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MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature										Precipitation													
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days			
										30° or Above	20° or Above	31° or Below	0° or Below					Total	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
KEAAU 92	79.3	61.3	70.3	.0	85	17+	58	22+		0	0	0	0	14.62	2.06	5.22	9	.0	0		9	8	5	
KEAIAKEKUA 26.2	74.0	60.8	67.4		77	28+	56	21+		0	0	0	0	17.13		4.38	29	.0	0		13	8	6	
KONA (KAILUA) 68.3					82	28+	60	9		0	0	0	0	11.14		4.15	29	.0	0					
KUKIHAELE HIC 199														11.16		2.13	29	.0	0		11	8	4	
KULANI CAMP 79	62.1	44.7	53.4		70	15	33	1		0	0	0	0	21.66	5.03	5.24	28	.0	0		13	6	5	
PAHALA 21					83	15	55	4		0	0	0	0	20.75	12.72			.0	0					
POMAKULUA 107														5.88		1.82	9	.0	0					
PUNAO 95.1														9.85		5.12	29	.0	0		9	5	2	
PUNAWAANA 94.1														16.40	13.17	6.20	29	.0	0		9	7	5	
UMIKOA 118														6.49	.67	1.51	10	.0	0		6	6	3	
WAIKOA SCD 8R+2														11.92		3.72	9	.0	0		10	7	5	
WAIKOA KDHALA	70.4	48.1	59.3		75	28+	38	3+		0	0	0	0	8.98		3.18	29	.0	0		9	5	3	
ISLAND			65.3											14.54				.0						

TEMPERATURE AND PRECIPITATION EXTREMES

- HIGHEST TEMPERATURE: 87° ON THE 28+ AT 4 STATIONS
- LOWEST TEMPERATURE: 19° ON THE 22D AT MAUNA LOA SLOPE OBS, HAWAII
- GREATEST TOTAL PRECIPITATION: 36.54 AT PAHOA 65, HAWAII
- LEAST TOTAL PRECIPITATION: 5.55 AT KULANI MAUKA 76, HAWAII
- GREATEST ONE-DAY PRECIPITATION: 12.38 ON THE 9TH AT PAHOA 65, HAWAII

SPECIAL WEATHER SUMMARY

For the third successive month in what has thus far been one of its worst winters of recent years, Hawaii was subjected to a variety of severe weather, including flooding rains and a devastating waterspout.

The meteorological conditions responsible (low pressure aloft above or just west of the State-- and an associated jet stream -- on more than 3 days out of 4; cold front passages, with fronts near enough to affect the Islands on about half the days of the month; and intense storms to the north) resulted also in high surf and waves, strong winds, widespread falls of hail, heavy snows on the upper slopes of Mauna Kea, Mauna Loa, and Haleakala, and an unusually large number of funnel clouds and suspected tornadoes. The frequency of trade winds (as measured at Honolulu International Airport) declined to 21 percent; rainfall was heaviest in the normally drier leeward (western) sides of the major Islands; Hilo had thunderstorms on 8 days, in contrast to its January mean of one day; and sunshine dropped to well below the January normal.

Beginning on the morning of the 5th, strong southwest winds in advance of an approaching cold front, and locally augmented by topography, blocked roads on parts of West Kauai, Oahu (where, as Table I shows, gusts reached 78 m.p.h. at Wheeler Air Force Base and 58 m.p.h. at Kaneohe Marine Corps Air Station) and Hawaii with branches and fallen trees; unroofed a home in Kahaluu, Oahu; knocked down powerlines in sections of Maui; and on Hawaii Island damaged saran greenhouses and 100 papaya trees in Puna and toppled 10 acres of banana plants in Kona. At Haleakala's 10,023-foot summit winds estimated to be up to 90 m.p.h. knocked out the TV transmitter, while snow 2 to 4 inches deep, with drifts of 6 to 8 feet, extended down to an elevation of 8,000 feet, the lowest reached on Haleakala in 3-1/2 years. More than 5,000 sightseers driving up to see and touch the unaccustomed snow created a mammoth traffic jam, forcing rangers to close the road to the snowfields.

The front was accompanied by hail and funnel clouds. The first of the latter, the forerunner of many to follow later in the month, had been spotted on January 4 about 15 miles west of Honolulu International Airport between 8:27 and 9:04: a narrow curved appendage about 1,000 feet long, which twice descended from and re-ceeded into its parent cloud -- a cumulus, with tops at 8,000 feet and base at 2,500 feet.

On January 5, hail half-an-inch in diameter fell at Kokee, Kauai, and "as big as dimes" at

Kulaimano and the city of Refuge on Hawaii Island.

The next day Kauai had hail again: clear hailstones 1/4 inch in diameter during a thunderstorm at Kekaha, and Oahu reported two additional funnel clouds, the first between 2:06 and 2:26 p.m., south of Ewa Beach, and the second south of Waikiki, between 3:25 and 3:30 p.m.

Also on the 6th, waves generated by storms to the north partially washed out a pier and walkway and sank 3 small boats at Pokai Bay, Oahu; and, at Keauhou Bay on Hawaii Island's Kona coast, flooded the grounds of a hotel and the first floor of another hotel under construction, damaged a 33-foot sloop and a concrete boat at Keei Beach, and knocked down several trees along Alii Drive between Kailua and Kahaluu Beach Park. The latter was completely under water for 2 days. Surf heights on Oahu reached 25 feet at Waialua and Haleiwa and 15 to 20 feet at Sunset Beach. On Kauai, Hanalei and Kilauea Lighthouse reported 15- and 22-foot surf, respectively.

On January 8 and 9, heavy rain fell over Maui and Hawaii from clouds spiraling into a low pressure center about 300 miles west-northwest of the Islands. Residents in Maui's Paukukalo area were instructed to evacuate as Iao Stream threatened to overflow, but the stream subsided. On Hawaii Island a portion of the Belt Road near Honokaa was blocked by debris, and water backed up on Route 130 near Paho, whose 24-hour rainfall reading of 12.38 inches on the morning of the 9th was its greatest of record, exceeding the previous total of 10.96 inches. On the 10th, a strong gust of wind knocked down a kerosene stove chimney on the back porch of a Hilo home, causing \$3,000 in fire damage.

On the 15th, strong southwest winds preceding an approaching cold front did over \$100,000 in damage on Oahu alone. Powerlines and trees were downed in many areas. In windward Oahu, winds made more blustery in passing over the mountains, damaged 28 homes, a classroom, an armory and a warehouse, and -- in Waimanalo -- toppled a 40-foot ironwood tree onto a car, injuring the two occupants. Lanai Airport closed down. Roofs were damaged on one home on Maui and five in Molokai's Hoolehua district, and a carpenter was injured by a flying 4- x 8-foot plywood sheet in Kaanapali, Maui. Crops were bruised by the wind.

Up to this time the weather had been far from placid, but the most punishing blows were yet to come. Under the influence of an intensifying area of low pressure in the upper atmosphere,

SPECIAL WEATHER SUMMARY - Continued

a front that had developed about 1,000 miles to the northwest by the afternoon of the 25th began to strengthen as it approached Hawaii. The atmosphere in the Hawaiian area was already unstable, prepared to respond violently to further agitation. Thunderstorms over Kauai dropped hail at Wailua on the 25th. Between 8:00 and 8:30 the following morning, hail fell again, this time at Makaha Ridge, and three funnel clouds, one of which briefly reached the sea surface, were observed 6 to 9 miles west to northwest of Barking Sands, Kauai.

As the cold front moved through the Islands it carried with it strong southwesterly winds, heavy rains, and a greater number of damaging funnel clouds than any storm in Hawaii's recorded history.

At about 11:55 p.m. on the 27th, what a subsequent field survey indicated must almost certainly have been a small tornado, touched down in a pineapple field about 1/2 mile southwest of Whitmore Village, Wahiawa, Oahu. As indicated by wind-damaged pineapple leaves, its width at that time was about 42 feet. The "tornado" then moved northeastward in a straight line. It was 115 feet wide when it left the pineapple fields and continued onward to smash 3 quonset hut warehouses, tear out a Butler building wall, and move through Whitmore Village, where 18 homes, about 30 years old, and mainly of wood-frame, single-wall, sheet iron roof construction, sustained severe roof and less serious wall damage or were moved off their foundations. Tornado evidences included jet aircraft-like noises heard by residents before their houses were hit, twisted pineapple leaves, toppled banana plants, and adjacent houses differentially twisted off their foundations. Total damage was estimated at over \$100,000.

As the front moved southeastward, it continued to spawn funnel clouds. Beginning in the early morning of the 28th, at least six appear to have struck Hawaii Island's Kona area, presumably forming over the sea as waterspouts and moving onshore in the southwesterly winds. In only one instance was a funnel actually sighted -- the one that struck Kailua-Kona, and is described below. The others appear to have occurred during the hours of darkness. At Honomalino Farms in South Kona what may have been one or more tornadoes uprooted over 2,500 macadamia nut trees and damaged a house. Further north, what may have been another passed through the Paris and Greenwell Ranches at Kainaliu, where it uprooted 500 to 600 trees, twisted off the tops of several ohia trees 3 feet in diameter, picked up and threw a steel molasses

tank about 60 feet, and unroofed a house at the Paris Ranch. Winds, that may have been tornadoes, plowed through fern trees at Honaunau Forest Reserve, took a roof off a cabin on the slopes of Mt. Hualalai, and damaged a water collection complex on the Puu Waawaa Ranch.

The most severe tornado, witnessed and photographed by many persons, began as a large waterspout which swept into Kailua Bay from the ocean and moved onshore at about 11:50 a.m., cutting a swath through the downtown business and hotel district of Kailua-Kona, the major resort town on Hawaii Island's Kona coast. The funnel tore roofs and walls off waterfront houses, a hotel, and a newly-completed shopping mall; demolished the building housing the post office and a bank; collapsed a 7-story hotel, under construction, into a pancake-like heap of twisted girders and concrete slabs; and damaged a number of cars, 2 service stations and an auto center. The waterspout then moved upslope into an apartment project, damaging 40 units, many of them severely, and requiring 79 residents to be relocated. Miraculously, only four persons were injured, of whom one required hospitalization. Conservative estimates placed the damage in excess of \$1.5 million.

Meanwhile, on Maui, on the morning of the 28th, heavy rains that had begun the day before with the passing of the cold front, were causing streams and ditches to overflow, flooding homes, stores, and other buildings, damaging cars, and severely eroding fields and roads. Hardest hit were the Paia and Kihei areas in Central Maui. Clogged by debris, upper Iao Stream in the lower West Maui Mountains formed a new channel and flooded several homes, destroyed a section of the road to upper Iao Valley and forced 40 residents of Paukukalo to leave their homes.

Onrushing flood waters from the hills above Paia formed a lake at the intersection of Baldwin Avenue and Hana Highway, inundating buildings and parked cars.

At Kihei, two vehicles were washed into the ocean when a plugged culvert caused a normally shallow stream to overflow onto the road. Several apartment buildings were damaged and five cars trapped when the flood waters undermined a parking area. Other sections of Maui were also hit by scattered flooding, landslides, and washouts.

As Figure I shows, rainfall was greatest on the slopes of Haleakala, although the indicated storm maximum of 16 inches is by no means extraordinary by Hawaiian standards. Rainfall rates

SPECIAL WEATHER SUMMARY - Continued

were also modest. The greatest recorded was 2.25 inches an hour at Kihei.

It is not surprising that rainfall for the month was almost everywhere above the January average, except for a few gages in northeastern Kauai and in the Hamakua and Hilo areas of Hawaii Island (see Figures II-A and II-B). Extensive portions of all the Islands but Kauai had over

three times their January means. A number of places received between four and six times, and on Hawaii Island up to nine times their average January rainfall.

As the list below shows, many stations had more rainfall in January 1971 than in any previous January, and some of them more than in any month of record.

Saul Price
NOAA Regional Climatologist - Pacific Region
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
NOAA Acting Climatologist - Hawaii
P. O. Box 3650
Honolulu, Hawaii 96811

Stations Whose Previous Greatest January Rainfall Totals were Exceeded in January 1971

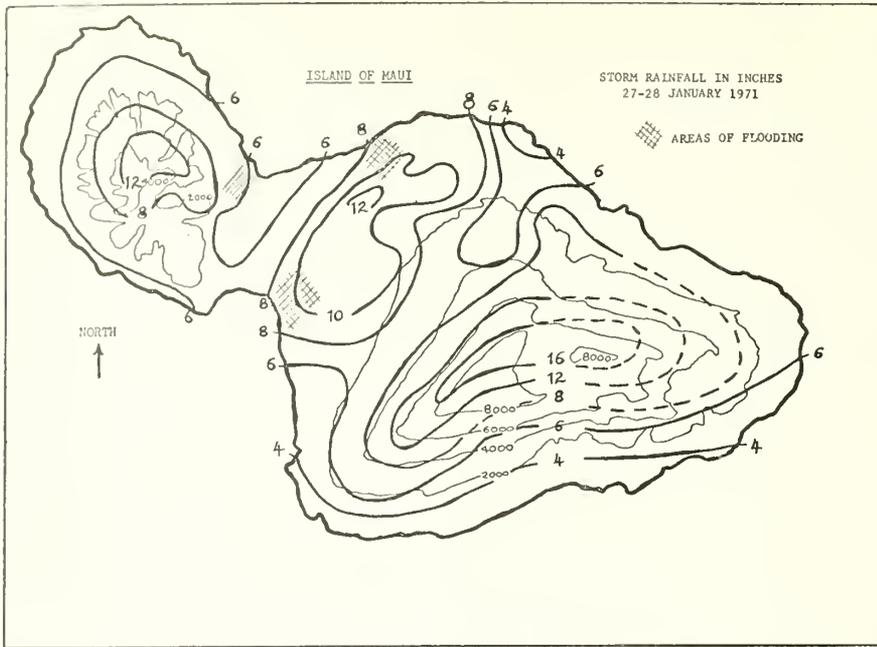
(25 years of record or more, only)

Station	Length of Record (Yrs.)	Previous Greatest January Total	January 1971
OAHU			
Kawaihapai	40	16.30	18.49 *
Kemoo Camp	45	17.57	23.05
Waialua	69	17.15	21.82
MAUI			
Haleakala Ranger Station	31	30.89	33.89
Honokohua	42	11.83	13.51
Kauaula Intake	51	17.35	18.71
Keahua	51	15.21	20.04 *
Kihei	47	11.46	17.31 *
Kula Sanatorium	52	16.37	22.75 *
Launiupoko Village	43	9.88	12.10 *
Paia	65	12.87	18.78
Puunene	65	10.13	14.03
Spreckelsville	62	14.75	16.74 *
Ukumehame	40	10.23	12.51 *
Wahikuli	49	10.33	11.67
HAWAII			
Ahua Umi	46	7.70	18.00
Halemaumau	37	21.22	23.00
Hawi	70	18.00	18.79
Holualoa Beach	49	12.27	16.20 *
Honaunau	31	7.25	15.40 *
Huehue	66	17.74	21.50
Kaawaloa	28	15.37	17.53
Kainaliu	39	14.64	19.03 *
Kealakekua	54	15.25	17.13 *
Kiolakaa A & F	40	25.10	26.50 *
Kohala	74	15.10	15.92
Lanihau	27	17.28	20.07 *
Manuka	40	12.40	14.83
Middle Holualoa	27	14.43	15.73 *
Pakao	41	21.86	22.10
Pohakuloa	32	5.58	5.88
Puu Laau	37	7.35	8.65
Puu Lehua	46	9.40	18.00 *
Puu Waawaa	66	11.80	16.40 *

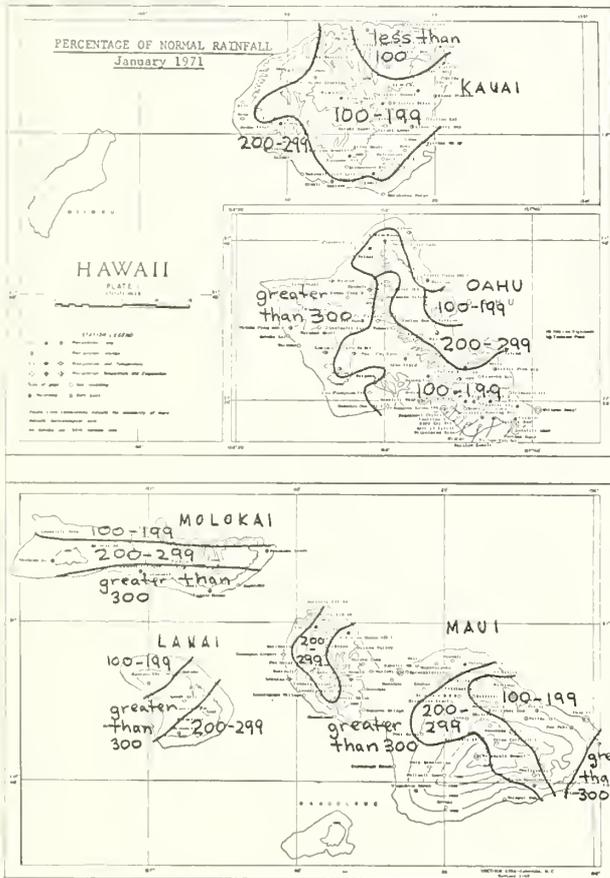
* Greatest in any month of record

Peak Gusts Observed During the Strong Winds of January 1971 (m.p.h.)

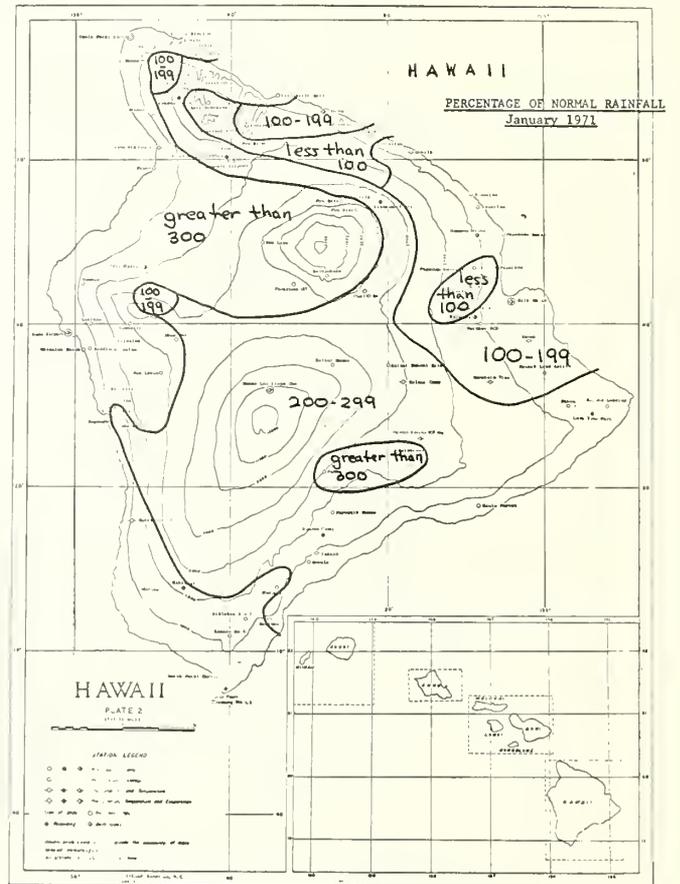
Island	Location	January 5	January 15	January 27-28
KAUAI	Makaha Ridge	--	66	52
	Kokee	35	61	--
	Lihue	43	53	37
OAHU	Barbers Point	--	47	45
	Honolulu	40	45	35
	Kaena Point	40	69	52
	Kaneohe	58	63	53
	Wheeler AFB, Wahiawa	78	62	56
MAUI	Kahului	46	54	42
HAWAII	Hilo	36	24	36
	Keahole	46	40	46
	Kamuela	--	35	--



Item II-A



Item II-B



Continued

DAILY TEMPERATURES

HAWAII
JANUARY 1971

Station		Day of Month																															Average			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
LAHAINA 361	MAX MIN	83 62	83 60	81 61	82 62	82 66	74 63	72 56	76 58	79 62	75 64	80 67	76 69	78 68	79 70	76 69	75 67	75 66	81 68	82 67	81 62	82 62	80 59	78 60	82 61	82 62	83 65	61 67	82 64	66 60	81 59	83 65	79.1 63.5			
WAILUKU 386	MAX MIN					80 70	80 68	79 56	73 68	79 55		81 56	75 67	78 69	74 69	76 69							77 67	70 66	73 63	74 60	74 56		78 58	80 63	82 64	66 58				
* * *																																				
ISLAND OF HAWAII																																				
HAINA 214	MAX MIN	78 60	74 60	75 60	76 59	79 60	81 61	72 60	72 59	75 61	69 62	79 63	75 62	79 63	78 65	80 64	85 68	81 65	81 64	83 64	86 66	80 66	76 67	78 68	83 66	82 61	80 61	81 60	79 60	78 61	78 61	79 59	75 62	77 62	78 61	76.9 61.5
HAWAII VOLCANO NP HO 54	MAX MIN	62 47	67 42	67 47	68 54	66 51	63 47	66 45	63 50	68 53	58 45	66 50	60 53	65 54	66 55	60 57	66 58	62 59	63 57	66 55	62 58	59 48	65 44	65 51	67 48	65 51	68 47	59 55	69 56	63 53	67 46	69 54	65 46	69 54	55.1 51.4	
HILD WSO 87	MAX MIN	81 61	78 58	80 60	82 64	82 62	79 59	78 60	78 58	71 64	79 64	79 63	82 60	81 63	81 62	83 60	86 68	80 66	81 67	83 66	86 67	80 66	76 62	78 61	83 61	82 61	80 61	81 60	81 60	87 62	81 68	87 65	81 62	81 64	81 62	80.2 62.4
KAINALIU 73.2	MAX MIN	75 56	74 55	75 56	64 58	78 61	71 61	74 56	71 56	71 61	71 61	76 61	77 62	72 61	75 63	76 64	76 65	76 65	74.0 60.1																	
KAMUELA 192.2	MAX MIN	68 50	73 50	68 50	72 42	72 45	69 50	70 52	69 47	70 50	70 54	69 53	69 49	72 52	73 59	71 59	76 60	75 62	73 58	73 57	72 58	72 46	73 44	73 55	72 49	73 55	73 49	75 50	74 48	76 51	73 56	75 55	75 56	72.0 52.1		
KEAAU 92	MAX MIN	78 58	78 58	78 58	78 58	81 61	84 61	77 61	75 59	75 59	80 59	79 63	78 62	81 63	80 63	83 63	85 63	85 67	77 67	80 66	78 66	75 62	78 61	80 61	82 61	79 61	80 62	79 60	80 60	80 60	80 60	80 60	80 60	80 60	79.3 61.3	
KEALAKEKUA 26.2	MAX MIN	75 57	73 58	76 56	75 59	77 63	71 60	69 56	71 57	71 61	71 61	71 62	71 62	74.0 60.8																						
KOHALA MISSION 175.1	MAX MIN	75 61	74 61	73 60	76 58	80 60	76 63	65 58	74 58	71 60	67 62	77 64	77 63	77 63	78 64	76 69	81 73	79 68	86 66	71 66	72 60	74 65	76 61	76 62	77 62	79 62	78 62	79 62	78 62	83 62	75 60	77 61	77 61	75.6 62.5		
KONA (KAILUA) 68.3	MAX MIN				81 68	81 69	77 66	74 61	78 66	73 60	82 66	79 65	81 67	79 69	80 71																					
KULANI CAMP 79	MAX MIN	55 33	54 34	63 36	55 43	62 46	61 38	64 41	58 40	61 40	61 46	62 47	60 47	68 50	76 48	72 48	63 53	61 55	63 51	68 51	65 49	59 39	60 40	65 40	58 43	68 43	65 44	58 45	65 43	62 44	60 45	60 45	64 45	62.1 44.7		
MAUNA LOA SLOPE D85	MAX MIN	47 27	50 28	50 28	52 31	41 29	34 26	33 30	41 30	38 31	44 30	45 32	48 32	47 35	50 36	46 33	50 37	47 35	44.0 29.1																	
MOUNTAIN VIEW 91	MAX MIN	74 54	74 54	74 54	74 54	76 55	76 55	75 55	69 56	73 57	73 57	73 59	77 61	77 60	80 60	79 63	79 63	74.9 57.5																		
NAALEHU 14	MAX MIN	74 62	78 58	78 58	78 58	76 64	75 64	77 58	78 61	78 61	80 62	80 62	78 63	80 64	80 64	78 69	78 66	78 66	76.7 62.6																	
UDKALA 223	MAX MIN	76 62	76 60	76 61	76 61	78 60	80 60	71 62	65 59	65 60	72 62	79 64	79 62	79 62	84 64	85 63	85 63	84 64	85 64	85 64	76.6 61.6															
OPIHIHALE 2 24.1	MAX MIN	72 53	73 52	74 53	76 54	75 57	71 54	70 54	73 55	67 58	76 60	73 59	73 61	75 61	76 63	73 65	79 65	76 62	74 63	74 63	74.1 57.3															
PAHALA 21	MAX MIN				78 55	79 59	80 61	82 58	77 58																											
PUAKO 95.1	MAX MIN	82 62	80 63	82 62	80 64	82 63	78 63	75 60	73 61	70 61	80 65	80 62	79 60	81 63	81 63	82 63	85 63	82 68	82 68	80.0 62.2																
UPOLU POINT USCG 159.2	MAX MIN	80 64	81 62	77 62	77 65	80 67	73 64	75 61	77 64	77 64	73 62	72 64	82 69	82 70	80 73	82 70	81 70	81 72	80 68	80 67	80 67	78.4 66.0														
WAINEA KOHALA	MAX MIN	68 41	68 38	70 38	70 40	69 50	69 52	64 49	64 43	64 42	70 40	70 42	70 47	70 54	73 57	73 52	74 55	75 57	74 55	74 55	70.4 48.1															

EVAPORATION AND WIND

Station		Day Of Month																															Total or Avg.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
* * * ISLAND OF KAUAI																																	
LIHUE WSO 1020.1	EVAP WIND MAX MIN	.25 153 78 62	.00 47 77 56	.24 73 77 55	.17 10 80 54	.33 160 82 53	.23 97 79 50	.13 55 71 46	.11 58 75 47	.10 84 75 55	.14 62 74 57	.21 77 78 57	.03 107 70 61	.00 137 70 64	.10 272 79 62	.15 199 72 61	.17 52 73 63	.06 68 71 56	.17 72 78 54	.18 131 74 64	.14 113 74 60	.17 113 76 62	.17 83 73 59	.17 60 77 52	.15 67 80 55	.20 74 80 60	.21 55 81 61	- 129 73 61	- 180 81 69	.35 98 73 58	.14 66 75 52	.18 88 75 52	4.978 2993 75.8 56.6
* * * ISLAND OF OAHU																																	
HONOLULU OBSERV 702.2	EVAP WIND MAX MIN	.15 26 82 60	.21 14 82 57	.17 18 79 55	.15 14 81 56	.16 113 79 58	.29 50 73 57	.03 13 73 64	.15 22 72 53	.15 27 79 54	.01 57 69 58	.14 28 74 62	- 72 80 63	.14 52 76 67	.06 105 78 67	.13 138 76 66	.20 16 80 66	.05 33 69 63	.11 18 77 63	.12 16 82 62	.13 16 78 59	.13 32 81 59	.17 26 80 60	.10 11 77 58	.15 16 84 57	.08 17 80 63	.15 14 82 62	.07 57 78 62	- 100 78 63	.03 35 65 56	.16 20 80 55	.02 21 81 55	3.868 1231 77.6 60.0

STATION INDEX

HAWAII JANUARY 1971

CONTINUED

Table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. Includes data for ISLAND OF HAWAII and MAINEA KOHALA.

DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHWESTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAUA 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN 5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN 2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII."

DIMENSIONAL UNITS: Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in °F, precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are term of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.

OBSERVATION TIME: Data in the "Monthly Extreme", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.

EVAPORATION: Is measured in the standard Weather Bureau type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extreme of temperature of water in pan as recorded during 24 hours ending at time of observation. Wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 5-8 inches above the pan.

NORMALS for all stations are climatological standard normals based on the period 1931-1960.

STATION NAMES: Hawaii state key numbers are included following station names in the several tables.

DELAYED DATA AND CORRECTIONS will be carried only in the June and December issue of this bulletin.

INTERPOLATED VALUES for monthly precipitation totals may be found in the annual issue of this publication.

IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, "Snowfall and Snow on Ground" table, and the Station Index.
No record in the "Climatological Data" table and the "Daily Temperature" table is indicated by no entry
+ And also on an earlier date or dates
++ Highest observed one minute wind speed. This station is not equipped with an instrument to measure fastest mile data
* Amount included in following measurement, time distribution unknown
A The letter "A" shown following station name in "Climatological Data" table, "Daily Precipitation" table, and "Station Index" indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
H Adjusted to a full month.
J "Supplemental Data" table
M One or more days of record missing. If average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
R Amounts from recording gage.
T Trace, an amount too small to measure.
V Includes total for previous month.

