

1999

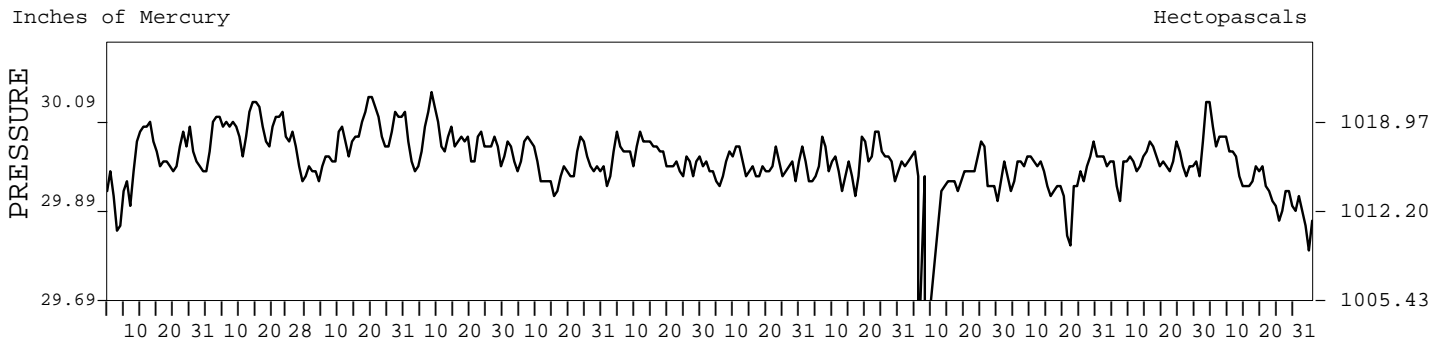
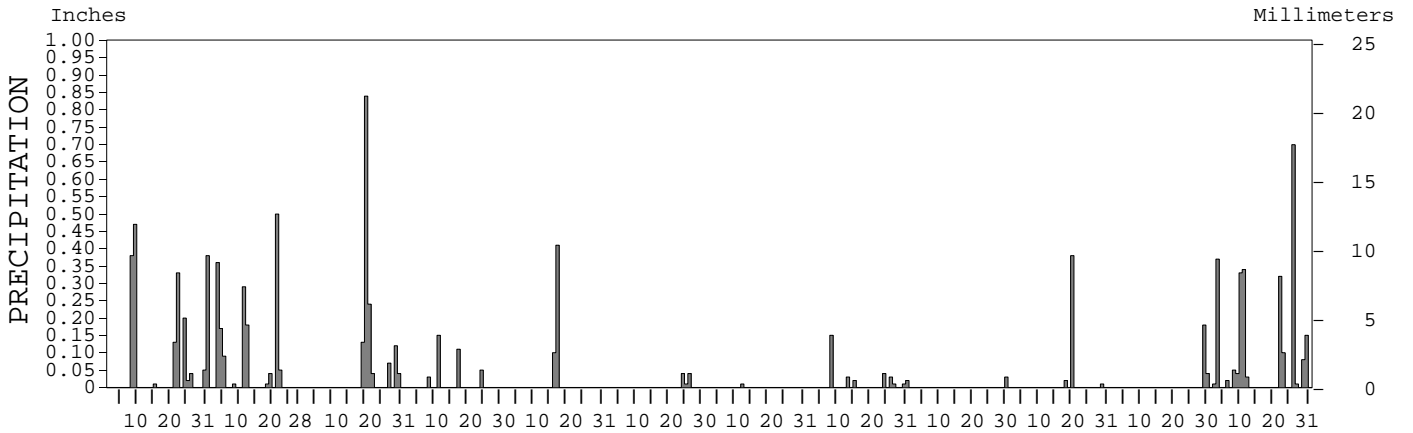
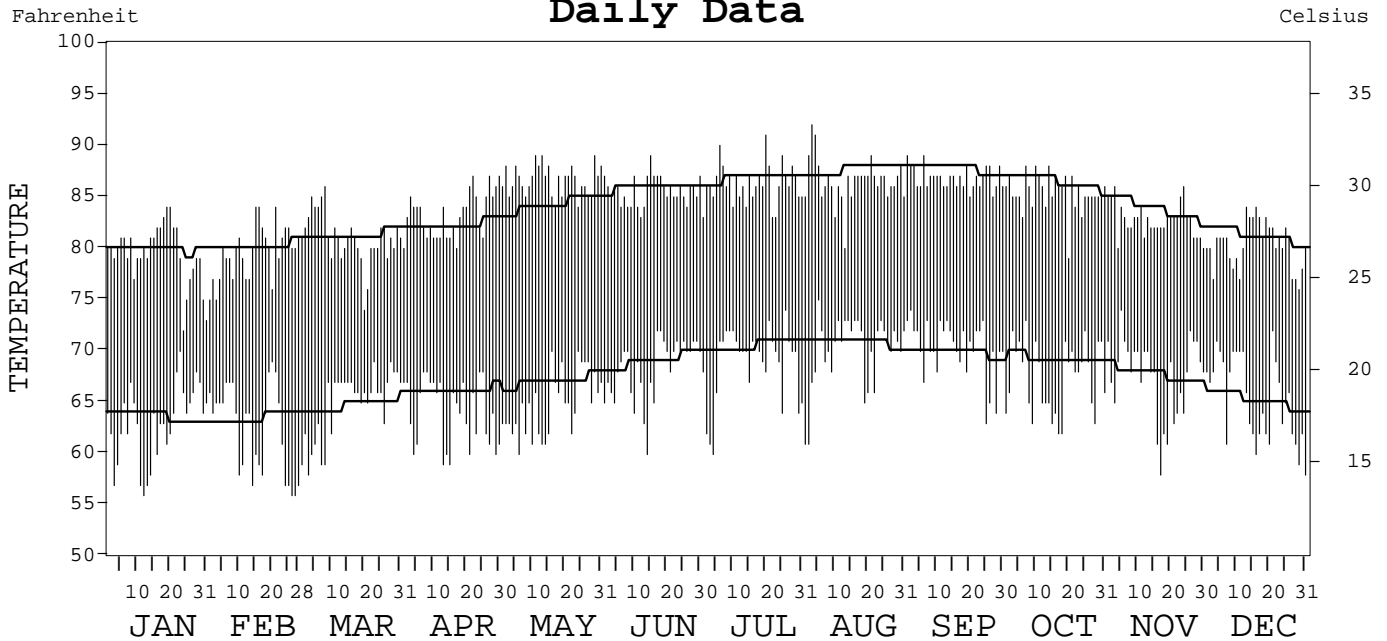
LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-1722

