ALVIN, TX **COOP ID: 410204**

Climate Division: TX 8 **NWS Call Sign:** **Elevation: 28 Feet** **Lat: 29˚22N** **Lon: 95˚14W**

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	62.2	43.1	52.7	86	2000	14	59.3	1989	14	1911	4	44.8	1978	403	14	.0	.0	26.5	.2	5.2	.0
Feb	65.7	46.1	55.9	86+	1986	20	63.9	2000	20+	1985	3	46.9	1978	274	19	.0	.0	25.5	.2	2.9	.0
Mar	72.0	53.0	62.5	94	2000	29	67.2	2000	22	1980	2	57.1	1996	125	47	.0	.1	30.7	.0	.8	.0
Apr	77.3	59.6	68.5	96	2000	18	74.4	1999	30	1915	3	62.9	1973	42	146	.0	.6	30.0	.0	.0	.0
May	83.6	67.3	75.5	98+	1912	25	78.7	1978	46+	1984	9	71.6	1976	3	326	.0	2.1	31.0	.0	.0	.0
Jun	88.8	72.5	80.7	103+	2000	29	84.2	1998	54	1984	1	78.3	1988	0	469	.2	13.7	30.0	.0	.0	.0
Jul	91.2	74.2	82.7	108+	2000	20	84.7	1977	60	1915	23	80.7	1976	0	548	.9	24.8	31.0	.0	.0	.0
Aug	91.6	73.8	82.7	100+	1998	2	85.0	1999	60+	1973	27	80.0	1992	0	547	.1	24.1	31.0	.0	.0	.0
Sep	87.7	69.6	78.7	99+	1995	3	82.0	1972	41	1967	30	74.6	1974	0	408	.2	12.8	30.0	.0	.0	.0
Oct	80.8	60.4	70.6	94	1991	13	74.0	1998	34	1980	31	63.3	1976	20	193	.0	1.0	31.0	.0	.0	.0
Nov	72.2	52.1	62.2	90+	1992	1	68.4	1973	20	1911	30	55.2	1976	164	78	.0	.1	29.5	.0	.8	.0
Dec	64.7	45.1	54.9	86	1966	6	63.0	1984	8	1989	24	45.1	1989	334	20	.0	.0	28.7	.2	3.5	.0
Ann	78.2	59.7	69.0	108+	Jul 2000	20	85.0	Aug 1999	8	Dec 1989	24	44.8	Jan 1978	1365	2815	1.4	79.3	354.9	.6	13.2	.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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1898-2001

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

Issue Date: February 2004

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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	4.76	4.23	4.20	1968	19	12.60	1998	.37	1971
Feb	2.91	2.18	3.35	1985	24	8.10	1992	.29	1976
Mar	3.11	2.54	7.50	1957	17	9.78	1997	.15	1978
Apr	3.22	2.35	5.08	1900	27	12.41	1997	.06	1987
May	4.92	5.41	6.00	1952	28	11.94	1975	.04	1978
Jun	5.35	3.92	12.60	1973	12	17.66	1973	.12	1974
Jul	4.78	3.47	8.67	1900	13	35.70	1979	.20	1977
Aug	3.84	3.00	7.01	1989	2	12.61	1996	.45	1999
Sep	7.12	6.32	8.37	1979	20	18.94	1979	.39	1989
Oct	3.93	2.82	8.00	1906	13	11.98	1998	.33	1978
Nov	4.43	3.36	6.25	1940	25	12.27	2000	.51	1988
Dec	3.36	3.42	8.10	1922	10	6.36	1982	.59	1989
Ann	51.73	47.63	12.60	Jun 1973	12	35.70	Jul 1979	.04	May 1978

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.0	6.4	2.9	1.3
Feb	7.9	4.3	1.8	1.0
Mar	8.5	4.8	2.0	.9
Apr	6.6	3.6	2.0	1.0
May	7.9	5.2	2.8	1.5
Jun	9.6	6.7	3.2	1.9
Jul	9.3	6.1	2.5	1.0
Aug	9.3	6.1	2.4	1.2
Sep	10.5	7.2	3.4	1.8
Oct	7.4	4.8	2.2	1.2
Nov	8.1	5.6	2.5	1.4
Dec	9.4	5.8	2.2	.9
Ann	104.5	66.6	29.9	15.1

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	.90	1.33	2.03	2.67	3.33	4.03	4.84	5.80	7.09	9.15	11.11
Feb	.45	.69	1.11	1.52	1.93	2.39	2.91	3.55	4.41	5.81	7.15
Mar	.40	.65	1.09	1.52	1.98	2.49	3.08	3.80	4.79	6.40	7.96
Apr	.24	.44	.85	1.30	1.79	2.36	3.04	3.91	5.11	7.14	9.14
May	.35	.65	1.28	1.96	2.71	3.59	4.64	5.97	7.83	10.96	14.07
Jun	.84	1.30	2.07	2.81	3.58	4.41	5.37	6.53	8.10	10.64	13.07
Jul	.50	.85	1.51	2.18	2.89	3.70	4.65	5.84	7.46	10.14	12.77
Aug	.49	.80	1.34	1.88	2.44	3.07	3.79	4.69	5.90	7.89	9.82
Sep	1.30	1.93	2.98	3.94	4.93	6.00	7.21	8.68	10.63	13.77	16.77
Oct	.29	.54	1.05	1.59	2.19	2.88	3.71	4.77	6.23	8.69	11.13
Nov	.70	1.08	1.72	2.33	2.97	3.65	4.45	5.41	6.70	8.80	10.82
Dec	1.09	1.40	1.88	2.28	2.66	3.06	3.50	4.02	4.68	5.71	6.66
Ann	31.93	35.55	40.32	44.01	47.34	50.60	54.00	57.81	62.50	69.39	75.44

