

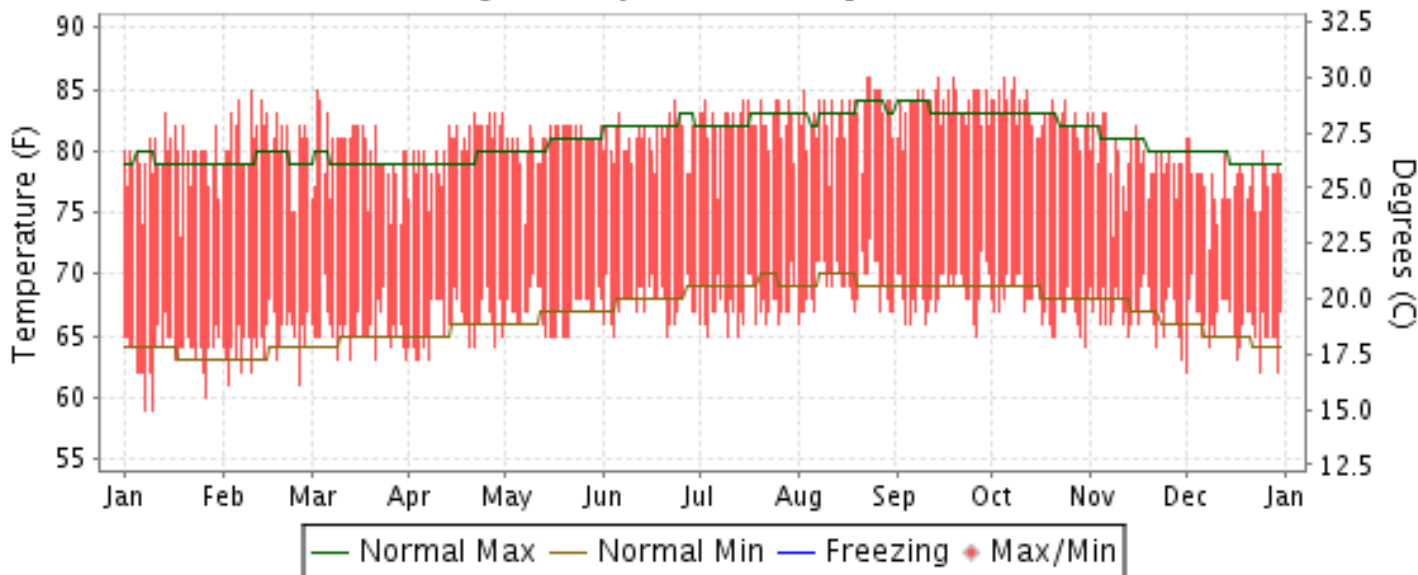


# 2011 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

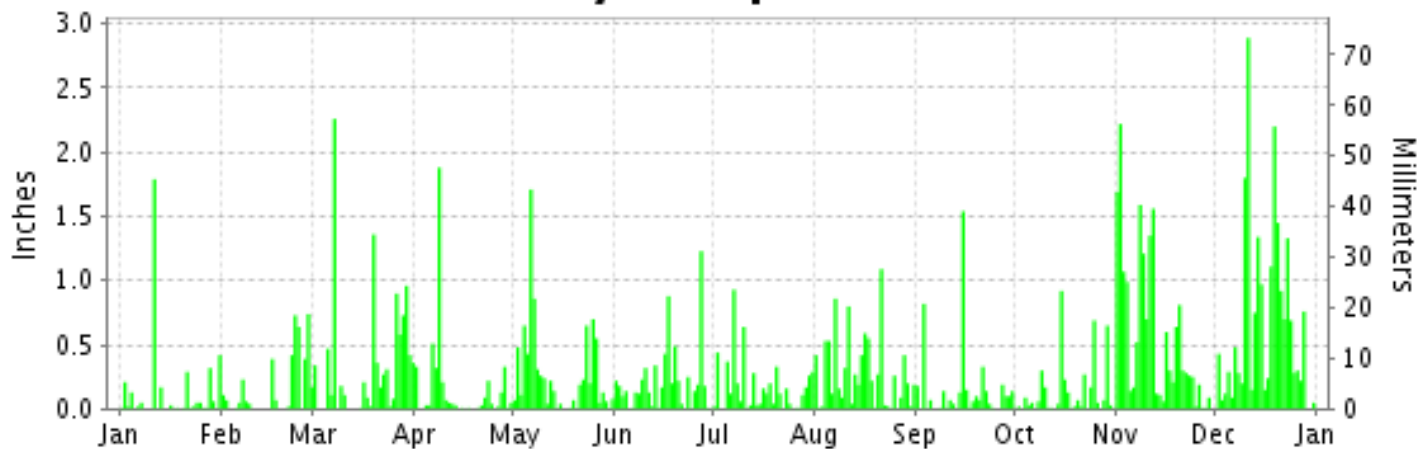
ISSN 0198-1684

## HILO, HAWAII (PHTO)

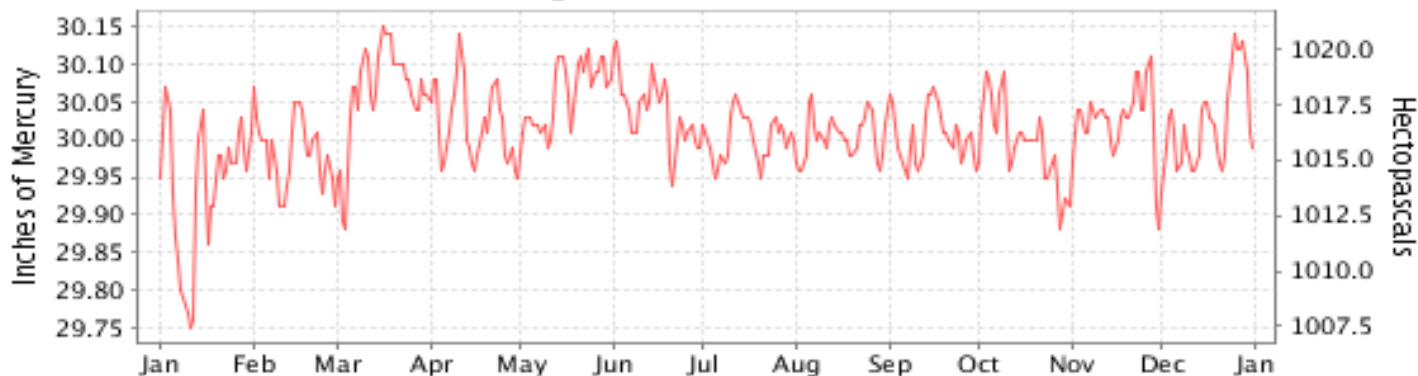
### Daily Max/Min Temperature



### Daily Precipitation



### Daily Station Pressure



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CLIMATIC DATA CENTER  
ASHEVILLE, NORTH CAROLINA

*Thomas R. Karl*  
DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

# METEOROLOGICAL DATA FOR 2011

## HILO (PHTO)

LATITUDE: 19° 43'N      LONGITUDE: -155° 3'W      ELEVATION (FT): GRND: 38 BARO: 47      TIME ZONE: HAWAII (UTC -10)      WBAN: 21504

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	79.3	80.9	79.7	80.4	80.8	81.1	82.3	82.9	83.8	83.1	79.3	77.5	80.9	
	HIGHEST DAILY MAXIMUM	83	85	85	83	82	84	84	86	86	86	83	81	86	
	DATE OF OCCURRENCE	14	10	03	30+	31+	23	29+	24+	19+	08+	06+	02+	OCT 08+	
	MEAN DAILY MINIMUM	63.5	64.6	65.5	65.9	67.0	67.7	67.4	69.0	68.4	67.5	66.9	65.8	66.6	
	LOWEST DAILY MINIMUM	59	61	63	63	65	65	65	66	65	64	63	62	59	
	DATE OF OCCURRENCE	10+	25+	31+	07+	21+	21+	13+	01	26	30	30	30+	JAN 10+	
	AVERAGE DRY BULB	71.4	72.8	72.6	73.2	73.9	74.4	74.9	76.0	76.1	75.3	73.1	71.7	73.8	
	MEAN WET BULB	65.2	66.8	66.5	67.2	68.0	68.7	68.7	69.9	69.2	68.2	67.8	66.9	67.8	
	MEAN DEW POINT	61.9	63.8	63.5	64.2	65.3	66.1	65.7	67.1	65.8	65.0	65.2	64.9	64.9	
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MAXIMUM <= 32°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MINIMUM <= 32°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MINIMUM <= 0°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H/C	HEATING DEGREE DAYS	0	0	0	0	0	0	0	0	0	0	0	0	0	
	COOLING DEGREE DAYS	208	224	242	251	286	288	310	348	339	326	250	215	3287	
RH	MEAN (PERCENT)	75	77	77	77	78	79	76	77	74	74	80	82	77	
	HOUR 02 LST	81	85	85	84	87	88	85	86	82	81	85	87	85	
	HOUR 08 LST	71	73	74	73	73	74	75	76	69	69	79	80	74	
	HOUR 14 LST	66	65	65	66	65	66	63	64	62	63	71	77	66	
	HOUR 20 LST	84	84	82	83	84	85	80	82	82	80	84	87	83	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	0	0	0	0	0	0	0	0	0	0	0	0	0	