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

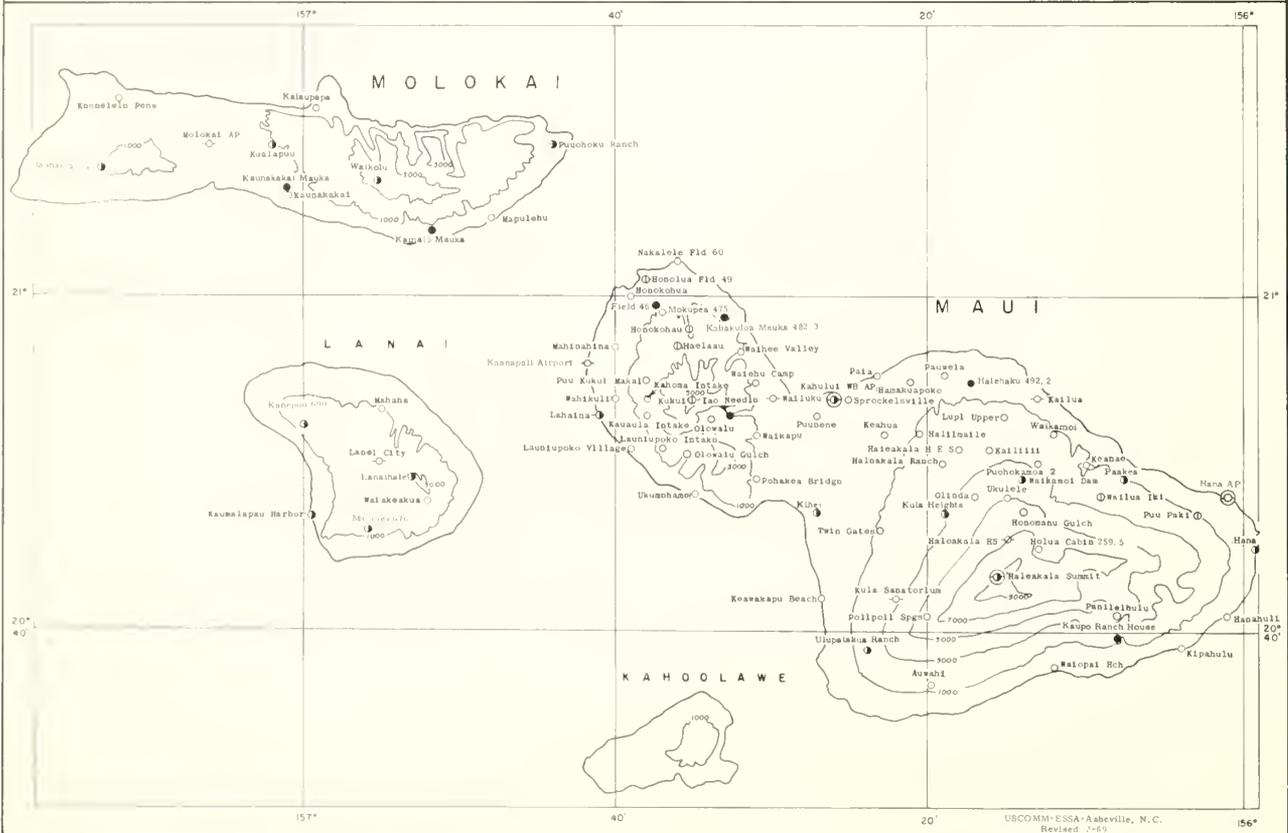
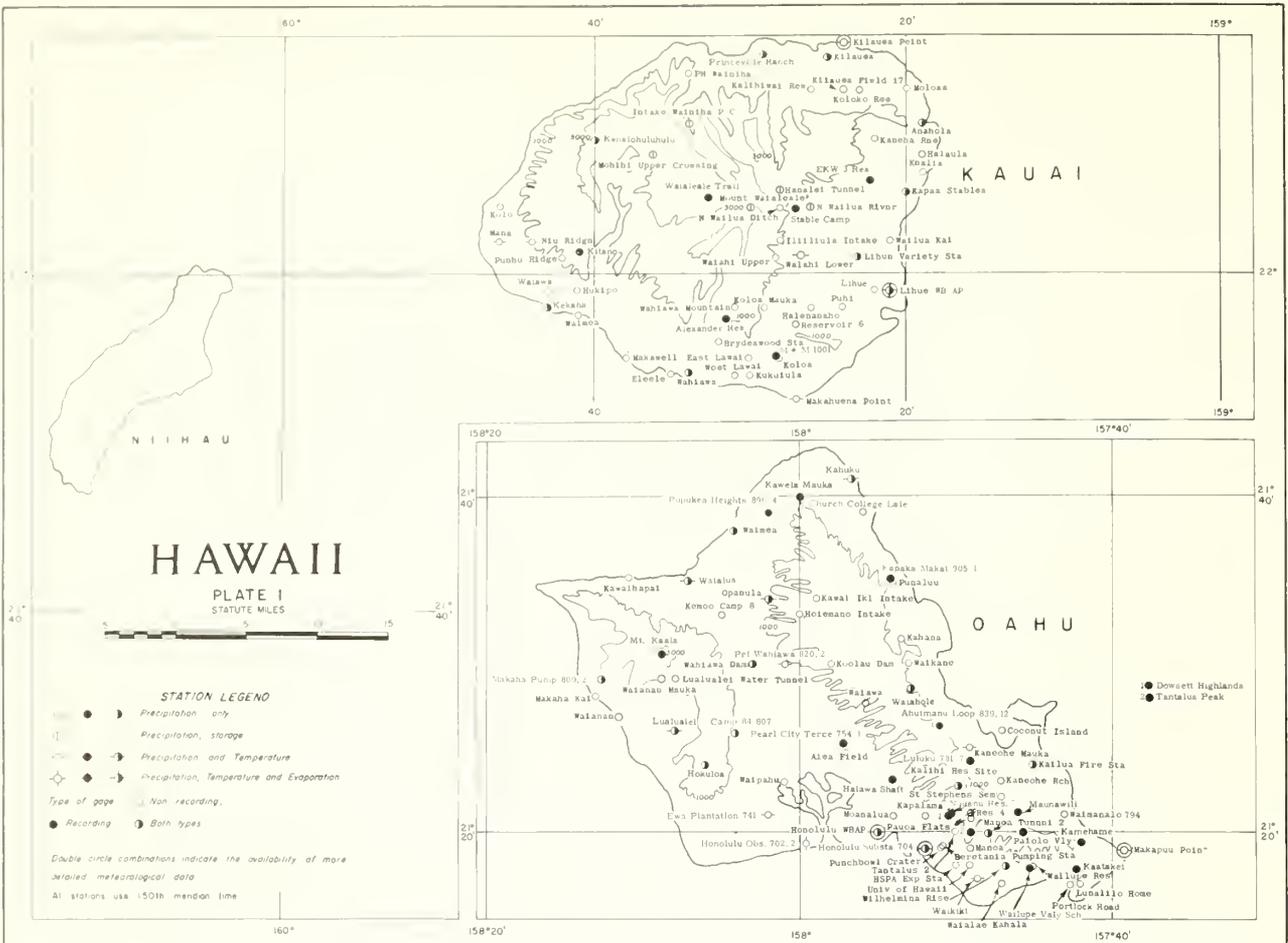
- AR Observation made after rain.
C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Climatological Data" bulletins they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
MO Gage read once monthly, usually on the last day.
OC Gage readings at periods varying from a few weeks to several months.
S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as delayed data in the June issue of this publication.
SS Observation time is near sunset.
VAR Observation time is variable.
W1 Gage read weekly or irregularly only.
W2 Gage read weekly and last day of month.
Thermometers are generally exposed in a shelter located a few feet above sod-covered ground, however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.

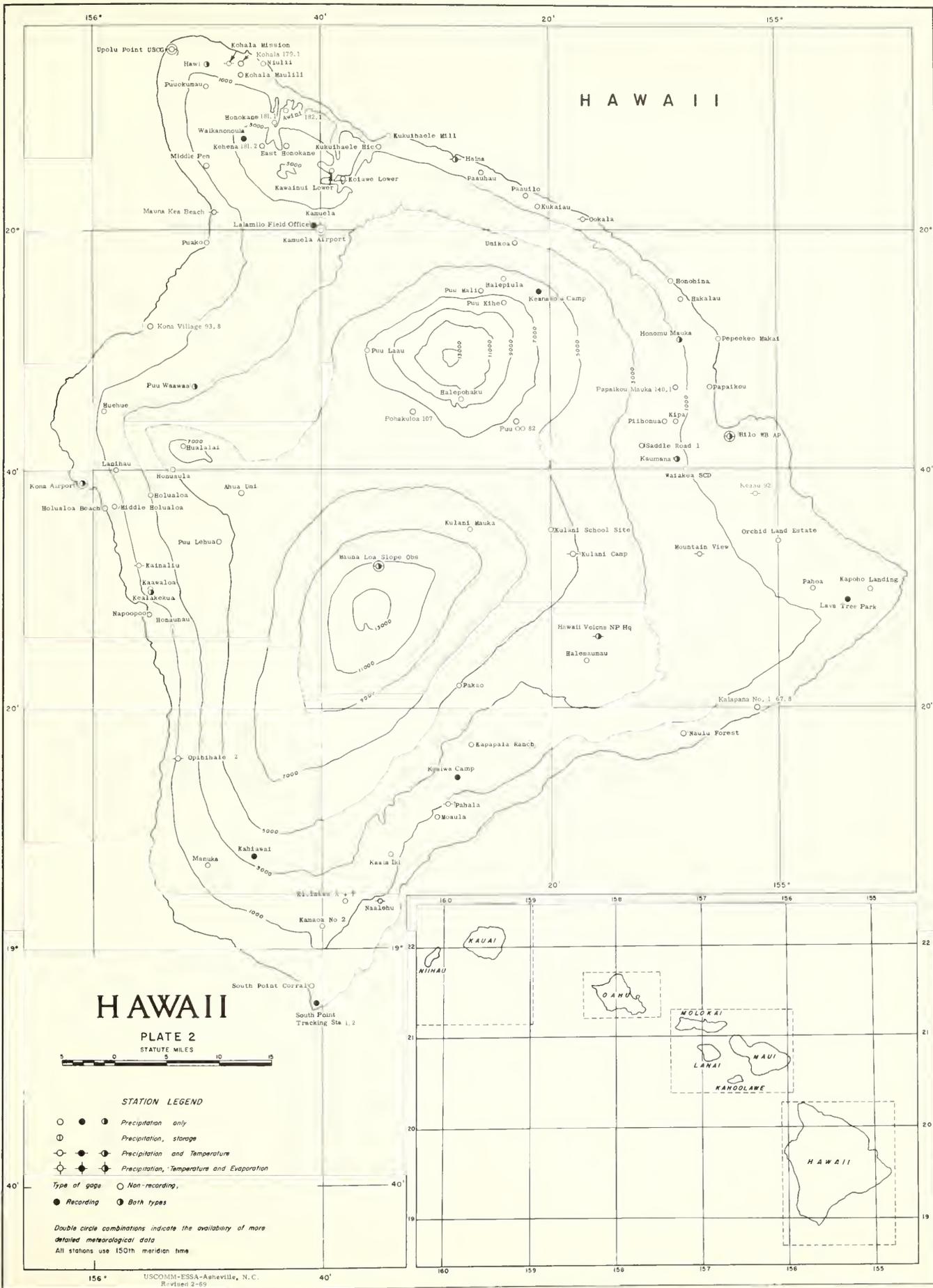
Stations appearing in the tables with no data were either missing or received too late to be included in this issue.

General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

Information concerning the history of changes in locations, elevations, exposure, etc., of substations through 1957 may be found in the publication "Substation History" for the State, price 40 cents. Similar information for regular Weather Bureau stations may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

Subscription Price: 20 cents per copy, monthly and annual; \$2.50 per year. (Yearly subscription includes the Annual Summary.) Check and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.





156°

140°

120°

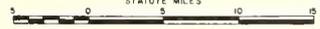
155°

HAWAII

HAWAII

PLATE 2

STATUTE MILES



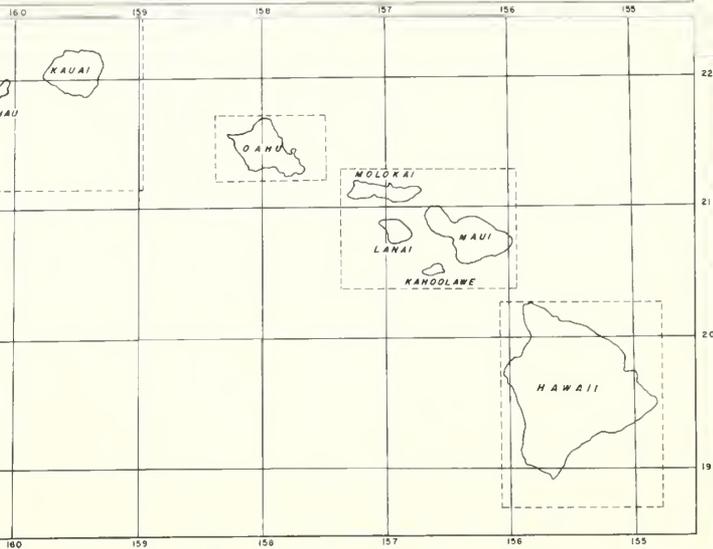
STATION LEGEND

- ● ● Precipitation only
- ● ● Precipitation, storage
- ● ● Precipitation and Temperature
- ● ● Precipitation, Temperature and Evaporation
- Type of gage ○ Non-recording
- Recording ● Both types

Double circle combinations indicate the availability of more detailed meteorological data
All stations use ISOth meridian time

156°

140°



160

159

158

157

156

155

22

21

20

19

156°

140°

160

159

158

157

156

155

22

21

20

19

156°

140°

160

159

158

157

156

155

22

21

20

19

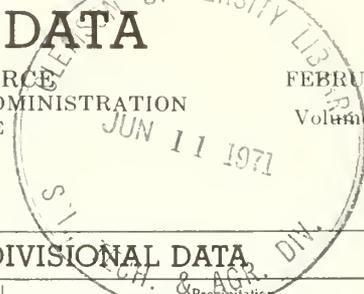
CLIMATOLOGICAL DATA

HAWAII

U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 ENVIRONMENTAL DATA SERVICE

FEBRUARY 1971

Volume 67 No. 2



MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature													Precipitation					
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days		Total	Departure From Normal	Greatest Day	Date	Snow, Sleet		No. of Days	
										31° or Above	31° or Below					Total	Max. Depth on Ground	Date	.10 or More
* * * ISLAND OF KAUAI																			
ANAOHA 1114	A											5.59	.13			.0	0		
KANALOHULU 1075		67.2	46.7	57.0		71	6	38	6			5.47		3.23	1	.0	0		6
KAPAA STABLES 1104	A											4.46				.0	0		
KILAUEA FIELD 17 1135	A											7.73	-.45			.0	0		
KILAUEA POINT 1133		78.6	68.4	73.5		85	18	65	24			1.77		.78	24	.0	0		5
* * * ISLAND OF OAHU																			
KOLDA 936	A											3.89	-2.35			.0	0		
LIIHUE WSD 1020.1	//R	80.1	67.4	73.8	3.1	83	10	61	10			1.69	-3.63	.38	2	.0	0		7
MANA 1026		82.0	63.4	72.7	1.7	84	24+	60	22			2.18	-.63	1.48	1	.0	0		3
N WAILUA OITCH 1051	A											13.42				.0	0		
PH WAINIHA 1115												6.92	-4.73	2.23	1	.0	0		7
PUEHU RIDGE 1040												2.56		1.39	1	.0	0		6
WAHIAWA 930	A											3.55	-.71			.0	0		
WAIAMI LOWER 1054		80.0	65.2	72.6		87	7	55	11			6.64		2.55	1	.0	0		10
WAIMEA 947												1.19	-2.21	.90	1	.0	0		2
* * * ISLAND OF MOLOKAI																			
HONOLULU OBSERV 702.2	R	81.5	67.2	74.4	-2.0	84	19+	64	11+			2.29		1.99	1	.0	0		2
HONOLULU WSFC 703	A	80.2M	62.4M	71.3M	-.3	87	19	56	1			2.37	-.49	1.65	1	.0	0		4
KAHUKU 912	A											2.04	-3.03			.0	0		
KANEIHE MAUKA 781	A	79.3	66.1	72.7	1.5	84	10	61	1			3.13	-4.09	1.48	1	.0	0		6
KOOLAU DAM 833	A											6.67	-2.37			.0	0		
* * * ISLAND OF MAUI																			
LUALUALEI 804	A	80.1M	64.0M	72.1M		83	3	56	1			2.35				.0	0		
MAKAPUU POINT 724		76.6	65.0	70.8		79	26+	62	14+			3.08	-.45	1.46	1	.0	0		3
NUUANU RES 4 783												4.42	-6.63	1.98	1	.0	0		8
OPAFLA 870	A	78.2M	61.6M	69.9M	3.2	83	12+	57	10			3.88	-4.53	1.70	1	.0	0		6
PALO VALLEY 718												4.74	-6.26	2.16	1	.0	0		5
* * * ISLAND OF HAWAII																			
PRI WAHIAWA 820.2	A	80.8	59.2	70.0		84	13+	51	1			2.78				.0	0		
PUNALUU 884	A											6.58				.0	0		
WAHIAWA DAM 863	A											2.87				.0	0		
WAIHOLE 837	A											3.78	-9.34			.0	0		
WAILUA 847	A	80.9	60.9	70.9	.7	85	20+	57	25			1.70	-3.11	1.09	1	.0	0		4
WAIKIKI 717.2		83.2M	65.7M	74.5M		87	17	60	11			2.76		2.04	1	.0	0		4
WAIMANALO EXP FARM		80.0	65.1	72.6		83	20+	61	19+			2.54		2.02	1	.0	0		3
WAIPAHU 750	A											2.45	-1.24			.0	0		
* * * ISLAND OF LANAI																			
KUALAPUU 534	A											2.60	-1.04			.0	0		
MAPULEHU 542	A											1.58	-2.52	.65	1	.0	0		4
MAUNALOA 511		78.4M	64.3M	71.4M		83	20	60	25+			2.84		1.74	2	.0	0		3
MOLOKAI AP 524												2.34				.0	0		
* * * ISLAND OF HAWAII																			
LANAI CITY 672	A	76.5	60.1	68.3		81	24	56	11			1.50	-2.23	.72	2	.0	0		4
* * * ISLAND OF MAUI																			
HALEAKALA B E S 434	A	59.4	39.6	49.5		65	20+	34	10			3.50	-5.62	2.75	23	.0	0		4
HALEAKALA RS 338												4.66		3.35	23	.0	0		4
HANA AIRPORT 355		79.9	65.3	72.6		82	19	61	25+			1.90		.57	23	.0	0		6
HONOKOHUA 493	A											1.76	-1.98	1.04	2	.0	0		4
KAANAPALI AIRPORT		79.6	62.8	71.2		83	20	51	1			1.06		.81	2	.0	0		2
KAHULUI WSD 398	R	83.0	61.6	72.3	.6	86	28+	55	11			.78	-1.76	.57	1	.0	0		2
KAILUA 446		76.2	63.6	69.9	1.8	80	6	59	24			2.48	-7.99	1.01	23	.0	0		7
KEANAE 346	A											3.60	-15.81			.0	0		
KIPAHULU 258		70.6	52.6	61.6	.5	74	1	50	27+			2.16	-6.77	.42	15	.0	0		6
KULA SANATORIUM 267												1.57	-2.31	.65	25	.0	0		2
LAHAINA 361		83.0	64.0	73.5		85	24	62	25+			.57	-1.52	.51	2	.0	0		1
PAIA 406												1.36	-2.20	.68	2	.0	0		3
WAILUKU 386	A	79.8M	63.8M	71.8M	.5	83	10	60	1			.39	-3.46	.27	2	.0	0		1
* * * ISLAND OF HAWAII																			
HAINA 214		78.7	62.5	70.6	1.1	81	19+	60	25+			1.56	-5.36	.94	23	.0	0		3
HAWAII VOLCNS NP HQ 54		66.4	50.0	58.2	.3	71	7+	45	28+			4.85	-5.40	.81	22	.0	0		12
HILD WSD 87	R	81.4	62.3	71.9	1.3	87	13	58	18			5.31	-7.63	1.51	22	.0	0		11
HUEHUE 92.1	A											.87	-1.84			.0	0		
KAINALIU 73.2		76.0	59.8	67.9		80	3	58	26+			.90	-2.49	.31	23	.0	0		3

See Reference Notes Following Station Index

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII
FEBRUARY 1971

Continued

Station	Temperature											Precipitation											
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days		
										Max.		Min.						Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										90° or Above	32° or Below	32° or Below	0° or Below										
KEAAU 92	79.1	62.4	70.8	.5	82	19+	60	25+		0	0	0	0	8.83	- 4.60	2.55	23	.0	0		14	5	3
KEALAKEKUA 26.2	76.4	60.5	68.5		78	27+	59	25		0	0	0	0	2.36		1.68	23	.0	0		3	1	1
KONA (KAILUA) 68.3	82.4	66.6	74.5		84	17+	64	1		0	0	0	0	.40		.33	2	.0	0		1	0	0
KUKIHAELE HIC 199														1.24	- 6.07	.60	23	.0	0		4	1	0
KULANI CAMP 79	62.2	43.6	52.9		66	9+	36	19		0	0	0	0	4.16		1.05	25	.0	0		10	3	1
PAHALA 21	77.6	61.8	69.7	.9	80	23+	58	11+		0	0	0	0	2.78	- 3.81			.0	0				
PJHAKULDA 107														.08				.0	0		0	0	0
PJAKO 95.1	82.2	62.8	72.5		84	27+	59	13		0	0	0	0	.12		.12	2	.0	0		1	0	0
PJU WAAHAA 94.1														.61	- 1.96	.25	2	.0	0				
UMIKOA 118														1.45	- 9.10	.95	23	.0	0		4	1	0
WAIKĒA SCO 88.2														7.28		2.11	25	.0	0		12	6	2
WAIĒEA KĀHALA	71.3	47.9	59.6		74	5+	42	21+		0	0	0	0	1.23		1.07	25	.0	0		2	1	1
ISLANO			67.0											2.59				.0					

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 88° ON THE 20TH AT KEAWAKAPU BEACH 260.2, MAUI

LOWEST TEMPERATURE: 26° ON THE 25TH+ AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 11.09 INCHES AT HILO COUNTRY CLUB 86.6, HAWAII

LEAST TOTAL PRECIPITATION: .00 INCH AT 2 STATIONS

GREATEST ONE-DAY PRECIPITATION: 6.25 INCHES ON THE 1ST AT KEONELELE PENS 551, MOLOKAI

See Reference Notes Following Station Index

HAWAII - FEBRUARY 1971

SPECIAL WEATHER SUMMARY

After 3 consecutive months of varied and at times harsh, wintry weather, February's mildness was a welcomed change. The month's routine was punctuated only by an extended period of volcanic haze, by a minor occurrence of high surf, and by thunderstorms, that brought snow to high mountain peaks and localized hail and strong winds to Hawaii Island. Rainfall for the month was well below normal almost everywhere, in contrast to what had been a very wet January.

Contributing to the mild, dry weather were fronts that dissipated or weakened before reaching the islands (except on the 20th-21st) and the replacement of low pressure areas in the upper atmosphere above or immediately west of Hawaii (except on the 1st, 2d, and 19th-22d) by high pressure and northwesterly winds.

On February 1, thunderstorms accompanying the passage of an upper-level low pressure system ("trough") drenched Kokee, Kauai, with 9.50 inches of rain between 1:55 p.m. and 7:45 p.m. and, in Honolulu, knocked out power in several areas and flooded streets, slowing morning commuter traffic.

After the passage of the upper trough, and in the absence of strong or persistent high pressure to the north or northeast, southerly surface winds cloaked the island chain almost continuously between the 4th and 19th with volcanic haze from an eruption on the southeastern flank of Kilauea Volcano on Hawaii Island, southernmost island of the State.

On the 20th, surf up to 20 feet in height, from an intense storm about 1,500 miles to the northwest,

pounded the northern coasts but did little damage, except to clog the mouth of Oahu's Waimea River with sand, flooding some residential frontage on Waimea Bay.

On the 22d, what appeared to be a weak front passing through the islands, combined with an intensified upper-level low pressure area and fresh trade winds to spawn thunderstorms from Maui through Hawaii Island. At Haleakala Summit, TV relay stations were knocked out for 24 hours by an onslaught of freezing rain, lightning, and gusty winds; also, snow fell to the 7,000-foot level. At about 3:15 p.m., in Hawaii Island's South Kona district, Captain Cook recorded 1.60 inches of rain in 35 minutes, and hail, which a local resident called "as big as small fish," ruined 5 acres of tomatoes and slightly damaged other crops. At about 5:30 p.m. strong thunderstorm winds unroofed two neighboring homes in the Waiakea-Uka section of Hilo and blew down a tree onto Mamalahoe Highway.

Unlike the heavy rainfall of the preceding month, when many stations exceeded their previous record January totals, rainfall was light on all the islands, with only a scattering of gages reporting their normal monthly rainfall or above. Most of what rain there was occurred on a few days -- chiefly, the 1st, 2d, 22d, 23d, and 24th.

The central and southern islands were even drier than the northern. On Lanai and Molokai rainfall was everywhere below the monthly mean, with most gages reading under 40 percent of normal; while on Hawaii Island only 4 gages out of the 70 reporting, reached their normal rainfall for February.

Stations with Less Rain in February 1971 than in Any Previous February

(25 years of record or more, only)

Station	Length of Record (Yrs.)	Previous Least February Total	February 1971
<u>MAUI</u>			
Honokohau	65	(Inches) 2.90	(Inches) 2.02
Mokupea	72	1.86	1.80

Saul Price
NOAA Regional Climatologist - Pacific
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
NOAA Acting Climatologist - Hawaii
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY PRECIPITATION

HAWAII
FEBRUARY 1971

Continued

Station	Total	Day of Month																																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
KIPA 89.2	A	7.92	.05	.01										.06	.15	.15		.05		.16	.92	.69	1.52	.42	2.53	.40	.61	.20									
KAMA 179.1	A	1.03	.01	.13	.01										.08	.03							.18	.61	.02	.08											
KAMALA WA LILI 176	A	1.15	.01	.13	.02										.07								.18	.61	.02	.08											
KAMALA MISSION 175.1	A	1.14		.18	T									.02	.13	.01					.02	.07		.02	.49	.02	.17	T									
KAMP LOWER 196	A	.91																																			
KONA KAALUA 85.1	A	.40	.02	.33	T											.01								.04													
KONA VI LAKE 93.8	A	1.30	.70																				.60														
KUKAIAU 2.2	A	2.00	.12	.17												.01					.01	.41	.60	1.50	.03	.07											
KUKUHAU F 41C 199	A	1.24									.10											.14	.22	.91	.98	.24	1.05	.12	.11	.02							
KUKUHAU LF HILL 236	A	1.10																					.39	.71													
KULANI CAMP 79	A	4.16	.07	.06	.12											.12					.14	.22	.91	.98	.24	1.05	.12	.11	.02								
KULANI MAUKA 76	A	1.14																				.18	.59	.15	.19		.03										
KULANI SCHOOL SITE 78	A	4.23					.30							.50							.17	.18	.59	.15	.19		.03					3.26					
KANIHAA 08.2	A	2.52		.86		.03	.11					.05				.12							.10	1.25									.50				
MAUKA 7	A	1.38		.47																																	
MAUNA KEA BRANCH 98	A																																				
MAUNA KEA SLOPE OBS	A	.25	.08																																		
MIDDLE HOUAOLA OBS 1	A	.86	.06	.63																			.13		.04												
MIDDLE PEN 147.1	A	.00																																			
MSAULA 18	A	2.00																																		2.00	
MOUNTAIN VIEW 91	A	7.05	.15	.03	.13									.02	.07	.10	.24	.10		.12	.41	.66	1.11	2.00	.42	1.24	.71	.16	.18								
NAALEHU 14	A	3.22	.85	.26	.50																		.01			.20	.37										
NAPOOPOO 28	A	5.34	5.00													.16																					
NAULU FOREST 38.6	A		.39	.89	1.43	.05						.05	T			.05	.75	.20	.10	.10	.11	.08	.60	.43	.25	.03											
NIULII 177	A	.87		.10												.05							.05	.57	.03												
OKALA 223	A	4.12	T												.01	.05	T	T	T		.01	.74	.35	2.70	.15	.10	T							.01			
OPIMIALE 2 24.1	A	2.89	.38	.02	T								.05			.01	.03	T	T	T			2.28	T		.04	T							.07	.01		
ORCHID LAND EST 91.5	A	6.97		.01			1.06	T																													
PAAUMAU 217	A	1.71													.01								.30														
PAAULILO 221	A	1.88	T	.09	T										T		.01					.01	.40	.22	1.13	.01											
PAHALA 21	A	2.78	1.35	.19	.20								.01				.27	.06								.38	.32										
PAHO 65	A	7.62	.85	.05	.83		.05							.03	.07	.11	.45	.04	.09	.11	.16	.26	.43	1.83	.63	1.27	.21	.06						1.09			
PAKAO 37	A	1.97													.07	.04	.10	.03					.11	.32	.55	3.50	.81	1.45	.21	.20					.07		
PAPAIOU 144.1	A	7.86	.23	.01	.04									.02	.17	.04	.10	.03					.11	.32	.55	3.50	.81	1.45	.21	.20					.07		
PAPAIOU MAUKA 140.1	A	8.57	.09	T	.02										.17	.27	.09	.04					.11	.61	.61	3.54	.89	1.23	.22	.65					.03		
PEPEKEE MAKA 144	A	6.71	.10	.01	.02								.01		.15	.12	.07	.02	.05		.07	.08	.10	4.05	.12	1.26	.12	.28					.08				
PIIHONUA 89	A	9.00																																			
PONAHOA 197	A	.98	.01																																		
PUAKO 05.1	A	.12	T	.12	T																																
PUU KIM 120	A	1.64																																		1.64	
PUU LAKE 102.1	A	.03																																		.03	
PUU EHA 73	A	.70																																		.70	
PUU HALL 113	A	1.59																																		1.59	
PUUOKUMAU 57	A	8.44										.01																									
PUU O 82	A	3.27	.02	.01	T								.01				.02					.01	.08	.28	1.60	.32	.69	.17	.04	.02							
PUU WAAWA 94.1	A	.61		.25													.24																				
SADDLE ROAD 1 84	A	7.96					.32																														
SOUTH POINT CORRAL 3	A	1.05						.59							.01							.40															
UMUKA 18	A	1.45	.13									.13													.21	.95	.02	.01								.10	
UPDILL POINT USCG 159.2	A	.89		.20											.08								.15	.01	.40												
WAIPIA SCOR 8.2	A	7.28	.12	.02	.12										.03	.13	.28	.01			T	.24	.58	.59	1.51	.72	2.11	.51	.31								
WAIPIA KOMALA	A	1.23		.05	T									T	T	T							T														

SUPPLEMENTAL DATA

Station	Wind (Speed - m.p.h.)						Relative humidity averages- percent				Number of days with precipitation						Percent of Possible sunshine	Average sky cover sunrise to sunset	
	Resultant Direction	Resultant Speed	Average	Fastest mile	Direction of fastest mile	Date of fastest mile	Standard of Time				Trace	.01-.09	.10-.49	.50-.99	1.00-1.99	2.00 and over			Total
							02	08	14	20									
	150TH MERIDIAN																		
HILO WSD 87	17	4.0	7.1	21	E	18	85	75	63	82	3	6	8	1	2	0	20	40	6.0
HONOLULU WSFO 703	6	5.9	10.8	34	NE	22	81	77	61	72	5	2	3	0	1	0	11	83	3.9
KAHULUI WSD 398	6	5.4	9.0	40	NE	22	89	87	58	79	2	1	1	1	0	0	5	86	2.9
LIHUE WSD 1020.1	9	3.1	10.3	27	NE	22	81	79	68	78	9	2	7	0	0	0	18	59	5.0

STATION INDEX

HAWAII FEBRUARY 1971

Main data table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. The table is split into two columns for readability.

STATION INDEX

HAWAII
FEBRUARY 1971

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES	OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	
																		TEMP.	PRECIP.	EVAP.	SPECIAL		
WAIAHEA SCG 88.2	9023	02 S	HILO	2 19 40	155 08	1050	74		SHINICHI KANEHIMO	WAIKANDOGULA 178.4	9350	01 N	KOHALA	2 20 00	155 47	3630	74		KAWAHA RANCH				

I DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
5-NORTH-CENTRAL MOLOKAI: 1-INO INTRA-ISLAND DIVISIONS LAMAI: 1-INO INTRA-ISLAND DIVISIONS MAUI: 1-NORTHEASTERN
2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII".

DIMENSIONAL UNITS: Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in °F, precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are terms of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.

OBSERVATION TIME: Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending 01:00 a.m. unless otherwise indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.

EVAPORATION: is measured in the standard Weather Bureau type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extremes of temperature of water in pan as recorded during 24 hours ending at time of observation. Wind in the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 6-8 inches above the pan.

NORMALS: for all stations are climatological standard normals based on the period 1931-1960.

STATION NAMES: Baseline key numbers are included following station names in the several tables.

DELAYED DATA AND CORRECTIONS: will be carried only in the June and December issues of this bulletin.

INTERPOLATED VALUES: for monthly precipitation totals may be found in the annual issue of this publication.

IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, "Snowfall and Snow on Ground" table, and the Station Index.
- o No record in the "Climatological Data" table and the "Daily Temperature" table is indicated by no entry.
- Add also on an earlier date or dates.
- ** Highest observed one minute wind speed. This station is not equipped with an instrument to measure fastest mile data.
- * Amount included in following measurement, time distribution unknown.
- A The letter "A" shows following station name in "Climatological Data" table, "Daily Precipitation" table, and "Station Index", indicates amount carried in the "Total" column in for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
- B Adjusted to a full month.
- J "Supplemental Data" table.
- M One or more days of record missing. If average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
- R Amounts from recording gage.
- T Trace, an amount too small to measure.
- V Includes total for previous month.

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

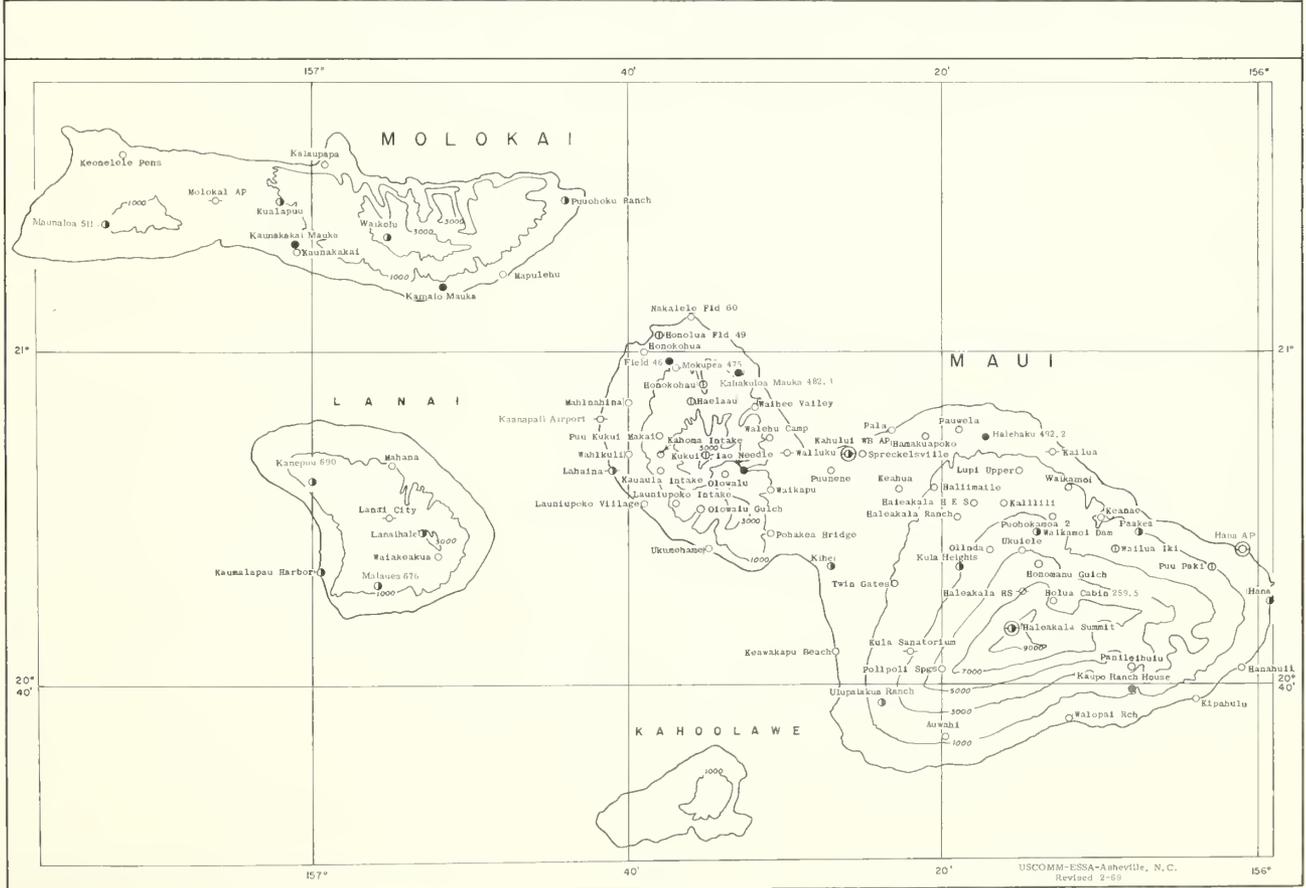
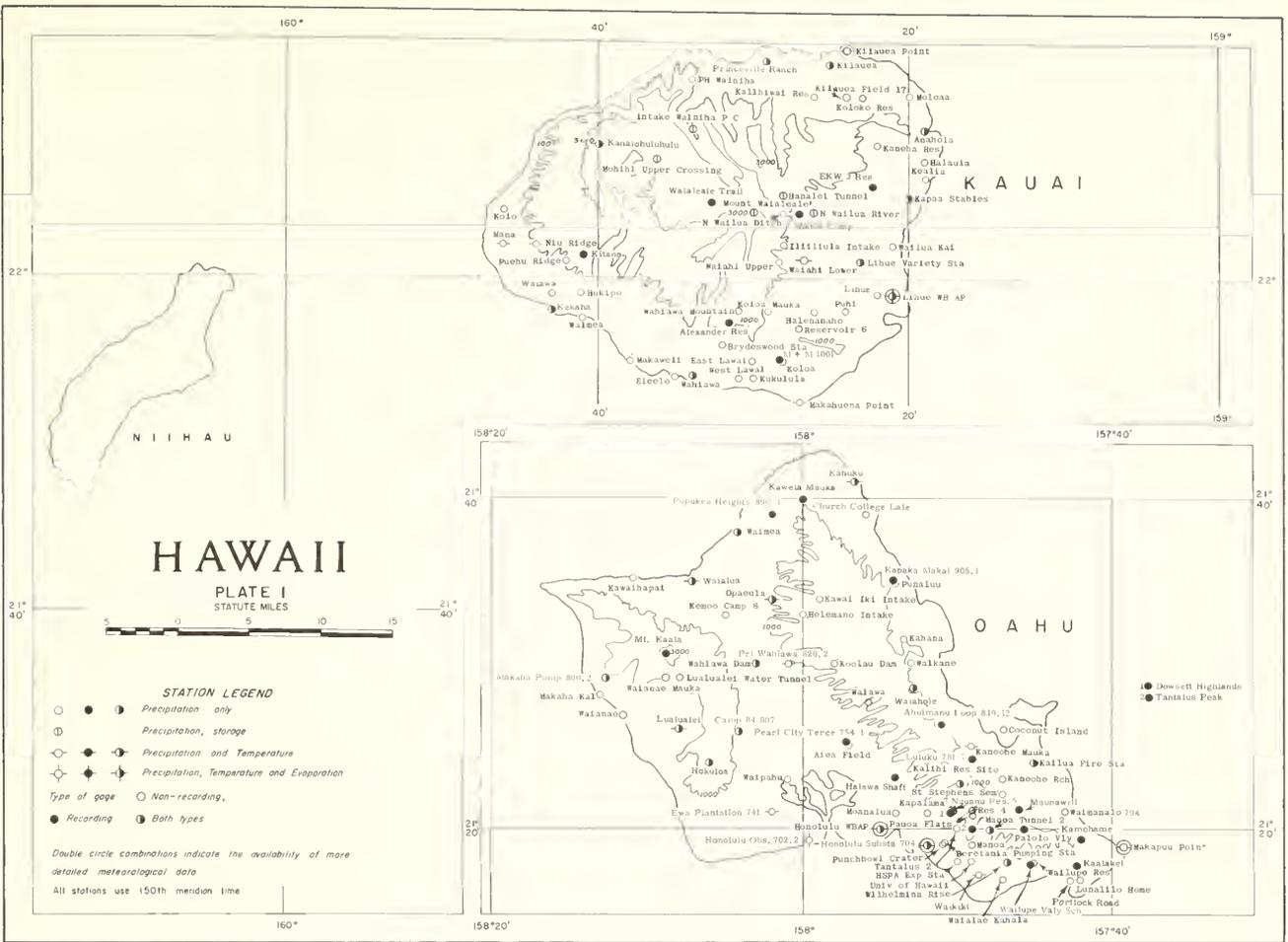
- AR Observation made after rain.
- C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Climatological Data" bulletin they are from a separate non-recording gage, except where indicated by reference 'R'. Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
- MO Gage read once monthly, usually on the last day.
- OC Gage readings at periods varying from a few weeks to several months.
- S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as delayed data in the June issue of this publication.
- SS Observation time is near sunset.
- VAR Observation time is variable.
- W Gage read weekly or irregularly only.
- FW Gage read weekly and last day of month.
- # Thermometers are generally exposed in a shelter located a few feet above sod-covered ground; however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.

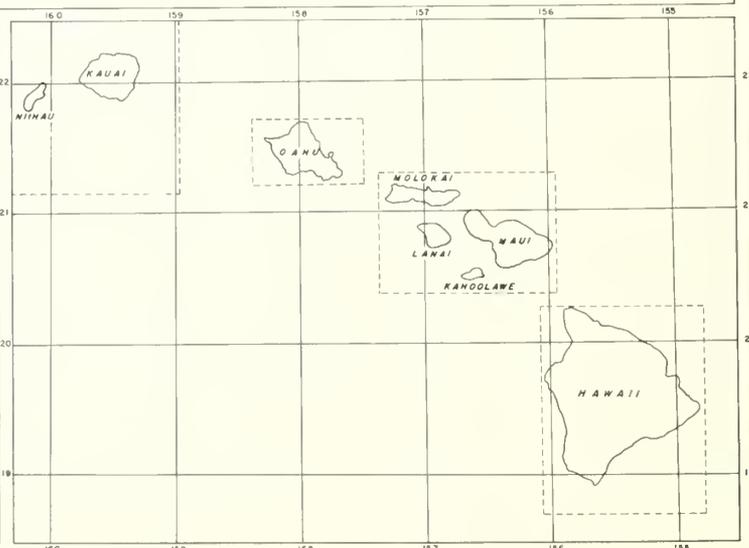
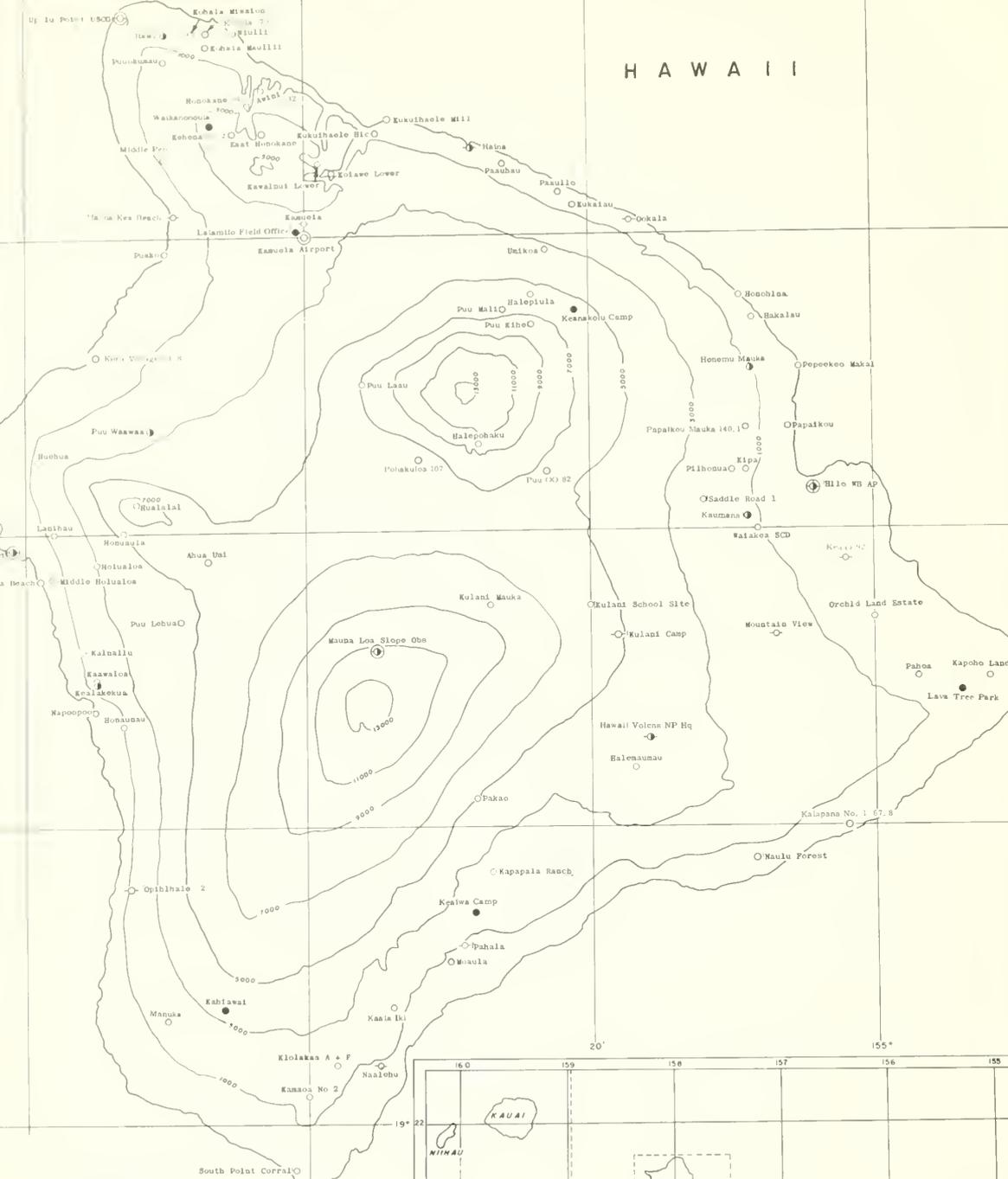
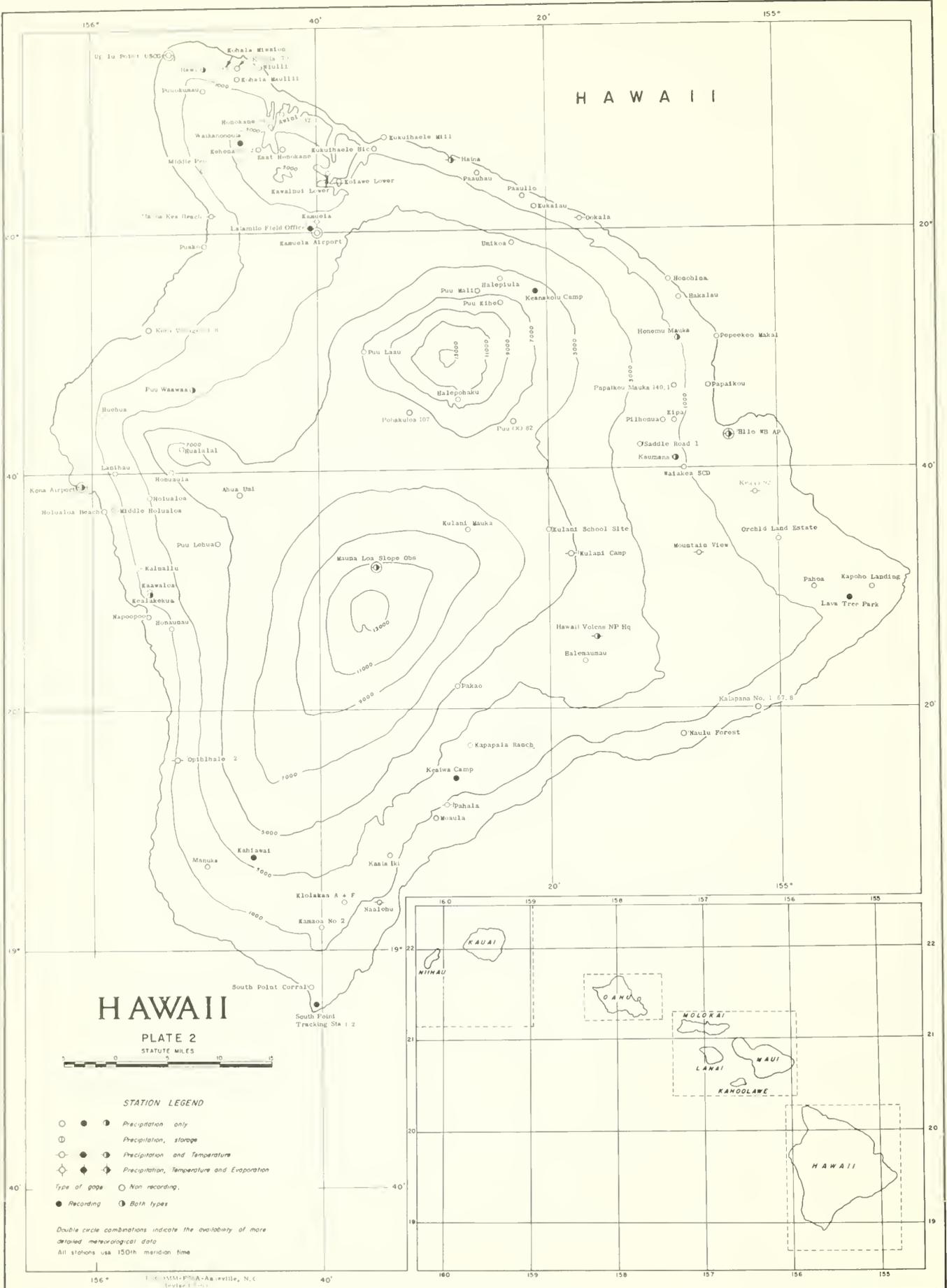
Stations appearing in the tables with no data were either missing or received too late to be included in this issue.

General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

Information concerning the history of changes in locations, elevations, exposure, etc., of substations through 1957 may be found in the publication "Substation History" for this State, price 15 cents. Similar information for regular Weather Bureau stations may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

Subscription Price - 20 cents per copy, monthly and annual; \$2.50 per year. (Yearly subscription includes the Annual Summary.) Checks and money orders should be made payable to the Superintendent of Documents. Reprint and correspondence regarding subscription should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

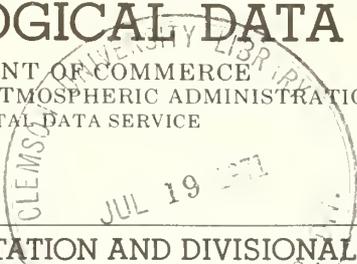




CLIMATOLOGICAL DATA

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ENVIRONMENTAL DATA SERVICE

HAWAII
MARCH 1971
Volume 67 No. 3



MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature												Precipitation																		
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Departure From Normal	Greatest Day	Date	Snow, Sleet														
										90° or Above	80° or 80° or Above	70° or 70° or Above	60° or 60° or Above				Total	Total	Max. Depth on Ground	Date	1.0 or More	.50 or More	1.00 or More								
	Mar.	Apr.	May	Min.	Total	Departure From Normal	Greatest Day	Date	Total	Max. Depth on Ground	Date	1.0 or More	.50 or More	1.00 or More																	
* * * ISLAND OF KAUAI																															
AVAOHOLA 1114 A					76	25	41	14	0	0	0	0	7.61	1.40	2.40	25	.0	0													
KANALOHULUHULU 1075 A	65.3	51.1	58.2										11.69		3.78	20	.0	0													
KAPAA STABLES 1104 A													9.24		3.12	25	.0	0													
KILAUEA FIELD 17 1135 A					81	24+	62	20	0	0	0	0	10.97	1.09	3.30	25	.0	0													
KILAUEA POINT 1133 A	76.4	68.4	72.4										7.77		2.60	24	.0	0													
KOLOA 936 A													10.68	4.05	2.92	26	.0	0													
LIHUE WSO 1020.1 //R	78.4	69.4	73.9	2.9	81	23	63	21+	0	0	0	0	8.27	3.71	2.62	29	.0	0													
MANA 1026 A	81.0	63.3	72.2	1.0	85	17+	58	6	0	0	0	0	4.01	1.36	1.54	25	.0	0													
N WAILUA DITCH 1051 A													26.12				.0	0													
PH WAINIHA 1115 A													12.36	- 2.09	2.97	25	.0	0													
PUEHU RIDGE 1040 A													5.94				.0	0													
WAHIAWA 930 A					82	2	58	21	0	0	0	0	5.53	2.03	1.17	25	.0	0													
WAIAMI LOWER 1054 A	76.3	62.9	69.6										13.85		2.67	26	.0	0													
WAIIMEA 947 A													3.84	1.48	1.50	25	.0	0													
ISLAND																															
Average																															
69.3																															
9.85																															
.0																															
* * * ISLAND OF OAHU																															
HONOLULU OBSERV 702.2 R	79.9	67.9	73.9	1.1	82	31+	64	19	0	0	0	0	3.19		1.33	31	.0	0													
HONOLULU WSPD 703 A													5.57	2.68	1.83	30	.0	0													
KAHUKU 912 A	78.7M	66.3M	72.5M	.7	85	25	60	19	0	0	0	0	4.71	- .03			.0	0													
KANEHOE MAUKA 781 A	77.7M	66.6M	72.2M	.9	85	25	61	8	0	0	0	0	5.30	- 1.96	1.70	21	.0	0													
KOOLAUPU DAM 833 A													16.10	6.12	4.38	31	.0	0													
LUALUALEI 804 A	79.7	67.1M	73.4M		83	15	61	19	0	0	0	0	4.02		1.03	25	.0	0													
MAKAPUU POINT 724 A	75.0	65.9	70.5		79	25+	63	21+	0	0	0	0	6.73	2.81	2.50	25	.0	0													
NUUANU RES 4 783 A													17.26	5.25	7.08	25	.0	0													
OPAEULA 870 A	75.2	62.6	68.9	2.1	82	25+	59	19+	0	0	0	0	6.15	- .06	1.04	21	.0	0													
PALOHE VALLEY 718 A													13.30	.45	3.46	25	.0	0													
PRI WAHIAWA 820.2 A	77.7	61.9	69.8		82	25+	56	1	0	0	0	0	4.56		1.07	31	.0	0													
PUNALUU 884 A													9.38		2.10	26+	.0	0													
WAHIAWA OAH 863 A													6.50		1.35	31	.0	0													
WAIHOLO 837 A													12.99	- 1.84			.0	0													
WAIALUA 847 A	79.8	62.4	71.1	.8	84	25	57	17	0	0	0	0	4.82	1.32	1.46	31	.0	0													
WAIKIKI 717.2 A	82.6	68.5	75.6		87	25	62	19	0	0	0	0	3.33		1.19	25	.0	0													
WAIMANALO EXP FARM A	78.8	67.6	73.2		82	18	62	18	0	0	0	0	2.65		.95	25	.0	0													
WAIPIHU 750 A													4.54	1.36	1.15	25	.0	0													
ISLAND																															
Average																															
72.1																															
7.28																															
.0																															
* * * ISLAND OF MOLOKAI																															
KUALAPUU 534 A													3.21	- 1.35			.0	0													
MAPULEHU 542 A													5.02	1.40	1.84	21	.0	0													
MAUNALOA 511 A													4.85	1.08	2.30	25	.0	0													
MOLOKAI AP 524 A	77.8	66.6	72.2		81	24+	62	17+	0	0	0	0	2.62		.92	22	.0	0													
ISLAND																															
Average																															
72.2																															
4.08																															
.0																															
* * * ISLAND OF LANAI																															
LANAI CITY 672 A	74.3M	61.8M	68.1M	2.1	79	23+	57	18+	0	0	0	0	4.30	- .03			.0	0													
ISLAND																															
Average																															
68.1																															
4.30																															
.0																															
* * * ISLAND OF MAUI																															
HALEAKALA 8 E S 434 A					75	25	37	19	0	0	0	0	6.31	- 2.90	1.10	26	.0	0													
HALEAKALA RS 338 A	60.8	42.1	51.5										5.30		2.59	26	.0	0													
HANA AIRPORT 355 A	79.3	64.8	72.1		85	24	58	18	0	0	0	0	7.98		1.95	25	.0	0													
HONOKOHUA 493 A													4.06	- .02			.0	0													
KAAHAPALI AIRPORT A	79.6	64.8	72.2		82	1	59	11	0	0	0	0	1.92		1.05	22	.0	0													
KAHULUI WSD 398 R	82.1	64.9	73.5	1.3	86	3	56	18+	0	0	0	0	2.92	.70	1.73	21	.0	0													
KAILUA 446 A	74.8	63.0	68.9	.8	80	25+	60	22+	0	0	0	0	14.67	2.49	4.50	26	.0	0													
KEANAE 346 A													25.50	3.34			.0	0													
KIPIAHULU 258 A													9.67	.11	2.84	21	.0	0													
KULA SANATORIUM 267 A	70.5	53.4	62.0	.8	78	24	48	17	0	0	0	0	2.11	- 1.19	1.50	22	.0	0													
LAHAINA 361 A	83.1	65.1	74.1		85	27+	62	18	0	0	0	0	3.72	- 1.79	1.19	22	.0	0													
PAIA 406 A													2.80	- 1.25	.89	22	.0	0													
WAILUKU 386 A	79.0M	66.2M	72.6M	1.1	85	8	61	22	0	0	0	0	3.20	- .55			.0	0													
ISLAND																															
Average																															
68.4																															
6.94																															
.0																															
* * * ISLAND OF HAWAII																															
HAINA 214 R	77.5	63.3	70.4	.9	83	24	59	19	0	0	0	0	9.42	.86	5.76	26	.0	0													
HAWAII VOLCONS NP HO 54 R	64.9	50.7	57.8	- .1	72	25+	43	19	0	0	0	0	13.38	1.40	2.81	26	.0	0													
HILD WSD 87 R	78.0	60.8	69.4	- 1.2	86	21	54	18	0	0	0	0	12.04	- 2.66	1.83	27	.0	0													
HUEHUE 92.1 A													1.54	- 2.17	.55	28	.0	0													
KAINALIU 73.2 A	76.5	60.1	68.3		80	24	58	19+	0	0	0	0	1.95	- 3.33	1.43	26	.0	0													

See Reference Notes Following Station Index

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation											
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days		
										Max.		Min.						Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										50° or Above	32° or Below	32° or Below	0° or Below										
KEAU 92	77.6	62.6	70.1	- .2	84	23+	59	4		0	0	0	0	12.86	- 2.72	2.80	26	.0	0		18	9	3
KEA AKEUA 26.1	76.5	60.9	68.7		80	23+	59	11+		0	0	0	0	2.02		1.24	26	.0	0		4	1	1
KONA (KAILUA) 68.3	82.4	66.7	74.6		87	24	65	19+		0	0	0	0	1.70				.0	0				
KUKIHAELE HIC 199														10.14		5.40	26	.0	0		12	3	2
KULONI CAMP 79	60.3	45.7	53.0		72	26	36	18		0	0	0	0	14.45	.10	3.40	27	.0	0		18	7	5
PAHALA 21	76.7	60.5	68.6	- .3	82	24+	57	18+		0	0	0	0	3.91	- 1.67			.0	0				0
PDHOKULDA 107														.71				.0	0				0
PJAKO 95.1														.67		.54	28	.0	0		1	1	0
PJU WAAWAA 94.1	83.1	64.2	73.7		86	26+	60	7		0	0	0	0	.97	- 2.24	.33	23	.0	0				0
UMIKO 118														10.44	- 2.29			.0	0				0
WAIKOA SCO 88.2														19.47		5.67	26	.0	0				0
WAIKOA KUHALA	70.1	50.4	60.3		76	25+	42	19		0	0	0	0	1.15		.66	26	.0	0		2	1	0
ISLAND			66.8											6.87				.0					

TEMPERATURE AND PRECIPITATION EXTREMES

- HIGHEST TEMPERATURE: 88° ON THE 26+ AT MAKAHUENA POINT 940.1
- LOWEST TEMPERATURE: 29° ON THE 5+ AT 2 STATIONS
- GREATEST TOTAL PRECIPITATION: 49.69 AT MOUNT WAIALEALE 1047, KAUAI
- LEAST TOTAL PRECIPITATION: .00 AT MIDDLE PEN 147.1, HAWAII
- GREATEST ONE-DAY PRECIPITATION: 9.91 ON THE 26TH AT KUKAIAU 222, HAWAII

DAILY TEMPERATURES

Table with columns for Station, Day of Month (1-31), and Average. Rows include stations like ISLAND OF KAUAI, ISLAND OF OAHU, ISLAND OF MOLOKAI, ISLAND OF LANAI, ISLAND OF MAUI, etc.

See Reference Notes Following Station Index

STATION INDEX

HAWAII MARCH 1971

Main table containing station data with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE I, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, DIVISION, DISTRICT, DRAINAGE I, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. Includes a section for ISLAND OF LANAI.

STATION INDEX

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER
								TEMP	PRECIP	EVAP	SPECIAL										TEMP	PRECIP	EVAP	SPECIAL	
ISLAND OF HAWAII																									
MOUNTAIN VIEW 91	6552	02	PUNA	2	19 33	155 07	1330	8A	8A			PUNA SUGAR CO	WAIAKEA SCD 89.2	9029	02	S HILO	2	19 40	155 08	1070	7A		SHINICHI KANESHIRO		
HAALEIUA 14	6588	03	KAU	2	19 04	155 35	673	8A	8A			MUTCHINSON SUGAR CO	WAIKONOUKA 179.6	9350	01	N KOHALA	1	20 08	155 47	3890	7A		KAHUA RANCH		
NEPOPOO 28	6731	02	PUNA	2	19 19	155 08	1400	VAR	VAR			HAWAII VOLCANOES NAT PK	MAIEHA KOHALA	9554	05	S KOHALA	9	20 00	155 40	2665	8A		HAWAIIAN AIRLINES		
NAULU FOREST 39.6	6731	02	PUNA	2	19 19	155 08	1400	VAR	VAR			KONA EXPERIMENT STA	NEW STATIONS												
NIULII 179	6806	01	N KOHALA	4	19 24	155 45	75	8A	8A			KONA SUGAR CO	ISLAND OF OAHU												
OKALA 223	7131	02	N HILO	2	20 01	155 17	430	7A	7A			LAUPAHOEHOE SUGAR CO													
OPIMAHALE 2 24.1	7166	04	S KOHA	4	19 16	155 53	1270	7A	7A			MISS C LEONARD													
ORCMO LAND EST 91.5	7185	02	PUNA	2	19 34	155 02	625	VAR	VAR			BOARD OF WATER SUPPLY	MANANA 754.2	6089	03	OAHU	3	21 25	157 58	240				CLARENCE LEE	
PAUHAU 217	7204	01	HAAKUUA	1	20 05	155 26	415	7A	7A			PAUHAU SUGAR CO													
PAUULU 221	7312	01	HAAKUUA	1	20 09	155 22	800	7A	7A			HAAKUUA HILL CO													
PANALA 21	7421	03	KAU	3	19 12	155 29	870	8A	8A			HAWAIIAN AGR CO													
PANOA 85	7457	02	PUNA	2	19 30	154 57	870	7A	7A			PUNA SUGAR COMPANY													
PAKAO 37	7643	03	KAU	3	19 22	155 28	5000	8A	8A			HAWAIIAN RANCH CO, INC.													
PAPA'IKOU 144.1	7711	02	S HILO	2	19 47	155 06	200	7A	7A			MAUNA KEA SUGAR CO.													
PAPA'IKOU MAUKA 140.1	7721	02	S HILO	2	19 47	155 08	1270	7A	7A			MAUNA KEA SUGAR CO.													
PEPEKEO MAKA'I 144	8000	02	S HILO	2	19 51	155 05	100	7A	7A			PEPEKEO SUGAR CO.													
PITUNUA 89	8051	02	S HILO	2	19 44	155 10	1730					STATE DIV OF FORESTRY													
POHAKULUA 187	8083	02	HAAKUUA	2	19 47	155 32	6211	VAR	VAR			STATE DIVISION OF PARKS													
PJAKO 95.1	8186	05	KOHALA	5	19 59	155 50	5	8A	8A			ERWIN M. RAPP													
PUU KIHIE 120	8393	01	HAAKUUA	1	19 54	155 24	7750					KUKAIAU RANCH CO													
PUU LAHU 102.1	8452	05	HAAKUUA	5	19 50	155 36	7440					STATE DIV OF FISH-GAME													
PUU LEHUA 73	8460	04	N KOHA	4	19 34	155 49	4880					GREENWELL RANCH													
PUU MALI 113	8515	01	HAAKUUA	1	19 55	155 26	6960					KUKAIAU RANCH CO													
PUUKOHU 107	8548	08	N KOHALA	1	20 12	155 50	1800	7A	7A			KOHALA DITCH CO LTD													
PUU OI 62	8550	02	S HILO	2	19 44	155 23	8340	8A	8A			DOH WINTERS													
PUU WAHABA 94.1	8555	05	N KOHA	5	19 47	155 51	2520	7A	7A			BILLINGHAM RANCH INC													
SADDLE ROAD 1 84	8590	02	S HILO	2	19 42	155 12	2340					BOARD OF WTR SUPPLY													
SOUTH POINT CORRAL 3	8675	03	KAU	3	18 57	155 41	500					HAWAIIAN RANCH COMPANY													
UMIKOA 118	8780	01	HAAKUUA	1	19 59	155 23	3420	7A	7A			KUKAIAU RANCH CO													
UPULU POINT USCG 159.2	8830	01	N KOHALA	1	20 19	155 53	81	8A	8A			U S COAST GUARD													

↑ DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
 5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO D'NTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN
 2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 360, Honolulu, Hawaii, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII".

