

Climatography of the United States

No. 20

1971-2000

Station: ELLSWORTH 15 NNE, NE

COOP ID: 252647

Climate Division: NE 1

NWS Call Sign:

Elevation: 3,970 Feet Lat: 42° 16N

Lon: 102° 13W

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	33.3	8.5	20.9	67+	1997	3	30.2	1990	-28	1988	9	5.4	1979	1367	0	.0	.0	3.9	12.5	30.8	7.8
Feb	39.0	13.6	26.3	74	1982	23	35.6	1999	-32+	1996	3	13.4	1978	1083	0	.0	.0	7.7	8.3	27.5	4.3
Mar	47.4	21.4	34.4	83	1997	21	40.8	1986	-22	1989	5	27.6	1975	949	0	.0	.0	14.9	4.6	27.5	1.2
Apr	57.7	30.7	44.2	91	1989	22	52.1	1981	-10	1975	2	37.7	1997	625	0	.0	.1	22.0	1.0	17.2	.1
May	68.3	41.5	54.9	96	1969	26	60.0	1985	18+	1976	6	48.8	1983	323	10	.0	.1	29.1	@	4.2	.0
Jun	79.0	51.0	65.0	104	1988	25	71.2	1988	29+	1969	2	59.8	1982	89	89	.2	3.5	29.8	.0	.1	.0
Jul	85.9	57.2	71.6	106+	1973	6	76.2	1974	38+	1997	4	65.6	1992	12	215	1.0	10.8	31.0	.0	.0	.0
Aug	84.9	55.4	70.2	103	1980	7	74.3	1983	35	1975	25	64.8	1992	28	186	.3	9.6	31.0	.0	.0	.0
Sep	75.2	44.7	60.0	99+	1998	6	66.8	1998	12	1984	29	53.8	1993	197	45	.0	3.0	29.2	@	2.7	.0
Oct	62.4	32.2	47.3	92+	1980	1	50.6+	1974	-5	1991	31	44.5	1976	549	0	.0	.1	25.4	.5	14.3	@
Nov	45.3	19.6	32.5	79	1999	9	42.6	1999	-18	1964	21	19.7	1985	978	0	.0	.0	12.3	6.0	27.3	1.5
Dec	36.6	10.9	23.8	69+	1987	5	31.5	1999	-42	1989	23	6.0	1983	1280	0	.0	.0	6.1	10.1	30.5	5.3
Ann	59.6	32.2	45.9	106+	Jul 1973	6	76.2	Jul 1974	-42	Dec 1989	23	5.4	Jan 1979	7480	545	1.5	27.2	242.4	43.0	182.1	20.2

+ 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: 1963-2001

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

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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: ELLSWORTH 15 NNE, NE

COOP ID: 252647

Climate Division: NE 1

NWS Call Sign:

Elevation: 3,970 Feet Lat: 42°16N

Lon: 102°13W

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	.31	.26	.63	1988	19	.68	1996	.00+	1989	3.4	1.2	.1	.0	.00	.00	.11	.16	.21	.27	.33	.40	.49	.64	.78
Feb	.45	.32	.73	1986	5	1.87	1987	.00+	1996	3.5	1.4	.2	.0	.00	.00	.09	.17	.24	.33	.43	.56	.73	1.01	1.29
Mar	.87	.65	1.40	2000	8	3.03	1977	.05	1978	4.7	2.5	.5	.1	.12	.19	.32	.44	.56	.70	.86	1.06	1.33	1.76	2.18
Apr	1.99	2.00	2.40	1999	14	5.74	1999	.46	1989	7.4	4.8	1.3	.2	.46	.65	.94	1.20	1.46	1.73	2.04	2.41	2.89	3.65	4.37
May	3.22	2.56	3.60	1978	28	6.72	2000	.78	1992	9.8	6.4	2.1	.7	.93	1.24	1.70	2.10	2.49	2.89	3.34	3.86	4.55	5.61	6.61
Jun	2.96	2.81	3.26	1988	30	5.49	1993	.74	1985	9.4	6.2	1.6	.6	1.09	1.36	1.76	2.10	2.41	2.74	3.09	3.50	4.03	4.83	5.57
Jul	2.84	2.78	2.31	1991	10	5.71	1978	.40	1974	8.5	5.8	2.0	.5	.99	1.26	1.65	1.98	2.29	2.61	2.97	3.37	3.90	4.71	5.45
Aug	1.79	1.35	2.94	1963	27	5.66	1982	.17	1973	5.8	3.8	.9	.4	.30	.45	.71	.96	1.21	1.49	1.80	2.19	2.70	3.53	4.32
Sep	1.77	1.34	2.87	1999	2	8.68	1973	.00	1976	5.6	3.9	1.1	.4	.05	.18	.42	.67	.96	1.28	1.67	2.16	2.85	4.00	5.14
Oct	1.28	1.11	1.60	1998	5	4.35	1994	.10	1999	3.9	2.8	.9	.2	.12	.20	.38	.55	.75	.97	1.23	1.56	2.01	2.76	3.50
Nov	.58	.51	.94	2000	1	1.99	1998	.00+	1997	3.4	1.9	.2	.0	.00	.09	.21	.30	.39	.49	.60	.72	.89	1.17	1.43
Dec	.28	.23	.58	1978	2	.83	1987	.00+	1991	3.0	1.1	@	.0	.00	.05	.10	.15	.19	.24	.29	.35	.43	.56	.68
Ann	18.34	18.65	3.60	May 1978	28	8.68	Sep 1973	.00+	Nov 1997	68.4	41.8	10.9	3.1	12.40	13.52	14.98	16.09	17.08	18.04	19.04	20.15	21.51	23.48	25.19

+ 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: 1963-2001

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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