	THUNDERSTORMS	5	1	1	1	1	1	0	0	0	0	3	0	13	
CLOUDINESS	SUNRISE-SUNSET: (OKTAS)														
	CEILOMETER (<= 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
	MIDNIGHT-MIDNIGHT: (OKTAS)														
	CEILOMETER (<= 12,000 FT.)														
SATELLITE (> 12,000 FT.)															
NUMBER OF DAYS WITH:															
CLEAR															
PARTLY CLOUDY															
CLOUDY															
PR	MEAN STATION PRESS. (IN.)	29.93	29.98	30.06	30.02	30.06	30.04	30.00	30.00	30.01	29.99	30.03	30.02	30.01	
	MEAN SEA-LEVEL PRESS. (IN.)	29.97	30.02	30.10	30.06	30.09	30.07	30.04	30.04	30.04	30.03	30.06	30.06	30.05	
WINDS	RESULTANT SPEED (MPH)	1.0	3.6	0.6	2.9	1.5	0.6	0.7	0.8	0.3	1.0	1.1	0.6	0.7	
	RES. DIR. (TENS OF DEGS.)	21	16	13	15	15	10	01	34	23	20	28	30	17	
	MEAN SPEED (MPH)	5.7	6.4	6.0	6.2	6.0	5.3	5.4	5.2	5.5	5.6	5.6	5.3	5.7	
	PREVAIL.DIR.(TENS OF DEGS.)	24	23	24	24	24	24	24	23	23	23	24	24	24	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	24	24	23	22	22	18	17	20	17	20	21	25	25	
	DIR. (TENS OF DEGS.)	33	11	08	12	13	06	09	05	09	11	06	07	07	
	DATE OF OCCURRENCE	19	15	24	13	05	16	18	01	18	29	09	10	DEC 10	
	MAXIMUM 3-SECOND WIND:														
	SPEED (MPH)	28	29	29	30	31	25	22	25	24	29	28	36	36	
DIR. (TENS OF DEGS.)	33	11	08	13	08	10	36	01	05	12	06	07	07		
DATE OF OCCURRENCE	19	21	24	13	31	12	20	15	01	29	09	10	DEC 10		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	3.69	4.14	10.32	4.45	8.48	6.38	5.18	8.74	4.45	4.10	17.47	20.26	97.66	
	GREATEST 24-HOUR (IN.)	1.79	1.35	2.26	1.94	2.09	1.31	0.94	1.27	1.55	0.93	3.22	4.22	4.22	
	DATE OF OCCURRENCE	11	23-24	07	07-08	05-06	26-27	07-08	20-21	15-16	14-15	01-02	10-11	DEC 10-11	
	NUMBER OF DAYS WITH:														
	PRECIPITATION 0.01	21	16	23	23	26	26	26	29	23	23	29	28	293	
PRECIPITATION 0.10	7	9	18	8	18	21	17	20	13	9	24	25	189		
PRECIPITATION 1.00	1	0	2	1	1	1	0	1	1	0	7	7	22		
SNOWFALL	SNOW,ICE PELLETS,HAIL														
	TOTAL (IN.)					0.0				0.0					
	GREATEST 24-HOUR (IN.)					0.0									
	DATE OF OCCURRENCE					0									
	MAXIMUM SNOW DEPTH (IN.)					0									
DATE OF OCCURRENCE															
NUMBER OF DAYS WITH:															
SNOWFALL >= 1.0															