KAHULUI, HAWAII (OGG)

Daily Data



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NATIONAL ENVIRONMENTAL AND INFORMATION SERVICE
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NATIONAL CLIMATIC DATA CENTER
ASHEVILLE, NORTH CAROLINA
DIRECTOR
NATIONAL CLIMATIC DATA CENTER

METEOROLOGICAL DATA FOR 1999

KAHULUI, HI (OGG)

LATITUDE: 20° 54' 07" N LONGITUDE: 156° 25' 59" W ELEVATION (FT): GRND: 70 BARO: 70 TIME ZONE: HAWAII (UTC + 10) WBAN: 22516

	ELEMENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	79.5	79.6	81.0	83.3	86.6	85.6	86.2	86.5	86.8	85.4	82.8	80.4	83.6	
	HIGHEST DAILY MAXIMUM	84	84	86	87	89	89	91	92	89	88	86	84	92	
	DATE OF OCCURRENCE	20+	21+	08	30+	29+	15	20	03	06+	14+	24+	16+	AUG 03	
	MEAN DAILY MINIMUM	63.0	62.4	64.8	64.1	64.8	68.3	68.8	70.1	70.3	67.5	67.5	65.4	66.4	
	LOWEST DAILY MINIMUM	56	56	58	59	60	60	60	61	63	62	58	58	56	
	DATE OF OCCURRENCE	12	27+	03	15+	06	14	04	02+	25	18+	17	31	FEB 27+	
	AVERAGE DRY BULB	71.3	71.0	72.9	73.7	75.7	77.0	77.5	78.3	78.6	76.5	75.2	72.9	75.1	
	MEAN WET BULB		65.0		66.0		68.2		69.9	69.7	69.1	67.9			
	MEAN DEW POINT		61.8		61.6		63.5		65.8	65.4	65.2	63.9			
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	0	2	2	0	0	0	0	0	4
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	199	174	252	268	341	366	398	420	412	361	310	252	3753	
RH	MEAN (PERCENT)	76	75	73	69	67	65	69	69	67	70	71	78	71	
	HOUR 02 LST	84	85	83	80	80	75	80	79	75	77	80	85	80	
	HOUR 08 LST	84	82	75	70	66	66	69	70	68	71	72	84	73	
	HOUR 14 LST	64	61	58	52	49	50	54	55	53	56	57	65	56	
	HOUR 20 LST	80	79	76	73	70	69	74	72	72	75	76	83	75	
S	PERCENT POSSIBLE SUNSHINE			61	62										
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	0	0	0	0	0	0	0	0	0	0	0	0	0	
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.)	29.97	30.04	30.01	30.01	29.97	29.98	29.96	29.97		29.94	29.98	29.93		
	MEAN SEA-LEVEL PRESS. (IN.)	30.05	30.12	30.10	30.10	30.05	30.07	30.05	30.06		30.03	30.06	30.01		
WINDS	RESULTANT SPEED (MPH)	8.5	8.3	11.1	5.9	4.4	9.7	11.7	11.3				3.9		
	RES. DIR. (TENS OF DEGS.)	06	08	06	07	05	07	07	07				10		
	MEAN SPEED (MPH)	11.4	12.8	14.8	13.3	11.0	16.3	16.4	15.8	14.5	12.6	12.7	10.8	13.5	
	PREVAIL. DIR. (TENS OF DEGS.)	05	06	05	05	07	05	05	05	04	05	05	05	05	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	36	32	36	32	34	38	38	34	33	31	29	34	38	
	DIR. (TENS OF DEGS.)	05	07	04	06	05	04	06	04	04	22	07	04	06	
	DATE OF OCCURRENCE	25	05	29	09	25	22	26	30	01	19	25+	05	JUL 26	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	43	41	43	39	41	41	46	41	40	37	40	39	46	
DIR. (TENS OF DEGS.)	04	07	04	06	04	04	06	04	07	22	07	21	06		
DATE OF OCCURRENCE	25	05	30+	09	25	22	26	30	01	19	25	26+	JUL 26		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	2.01	1.70	1.48	0.34	0.51	0.09	0.01	0.31	0.03	0.41	0.22	2.55	9.66	
	GREATEST 24-HOUR (IN.)	0.47	0.55	0.84	0.15	0.51	0.05	0.01	0.15	0.03	0.38	0.19	0.71	0.84	
	DATE OF OCCURRENCE	09	21-22	20	11	16-17	25-26	12	08	30	20	29-30	26-27	MAR 20	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	10	10	7	4	2	3	1	8	1	3	2	14	65	
PRECIPITATION ≥ 0.10	6	5	4	2	2	0	0	1	0	1	1	7	29		
PRECIPITATION ≥ 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)														
	GREATEST 24-HOUR (IN.)														
	DATE OF OCCURRENCE														
	MAXIMUM SNOW DEPTH (IN.)														
	DATE OF OCCURRENCE														
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0															

NORMALS, MEANS, AND EXTREMES

KAHULUI, HI (OGG)

LATITUDE: 20° 54' 07" N LONGITUDE: 156° 25' 59" W ELEVATION (FT): GRND: 70 BARO: 70 TIME ZONE: HAWAII (UTC + 10) WBAN: 22516

