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: BETHEL AP, AK **COOP ID: 500754**

Climate Division: AK 7 **NWS Call Sign: BET** **Elevation: 125 Feet** **Lat: 60˚47N** **Lon: 161˚50W**

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 >= 90	Max >= 70	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	12.4	.7	6.6	48	1963	17	25.7	1985	-48	1989	28	-12.9	1989	1813	0	.0	.0	.0	24.9	30.5	15.1
Feb	13.9	1.3	7.6	46	1970	13	26.1	1989	-39+	1999	1	-13.2	1984	1608	0	.0	.0	.0	22.2	27.8	14.2
Mar	21.8	7.2	14.5	48	1954	31	29.5	1981	-42	1956	1	-1.4	1972	1566	0	.0	.0	.0	21.3	30.5	11.7
Apr	33.3	18.4	25.9	60	1996	23	34.9	1993	-31	1956	5	8.3	1985	1175	0	.0	.0	1.9	12.0	28.1	3.9
May	49.4	33.1	41.3	80	1993	31	48.1	1981	4	1965	3	35.8	1971	738	0	.0	.8	16.1	1.2	15.2	.0
Jun	59.4	43.3	51.4	86	1959	19	55.1	1997	28+	1962	6	45.8	1978	410	0	.0	3.1	26.2	.0	.6	.0
Jul	63.1	48.8	56.0	86+	1951	12	60.0	1988	31	1959	17	53.1	1999	280	0	.0	6.5	30.5	.0	.0	.0
Aug	59.7	47.5	53.6	84	1977	21	59.5	1977	28	1984	26	49.1	1998	355	1	.0	2.3	30.7	.0	.1	.0
Sep	51.7	39.1	45.4	72	1979	10	50.3	1974	18+	1970	30	37.7	1992	587	0	.0	.1	19.8	.1	5.8	.0
Oct	35.3	24.7	30.0	65	1954	2	35.8	1991	-6	2001	30	24.3	1997	1085	0	.0	.0	.9	10.8	25.6	.4
Nov	23.1	11.7	17.4	48+	1991	1	25.8	2000	-24	1990	30	7.0	1988	1428	0	.0	.0	.0	21.0	28.3	6.6
Dec	15.6	3.2	9.4	45	1963	21	25.4	1985	-41	1957	28	-10.7	1999	1724	0	.0	.0	.0	23.8	30.3	14.6
Ann	36.6	23.3	29.9	86+	Jun 1959	19	60.0	Jul 1988	-48	Jan 1989	28	-13.2	Feb 1984	12769	1	.0	12.8	126.1	137.3	222.8	66.5

\+ 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: 1949-2001

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

Issue Date: May 2005

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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	.62	.48	1.76	1952	3	2.53	1993	.11	1983
Feb	.51	.38	1.03	1996	27	3.03	1996	.00	1984
Mar	.67	.51	.85	1951	15	3.44	1991	.00	1986
Apr	.65	.42	.92	1983	18	3.89	1979	.02	1985
May	.85	.78	.73	1952	17	2.61	1998	.16	1981
Jun	1.60	1.51	1.36	1981	11	4.30	1999	.25	1974
Jul	2.03	1.68	1.43	1952	27	4.15	2000	.56	1988
Aug	3.02	2.98	2.30	1951	12	5.49	1994	.99	1976
Sep	2.31	2.06	1.97	1971	28	4.79	1993	.73	1988
Oct	1.43	1.45	1.37	1974	4	2.51	1972	.15	1997
Nov	1.37	1.08	1.45	2000	8	4.19	1994	.10	1995
Dec	1.12	.87	1.18	1970	23	3.49	1992	.11	1973
Ann	16.18	16.34	2.30	Aug 1951	12	5.49	Aug 1994	.00+	Mar 1986

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.7	1.7	.1	.0
Feb	5.8	1.5	.1	.0
Mar	8.6	2.2	.1	.0
Apr	8.9	2.2	.1	.0
May	11.0	2.9	.0	.0
Jun	13.2	5.2	.4	.1
Jul	15.1	6.2	.7	.0
Aug	18.3	8.7	1.4	.1
Sep	17.2	7.3	.7	.1
Oct	12.7	4.3	.5	.1
Nov	11.8	3.7	.5	.1
Dec	11.0	3.4	.4	.0
Ann	142.3	49.3	5.0	.5

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	.09	.14	.23	.31	.40	.50	.62	.76	.95	1.26	1.56
Feb	.01	.04	.11	.18	.26	.36	.48	.62	.83	1.19	1.54
Mar	.01	.05	.14	.23	.34	.46	.62	.81	1.08	1.55	2.02
Apr	.03	.06	.13	.22	.32	.44	.59	.78	1.05	1.53	2.00
May	.20	.28	.41	.52	.63	.74	.87	1.02	1.22	1.54	1.84
Jun	.45	.60	.83	1.03	1.23	1.43	1.66	1.92	2.27	2.81	3.32
Jul	.63	.83	1.11	1.36	1.60	1.84	2.11	2.43	2.84	3.48	4.07
Aug	1.54	1.79	2.13	2.40	2.65	2.90	3.16	3.46	3.84	4.40	4.90
Sep	.75	.97	1.29	1.56	1.83	2.11	2.41	2.76	3.21	3.92	4.57
Oct	.41	.55	.75	.93	1.10	1.28	1.48	1.72	2.02	2.50	2.95
Nov	.15	.25	.44	.63	.84	1.07	1.34	1.68	2.14	2.90	3.65
Dec	.15	.24	.40	.55	.71	.90	1.10	1.36	1.71	2.28	2.84
Ann	10.06	11.18	12.65	13.79	14.82	15.83	16.88	18.05	19.49	21.61	23.47

\+ 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: 1949-2001
(3) Derived from 1971-2000 daily data