# NORMALS, MEANS, AND EXTREMES HILO (PHTO)

**LATITUDE:** 19° 43'N      **LONGITUDE:** -155° 3'W      **ELEVATION (FT):** GRND: 38 BARO: 47      **TIME ZONE:** HAWAII (UTC -10)      **WBAN: 21504**

	ELEMENT	POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
<b>TEMPERATURE °F</b>	NORMAL DAILY MAXIMUM	30	79.2	79.4	79.2	79.3	80.6	82.2	82.5	83.2	83.4	82.7	80.7	79.5	81.0	
	MEAN DAILY MAXIMUM	62	79.5	79.2	79.2	79.6	81.0	82.4	82.9	83.4	83.6	83.0	81.1	79.6	81.2	
	HIGHEST DAILY MAXIMUM	65	92	92	93	89	94	90	91	93	92	91	92	93	94	
	YEAR OF OCCURRENCE		1997	1968	1972	1978	1966	1969	2004	1950	1951	1979	1996	1980	MAY 1966	
	MEAN OF EXTREME MAXS.	62	85.4	84.9	84.5	84.0	84.7	85.5	86.0	86.9	86.8	87.1	85.4	84.5	85.5	
	NORMAL DAILY MINIMUM	30	63.6	63.5	64.7	65.6	66.7	68.0	69.2	69.4	69.0	68.5	67.2	64.9	66.7	
	MEAN DAILY MINIMUM	62	63.6	63.5	64.3	65.3	66.4	67.6	68.6	69.0	68.5	67.9	66.8	64.8	66.4	
	LOWEST DAILY MINIMUM	65	54	53	54	56	58	60	62	63	61	62	58	55	53	
	YEAR OF OCCURRENCE		1995	1962	1983	1949	1947	1946	1970	1955	1970	1999	1985	1977	FEB 1962	
	MEAN OF EXTREME MINS.	62	58.9	58.4	59.8	61.5	62.6	64.4	65.1	65.4	65.0	64.2	62.7	60.0	62.3	
	NORMAL DRY BULB	30	71.4	71.5	72.0	72.5	73.7	75.1	75.9	76.3	76.2	75.6	74.0	72.2	73.9	
	MEAN DRY BULB	62	71.6	71.4	71.8	72.5	73.8	75.1	75.8	76.3	76.1	75.5	73.9	72.2	73.8	
	MEAN WET BULB	28	65.0	64.7	65.7	66.5	67.7	68.9	70.1	70.6	70.2	69.7	68.7	66.4	67.9	
	MEAN DEW POINT	28	63.4	62.9	64.0	65.1	66.3	67.6	68.9	69.4	68.9	68.4	67.5	64.9	66.4	
	NORMAL NO. DAYS WITH: MAXIMUM >= 90	30	0.2	0.1	*	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.1	0.1	1.2
	MAXIMUM <= 32	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MINIMUM <= 32	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
MINIMUM <= 0	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
<b>H/C</b>	NORMAL HEATING DEG. DAYS	30	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NORMAL COOLING DEG. DAYS	30	198	180	215	223	268	303	336	350	336	328	268	223	3228	
<b>RH</b>	NORMAL (PERCENT)	30	77	76	78	79	79	79	81	80	80	81	82	79	79	
	HOURLY 02 LST	30	83	83	85	88	87	87	88	88	87	88	87	85	86	
	HOURLY 08 LST	30	78	77	80	81	79	79	81	81	80	80	82	80	80	
	HOURLY 14 LST	30	67	65	67	69	68	66	69	70	69	70	72	69	68	
	HOURLY 20 LST	30	83	81	82	83	82	82	83	83	85	86	86	85	83	
<b>S</b>	PERCENT POSSIBLE SUNSHINE	54	46	46	42	37	38	44	41	41	43	38	33	37	41	
<b>W/O</b>	MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI)	48	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.4	
	THUNDERSTORMS	62	1.0	1.3	1.4	0.9	0.6	0.1	0.3	0.3	0.5	1.2	1.3	1.1	10.0	
