

Climatology of the United States No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: KANEOHE MAUKA 781, HI

1971-2000

COOP ID: 513113

Climate Division: HI 2

NWS Call Sign:

Elevation: 190 Feet

Lat: 21° 25N

Lon: 157° 49W

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	76.9	66.1	71.5	89+	1984	27	73.7	1974	55+	1991	27	69.4	1971	0	203	.0	30.3	31.0	.0	.0	.0
Feb	77.4	66.1	71.8	86	1982	19	74.0	1981	54+	1985	16	69.7	1987	0	190	.0	27.9	28.3	.0	.0	.0
Mar	77.5	67.1	72.3	87	1984	5	75.7	1984	56	1955	24	70.1	1990	0	226	.0	30.9	31.0	.0	.0	.0
Apr	78.0	68.3	73.2	87	1956	30	75.9	1981	56	1958	16	71.5	1976	0	244	.0	30.0	30.0	.0	.0	.0
May	79.6	69.6	74.6	87+	1980	25	77.4	1980	56	1955	19	71.6	1987	0	297	.0	31.0	31.0	.0	.0	.0
Jun	81.3	71.2	76.3	89+	1966	17	78.3	1981	60	1988	24	74.8+	1998	0	338	.0	30.0	30.0	.0	.0	.0
Jul	81.9	72.0	77.0	89+	1961	6	78.7+	1982	60+	1972	12	75.3	1999	0	371	.0	31.0	31.0	.0	.0	.0
Aug	82.8	72.9	77.9	92	1981	23	80.5	1981	60	1987	15	76.3	1999	0	398	@	31.0	31.0	.0	.0	.0
Sep	83.4	72.4	77.9	93	1982	13	79.9	1981	61+	1962	1	76.6	1999	0	387	.1	30.0	30.0	.0	.0	.0
Oct	82.3	71.7	77.0	90	1968	11	79.0	1996	59	1986	20	75.4	1988	0	372	.0	31.0	31.0	.0	.0	.0
Nov	79.7	69.9	74.8	90	1969	25	76.7	1991	59+	1990	30	72.8	1985	0	295	.0	30.0	30.0	.0	.0	.0
Dec	78.2	68.0	73.1	88	1958	5	75.5	1995	56+	1988	19	71.3	1972	0	251	.0	30.9	31.0	.0	.0	.0
Ann	79.9	69.6	74.8	93	Sep 1982	13	80.5	Aug 1981	54+	Feb 1985	16	69.4	Jan 1971	0	3572	.1	364.0	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: 1949-1998

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

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Elevation: 190 Feet Lat: 21°25N