DIMENSIONAL UNITS: Unless otherwise indicated, dimensional units used in this bulletin are Temperature in F., precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are tens of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.

OBSERVATION TIME: Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.

EVAPORATION: Is measured in the standard Weather Bureau type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extreme of temperature of water in pan as recorded during 24 hours ending at time of observation. Wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 8-8 inches above the pan.

NORMALS: For all stations are climatological standard normals based on the period 1931-1960.

STATION NAMES: Hawaii state key numbers are included following station names in the several tables.

DELAYED DATA AND CORRECTIONS: will be carried only in the June and December issues of this bulletin.

INTERPOLATED VALUES: for monthly precipitation totals may be found in the annual issue of this publication.

IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, "Snowfall and Snow on Ground" table, and the Station Index.
- + No record in the "Climatological Data" table and the "Daily Temperature" table is indicated by no entry.
- ∞ And also on an earlier date or dates.
- ∞∞ Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data.
- * Amount included in following measurement, time distribution unknown.
- A The letter "A" shown following station name in "Climatological Data" table, "Daily Precipitation" table, and "Station Index", indicates amount carried in the "Total" sums is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
- B Adjusted to a full month.
- J "Supplemental Data" table.
- M One or more days of record missing, if average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
- R Amounts from recording gage.
- T Trace, an amount too small to measure.
- V Includes total for previous month.

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

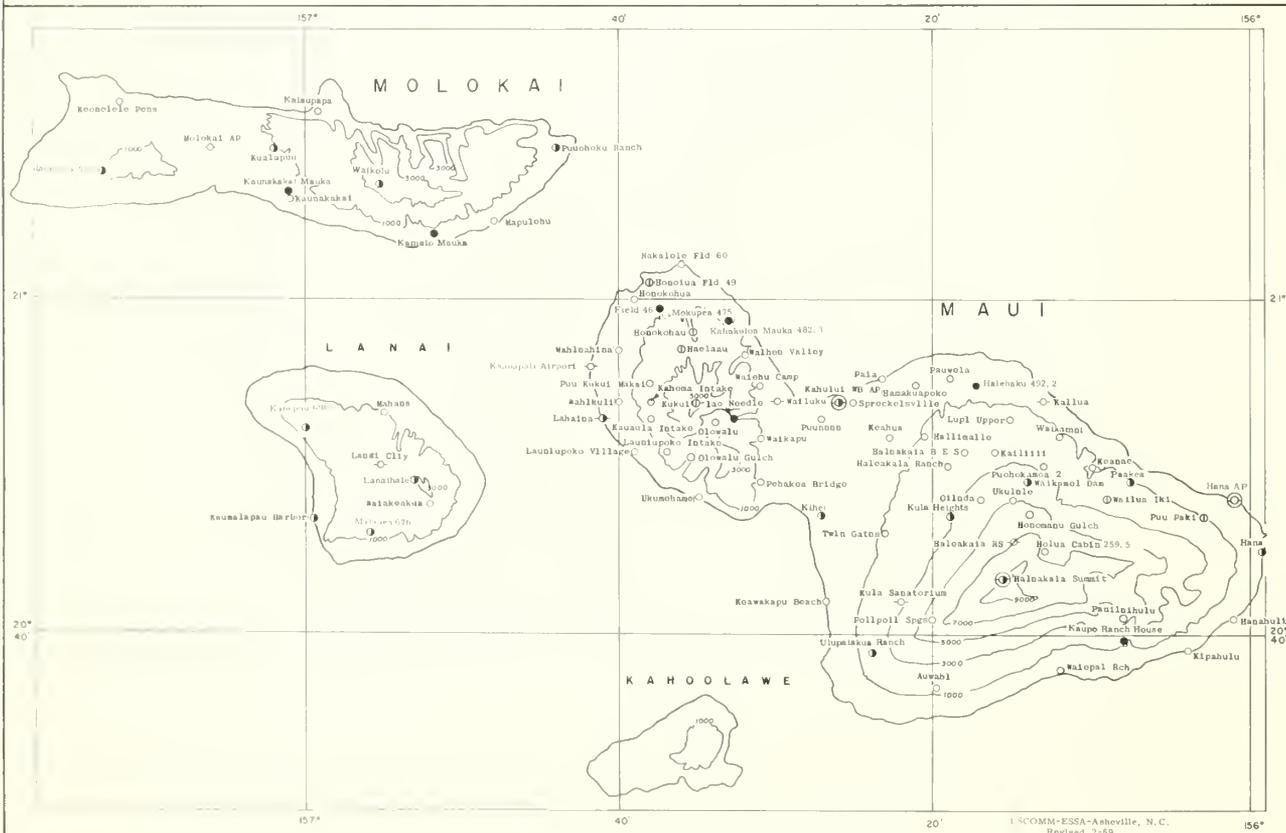
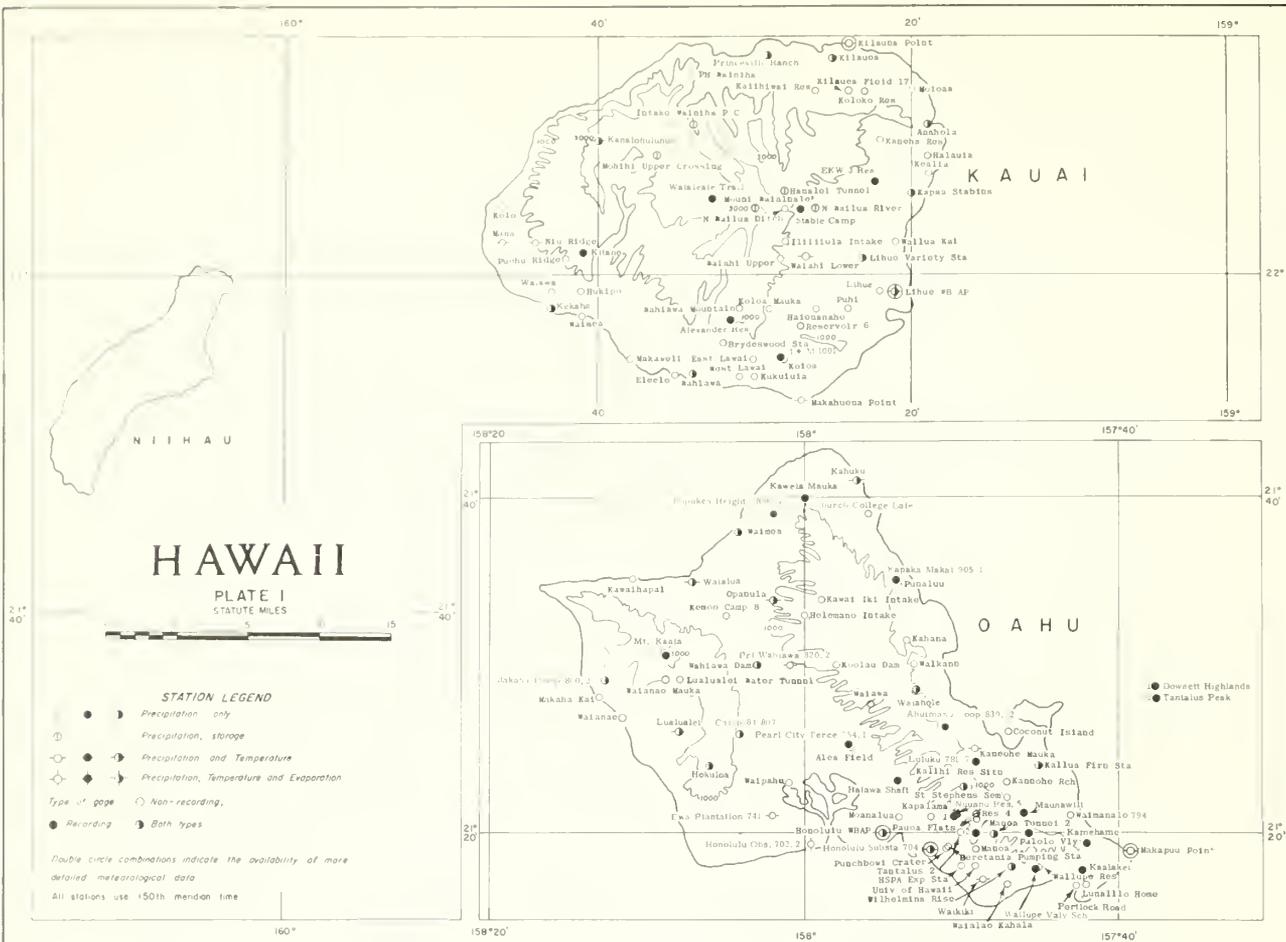
- AR Observation made after rain.
- C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Climatological Data" bulletin they are from a separate non-recording gage, except where indicated by reference 'R'. Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
- MO Gage read once monthly, usually on the last day.
- OC Gage readings at periods varying from a few weeks to several months.
- S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as delayed data in the June issue of this publication.
- SS Observation time is near sunset.
- VAR Observation time is variable.
- WI Gage read weekly or irregularly only.
- WM Gage read weekly and last day of month.
- # Thermometers are generally exposed in a shelter located a few feet above sod-covered ground; however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.

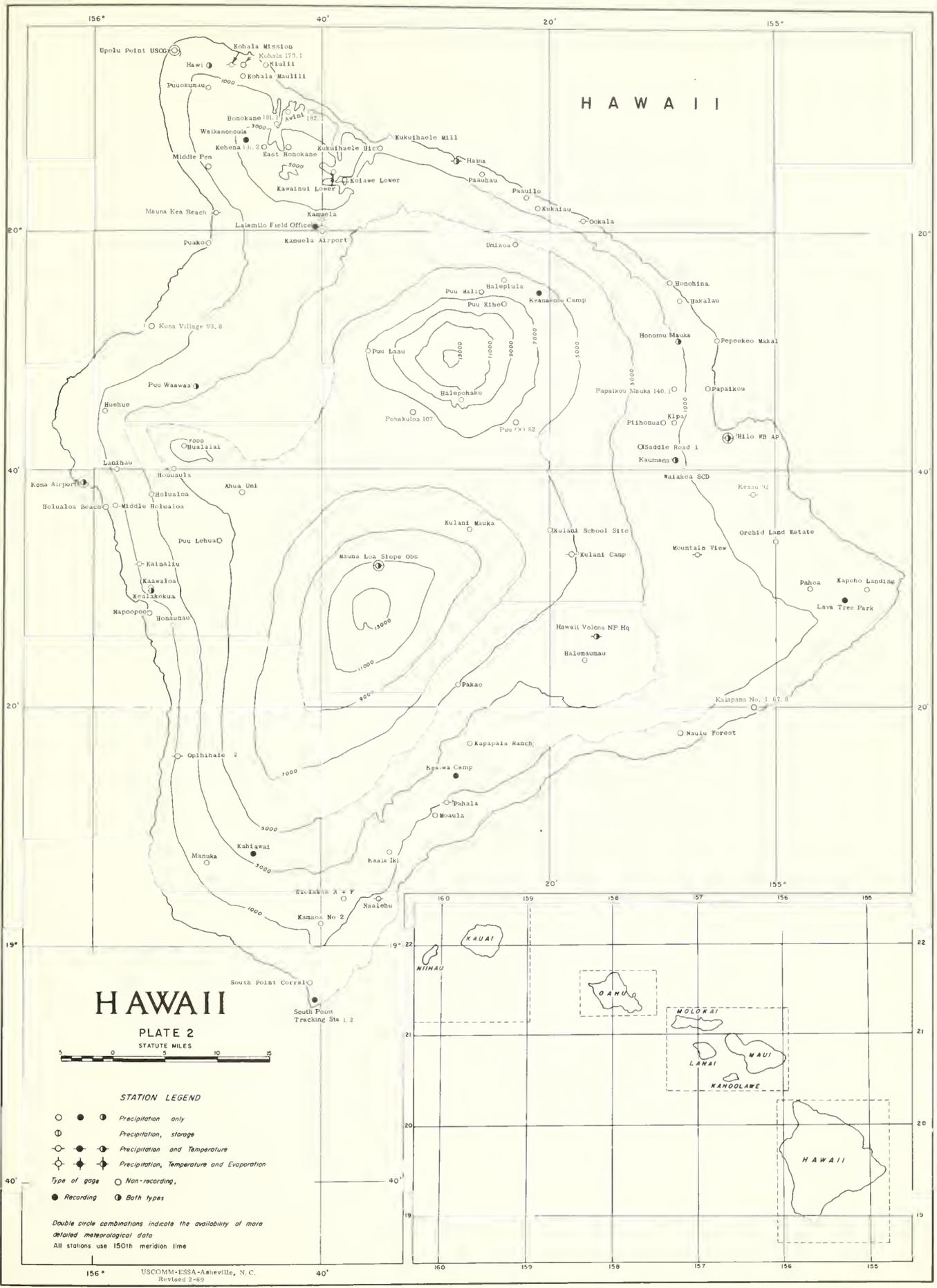
Stations appearing in the tables with no data were either missing or received too late to be included in this issue.

General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

Information concerning the history of change in locations, elevations, exposure, etc., of substations through 1957 may be found in the publication "Substation History" for this State, price 40 cents. Similar information for regular Weather Bureau stations may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

Subscription Price: 20 cents per copy, monthly and annual; \$2.50 per year. (Yearly subscription includes the Annual Summary.) Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.





HAWAII

HAWAII

PLATE 2



STATION LEGEND

- ● ① Precipitation only
- ⊕ Precipitation, storage
- ● ① Precipitation and Temperature
- ⊕ ● ① Precipitation, Temperature and Evaporation
- Type of gage ○ Non-recording, ● Recording
- ① Both types

Double circle combinations indicate the availability of more detailed meteorological data
 All stations use 150th meridian time

CLIMATOLOGICAL DATA

HAWAII

U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 ENVIRONMENTAL DATA SERVICE

APRIL 1971

Volume 67 No. 4

AUG 17 1971

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature												Precipitation							
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow/Sleet			
									Degree Days	Max.	Min.	Total					Total	Max. Depth on Ground	Date	No. of Days
	30° or Above	32° or Above	34° or Above	36° or Above	.10 or More	.50 or More	1.00 or More													
* * * ISLAND OF KAUAI																				
ANAHOLA 1114	A																			
KANALOHULUHULU 1075	A	68.3	52.7	60.5		74	10	46	25+											
KAPAA STABLES 1104	A																			
KILAUEA FIELD 17 1135	A																			
KILAUEA POINT 1133	A	77.2	69.5	73.4		80	26	65	9											
KOLPA 936	A																			
LIHUE WSD 1020.1	//R	80.1	71.7	75.9	3.4	82	26+	68	24											
MANA 1026		82.9	63.8	73.4	.7	86	13	60	13											
N WAILUA OITCH 1051	A																			
PH WAINIHA 1115																				
PUEHU RIGGE 1040																				
WAHTAWA 930	A																			
WAIHAI LOWER 1054		76.3	63.8	70.1		80	27	59	12											
WAIHEA 947																				
ISLAND																				
* * * ISLAND OF OAHU																				
HONOLULU OBSERV 702.2	R	81.5	69.6	75.6	1.4	88	25	65	19											
HONOLULU WSPD 703	A	78.9M	68.7M	73.8M	.6	82	27	64	19											
KAHUKU 912		78.1	67.5	72.8	.3	83	27	65	7+											
KANEOHE MAUKA 781																				
KOOLAU DAM 833	A																			
LUALUALEI 804	A	81.8	68.7	75.3		85	26	62	5											
MAKAPUU POINT 724		75.8	67.2	71.5		81	28	63	20											
NUUANU RES 4 783																				
OPAFULA 870	A	77.0	63.7	70.4	2.4	84	28+	61	18											
PALLO VALLEY 718																				
PRI WAHIAWA 820.2	A	79.4	63.7	71.6		84	4	61	22+											
PUNALUU 884	A																			
WAHTAWA DAM 863	A																			
WAIHOLE 837	A																			
WAILUALU 847	A	80.9	63.9	72.4	.9	85	28	60	19+											
WAIKIKI 717.2		82.7	69.8	76.3		85	18	65	18											
WAIMANALO EXP FARM		79.5	68.9	74.2		82	27	65	26											
WAIPIAHU 750	A																			
ISLAND																				
* * * ISLAND OF MOLOKAI																				
KUALAPUU 534	A																			
MAPILEHU 542																				
MAUNALO 511	A																			
MOLOKAI AP 524	A	79.2M	67.7M	73.5M		83	27	63	20											
ISLAND																				
* * * ISLAND OF LANAI																				
LANAI CITY 677	A	74.3	62.8	68.6	1.6	80	27	59	19											
ISLAND																				
* * * ISLAND OF MAUI																				
HALEAKALA 8 E S 434	A																			
HALEAKALA RS 338		59.9	44.1	52.0		69	15	37	12											
HANA AIRPORT 355		79.5	67.2	73.4		82	26+	63	18											
HONOKOHUA 493	A																			
KAANAPALI AIRPORT		80.9	64.4	72.7		84	28+	59	25+											
KAHULUI WSD 398	R	83.1	65.5	74.3	.9	87	26	58	14											
KAILUA 446		75.0	64.4	69.7	.6	77	15	62	24+											
KEANAE 346	A																			
KIPAHULU 258																				
KULA SANATORIUM 267		69.6	55.8	62.7	.7	73	7	50	21											
LAHAINA 361		83.5	66.1	74.8		86	17+	62	11											
PAIA 406																				
WAILUKU 386	A	78.4M	67.8M	73.1M	.5	82	27+	65	26+											
ISLAND																				
* * * ISLAND OF HAWAII																				
HAINA 214		78.2	64.6	71.4	1.4	82	26+	62	29+											
HAWAII VOLCONS NP HO 54		65.5	52.9	59.2	.1	70	26+	49	13											
HILD WSD 87	R	78.1	63.7	70.9	.7	83	25	62	23+											
HUEHUE 92.1	A																			
KAINALIU 73.2		75.0	61.5	68.3		78	26+	59	21+											

See Reference Notes Following Station Index

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation												
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days					Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days		
										Max.		Min.							Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										10° or Above	11° or Below	12° or Below	13° or Below	0° or Below										
KFAAU 92	76.5	64.7	70.6	- .5	82	4	62	1		0	0	0	0	30.24	17.82	9.54	24	.0	0		25	10	9	
KEALAKEKUA 26.2	75.4	62.0	68.7		79	15+	59	21		0	0	0	0	6.12		3.12	17	.0	0		9	2	2	
KONA (KAILUA) 68.3	82.0M	68.8M	75.4M		85	8+	61	12		0	0	0	0	2.06		.0		.0	0				0	
KUKI IMAELE H/C 199														7.18				.0	0		14	3	3	
KULANI CAMP 79	61.2	47.3	54.3		69	30	43	16+		0	0	0	0	8.93		2.03	24	.0	0		18	5	2	
PAAHA 21	77.0M	62.2M	69.6M	- .2	84	7	59	12		0	0	0	0	9.33	6.17			.0	0				0	
POMAKULOA 107														1.38				.0	0				0	
PUAKO 95.1	83.8	68.2	76.0		87	20	65	26		0	0	0	0	.10			25	.0	0		0	0	0	
PUU WAAHAA 94.1														2.79	.49	.95	20	.0	0			2	0	0
UMIWA 118														7.07	- 2.26	2.77	19	.0	0				1	
WAIKAPA SCU 88.2														30.06		7.69	24	.0	0		26	14	10	
WAIWEEA KOHALA	71.3M	55.5M	63.4M		77	26+	49	18		0	0	0	0	.74		.16	21	.0	0		3	0	0	
ISLAND			68.0											9.49				.0						

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE, 91° ON THE 17+ AT KEAWAKAPU BEACH 260.2, MAUI
 LOWEST TEMPERATURE, 28° ON THE 19+ AT MAUNA LOA SLOPE OBS, HAWAII
 GREATEST TOTAL PRECIPITATION, 90.07 AT MOUNT WAIWALEALE 1047, KAUAI
 LEAST TOTAL PRECIPITATION, .10 AT PUAKO 95.1, HAWAII
 GREATEST ONE-DAY PRECIPITATION, 11.00 ON THE 24TH AT PAAKEA 350, MAUI

SPECIAL WEATHER SUMMARY

April fulfilled its traditional role as a month of transition between Hawaii's winter and summer seasons. Although the weather was not particularly severe, thunderstorms were numerous and accompanied at times by hail, by intense rains that gave rise to local flooding and landslides, and by snow on high mountain peaks. Skies were somewhat cloudier than the seasonal norm, with cirrus clouds being reported on about 8 out of 10 days.

The unsettled weather and high clouds were associated with a persistent upper-level trough (low pressure area) which lay over and immediately west of the Hawaiian Islands on about 90 percent of the days in April. At the same time, as a forerunner of the approaching warmer half-year, trade winds at Honolulu Airport prevailed on all but 2 days, with 91 percent of the hourly observations showing winds from directions north-northeast through east, as compared to the April normal of 71 percent.

This combination of low pressure aloft and the ascent of moist trade winds over Hawaii's topographic barriers has been responsible for some of the State's heaviest rains, particularly over mountains and coasts that directly face the trades.

Thunderstorms occurred somewhere in the State on at least 10 days: the 3d, 7th, 15th, 16th, 18th through 21st, and 23d and 24th. The month's first outbreak began on the 3d, and affected all the major islands. Runoff and landslides from heavy thunderstorm and other rains in north Kauai from Haena to Kilauea on the 3d, 4th, and 7th (when Kilauea recorded 6.90 inches between 1 a.m. and 3 a.m., and Princeville Ranch, 3.45 inches between midnight and 3 a.m.) did an estimated \$50,000 in damage to pavements, shoulders, gutters, and drainage structures of Kauai Belt Road. The Hanalei and Kalihiwai Rivers overflowed, destroying a few acres of eggplants, peppers, and tomatoes. No damage to sugarcane fields was reported, but production was slowed. On the 3d lightning struck a parked car at Kapaa, Kauai, and cracked its rear window.

Meanwhile, thunderstorms dropped 5.40 inches of rain at Leilehua, Oahu, between 1 p.m. and 4 p.m. on the 3d, and mantled Mauna Loa and Mauna Kea with snow on the night of the 4th.

Late on the 15th and on the afternoon of the 16th, intense thunderstorms, accompanied by lightning, snow, and hail, knocked out the television transmitter at Haleakala Summit. On the 19th, the temperature there dropped to freezing (32°), and the next day -- the 20th -- thunderstorms hit Haleakala Summit again with hail and snow and

east Maui's Hana district with flooding rains and a landslide.

Nor was Hawaii Island being spared. Intermittent thunderstorms between the 14th and 19th brought lightning and hail to Mauna Loa and Mauna Kea and snow that blanketed their summits down to 10,000 feet and remained in patches for the rest of the month. On the 16th, Captain Cook, Kona, reported lightning strikes, knocked-out power and telephone lines, 1/4-inch hailstones, and 2.75 inches of rain between 10:25 a.m. and 1 p.m. Pohakuloa, on Mauna Kea's southern flank, had 1/2-inch hailstones on the 16th and 1/4-inch hailstones on the 17th. On the 19th, minor flooding occurred at Waiakea Uka, on the windward slopes above Hilo, and a landslide on the road at Ahualoa.

A final outbreak of thunderstorms toward the end of the month appears to have affected principally Kauai and Hawaii Islands, the northernmost and southernmost major islands of the State. Scattered thunderstorm rains on the 23d and 24th caused landslides onto Kuhio Highway at Wainiha and flooded the Hanalei River in northern Kauai, where Koloko Reservoir and Kilauea recorded 3.60 inches and 2.45 inches of rain, respectively, between 3 a.m. and 6 a.m. of the 24th. In the southern part of the island, storm runoff and overflow from a reservoir caused an estimated \$3,000 in damage to Kaumualii Highway, and mud and debris washed down from a subdivision in Eleele onto the intersection of Kaumualii Highway and Eleele Heights Subdivision Road.

The 23d was a day of torrential rain for the Hilo, Hawaii, area also, where nine of Hilo's businesses and homes were flooded, with damage to one of the homes estimated at \$10,000. Hilo Airport had a 24-hour total of 9.66 inches, with intensities of 1.95 inches in 1 hour, 3.33 inches in 2 hours, and 4.77 inches in 3 hours. Lava Tree Park recorded 5.85 inches of rain between 8:10 p.m. on the 23d and 4:55 a.m. on the 24th.

The wet weather in Hawaii Island's Puna area made phytophthora (a fungus disease) difficult to control and affected papaya trees had to be destroyed.

The month's weather also included a number of funnel cloud sightings, most of them associated with the thundery conditions: on the 18th a waterspout 4 miles northeast of Lihue Airport and moving westward for a few minutes before dissipating; on the 22d a funnel cloud, not reaching the sea surface, 15 miles south-southwest of Oahu's Waikiki Beach; on the 23d a water-

SPECIAL WEATHER SUMMARY - Continued

spout 5 miles northeast of Hilo in Hilo Bay; and on the 24th a funnel cloud observed briefly 5 miles south-southwest of Honolulu Airport, Oahu.

Monthly rainfall averages were more generally and greatly exceeded on the northern than on the southern islands of the State. Kauai was wet everywhere, with the northern and southern portions recording over four times their April norms. On Oahu only the eastern tip had below-normal rainfall. But despite the month's fre-

quent widespread thunderstorms, rainfall was below normal in western Molokai, all of Lanai, Maui's central valley and the southern half of west Maui, and Hawaii Island's Kohala and Hamakua coasts and the Waimea to Puako sections, with some gages in a number of these areas showing well-below half their April averages.

Long-record stations which exceeded their previous record April rainfall total are shown below.