	ELEMENT	POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	79.9	80.1	81.2	82.2	84.2	85.9	86.8	87.6	87.7	86.4	83.7	81.1	83.9
	MEAN DAILY MAXIMUM	41	80.1	80.3	81.2	82.5	84.4	86.1	86.9	87.7	87.9	86.7	83.8	81.3	84.1
	HIGHEST DAILY MAXIMUM	35	89	89	90	91	92	94	95	97	96	96	93	90	97
	YEAR OF OCCURRENCE		1981	1998	1984	1981	1996	1996	1996	1994	1997	1973	1990	1995	AUG 1994
	MEAN OF EXTREME MAXS.	41	85.0	85.0	86.5	86.8	88.7	89.7	90.8	91.7	91.6	91.1	88.8	86.3	88.5
	NORMAL DAILY MINIMUM	30	63.6	63.4	64.6	66.1	67.0	69.0	70.5	70.8	69.8	69.2	67.6	65.1	67.2
	MEAN DAILY MINIMUM	41	63.5	63.5	64.7	66.1	67.2	69.4	70.8	71.2	70.3	69.3	68.0	65.4	67.5
	LOWEST DAILY MINIMUM	35	48	50	52	54	57	58	58	61	60	58	55	52	48
	YEAR OF OCCURRENCE		1969	1987	1993	1985	1985	1985	1965	1999	1975	1964	1985	1983	JAN 1969
	MEAN OF EXTREME MINS.	41	55.7	55.5	57.5	59.6	61.1	62.9	64.1	64.9	64.3	62.5	61.6	57.5	60.6
	NORMAL DRY BULB	30	71.7	71.8	73.0	74.2	75.7	77.5	78.7	79.3	78.8	77.9	75.7	73.1	75.6
	MEAN DRY BULB	41	71.8	71.8	72.9	74.3	75.8	77.7	78.9	79.4	79.1	78.0	75.9	73.3	75.7
	MEAN WET BULB	13	66.9	66.7	67.3	68.0	69.2	70.6	66.7	67.6	67.4	66.9	65.7	62.9	67.2
	MEAN DEW POINT	13	58.0	58.2	58.5	59.2	60.0	61.4	62.8	63.7	63.4	63.1	62.2	59.4	60.8
		NORMAL NO. DAYS WITH:													
MAXIMUM ≥ 90°		30	0.0	0.0	0.1	0.1	1.0	1.8	3.2	5.5	6.4	4.2	1.1	0.1	23.5
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
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
H/C	NORMAL HEATING DEG. DAYS	30	0	0	0	0	0	0	0	0	0	0	0	0	0
	NORMAL COOLING DEG. DAYS	30	208	190	248	276	332	375	425	443	414	400	321	251	3883
RH	NORMAL (PERCENT)	30	78	75	74	72	71	70	70	69	70	73	74	77	73
	HOUR 02 LST	30	84	81	80	81	81	80	80	78	79	80	81	82	81
	HOUR 08 LST	30	83	81	78	75	72	71	72	72	72	75	78	81	76
	HOUR 14 LST	30	64	62	60	59	56	55	56	55	55	58	60	62	58
	HOUR 20 LST	30	74	73	73	70	71	70	70	68	68	71	74	74	71
S	PERCENT POSSIBLE SUNSHINE	36	64	64	64	63	68	72	70	71	73	67	62	63	67
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	42	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
	THUNDERSTORMS	42	0.8	0.5	0.4	0.5	0.2	0.0	0.1	0.1	0.2	0.3	0.4	0.5	4.0
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	37	3.8	3.9	4.3	4.7	4.3	3.9	3.7	3.7	3.7	4.0	4.0	3.8	4.0