Lon: 157°49W

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	8.47	7.13	7.41	1996	24	21.91	1980	1.45	1977	19.7	11.3	4.3	2.2	1.36	2.09	3.32	4.49	5.69	7.00	8.50	10.34	12.79	16.77	20.58
Feb	5.96	4.87	12.60	1969	2	19.63	1979	.77	1998	16.8	9.3	3.2	1.5	1.06	1.58	2.46	3.27	4.10	5.00	6.03	7.27	8.93	11.60	14.15
Mar	6.45	4.98	12.64	1958	6	20.80	1991	1.39	1993	20.6	11.3	3.0	1.6	1.14	1.70	2.65	3.53	4.43	5.41	6.52	7.87	9.67	12.57	15.34
Apr	6.64	5.43	8.90	1963	17	17.94	1989	1.69	1990	21.5	12.0	3.5	1.4	1.89	2.52	3.47	4.30	5.11	5.96	6.89	7.99	9.42	11.67	13.75
May	4.97	4.43	21.61	1965	3	10.77	1997	1.64	1976	22.4	11.6	2.8	1.0	1.61	2.08	2.77	3.37	3.94	4.53	5.18	5.93	6.91	8.43	9.83
Jun	4.63	4.24	5.15	1989	1	12.02	1996	1.56	1981	22.7	11.3	2.3	.8	1.40	1.84	2.50	3.06	3.61	4.19	4.82	5.56	6.51	8.01	9.39
Jul	5.08	4.93	5.64	1954	28	13.61	1993	1.43	1971	24.4	13.2	2.3	.6	1.79	2.27	2.96	3.55	4.11	4.68	5.31	6.04	6.97	8.41	9.73
Aug	4.48	4.58	3.96	1996	31	8.63	1982	1.69	1984	22.4	11.5	1.8	.7	2.00	2.40	2.95	3.40	3.82	4.24	4.70	5.22	5.87	6.86	7.76
Sep	4.88	4.42	3.60	1982	2	13.72	1990	1.33	1975	20.8	10.5	2.8	.7	1.47	1.93	2.63	3.22	3.80	4.41	5.07	5.85	6.86	8.44	9.91
Oct	6.44	5.14	13.00	1978	31	18.20	1978	1.83	1975	20.5	11.8	3.3	1.4	1.58	2.18	3.12	3.96	4.78	5.66	6.63	7.80	9.32	11.72	13.98
Nov	9.46	8.12	12.25	1970	26	43.04	1990	.88	1980	22.8	13.6	5.2	3.1	1.71	2.54	3.93	5.22	6.53	7.96	9.58	11.54	14.15	18.35	22.36
Dec	7.29	6.02	8.48	1955	20	19.79	1990	1.11	1976	22.1	11.7	3.9	2.0	1.24	1.87	2.93	3.93	4.96	6.08	7.35	8.90	10.97	14.31	17.51
Ann	74.75	70.98	21.61	May 1965	3	43.04	Nov 1990	.77	Feb 1998	256.7	139.1	38.4	17.0	45.56	50.88	57.88	63.31	68.22	73.04	78.07	83.71	90.65	100.87	109.85

+ 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

Complete documentation available from:
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Station: KANEOHE MAUKA 781, HI

COOP ID: 513113

Climate Division: HI 2

NWS Call Sign:

Elevation: 190 Feet

Lat: 21°25N

Lon: 157°49W

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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No. 20 1971-2000

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COOP ID: 513113

Climate Division: HI 2

NWS Call Sign:

Elevation: 190 Feet

Lat: 21° 25N

Lon: 157° 49W

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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Station: KANEOHE MAUKA 781, HI

COOP ID: 513113

Climate Division: HI 2 NWS Call Sign: Elevation: 190 Feet Lat: 21°25N Lon: 157°49W

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	1226	1114	1249	1234	1320	1328	1394	1421	1377	1395	1285	1274	15617
55	513	470	536	544	607	638	681	708	687	682	595	561	7222
57	451	414	474	484	545	578	619	646	627	620	535	499	6492
60	358	330	381	394	452	488	526	553	537	527	445	406	5397
65	203	190	226	244	297	338	371	398	387	372	295	251	3572
70	67	64	84	102	145	188	216	243	237	217	145	101	1809

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	991	929	1008	1001	1085	1103	1158	1184	1144	1155	1057	1034	991	1920	2928	3929	5014	6117	7275	8459	9603	10758	11815	12849
45	836	784	853	851	930	953	1003	1029	994	1000	907	879	836	1620	2473	3324	4254	5207	6210	7239	8233	9233	10140	11019
50	681	639	698	701	775	803	848	874	844	845	757	724	681	1320	2018	2719	3494	4297	5145	6019	6863	7708	8465	9189
55	526	494	543	551	620	653	693	719	694	690	607	569	526	1020	1563	2114	2734	3387	4080	4799	5493	6183	6790	7359
60	371	349	388	401	465	503	538	564	544	535	457	414	371	720	1108	1509	1974	2477	3015	3579	4123	4658	5115	5529
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	681	639	698	701	775	803	848	872	844	845	757	724	681	1320	2018	2719	3494	4297	5145	6017	6861	7706	8463	9187

(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/normal/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