Stations Whose Previous Greatest April Rainfall Totals were Exceeded in April 1971

(25 years of record or more, only)

Station	Length of Record (Yrs.)	Previous Greatest April Total	April 1971
		(Inches)	(Inches)
<u>KAUAI</u>			
Brydeswood	62	17.47	17.80
Ililiula Intake	37	28.76	34.75
Kilauea	86	23.25	23.67
North Wailua Ditch	44	33.64	44.58
Powerhouse Wainiha	64	30.03	34.05
Princeville Ranch	62	26.45	27.32
Wahiawa Mountain	71	29.30	31.25
Waiahi Lower	42	21.06	24.88
<u>OAHU</u>			
Kalihi Reservoir Site	44	24.00	24.28
Pauoa Flats	44	30.09	30.76

Saul Price
Regional Climatologist - Pacific
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
Acting State Climatologist - Hawaii
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY TEMPERATURES

Station		Day of Month																															Average
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
LAHAINA 361	MAX MIN	83 68	83 64	82 65	85 67	85 68	81 70	81 68	86 65	83 65	84 63	83 62	85 63	84 64	84 65	83 67	86 66	85 65	84 66	83 67	79 64	84 65	83 66	82 66	83 68	85 68	85 67	84 70	83 67	83 68	83 68	83.5 66.1	
WAILUKU 396	MAX MIN	75 66	75 67	75 67	81 65	78 71	76 69	82 70	76 65	82 55	80 55	78 52	78 51	80 51	78 49	80 51	80 52	80 52	80 52	80 52	80 52	76 67	78 67	73 68	76 67	78 68	80 65	82 69	82 69	79 68	79 68	78.4 67.8	
* * *																																	
ISLAND OF HAWAII																																	
HAINA 214	MAX MIN	78 64	78 65	79 66	82 65	78 66	76 68	78 66	78 67	78 66	78 63	78 64	77 64	79 65	78 63	78 66	79 67	79 62	79 64	79 62	79 64	76 63	77 63	77 63	75 63	80 65	82 64	80 66	78 64	79 62	78 66	78.2 64.6	
HAWAII VOLCANO NP HO 54	MAX MIN	68 53	61 55	70 54	70 55	64 55	64 55	65 55	66 53	65 55	66 55	64 53	64 53	65 49	65 51	69 52	64 52	68 52	67 51	64 52	67 52	67 51	64 52	65 52	63 53	60 58	61 55	70 54	67 55	62 54	62 52	65.5 52.9	
HILO WSD 87	MAX MIN	71 62	80 62	82 64	76 63	78 65	80 65	81 63	82 64	78 62	78 64	79 64	78 64	78 62	78 63	78 64	79 63	80 62	79 65	80 63	79 62	78 63	76 65	71 62	81 63	83 62	82 65	82 65	78 65	76 65	75 64	78.1 63.7	
KAINALIU 73.2	MAX MIN	75 61	74 62	77 61	77 61	74 64	73 65	74 61	75 61	72 61	73 61	78 61	75 61	77 63	74 62	77 60	71 60	71 61	73 61	75 60	76 60	77 60	76 60	73 61	74 61	73 61	72 62	74 61	76 64	72 63	74 63	75.0 61.5	
KAMUELA 192.2	MAX MIN	68 54	70 55	71 55	80 55	70 50	68 58	75 58	76 58	76 58	76 58	67 57	68 58	68 57	69 58	70 55	71 54	72 54	72 54	70 54	70 56	74 56	70 54	69 54	71 55	72 58	74 57	78 55	70 55	71 54	71 55	71.4 56.0	
KEAAU 92	MAX MIN	78 62	70 64	78 64	82 64	75 67	80 66	80 66	80 65	75 65	77 64	77 64	78 64	76 65	78 66	77 66	80 63	80 63	80 63	79 64	68 64	68 64	68 65	75 64	69 65	77 65	78 66	74 65	75 66	74 65	74 65	76.5 64.7	
KEALAKEUA 26.2	MAX MIN	72 62	73 62	77 61	78 62	75 64	73 65	74 61	76 62	79 66	75 62	73 62	76 62	78 64	74 60	79 62	77 61	77 61	73 60	75 60	78 60	75 59	72 61	72 61	75 62	72 61	72 62	75 61	76 64	74 62	74 64	75.4 62.0	
KOHALA MISSION 175.1	MAX MIN	77 65	76 64	77 64	83 66	76 67	75 67	78 66	75 66	77 66	78 66	75 65	76 64	77 64	77 66	78 66	77 66	76 66	77 66	75 66	78 65	77 64	75 64	75 64	76 65	75 63	72 65	79 68	79 68	78 68	78 66	76.7 65.5	
KONA (KAILUA) 68.3	MAX MIN	78 68	80 69	80 69	85 70	80 72	82 68	85 68	82 69	85 68	82 68	82 68	82 68	84 71	84 71	80 68	83 68	83 68	82 68	82 68	80 68	83 68	82 68	82 68	82 68	82 68	80 68	80 68	79 68	83 68	83 68	82.0 68.8	
KULANI CAMP 79	MAX MIN	62 45	56 45	54 50	67 49	61 50	60 52	63 48	66 45	65 45	60 44	63 45	60 50	57 48	57 44	60 45	59 45	62 47	60 47	60 46	60 46	60 46	61 46	57 48	58 48	58 48	63 53	62 48	55 49	60 48	60 49	69 49	61.2 47.3
MAUNA LOA SLOPE OBS	MAX MIN	45 34	44 33	45 35	48 35	45 34	42 32	52 36	56 37	51 34	52 32	52 37	52 32	51 32	49 29	43 30	43 30	46 28	42 30	43 30	42 30	42 31	42 33	42 35	45 35	46 35	48 34	51 36	54 36	48 39	49 39	47.3 33.2	
MOUNTAIN VIEW 91	MAX MIN	75 57	65 59	78 59	78 59	78 62	73 60	74 64	74 60	74 60	74 60	74 60	74 60	73 60	74 60	78 61	78 58	78 58	78 58	76 59	68 59	68 59	70 61	71 61	77 61	77 61	73 61	68 61	68 61	68 61	73.7 60.0		
NAALEHU 14	MAX MIN	77 64	77 63	77 63	78 64	78 64	75 69	77 68	77 66	77 66	77 66	77 66	76 66	76 66	77 67	78 69	78 69	77 65	78 65	77 65	76 65	76 65	75 65	75 64	75 64	78 64	78 64	76 67	72 65	72 66	72 66	76.3 65.1	
OKALA 223	MAX MIN	73 63	79 63	78 63	80 66	77 65	76 65	76 65	79 65	79 65	79 64	79 64	79 63	80 62	78 62	79 65	79 64	79 65	79 65	78.0 64.0													
OPIHIHALE 2 24.1	MAX MIN	73 59	74 60	71 61	77 59	78 61	77 61	77 61	75 60	75 60	72 60	72 60	76 61	75 60	76 61	76 61	79 58	79 57	79 57	79 57	79 57	76 57	72 58	72 58	75 61	76 60	80 60	74 61	76 61	73 61	77 61	75.4 60.2	
PAHALA 21	MAX MIN	78 61	69 60	78 63	77 63	77 63	84 66	81 62	81 62	84 66	84 66	84 66	84 66	85 66	84 66	84 66	84 66	84 66	85 66	84 66	84 66	77.0 62.2											
PUAKO 95.1	MAX MIN	81 67	84 67	84 68	84 69	81 66	84 69	84 69	83.8 68.2																								
UPOLU POINT USCG 159.2	MAX MIN	77 67	78 69	79 70	85 71	80 69	80 68	79 68	79 68	78 68	78 68	78 68	78 68	75 68	79 69	73 69	79 81	81 79	81 79	81 79	72 72	80 77	77 66	77 66	80 77	80 77	82 70	77 68	80 68	81 69	81 69	78.6 68.3	
WAIHEA KOHALA	MAX MIN	68 55	71 54	74 54	77 58	72 58	72 54	72 58	73 58	70 58	69 56	70 56	68 56	70 56	71 58	71 58	69 57	71 55	71 49	74 65	70 58	71.3 55.5											

EVAPORATION AND WIND

Station		Day Of Month																															Total or Avg.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
* * *																																	
ISLAND OF KAUAI																																	
LIHUE WSD 1020.1	EVAP WIND MAX MIN	.18 174 83 61	.23 224 82 63	.17 147 82 63	- 139 78 63	.10 244 79 63	.13 187 78 64	.22 173 81 64	.18 199 81 63	.24 171 81 61	.33 163 84 60	.28 128 84 60	.30 143 85 61	.33 204 84 61	.33 196 84 61	.36 200 85 62	.26 202 85 62	.18 117 83 62	.34 188 83 62	.28 250 80 62	.34 268 75 61	.31 166 82 62	.32 200 81 63	.36 140 75 62	.20 123 74 61	.20 65 84 62	* 95 86 63	.20 162 89 65	.20 176 81 65	.32 148 82 64	7.918 5186 81.1 62.4		
* * *																																	
ISLAND OF DAHU																																	
HONDOLUO OBSERV 702.2	EVAP WIND MAX MIN	.24 22 87 65	.15 34 85 64	.15 18 79 65	.30 16 40 67	.15 44 80 65	.03 36 82 65	.46 42 89 67	.21 30 88 65	.30 29 91 64	.12 30 90 63	.45 36 89 63	.15 34 89 63	.39 35 88 63	.30 34 89 63	.30 34 89 63	.30 41 88 64	.18 28 83 65	.30 26 91 63	.29 37 88 64	.18 25 84 64	.11 28 79 63	.24 30 86 65	.17 30 86 65	.04 14 78 66	.13 22 83 66	.21 24 92 68	.25 35 95 68	.20 24 88 67	.23 26 87 66	.22 27 88 67	6.75 895 86.8 65.0	

See Reference Notes Following Station Index

STATION INDEX

Table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE I, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE I, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. Includes stations like ISLAND OF HAWAII, MIDDLE HULUALA, etc.

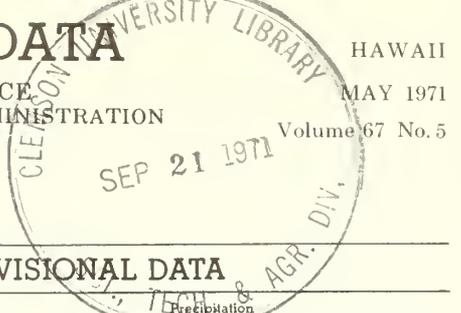
DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD 2-MOLOKAI 3-SOUTH-CENTRAL 4-WESTERN 5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN 2-SOUTHWESTERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

- Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatology, P. O. Box 3650, Honolulu, Hawaii, or to any National Weather Service Office near you.
PRECIPITATION UNITS: Data otherwise indicated, dimensional units used in this bulletin are Temperature in F, precipitation and evaporation in inches, and wind movement in miles.
OBSERVATION TIME: Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index.
EVAPORATION: Is measured in the standard Weather Bureau type pan of 4-foot diameter unless otherwise shown by footnote indicating the Evaporation and Wind table.
NORMALS: for all stations are climatological standard normals based on the period 1931-1960.
STATION NAMES: Hawaii state key numbers are included following station names in the several tables.
DELAYED DATA AND CORRECTIONS: will be carried only in the June and December issues of this bulletin.
INTERPOLATED VALUES: for monthly precipitation totals are to be found in the annual issue of this publication.
IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:
- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, "Snowfall and Snow on Ground" table, and the Station Index.
+ And also on an earlier date or dates.
** Highest observed one minute wind speed. This station is not equipped with an instrument to measure fastest mile data.
* Amount included in following measurement, time distribution unknown.
A The letter "A" shown following station name in "Climatological Data" table, "Daily Precipitation" table, and "Station Index", indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month.
B Adjusted to a full month.
J "Supplemental Data" table.
M One or more days of record missing. If average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
R Amount from recording gage.
T Trace, an amount too small to measure.
V Includes total for previous month.
IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:
AR Observation made after rain.
C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Climatological Data" bulletin they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
MO Gage read once monthly, usually on the last day.
OC Gage readings at periods varying from a few weeks to several months.
S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as delayed data in the June issue of this publication.
SS Observation time is near sunset.
VAR Observation time is variable.
W1 Gage read weekly or irregularly only.
W2 Gage read weekly and last day of month.
Thermometers are generally exposed in a shelter located a few feet above and covered ground; however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.
Stations appearing in the tables with no data were either closing or received too late to be included in this issue.
General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.
Information concerning the history of changes in locations, elevations, exposures, etc., of stations through 1957 may be found in the publication "Substation History" for this State, price 40 cents. Similar information for regular Weather Bureau stations may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.
Subscription Price 20 cents per copy, monthly and annual; \$2.50 per year. (Yearly subscription includes the Annual Summary.) Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

CLIMATOLOGICAL DATA

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ENVIRONMENTAL DATA SERVICE



HAWAII

MAY 1971

Volume 67 No. 5

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation				Snow/Sleet			No. of Days						
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Total	Max Depth on Ground	Date	.10 or More	.50 or More	1.00 or More		
										95° or Above	85° or Above	75° or Above	65° or Above											95° or Below	85° or Below
	Max.	Min.																							
* * * ISLAND OF KAUAI																									
ANAHOLA 1114	A																								
KANALOHULUHULU 1075		70.1	51.1	60.6		75	31	42	11																
KAPAA STABLES 1104	A																								
KILAUEA FIELD 17 1135	A																								
KILAUEA POINT 1133		79.1	70.4	74.8		81	31+	67	6																
KOLA 936																									
LIMUE WSO 1020.1	//R	82.0	71.8	76.9	2.4	85	2	63	10																
MANA 1026		85.6	64.1	74.9	.2	90	31	60	4																
N WAILUA OITCH 1051	A																								
PH WAINIHA 1115																									
PUEHU RIOGE 1040																									
WAHIAWA 930	A																								
WAHAI LOWER 1054		79.3	63.6	71.5		82	16+	58	11																
WAIMEA 947																									
ISLAND																									
* * * ISLAND OF OAHU																									
HONOLULU OBSERV 702.2																									
HONOLULU WSPF 703	R	82.6	69.8	76.2	.3	87	17	65	11																
KAHUKU 912	A																								
KANEHE MAUKA 781		80.1	69.0	74.6	.4	82	28+	64	10																
KOOLAUA OAM 833	A																								
LUALUALEI 804																									
MAKAPUU POINT 724	A	83.6	68.7	76.2		89	6	62	10+																
NUANU RES 4 783		76.6	66.9	71.8		81	11	61	11																
OPAELUA 870	A				1.3	83	14+	59	12+																
PALDLO VALLEY 718																									
PRI WAHIAWA 820.2																									
PUNALUU 884	A	81.5	62.1	71.8		85	19+	58	13+																
WAHIAWA OAM 863	A																								
WAIAHOLE 837	A																								
WAILUA 847	A	82.9	62.5	72.7	.7	87	19+	59	12+																
WAIKIKI 717.2	A	84.3	68.7	76.5		86	30+	63	9																
WAIMANALO EXP FARM																									
WAIIPAHU 750	A	81.5	70.7	76.1		85	11	64	10																
ISLAND																									
* * * ISLAND OF MOLOKAI																									
KUALAPUU 534																									
MAPULEHU 542	A																								
MAUNALOA 511	A																								
MOLOKAI AP 524		80.1	68.3	74.2		83	31	62	13+																
ISLAND																									
* * * ISLAND OF LANAI																									
LANAI CITY 672																									
	A	75.1	61.9	68.5	.0	80	18	58	13+																
ISLAND																									
* * * ISLAND OF MAUI																									
HALEAKALA B E S 434																									
HALEAKALA RS 338	A	60.2	41.4	50.8		66	31	35	21+																
HANA AIRPORT 355		82.4	66.5	74.5		85	22+	60	10																
HONOKOHUA 493	A																								
KAAHAPALI AIRPORT		81.8	64.4	73.1		84	20+	61	11+																
KAHULUI WSO 398																									
KAILUA 446	R	85.5	64.7	75.1	.2	90	15	58	12																
KEANAE 346	A	76.3	64.7	70.5	.1	78	21+	61	10																
KIPAHULU 258																									
KULA SANATORIUM 267		71.1	54.0	62.6	.9	85	20	49	12																
LAHAINA 361																									
PAIA 406		84.9	66.3	75.6		87	26+	64	26+																
WAILUKU 386	A					83	18+	63	10																
ISLAND																									
* * * ISLAND OF HAWAII																									
HAINA 214																									
HAWAII VOLCAN NP HO 54	R	79.7	64.0	71.9	.5	81	29+	61	13+																
HILD WSO 87		66.7	51.2	59.0	1.6	73	31	44	10																
HUEHUE 92.1	A	80.9	63.5	72.2	.8	84	16+	59	10																
KATNALIU 73.2		75.5	61.0	68.3		79	14	58	10																
KEAAU 92		78.2	63.7	71.0	1.5	82	16	60	11+																

See Reference Notes Following Station Index

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII
MAY 1971

Continued

Station	Temperature											Precipitation															
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days						
										Max.		Min.						Total	Departure From Normal	Greatest Day	Date	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										90° or Above	32° or Below	32° or Below	32° or Below														
KEALAKEKUA 26.2	75.8	61.6	68.7		81	14	59	12+		0	0	0	0	2.37		.55	3	.0	0		7	1	0				
KOYA (KAILUA) 68.3					88	14	64	10		0	0	0	0	1.47		.69	21	.0	0				0				
KJKUIMAELE HIC 199														.95	- 5.76	.30	7	.0	0		2	0	0				
KJLANI CAMP 79	61.9	46.0	54.0		82	13	40	13		0	0	0	0	6.14		1.00	20	.0	0		17	3	1				
PAHALA 21										0	0	0	0	3.36	1.04			.0	0								
PAHALA 21					80	4	57	11+		0	0	0	0	3.36	1.04			.0	0								
POHAKULOA 107														.46		.25	19	.0	0		3	0	0				
PJAKO 95.1	84.7	68.1	76.4		87	28+	65	17+		0	0	0	0	1.89	- .84	.66	8+	.0	0		4	2	0				
PJU WAAHAA 94.1														.33	- 4.73	.07	7	.0	0		0	0	0				
UMIKOA 118														10.39		1.78	8	.0	0		21	9	2				
WAIKEA SCO 88.2														.17		.10	25	.0	0		1	0	0				
WAIHEA KOHALA	73.0M	52.2M	62.6M		78	17	44	9		0	0	0	0					.0	0								
ISLAND			67.1											3.40				.0									

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 91° ON THE 25+ AT KEAWAKAPU BEACH 260.2, MAUI

LOWEST TEMPERATURE: 27° ON THE 9TH AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 22.17 AT MOUNT WAIALEALE 1047, KAUAI

LEAST TOTAL PRECIPITATION: .00 AT 13 STATIONS

GREATEST ONE-DAY PRECIPITATION: 4.74 ON THE 19TH AT KALIHI RES SITE 777, OAHU

See Reference Notes Following Station Index

DAILY PRECIPITATION

Continued

HAWAII
MAY 1971

Station	Total	Day of Month																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
KIPA 89.2	A	12.93	.27	.35	.73	.19	.07	.65	2.39	.60	.04			1.34	*		.01	.26	.15	1.09	.66	.66	.01	1.63	.45	.08	.08	.78	.13	.30	.01		
KOMALA MAULILI 176	A	2.06					.28	.32	.07	*	*				*		.07		.08	.12	.09	*	*	.42	.02	.02		.32	*	*	.19		
KOMALA MISSION 175.1	A	1.80	.02	T	.01	.28	.07	.17	T					T		.01	.04	T	.07	.17	.10	*	*	.05	.27	.02	.02	.22	T	.01	.27		
KOIAWE LOWER 196	A	.41	*	*	*				.18	*	*			*	.05	*	*	*	*	*	*	.03	*	*	.05	.27	*	*	*	*	*	*	
KONA (KAILUA) 68.3	A	1.47	*	*	.07	.01						.52	*	*	*		.07		.11		.69				T		.15	*	*	*			
KONA VILLAGE 93.8	A	.10	.06																		.02										*		
KUKAIKU 222	A	1.63		.21	T	.03	T	.38	.15	T				.02						.08	.17			.08	.21	.05		.18	.09		T		
KUKUIAIE HIC 199	A	.95		.09		.08		.30	.08											.04	.04			.04	.04			.06	.09	.13	.02		
KUKUIAIE MILL 206	A	.84	*	.11	.06	.01		.35	*			.06								*	*	*	*	*	.04	.04		.06	*	*	.13		
KULANI CAMP 79	A	6.14	.12	.10	.30	.07	.35	.45	.18	.49	.21	.02	.03	.15	.01			.23	.10	1.00	.86	.16	.01	.68	.21	.03	.12	.04	.02	.13			
KULANI MAUKA 76	A	1.08				.07	.12	.12	.14	.15										.05	.05			.07	.06						*		
KULANI SCHOOL SITE 78	A	6.27	.77	*	*	*		1.66	.10	*	*			*	.65				*	.05	.05			.07	.06					.25			
LANIHAU 68.2	A	5.82	.04	.16	1.25	.10	.04	.15	.46	.18	.10		.14		.28	.32	*	*	.10	*	*	1.74	*	*	*	*	*	*	*	1.47			
MAKAHALA 103	A	.16	*	*	*	*	*	*	*	*												1.68	.56	.15	*	*	*	*	*	.11			
MAUKA 2	A	3.47	*	*	.50	.02	T	.70	*	*	1.30	T	.05	T	*	*	T	.16				*	*	.40		.10	T	.40		*			
MAUNA KEA BEACH 98	A	.49																													*		
MAUNA LOA SLOPE DB5	A	3.76	.02			.13	.30	.04		.04	.03	.02							.04	.01									.02	.08	.19		
MIDDLE MOULALOA 88.1	A	.00	*	*	*	*	*	*	*	*			.51	*	*	*	*		.51		2.31										*		
MIDDLE PEN 147.1	A	1.48	*	*	*	*	*	*	*	*																					*		
MOAULA 18	A																														1.48		
MOUNTAIN VIEW 91	A	10.55	.29	.27	.30	.22	.34	3.32	.78	.07			.01	.03	.21		.02	.38	.08	.59	.41	.35	.02	.94	.49	.10	.02	.86	.12	.28	.05		
NAALEHU 14	A	1.40	.27	.12	.04	.02	.05	.14		.59	T	.31	.16	T	.40		.04		.04	.02	.09	.06	.02	.20	T		*	*	*	*			
NAROPPO 28	A	1.78	*	*	.52	*	*	*	*	*			.45	*	*	*		.12	.04	.02	.09	.06	.02	.20	T		*	*	*	*			
NAULU FOREST 38.6	A	1.46	*	*	*	*	.14	.20	.26	*	*	*	*	*	*	*		.01													*		
NIULII 179	A																														*		
ODKALA 223	A	3.95		.05	.01	.08	.11	.55	.43	.03				.02	.01			.01	.42	.92	.08	.35	.26	.06	.25	.15	.16			*			
OPHIOMALE 2 24.1	A	3.58	.18	.08	.04	.02	.02	.05	.14		.59	T	.31	.16	T	.07	.17	.08	.04	T	.28	.20	.13	.04	.69	T	.41	T		.02			
ORCHIO LANO EST 91.5	A	7.37	*	*	*	*	*	2.74	*	*				T	T	.97	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
PAAHAU 217	A	.56	*	.04		.04	.15	.12														1.36									*		
PAAHULO 221	A	.86		.18	T	.01	T	.18	.11	T				.01								T	.02	.01	.02	.02	.19	.01	.09	.04	.07		
PANALA 21	A	3.30	*	*	.28		.01	.03	*	*	2.86						*	.06	.02	.09											*		
PAHOA 65	A	7.05	.13	.12	.46	.45	.81	.87	.52	.05				.07	.09	*	.08	.06	.02	.22	.33	.19	.19	.26	.01	.08	.18	.16	.16	.43	.15	.37	.07
PAKAO 37	A	2.00	*	*							*	*	*	*	*	*																*	
PAPAIAKU 144.1	A	6.96	.13	.01	.03	.28	.55	.47	1.13	.63	.05			T	.20		.05	.10	.12	.22	.23	.88	.01	.67	.35	.06	.07	.58	.04	.03	.06		
PAPAIAKU MAUKA 140.1	A	10.13	.22	.09	.46	.17	.14	1.50	.70	.20				T	.67	.01		.05	.25	.15	1.11	.45	.36	.05	1.26	.65	.10	.18	.58	.12	.21	.04	
PEPEEKED MAKAL 144	A	4.63	.05		.02	.55	.35	.11	.65	.25	.03		.01	.01	.28	.02	.02			.44	.01	.05	.33	.22	.48	.13	.23	.12	.17	.05	.05		
PIIMOHUA 89	A	17.40	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2.00	
POHAKULOA 107	A																															*	
PUAKO 95.1	A	.46	T	.10																												*	
PUU KIME 120	A	.25	*	*	*	*	*	*	*	*																						*	
PUU LAAU 102.1	A	.70	*	*	*	*	*	*	*	*																						*	
PUU LEHUA 73	A	1.30	*	*	*	*	*	*	*	*																						.70	
PUU MALI 113	A	.49	*	*	*	*	*	*	*	*																						1.30	
PUU OO 82	A	5.23	.09	.04	.36	T	.05	.21	.26	.08	.36	.38	.11	T	.27	T			.10	.21	.78	.66	.18	.01	.59	.10	.05	.02	.10	.04	.18		
PUU WAANAA 94.1	A	1.89		.21		.66		.66	.36																							*	
SAOOLE ROAD 1 84	A	14.99	*	*	*	*	*	4.57	*	*	*	*	*	*	2.75	*	*	*	*	*	*	4.32	*	*	*	*	*	*	*	*	*		
SOUTH POINT CORRAL 3	A	1.68		.30	*	*	*	.07	*	.16			.01																		.16	*	
UMUKA 118	A	.33	.05	*		.02		.02	.13														1.06		.04	.06	.01		.02		*		
UPOLU POINT USCG 159.2	A	.57																													.11		
WAIKAEA SCO 88.2	A	10.39	.37	.07	.57	.25	.18	.34	1.43	1.78	.25			.51				.21	.13	.66	.51	.56	.05	.92	.38	.13	.17	.55	.24	.13	.04		
WAIHEA KOMALA	A	.17	T											.02				T	T	T					T	.03	.10	T		T	.01		

SUPPLEMENTAL DATA

	Wind (Speed — m.p.h.)						Relative humidity averages- percent				Number of days with precipitation						Percent of Possible sunshine	Average sky cover sunrise to sunset	
	Resultant Direction	Resultant Speed	Average	Fastest mile	Direction of fastest mile	Date of fastest mile	Standard of Time				Trace	.01-.09	.10-.49	.50-.99	1.00-1.99	2.00 and over			Total
							150TH MERIDIAN												
							02	08	14	20									
HILLO WSD 87	14	1.3	6.2	20	E	20	89	77	65	86	3	11	9	1	2	0	26	36	6.6
HONOLULU WSD 703	5	12.6	14.1	29	NE	24	72	65	54	67	13	7	1	0	0	0	21	78	4.4
KAHULUI WSD 398	5	11.4	12.6	29	E	19	83	70	52	73	7	5	0	0	0	0	12	81	3.5
LIHUE WSD 1020.1	6	10.5	12.1	22	NE	24	77	71	64	73	7	11	3	0	0	0	21	70	5.5

DAILY TEMPERATURES

HAWAII MAY 1971

Continued

Station		Day of Month																															Average	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
LAHAINA 361	MAX MIN	80 66	80 67	84 67	85 67	86 67	82 67	85 68	85 68	85 66	85 68	84 68	84 64	86 66	85 65	85 66	86 66	85 66	85 66	86 66	86 66	87 66	86 66	86 65	86 65	87 64	85 66	86 66	85 65	85 66	86 67	86 66	84.9 66.3	
WAILUKU 386	MAX MIN			79 66	79 69	78 69	78 69	79 68	79 68			80 63	80 66	81 68	81 67	80 70			83 68	83 70	81 69	82 69	81 70			79 67	79 68	79 69	79 68	80 68				
* * *																																		
ISLAND OF HAWAII																																		
HALENA 214	MAX MIN	79 62	78 64	79 66	80 64	79 63	79 64	80 63	79 62	80 61	80 63	80 61	81 63	79 61	80 63	79 66	81 65	80 65	80 63	81 67	79 67	80 67	79 67	80 67	80 65	80 65	80 62	80 65	81 66	80 67	79 66	79 66	79.7 64.0	
HAWAII VOLCNS NP HO 54	MAX MIN	62 53	65 55	67 53	66 52	62 51	65 51	66 52	65 49	66 48	65 48	68 44	67 49	70 49	69 48	68 54	71 52	71 54	71 54	68 52	65 53	63 49	67 49	69 52	63 49	66 51	66 52	66 49	67 51	64 52	64 53	64 52	66.7 51.2	
HILLO WSD 87	MAX MIN	78 63	82 66	82 65	80 62	81 60	80 61	79 64	79 61	80 60	82 59	82 61	82 62	79 63	84 63	84 66	83 66	83 66	83 66	79 66	83 69	80 64	80 64	79 65	80 65	79 64	80 65	81 62	79 65	79 61	79 61	80.9 63.5		
KAINALIU 73.2	MAX MIN	74 62	72 64	72 61	76 60	74 61	76 60	75 60	75 59	75 59	74 58	75 60	75 60	73 61	77 62	79 61	77 62	76 63	75 63	76 64	76 62	77 62	76 62	75 66	75 66	75 67	74 61	75 61	74 61	77 61	77 62	75.5 61.0		
KAMUELA 192.2	MAX MIN	70 54	74 55	72 57	72 57	72 58	72 57	71 58	72 57	70 46	74 45	75 45	76 48	71 50	77 51	77 53	74 50	78 52	76 55	74 55	75 57	69 57	74 57	72 56	70 56	69 65	71 57	71 62	72 58	71 57	72 57	72.7 53.9		
KEAAU 92	MAX MIN	74 65	77 66	78 66	79 64	78 63	78 63	77 62	77 61	77 61	78 60	79 60	79 63	80 63	78 66	79 64	82 65	80 64	80 64	80 65	80 64	78 64	79 63	78 63	78 63	78 64	78 62	78 64	78 64	79 64	79 65	78.2 63.7		
KEALAKEUA 26.2	MAX MIN	72 64	73 64	72 62	76 61	74 61	77 61	76 60	77 59	77 59	74 59	74 61	75 59	76 61	81 62	81 61	76 63	75 65	77 63	76 63	76 63	76 63	76 60	76 61	76 60	76 61	76 62	76 62	76 62	77 62	78 63	77.8 61.6		
KOHALA MISSION 175.1	MAX MIN	77 65	77 65	78 65	78 65	76 65	77 65	77 65	76 61	77 65	78 65	81 62	81 66	79 67	80 65	80 66	79 66	80 66	80 66	79 66	79 66	79 66	78 66	79 66	78 66	78 66	78 66	78 66	79 66	79 66	79 66	78.3 64.9		
KONA (KAILUA) 68.3	MAX MIN			84 67	83 69	80 69	83 68	83 69			83 64	83 68	80 68	82 68	88 69			85 68		83 70	80 69	86 66				83 65	82 68	82 67	83 69	81 70		83 69		
KULANI CAMP 79	MAX MIN	72 45	59 49	61 50	61 48	61 44	54 45	61 45	59 44	59 41	61 44	62 45	62 46	53 44	53 41	53 44	67 43	67 44	65 50	65 49	64 48	64 48	66 48	62 45	62 45	61 45	61 46	61 47	60 48	61 49	59 48	61.9 46.0		
MAUNA LOA SLOPE OBS	MAX MIN	52 38	48 34	51 32	51 32	52 31	52 30	48 30	45 28	46 27	51 32	54 35	58 38	52 35	53 38	57 35	54 37	55 35	52 34	55 33	50 32	49 33	55 33	55 33	55 34	54 33	56 33	53 34	53 33	48 32	48 33	51.8 33.2		
MOUNTAIN VIEW 91	MAX MIN	75 60	75 60	75 60	75 58	70 58	74 57	74 59	77 54	77 54	77 54	76 56	78 54	77 59	79 59	79 59	79 60	78 61	78 62	78 62	78 62	79 61	79 61	78 62	78 62	78 62	78 62	78 62	78 62	78 61	79 61	78.7 58.5		
NAALEHU 14	MAX MIN	72 66	76 65	76 65	76 67	76 65	76 63	76 63	76 63	76 60	76 60	77 64	77 64	77 65	77 68	77 68	78 65	78 65	78 67	78 67	78 64	78 64	77 64	77 63	77 63	77 63	77 66	77 66	77 66	77 66	78 66	78 67	76.5 64.8	
ODKALA 223	MAX MIN	76 66	78 63	80 66	79 64	78 64	77 64	78 67	78 67	78 62	78 62	78 65	78 62	78 66	78 66	79 65	79 65	79 65	79 65	79 65	79 63	78 64	78 64	78 63	78 63	78 63	78 63	78 63	79 64	79 65	79 65	78.4 64.1		
OPIHIHALE 2 24.1	MAX MIN	73 63	76 62	76 59	72 58	73 58	77 59	77 59	77 58	77 58	78 58	73 59	76 58	76 58	77 61	75 61	75 61	81 59	81 59	81 59	75 61	76 61	75 61	75.8 59.6										
PAHALA 21	MAX MIN			76 61	80 62	78 61	77 60	77 61	79 61			77 57	77 57	76 58	77 58	78 60			79 60	78 65	78 66	79 60												
PUAKO 95.1	MAX MIN	83 68	84 69	84 68	87 80	85 70	84 70	85 68	85 65	84 65	84 65	83 62	83 62	87 67	87 68	86 68	83 65	85 69	84.7 68.1															
UPOLU POINT USCG 159.2	MAX MIN	80 70	79 71	80 81	80 69	79 61	81 67	79 69	80 69	80 69	82 70	83 66	82 67	81 68	83 69	82 67	83 67	83 67	83 67	80 67	80 68	80 68	82 67	80 68	80 68	80 68	80 68	80 68	81 66	80 66	82 66	81 66	80.8 68.6	
WAIMEA KOHALA	MAX MIN	72 52	72 54	71 58	72 55	71 55	72 55	72 55	71 55	72 54	74 46	74 45	74 54	73 50	72 47	73 47	75 47	78 47	76 47	76.3 52.2														

EVAPORATION AND WIND

Station		Day Of Month																															Total or Avg.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
* * * ISLAND OF KAUAI																																			
LIIHUE WSD 1020.1	EVAP WIND MAX MIN	.17 137 86 63	.06 24 73 60	.29 * 84 61	.33 * 83 63	.31 157 83 63	.57 150 84 63	.31 133 85 62	.30 96 86 60	.24 59 86 58	.18 52 84 59	.30 69 88 61	.26 144 87 63	.33 128 86 63	.37 160 86 63	.32 124 88 64	.33 167 85 65	.33 149 85 64	.28 157 85 64	.35 204 84 64	.49 209 82 64	.45 159 82 63	.40 201 82 64	*	.59 451 84 62	.35 216 80 62	.32 168 85 62	.45 209 83 61	.41 226 83 62	.39 80 83 62	.28 139 88 63	- 105 85 62	10.098 4273 84.3 62.1		
* * * ISLAND OF OAHU																																			
HONOLULU OBSERV 702.2	EVAP WIND MAX MIN	.19 26 82 65	.03 4 75 64	.19 26 86 64	.26 41 90 64	.30 35 88 63	.21 33 89 63	.30 31 91 63	.26 26 89 63	.27 24 89 63	.26 25 92 63	.25 20 93 64	.26 29 92 64	.29 31 87 65	.26 38 90 65	.26 30 89 67	.30 34 91 67	.30 24 90 67	.25 29 87 67	.15 28 87 65	.32 40 82 65	.35 40 88 65	.34 30 92 63	.34 35 88 65	.31 38 91 64	.36 49 90 64	.30 42 91 64	.34 31 90 64	.33 48 89 64	.39 71 89 66	.28 35 89 65	.32 29 90 65	8.44 984 88.7 64.6		

See Reference Notes Following Station Index

STATION INDEX

HAWAII 1971

Table with columns: STATION, DIVISION, DISTRICT, OBSERVATION TIME AND TABLES, OBSERVER, STATION, DIVISION, DISTRICT, OBSERVATION TIME AND TABLES, OBSERVER. Includes sub-headers for INDEX NO., DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, TEMP, PRECIP, EVAP, SPECIAL, and various station names like 'MC BRIDE SUGAR CO.', 'HAWAIIAN SUGAR CO.', etc.

