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: HANA AP 355, HI **COOP ID: 511125**

Climate Division: HI 5 **NWS Call Sign:** **Elevation: 75 Feet** **Lat: 20˚48N** **Lon: 156˚01W**

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	77.5	64.2	70.9	91	1963	31	73.3	1984	50	1953	9	67.7	1971	3	185	.0	30.7	31.0	.0	.0	.0
Feb	77.6	64.4	71.0	88	1963	1	73.5	1981	50	1958	19	68.6	1972	1	168	.0	28.1	28.3	.0	.0	.0
Mar	77.6	65.5	71.6	88	1981	23	74.8	1984	52	1983	3	69.4	1979	0	202	.0	30.9	31.0	.0	.0	.0
Apr	78.1	67.0	72.6	88+	1979	19	75.0	1996	52	1966	1	70.4	1999	0	226	.0	29.9	30.0	.0	.0	.0
May	79.4	67.8	73.6	89	1968	25	76.1	1980	56+	1976	16	71.7+	1987	0	267	.0	30.9	31.0	.0	.0	.0
Jun	80.9	69.2	75.1	89+	1981	8	77.2	1996	52	1963	3	72.8	1999	0	303	.0	30.0	30.0	.0	.0	.0
Jul	81.5	70.4	76.0	90+	1973	31	77.9	1980	56	1963	1	73.2	1999	0	339	@	31.0	31.0	.0	.0	.0
Aug	82.6	71.0	76.8	89+	1998	1	78.7	1980	59	1985	11	74.0	1999	0	365	.0	31.0	31.0	.0	.0	.0
Sep	82.9	70.4	76.7	91	1962	12	78.6	1979	59+	1976	26	73.5	1999	0	349	.1	30.0	30.0	.0	.0	.0
Oct	82.0	70.0	76.0	91	1979	10	78.7	1984	58	1976	17	73.4	1971	0	340	@	31.0	31.0	.0	.0	.0
Nov	80.0	69.1	74.6	94	1979	3	76.6	1995	54	1985	27	72.5+	1999	0	286	@	30.0	30.0	.0	.0	.0
Dec	78.4	66.4	72.4	89+	2000	12	75.4	2000	53	1958	31	69.8	1971	0	228	.0	30.8	31.0	.0	.0	.0
Ann	79.9	68.0	73.9	94	Nov 1979	3	78.7+	Oct 1984	50+	Feb 1958	19	67.7	Jan 1971	4	3258	.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/normals/usnormals.html

Issue Date: May 2005

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1950-2001

(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	8.52	6.89	10.45	1988	3	27.38	1971	.97	1977
Feb	5.69	4.36	9.46	1987	16	21.87	1979	.87	2000
Mar	9.13	7.60	12.43	1994	25	27.76	1982	1.61	1995
Apr	7.46	5.90	17.57	1968	16	40.86	1989	2.62	1996
May	5.89	5.03	7.75	1978	24	14.00	1978	1.53	1999
Jun	4.10	4.03	2.40	1967	29	8.73	1997	.65	1985
Jul	5.91	5.26	7.11	1982	22	14.21	1982	2.46	1971
Aug	5.79	5.25	5.30	1985	17	11.30	1991	1.21	1971
Sep	6.12	5.33	4.04	1996	8	15.61	1983	1.86	1974
Oct	7.26	6.11	9.85	2000	30	18.53	1981	2.00	1996
Nov	7.97	6.78	9.98	1968	29	20.72	1990	2.20+	1989
Dec	6.06	6.04	5.50	1992	27	11.18	1992	1.34	1985
Ann	79.90	72.88	17.57	Apr 1968	16	40.86	Apr 1989	.65	Jun 1985

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	17.7	10.5	4.2	2.1
Feb	15.0	8.9	3.3	1.4
Mar	20.6	13.4	4.4	2.1
Apr	22.6	13.9	3.6	1.4
May	22.9	13.3	2.4	1.0
Jun	23.3	12.7	1.7	.2
Jul	25.8	15.5	2.8	.5
Aug	24.0	14.4	2.9	.6
Sep	22.4	13.8	3.4	1.0
Oct	23.1	14.1	3.5	1.4
Nov	22.8	14.1	4.4	1.7
Dec	20.5	12.1	3.2	1.0
Ann	260.7	156.7	39.8	14.4