<b>CLOUDINESS</b>	MEAN: SUNRISE-SUNSET (OKTAS)	51	5.0	5.3	6.0	6.4	6.2	5.9	6.1	5.9	5.6	5.7	5.9	5.5	5.8	
	MIDNIGHT-MIDNIGHT (OKTAS)	33	5.0	5.2	5.9	6.4	6.2	6.1	6.3	5.9	5.6	5.8	6.0	5.5	5.8	
	MEAN NO. DAYS WITH: CLEAR	51	6.5	5.3	2.7	1.2	1.2	1.7	1.3	1.8	2.9	2.7	3.2	5.0	35.5	
	PARTLY CLOUDY	51	11.4	10.3	10.2	9.2	10.6	11.3	11.5	12.2	12.0	11.8	10.0	10.8	131.3	
	CLOUDY	51	13.1	12.7	18.0	19.7	19.1	17.1	17.7	16.5	14.5	16.1	16.2	14.6	195.3	
<b>PR</b>	MEAN STATION PRESSURE(IN)	28	29.97	29.99	30.02	30.04	30.01	30.01	29.99	29.98	29.95	29.96	29.97	29.98	29.99	
	MEAN SEA-LEVEL PRES. (IN)	28	30.01	30.03	30.06	30.07	30.05	30.05	30.03	30.01	29.99	29.99	30.01	30.02	30.03	
<b>WINDS</b>	MEAN SPEED (MPH)	28	6.9	7.2	7.3	7.2	7.0	6.7	6.6	6.5	6.5	6.4	6.4	6.6	6.8	
	PREVAIL.DIR.(TENS OF DEGS)	32	23	23	23	23	23	23	23	23	23	23	23	23	23	
	MAXIMUM 2-MINUTE: SPEED (MPH)	14	31	37	29	26	23	24	24	24	24	24	33	29	37	
	DIR. (TENS OF DEGS)		01	36	01	36	08	06	07	10	07	02	05	18	36	
	YEAR OF OCCURRENCE		2003	2006	2002	2004	1999	2001	2006	1998	2003	2001	2009	2007	FEB 2006	
	MAXIMUM 3-SECOND SPEED (MPH)	14	38	44	36	32	31	28	30	32	32	35	46	39	46	
	DIR. (TENS OF DEGS)		01	36	08	10	08	08	33	10	04	32	03	19	03	
YEAR OF OCCURRENCE		2004	2006	2010	2008	2011	2010	2004	1998	2008	2007	2009	2007	NOV 2009		
<b>PRECIPITATION</b>	NORMAL (IN)	30	9.74	8.86	14.35	12.54	8.07	7.36	10.71	9.78	9.14	9.64	15.58	10.50	126.27	
	MAXIMUM MONTHLY (IN)	69	32.24	45.55	49.93	43.24	25.01	22.70	28.59	26.92	21.82	26.10	45.90	50.82	50.82	
	YEAR OF OCCURRENCE		1979	1979	1980	1986	1964	1997	1982	1991	1994	1951	2000	1954	DEC 1954	
	MINIMUM MONTHLY (IN)	69	0.13	0.52	0.88	2.93	1.18	1.80	3.54	2.66	1.59	2.40	1.01	0.28	0.13	
	YEAR OF OCCURRENCE		1998	2000	1972	1962	1945	1985	1999	1971	1974	1962	1989	1980	JAN 1998	
	MAXIMUM IN 24 HOURS (IN)	69	12.56	22.30	17.05	11.07	10.26	4.72	7.11	11.57	9.49	8.88	27.36	11.45	27.36	
	YEAR OF OCCURRENCE		2002	1979	1980	1971	1965	1997	1982	1991	1994	1951	2000	1987	NOV 2000	
	NORMAL NO. DAYS WITH: PRECIPITATION >= 0.01	30	16.3	15.8	22.6	25.4	25.4	25.4	27.4	25.9	23.3	24.0	23.5	19.8	274.8	
PRECIPITATION >= 1.00	30	2.8	2.3	3.8	2.8	1.6	1.3	2.2	1.8	2.2	2.0	4.2	2.5	29.5		
<b>SNOWFALL</b>	NORMAL (IN)	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	MAXIMUM MONTHLY (IN)	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	YEAR OF OCCURRENCE															
	MAXIMUM IN 24 HOURS (IN)	55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	YEAR OF OCCURRENCE															
	MAXIMUM SNOW DEPTH (IN)	47	0	0	0	0	0	0	0	0	0	0	0	0	0	
YEAR OF OCCURRENCE																
NORMAL NO. DAYS WITH: SNOWFALL >= 1.0	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