STATION INDEX

HAWAII
MAY 1971

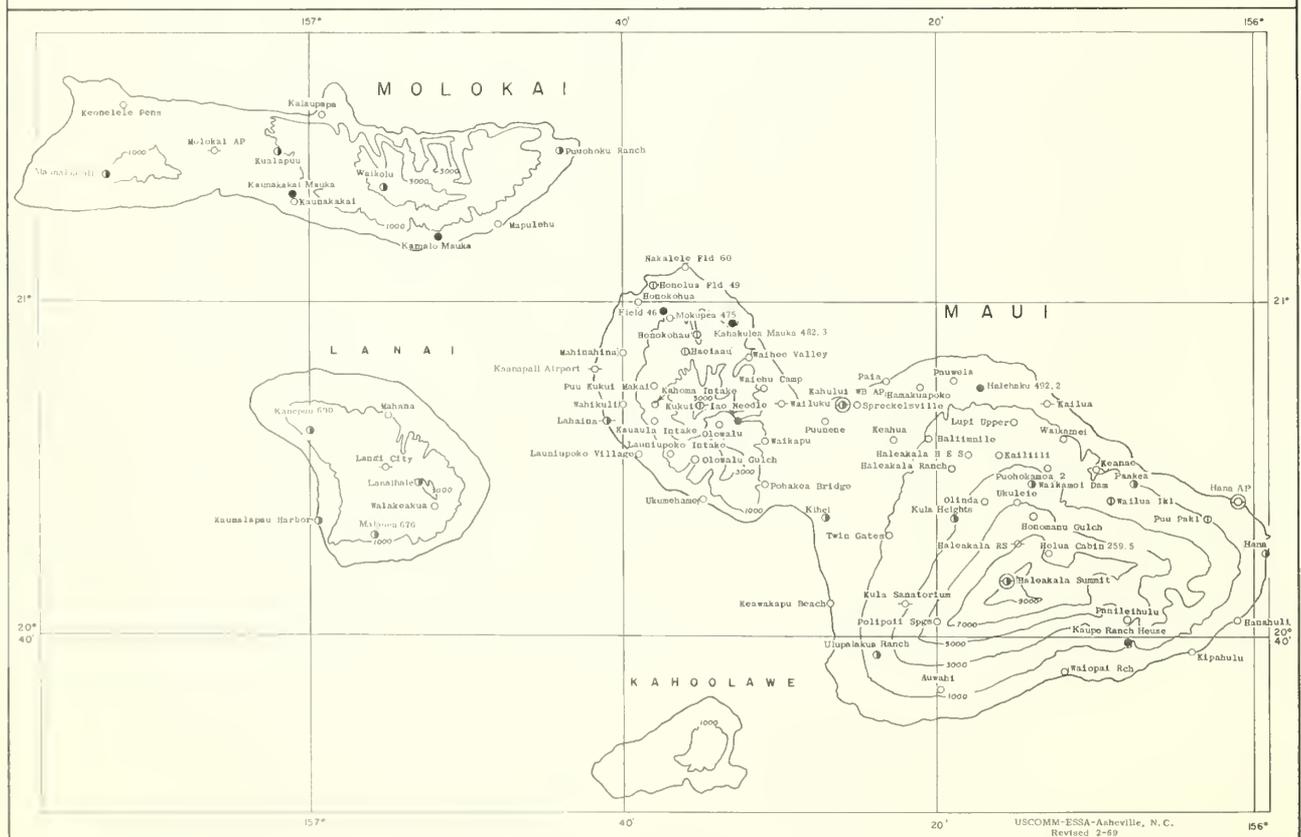
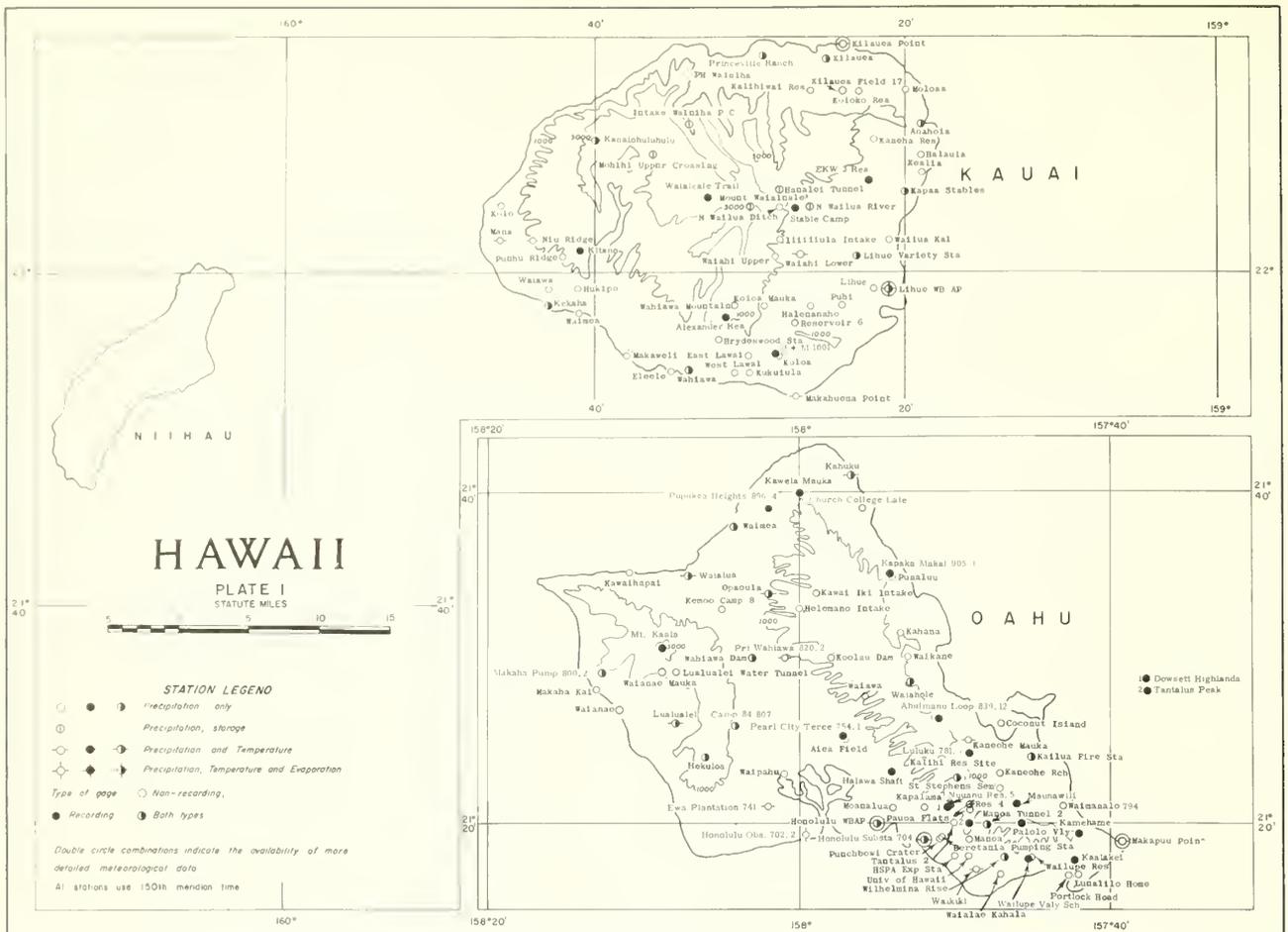
CONTINUED

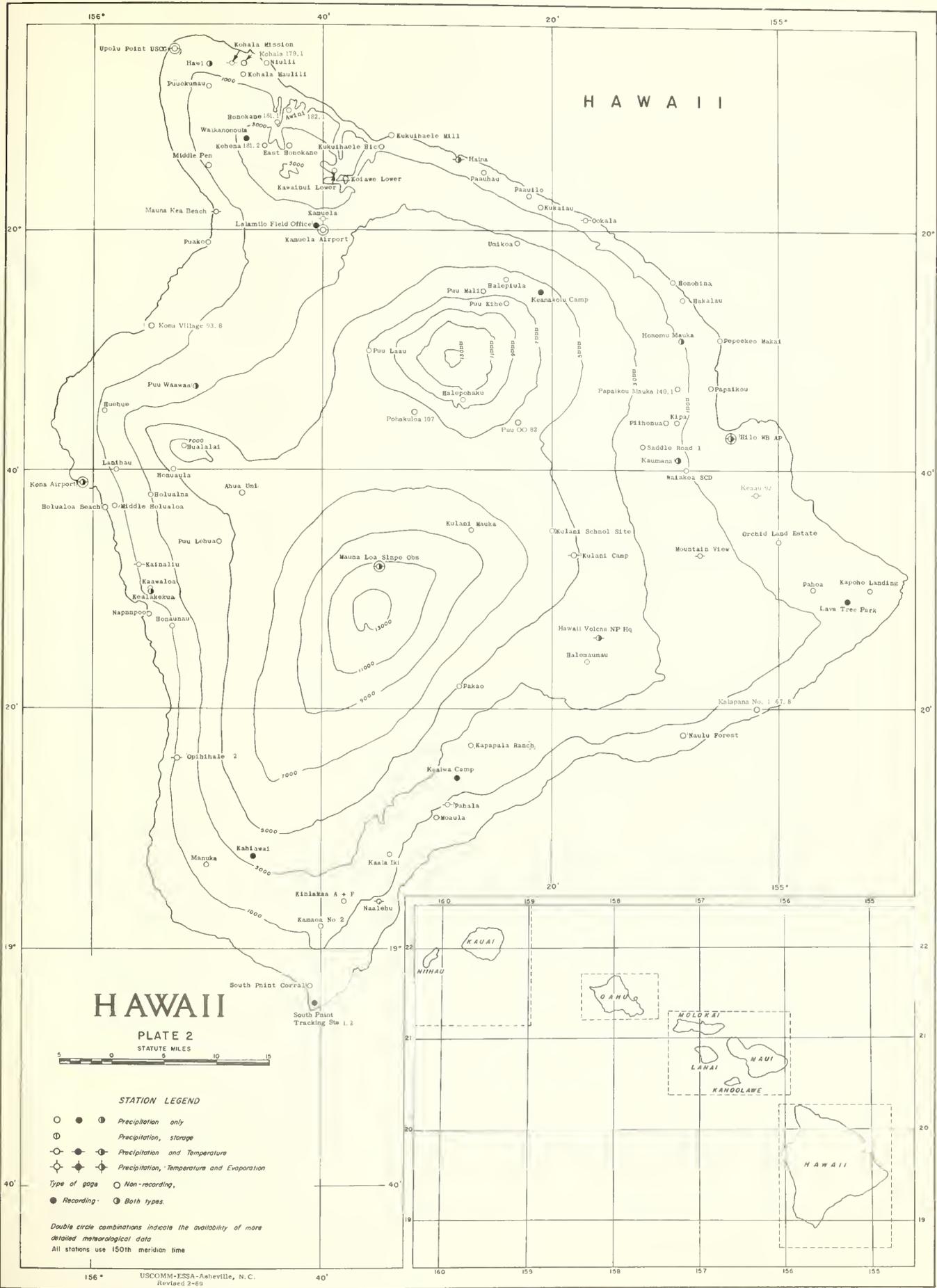
STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER				
								TEMP.	PRECIP.	EVAP.	SPECIAL										TEMP.	PRECIP.	EVAP.	SPECIAL					
ISLAND OF HAWAII																													
MIDDLE PEN 147.1	A 627	01	N KOHALA	1 20 06	155 50	1380		VAR				KAHUA RANCH	UPOLO POINT USCG 159.2	883	01	N KOHALA	1 20 15	155 53	61	8A	8					U S COAST GUARD			
MOHILA 19	A 640	01	KAU	3 19 11	155 30	800		7A				HAWAIIAN RANCH CO	WAIKAPA SCV 88.2	9025	02	S HILO	2 19 40	155 06	1050	7A	7					SHINICHI KANESHIRO			
MOUNTAIN VIEW 91	A 658	02	PUNA	2 19 33	155 07	1530	6A	6A				PUNA SUGAR CO	WAIKANDOUA 178.6	9350	01	N KOHALA	1 20 08	155 47	3630	8A	8					KAHUA RANCH			
NAALEHU 14	A 689	04	S KOHA	3 19 04	155 35	673	8A	6A				HUTCHINSON SUGAR CO	CLOSED STATIONS	9550	05	S KOHALA	5 20 00	155 40	2665	8A	8					HAWAIIAN AIRLINES			
NARDOPPO 23	A 689	04	S KOHA	3 19 04	155 35	673	8A	6A				HUTCHINSON SUGAR CO	ISLAND OF OAHU																
NAULU FOREST 38.6	A 673	02	PUNA	2 19 19	155 09	1400		VAR				HAWAII VOLCANOES NAT PK																	
NIULII 179	A 680	01	N KOHALA	1 20 14	155 45	75		6A				KOHALA SUGAR CO																	
OPIMHALE 2 24.1	7131	02	N HILO	2 20 03	155 17	430	7A	7A				LAIPANOHU SUGAR CO	PUNALUU 884	831	01	KOOLAUPA	1 21 35	157 54	40	8	8						CLOSED 5/31/71		
ORCHID LAGO EST 91.5	A 718	02	PUNA	4 19 16	155 53	1270	7A	7A				MISS C LEONARD																	
	A 718	02	PUNA	2 19 34	155 00	445		VAR				ROARO OF WATER SUPPLY																	
PAALUHU 217	7204	01	HAWAIIA	1 20 05	155 26	415		7A				PAALUHU SUGAR CO																	
PAALUHU 221	7312	01	HAWAIIA	1 20 08	155 22	800		7A				HAWAIIAN MILL CO																	
PAHALA 21	A 7421	03	KAU	3 19 12	155 29	870	8A	6A				HAWAIIAN RANCH CO																	
PAHOA 65	7457	02	PUNA	2 19 30	154 57	670		6A				PUNA SUGAR COMPANY																	
PAKAO 37	A 7643	23	KAU	3 19 22	155 28	5000		7A				HAWAIIAN RANCH CO, INC.																	
PAPAIOU 144.1	7711	02	S HILO	2 19 47	155 00	200		7A				MAUNA KEA SUGAR CO.																	
PAPAIOU MAUNA 140.1	7721	02	S HILO	2 19 47	155 08	1270		7A				MAUNA KEA SUGAR CO.																	
PEPEKOU MAKA 144	800	02	S HILO	2 19 51	155 05	100		7A				PEPEKOU SUGAR CO																	
PIIHONUA 89	A 8051	02	S HILO	2 19 44	155 10	1730		VAR				STATE DIV OF FORESTRY																	
POHAOUKA 107	A 8063	02	HAWAIIA	2 19 45	155 32	6511		VAR				STATE DIVISION OF PARKS																	
PUNAO 95.1	A 8136	05	KOHALA	5 19 59	155 50	5	8A	8A				ERWIN H. RAPP																	
PUU HINE 120	A 8393	01	HAWAIIA	1 19 24	155 24	7750						KURIAU RANCH CO																	
PUU LAAI 102.1	A 8452	05	HAWAIIA	5 19 50	155 30	7440						STATE DIV OF FISH-GAME																	
PUU LEHIA 73	A 8460	04	N KOHA	4 19 34	155 49	4880						GREENWELL RANCH																	
PUU MAUI 113	A 8515	01	HAWAIIA	1 19 55	155 26	6940						KURIAU RANCH CO																	
PUU OI 42	A 8530	02	S HILO	2 19 44	155 23	6340						ODN WINTERS																	
PUU WAHAA 94.1	A 8558	05	N KOHA	5 19 47	155 51	2320		6A				BILLINGHAM RANCH INC																	
SADOLE ROAD 1 84	A 8590	02	S HILO	2 19 42	155 12	2340						BUSHN OF WTR SUPPLY																	
SOUTH POINT CORRAL 3	A 8675	03	KAU	3 18 57	155 41	500						HAWAIIAN RANCH COMPANY																	
UHIKA 118	A 8780	01	HAWAIIA	1 19 59	155 23	3420		7A				KURIAU RANCH CO																	

↑ DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN 5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN 2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

- Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII".
- DIMENSIONAL UNITS.** Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in F° , precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are tens of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.
- OBSERVATION TIME.** Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.
- EVAPORATION** is measured in the standard Weather Bureau type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extremes of temperature of water in pan as recorded during 24 hours ending at time of observation. Wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 6-8 inches above the pan.
- NORMALS** for all stations are climatological standard normals based on the period 1931-1960.
- STATION NAMES.** Hawaii state key numbers are included following station names in the several tables.
- DELAYED DATA AND CORRECTIONS** will be carried only in the June and December issues of this bulletin.
- INTERPOLATED VALUES** for monthly precipitation totals may be found in the annual issue of this publication.
- IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:**
- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, and the Station Index.
 - No record in the "Monthly Summarized Data" table and the "Daily Temperature" table is indicated by no entry.
 - + And also on an earlier date or dates
 - ++ Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data
 - * Amount included in following measurement, time distribution unknown
 - A The letter "A" shown following station name in "Climatological Data" table, "Daily Precipitation" table, and "Station Index", indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
 - B Adjusted to a full month.
 - J "Supplemental Data" table.
 - M One or more days of record missing, if average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
 - R Amounts from recording gage.
 - T Trace, an amount too small to measure.
 - V Includes total for previous month.
- IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:**
- AR Observation made after rain.
 - C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Climatological Data" bulletin they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
 - MO Gage read once monthly, usually on the last day.
 - OC Gage readings at periods varying from a few weeks to several months.
 - S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as delayed data in the June issue of this publication.
 - SS Observation time is near sunset.
 - VAR Observation time is variable.
 - WI Gage read weekly or irregularly only.
 - WM Gage read weekly and last day of month.
 - * Thermometers are generally exposed in a shelter located a few feet above sod-covered ground, however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.
- Stations appearing in the tables with no data were either missing or received too late to be included in this issue.
- General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.
- Information concerning the history of changes in locations, elevations, exposure, etc., of substations through 1957 may be found in the publication "Substation History" for this State, price 40 cents. Similar information for regular Weather Bureau stations may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.
- Subscription Price. 20 cents per copy, monthly and annual, \$2.50 per year. (Yearly subscription includes the Annual Summary.) Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.





HAWAII

PLATE 2
STATUTE MILES



STATION LEGEND

- ● ○ Precipitation only
- ○ Precipitation, storage
- ● ○ Precipitation and Temperature
- ● ○ Precipitation, Temperature and Evaporation
- Type of gage ○ Non-recording, ● Recording
- ○ Both types.

Double circle combinations indicate the availability of more detailed meteorological data.
All stations use 150th meridian time

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature										Precipitation											
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days		
									Max.		Min.						Total	Max. Depth on Ground	Date	.10 or More	.30 or More	1.00 or More
									90° or Above	32° or Below	32° or Below	90° or Below										
KEALAKEKUA 26.2	76.8	62.7	69.8		80	17	60	30+	0	0	0	0	2.38		1.10	30	.0	0		7	1	1
KONA (KAILUA) 68.3	83.5M	69.3M	76.4M		87	3	68	30+	0	0	0	0	.53				.0	0		0	0	0
KUKUIHAELE HIC 199													.86	- 2.18	.31	11	.0	0		2	0	0
KULANI CAMP 79	62.6	45.4	54.0		75	21	40	30+	0	0	0	0	.78		.14	3	.0	0		3	0	0
PAHALA 21	79.2M	61.5M	70.4M	- 1.8	83	28	58	14	0	0	0	0	.19	- 1.14	.14	29	.0	0		1	0	0
POMAKULOA 107													.09				.0	0		0	0	0
PAKAO 95.1													T		T	25	.0	0		0	0	0
PUU WAAWAA 94.1													.04	- 2.08	.04	4	.0	0		0	0	0
UMIKOA 118													.17	- 1.53	.08	11	.0	0		0	0	0
WAIKAEA SCO 88.2													4.34		.73	3	.0	0		10	3	0
WAIKAEA KOHALA	73.1M	54.8M	64.0M		76	30+	46	13	0	0	0	0	.40		.14	14	.0	0		1	0	0
ISLAND			69.4										1.22				.0					

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 92° ON THE 2D AT KEAWAKAPU BEACH 260.2, MAUI

LOWEST TEMPERATURE: 29° ON THE 2D AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 15.27 INCHES AT MOUNT WAIKAELE 1047, KAUAI

LEAST TOTAL PRECIPITATION: .00 AT 11 STATIONS

GREATEST ONE-DAY PRECIPITATION: 6.18 INCHES ON THE 15TH AT PAUOA FLATS 784, OAHU

SPECIAL WEATHER SUMMARY

June presented the curious picture of record-breaking rains in some areas and a worsening dry spell in others. However, as in previous dry periods, water shortages and their adverse effects were not particularly widespread, but were being felt in only a few localities.

Except for mid-month rains in parts of Kauai, Oahu, and Maui, the dry conditions of May continued unabated through June. On northern and central Kauai, throughout Maui (except along the southwestern coast, where several gages recorded 4 to 7 times their monthly means), and on all of Lanai and Hawaii Island, only a few stations received even half their average rainfall for June, while many had less than one-fourth.

By the end of the month the following effects were being noted:

1. Soil moisture was depleted and pasture conditions poor, especially on ranches in Hawaii Island's Hamakua District, where forage was low and in some places being supplemented by grain -- for example, in the Ahualoa, Paauilo, Honokaa, Kukuihaele, and Kukaiau areas. Some herds were being thinned to stretch out feed, and a few ranches and dairies were hauling in water for stock.

2. Also in Hamakua, where most sugarcane (a 2-year crop in Hawaii) is unirrigated, its growth had been retarded and damage to next year's crop was feared.

3. Crops in unirrigated fields were showing moisture stress and irrigation water was below normal.

4. The dry conditions had extended from Hamakua northward and westward into Kohala and into Kona. In the latter area, unlike most of the State, summer is the wetter season whose rains usually green the pastures, ranchers were pumping county water.

5. In east Maui's Hana area, known for its lush greenery, Wai'anapanapa State Park was closed for lack of water and water was being hauled to a large pigery.

On the 15th, an unseasonably late cold front that swept in from the northwest, and a low pressure center that formed 600 miles north-northeast of Honolulu, in the front's convergence zone with the surface trough of low pres-

sure over the northern islands, brought steady rains to Kauai, Oahu, and central Maui.

Rainfall was heaviest on Oahu, where several records for 24-hour and monthly accumulations were broken. Honolulu Airport received 2.39 inches during the storm and 2.46 inches for the month as a whole, in contrast with its June average and previous maximum (in 25 years of record) of 0.33 inches and 2.43 inches, respectively.

Downtown Honolulu's 3.20 inches in 24 hours exceeded its previous 68-year record of 1.23 inches, and the June total, 3.49 inches, was second only to the 4.26 inches registered by that station in June 1913.

Also on Oahu, Maunawili, a windward (eastern) locality, recorded 6.25 inches between 6 a.m. on the 15th and 4 p.m. on the 16th. Lualualei, a normally dry leeward (western) station, whose June rainfall averages only 0.76 inches, recorded 4.90 inches between 2 a.m. on the 15th and 6 p.m. on the 16th.

On Kauai, the 2.17 inches that fell at Lihue Airport in 24 hours, surpassed that station's previous 24-hour rainfall of 1.65 inches, established over a 21-year period of record.

At 1:05 p.m. on the 15th, a squall, suspected to have been a waterspout-tornado, probably spawned from clouds associated with the trough of low pressure than over Oahu, moved onshore from Keehi Lagoon and travelled east-northeastward through and over the industrial area of Oahu's Kalihi-Kai peninsula. Tracing out a short, straight path about 15 yards wide, the "waterspout-tornado" tore out sections of the sheet metal roof and wall and buckled the steel I beam along the wall of a large warehouse, flipped over a large sheet metal open-walled structure in the adjoining yard, causing an estimated \$30,000 in damage, and ended its career about a half mile inland, where it blew off a roof's sheet metal eave 100 feet above street level. Although no funnel was seen, workers caught in the junk yard as the "waterspout-tornado" passed over reported heavy rain, "roaring" noises and material whirling upwards.

As shown below, a number of gages with long periods of record had more rain than in any previous June, while an even greater number, principally on Hawaii Island, had their driest June of record.

H A W A I I - J U N E 1 9 7 1
SPECIAL WEATHER SUMMARY - Continued

Stations With More Rain in June 1971
Than in Any Previous June

(25 years of record or more, only)

Station	Length of Record (Yrs.)	Previous Greatest June Total (Inches)	June 1971 (Inches)
<u>OAHU</u>			
HSPA Experiment Station	54	3.71	4.18
Lualualei	47	3.93	5.14
St. Stephens Seminary	29	6.91	7.02
Waianae	81	3.16	3.53

Stations With Less Rain in June 1971
Than in Any Previous June

(25 years of record or more, only)

Station	Length of Record (Yrs.)	Previous Least June Total	June 1971
<u>MAUI</u>			
Honomanu Gulch	38	0.10	0.00
<u>HAWAII</u>			
Kaawaloa	71	2.36	1.62
Kainaliu	41	3.30	2.15
Lanikai	29	2.28	1.85
Manuka 2	43	0.70	T
Napoopoo	70	1.19	0.84
Papaikou Mauka	46	5.25	5.08

Saul Price
Regional Climatologist for Pacific Region
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
Acting Climatologist for Hawaii
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY PRECIPITATION

HAWAII JUNE 1971

Table with columns for Station, Total, and Day of Month (1-31). Rows include stations like ANAHOA 1114, HALAU 1110, KILAUEA FIELD 17 1139, etc.