	MIDNIGHT-MIDNIGHT (OKTAS)														
	MEAN NO. DAYS WITH:														
	CLEAR	37	12.9	11.5	10.6	7.8	9.5	10.7	10.7	11.9	11.5	10.6	10.9	11.9	130.5
	PARTLY CLOUDY	37	9.9	9.4	11.3	11.8	13.6	13.5	14.9	13.6	12.6	12.5	10.8	11.3	145.2
	CLOUDY	37	8.2	7.4	9.1	10.5	7.9	5.8	5.3	5.5	5.8	7.9	8.3	7.8	89.5
PR	MEAN STATION PRESSURE (IN)	12	29.91	29.94	29.97	29.98	29.97	29.95	29.93	29.92	29.93	29.91	29.92	29.93	29.94
	MEAN SEA-LEVEL PRES. (IN)	14	29.98	29.98	30.04	30.04	30.03	30.02	30.00	29.99	29.95	29.96	29.98	30.00	30.00
WINDS	MEAN SPEED (MPH)	12	12.0	12.9	13.3	14.7	16.1	17.1	17.5	16.8	15.2	13.2	13.9	12.4	14.6
	PREVAIL. DIR (TENS OF DEGS)	9	05	05	05	05	05	05	05	05	04	05	05	05	05
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	1	36	32	36	32	34	38	38	34	33	31	29	34	38
	DIR. (TENS OF DEGS)		05	07	04	06	05	04	06	04	04	22	07	04	06
	YEAR OF OCCURRENCE		1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	JUL 1999
	MAXIMUM 5-SECOND:														
SPEED (MPH)	1	43	41	43	39	41	41	46	41	40	37	40	39	46	
DIR. (TENS OF DEGS)		04	07	04	06	04	04	06	04	07	22	07	21	06	
YEAR OF OCCURRENCE		1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	JUL 1999	
PRECIPITATION	NORMAL (IN)	30	4.14	2.87	2.72	1.84	0.77	0.27	0.38	0.49	0.35	1.23	2.59	3.27	20.92
	MAXIMUM MONTHLY (IN)	45	14.46	8.31	10.90	14.29	4.36	2.50	1.65	1.54	1.43	5.66	9.27	10.21	14.46
	YEAR OF OCCURRENCE		1980	1972	1967	1989	1987	1967	1989	1982	1987	1985	1965	1996	JAN 1980
	MINIMUM MONTHLY (IN)	45	0.12	0.07	0.09	0.06	T	0.00	0.01	0.02	0.02	T	0.14	0.01	0.00
	YEAR OF OCCURRENCE		1977	1983	1957	1990	1972	1957	1999	1973	1972	1984	1980	1975	JUN 1957
	MAXIMUM IN 24 HOURS (IN)	45	7.01	4.98	5.42	4.83	2.41	2.36	1.04	1.21	1.16	4.85	5.48	5.82	7.01
	YEAR OF OCCURRENCE		1980	1972	1967	1989	1987	1967	1989	1982	1965	1985	1965	1955	JAN 1980
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	11.1	9.8	11.1	10.7	6.1	5.1	6.3	5.9	5.2	7.6	10.2	11.1	100.2	
PRECIPITATION ≥ 1.00	30	1.1	0.8	0.7	0.3	0.1	*	*	*	*	0.2	0.7	0.6	4.5	
SNOWFALL	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)	2	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)	44	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)	39	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) 1999 KAHULUI, HI (OGG)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	3.49	1.64	0.29	1.37	0.02	0.02	0.15	0.23	0.44	0.48	8.71	1.77	18.61