Complete documentation available from:
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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	5.8	5.9	7	5	4.6	1989	2	19.1	2000	25	1992	2	23	1992	7.9	1.8	.4	.0	.0	27.9	22.5	16.6	9.8
Feb	3.8	4.0	6	4	5.0	1973	1	8.2	1989	25	2000	4	17+	1998	4.8	1.4	.1	@	.0	25.1	21.9	12.4	7.1
Mar	6.5	5.6	8	7	6.1	1991	12	26.3	1991	29	1990	16	23	1992	7.7	2.4	.3	@	.0	27.0	23.3	17.6	9.4
Apr	4.1	2.8	3	2	4.4	1983	18	11.7	1975	32	1977	19	29	1977	6.9	1.2	.2	.0	.0	16.3	11.6	8.3	3.3
May	1.7	.3	#	0	4.0	1973	22	7.5	1998	20	1977	1	3	1972	2.3	.5	.1	.0	.0	3.1	1.2	.6	.1
Jun	.1	.0	0	0	.8+	1985	1	1.1	1972	0	0	0	0	0	.1	.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	.3	.0	#	0	1.9	1990	24	3.9	1996	2	1996	26	0	0	.5	.1	.0	.0	.0	.1	.0	.0	.0
Oct	3.8	3.1	#	0	5.5	1982	27	12.1	1978	7+	1998	26	2	1996	5.9	1.4	.1	@	.0	4.5	1.1	.4	.0
Nov	8.9	7.4	2	2	9.3	1990	24	20.7	1981	19	1999	30	11	1999	9.1	2.9	.6	.2	.0	17.9	8.3	2.6	.4
Dec	9.5	6.8	5	4	8.0	1992	16	34.7	1992	20	1994	30	17	1994	9.0	3.0	.7	.3	.0	23.0	17.6	12.7	6.0
Ann	44.5	35.9	N/A	N/A	9.3	Nov 1990	24	34.7	Dec 1992	32	Apr 1977	19	29	Apr 1977	54.2	14.7	2.5	.5	.0	144.9	107.5	71.2	36.1

+ 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	6/27	6/21	6/16	6/12	6/09	6/05	6/01	5/28	5/22
32	6/10	6/06	6/03	5/31	5/28	5/26	5/23	5/20	5/16
28	5/26	5/22	5/20	5/17	5/15	5/13	5/11	5/08	5/04
24	5/18	5/14	5/10	5/07	5/05	5/02	4/29	4/26	4/21
20	5/09	5/05	5/02	4/29	4/26	4/24	4/21	4/18	4/14
16	5/04	4/30	4/27	4/24	4/22	4/19	4/17	4/14	4/09

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	8/19	8/24	8/28	8/31	9/03	9/07	9/10	9/14	9/19
32	8/31	9/05	9/09	9/12	9/14	9/17	9/20	9/24	9/28
28	9/11	9/16	9/19	9/22	9/25	9/28	9/30	10/04	10/09
24	9/27	9/30	10/03	10/05	10/07	10/09	10/11	10/13	10/17
20	10/02	10/05	10/08	10/10	10/12	10/14	10/16	10/19	10/22
16	10/11	10/14	10/17	10/19	10/21	10/23	10/25	10/27	10/30

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	111	102	96	91	86	81	76	69	61
32	127	121	116	112	108	105	101	96	89
28	150	144	139	136	132	129	125	121	115
24	170	165	161	157	154	151	148	144	138
20	185	179	175	171	168	164	161	156	150
16	198	192	188	184	181	178	174	170	164

***** 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	1813	1608	1566	1175	738	410	280	355	587	1085	1428	1724	12769
60	1658	1468	1411	1025	583	263	140	213	438	930	1278	1569	10976
57	1565	1384	1318	935	495	182	77	142	352	837	1188	1476	9951
55	1503	1328	1256	880	437	136	46	104	297	775	1128	1414	9304
50	1348	1196	1104	741	301	52	6	36	176	620	978	1259	7817
32	832	737	604	313	39	0	0	0	3	148	466	753	3895

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	43	53	61	129	325	580	743	669	406	86	29	52	3176
55	0	0	0	6	9	25	76	60	10	0	0	0	186
57	0	0	0	0	6	12	45	36	5	0	0	0	104
60	0	0	0	0	0	3	15	14	1	0	0	0	33
65	0	0	0	0	0	0	0	1	0	0	0	0	1
70	0	0	0	0	0	0	0	0	0	0	0	0	0

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	0	0	0	2	113	345	492	420	182	6	0	0	0	0	0	2	115	460	952	1372	1554	1560	1560	1560
45	0	0	0	0	42	204	338	267	77	0	0	0	0	0	0	0	42	246	584	851	928	928	928	928
50	0	0	0	0	11	94	191	126	19	0	0	0	0	0	0	0	11	105	296	422	441	441	441	441
55	0	0	0	0	2	29	78	41	0	0	0	0	0	0	0	0	2	31	109	150	150	150	150	150
60	0	0	0	0	0	1	21	5	0	0	0	0	0	0	0	0	0	1	22	27	27	27	27	27
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	0	1	61	157	226	169	58	0	0	0	0	0	0	1	62	219	445	614	672	672	672	672

(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 were calculated from a serially complete daily data set. A serial dataset was not available for precipitation,
To ensure that a station's data was adequate to estimate these statistics, the following criteria were used:
1. A station must have 80% of its data for the 1971-2000 time period.
2. Only months with at least 21 days are used.
3. There must be a least 21 months (meeting criteria 2.) in the sample.

g. Snowfall and snow depth statistics were derived daily values quality controlled to be consistent with 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 differences 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. Other inconsistencies may appear from comparing statistically modeled values such as degree days to observed temperatures.

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. 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