See reference notes following Station Index

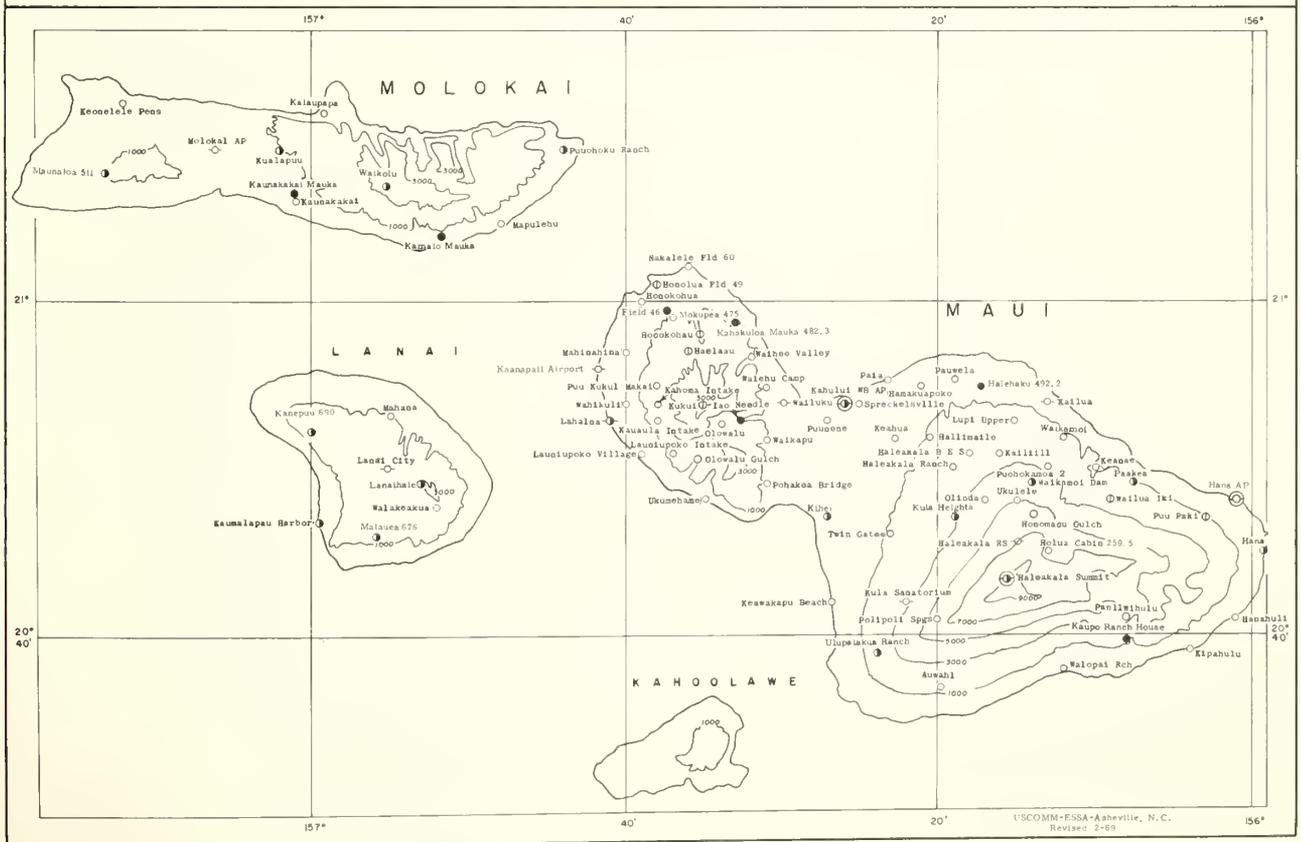
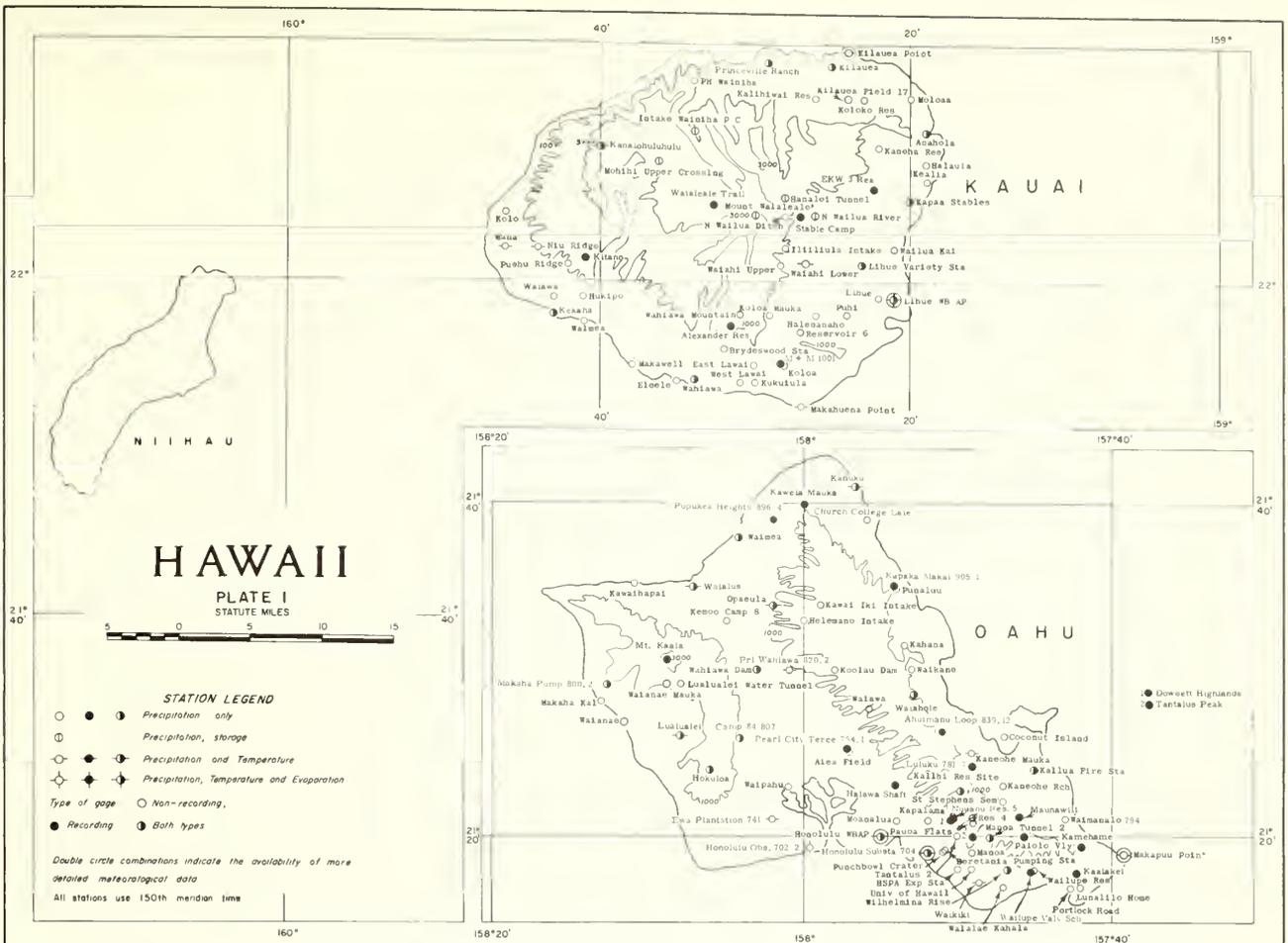
DAILY PRECIPITATION

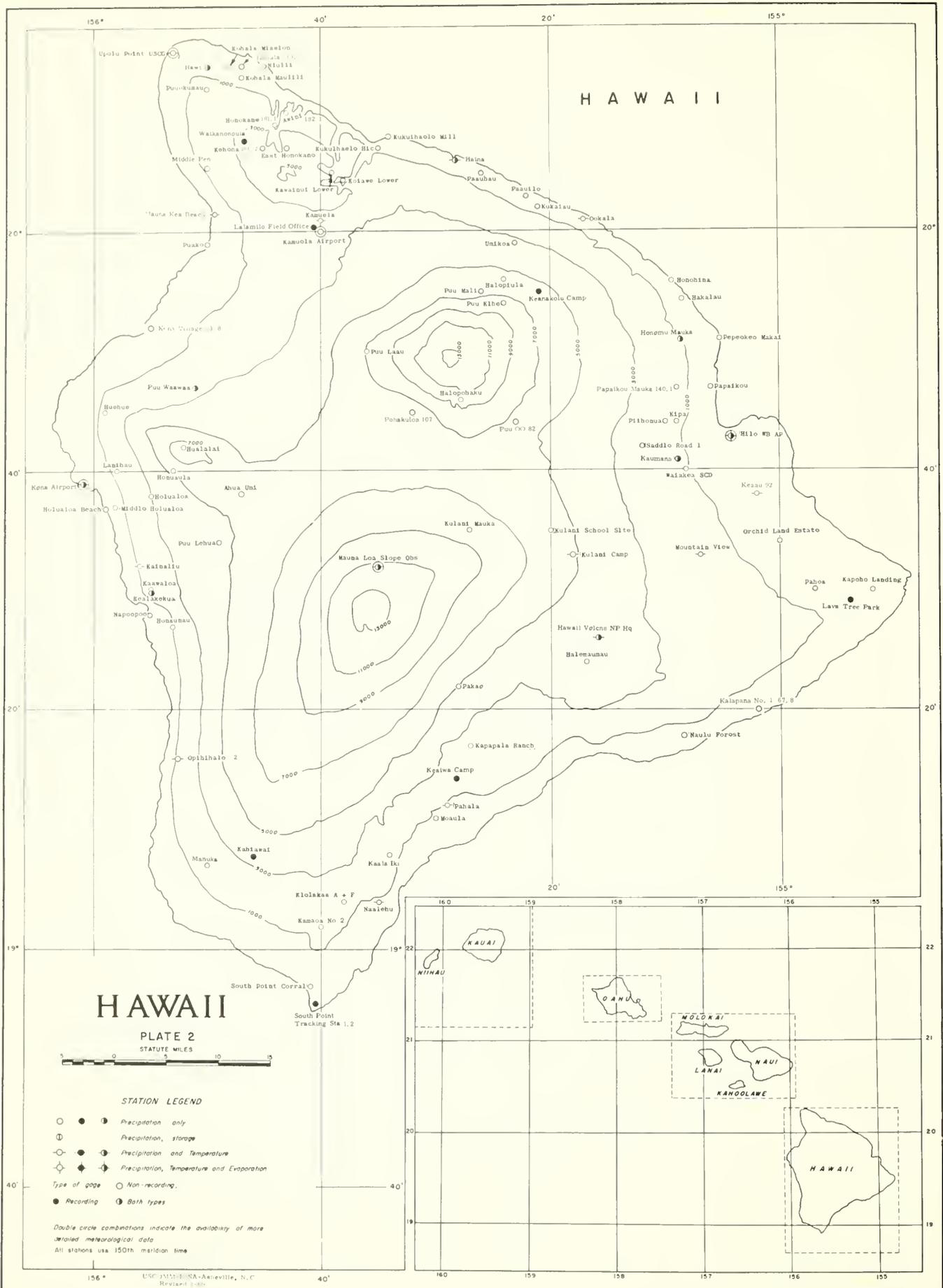
HAWAII
LATE REPORTS

Station	Total	Day of Month																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
• • • JANUARY 1971 MOUNT WAIALEALE 1047	30.73	.55		.87	1.93	.71		1.06	.39	.39	1.10	.28	.31	1.69	1.69	.43	.04			.83	1.65	1.06	.04				2.36	4.92	.79	.04		7.60
• • • FEBRUARY 1971 MOUNT WAIALEALE 1047	12.81	.16	.43	.24	.12	.08	.04							.24	1.22			.12	2.20	.35	.24	.59	2.09	3.07	.20		.16	1.26				

CORRECTIONS

DATE	TABLE	STATION	CORRECTIONS
MAY 1971	ISLAND OF MAUI DAILY PRECIPITATION	PUHOHOKAMOA 2343	TOTAL 69.40, 12TH 55.60
ANNUAL SUMMARY 1970	ISLAND OF HAWAII TOTAL PRECIPITATION & DEPARTURES FROM NORMAL	DIVISION	DELETE ANNUAL PRECIPITATION DEPARTURE





HAWAII

HAWAII

PLATE 2
STATUTE MILES

STATION LEGEND

- ● ● Precipitation only
- ⊕ Precipitation, storage
- ● ● Precipitation and Temperature
- ● ● Precipitation, Temperature and Evaporation
- Type of gage ○ Non-recording
- Recording ⊕ Both types

Double circle combinations indicate the availability of more detailed meteorological data.
All stations use 150th meridian time.

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation												
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days			
										Max.		Min.						Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More	
										80° or Above	31° or Below	32° or Below	Any Snow											
KEAAU 92	80.6	66.3	73.5	- .9	83	30+	64	27+		0	0	0	0	5.54	- 4.60	1.08	30	.0	0		14	4	1	
KEALAKEKUA 26.2	77.0	64.3	70.7		81	14	60	1		0	0	0	0	7.56		1.18	27	.0	0		16	4	3	
KONA (KAILUA) 68.3	83.9M	70.6M	77.3M		85	28+	68	28+		0	0	0	0	3.02		.0	0	.0	0		7	3	0	
KUKUIHAELE HIC 199					70	13	42	30+		0	0	0	0	3.26	- 2.28	.98	13	.0	0		12	3	3	
KULANI CAMP 79	62.7	47.6	55.2											7.92		2.02	30	.0	0					
PAHALA 21					87	13	60	27+		0	0	0	0	1.24	- .28	.00		.0	0				0	0
POHAKULOA 107														.00		.00		.0	0				0	0
PUAKO 95.1					89	12+	66	19		0	0	0	0	.03		.02	30	.0	0				0	0
PUU WAAWAA 94.1	86.5	71.1	78.8											2.75	.65	2.18	15	.0	0				3	1
UMIKOA 118														3.08	.09	.98	30	.0	0				5	3
WAIKAE SCD 88.2														11.56		2.80	30	.0	0		17	6	4	
ISLAND			71.0											4.37				.0						

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 91° ON THE 9+ AT 2 STATIONS

LOWEST TEMPERATURE: 31° ON THE 1ST AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 16.65 INCHES AT MOUNT WAIKAELE 1047, KAUAI

LEAST TOTAL PRECIPITATION: .00 AT 17 STATIONS

GREATEST ONE-DAY PRECIPITATION: 4.71 INCHES ON THE 15TH AT LANIHAU 68.2, HAWAII

SPECIAL WEATHER SUMMARY

In most of the State dry weather continued, with some areas reporting their fifth or sixth successive month of below-normal rainfall. Meanwhile, a succession of tropical storms approaching the islands from the east held out, at the same time, the hope of needed rain and the threat of destructive winds and floods.

DENISE, the first of these storms, formed in the warm waters off Central America, birthplace for many of the Eastern Pacific's tropical storms, and travelled westward toward Hawaii, covering 3,400 miles in 9 days. En route, she grew to a full-fledged hurricane, attaining maximum winds of 135 m.p.h. on the evening of the 8th, but then weakened rapidly, and at her closest approach to the State, 150 miles south of Hawaii Island on the 13th, was but a shadow of her former self. Nevertheless, DENISE's moisture-laden clouds reaching northward to Hawaii Island brought more than an inch of rain to the Hamakua District's parched pastures and sugar plantations, while in the Kailua-Kona area, flooding streams blocked Kuakini Highway, Alii Drive, and Middle Road and stranded motorists.

Tropical Storm ELEANOR came hard on the heels of DENISE, but never attained full hurricane strength before dying on the 11th, still some distance east of the islands.

In their life cycles and tracks, DENISE and ELEANOR closely resembled Hurricanes LORRAINE and MAGGIE, which had threatened Hawaii in August 1970, nearly a year earlier.

Beneficiaries of Hurricane DENISE, other than the farmers and ranchers of Hawaii Island, were Sheila Scott, a British aviatrix flying solo around the world, and Windward Passage, winner of the Transpacific Yacht Race -- both of whom, bound

from San Francisco to Honolulu, were helped on their way by the strong easterly winds along DENISE's northern fringe.

Except in the Anahola to Kealia coastal strip in eastern Kauai, the Launiupoko area in southwestern Maui, and parts of Hawaii Island, the month's rainfall was everywhere well below normal, with most gages on Oahu, Molokai, Lanai, and Maui reporting less than half, and many less than a quarter, of their July means. On Hawaii Island, despite DENISE's beneficial rains, and another inch or so which further improved pasture conditions in the Hamakua District on the 29th, monthly totals in the Kohala, Hamakua, and Hilo Districts were still below normal, and only a few gages in Kona, Kau, and at middle elevations on Mauna Loa exceeded their July average.

By month's end heavy supplementary feeding was still needed in Hamakua and, except for parts of North Kona, all other pasture areas in Hawaii Island were also in need of rain. In Maui's Upper Kula District, water storage facilities were almost empty, with little inflow from supply sources, and supplementary water was being pumped up from Lower Kula. The Kalae area of Molokai was in similar straits, with water being trucked in to the storage facilities.

Also worthy of note was the sighting from Ke-ahole Airport, North Kona, Hawaii Island, on the 30th, of 6 funnel clouds moving northward 10 to 15 miles to the west. The funnels, described as dark and rope-like, were accompanied by rain-showers and appeared to reach the ocean surface from cumulus clouds whose tops and ragged bases were estimated at 5,500 and 1,500 feet, respectively.

Stations With Less Rain in July 1971
than in Any Previous July

(25 years of record or more, only)

Station	Length of Record (Yrs.)	Previous Least July Total	July 1971
		(Inches)	(Inches)
KAUAI			
Iliiliula Intake	37	8.00	7.93
OAHU			
Honolulu Substation (Federal Bldg.)	67	0.13	0.11
HSPA Experiment Station	54	0.63	0.32

SPECIAL WEATHER SUMMARY - Continued

Stations With Less Rain in July 1971
than in Any Previous July

(25 years of record or more, only)

Station	Length of Record (Yrs.)	Previous Least July Total	July 1971
OAHU - Continued		(Inches)	(Inches)
Kahuku	81	0.78	0.46
Kalihi Reservoir Site	44	2.70	2.24
Kapalama	50	1.35	0.50
Manoa Tunnel 2	44	5.07	3.08
Nuuanu Reservoir 4	67	3.66	2.42
Palolo Valley	44	4.55	2.86
Pauoa Flats	46	5.94	4.38
St. Stephen's Seminary	29	2.45	1.18
Waikane	56	4.52	3.95
MOLOKAI			
MaunaIoia	45	0.25	0.04
HAWAII			
Hilo Airport	29	4.25	4.13

Saul Price
Regional Climatologist for Pacific Region
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
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STATION INDEX

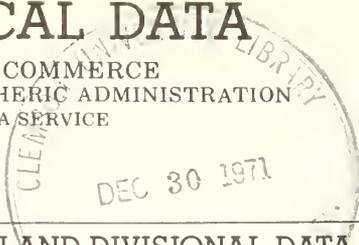
HAWAII JULY 1971

Main data table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER.

CLIMATOLOGICAL DATA

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ENVIRONMENTAL DATA SERVICE

HAWAII
AUGUST 1971
Volume 67 No. 8



MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature										Precipitation										
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days		Total	Departure From Normal	Greatest Day	Date	Snow, Sleet		No. of Days			
										30° or Above	32° or Above					Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										Max. Show	Min. Show										
ISLAND OF KAUAI																					
ANAHOLA 1114	A																				
KANALOHULUHULU 1075	A	72.9	54.0	63.5		78 31	49 28+				0 0 0 0	1.95	-.94	1.22 10							
KAPAA STABLES 1104	A											3.77		.57 4							
KILAUEA FIELD 17 1135	A											2.60									
KILAUEA POINT 1133	A	81.5	73.0	77.3		84 25	69 4				0 0 0 0	2.97	-4.72	.48 4							
ISLAND OF OAHU																					
KOLOA 936	A											3.08	-3.44								
LIHUE WSD 1020.1	//R	85.8	74.0	79.9	1.5	87 30+	70 9+				0 0 0 0	.87	-1.59	.17 2							
MANA 1026		88.8	67.9	78.4	.1	91 30+	65 26+				13 0 0 0	.42	-.57	.33 11							
N WAILUA OITCH 1051	A											8.50									
PH WAINIHA 1115												3.26	-7.39	1.01 10							
ISLAND OF MAUI																					
PUEHU RIODE 1040												3.50		1.32 8							
WAHIAWA 930	A											1.62	-.90								
WAIHAI LOWER 1054		79.5	65.5	72.5		82 31+	61 28+				0 0 0 0	5.78		1.29 14							
WAIHEA 947												.41	-.63	.41 11							
ISLAND OF HAWAII																					
ISLAND OF MOLOKAI																					
HONOLULU OBSERV 702.2	R	86.5	72.5	79.5	-1	89 28	68 27				0 0 0 0	.26	-.63	-.09 12							
HONOLULU WSD 703	A	84.5M	72.0M	78.3M	.0	86 10	66 27				0 0 0 0	1.46	-1.20								
KANEDHE MAUKA 781	A	83.4	71.3	77.4	.3	89 13	68 7+				0 0 0 0	2.90	-1.39	.88 13							
KODLAU OAM 833	A											6.39	-2.14	1.35 17							
ISLAND OF LANAI																					
LUALUALEI 804	A	87.0	70.8	78.9		90 31	63 17				1 0 0 0	.86		.59 10							
MAKAPUU POINT 724	A	80.4	70.5	75.5		84 11	69 31+				0 0 0 0	.14	-.88	.07 17							
NUUANU RES 4 783	A											2.68	-7.91	.85 8							
OPAEULA 870	A	83.4	64.3	73.9	.9	90 8+	62 29+				2 0 0 0	1.81	-2.30	.86 10							
PAOLO VALLEY 718	R											2.14	-9.60	.44 9							
ISLAND OF HAWAII																					
PRI WAIHANA 820.2	A	85.7	65.0	75.4		90 6	61 7				1 0 0 0	1.30		.61 10							
WAIHANA OAM 863	A											2.56		1.41 10							
WAIHOLE 837	A											4.38	-7.45								
WAIALEE 896.3	A	86.3	64.7	75.5	-1.2	89 29+	62 27+				0 0 0 0	.64	-.74	.29 10							
WAILAUA 847	A																				
WAIKIKI 717.2	A	86.6	71.4	79.0		89 29+	68 28				0 0 0 0	.30		.10 20							
WAIMANALO EXP FARM	A	84.6	71.8	78.2		88 28	68 6				0 0 0 0	1.91	-.77	1.50 10							
WAIPAHU 750	A											.46									
ISLAND OF HAWAII																					
ISLAND OF MAUI																					
HALEAKALA 8 E S 434	A	64.7	45.2	55.0		70 15	38 24				0 0 0 0	1.54	-3.14	.78 17							
HALEAKALA RS 338	A	86.2	65.6	75.9		89 28	62 27				0 0 0 0	.95		.58 17							
MANA AIRPORT 355	A											1.21		.32 14							
HONOKOHU 493	A	84.7	66.5	75.6		88 16	63 5				0 0 0 0	.86	-1.72	.24 18							
KAANAPALI AIRPORT	A											.13		.09 17+							
KAHULUI WSD 398	R	88.1	67.2	77.7	-1.3	92 14	61 31				2 0 0 0	.54	.19	.40 12							
KAILUA 446	A	79.4	66.8	73.1	-1.1	82 10	60 1				0 0 0 0	2.80	-8.51	1.25 17							
KEANAE 346	A											3.10	-18.65								
KIPAHULU 258	A											1.11	-7.35	.39 17							
KULA SANATORIUM 267	A	76.0	57.1	66.6	-1	79 18+	54 28				0 0 0 0	1.40	-.89	1.13 29							
LAHAINA 361	A	87.6	68.2	77.9		89 31+	66 11				0 0 0 0	.20		.22 10							
PAIA 406	A											.61	-1.31	.19 13							
WAILUKU 386	A	82.4M	70.2M	76.3M	-1.7	85 16	67 16+				0 0 0 0	.29	-.57	.13 13							
ISLAND OF HAWAII																					
ISLAND OF HAWAII																					
HAINA 214	A	83.0	66.8	74.9	.4	84 30+	64 10				0 0 0 0	.72	-3.92	.40 16							
HAWAII VOLCONS NP HQ 54	A	71.1	53.2	62.2	-1.4	74 30+	48 9				0 0 0 0	1.86	-5.73	.43 17							
HILO WSD 87	R	85.6	67.6	76.6	.8	91 14	64 31+				1 0 0 0	2.66	-8.79	.97 16							
HUEHUE 92.1	A											1.39	-1.33								
KAINALIU 73.2	A	78.0	62.7	70.4		81 30	60 24				0 0 0 0	2.56	-5.13	.71 10							

See Reference Notes Following Station Index

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII
AUGUST 1971

Continued

Station	Temperature											Precipitation											
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days		
										Max.		Min.						Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										90° or Above	80° or Above	70° or Above	60° or Above										
KEAAU 92	82.5	65.5	74.0	- 1.1	86	15	63	10		0	0	0	0	3.02	- 8.73	.52	31	.0	0		10	1	0
KEALAKEKUA 26.2	78.4	63.8	71.1		82	31	62	28+		0	0	0	0	3.50		1.27	11	.0	0		6	3	1
KONA (KAILUA) 68.3	84.9M	69.8M	77.4M		86	31+	59	4		0	0	0	0	.86		.0	0	.0	0		0	0	0
KUKUIHAELE HIC 199														.88		.0	0	.0	0		3	0	0
KULANI CAMP 79	65.7	46.5	56.1		70	9	42	31+		0	0	0	0	2.81		.75	17	.0	0		8	2	0
PAHALA 21	83.2M	62.6M	72.9M	- 1.1	87	17	61	26+		0	0	0	0	.38	- 2.68	.35	11	.0	0		1	0	0
POHAKULOA 107														.47		.0	0	.0	0		0	0	0
PUAKO 95.1	87.1	70.7	78.9		90	17	67	10		1	0	0	0	.01		.01	14	.0	0		0	0	0
PUU WAAWAA 94.1														4.82	- 2.69	2.55	9	.0	0		4	3	2
UMIKOA 118														.74	- 4.32	.28	16	.0	0		3	0	0
WAIAKEA SCO 88.2														3.57		.80	16	.0	0		9	2	0
ISLAND			71.5											1.89				.0					

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 92° ON THE 18+ AT 2 STATIONS

LOWEST TEMPERATURE: 29° ON THE 8TH AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 10.85 INCHES AT MOUNT WAIALEALE 1047, KAUAI

LEAST TOTAL PRECIPITATION: .00 AT 10 STATIONS

GREATEST ONE-DAY PRECIPITATION: 2.55 INCHES ON THE 9TH AT PUU WAAWAA 94.1, HAWAII

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY

The dry spell of June and July continued unabated through August.

At this season the major source of rainfall is showers which form within the moist trade wind air as it ascends and traverses the mountain barriers of the various islands, and although the trades themselves occurred with their seasonal strength and frequency, the customarily associated showers were, for reasons not well understood, conspicuously light or lacking. Ideal as the resulting warm, sunny weather may have been for recreation, construction, and other outdoor activities, it was most unwelcome to ranching and agriculture, particularly in ordinarily wet areas where sugarcane is grown without irrigation, and to the suppliers and users of domestic water. Hardest hit was East Maui, which, unlike West Maui, is entirely dependent on rainfall, since no ground water has been discovered there, and particularly the Kula area and other sections of Haleakala's relatively dry western and northwestern slopes, for which windward East Maui, with its normally abundant rainfall (over 300 inches a year, in places) serves as a watershed. In some localities, such as Pukalani, shortages appeared to be compounded by the fact that population growth had outstripped water availability. In the Kula area, the water crisis involved about 3,500 people and 10,000 head of cattle, the latter alone consuming about 175,000 gallons daily.

As the month progressed, a number of effects were being noted and actions taken:

1) At Kalae, Molokai, water was being trucked in to 40 families, about 150 people. This had begun July 26.

2) By mid-month, conditions had become critical in the East Maui areas of Kula, Hana, Makawao-Pukalani, Kokomo-Kaupokalua, Haiku-Pauwela, and Haliimaile-Olinda. When water consumption remained high, despite appeals for voluntary conservation, rationing was imposed in Kula, watering of lawns was forbidden, and agricultural irrigation was restricted to twice-weekly 7-hour daylight periods. On August 30 irrigation was further restricted to only once weekly.

3) On August 19 the Maui County Board of Water Supply declared a drought and stipulated penalties for violating water-use schedules and regulations.

4) By August 25, Wailua Stream, Hana's main source of water, was completely dry. Water for domestic use in the District was restricted to periods totalling only 7 hours between 6 a.m.

and 8 p.m. and Wainapanapa State Park remained closed.

5) By August 25, the main sources of water for Upper Kula were nearly exhausted. The 1 million gallons impounded by Waikamoi Dam were gone. Waikamoi's two 15-million-gallon reservoirs contained only 2 feet (about 3 million gallons) of water, and the 11.5-million-gallon reservoir at Olinda was down to three-fourths of a million gallons. Fortunately, the Lower Kula system's 50-million-gallon capacity Piiholo Reservoir, near Makawao, was nearly full, and jury-rigged pumps borrowed from Civil Defense, plantations, and the East Maui Irrigation Company, were pumping water into the severely depleted Upper Kula system.

6) Also on August 25 the East Maui Irrigation Company reported that its ditches, which supply irrigation water to sugar plantations in the normally dry central valley, had delivered only two-thirds of their normal quantity during July, and that the June through August period had been the driest since 1901, when records began. The irrigation interval was lengthened to 16 days.

7) The Maui County Council formally expressed the need to find new ground water sources for East Maui and the Maui Planning Department deferred subdivision approvals in Kula and Hana pending the resolution of the water shortage problem.

8) As the month ended, Maui was considering asking the Governor to declare a drought emergency in order to make State and Federal funds available to the island.

The dry weather had a mixed effect on sugarcane. It was beneficial, in that it facilitated mechanical harvesting and improved juice quality, but, on the other hand, the deficiency of water during the peak growth months for sugarcane, a 2-year crop in Hawaii, could reduce next year's yield.

The dry spell was being felt elsewhere than on Maui. In the Papa-Milolii-Honomalino area of southwestern Hawaii Island, the extended dry weather had set back macadamia nut production, and water for agricultural purposes was being trucked in, at a cost of \$3,000 thus far this year. In the Kau District, sugarcane fields at lower elevations were drying out and planting was being postponed pending significant rain.

Over the State as a whole, as the accompanying maps show, only a scattering of rain gages out of the several hundred reporting exceeded their

SPECIAL WEATHER SUMMARY - Continued

average for the month, with gages in many areas reading well under half, or even under one-fourth of their monthly mean rainfall, for example, in the Kohala, Hamakua, and Kau Districts of Hawaii Island.

At Waikamoi Dam in the East Maui watershed, this year's May through August rainfall is the lowest since records began in 1911, (1931-1936 data missing), and only 30 percent of normal, as compared to 40 and 74 percent, respectively, during the droughts of 1953 and 1962.

Table I compares May through August rainfall for 1971 at a number of stations in Maui with that during the dry spells of 1953 and 1962. A considerable number of gages, many of them with 25 years of record or more, had substantially less rain in August 1971 than in any previous August. These are given in Table II. The number of days with measurable rain (one-hundredth inch or more) at a few major locations is listed in Table III.