**PRECIPITATION (inches) 2011 HILO (PHTO)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	13.58	1.35	48.50	12.00	6.89	6.03	28.59	25.45	9.92	6.53	4.74	6.78	170.36
1983	0.90	0.83	1.98	10.31	9.60	3.94	7.21	7.48	12.08	8.06	2.33	3.37	68.09
1984	10.76	10.06	3.37	12.08	6.59	4.28	6.63	9.36	4.05	2.52	18.38	12.00	100.08
1985	2.25	16.14	21.28	10.61	17.04	1.80	9.86	6.71	11.78	8.19	4.71	2.59	112.96
1986	4.95	0.58	15.37	43.24	8.61	9.11	11.17	10.64	14.36	11.53	35.72	5.75	171.03
1987	9.02	5.06	4.79	9.24	15.65	12.91	18.26	3.69	11.56	14.21	15.83	22.19	142.41
1988	10.31	9.95	13.09	12.90	7.77	5.11	5.50	16.56	11.30	8.50	25.74	13.46	140.19
1989	27.46	6.54	7.33	37.19	19.80	7.03	22.93	8.82	9.73	13.16	1.01	5.71	166.71
1990	29.13	15.24	10.80	4.02	8.13	10.04	10.78	7.80	18.47	20.96	45.75	30.10	211.22
1991	3.81	9.32	37.88	11.02	8.08	9.85	9.82	26.92	9.41	5.15	6.74	15.04	153.04
1992	1.33	1.29	3.90	6.62	2.99	9.36	17.63	13.62	17.59	3.38	25.16	17.02	119.89
1993	2.17	2.67	11.96	9.04	7.54	6.63	18.43	11.38	4.99	12.83	10.74	16.11	114.49
1994	10.39	25.52	18.48	8.59	7.18	13.29	11.71	14.58	21.82	8.73	35.91	6.61	182.81
1995	4.52	1.56	4.17	8.14	8.68	5.35	15.13	13.93	4.20	7.62	8.52	4.10	85.92
1996	14.29	11.81	16.66	6.27	3.65	10.33	13.22	4.77	7.03	11.07	14.22	6.89	120.21
1997	2.33	7.84	19.25	6.03	10.75	22.70	19.38	4.75	8.98	12.64	8.86	8.10	131.61
1998	0.13	2.40	3.67	8.86	15.65	11.27	6.09	8.48	10.76	16.01	15.57	9.89	108.78
1999	16.68	19.34	12.13	16.04	2.84	4.66	3.54	10.14	5.65	3.61	7.74	14.41	116.78
2000	17.87	0.52	5.81	7.25	3.36	8.19	13.16	10.54	9.20	17.65	45.90	4.59	144.04
2001	2.28	12.47	8.35	12.56	2.94	3.64	6.54	7.90	9.01	13.16	19.89	13.77	112.51
2002	26.14	19.00	10.76	7.41	14.95	7.16	6.98	13.65	8.14	6.53	2.86	10.45	134.03
2003	1.24	5.44	1.50	14.13	4.71	5.84	10.26	8.26	7.76	3.88	18.32	10.04	91.38
2004	13.14	8.29	27.25	20.51	8.91	6.28	4.44	6.83	5.69	14.13	11.02	11.00	137.49
2005	3.94	15.19	15.07	7.10	3.29	10.27	9.24	7.64	19.73	13.86	12.75	5.24	123.32
2006	11.43	8.46	26.42	8.69	22.51	4.19	7.82	5.69	9.52	7.43	3.21	6.66	122.03
2007	12.23	14.23	4.25	7.39	2.32	6.38	7.26	7.77	8.74	8.24	10.38	17.56	106.75
2008	14.20	39.08	5.21	5.91	4.12	2.18	6.17	3.88	4.27	5.40	6.73	30.38	127.53
2009	8.72	10.36	29.28	11.38	2.13	5.37	8.14	4.92	6.94	9.48	23.60	11.49	131.81
2010	0.94	1.38	8.65	7.07	2.71	5.26	3.98	4.31	2.75	8.29	10.82	7.13	63.29
2011	3.69	4.14	10.32	4.45	8.48	6.38	5.18	8.74	4.45	4.10	17.47	20.26	97.66
POR= 62 YRS	9.24	11.73	13.47	12.60	8.87	6.71	9.68	9.84	8.35	9.84	15.13	12.42	127.88

