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: PALMER IAS, AK **COOP ID: 506870**

Climate Division: AK 5 **NWS Call Sign:** **Elevation: 225 Feet** **Lat: 61˚36N** **Lon: 149˚06W**

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	21.7	6.4	14.1	52	1961	20	34.3	1981	-37	1975	5	-1.0	1971	1580	0	.0	.0	.1	22.0	30.1	11.8
Feb	26.7	9.7	18.2	54	1980	12	32.4	1977	-32	1993	3	1.9	1990	1310	0	.0	.0	.1	17.0	27.2	8.5
Mar	35.4	17.1	26.3	56+	1981	19	36.5	1981	-25	1971	8	13.0	1972	1202	0	.0	.0	.7	9.9	29.3	3.1
Apr	46.4	28.2	37.3	67+	1995	30	42.0	1993	-8	1986	7	26.7	1972	832	0	.0	.0	10.5	1.4	22.5	.2
May	57.9	37.6	47.8	77+	1993	30	52.2	1981	15	1964	9	42.8	1971	535	0	.0	1.7	28.5	.0	5.0	.0
Jun	64.7	45.5	55.1	87+	1969	16	57.6	1997	33+	1961	1	52.0	1972	297	0	.0	7.4	29.9	.0	.0	.0
Jul	66.9	49.2	58.1	84	1951	12	61.2	1997	36	1971	21	55.5	1982	215	0	.0	10.1	31.0	.0	.0	.0
Aug	64.6	47.1	55.9	82+	1977	22	58.7	1977	26	1955	30	53.1	1998	284	0	.0	5.6	30.9	.0	.2	.0
Sep	56.2	39.7	48.0	73+	1974	5	52.7	1995	15+	1992	24	38.5	1992	512	0	.0	.2	25.8	.0	3.8	.0
Oct	41.5	26.3	33.9	66	1954	2	40.6	1979	-8+	1996	26	22.6	1996	963	0	.0	.0	5.5	5.1	22.7	.6
Nov	28.1	13.2	20.7	59	1949	19	32.8+	1979	-26	1990	29	7.9	1990	1331	0	.0	.0	.3	19.5	28.6	5.6
Dec	23.6	8.8	16.2	54	1969	21	29.5	1985	-38+	1961	30	-3.4	1980	1512	0	.0	.0	.2	22.6	30.1	9.4
Ann	44.5	27.4	36.0	87+	Jun 1969	16	61.2	Jul 1997	-38+	Dec 1961	30	-3.4	Dec 1980	10573	0	.0	25.0	163.5	97.5	199.5	39.2

\+ 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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1949-1998

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

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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	.84	.69	1.40	1981	1	3.45	1981	.00	1974
Feb	.84	.77	1.42+	1992	28	2.68	1996	.00	1997
Mar	.72	.59	2.34	1995	17	3.27	1995	.00+	1998
Apr	.44	.32	1.00	1967	10	1.60	1976	.03	1993
May	.66	.56	1.37	1997	31	2.62	1997	.06	1991
Jun	1.31	1.29	1.37	1957	22	2.59	1980	.34	1996
Jul	2.06	1.72	1.96	1986	21	4.34	1979	.22	1990
Aug	2.29	1.94	1.22	1973	12	4.92	1997	.52	1978
Sep	2.59	2.38	1.60	1980	15	4.98	1990	.55	1996
Oct	1.74	1.73	1.90	1993	26	3.46	1993	.29	1975
Nov	1.09	.97	2.21	1964	19	3.82	1976	.00	1975
Dec	1.22	1.20	1.20	1976	1	3.50	1976	.00	1995
Ann	15.80	15.25	2.34	Mar 1995	17	4.98	Sep 1990	.00+	Mar 1998

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.3	2.4	.3	.0
Feb	5.6	2.7	.3	.1
Mar	5.7	2.3	.2	.0
Apr	4.1	1.7	.1	.0
May	6.0	2.3	.1	.0
Jun	10.2	4.3	.4	.0
Jul	13.0	6.0	.8	.0
Aug	14.0	6.0	1.1	.2
Sep	14.0	6.7	1.6	.1
Oct	9.5	4.7	.8	.1
Nov	7.1	3.7	.3	.0
Dec	9.1	4.0	.3	.0
Ann	104.6	46.8	6.3	.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	.03	.09	.20	.32	.45	.61	.79	1.03	1.35	1.89	2.43
Feb	.01	.06	.16	.28	.41	.57	.77	1.02	1.38	1.99	2.60
Mar	.00	.07	.20	.32	.44	.57	.72	.90	1.15	1.56	1.96
Apr	.03	.05	.11	.17	.23	.31	.41	.53	.70	.99	1.27
May	.07	.12	.22	.31	.40	.51	.64	.80	1.02	1.37	1.72
Jun	.49	.62	.79	.94	1.07	1.21	1.37	1.54	1.77	2.12	2.43
Jul	.50	.70	1.00	1.27	1.53	1.81	2.13	2.50	2.99	3.76	4.48
Aug	.65	.87	1.20	1.48	1.76	2.05	2.37	2.75	3.24	4.01	4.73
Sep	.85	1.10	1.46	1.77	2.06	2.36	2.70	3.09	3.59	4.36	5.08
Oct	.58	.75	.99	1.19	1.39	1.59	1.81	2.07	2.40	2.92	3.39
Nov	.06	.15	.32	.48	.65	.84	1.06	1.34	1.72	2.34	2.95
Dec	.10	.24	.44	.62	.80	1.00	1.23	1.51	1.88	2.49	3.06
Ann	11.81	12.60	13.59	14.35	15.01	15.65	16.31	17.04	17.91	19.17	20.26