\+ 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: 1898-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	#	.0	#	0
Feb	#	.0	#	0
Mar	#	.0	#	0
Apr	.0	.0	0	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.0	.0	0	0
Nov	.0	.0	0	0
Dec	.0	.0	0	0
Ann	#	.0	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	#	1987	21	#+	1987	#+	1985	14	#+	1985
Feb	#	1988	7	#+	1988	#	1985	1	#	1985
Mar	#	1989	5	#	1989	#	1989	5	#	1989
Apr	.0	0	0	.0	0	0	0	0	0	0
May	.0	0	0	.0	0	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	.0	0	0	.0	0	0	0	0	0	0
Nov	.0	0	0	.0	0	0	0	0	0	0
Dec	.0	0	0	.0	0	0	0	0	0	0
Ann	#+	Mar 1989	5	#+	Mar 1989	#+	Mar 1989	5	#+	Mar 1989

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.0	.0	.0	.0	.0
Feb	.0	.0	.0	.0	.0
Mar	.0	.0	.0	.0	.0
Apr	.0	.0	.0	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	.0	.0	.0	.0	.0
Dec	.0	.0	.0	.0	.0
Ann	.0	.0	.0	.0	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.0	.0	.0	.0
Feb	.0	.0	.0	.0
Mar	.0	.0	.0	.0
Apr	.0	.0	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.0	.0	.0	.0
Dec	.0	.0	.0	.0
Ann	.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	3/29	3/21	3/15	3/10	3/05	2/28	2/23	2/16	2/08
32	3/20	3/08	2/28	2/21	2/15	2/08	2/01	1/23	1/10
28	3/02	2/19	2/10	2/03	1/27	1/20	1/12	1/02	12/14
24	2/10	1/30	1/22	1/13	1/04	12/22	0/00	0/00	0/00
20	1/20	1/05	0/00	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	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	11/01	11/08	11/14	11/19	11/23	11/27	12/02	12/08	12/15
32	11/19	11/26	12/01	12/05	12/09	12/13	12/18	12/23	1/01
28	11/29	12/10	12/18	12/25	12/31	1/07	1/15	1/26	0/00
24	12/13	12/25	1/03	1/12	1/22	2/05	0/00	0/00	0/00
20	12/30	1/15	0/00	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	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	296	285	276	269	263	256	249	241	229
32	349	327	315	306	297	289	281	271	257
28	>365	>365	>365	346	334	325	317	307	295
24	>365	>365	>365	>365	>365	>365	348	335	320
20	>365	>365	>365	>365	>365	>365	>365	>365	>365
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

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Degree Days to Selected Base Temperatures (˚F)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	403	274	125	42	3	0	0	0	0	20	164	334	1365
60	278	169	48	10	0	0	0	0	0	4	88	213	810
57	216	121	22	3	0	0	0	0	0	1	55	157	575
55	181	94	12	1	0	0	0	0	0	1	38	124	451
50	104	41	2	0	0	0	0	0	0	0	14	58	219
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	641	669	946	1094	1347	1459	1571	1570	1398	1197	905	710	13507
55	109	119	245	404	634	769	858	857	708	484	253	121	5561
57	82	91	193	347	572	709	796	795	648	423	209	91	4956
60	51	54	126	264	479	619	703	702	558	333	153	55	4097
65	14	19	47	146	326	469	548	547	408	193	78	20	2815
70	8	6	11	64	185	319	393	392	261	85	31	7	1762

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	384	472	698	853	1096	1218	1327	1316	1161	942	656	465	384	856	1554	2407	3503	4721	6048	7364	8525	9467	10123	10588
45	255	339	543	703	941	1068	1172	1161	1011	787	508	323	255	594	1137	1840	2781	3849	5021	6182	7193	7980	8488	8811
50	149	225	399	554	786	918	1017	1006	861	632	370	200	149	374	773	1327	2113	3031	4048	5054	5915	6547	6917	7117
55	74	125	264	407	631	768	862	851	711	478	246	107	74	199	463	870	1501	2269	3131	3982	4693	5171	5417	5524
60	34	60	145	267	476	618	707	696	561	332	143	53	34	94	239	506	982	1600	2307	3003	3564	3896	4039	4092
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	224	282	435	563	775	866	929	923	810	634	416	276	224	506	941	1504	2279	3145	4074	4997	5807	6441	6857	7133

(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.
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