

Climatology of the United States

No. 20

1971-2000

Station: BUTTE, NE

COOP ID: 251365

Climate Division: NE 2

NWS Call Sign:

Elevation: 1,811 Feet Lat: 42° 55N

Lon: 98° 51W

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	30.3	7.6	19.0	70	1981	24	31.8	1990	-30	1966	29	3.5	1978	1427	0	.0	.0	3.4	14.9	30.2	8.0
Feb	36.1	13.0	24.6	78	1982	22	34.7	1999	-26+	1996	2	9.4	1979	1133	0	.0	.0	7.3	10.5	26.2	4.3
Mar	47.2	22.3	34.8	87+	1978	30	40.6	1986	-24	1962	1	27.2	1996	939	0	.0	.0	14.9	4.2	23.4	.8
Apr	59.8	34.0	46.9	96	1992	30	55.6	1981	5	1975	3	40.4	1997	545	2	.0	.4	24.6	.4	10.6	.0
May	71.0	46.9	59.0	102	1967	25	64.9	1977	20+	1967	3	54.1	1995	219	32	.0	.6	30.6	.0	1.2	.0
Jun	81.2	56.5	68.9	106+	1988	21	75.9	1988	34+	1969	2	63.8	1982	43	158	.4	5.4	30.0	.0	.0	.0
Jul	87.1	62.2	74.7	109+	1964	23	79.9	1974	41	1971	30	66.9	1992	8	306	1.7	12.9	31.0	.0	.0	.0
Aug	85.1	59.5	72.3	106+	1980	7	78.8	1983	38	1950	20	66.6	1992	19	244	.8	10.9	31.0	.0	.0	.0
Sep	76.2	48.9	62.6	103	1955	15	69.0	1998	24+	1995	22	58.7	1973	138	64	.1	4.3	29.8	.0	.9	.0
Oct	63.5	36.2	49.9	96	1963	5	53.6	1973	10	1991	31	45.1	1976	471	0	.0	.3	27.5	.3	7.6	.0
Nov	44.5	22.3	33.4	82+	1999	9	44.0	1999	-21	1959	14	20.3	1985	948	0	.0	.0	11.8	5.4	24.1	.8
Dec	32.9	11.4	22.2	72	1998	3	30.2	1999	-30+	1989	22	3.3	1983	1328	0	.0	.0	4.2	12.3	30.0	5.1
Ann	59.6	35.1	47.4	109+	Jul 1964	23	79.9	Jul 1974	-30+	Dec 1989	22	3.3	Dec 1983	7218	806	3.0	34.8	246.1	48.0	154.2	19.0

+ 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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2001

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

020-A

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: BUTTE, NE

COOP ID: 251365

Climate Division: NE 2

NWS Call Sign:

Elevation: 1,811 Feet Lat: 42°55N

Lon: 98°51W

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	.48	.29	1.50	1988	19	1.83	1988	.02	1989	3.8	1.4	.2	@	.04	.07	.14	.20	.27	.36	.46	.58	.75	1.04	1.32
Feb	.61	.50	1.12	1953	20	1.80	1994	.01	1982	4.5	1.7	.2	.0	.04	.07	.15	.23	.32	.43	.56	.73	.97	1.37	1.77
Mar	1.80	1.11	2.32	1987	17	5.77	1987	.15	1994	6.3	3.9	1.1	.3	.22	.36	.61	.87	1.13	1.43	1.77	2.20	2.78	3.74	4.66
Apr	2.56	2.33	2.42	1995	18	6.14	1984	.44	1989	7.8	5.8	1.9	.4	.59	.83	1.20	1.54	1.87	2.23	2.63	3.11	3.74	4.73	5.67
May	3.94	3.47	3.05	1973	27	9.40	1982	1.08	1989	9.3	7.2	2.8	.8	1.19	1.56	2.12	2.61	3.07	3.56	4.10	4.73	5.54	6.81	7.99
Jun	3.53	3.58	3.94	1964	15	7.51	1983	.50	1995	8.3	6.1	2.5	.9	1.06	1.39	1.90	2.33	2.75	3.18	3.66	4.23	4.96	6.10	7.16
Jul	3.33	2.75	3.97	1963	26	8.87	1993	.26	1986	7.7	5.7	2.1	.8	.60	.90	1.38	1.84	2.30	2.80	3.37	4.06	4.97	6.45	7.86
Aug	2.76	2.65	3.10	1961	18	6.02	1992	.30	2000	6.4	4.6	1.8	.7	.60	.85	1.26	1.62	1.99	2.38	2.82	3.35	4.05	5.16	6.21
Sep	2.49	2.19	3.38	1999	4	6.74	1986	.34	1980	5.6	4.1	1.5	.7	.29	.48	.83	1.18	1.55	1.96	2.45	3.04	3.86	5.20	6.50
Oct	1.87	1.67	2.24	1980	16	6.06	1998	.08	1999	5.0	3.5	1.2	.5	.17	.31	.56	.82	1.10	1.42	1.81	2.28	2.94	4.03	5.10
Nov	1.13	.99	1.67	1982	11	2.77	2000	.00	1980	4.8	2.5	.7	.2	.07	.17	.35	.52	.69	.89	1.12	1.40	1.78	2.41	3.02
Dec	.45	.37	1.00	1953	3	1.18	1981	.00+	1991	3.7	1.6	.1	.0	.00	.08	.18	.25	.32	.39	.47	.57	.69	.90	1.09
Ann	24.95	24.23	3.97	Jul 1963	26	9.40	May 1982	.00+	Dec 1991	73.2	48.1	16.1	5.3	15.27	17.04	19.36	21.16	22.79	24.38	26.05	27.92	30.21	33.59	36.56

