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: TAMPA INTL AP, FL **COOP ID: 088788**

Climate Division: FL 4 **NWS Call Sign: TPA** **Elevation: 19 Feet** **Lat: 27˚58N** **Lon: 82˚32W**

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	70.1	52.4	61.3	86	1991	1	71.6	1974	21	1985	21	51.2	1981	187	57	.0	.0	30.6	.0	1.3	.0
Feb	71.6	53.8	62.7	88	1971	26	69.5	1990	24	1958	4	54.1	1978	136	59	.0	.0	28.1	@	.6	.0
Mar	76.3	58.5	67.4	91+	1949	25	73.9	1997	29	1980	3	62.2	1971	63	124	.0	.0	31.0	.0	.1	.0
Apr	80.6	62.4	71.5	93+	1975	30	76.9	1991	40+	1987	5	66.4	1987	13	204	.0	.7	30.0	.0	.0	.0
May	86.3	68.9	77.6	98	1975	26	81.7	1995	49+	1992	8	74.2	1992	0	393	.0	8.5	31.0	.0	.0	.0
Jun	88.9	74.0	81.5	99	1985	5	85.6	1998	53	1984	1	78.6	1976	0	501	.0	17.4	30.0	.0	.0	.0
Jul	89.7	75.3	82.5	98+	1942	21	83.7	1980	63	1970	1	79.9	1974	0	550	.0	21.8	31.0	.0	.0	.0
Aug	90.0	75.4	82.7	98	1975	22	83.9	1990	67+	1973	22	81.1	1971	0	549	.0	22.3	31.0	.0	.0	.0
Sep	89.0	74.3	81.6	96+	1991	7	83.1	1990	57	1981	19	79.7	1981	0	489	.0	16.4	30.0	.0	.0	.0
Oct	84.1	67.6	75.8	95	1941	9	79.7	1985	40	1964	21	71.8	1987	4	323	.0	2.9	31.0	.0	.0	.0
Nov	78.0	60.7	69.3	90+	1971	1	76.9	1986	23	1970	25	64.0	1976	44	157	.0	@	30.0	.0	.0	.0
Dec	72.0	54.7	63.3	86+	1994	4	70.1	1971	18	1962	13	56.6	1989	144	76	.0	.0	30.6	.0	.7	.0
Ann	81.4	64.8	73.1	99	Jun 1985	5	85.6	Jun 1998	18	Dec 1962	13	51.2	Jan 1981	591	3482	.0	90.0	364.3	@	2.7	.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: 1900-2001

(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	2.27	2.01	3.40	1996	1	5.72	1979	.17	1974
Feb	2.67	2.08	5.06	1937	10	10.82	1998	.29	1999
Mar	2.84	2.19	4.33	1957	21	12.01	1987	.41	2000
Apr	1.80	1.48	5.44	1997	26	10.71	1997	.00	1981
May	2.85	1.75	11.45	1979	8	17.64	1979	.02	2000
Jun	5.50	5.08	9.88	1945	23	13.75	1974	1.46	1997
Jul	6.49	6.31	9.07	1960	29	12.95	1998	1.65	1981
Aug	7.60	7.54	4.92	1949	12	13.75	1995	3.27	1990
Sep	6.54	5.96	7.59	1997	26	13.98	1979	1.28	1972
Oct	2.29	2.03	3.61	1944	19	6.21	1986	.06	2000
Nov	1.62	1.30	3.81	1963	10	5.97	1988	.01	1978
Dec	2.30	1.46	4.32	1997	27	15.57	1997	.07	1984
Ann	44.77	43.30	11.45	May 1979	8	17.64	May 1979	.00	Apr 1981

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.1	4.1	1.7	.5
Feb	6.4	4.1	1.8	.7
Mar	6.6	4.1	1.8	.8
Apr	4.7	3.1	1.1	.4
May	6.2	3.8	1.6	.6
Jun	11.7	8.2	3.6	1.6
Jul	14.9	10.3	4.7	1.8
Aug	16.0	11.3	5.3	2.5
Sep	12.4	8.4	4.1	2.3
Oct	6.5	3.5	1.4	.8
Nov	5.5	3.0	.9	.3
Dec	6.3	3.6	1.4	.6
Ann	104.3	67.5	29.4	12.9

