

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: BALLINGER 2 NW, TX

1971-2000

COOP ID: 410493

Climate Division: TX 2

NWS Call Sign:

Elevation: 1,755 Feet Lat: 31°44N

Lon: 99°59W

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	57.7	28.5	43.1	90+	1969	8	49.4+	2000	-6	1949	31	35.7	1978	680	0	.0	.0	24.1	.9	17.7	@
Feb	63.7	33.6	48.7	98	1996	22	56.1	1976	-4	1951	2	39.8	1978	457	0	.0	.2	24.5	.5	10.3	@
Mar	71.2	41.2	56.2	100	1916	4	62.8	1974	9+	1962	2	50.2	1987	286	14	.0	1.0	30.2	@	4.3	.0
Apr	79.5	51.1	65.3	104	1925	18	70.0	1972	24+	1975	3	58.5	1997	80	89	.1	6.3	29.9	.0	.8	.0
May	85.4	60.4	72.9	110	2000	25	80.4	2000	33	1903	1	68.2	1992	21	266	1.3	12.6	31.0	.0	.0	.0
Jun	91.0	67.5	79.3	116	1907	30	84.6	1990	44	1919	3	75.0	1973	0	426	2.9	21.3	30.0	.0	.0	.0
Jul	94.3	70.1	82.2	112	1933	14	86.7	1998	53	1926	15	77.2	1976	0	533	6.3	27.3	31.0	.0	.0	.0
Aug	93.3	69.3	81.3	114	1936	11	85.8	2000	47	1915	31	74.4	1971	0	506	3.7	25.8	31.0	.0	.0	.0
Sep	87.1	62.8	75.0	110	1952	2	82.3	1977	35	1942	27	66.9	1974	9	308	1.0	14.6	30.0	.0	.0	.0
Oct	78.8	51.5	65.2	105	1937	4	68.4	1979	16	1917	30	58.0	1976	72	76	.2	4.1	30.8	.0	.5	.0
Nov	67.1	39.8	53.5	98	1921	7	59.1	1973	8	1979	30	45.8	1976	358	11	.0	.1	27.9	@	6.2	.0
Dec	58.8	30.4	44.6	92+	1933	4	49.6	1984	-3	1989	23	34.5	1983	633	0	.0	.0	25.7	.8	15.4	@
Ann	77.3	50.5	63.9	116	Jun 1907	30	86.7	Jul 1998	-6	Jan 1949	31	34.5	Dec 1983	2596	2229	15.5	113.3	346.1	2.2	55.2	@

+ 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: 1897-2001

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

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COOP ID: 410493

Climate Division: TX 2

NWS Call Sign:

Elevation: 1,755 Feet Lat: 31°44N

Lon: 99°59W

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	.94	.90	1.90	1961	8	2.81	1991	.00+	1976	4.5	2.5	.6	@	.00	.05	.18	.32	.47	.65	.87	1.15	1.53	2.18	2.83
Feb	1.32	1.18	2.15	1992	4	5.72	1992	.00	1999	4.4	2.5	.8	.3	.05	.15	.34	.53	.74	.98	1.27	1.62	2.12	2.94	3.75
Mar	1.27	1.22	2.90	1936	7	4.46	1981	.00	1971	4.2	2.7	.9	.3	.03	.10	.26	.44	.64	.88	1.17	1.55	2.07	2.96	3.85
Apr	1.80	1.21	6.21	1954	12	5.37	1977	.00	1998	4.8	3.2	1.3	.5	.13	.31	.60	.86	1.14	1.44	1.79	2.22	2.79	3.73	4.64
May	3.38	3.08	7.05	1946	15	13.51	1987	.20	1971	6.1	4.6	2.3	1.1	.36	.61	1.08	1.55	2.06	2.63	3.29	4.12	5.26	7.13	8.96
Jun	3.15	2.83	6.78	1997	23	9.65	1997	.44	1990	5.7	4.3	1.9	1.0	.64	.92	1.39	1.81	2.24	2.69	3.21	3.83	4.66	5.97	7.22
Jul	1.39	.90	4.11	1968	20	5.92	1990	.00	1982	4.0	2.6	.8	.2	.03	.12	.30	.50	.72	.98	1.29	1.69	2.25	3.20	4.14
Aug	2.40	1.65	6.50	1906	6	8.82	1971	.00+	2000	4.7	3.2	1.5	.6	.00	.06	.30	.62	1.00	1.48	2.08	2.86	3.99	5.96	7.95
Sep	3.08	2.34	6.25	1936	17	14.47	1980	.06	1999	5.2	4.1	1.9	1.0	.15	.31	.67	1.08	1.55	2.12	2.81	3.70	4.97	7.14	9.32
Oct	2.52	2.36	6.40	1930	13	7.34	1981	.00	1992	5.0	3.7	1.5	.7	.04	.17	.46	.81	1.20	1.68	2.27	3.03	4.11	5.96	7.82
Nov	1.31	.79	4.00	1913	23	5.01	2000	.00+	1999	3.6	2.4	.8	.4	.00	.07	.25	.44	.66	.91	1.22	1.60	2.14	3.06	3.97
Dec	1.20	.80	2.90	1991	20	7.56	1991	.00+	1996	4.2	2.3	.7	.2	.00	.02	.11	.26	.44	.68	.99	1.40	2.01	3.09	4.20
Ann	23.76	23.09	7.05	May 1946	15	14.47	Sep 1980	.00+	Aug 2000	56.4	38.1	15.0	6.3	14.52	16.20	18.42	20.14	21.69	23.22	24.81	26.59	28.79	32.02	34.86