WBAN : 21504

**AVERAGE TEMPERATURE (°F) 2011 HILO (PHTO)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	71.9	71.8	70.3	71.2	72.9	76.3	76.7	76.9	76.1	74.9	74.6	71.8	73.8
1983	71.4	71.9	72.5	71.9	72.6	74.3	74.8	75.2	74.9	74.1	73.8	72.9	73.4
1984	72.4	71.5	73.8	73.0	74.0	74.7	75.2	75.3	75.4	76.5	73.6	71.1	73.9
1985	69.8	70.5	69.4	69.8	71.4	74.4	75.4	75.7	75.7	74.3	73.0	71.6	72.6
1986	71.1	73.6	74.7	73.6	75.4	76.6	77.8	78.5	77.9	76.4	75.1	72.8	75.3
1987	71.8	70.7	71.6	72.2	72.5	75.4	76.7	77.9	77.8	76.6	74.7	73.1	74.3
1988	71.9	72.3	72.2	72.6	74.2	74.7	75.7	76.0	76.6	77.9	76.3	74.9	74.6
1989	72.2	71.4	72.4	71.1	72.7	74.7	75.2	75.0	74.6	75.6	73.6	71.3	73.3
1990	72.1	70.4	71.2	73.5	74.1	75.0	76.0	77.0	77.2	76.2	75.4	72.5	74.2
1991	72.0	72.8	70.8	72.6	74.2	74.8	76.0	76.9	76.9	76.2	75.8	72.9	74.3
1992	71.2	71.4	72.3	72.4	74.8	76.2	76.2	77.2	77.8	77.7	75.2	73.6	74.7
1993	71.1	70.1	71.6	73.5	73.3	75.4	75.8	77.0	77.1	76.0	73.4	71.7	73.8
1994	70.0	71.3	71.7	73.4	74.9	76.0	78.1	78.6	78.1	77.4	74.9	73.0	74.8
1995	72.6	72.9	74.8	74.1	75.5	76.9	77.9	77.7	78.2	76.2	75.6	74.6	75.6
1996	73.4	70.9	71.5	74.4	76.1	76.9	77.5	77.5	77.5	77.3	75.8	73.2	75.2
1997	73.1	72.7	73.3	74.0	75.0	76.7	77.4	78.0	77.7	76.8	74.3	72.4	75.1
1998	71.8	71.7	72.9	71.8	72.2	73.8	74.8	76.1	74.5	74.2	72.4	69.9	73.0
1999	69.7	69.0	70.5	71.1	72.9	73.4	74.3	74.3	74.0	74.0	72.4	71.3	72.2
2000	69.1	71.3	71.8	71.3	73.9	75.5	75.5	76.1	75.4	75.3	73.0	71.7	73.3
2001	71.6	71.0	71.2	71.5	72.3	73.9	75.4	76.1	76.2	75.1	74.0	72.7	73.4
2002	71.8	70.1	71.2	73.5	74.3	75.4	76.6	77.0	76.0	76.1	74.6	73.0	74.1
2003	72.4	71.6	73.5	72.7	74.1	76.2	77.3	77.6	77.5	77.3	73.9	73.0	74.8
2004	72.6	73.5	73.1	73.6	75.9	76.3	77.5	78.2	77.9	76.7	75.3	72.8	75.3
2005	72.7	72.0	73.2	74.0	76.1	75.8	77.2	76.9	77.2	74.6	74.3	73.1	74.8
2006	71.8	70.5	72.2	72.0	72.2	75.2	76.3	76.5	75.7	76.2	75.7	72.8	73.9
2007	71.2	70.5	72.7	72.9	75.0	75.9	76.9	77.0	76.6	75.0	74.4	72.6	74.2
2008	70.3	71.2	72.8	72.8	73.9	75.4	76.7	76.1	75.5	74.3	73.1	71.9	73.7
2009	70.1	69.5	68.8	69.1	74.5	75.3	75.8	76.1	75.0	76.4	73.3	72.5	73.0
2010	73.0	72.2	71.1	71.6	74.5	75.2	75.8	75.4	75.5	74.9	73.2	72.9	73.8
2011	71.4	72.8	72.6	73.2	73.9	74.4	74.9	76.0	76.1	75.3	73.1	71.7	73.8
POR= 62 YRS	71.6	71.4	71.8	72.5	73.8	75.1	75.8	76.3	76.1	75.5	73.9	72.2	73.8

**HEATING DEGREE DAYS (base 65°F) 2011 HILO (PHTO)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1983-84	0	0	0	0	0	0	0	0	0	0	0	0	0
1984-85	0	0	0	0	0	0	0	0	0	0	0	0	0
1985-86	0	0	0	0	0	0	0	0	0	0	0	0	0
1986-87	0	0	0	0	0	0	0	0	0	0	0	0	0
1987-88	0	0	0	0	0	0	0	0	0	0	0	0	0
1988-89	0	0	0	0	0	0	0	0	0	0	0	0	0
1989-90	0	0	0	0	0	0	0	0	0	0	0	0	0
1990-91	0	0	0	0	0	0	0	0	0	0	0	0	0
1991-92	0	0	0	0	0	0	0	0	0	0	0	0	0
1992-93	0	0	0	0	0	0	0	0	0	0	0	0	0
1993-94	0	0	0	0	0	0	0	0	0	0	0	0	0
1994-95	0	0	0	0	0	0	0	0	0	0	0	0	0
1995-96	0	0	0	0	0	0	0	0	0	0	0	0	0
1996-97	0	0	0	0	0	0	0	0	0	0	0	0	0
1997-98	0	0	0	0	0	0	0	0	0	0	0	0	0
1998-99	0	0	0	0	0	0	0	0	0	0	0	0	0
1999-00	0	0	0	0	0	0	0	0	0	0	0	0	0
2000-01	0	0	0	0	0	0	0	0	0	0	0	0	0
2001-02	0	0	0	0	0	0	0	0	0	0	0	0	0
2002-03	0	0	0	0	0	0	0	0	0	0	0	0	0
2003-04	0	0	0	0	0	0	0	0	0	0	0	0	0
2004-05	0	0	0	0	0	0	0	0	0	0	0	0	0
2005-06	0	0	0	0	0	0	0	0	0	0	0	0	0
2006-07	0	0	0	0	0	0	0	0	0	0	0	0	0
2007-08	0	0	0	0	0	0	0	0	0	0	0	0	0
2008-09	0	0	0	0	0	0	0	0	1	0	0	0	1
2009-10	0	0	0	0	0	0	0	0	0	0	0	0	0
2010-11	0	0	0	0	0	0	0	0	0	0	0	0	0
2011-	0	0	0	0	0	0	0	0	0	0	0	0	0