1971	13.66	0.78	2.92	1.13	0.10	0.21	0.09	0.54	0.25	0.07	0.24	0.14	20.13
1972	0.35	8.31	2.00	0.30	T	0.29	0.04	0.84	0.02	1.00	0.39	2.17	15.71
1973	2.14	0.81	1.35	0.44	0.57	0.08	0.02	0.02	0.04	0.34	0.98	3.48	10.27
1974	9.00	0.12	3.33	0.75	0.54	T	0.51	0.12	0.12	1.57	2.25	0.37	18.68
1975	3.30	4.96	1.89	0.10	0.03	0.05	0.23	0.61	0.11	0.37	2.08	0.01	13.74
1976	2.78	2.16	3.71	0.98	0.01	0.02	0.19	0.10	0.15	0.71	1.92	0.10	12.83
1977	0.12	0.92	1.62	3.83	0.20	0.13	0.43	0.71	0.05	0.45	0.23	2.81	11.50
1978	0.18	0.86	2.19	0.26	0.82	0.61	0.40	0.98	0.25	1.99	5.15	5.46	19.15
1979	7.18	7.07	2.80	2.93	0.09	0.07	0.23	0.23	0.21	0.44	0.80	4.77	26.82
1980	14.46	4.07	2.93	2.48	0.53	0.22	0.72	0.30	0.11	0.54	0.14	1.37	27.87
1981	0.46	1.94	0.73	0.89	0.84	0.06	0.06	0.67	0.85	1.48	2.26	2.61	12.85
1982	8.12	3.77	5.20	3.26	0.14	0.22	0.64	1.54	0.56	2.63	1.91	6.05	34.04
1983	0.58	0.07	1.12	0.24	0.94	0.17	0.53	0.67	0.50	1.38	0.98	5.87	13.05
1984	2.45	0.67	1.42	1.07	0.47	0.02	0.09	0.46	0.11	T	1.16	0.64	8.56
1985	1.16	2.03	1.96	0.25	1.20	0.01	0.53	0.52	0.10	5.66	4.61	1.97	20.00
1986	1.30	1.36	3.93	3.95	1.02	0.77	0.25	0.45	0.05	0.96	1.49	2.86	18.39
1987	2.91	1.41	0.57	3.77	4.36	0.12	0.13	0.62	1.43	0.25	3.02	5.72	24.31
1988	7.72	0.93	0.89	1.37	0.17	0.02	0.21	0.46	0.23	0.84	3.76	10.19	26.79
1989	1.59	5.38	3.96	14.29	0.85	0.42	1.65	0.50	0.31	4.71	2.25	4.72	40.63
1990	6.32	7.94	2.98	0.06	1.50	0.90	0.39	0.50	0.50	0.60	6.44	7.07	35.20
1991	2.94	4.94	2.89	0.50	0.24	0.13	0.37	1.06	1.17	0.15	0.23	1.47	16.09
1992	2.40	1.02	0.34	0.90	1.58	0.30	1.09	0.16	1.32	1.47	3.55	2.85	16.98
1993	2.19	0.21	1.55	1.28	0.52	0.09	1.30	0.80	0.78	1.19	1.99	0.79	12.69
1994	1.12	1.64	4.23	0.99	0.05	0.72	1.30	0.50	1.11	0.10	1.26	0.91	13.93
1995	2.73	0.91	2.13	1.76	0.61	0.26	0.46	0.63	0.12	0.80	0.92	2.12	13.45
1996	2.47	3.02	6.75	0.50	0.46	0.18	0.52	0.18	0.18	T	6.53	10.21	31.00
1997	9.23	1.11	3.06	1.34	0.83	0.71	1.22	0.14	0.09	0.50	3.10	1.75	23.08
1998	0.36	0.49	0.18	1.27	0.44	0.04	0.18	0.21	0.41	0.08	1.93	1.17	6.76
1999	2.01	1.70	1.48	0.34	0.51	0.09	0.01	0.31	0.03	0.41	0.22	2.55	9.66
POR= 96 YRS	3.49	2.67	2.64	1.73	0.68	0.22	0.31	0.40	0.40	0.88	2.04	3.23	18.69