Climatography of the United States

No. 20 1971-2000

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Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: ELLSWORTH 15 NNE, NE

COOP ID: 252647

Climate Division: NE 1

NWS Call Sign:

Elevation: 3,970 Feet

Lat: 42° 16N

Lon: 102° 13W

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	4.9	5.0	1	1	12.0	1974	21	12.0	1974	12	1974	11	7	1974	2.7	2.5	.5	.2	.1	6.9	4.5	2.9	.0
Feb	5.7	4.5	1	#	9.0	1987	27	19.0	1987	13	1978	20	8	1978	2.3	2.0	.7	.2	.0	3.4	2.7	2.5	1.0
Mar	6.8	4.0	1	#	12.0	1975	27	18.8	1975	18	1977	12	7	1977	2.5	2.4	1.0	.4	.1	2.4	1.6	.9	.4
Apr	4.3	2.0	#	#	12.0	1984	3	16.0	1995	14	1975	1	2	1975	1.4	1.3	.6	.3	@	1.2	.4	.2	.1
May	.1	.0	#	0	3.0	1979	9	3.0	1979	1	2000	7	#	2000	.1	.1	@	.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	.4	.0	#	0	6.0	1985	29	6.0	1985	4	1995	20	#	1995	.2	.2	.1	@	.0	@	@	.0	.0
Oct	2.0	1.0	#	0	10.0	1973	11	10.0	1973	6	1997	26	1	1991	.5	.5	.2	.1	@	.1	@	.0	.0
Nov	5.9	4.5	1	#	10.0	1982	12	18.0	1983	12	1973	3	6	1972	2.0	1.7	.9	.4	@	2.3	1.4	.5	.0
Dec	5.3	4.0	1	#	10.0	1978	2	14.0	1985	11	1973	31	9	1985	2.1	1.9	.4	.2	@	5.4	2.6	.6	.1
Ann	35.4	25.0	N/A	N/A	12.0+	Apr 1984	3	19.0	Feb 1987	18	Mar 1977	12	9	Dec 1985	13.8	12.6	4.4	1.8	.2	21.7	13.2	7.6	1.6

+ 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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COOP ID: 252647

Climate Division: NE 1

NWS Call Sign:

Elevation: 3,970 Feet

Lat: 42° 16N

Lon: 102° 13W

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	6/16	6/10	6/05	6/01	5/29	5/25	5/21	5/16	5/10
32	5/31	5/26	5/22	5/18	5/15	5/12	5/09	5/05	4/29
28	5/14	5/10	5/07	5/04	5/02	4/30	4/27	4/24	4/20
24	5/08	5/04	5/01	4/28	4/26	4/23	4/21	4/18	4/14
20	5/01	4/25	4/21	4/18	4/15	4/12	4/08	4/05	3/30
16	4/17	4/12	4/08	4/05	4/02	3/30	3/27	3/23	3/18
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	9/05	9/09	9/12	9/14	9/17	9/19	9/21	9/24	9/28
32	9/10	9/15	9/18	9/21	9/23	9/26	9/29	10/02	10/07
28	9/17	9/22	9/26	9/29	10/01	10/04	10/07	10/11	10/16
24	9/25	10/01	10/05	10/08	10/11	10/14	10/18	10/21	10/27
20	10/05	10/10	10/14	10/17	10/20	10/22	10/25	10/29	11/03
16	10/10	10/16	10/20	10/24	10/27	10/31	11/03	11/08	11/14
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	134	126	120	115	110	106	101	95	87
32	154	146	140	135	131	126	121	115	108
28	172	165	160	156	152	148	143	138	131
24	183	178	174	171	168	165	161	158	152
20	207	200	195	191	187	183	179	173	166
16	236	226	219	213	207	202	196	189	179

* 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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No. 20
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Station: ELLSWORTH 15 NNE, NE

COOP ID: 252647

Climate Division: NE 1 NWS Call Sign: Elevation: 3,970 Feet Lat: 42°16N Lon: 102°13W

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	1367	1083	949	625	323	89	12	28	197	549	978	1280	7480
60	1212	943	794	477	196	32	1	6	104	395	828	1125	6113
57	1119	859	701	392	135	15	0	2	63	304	738	1032	5360
55	1057	803	639	337	101	8	0	1	42	246	678	970	4882
50	903	674	489	214	41	1	0	0	12	122	539	819	3814
32	404	267	91	8	0	0	0	0	0	1	152	340	1263

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	60	108	165	374	710	991	1226	1182	838	475	165	83	6377
55	0	0	0	12	98	308	513	470	190	7	0	0	1598
57	0	0	0	7	70	255	451	409	151	3	0	0	1346
60	0	0	0	2	38	183	359	320	102	1	0	0	1005
65	0	0	0	0	10	89	215	186	45	0	0	0	545
70	0	0	0	0	1	32	102	86	15	0	0	0	236

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	1	25	80	213	476	760	983	947	621	288	60	11	1	26	106	319	795	1555	2538	3485	4106	4394	4454	4465
45	0	4	30	121	335	611	828	792	477	176	25	1	0	4	34	155	490	1101	1929	2721	3198	3374	3399	3400
50	0	1	9	62	208	462	673	637	339	87	4	0	0	1	10	72	280	742	1415	2052	2391	2478	2482	2482
55	0	0	1	27	109	318	518	483	221	35	0	0	0	0	1	28	137	455	973	1456	1677	1712	1712	1712
60	0	0	0	6	44	194	367	333	124	7	0	0	0	0	0	6	50	244	611	944	1068	1075	1075	1075
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	7	32	83	164	301	478	625	605	398	226	66	22	7	39	122	286	587	1065	1690	2295	2693	2919	2985	3007

(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