

Climatology of the United States

No. 20

1971-2000

Station: KWAJALEIN MISSILE RANGE, PI

COOP ID: 914375

Climate Division: PI 4

NWS Call Sign:

Elevation: 7 Feet

Lat: 8°44N

Lon: 167°44E

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	85.6	77.5	81.6	91	1953	15	82.6	1991	68	1979	4	80.1	1983	0	512	@	31.0	31.0	.0	.0	.0
Feb	86.1	77.5	81.8	92	1954	25	82.7	1985	71	1963	19	80.5	1976	0	470	@	28.3	28.3	.0	.0	.0
Mar	86.7	77.9	82.3	91+	1954	30	83.4	1973	70+	1985	27	81.2	1976	0	536	.2	31.0	31.0	.0	.0	.0
Apr	86.5	77.8	82.2	92+	1953	26	83.5	1990	71	1964	14	80.4	1971	0	515	.1	30.0	30.0	.0	.0	.0
May	86.7	78.0	82.4	93	1953	17	83.6+	1988	71	1968	1	80.8	1971	0	538	.5	31.0	31.0	.0	.0	.0
Jun	86.5	77.8	82.2	92	1958	12	83.5	1983	71+	1976	18	80.9	1971	0	515	.4	30.0	30.0	.0	.0	.0
Jul	86.6	77.6	82.1	94	1953	3	83.5	1997	70	1954	7	80.7	1975	0	529	.2	31.0	31.0	.0	.0	.0
Aug	86.9	77.6	82.3	95	1958	28	83.3	1990	71+	1971	6	80.8	1975	0	534	.6	31.0	31.0	.0	.0	.0
Sep	87.0	77.5	82.3	93+	1958	25	83.5	1992	68	1984	28	80.9	1975	0	518	1.3	30.0	30.0	.0	.0	.0
Oct	86.9	77.8	82.4	94	1958	28	83.7	1987	71	1967	6	80.3	1975	0	537	.8	31.0	31.0	.0	.0	.0
Nov	86.5	77.7	82.1	92+	1990	15	83.3	1994	70	1975	24	80.5	1999	0	513	.5	30.0	30.0	.0	.0	.0
Dec	85.8	77.9	81.9	90+	1955	15	83.0	1989	69	1963	19	80.9	1982	0	522	.0	31.0	31.0	.0	.0	.0
Ann	86.5	77.7	82.1	95	Aug 1958	28	83.7	Oct 1987	68+	Sep 1984	28	80.1	Jan 1983	0	6239	4.6	365.3	365.3	.0	.0	.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: May 2005

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1953-2001

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

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Climatology 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

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COOP ID: 914375

Climate Division: PI 4

NWS Call Sign:

Elevation: 7 Feet

Lat: 8°44N

Lon: 167°44E

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	5.12	4.07	5.30	1994	14	13.86	1978	.48	1977	15.8	7.3	2.6	1.4	.50	.87	1.56	2.28	3.05	3.92	4.95	6.24	8.01	10.94	13.81
Feb	3.73	3.09	4.33	1985	23	10.21	1996	.04	1977	13.6	6.4	2.0	.9	.23	.45	.91	1.42	1.99	2.66	3.47	4.51	5.96	8.42	10.87
Mar	3.82	3.26	6.40	1955	24	11.00	1990	.16	1975	15.5	6.9	2.1	.9	.27	.51	1.00	1.52	2.11	2.79	3.60	4.64	6.08	8.52	10.92
Apr	7.63	5.87	5.17	1975	27	20.29	1971	.20	1983	17.3	9.5	4.3	2.5	.64	1.16	2.16	3.22	4.38	5.71	7.29	9.29	12.03	16.63	21.16
May	8.62	8.11	8.35	1980	17	26.86	1980	.53	1984	19.6	12.2	5.3	2.3	1.15	1.85	3.08	4.28	5.54	6.94	8.55	10.53	13.22	17.61	21.85
Jun	8.86	8.48	8.82	1995	2	15.08	1986	3.56	1984	22.5	14.3	5.4	2.3	3.88	4.67	5.78	6.68	7.52	8.37	9.29	10.33	11.65	13.66	15.47
Jul	10.24	10.38	4.93	1983	15	16.43	1971	3.53	1984	23.6	15.3	6.7	2.8	5.17	6.03	7.19	8.12	8.97	9.83	10.73	11.76	13.05	14.97	16.70
Aug	10.42	10.09	5.35	1979	15	23.38	1997	5.38	1981	23.3	16.4	6.2	2.8	4.75	5.67	6.94	7.97	8.93	9.90	10.93	12.12	13.60	15.85	17.88
Sep	11.82	11.52	4.61	1972	12	21.16	1972	7.07	1993	22.4	16.2	7.5	3.6	6.65	7.56	8.78	9.73	10.61	11.47	12.37	13.39	14.66	16.53	18.20
Oct	11.46	11.46	6.10	1968	19	16.68	1988	6.72	1994	23.8	16.8	7.9	3.5	6.86	7.69	8.79	9.65	10.42	11.18	11.97	12.86	13.96	15.58	17.01
Nov	10.74	10.61	7.24	1975	24	18.88	1983	3.51	1973	22.7	15.2	6.3	3.0	4.35	5.34	6.73	7.88	8.97	10.07	11.26	12.63	14.37	17.03	19.45
Dec	7.94	6.24	11.19	1972	16	23.28	1986	1.90	1971	19.3	11.3	4.3	2.1	2.08	2.83	3.98	5.00	5.99	7.04	8.20	9.58	11.38	14.22	16.86
Ann	100.40	99.10	11.19	Dec 1972	16	26.86	May 1980	.04	Feb 1977	239.4	147.8	60.6	28.1	68.93	74.94	82.68	88.59	93.86	98.97	104.27	110.14	117.28	127.68	136.71

+ 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: 1953-2001

(3) Derived from 1971-2000 daily data

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

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COOP ID: 914375

Climate Division: PI 4

NWS Call Sign:

Elevation: 7 Feet

Lat: 8°44N

Lon: 167°44E

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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	.0	.0	N/A	N/A	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.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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Climate Division: PI 4

NWS Call Sign:

Elevation: 7 Feet

Lat: 8° 44N

Lon: 167° 44E

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	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
32	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
28	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
24	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
20	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
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	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
32	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
28	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
24	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
20	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	>365	>365	>365	>365	>365	>365	>365	>365	>365
32	>365	>365	>365	>365	>365	>365	>365	>365	>365
28	>365	>365	>365	>365	>365	>365	>365	>365	>365
24	>365	>365	>365	>365	>365	>365	>365	>365	>365
20	>365	>365	>365	>365	>365	>365	>365	>365	>365
16	>365	>365	>365	>365	>365	>365	>365	>365	>365

* 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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COOP ID: 914375

Climate Division: PI 4 NWS Call Sign: Elevation: 7 Feet Lat: 8°44N Lon: 167°44E

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	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	1535	1394	1559	1505	1561	1505	1552	1557	1508	1560	1503	1545	18284
55	822	750	846	815	848	815	839	844	818	847	813	832	9889
57	760	694	784	755	786	755	777	782	758	785	753	770	9159
60	667	610	691	665	693	665	684	689	668	692	663	677	8064
65	512	470	536	515	538	515	529	534	518	537	513	522	6239
70	357	330	381	365	383	365	374	379	368	382	363	367	4414

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	1298	1218	1325	1271	1323	1274	1313	1319	1278	1324	1271	1303	1298	2516	3841	5112	6435	7709	9022	10341	11619	12943	14214	15517
45	1143	1073	1170	1121	1168	1124	1158	1164	1128	1169	1121	1148	1143	2216	3386	4507	5675	6799	7957	9121	10249	11418	12539	13687
50	988	928	1015	971	1013	974	1003	1009	978	1014	971	993	988	1916	2931	3902	4915	5889	6892	7901	8879	9893	10864	11857
55	833	783	860	821	858	824	848	854	828	859	821	838	833	1616	2476	3297	4155	4979	5827	6681	7509	8368	9189	10027
60	678	638	705	671	703	674	693	699	678	704	671	683	678	1316	2021	2692	3395	4069	4762	5461	6139	6843	7514	8197
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	983	925	992	959	994	960	990	992	958	993	959	991	983	1908	2900	3859	4853	5813	6803	7795	8753	9746	10705	11696

(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/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 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

c. Snow Tables

1. Cooperative Summary of the Day

d. Freeze Data Table

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

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