

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: CANADAY STEAM PLANT, NE

1971-2000

COOP ID: 251450

Climate Division: NE 8

NWS Call Sign:

Elevation: 2,362 Feet Lat: 40°42N

Lon: 99°42W

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	35.6	11.9	23.8	75+	1997	3	34.3	1986	-20	1974	12	9.1	1979	1278	0	.0	.0	5.5	11.9	30.7	6.4
Feb	41.5	17.0	29.3	79+	1982	23	39.2	1999	-17+	1982	5	15.4	1978	1001	0	.0	.0	9.0	8.5	26.6	3.4
Mar	50.7	25.8	38.3	88+	1986	30	44.9	1986	-14	1965	26	31.4	1975	830	0	.0	.0	16.7	3.7	22.8	.7
Apr	62.4	36.0	49.2	93	1994	19	57.1	1981	11+	1989	11	43.2	1983	476	2	.0	.3	24.3	.4	10.1	.0
May	71.9	47.7	59.8	99+	1967	24	65.4	1977	23+	1989	1	52.8	1995	203	42	.0	.8	30.3	.0	.9	.0
Jun	82.6	57.5	70.1	107	1988	22	75.8	1988	36	1969	2	64.1	1982	34	185	.5	6.8	29.9	.0	.0	.0
Jul	87.0	62.9	75.0	107	1964	23	80.1	1974	45+	1997	4	69.5	1992	3	311	1.6	12.1	31.0	.0	.0	.0
Aug	85.0	60.7	72.9	105	1983	17	79.6	1983	42	1992	27	67.4	1992	14	258	.5	9.1	31.0	.0	.0	.0
Sep	77.3	50.4	63.9	103+	1984	1	70.5	1998	24	1984	29	58.4	1993	113	77	.2	4.0	29.6	.0	.8	.0
Oct	65.7	37.6	51.7	94	1963	1	54.6	1975	13	1997	27	47.2	1976	415	1	.0	.2	27.9	.2	7.6	.0
Nov	48.5	24.6	36.6	83	1980	7	44.9	1999	-12	1975	26	26.6	1985	855	0	.0	.0	14.7	4.2	24.7	.4
Dec	38.3	15.4	26.9	77	1964	23	33.7	1979	-27	1983	22	8.9	1983	1182	0	.0	.0	6.7	9.7	30.3	3.2
Ann	62.2	37.3	49.8	107+	Jun 1988	22	80.1	Jul 1974	-27	Dec 1983	22	8.9	Dec 1983	6404	876	2.8	33.3	256.6	38.6	154.5	14.1

+ 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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1961-2001

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

022-A

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NWS Call Sign:

Elevation: 2,362 Feet Lat: 40°42N

Lon: 99°42W

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	.42	.34	.90	1996	18	1.48	1992	.00+	1986	2.9	1.5	.1	.0	.00	.04	.12	.18	.25	.33	.41	.52	.66	.90	1.13
Feb	.42	.29	1.20	1971	18	1.39	2000	.00+	1996	2.5	1.2	.2	@	.00	.00	.00	.06	.14	.24	.35	.51	.73	1.11	1.50
Mar	1.51	1.13	1.85	1977	12	4.40	1977	.00	1994	5.5	3.8	.9	.3	.06	.18	.40	.62	.86	1.13	1.45	1.86	2.42	3.34	4.26
Apr	2.11	1.78	2.14	1999	20	5.75	1984	.00	1989	6.0	4.3	1.4	.5	.20	.44	.79	1.09	1.41	1.75	2.13	2.60	3.23	4.23	5.20
May	3.77	3.55	3.71	1991	23	7.54	1991	.59	1992	9.4	7.1	2.5	.9	1.04	1.40	1.94	2.42	2.88	3.36	3.90	4.53	5.36	6.65	7.86
Jun	3.28	3.06	5.07	1989	25	8.44	1975	.32	1978	7.0	5.9	2.0	.8	.86	1.17	1.64	2.06	2.47	2.90	3.39	3.96	4.70	5.88	6.97
Jul	3.64	3.29	3.98	1968	23	8.68	1993	.37	1997	7.3	5.5	2.6	1.0	.62	.94	1.47	1.97	2.48	3.04	3.67	4.44	5.46	7.12	8.70
Aug	2.76	2.43	4.67	1989	28	5.82	1993	.48	1984	6.5	4.9	1.8	.9	.74	1.00	1.40	1.75	2.10	2.46	2.86	3.33	3.95	4.92	5.83
Sep	1.71	1.32	3.00	1969	18	5.12	1985	.00	1984	4.7	3.6	1.2	.4	.13	.31	.58	.83	1.09	1.38	1.70	2.11	2.64	3.52	4.37
Oct	1.32	.89	3.30	1965	17	4.39	1984	.00	1975	4.0	2.8	.8	.3	.07	.19	.39	.58	.79	1.02	1.29	1.62	2.08	2.84	3.57
Nov	1.01	.96	1.55	1971	15	3.12	1971	.00	1989	3.3	2.4	.7	.1	.03	.09	.23	.37	.53	.72	.94	1.23	1.63	2.30	2.97
Dec	.42	.34	.91	1982	28	1.38	1972	.00+	1998	2.5	1.3	.1	.0	.00	.00	.05	.13	.20	.29	.39	.52	.71	1.00	1.30
Ann	22.37	23.21	5.07	Jun 1989	25	8.68	Jul 1993	.00+	Dec 1998	61.6	44.3	14.3	5.2	15.43	16.75	18.45	19.75	20.91	22.04	23.20	24.49	26.05	28.33	30.31