+ 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: 1897-2001

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

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Station: BALLINGER 2 NW, TX

COOP ID: 410493

Climate Division: TX 2

NWS Call Sign:

Elevation: 1,755 Feet

Lat: 31°44N

Lon: 99°59W

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	1.2	.0	#	0	6.0	1972	31	9.5	1973	4	1985	12	3	1985	.3	.3	.1	.1	.0	.2	.0	.0	.0
Feb	.5	.0	#	0	4.5	1973	17	6.5	1973	2	1988	6	#+	1994	.2	.2	.1	.0	.0	.1	.0	.0	.0
Mar	.1	.0	#	0	1.2	1989	5	1.2	1989	#	1987	29	#	1987	@	@	.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	.1	.0	#	0	2.5	1976	13	2.5	1976	3	1976	13	#+	1997	@	@	.0	.0	.0	@	@	.0	.0
Dec	.1	.0	#	0	1.0	1986	11	2.0	1986	2	1986	12	#	1986	.1	.1	.0	.0	.0	.1	.0	.0	.0
Ann	2.0	.0	N/A	N/A	6.0	Jan 1972	31	9.5	Jan 1973	4	Jan 1985	12	3	Jan 1985	.6	.6	.2	.1	.0	.4	@	.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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Climate Division: TX 2

NWS Call Sign:

Elevation: 1,755 Feet

Lat: 31° 44N

Lon: 99° 59W

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	4/22	4/17	4/13	4/10	4/07	4/04	4/01	3/28	3/23
32	4/13	4/08	4/04	3/31	3/28	3/25	3/21	3/17	3/12
28	4/08	3/31	3/25	3/20	3/15	3/10	3/05	2/27	2/19
24	3/22	3/13	3/07	3/02	2/25	2/20	2/14	2/08	1/30
20	3/11	2/26	2/17	2/10	2/02	1/26	1/18	1/08	12/24
16	2/14	2/05	1/30	1/23	1/17	1/10	12/30	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	10/14	10/19	10/23	10/26	10/29	11/01	11/04	11/08	11/13
32	10/23	10/29	11/02	11/05	11/09	11/12	11/15	11/19	11/25
28	10/31	11/05	11/09	11/12	11/15	11/19	11/22	11/26	12/01
24	11/05	11/12	11/17	11/21	11/25	11/29	12/03	12/08	12/14
20	11/12	11/23	12/01	12/08	12/14	12/21	12/28	1/06	1/20
16	12/01	12/10	12/17	12/23	12/30	1/07	1/21	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	226	219	213	209	204	200	195	190	182
32	245	238	233	229	225	221	216	211	204
28	274	264	257	251	245	239	233	226	216
24	305	294	286	279	273	266	259	251	240
20	>365	357	333	321	310	301	292	281	266
16	>365	>365	>365	>365	357	338	326	315	301

* 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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Climate Division: TX 2 NWS Call Sign: Elevation: 1,755 Feet Lat: 31°44N Lon: 99°59W

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	680	457	286	80	21	0	0	0	9	72	358	633	2596
60	529	326	166	26	5	0	0	0	0	21	234	481	1788
57	443	252	111	11	1	0	0	0	0	8	172	395	1393
55	386	207	81	5	0	0	0	0	0	4	137	338	1158
50	259	118	30	0	0	0	0	0	0	1	70	213	691
32	20	2	0	0	0	0	0	0	0	0	0	9	31

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	363	469	750	999	1268	1416	1556	1529	1289	1028	643	398	11708
55	17	30	118	313	555	726	843	816	599	319	90	15	4441
57	11	19	86	260	494	666	781	754	539	261	65	9	3945
60	5	9	48	185	405	576	688	661	449	181	37	3	3247
65	0	0	14	89	266	426	533	506	308	76	11	0	2229
70	0	0	2	31	153	279	378	354	185	22	1	0	1405

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	237	353	598	808	1069	1211	1335	1303	1075	830	467	266	237	590	1188	1996	3065	4276	5611	6914	7989	8819	9286	9552
45	137	234	449	659	914	1061	1180	1148	925	678	335	158	137	371	820	1479	2393	3454	4634	5782	6707	7385	7720	7878
50	68	136	316	512	759	911	1025	993	776	524	216	78	68	204	520	1032	1791	2702	3727	4720	5496	6020	6236	6314
55	28	67	193	369	604	761	870	838	627	379	125	36	28	95	288	657	1261	2022	2892	3730	4357	4736	4861	4897
60	0	24	99	239	450	611	715	683	483	239	61	9	0	24	123	362	812	1423	2138	2821	3304	3543	3604	3613
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	189	254	399	533	704	808	875	864	720	544	314	201	189	443	842	1375	2079	2887	3762	4626	5346	5890	6204	6405

(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.
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