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	.35	.54	.87	1.18	1.50	1.86	2.27	2.77	3.44	4.53	5.58
Feb	.24	.42	.78	1.15	1.56	2.02	2.57	3.26	4.20	5.78	7.33
Mar	.39	.62	1.02	1.42	1.83	2.29	2.82	3.47	4.35	5.79	7.18
Apr	.08	.23	.50	.77	1.05	1.37	1.75	2.22	2.86	3.93	4.98
May	.06	.16	.42	.76	1.19	1.73	2.41	3.33	4.68	7.04	9.47
Jun	1.72	2.24	3.02	3.68	4.33	4.99	5.72	6.58	7.69	9.41	11.01
Jul	2.41	3.02	3.89	4.62	5.31	6.02	6.79	7.68	8.81	10.56	12.16
Aug	4.15	4.75	5.56	6.19	6.78	7.35	7.96	8.65	9.50	10.76	11.89
Sep	1.94	2.56	3.49	4.29	5.08	5.89	6.79	7.85	9.22	11.36	13.34
Oct	.12	.25	.53	.83	1.19	1.60	2.11	2.76	3.68	5.25	6.81
Nov	.09	.18	.38	.60	.85	1.14	1.50	1.96	2.60	3.70	4.79
Dec	.14	.28	.56	.88	1.23	1.64	2.14	2.78	3.67	5.19	6.69
Ann	29.68	32.52	36.21	39.04	41.57	44.03	46.59	49.43	52.90	57.98	62.40

\+ 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: 1900-2001
(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	.0	.0	0	0	.2	1977	19	.2	1977	#+	1997	25	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	#	.0	0	0	#	1980	3	#	1980	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	#	1997	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	#	.0	0	0	#	1989	23	#	1989	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	#	.0	N/A	N/A	.2	Jan 1977	19	.2	Jan 1977	#+	Jan 1997	25	#	May 1997	.0	.0	.0	.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	3/09	2/27	2/21	2/15	2/09	2/04	1/28	1/21	1/10
32	2/22	2/12	2/04	1/28	1/19	1/07	0/00	0/00	0/00
28	1/27	1/18	1/09	0/00	0/00	0/00	0/00	0/00	0/00
24	1/09	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
20	0/00	0/00	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	11/26	12/06	12/13	12/20	12/25	12/31	1/07	1/15	1/27
32	12/17	12/28	1/05	1/12	1/21	2/02	0/00	0/00	0/00
28	1/03	1/15	1/28	0/00	0/00	0/00	0/00	0/00	0/00
24	1/10	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
20	0/00	0/00	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	>365	342	329	320	313	306	299	291	280
32	>365	>365	>365	>365	>365	>365	335	324	312
28	>365	>365	>365	>365	>365	>365	>365	>365	365
24	>365	>365	>365	>365	>365	>365	>365	>365	>365
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	187	136	63	13	0	0	0	0	0	4	44	144	591
60	131	65	21	1	0	0	0	0	0	0	11	67	296
57	89	36	9	0	0	0	0	0	0	0	4	37	175
55	66	24	5	0	0	0	0	0	0	0	2	25	122
50	29	7	0	0	0	0	0	0	0	0	0	7	43
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	893	849	1089	1181	1418	1492	1573	1573	1480	1342	1100	952	14942
55	227	232	382	492	705	802	860	860	790	629	413	272	6664
57	184	189	325	432	643	742	798	798	730	567	357	224	5989
60	128	132	244	343	550	652	705	705	640	474	276	160	5009
65	57	59	124	204	393	501	550	549	489	323	157	76	3482
70	13	15	44	90	242	352	395	395	340	179	64	20	2149

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	652	659	848	951	1177	1264	1334	1336	1247	1104	867	715	652	1311	2159	3110	4287	5551	6885	8221	9468	10572	11439	12154
45	502	514	693	801	1022	1114	1179	1181	1097	949	717	563	502	1016	1709	2510	3532	4646	5825	7006	8103	9052	9769	10332
50	363	372	539	651	867	964	1024	1026	947	794	567	414	363	735	1274	1925	2792	3756	4780	5806	6753	7547	8114	8528
55	233	249	389	501	712	814	869	871	797	639	420	281	233	482	871	1372	2084	2898	3767	4638	5435	6074	6494	6775
60	135	145	252	354	557	664	714	716	647	484	286	168	135	280	532	886	1443	2107	2821	3537	4184	4668	4954	5122
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	405	409	558	650	831	899	951	954	891	779	577	447	405	814	1372	2022	2853	3752	4703	5657	6548	7327	7904	8351

(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