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**COOLING DEGREE DAYS (base 65°F) 2011 HILO (PHTO)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1982	220	196	170	194	252	348	369	379	340	317	293	219	3297
1983	207	200	239	214	240	287	313	324	303	288	272	250	3137
1984	236	194	282	247	284	298	324	326	320	363	261	195	3330
1985	154	161	142	152	204	290	329	339	329	294	248	211	2853
1986	196	246	308	264	329	356	404	423	396	363	309	250	3844
1987	218	163	212	226	241	319	369	407	389	365	299	259	3467
1988	221	216	233	238	293	298	338	349	353	405	345	315	3604
1989	227	188	238	189	248	297	327	315	294	335	264	202	3124
1990	227	157	200	260	290	308	349	379	376	353	317	237	3453
1991	223	222	188	234	296	301	348	378	365	351	333	251	3490
1992	197	192	235	229	312	343	355	384	387	402	315	275	3626
1993	193	148	213	263	263	318	343	380	370	350	260	217	3318
1994	161	183	214	261	312	338	412	427	401	389	305	254	3657
1995	241	228	310	281	335	364	410	402	401	355	325	303	3955
1996	266	178	209	291	349	360	396	394	379	387	331	265	3805
1997	261	221	261	277	317	358	388	407	389	373	287	239	3778
1998	216	194	253	211	230	269	311	351	293	289	228	162	3007
1999	149	117	179	189	252	257	292	296	278	284	228	200	2721
2000	133	191	221	194	280	322	332	350	317	328	247	213	3128
2001	209	174	201	204	234	276	330	350	341	319	278	246	3162
2002	219	149	202	261	298	320	365	378	339	352	295	253	3431
2003	236	189	270	238	287	343	392	398	385	391	274	256	3659
2004	243	251	257	265	345	346	395	418	393	368	315	252	3848
2005	242	203	262	277	349	332	384	375	372	303	285	257	3641
2006	219	161	227	216	230	315	357	362	329	354	329	248	3347
2007	201	158	247	242	314	334	376	379	352	317	287	242	3449
2008	172	185	250	240	282	322	370	353	323	298	248	221	3264
2009	166	134	128	129	302	318	344	349	306	359	255	243	3033
2010	252	208	197	204	302	312	342	330	321	310	252	252	3282
2011	208	224	242	251	286	288	310	348	339	326	250	215	3287

**SNOWFALL (inches) 2011 HILO (PHTO)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1975-76	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1976-77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1977-78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1978-79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1979-80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980-81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981-82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1982-83	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1983-84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984-85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985-86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986-87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987-88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988-89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1989-90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990-91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1991-92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1992-93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993-94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1994-95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1995-96	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1996-97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997-98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1998-99													
1999-00													
2000-01													
2001-02													
2002-03													
2003-04													
2004-05													
POR= 48 YRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

WBAN : 21504

**REFERENCE NOTES :**

<p>PAGE 1: THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).</p> <p>PAGE 2 AND 3: H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE. PR INDICATES PRESSURE. CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).</p> <p>GENERAL: T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE. + INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. NORMALS ARE 30-YEAR AVERAGES (1971 - 2000). ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH. POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING. WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS, THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED. 0.* OR * INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05. CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET AND ON SATELLITE DATA FOR CLOUDS ABOVE 12,000 FEET. THE NUMBER OF DAYS WITH CLEAR, PARTLY CLOUDY, AND CLOUDY CONDITIONS FOR ASOS STATIONS IS THE SUM OF THE CEILOMETER AND SATELLITE DATA FOR THE SUNRISE TO SUNSET PERIOD. CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED.</p>	<p>GENERAL CONTINUED: WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65 F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY. ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTHS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER. STATION HISTORY STOPPED WITH THE 2009 ANNUAL. IF YOU NEED HISTORY GO TO "MULTI-NETWORK MEDADATA SYSTEM", URL IS: <a href="https://mi3.ncdc.noaa.gov/mi3qry/login.cfm">https://mi3.ncdc.noaa.gov/mi3qry/login.cfm</a> SNOWFALL STOPPED MONTH &amp; YEAR INDICATED ABOVE. NO FURTHER YEARS INCLUDED UNLESS RESTARTED.</p> <p><b>NOTE:</b> The "Period of Record:(POR) for all "averages" is based on the "Summary of the Day First Order Station" and "Cooperative Summary of the Day" archives.</p>
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# 2011 HILO HAWAII (PHTO)

The city of Hilo is located near the midpoint of the eastern shore of the Island of Hawaii. This island is by far the largest of the Hawaiian group, with an area of 4,038 square miles, more than twice that of all the other islands combined. Its topography is dominated by the great volcanic masses of Mauna Loa (13,653 feet), Mauna Kea (13,796 feet), and of Hualalai, the Kohala Mountains, and Kilauea. In fact, the island consists entirely of the slopes of these mountains and of the broad saddles between them. Mauna Loa and Kilauea, which occupy the southern half of the island, are still active volcanoes.

Hawaii lies well within the belt of northeasterly trade winds generated by the semi-permanent Pacific high pressure cell to the north and east. The climate provides equable temperatures from day to day and season to season. In Hilo, July and August are the warmest months, with average daily highs and lows of 83 and 68 degrees. January and February, the coolest months, have highs of 80 degrees and lows of 63 degrees. Greater variations occur in localities with less rain and cloud, but temperatures in the mid-90s and low 50s are uncommon anywhere on the island near sea level.

Over the windward slopes of Hawaii, rainfall occurs principally as orographic showers within the ascending moist trade winds. Mean annual rainfall, except for the semi-sheltered Hamakua district, increases from 100 inches or more along the coasts to a maximum of over 300 inches at elevations of 2,000 to 3,000 feet, and then declines to about 15 inches at the summits of Mauna Kea and Mauna Loa. Leeward areas are topographically sheltered from the trades and are therefore drier, although sea breezes created by daytime heating of the land move onshore and upslope, causing afternoon and evening cloudiness and showers. The driest locality on the island, and in the State, with an annual rainfall of less than 10 inches, is the coastal strip just leeward of the southern portion of the Kohala Mountains and of the saddle between the Kohalas and Mauna Kea.