WBAN : 22516

AVERAGE TEMPERATURE (°F) 1999 KAHULUI, HI (OGG)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	71.5	69.7	72.8	75.2	76.9	78.3	79.4	80.3	78.0	78.3	75.5	73.9	75.8
1971	69.8	72.3	73.5	74.3	75.1	77.3	78.0	77.7	78.5	76.7	75.5	72.7	75.1
1972	69.5	70.4	72.0	73.6	74.7	76.0	77.9	79.1	78.6	78.1	75.2	71.2	74.7
1973	69.9	69.7	74.5	73.2	73.3	75.9	77.7	78.5	77.7	77.5	75.5	72.8	74.7
1974	73.8	73.0	72.9	76.2	75.8	76.7	77.0	78.9	77.7	78.0	75.2	74.6	75.8
1975	71.3	72.2	72.0	74.6	73.0	74.7	76.2	77.2	76.2	75.9	73.8	72.3	74.1
1976	71.1	71.5	72.8	74.2	75.0	75.8	78.4	79.5	78.9	78.0	74.8	74.7	75.4
1977	71.7	73.5	74.6	74.4	75.8	76.5	78.0	80.2	79.7	78.9	77.0	73.9	76.2
1978	74.0	72.9	74.8	76.5	78.3	79.1	80.4	81.2	80.9	79.5	76.1	74.1	77.3
1979	71.1	71.8	71.4	73.3	75.9	78.5	79.1	80.5	80.9	80.5	76.5	75.4	76.2
1980	73.3	73.4	75.6	75.9	78.9	80.0	81.2	80.5	81.0	79.8	78.2	76.0	77.8
1981	74.7	74.6	75.0	76.1	78.0	80.7	80.5	81.3	80.4	78.3	76.9	74.5	77.6
1982	73.1	72.4	72.8	73.2	76.0	78.5	80.9	81.5	80.0	79.0	77.0	73.2	76.5
1983	71.4	71.5	72.5	74.1	74.9	77.6	78.1	79.1	78.0	77.3	75.8	73.5	75.3
1984	73.4	73.4	75.9	77.0	78.5	80.5	80.0	79.5	79.4	80.5	79.0	74.2	77.6
1985	72.0	73.0	70.7	70.8	73.1	75.1	77.6	77.8	77.1	76.7	73.0	71.2	74.0
1986	70.4	71.4	73.7	74.3	75.9	77.1	79.4	80.6	79.4	77.5	77.1	72.9	75.8
1987	72.0	69.3	72.0	72.8	72.4	76.5	78.6	78.9	79.5	78.3	75.6	73.8	75.0
1988	71.5	72.3	73.4	74.2	76.5	77.8	78.9	79.2	78.9	77.5	76.8	73.1	75.8
1989	72.3	71.6	73.2	72.0	75.5	77.3	79.0	78.0	78.6	77.6	74.8	71.7	75.1
1990	72.7	70.8	72.0	74.6	75.5	77.9	78.4	79.6	80.3	78.4	76.5	73.0	75.8
1991	71.7	72.6	72.1	74.4	75.8	76.6	78.3	79.6	79.0	78.3	77.3	74.8	75.9
1992	71.4	71.8	72.9	74.1	76.3	78.6	79.2	80.5	80.4	78.5	76.9	75.4	76.3
1993	71.2	69.6	71.9	75.3	76.0	78.7	79.5	80.3	80.0	78.2	75.9	73.8	75.9
1994	71.1	74.0	73.0	73.6	76.2	78.2	80.0	81.2	80.7	79.0	76.5	73.5	76.4
1995	71.6	72.7	74.4	74.7	76.0	79.0	80.3	80.6	79.9	79.8	77.9	75.9	76.9
1996	75.1	72.5	72.2	77.0	78.0	80.6	81.4	80.9	80.4	80.2	77.6	73.3	77.4
1997	72.4	73.4	74.6	74.8	75.6	79.5	80.0	80.2	81.3	79.6	75.6	73.2	76.7
1998	71.7	71.9	73.3	73.8	74.4	76.3	78.0	79.1	77.9	77.2	75.9	72.0	75.1
1999	71.3	71.0	72.9	73.7	75.7	77.0	77.5	78.3	78.6	76.5	75.2	72.9	75.1
POR= 45 YRS	71.7	71.7	72.7	74.0	75.5	77.4	78.5	79.1	78.8	77.8	75.7	73.2	75.5

