

**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: MANOA TUN 2 716, HI**

**COOP ID: 516130**

**Climate Division: HI 2**

**NWS Call Sign:**

**Elevation: 650 Feet Lat: 21°20N**

**Lon: 157°47W**

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	11.81	10.90	8.00	1988	5	27.82	1988	1.44	1986	18.3	12.7	6.4	3.3	2.18	3.23	4.96	6.57	8.20	9.96	11.97	14.39	17.61	22.79	27.73
Feb	10.03	9.40	7.88	1965	4	31.88	1979	1.34	1983	16.1	11.8	5.8	3.0	2.30	3.23	4.70	6.02	7.33	8.73	10.30	12.17	14.63	18.54	22.22
Mar	13.61	13.19	13.96	1958	5	29.74	1986	1.94	1983	21.4	16.4	7.5	3.6	2.66	3.88	5.88	7.72	9.58	11.57	13.84	16.57	20.18	25.98	31.50
Apr	15.99	14.55	11.94	1977	19	41.02	1989	4.16	1992	24.1	19.2	9.2	4.2	5.24	6.76	8.99	10.89	12.71	14.60	16.67	19.08	22.19	27.02	31.47
May	11.11	9.09	8.26	1978	23	25.00	1988	3.30	2000	24.2	17.9	5.8	2.4	3.48	4.54	6.11	7.45	8.74	10.09	11.56	13.30	15.53	19.01	22.23
Jun	10.81	9.59	7.62	1978	28	22.44	1978	2.64	1985	25.0	19.0	6.8	2.3	4.04	5.05	6.50	7.71	8.86	10.03	11.31	12.78	14.67	17.57	20.22
Jul	13.27	12.80	8.30	1954	28	22.56	1993	3.08	1971	27.1	20.8	8.2	3.6	6.10	7.27	8.88	10.18	11.39	12.61	13.92	15.41	17.28	20.11	22.66
Aug	10.66	9.35	5.70	1957	24	27.10	1982	2.82	1971	24.9	17.8	6.7	2.7	3.57	4.58	6.06	7.32	8.52	9.76	11.12	12.71	14.74	17.90	20.81
Sep	9.43	9.15	5.28	1969	21	22.58	1992	4.32	1975	23.4	17.3	5.9	2.2	4.42	5.24	6.37	7.28	8.13	8.98	9.89	10.92	12.22	14.19	15.96
Oct	11.52	10.69	9.24	1966	11	20.16	1992	4.78	1977	23.1	17.5	7.0	2.7	6.05	6.99	8.26	9.26	10.18	11.10	12.07	13.17	14.54	16.58	18.40
Nov	14.61	14.47	9.22+	1968	29	32.76	1996	.98	1989	23.6	18.3	8.4	4.3	4.54	5.93	7.99	9.76	11.47	13.25	15.20	17.49	20.45	25.06	29.33
Dec	12.39	11.38	12.90	1987	31	43.24	1987	.84	1985	20.2	14.7	6.6	3.7	2.03	3.09	4.90	6.60	8.36	10.27	12.46	15.13	18.69	24.47	30.00
Ann	145.24	146.23	13.96	Mar 1958	5	43.24	Dec 1987	.84	Dec 1985	271.4	203.4	84.3	38.0	106.86	114.39	123.98	131.22	137.62	143.80	150.16	157.16	165.63	177.87	188.41

+ 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: 1949-2001  
(3) Derived from 1971-2000 daily data

Complete documentation available from:  
[www.ncdc.noaa.gov/oa/climate/normals/usnormals.html](http://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](http://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](http://www.ncdc.noaa.gov/normals.html)

U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normals/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normals/usnormalsprods.html)

Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html)