+ 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: 1961-2001

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

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Climate Division: NE 8

NWS Call Sign:

Elevation: 2,362 Feet

Lat: 40°42N

Lon: 99°42W

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	5.0	4.3	1	1	7.0	1988	19	11.6	1993	14	1993	20	6	1984	2.2	1.8	.6	.2	.0	7.5	2.2	.1	.0
Feb	2.3	.6	1	#	12.0	1984	19	13.0	1984	14	1978	14	10	1978	1.3	1.1	.4	.2	@	2.8	.3	.1	.1
Mar	3.4	2.5	#	#	5.0	1971	24	14.5	1971	13	1984	19	2	1993	1.4	1.1	.5	.1	.0	1.8	.7	.2	.0
Apr	.8	.0	#	0	3.0	1974	4	6.0	1983	8+	1994	12	1	1984	.3	.3	.1	.0	.0	.3	@	.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	1.0	1995	21	1.0	1995	4	1985	29	#+	1995	@	@	.0	.0	.0	@	.0	.0	.0
Oct	.3	.0	#	0	3.0	1980	27	3.0	1980	3	1980	27	#+	1997	.1	.1	@	.0	.0	.1	@	.0	.0
Nov	3.3	1.5	#	#	8.5	1983	28	14.0	1991	15	1975	30	4	2000	.9	.9	.4	.2	.0	1.4	.4	.0	.0
Dec	5.1	3.0	1	#	9.0	1972	12	15.0	1992	15	1975	2	8	1983	1.4	1.2	.6	.3	.0	3.6	1.8	1.1	.2
Ann	20.2	11.9	N/A	N/A	12.0	Feb 1984	19	15.0	Dec 1992	15+	Dec 1975	2	10	Feb 1978	7.6	6.5	2.6	1.0	@	17.5	5.4	1.5	.3

+ 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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Climate Division: NE 8

NWS Call Sign:

Elevation: 2,362 Feet

Lat: 40° 42N

Lon: 99° 42W

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	5/19	5/15	5/12	5/10	5/08	5/05	5/03	4/30	4/26
32	5/15	5/10	5/06	5/03	4/30	4/28	4/25	4/21	4/16
28	5/03	4/28	4/25	4/22	4/20	4/17	4/14	4/11	4/07
24	4/20	4/16	4/13	4/10	4/07	4/05	4/02	3/30	3/26
20	4/12	4/06	4/03	3/31	3/28	3/24	3/21	3/18	3/12
16	4/03	3/28	3/24	3/20	3/16	3/13	3/09	3/05	2/26
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	9/15	9/19	9/22	9/25	9/27	9/30	10/02	10/05	10/09
32	9/20	9/26	9/30	10/03	10/07	10/10	10/13	10/18	10/23
28	9/29	10/04	10/08	10/11	10/14	10/17	10/21	10/24	10/30
24	10/11	10/16	10/20	10/23	10/26	10/29	11/01	11/05	11/10
20	10/20	10/25	10/29	11/02	11/05	11/08	11/11	11/15	11/20
16	10/26	11/02	11/07	11/11	11/15	11/19	11/23	11/28	12/05
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	158	153	149	145	142	139	135	131	126
32	179	172	167	162	158	154	150	145	138
28	195	189	185	181	177	173	170	165	159
24	218	212	208	204	201	197	194	189	183
20	243	235	230	226	221	217	213	207	200
16	267	258	252	247	243	238	233	227	218

* 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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Climate Division: NE 8 NWS Call Sign: Elevation: 2,362 Feet Lat: 40° 42N Lon: 99° 42W

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	1278	1001	830	476	203	34	3	14	113	415	855	1182	6404
60	1123	861	675	335	108	9	0	2	45	267	705	1027	5157
57	1030	782	582	258	67	3	0	0	21	187	615	934	4479
55	969	731	522	211	46	1	0	0	11	141	557	872	4061
50	819	600	378	115	14	0	0	0	1	58	419	725	3129
32	347	229	52	1	0	0	0	0	0	0	83	270	982

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	92	153	245	516	862	1141	1331	1267	955	609	218	111	7500
55	1	10	2	37	195	452	618	554	276	36	3	0	2184
57	0	6	0	23	153	394	556	492	226	20	0	0	1870
60	0	0	0	11	101	310	463	401	159	7	0	0	1452
65	0	0	0	2	42	185	311	258	77	1	0	0	876
70	0	0	0	0	12	92	174	139	29	0	0	0	446

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	8	39	120	313	623	910	1096	1031	723	385	89	17	8	47	167	480	1103	2013	3109	4140	4863	5248	5337	5354
45	0	12	60	200	472	760	941	876	574	258	38	0	0	12	72	272	744	1504	2445	3321	3895	4153	4191	4191
50	0	0	26	114	330	611	786	721	428	147	10	0	0	0	26	140	470	1081	1867	2588	3016	3163	3173	3173
55	0	0	5	55	206	463	631	566	299	69	0	0	0	0	5	60	266	729	1360	1926	2225	2294	2294	2294
60	0	0	1	25	108	322	476	412	185	24	0	0	0	0	1	26	134	456	932	1344	1529	1553	1553	1553
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	20	50	107	215	380	589	728	679	461	262	81	23	20	70	177	392	772	1361	2089	2768	3229	3491	3572	3595

(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