HEATING DEGREE DAYS (base 65°F) 1999 KAHULUI, HI (OGG)

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	2	0	2
1985-86	0	0	0	0	0	0	0	0	0	0	0	0	0
1986-87	0	0	0	0	0	0	0	1	0	0	0	0	1
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	1	0	0	0	0	1
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-	0	0	0	0	0	0	0	0	0	0	0	0	0

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COOLING DEGREE DAYS (base 65°F) 1999 KAHULUI, HI (OGG)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	212	136	247	310	374	407	454	479	397	418	322	285	4041
1971	157	212	271	285	323	375	409	401	413	370	322	247	3785
1972	149	162	222	264	308	338	408	446	413	410	312	199	3631
1973	160	139	302	253	266	335	402	425	390	396	321	248	3637
1974	277	229	250	342	339	359	378	439	390	408	311	307	4029
1975	205	211	227	297	254	297	355	385	344	350	271	230	3426
1976	196	196	248	283	315	329	423	456	424	411	300	309	3890
1977	216	244	303	290	343	352	409	476	446	440	368	283	4170
1978	286	229	312	349	420	430	487	508	483	456	339	289	4588
1979	197	197	206	255	346	410	446	486	485	487	354	331	4200
1980	266	253	335	334	442	457	512	488	484	462	401	347	4781
1981	307	276	314	337	407	476	489	510	469	417	363	300	4665
1982	259	215	248	254	347	412	498	519	458	438	366	259	4273
1983	205	188	240	278	315	384	414	445	398	389	333	272	3861
1984	264	250	346	367	425	472	470	456	437	486	425	295	4693
1985	223	229	182	178	260	312	397	403	371	370	250	200	3375
1986	174	187	276	287	345	373	454	490	442	392	370	249	4039
1987	226	127	224	242	237	353	430	440	440	418	326	282	3745
1988	210	218	267	285	364	390	438	444	426	395	358	261	4056
1989	234	193	260	218	331	375	440	412	414	400	301	215	3793
1990	246	169	223	294	332	394	422	458	467	425	352	252	4034
1991	211	219	228	290	341	353	421	458	427	417	375	312	4052
1992	207	205	254	282	358	413	448	489	468	427	362	331	4244
1993	199	135	222	316	347	419	454	482	456	417	334	278	4059
1994	196	259	255	267	355	400	471	507	478	439	351	269	4247
1995	213	219	296	298	347	426	482	492	453	466	393	348	4433
1996	320	226	230	368	410	473	518	499	471	479	383	264	4641
1997	239	244	306	300	336	439	468	478	496	460	324	261	4351
1998	214	200	266	269	302	347	412	442	392	385	334	223	3786
1999	199	174	252	268	341	366	398	420	412	361	310	252	3753

SNOWFALL (inches) 1999 KAHULUI, HI (OGG)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1971-72	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
1972-73	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
1973-74	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
1974-75	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
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-													
POR= 43 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 : 22516

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 (1961 - 1990). 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.</p>	<p>GENERAL CONTINUED: 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. 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.</p> <p>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.</p>
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1999
KAHULUI,
HAWAII (OGG)

Kahului Airport is located in the relatively broad central valley of Maui near the northern coast of the island. Five miles to the west, the mountains of west Maui rise abruptly, reaching an elevation of 5,788 feet above sea level at the crest of Puu Kukui 10 miles west of the station. To the southeast the terrain rises gradually to the summit of Haleakala at 10,023 feet, located 17 miles from the airport.

The outstanding features of the climate are the equable temperature regime, the marked seasonal variation in rainfall, the persistent surface winds from the northeast quadrant, and the rarity of severe storms.