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	1.10	1.78	2.99	4.18	5.43	6.82	8.42	10.41	13.09	17.48	21.74
Feb	.58	1.00	1.79	2.58	3.44	4.40	5.53	6.95	8.88	12.09	15.22
Mar	1.36	2.13	3.45	4.71	6.03	7.47	9.13	11.15	13.88	18.31	22.58
Apr	1.75	2.44	3.54	4.51	5.48	6.51	7.67	9.04	10.85	13.71	16.41
May	1.71	2.27	3.11	3.84	4.56	5.30	6.12	7.08	8.33	10.29	12.12
Jun	1.50	1.89	2.44	2.91	3.35	3.80	4.29	4.86	5.58	6.70	7.73
Jul	2.33	2.87	3.65	4.29	4.90	5.52	6.18	6.96	7.94	9.44	10.81
Aug	1.77	2.32	3.14	3.85	4.53	5.24	6.02	6.94	8.13	9.98	11.69
Sep	1.92	2.50	3.36	4.10	4.81	5.55	6.37	7.32	8.55	10.46	12.23
Oct	1.76	2.44	3.50	4.45	5.38	6.37	7.47	8.79	10.51	13.23	15.79
Nov	2.33	3.09	4.23	5.22	6.18	7.17	8.28	9.58	11.26	13.89	16.34
Dec	2.07	2.64	3.48	4.19	4.87	5.56	6.33	7.22	8.36	10.12	11.75
Ann	46.77	52.71	60.58	66.72	72.30	77.79	83.55	90.02	97.99	109.81	120.23

\+ 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: 1950-2001
(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	.0	.0	0	0
Feb	.0	.0	0	0
Mar	.0	.0	0	0
Apr	.0	.0	0	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.0	.0	0	0
Nov	.0	.0	0	0
Dec	.0	.0	0	0
Ann	.0	.0	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	.0	0	0	.0	0	0	0	0	0	0
Feb	.0	0	0	.0	0	0	0	0	0	0
Mar	.0	0	0	.0	0	0	0	0	0	0
Apr	.0	0	0	.0	0	0	0	0	0	0
May	.0	0	0	.0	0	0	0	0	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	.0	0	0	.0	0	0	0	0	0	0
Nov	.0	0	0	.0	0	0	0	0	0	0
Dec	.0	0	0	.0	0	0	0	0	0	0
Ann	.0	0	0	.0	0	0	0	0	0	0

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.0	.0	.0	.0	.0
Feb	.0	.0	.0	.0	.0
Mar	.0	.0	.0	.0	.0
Apr	.0	.0	.0	.0	.0
May	.0	.0	.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	.0	.0	.0	.0	.0
Nov	.0	.0	.0	.0	.0
Dec	.0	.0	.0	.0	.0
Ann	.0	.0	.0	.0	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.0	.0	.0	.0
Feb	.0	.0	.0	.0
Mar	.0	.0	.0	.0
Apr	.0	.0	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.0	.0	.0	.0
Dec	.0	.0	.0	.0
Ann	.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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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

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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	3	1	0	0	0	0	0	0	0	0	0	0	4
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	1205	1092	1225	1216	1290	1293	1362	1388	1339	1363	1276	1251	15300
55	492	448	512	526	577	603	649	675	649	650	586	538	6905
57	430	392	450	466	515	543	587	613	589	588	526	476	6175
60	337	308	357	376	422	453	494	520	499	495	436	383	5080
65	185	168	202	226	267	303	339	365	349	340	286	228	3258
70	63	53	67	87	116	153	184	210	199	185	138	86	1541

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	970	915	998	998	1067	1077	1139	1160	1116	1133	1049	1022	970	1885	2883	3881	4948	6025	7164	8324	9440	10573	11622	12644
45	815	770	843	848	912	927	984	1005	966	978	899	867	815	1585	2428	3276	4188	5115	6099	7104	8070	9048	9947	10814
50	660	625	688	698	757	777	829	850	816	823	749	712	660	1285	1973	2671	3428	4205	5034	5884	6700	7523	8272	8984
55	505	480	533	548	602	627	674	695	666	668	599	557	505	985	1518	2066	2668	3295	3969	4664	5330	5998	6597	7154
60	350	335	378	398	447	477	519	540	516	513	449	402	350	685	1063	1461	1908	2385	2904	3444	3960	4473	4922	5324
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	660	625	688	698	757	777	828	847	815	823	749	712	660	1285	1973	2671	3428	4205	5033	5880	6695	7518	8267	8979

(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.
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