+ 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: 1948-2001

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

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

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No. 20 1971-2000

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151 Patton Avenue
Asheville, North Carolina 28801
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Station: BUTTE, NE

COOP ID: 251365

Climate Division: NE 2

NWS Call Sign:

Elevation: 1,811 Feet

Lat: 42°55N

Lon: 98°51W

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	5.9	4.6	2	#	11.5	1988	19	14.8	1975	18	1988	25	7	1988	2.8	1.8	.7	.2	.1	-9.9	-9.9	-9.9	-9.9
Feb	4.4	3.9	#	0	8.0	1997	3	15.0	1978	10+	1997	7	4	1993	2.9	1.9	.6	.2	.0	-9.9	-9.9	-9.9	-9.9
Mar	6.5	4.7	#	0	12.0	1998	31	21.5	1977	8	1989	5	2	1989	2.8	2.2	.9	.4	.1	1.2	.4	.2	.0
Apr	2.3	.3	#	0	8.8	1994	28	12.0	1995	6	1982	8	1	1982	.8	.8	.2	.1	.0	.3	.2	.1	.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	.1	.0	0	0	1.5	1985	28	1.5	1985	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Oct	.9	.0	#	0	6.0	1995	23	7.5	1995	6	1995	23	#+	1995	.4	.4	.1	@	.0	.4	.1	.1	.0
Nov	5.8	4.0	#	#	12.5	1979	21	20.0	1979	16	1979	22	5	1979	2.8	2.2	.9	.2	@	4.2	2.2	1.2	.8
Dec	5.8	4.5	1	0	8.0	1971	29	14.3	1971	11	1971	30	4	1981	3.0	2.2	.5	.2	.0	-9.9	-9.9	-9.9	-9.9
Ann	31.7	22.0	N/A	N/A	12.5	Nov 1979	21	21.5	Mar 1977	18	Jan 1988	25	7	Jan 1988	15.5	11.5	3.9	1.3	.2	-9.9	-9.9	-9.9	-9.9

+ 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: NE 2

NWS Call Sign:

Elevation: 1,811 Feet

Lat: 42° 55N

Lon: 98° 51W

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	5/13	5/10	5/08	5/06	5/04	5/01	4/27
32	5/16	5/12	5/08	5/06	5/03	4/30	4/27	4/24	4/19
28	5/06	5/01	4/27	4/24	4/22	4/19	4/16	4/12	4/07
24	4/21	4/17	4/15	4/12	4/10	4/08	4/05	4/03	3/30
20	4/15	4/10	4/07	4/05	4/02	3/31	3/28	3/25	3/21
16	4/09	4/03	3/30	3/26	3/23	3/20	3/16	3/12	3/07
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	9/18	9/21	9/24	9/26	9/28	10/01	10/04	10/08
32	9/19	9/23	9/27	9/30	10/03	10/05	10/08	10/12	10/17
28	9/26	10/02	10/06	10/09	10/12	10/16	10/19	10/23	10/29
24	10/06	10/12	10/15	10/18	10/21	10/24	10/27	10/31	11/05
20	10/16	10/21	10/25	10/28	10/31	11/03	11/06	11/10	11/15
16	10/21	10/27	11/01	11/04	11/08	11/11	11/15	11/19	11/25
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	156	150	146	143	140	137	134	130	124
32	171	164	160	156	152	148	144	139	133
28	193	186	181	177	173	169	165	160	153
24	213	206	202	197	193	190	185	180	174
20	232	225	220	215	211	207	203	198	191
16	256	247	240	234	229	224	218	211	202

* 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 2 NWS Call Sign: Elevation: 1,811 Feet Lat: 42°55N Lon: 98°51W

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	1427	1133	939	545	219	43	8	19	138	471	948	1328	7218
60	1272	993	784	402	118	11	0	4	61	319	798	1173	5935
57	1179	909	691	323	74	4	0	1	31	234	708	1080	5234
55	1119	861	629	274	52	2	0	0	18	184	652	1018	4809
50	974	730	483	168	17	0	0	0	3	85	513	866	3839
32	489	326	99	6	0	0	0	0	0	1	144	386	1451

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	85	117	184	453	835	1106	1322	1248	916	553	186	81	7086
55	2	8	0	30	175	417	609	535	244	23	5	0	2048
57	0	0	0	19	135	359	547	474	197	11	0	0	1742
60	0	0	0	9	85	277	454	384	137	3	0	0	1349
65	0	0	0	2	32	158	306	244	64	0	0	0	806
70	0	0	0	0	7	74	175	132	23	0	0	0	411

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	6	29	107	308	633	904	1105	1056	732	383	75	7	6	35	142	450	1083	1987	3092	4148	4880	5263	5338	5345
45	0	7	51	190	480	754	950	901	583	254	36	1	0	7	58	248	728	1482	2432	3333	3916	4170	4206	4207
50	0	0	17	111	335	604	795	746	441	149	12	0	0	0	17	128	463	1067	1862	2608	3049	3198	3210	3210
55	0	0	4	56	205	456	640	591	305	72	1	0	0	0	4	60	265	721	1361	1952	2257	2329	2330	2330
60	0	0	0	28	112	317	485	438	187	25	0	0	0	0	0	28	140	457	942	1380	1567	1592	1592	1592
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	9	32	90	208	395	589	734	701	463	252	62	12	9	41	131	339	734	1323	2057	2758	3221	3473	3535	3547

(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