The extremely equable temperatures at Kahului are associated with the tempering effect of the Pacific Ocean and the small seasonal variation in the amount of energy received from the sun. The range in normal temperature between the warmest month, August, and the coldest month, February, is 7.2 degrees.

Rainfall is relatively light. The contrast between the dry season, which extends from May through October, and the wet season, November through April, is quite pronounced. Major widespread rainstorms, which account for the bulk of the precipitation in the area, usually occur several times during each wet season, but are infrequent in the dry season. Approximately 50 percent of the normal annual rainfall occurs in the three months of December through February, and over 80 percent in the six months of the wet season. June is the driest month, receiving about 1 percent of the annual total. Occasionally, an entire dry season month will go by with no measurable precipitation whatever. At the other extreme, a single wet season storm sometimes contributes more than one-half the total rainfall in an individual year.

Showers constitute the greatest number of rainfall occurrences and although most of these are light and short-lived, very heavy showers do occur at times. Thunderstorms, which are reported rather infrequently, are usually associated with major storms in the wet season.

Violent, damaging, windstorms are rare, but sometimes occur in connection with major storms moving through the region.

Hurricanes, with winds of 75 mph, or more, rarely affect the Kahului area. However, tropical storms, which are similar to hurricanes, except that the wind speed is less than 75 mph, may pass close enough to produce heavy rain and strong wind at Kahului once every several years.

The large Pacific semipermanent high pressure cell, which is usually centered north of the Hawaiian Islands, is one of the important climatic controls affecting the circulation of air in the region. Over the central North Pacific, this cell produces a rather persistent flow of air from the northeast known as the Northeast Trades. Thus, surface wind at Kahului is predominantly from the northeast quadrant. The trade-wind flow is most prevalent during the dry season. Wind is more variable during the wet season although, on the average, the trades still blow more than 50 percent of the time during this period.

The normal trade winds, accentuated by the funneling effect between Haleakala and the west Maui mountains, as well as by the daytime thermally induced low pressure in the valley, often attain a speed of 40 to 45 mph at the airport, but serve to make living conditions in the nearby Kahului-Wailuku community pleasant and comfortable. Air conditioning is used in only a few business establishments and residences.

Humidity at Kahului is usually moderate to high, with wet season humidities averaging slightly higher than those in the dry season. However, due to the system of natural ventilation provided by the prevailing winds, the weather is seldom oppressive even during the warmer months of the year.

STATION LOCATION

KAHALUI, HAWAII

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE											AUTOMATED STATION	* Type M = AMOS T = AUTOB S = ASOS W = AWOS	REMARKS
						SEA LEVEL	GROUND												
							WIND	WIND	WIND	WIND	WIND	WIND	WIND	WIND	WIND	WIND			
Puunene, Maui	11/1/01	6/30/52		20°53'	156°27'	60												Cooperative Station.	
Terminal Building Kahului Airport, Maui	7/1/52	12/20/58	2 mi. NNE	20°54'	156°26'	40	45	24	24									Supplementary Aeronautical Weather Reporting Station.	
FAA Tower Kahului Airport, Maui	12/20/58	12/31/61	800' SW	20°54'	156°26'	44	72	5	4									FAA Operation. Poor exposure for thermometers and rain gage.	
FAA Tower Kahului Airport, Maui	12/31/61	03/01/98	Office not moved #	20°54'	156°26'	f48	d21	g6 h	g5 h	c60 k6	a3 g3 j3	NA	5 b	e5 15	NA		Weather Bureau operation. # - Thermometers and rain gage moved 320 feet NW for better exposure a - Installed 2/7/62. b - Removed 2/7/62. c - Installed 2/13/62; 66 feet to 7/15/66. d - 72 feet to 10/18/63. Record recording wind equipment commissioned 11/1/63. e - Commissioned 4/1/64 on site 2100' SE of thermometers. f - 44 feet to 4/1/64. g - Moved 170' SW 4/15/71. h - Removed 2/1983 i - Type change 9/24/85. j - Moved 10' NW 07/27/88. k - Moved to ground 07/27/88.		
Kahului Airport	03/01/98	Present	NA	20°54'	156°26'	70										S	ASOS Commissioned 03/01/98		

SUBSCRIPTION: Price and ordering information available through: National Climatic Data Center, Federal Building, Asheville, North Carolina 28801.
INQUIRIES/COMMENTS CALL: (704) 271-4800

National Climatic Data Center
151 Patton Avenue, Rm 120
Asheville NC 28801-5001

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