\+ 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: 1949-1998
(3) Derived from 1971-2000 daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	7.9	5.3	4	4
Feb	10.7	9.5	5	4
Mar	8.5	7.1	3	2
Apr	3.2	1.5	#	0
May	.1	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	#	.0	0	0
Oct	7.0	4.2	1	0
Nov	9.3	9.1	3	2
Dec	14.0	12.5	5	4
Ann	60.7	49.2	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	9.0	1990	12	22.9	1993	20	1993	31	12	1993
Feb	18.5	1992	28	35.9	1996	32	1992	29	15	1993
Mar	10.1	1995	16	22.5	1979	34	1992	5	17	1992
Apr	6.0	1977	11	14.7	1977	12	1986	1	4	1986
May	2.5	1972	21	2.5	1972	3	1972	21	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	11.0+	1992	14	36.1	1982	13	1982	29	6	1982
Nov	7.5	1996	5	19.8	1987	18	1982	30	11	1982
Dec	11.1	1994	17	32.9	1990	22	1982	4	15	1982
Ann	18.5	Feb 1992	28	36.1	Oct 1982	34	Mar 1992	5	17	Mar 1992

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.1	2.8	.8	.3	.0
Feb	4.8	3.0	1.1	.4	.1
Mar	5.1	2.9	.9	.3	@
Apr	2.2	1.3	.4	.1	.0
May	.1	.1	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	2.9	2.0	.8	.3	@
Nov	5.8	3.2	1.0	.3	.0
Dec	7.7	5.0	1.5	.6	@
Ann	33.7	20.3	6.5	2.3	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	23.3	17.9	13.2	4.6
Feb	20.9	15.5	11.4	5.2
Mar	19.6	13.2	8.6	3.0
Apr	5.5	2.9	1.5	.2
May	.1	@	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	7.4	4.3	3.3	.8
Nov	18.7	13.6	8.3	1.9
Dec	24.6	19.1	14.5	6.3
Ann	120.1	86.5	60.8	22.0

+ 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	6/16	6/11	6/06	6/03	5/30	5/27	5/23	5/19	5/13
32	5/25	5/21	5/18	5/15	5/13	5/10	5/08	5/05	5/01
28	5/13	5/08	5/05	5/02	4/29	4/27	4/24	4/20	4/16
24	4/29	4/24	4/20	4/18	4/15	4/12	4/09	4/06	4/01
20	4/20	4/15	4/11	4/08	4/05	4/02	3/30	3/26	3/21
16	4/19	4/12	4/07	4/03	3/30	3/26	3/22	3/17	3/10

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	8/25	8/30	9/02	9/05	9/08	9/11	9/14	9/18	9/23
32	8/31	9/06	9/11	9/15	9/18	9/22	9/25	9/30	10/06
28	9/12	9/17	9/20	9/23	9/26	9/29	10/02	10/05	10/10
24	9/25	9/29	10/02	10/05	10/07	10/10	10/12	10/16	10/20
20	10/02	10/06	10/09	10/11	10/14	10/16	10/18	10/21	10/25
16	10/10	10/14	10/17	10/20	10/22	10/25	10/27	10/30	11/03

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	123	115	110	105	100	95	90	85	77
32	152	144	138	132	128	123	118	112	103
28	172	164	158	153	149	144	139	134	126
24	196	189	184	179	175	171	166	161	153
20	210	203	199	195	191	187	183	178	172
16	232	223	216	211	205	200	195	188	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

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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	1580	1310	1202	832	535	297	215	284	512	963	1331	1512	10573
60	1425	1170	1047	682	380	155	79	139	364	808	1181	1357	8787
57	1332	1086	954	592	288	87	30	74	280	715	1091	1264	7793
55	1279	1030	892	533	232	52	11	43	229	653	1031	1202	7187
50	1135	899	740	394	112	8	0	6	122	504	881	1048	5849
32	647	456	277	62	1	0	0	0	1	113	408	543	2508

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	90	69	98	220	489	693	808	739	479	173	67	55	3980
55	9	0	0	1	7	55	105	69	16	0	0	0	262
57	0	0	0	0	2	29	62	38	8	0	0	0	139
60	0	0	0	0	0	8	19	10	2	0	0	0	39
65	0	0	0	0	0	0	0	0	0	0	0	0	0
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	35	249	459	563	494	246	31	0	0	0	0	0	35	284	743	1306	1800	2046	2077	2077	2077
45	0	0	0	7	117	309	408	339	122	5	0	0	0	0	0	7	124	433	841	1180	1302	1307	1307	1307
50	0	0	0	0	35	165	253	188	37	0	0	0	0	0	0	0	35	200	453	641	678	678	678	678
55	0	0	0	0	6	57	109	63	1	0	0	0	0	0	0	0	6	63	172	235	236	236	236	236
60	0	0	0	0	0	4	24	7	0	0	0	0	0	0	0	0	0	4	28	35	35	35	35	35
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	0	18	136	233	282	239	110	6	0	0	0	0	0	18	154	387	669	908	1018	1024	1024	1024

(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