

Climatography of the United States No. 20

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

Station: OPIHHALE 2 24.1, HI

1971-2000

COOP ID: 517166

Climate Division: HI 6

NWS Call Sign:

Elevation: 1,360 Feet Lat: 19° 16N

Lon: 155° 53W

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	76.7	57.2	67.0	91	1979	9	69.9	1996	50+	1980	20	64.5	1972	13	73	.1	30.6	31.0	.0	.0	.0
Feb	77.0	57.1	67.1	87	1980	21	69.7	1980	48	1962	21	64.0	1973	15	72	.0	28.1	28.3	.0	.0	.0
Mar	77.1	58.1	67.6	92	1962	15	70.6	1986	51+	1990	2	66.1+	1999	8	90	.0	30.8	31.0	.0	.0	.0
Apr	77.6	59.2	68.4	87+	1978	20	71.0	1996	51	1973	13	66.1	1976	5	106	.0	30.0	30.0	.0	.0	.0
May	78.3	60.9	69.6	86+	1997	24	73.0	1996	50	1994	29	67.0	1976	5	147	.0	31.0	31.0	.0	.0	.0
Jun	78.9	62.4	70.7	87	1983	15	72.8	1996	50	1973	15	68.0	1976	1	171	.0	30.0	30.0	.0	.0	.0
Jul	80.3	63.5	71.9	87+	1995	27	74.0	1995	57+	1975	11	69.4	1976	0	214	.0	31.0	31.0	.0	.0	.0
Aug	81.2	63.9	72.6	90	1982	4	74.8	1986	53	1964	8	70.9	1975	0	233	@	31.0	31.0	.0	.0	.0
Sep	81.1	63.2	72.2	91	1992	12	74.8	1987	56+	1982	25	69.7	1971	0	215	@	30.0	30.0	.0	.0	.0
Oct	80.9	62.2	71.6	90	1983	30	73.3	1995	53	1975	18	69.0	1971	0	203	@	31.0	31.0	.0	.0	.0
Nov	79.4	60.6	70.0	90	1996	13	72.1+	1995	49	1994	26	68.0	1971	2	151	@	29.9	30.0	.0	.0	.0
Dec	78.0	58.1	68.1	95	1957	2	70.9	1995	49	1958	30	65.2	1971	9	102	.0	30.9	31.0	.0	.0	.0
Ann	78.9	60.5	69.7	95	Dec 1957	2	74.8+	Sep 1987	48	Feb 1962	21	64.0	Feb 1973	58	1777	.1	364.3	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: 1956-2001

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

040-A

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Lon: 155° 53W

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	3.04	2.58	5.63	1959	17	12.33	1971	.26	1977	9.3	4.6	1.7	.9	.23	.43	.83	1.24	1.71	2.24	2.88	3.69	4.81	6.69	8.55
Feb	2.55	1.71	3.98	1989	11	11.04	1989	.13	1983	8.6	4.1	1.3	.7	.14	.28	.59	.93	1.32	1.78	2.35	3.07	4.09	5.83	7.56
Mar	3.43	3.22	5.23	1982	17	11.47	1980	.79	1986	13.4	5.8	1.8	.9	.74	1.05	1.56	2.01	2.47	2.96	3.51	4.17	5.04	6.43	7.74
Apr	2.82	2.40	4.57	1989	30	9.94	1989	.58	2000	14.3	6.5	1.4	.5	.60	.86	1.27	1.65	2.02	2.42	2.88	3.42	4.14	5.28	6.36
May	3.04	2.46	3.33	1982	18	9.89	1978	.86	1993	16.4	7.6	1.5	.3	.64	.91	1.36	1.77	2.17	2.61	3.10	3.70	4.48	5.73	6.91
Jun	3.08	3.04	2.16	1986	28	7.22	1978	.83	1988	17.5	8.2	1.5	.4	.90	1.20	1.64	2.02	2.39	2.77	3.20	3.70	4.35	5.37	6.31
Jul	3.52	3.14	6.22	1992	28	10.86	1992	.77	2000	16.4	7.6	1.7	.4	.98	1.32	1.82	2.26	2.70	3.15	3.65	4.24	5.00	6.21	7.33
Aug	3.77	3.19	5.13	1982	17	10.54	1982	1.25	1999	16.1	8.4	2.2	.5	1.30	1.65	2.17	2.61	3.03	3.47	3.94	4.49	5.20	6.29	7.30
Sep	4.15	3.46	4.72	1974	7	10.89	1974	.53	1991	16.2	8.7	2.1	.8	.93	1.31	1.92	2.47	3.02	3.60	4.25	5.03	6.06	7.70	9.24
Oct	3.56	3.71	3.43	1974	17	7.25	1992	.35	1995	13.7	6.8	2.1	.7	.79	1.12	1.64	2.11	2.58	3.08	3.64	4.32	5.20	6.61	7.94
Nov	2.94	2.88	6.09	2001	28	8.04	1990	.58	1994	10.7	5.3	1.7	.9	.95	1.23	1.64	1.99	2.33	2.68	3.06	3.50	4.08	4.97	5.79
Dec	2.51	1.88	5.58	1987	13	8.23	1987	.10	2000	8.8	3.8	1.4	.6	.14	.29	.59	.93	1.32	1.77	2.32	3.03	4.02	5.70	7.38
Ann	38.41	37.99	6.22	Jul 1992	28	12.33	Jan 1971	.10	Dec 2000	161.4	77.4	20.4	7.6	21.37	24.36	28.36	31.50	34.37	37.21	40.19	43.56	47.73	53.94	59.44

+ 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: 1956-2001

(3) Derived from 1971-2000 daily data

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

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Climate Division: HI 6

NWS Call Sign:

Elevation: 1,360 Feet

Lat: 19° 16N

Lon: 155° 53W

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

Complete documentation available from:

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Lon: 155° 53W

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: 517166

Climate Division: HI 6

NWS Call Sign:

Elevation: 1,360 Feet Lat: 19° 16N Lon: 155° 53W

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	13	15	8	5	5	1	0	0	0	0	2	9	58
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	1083	981	1105	1092	1166	1161	1237	1256	1205	1226	1140	1116	13768
55	370	337	392	402	453	471	524	543	515	513	450	403	5373
57	308	281	330	342	391	411	462	481	455	451	390	341	4643
60	215	197	237	252	298	321	369	388	365	358	300	248	3548
65	73	72	90	106	147	171	214	233	215	203	151	102	1777
70	6	9	10	16	40	50	71	83	77	61	38	16	477

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	846	800	871	867	930	931	996	1016	974	990	912	879	846	1646	2517	3384	4314	5245	6241	7257	8231	9221	10133	11012
45	691	655	716	717	775	781	841	861	824	835	762	724	691	1346	2062	2779	3554	4335	5176	6037	6861	7696	8458	9182
50	536	510	561	567	620	631	686	706	674	680	612	569	536	1046	1607	2174	2794	3425	4111	4817	5491	6171	6783	7352
55	381	365	406	417	465	481	531	551	524	525	462	414	381	746	1152	1569	2034	2515	3046	3597	4121	4646	5108	5522
60	226	220	251	267	310	331	376	396	374	370	312	259	226	446	697	964	1274	1605	1981	2377	2751	3121	3433	3692
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	536	510	561	567	620	631	686	704	674	680	612	568	536	1046	1607	2174	2794	3425	4111	4815	5489	6169	6781	7349

(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