Within the city of Hilo, average rainfall varies from about 130 inches a year near the shore to as much as 200 upslope. The wettest part of the island, with a mean annual rainfall exceeding 300 inches, lies about 6 miles upslope from the city limits. Relative humidity at Hilo is in the moderate range, however, due to the natural ventilation provided by the prevailing winds, the weather is seldom oppressive.

The trade winds prevail throughout the year and profoundly influence the climate. The islands entire western coast is sheltered from the trades by high mountains, except that unusually strong trade winds may sweep through the saddle between the Kohala Mountains and Mauna Kea and reach the areas to the lee. But even places exposed to the trades may be affected by local mountain circulations. Except for heavy rain, really severe weather seldom occurs. During the winter, cold fronts or the cyclonic storms of subtropical origin may bring blizzards to the upper slopes of Mauna Loa and Mauna Kea, with snow extending at times to 9,000 feet or below and icing nearer the summit.

Storms crossing the Pacific a thousand miles to the north, low pressure or tropical storms, may generate seas that cause heavy swell and surf.

# Station History

HILO, HI

NAME	Begin Date	End Date	Latitude	Longitude	Elevation Feet	Relocation	Platform
HILO GENERAL LYMAN FIELD	1954-01-01	1969-01-01	19° 43'	-155° 4'	27		AIRWAYS, COOP
HILO GENERAL LYMAN FIELD	1969-01-01	1981-12-31	19° 43'	-155° 4'	27		COOP, WXSVC
HILO INTERNATIONAL AP	1998-01-01	2009-01-14	19° 43'	-155° 3'	38		ASOS, COOP
HILO GENERAL LYMAN FIELD	1948-01-01	1949-10-01	19° 43'	-155° 4'			AIRWAYS
HILO GENERAL LYMAN FIELD	1941-01-01	1948-01-01	19° 43'	-155° 4'			AIRWAYS
HILO GENERAL LYMAN FIELD	1981-12-31	1990-04-18	19° 43'	-155° 4'	27		COOP
HILO GENERAL LYMAN FIELD	1990-04-18	1998-01-01	19° 43'	-155° 4'	27	.5 MI ENE	COOP
HILO GENERAL LYMAN FIELD	1949-10-01	1950-01-01	19° 43'	-155° 4'	39		AIRWAYS, COOP
HILO GENERAL LYMAN FIELD	1950-01-01	1954-01-01	19° 43'	-155° 4'	30		AIRWAYS, COOP
HILO INTERNATIONAL AP	2009-01-14	Present	19° 43'	-155° 3'	38		ASOS, COOP

# Element History

Element	Begin Date	End Date	Frequency	Time Of Observation	Equipment *	Equipment * Modifications	Equipment Exposure
TEMP	1995-07-01	1998-01-01	DAILY	2400			
TEMP	1998-01-01	1998-03-01	DAILY	2400	HYGR		
PRECIP	1995-07-01	1998-01-01	DAILY	2400	UNIV	RCRD	
TEMP	2005-05-15	2007-06-04	DAILY	2400	HYGR		
PRECIP	2007-06-04	2009-01-14	HOURLY	2400	AWPAG	RCRD;HTD	
PRECIP	2009-01-14	Present	DAILY	2400	PCPNX		
TEMP	1998-03-01	2005-05-15	DAILY	2400	HYGR		
PRECIP	2005-05-15	2007-06-04	HOURLY	2400	AWPAG	RCRD;HTD	
TEMP	2007-06-04	2009-01-14	DAILY	2400			
PRECIP	1941-01-01	1982-01-01	DAILY	2400	UNIV	RCRD	
TEMP	1982-01-01	1995-07-01	DAILY	2400			
PRECIP	1982-01-01	1995-07-01	DAILY	2400	UNIV	RCRD	
PRECIP	1998-01-01	1998-03-01	HOURLY		TB	RCRD	
DEWPNTTEMP	2007-06-04	2009-01-14	DAILY	2400	TEMPX		
PRECIP	1998-03-01	2005-05-15	DAILY	2400	TB	RCRD	
PRECIP	1982-01-01	1995-07-01	HOURLY	2400			
PRECIP	1998-03-01	2005-05-15	HOURLY		TB	RCRD	
PRECIP	2007-06-04	2009-01-14	DAILY	2400	PCPNX		
TEMP	2009-01-14	Present	DAILY	2400	HYGR		
PRECIP	1995-07-01	1998-01-01	HOURLY	2400	UNIV	RCRD	
PRECIP	2005-05-15	2007-06-04	DAILY	2400	PCPNX		
TEMP	1941-01-01	1982-01-01	DAILY	2400			
DEWPNTTEMP	2005-05-15	2007-06-04	DAILY	2400	TEMPX		
PRECIP	2009-01-14	Present	HOURLY	2400	AWPAG	RCRD;HTD	

\* For explanation of codes and abbreviations see Station Metadata link below.

Other Station Information can be found at:

ASOS Implementation by NWS: <http://www.nws.noaa.gov/ops2/Surface/asosimplementation.htm>

Station Metadata website: <http://www.ncdc.noaa.gov/homr>

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NOAA/National Climatic Data Center

Attn: User Engagement & Services Branch

151 Patton Avenue

Asheville, NC 28801-5001

Visit our Web Site for other weather data: [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)