T A B L E I
May-August Rainfall During Recent and Past
Periods of Extended Dry Weather

Island of Maui

Station	1953	1962	1971	Average	1971 Percent of Average
Haleakala BES	8.31	6.10	6.24	15.99	39
Haleakala Summit	--	4.55	1.19	5.44	22
Hana	11.92	--	6.40	17.28	31
Hana Airport	15.10	18.10	8.60	21.79	39
Kailua	34.40	46.60	16.50	38.95	42
Kihei	0.14	1.22	0.71	0.60	118
Kula	--	3.68	1.45	7.69	19
Kula Sanatorium	3.60	6.20	2.40	8.14	30
Lahaina	0.00	1.57	0.39	0.94	41
Olinda	4.50	3.70	2.30	7.83	29
Paakea	65.10	47.70	28.60	67.11	43
Ulupalakua Ranch	--	4.49	3.48	6.67	52
Waikamoi Dam	55.80	28.60	22.30	74.68	30
Wailuku	1.84	1.16	0.83	3.17	26

T A B L E II
Stations With Less Rain in August 1971
than in Any Previous August

(25 years of record or more, only)

Station	Length of Record (Yrs.)	Previous Least August Total	August 1971
<u>KAUAI</u>		(Inches)	(Inches)
Ililiula Intake	37	8.40	6.63
<u>OAHU</u>			
Kapalama	50	0.83	0.71
Manoa Tunnel 2	44	4.04	2.82
Palolo Valley	43	2.44	2.14
Pauoa Flats	44	5.72	3.38

SPECIAL WEATHER SUMMARY - Continued

Station	Length of Record (Yrs.)	Previous Least August Total (Inches)	August 1971 (Inches)
<u>MAUI</u>			
Hana	51	1.80	0.61 *
Kailiili	47	1.79	1.38
Keanae	67	5.47	3.10
Lupi Upper	75	4.10	2.80
Nakalele	34	0.93	0.73
Paakea	67	5.75	4.16
Puohokamoa 2	47	6.60	3.40
Waikamoi	66	6.28	2.40
<u>HAWAII</u>			
Hakalau	80	2.90	2.73
Hilo Airport	29	4.15	2.66
Honohina	51	3.49	2.59
Kaalaiki	33	0.96	0.50
Keaau	71	3.77	3.02
Mountain View	71	3.82	3.34
Papaikou	73	4.11	3.41
Papaikou Mauka	46	7.05	5.23
Pepeekeo Makai	82	3.29	3.08
Piihonua	47	7.80	4.40

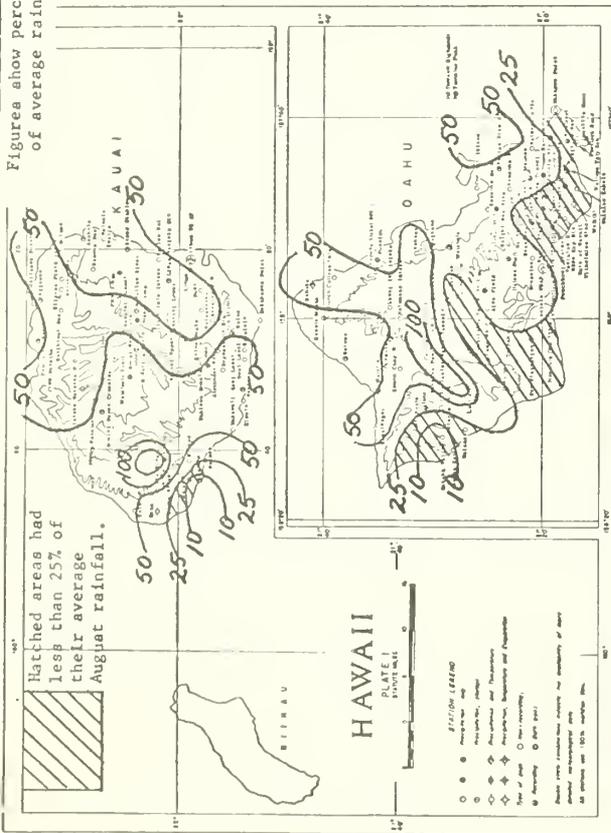
* -- Least in any month of record

T A B L E III
Number of Days with Measurable Rain
(.01 inches or more)

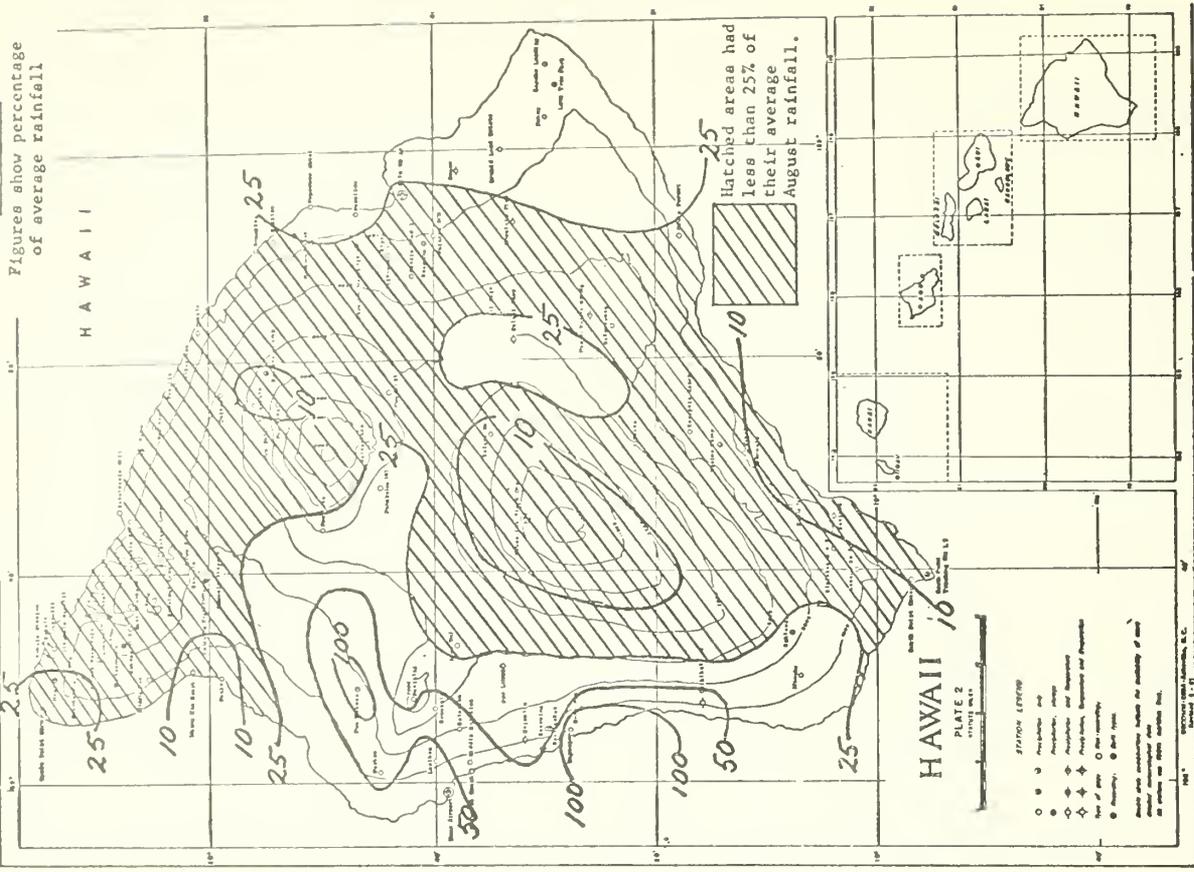
Station	August 1971	Average	Percent of Average August 1971
Hilo Airport	16	27	59
Honolulu Airport	7	7	100
Honolulu City	6	13	46
Kahului Airport	5	7	71
Lihue Airport	13	19	68

Saul Price
Regional Climatologist for Pacific Region
P. O. Box 3650
Honolulu, Hawaii 96811

August 1971
 Figures show percentage
 of average rainfall



August 1971
 Figures show percentage
 of average rainfall



DAILY TEMPERATURES

 HAWAII
 AUGUST 1971

Station	Day of Month																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
KULA SANATORIUM 267	MAX MIN	77 56	76 56	75 57	76 56	75 55	74 56	79 57	75 58	77 57	75 58	73 57	77 58	79 59	72 57	78 58	77 60	77 59	79 60	78 57	78 58	75 57	76 57	76 56	77 57	75 55	75 56	74 54	73 57	77 58	75 57	76.0 57.1
LAHAINA 361	MAX MIN	87 68	89 68	88 68	89 69	86 67	86 67	86 68	86 68	86 69	87 67	86 66	88 67	89 70	87 67	86 70	88 68	89 70	89 70	88 69	88 67	88 67	88 68	87 68	88 67	88 66	88 67	88 68	89 68	89 69	89 70	87.6 68.2
WAILUKU 386	MAX MIN	82 69	82 69	82 71	82 71	83 70	83 70	83 68	84 67	84 67	81 70	81 71	82 70	82 71	82 71	82 72	83 67	83 71	82 72	83 72	83 72			82 71	82 72	82 72	82 72	82 71			81 69	82.4 70.2
* * *																																
ISLAND OF HAWAII																																
HAINA 214	MAX MIN	82 68	81 66	82 67	83 67	82 67	83 65	83 65	82 67	82 65	84 64	84 65	83 67	84 67	80 65	84 72	84 67	82 67	83 70	84 69	84 69	83 71	83 71	84 71	84 69	83 69	83 67	83 67	84 66	84 66	84 66	83.0 66.8
HAWAII VOLCNS NP HO 54	MAX MIN	70 52	67 53	68 54	69 55	74 52	72 55	73 54	72 53	74 54	73 50	73 52	71 54	67 52	73 55	74 55	69 55	70 55	69 55	71 55	71 53	71 53	71 53	69 55	69 54	69 54	67 54	69 54	72 54	72 54	72 52	71.1 53.2
HILLO WSO 87	MAX MIN	84 68	82 68	84 68	84 69	85 67	85 67	86 66	88 66	88 66	87 68	87 67	86 67	88 67	91 67	88 70	85 69	85 69	86 69	85 70	84 66	86 67	85 71	85 68	84 68	86 65	86 65	86 65	86 65	86 65	85 64	85.6 67.6
KAINALIU 73.2	MAX MIN	75 63	76 66	79 65	77 62	78 62	80 63	79 62	78 63	79 65	77 62	77 61	78 63	78 64	77 61	79 62	79 61	79 64	77 64	79 63	78 64	78 62	78 62	78 62	76 63	76 60	77 60	77 63	76 61	81 62	80 63	78.0 62.7
KAMUELA 192.2	MAX MIN	71 60	73 58	73 58	74 59	71 58	79 58	80 58	78 55	79 55	78 53	78 58	76 58	74 55	73 58	74 73	73 60	74 60	73 60	72 60	72 62	73 60	74 59	75 59	73 57	72 57	73 57	73 57	74 55	76 55	75 57	74.5 57.5
KEAAU 92	MAX MIN	81 65	81 67	80 66	81 66	81 65	83 65	84 66	84 66	84 66	84 66	84 65	84 66	82 66	84 66	86 66	85 67	82 67	82 67	83 67	83 64	83 64	82 68	82 65	82 65	82 65	79 64	77 66	84 65	84 65	79 65	82.5 65.5
KEALAKEKUA 26.2	MAX MIN	74 63	77 65	78 65	76 64	79 62	79 64	77 64	77 66	75 64	77 62	78 64	78 63	80 64	80 63	80 65	80 65	80 65	79 63	78 63	78 63	79 63	79 63	79 63	79 63	79 63	79 63	78 63	80 62	80 63	82 63	78.4 63.8
KOHALA MISSION 175.1	MAX MIN	80 69	80 67	80 66	81 66	81 65	82 65	82 66	83 65	83 65	84 66	84 66	82 66	81 66	80 66	81 69	83 69	83 69	81 69	83 69	82 69	83 68	82 68	82 68	84 68	83 69	83 69	83 69	84 69	84 69	84 69	82.2 67.5
KONA (KAILUA) 68.3	MAX MIN	86 69	85 73	85 73	85 73	85 71	86 71	86 71	86 71	86 71	86 69	86 69	83 70	83 69	83 70	85 69	85 69	85 69	85 69	85 69	85 72	84.9 69.8										
KULANI CAMP 79	MAX MIN	67 49	67 49	62 50	65 49	67 43	67 44	68 48	69 45	70 44	68 46	67 46	66 46	67 45	67 46	66 46	68 51	68 50	64 50	62 47	65.7 46.5											
MAUNA LOA SLOPE DBS	MAX MIN	57 37	58 38	57 39	53 33	53 32	50 35	49 31	50 29	49 31	55 29	59 40	60 40	52 39	53 35	47 32	48 33	52 31	49 32	59 33	59 33	59 33	59 33	59 33	56 35	56 35	56 35	56 35	57 38	58 37	58 37	54.2 35.7
MOUNTAIN VIEW 91	MAX MIN	77 61	77 61	75 62	77 63	77 63	82 65	82 65	82 65	81 66	81 66	81 66	76 60	82 60	82 60	82 63	82 63	82 63	82 63	79 63	77 60	80 61	81 62	79 65	79.1 59.7							
NAALEHU 14	MAX MIN	82 63	82 63	80 66	81 66	80 67	80 67	82 67	82 65	82 65	81 66	81 66	81 67	78 69	81 67	81 67	81 70	82 67	82 67	82 67	81 67	82 67	82 67	82 67	82 67	81 66	81 66	81 66	81 66	81 66	81.1 66.4	
OOKALA 223	MAX MIN	80 64	80 65	80 64	80 65	79 68	82 62	76 58	82 66	81 65	82 65	82 65	82 65	81 66	81 66	82 66	83 66	81 66	82 66	81 66	82 66	83 66	83 66	82 66	82 66	82 66	82 66	82 66	82 66	83 66	82 66	81.1 66.3
OPIHIHOLE 2 24.1	MAX MIN	79 61	78 61	80 62	78 61	79 62	80 63	81 64	80 65	79 64	78 64	77 64	77 64	82 65	82 65	82 60	83 61	82 61	81 62	82 61	82 61	82 61	82 61	80 62	81 62	82 64	79 60	81 62	81 62	81 62	80 65	80.0 61.9
PAHALA 21	MAX MIN	84 61	82 63	83 63	83 61	82 62					84 62	83 62	83 63	82 63	81 63																86 62	85 62.6
PUAKO 95.1	MAX MIN	87 71	88 74	88 73	87 71	87 69	86 69	87 72	88 70	85 70	86 67	86 68	86 70	87 71	86 70	86 71	87 74	88 74	86 72	86 73	87 69	86 69	87 66	88 69	88 70	87.1 70.7						
UPOLU POINT USCG 159.2	MAX MIN	83 73	84 67	80 70	85 67	85 67	85 69	84 71	84 73	84 73	86 65	85 70	84 70	81 73	83 68	83 73	84 69	84 67	82 67	84 67	84 67	84 67	82 67	83 67	83 67	83.4 70.1						

EVAPORATION AND WIND

Station	Day Of Month																															Total or Avg.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
* * * ISLAND OF OAHU																																	
HONOLULU OBSERV 702.2	EVAP	.37	.28	.46	.44	.37	.37	.30	.30	.30	.29	.36	.35	.29	.33	.38	.35	.39	.39	.34	.39	.30	.38	.30	.40	.30	.33	.20	.30	.32	.35	10.53	
	WIND	40	53	50	50	31	32	33	38	29	32	34	45	33	39	52	48	47	59	60	45	45	45	42	38	36	35	38	36	37	37	127.2	
	MAX	92	90	92	92	94	95	92	92	95	97	92	94	93	90	92	94	91	92	91	92	92	91	91	91	92	89	93	91	90	92	93	92.2
	MIN	66	65	66	66	66	66	66	66	70	68	66	67	68	68	68	67	67	66	66	65	65	65	66	65	65	66	65	64	66	66	65	66.3

See Reference Notes Following Station Index

STATION INDEX

HAWAII AUGUST 1971

Table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. The table lists numerous weather stations across Hawaii, including locations like Island of Maui, Island of Molokai, and various local stations such as Haleakala and Waialeale.

STATION INDEX

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER
								TEMP	PRECIP	EVAP	SPECIAL										TEMP	PRECIP	EVAP	SPECIAL	
ISLAND OF HAWAII																									
HAUNA LOA SLOPE OBS	0198	03	HAWAIIA	5 19 32	155 35	1114	MID	MID				HAUNA LOA OBSERVATORY	SOUTH POINT CORRAL 3	8875	03	KAU	9 18 57	155 41	200				HAWAIIAN RANCH COMPANY		
MIDDLE NDUALDA 08.1	0268	04	N KONA	4 19 37	155 58	975	8A					KONA EXPERIMENT STA	UMUKA 118	8780	01	HAWAIIA	11 19 59	155 43	3420	7A			KURAIKU RANCH CO		
MIDDLE PEN 147.1	0370	01	N KONA	1 20 06	155 50	1390	VAR					KAUUA RANCH	UPULU POINT USCC 159.2	8830	01	N KONA	11 20 15	155 53	61	8A			U S COAST GUARD		
MOAULA 18	0607	03	KAU	3 19 11	155 30	600						HAWAIIAN RANCH CO	MAIATAKA SCD 881.2	9025	02	S HILLO	11 19 40	155 08	1010	7A			SHINICHI KANEHIRO		
MOUNTAIN VIEW 91	0552	02	PUNA	2 19 53	155 07	1230	8A	8A				PUNA SUGAR CO	MAIKANONDULA 175.6	9350	01	N KONA	11 20 08	155 47	3830	7A			KAHUA RANCH		
NAALEHU 14	0388	03	KAU	3 19 04	155 31	673	8A					HUTCHINSON SUGAR CO	NEW STATIONS												
NARPOPO 28	0697	04	S KONA	4 19 28	155 55	395	7A					KONA EXPERIMENT STA	ISLAND OF MAUI												
NAULU FOREST 38.6	0731	02	PUNA	2 19 19	155 08	1400	VAR					HAWAII VOLCANOES NAT PK	KAUPANULUA RES. 492.0	3561	02	MAKAWAO	1 20 55	156 18	640				EAST MAUI IRRIGATION CO		
NTULU 179	0806	03	N KONA	1 20 14	155 45	75	8A					KOHALA SUGAR CO													
ODKALA 223	7131	02	N HILLO	2 20 01	155 17	430	7A					LAUPAHEHO SUGAR CO													
OPIMHALE 2 24.1	7166	04	S KONA	4 19 16	155 53	1270	7A	7A				MISS C LEONARD													
ORCHID LAND EST 91.5	7185	02	PUNA	2 19 34	155 00	445	VAR					BOARD OF WATER SUPPLY													
PAUMOU 217	7204	01	HAWAIIA	1 20 08	155 26	415	7A					PAUMOU SUGAR CO													
PAUULU 221	7312	01	HAWAIIA	1 20 03	155 22	800	7A					HAWAIIA MILL CO													
PAHALA 121	7421	03	KAU	3 19 12	155 29	870	8A	8A				HAWAIIAN AGRI CO													
PANDA 65	7457	02	PUNA	2 19 30	154 57	970	8A					PUNA SUGAR COMPANY													
PAKAU 37	7043	03	KAU	3 19 22	155 28	5000						HAWAIIAN RANCH CO, INC.													
PAPAIAU 144.1	7711	03	HILLO	2 19 47	155 08	300	7A					HAUNA KEA SUGAR CO.													
PAPAIAU MAKA 140.1	7721	02	S HILLO	2 19 47	155 08	1270	7A					HAUNA KEA SUGAR CO.													
PEPEEKE MAKA 144	8000	02	S HILLO	2 19 51	155 05	100	7A					PEPEEKE SUGAR CO													
P11HONGA 89	8051	02	S HILLO	2 19 44	155 10	1730						STATE DIV OF FORESTRY													
POROKULUA 107	8003	02	HAWAIIA	2 19 45	155 32	6511	VAR					STATE DIVISION OF PARKS													
PURAO 94.1	8186	03	KONA	5 19 59	155 50	5	8A	8A				ERWIN H. RAPP													
PUU K1H6 120	8393	01	HAWAIIA	1 19 54	155 24	7750						KUKAIKU RANCH CO													
PUU LAOU 102.1	8452	05	HAWAIIA	5 19 50	158 36	7440						STATE DIV OF FISH-CAME													
PUU LEHUA 73	8440	04	N KONA	4 19 34	155 49	4880						W.M. GREENWELL RANCH													
PUU MAI 113	8515	01	HAWAIIA	1 19 58	155 26	6940						KUKAIKU RANCH CO													
PUU OJ 82	8550	02	S HILLO	2 19 46	155 23	6340	6A					SON WINTERS													
PUU WAHAA 94.1	8555	05	N KONA	5 19 47	155 51	2520	7A					OILLINGHAM RANCH INC													
SADDLE ROAD I 84	8590	02	S HILLO	2 19 42	155 12	2340						BOARD OF WTR SUPPLY													

† DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN 5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN 2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii 96811, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII."

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+ And also on an earlier date or dates.

++ Highest observed one minute wind speed. This station is not equipped with an instrument to measure fastest mile data.

* Amount included in following measurement, time distribution unknown.

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B Adjusted to a full month.

J "Supplemental Data" table.

M One or more days of record missing; if average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.

R Amounts from recording gage.

T Trace, an amount too small to measure.

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WI Gage read weekly or irregularly only.

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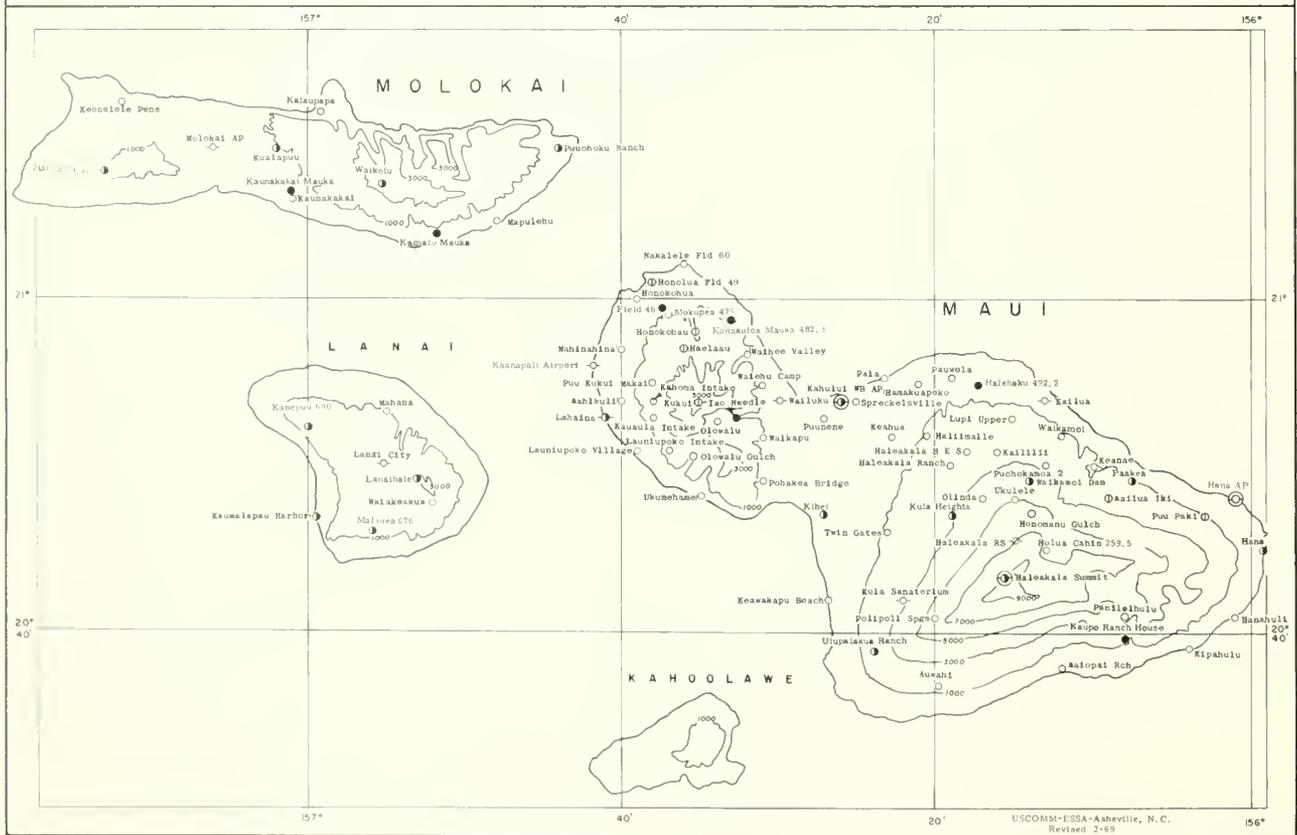
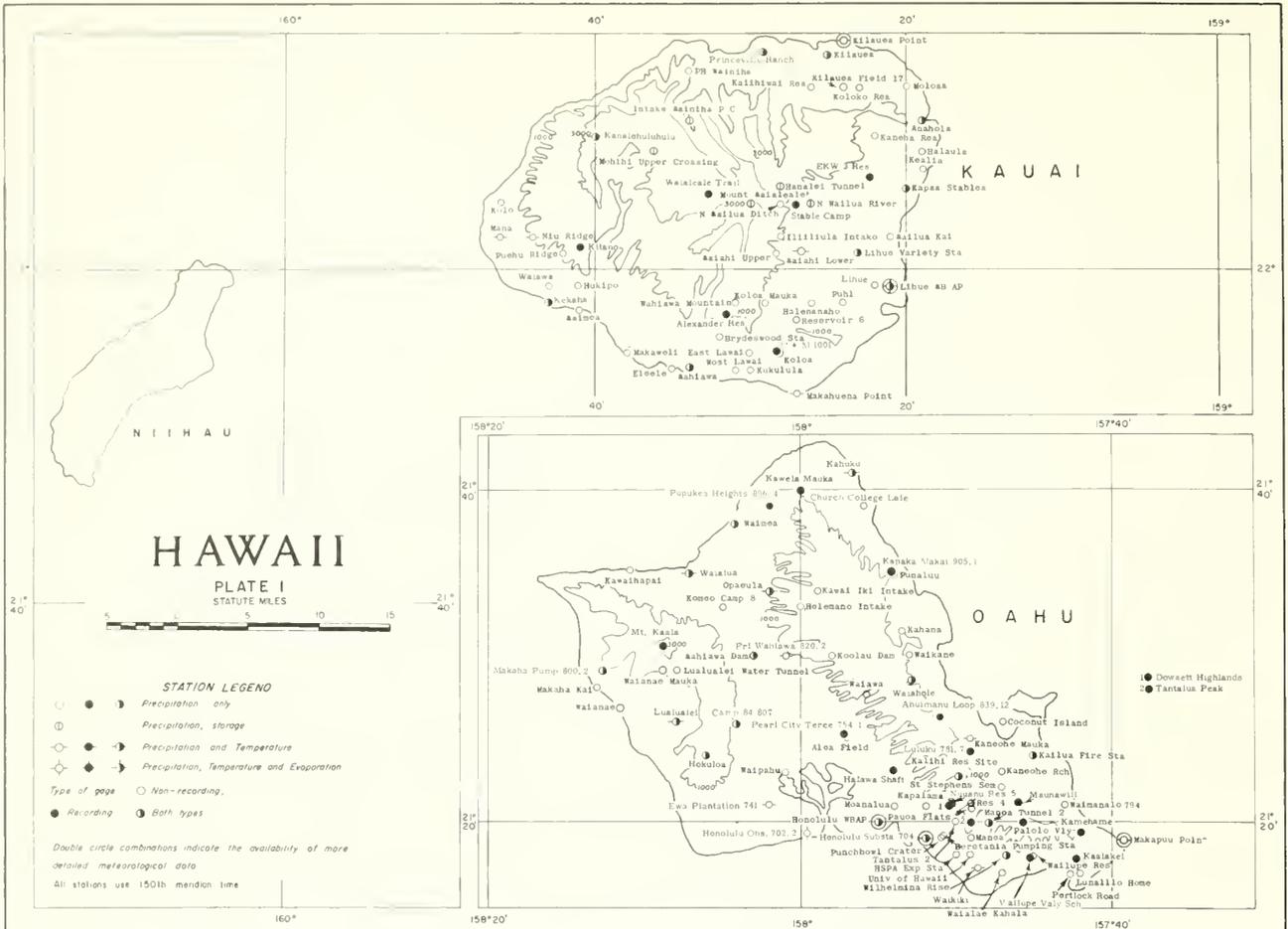
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William H. Fitzgerald
Director, National Climatic Center

USCOM-NOAA-ASHEVILLE, N. C. 12/1/71-890



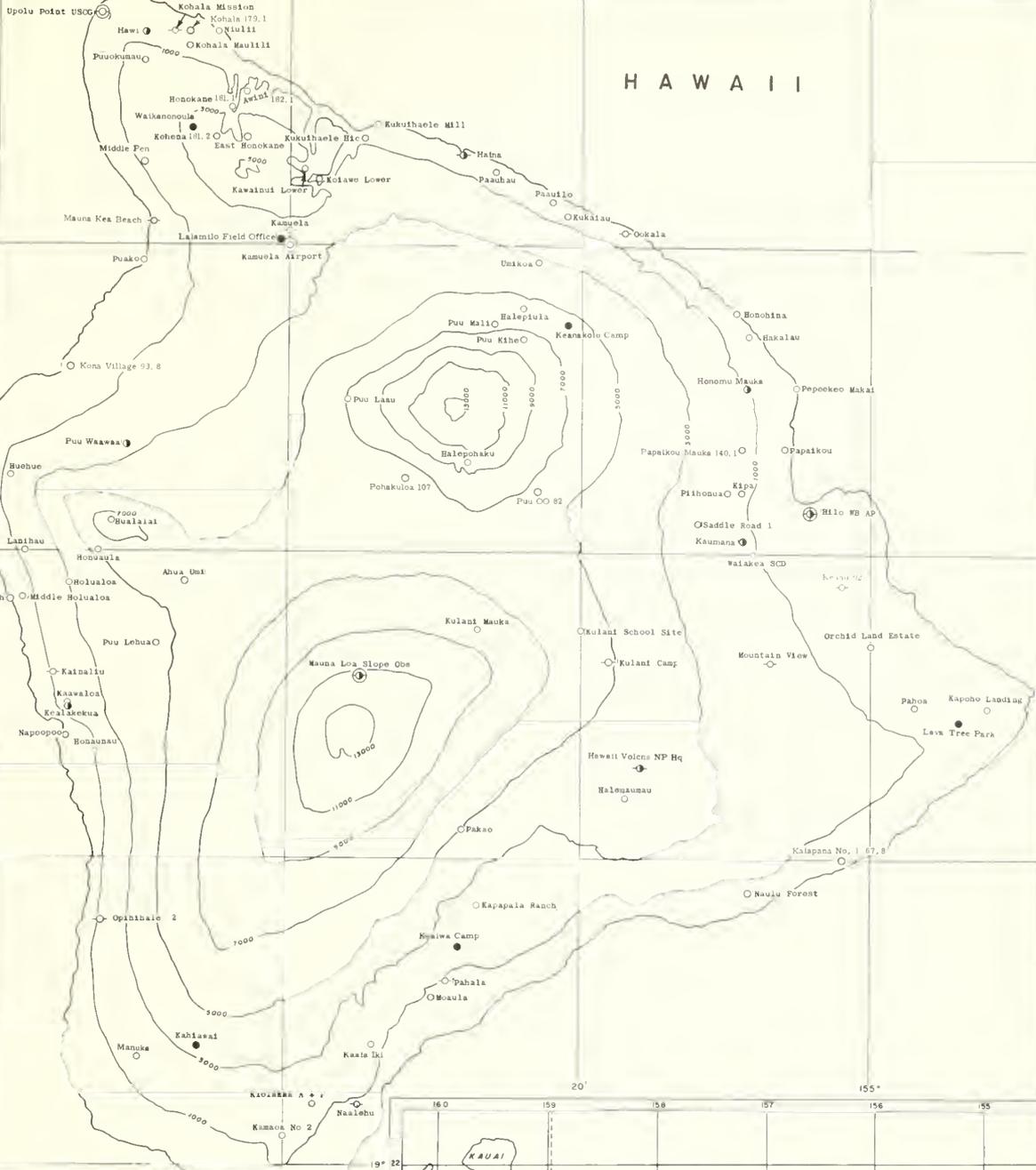
156°

40'

20'

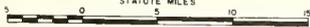
155°

HAWAII



HAWAII

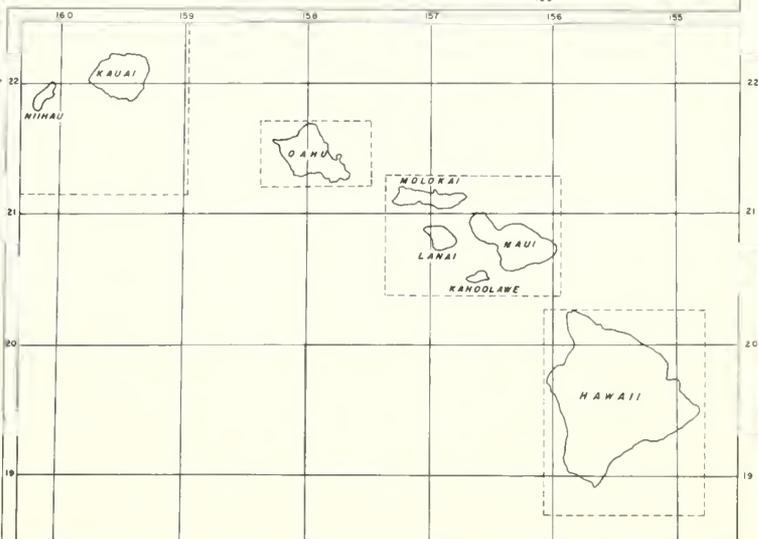
PLATE 2
STATUTE MILES



STATION LEGEND

- ● ● Precipitation only
- ○ Precipitation, storage
- ● ● Precipitation and Temperature
- ● ● Precipitation, Temperature and Evaporation
- Type of gage ○ Non-recording, ● Recording, ● Both types

Double circle combinations indicate the availability of more detailed meteorological data
 All stations use 150H meridian time.



156°

USCOMM-ESSA-Ashville, N.C.
Revised 3-59

40'

160

159

158

157

156

155

155°

155

155

155

155

155

22

21

20

19

20°

20°

40°

40°

20°

20°

19°

19°

40°

40°

40°

40°

40°

40°

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII
SEPTEMBER 1971

Continued

Station	Temperature											Precipitation											
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days		
										90° or Above	31° or Below	37° or Below	1° or Below					Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
KEAAU 92	82.4	65.9	74.2	-.7	85	17+	64	11+		0	0	0	0	5.62	-3.43	.96	28	.0	0		15	4	0
KEALAKEKUA 26.2	78.4	64.1	71.3		80	29+	62	23+		0	0	0	0	7.45		2.27	23	.0	0		13	5	1
KONA (KAILUA) 68.3	85.0M	70.0M	77.5M		88	1	67	24		0	0	0	0	3.42		1.11	2	.0	0		3	0	0
KUKUIHAELE HIC 199														.71	-2.08	.23	29	.0	0		4	0	0
KULANI CAMP 79	65.1	49.1	57.1		69	19+	45	16+		0	0	0	0	4.92		1.43	21	.0	0		14	1	1
PAHALA 21	82.3M	63.4M	72.9M	-.8	85	1	62	23+		0	0	0	0	3.18	.65	1.26	21	.0	0			2	1
POHAKULOA 107														.40		.00	0	.0	0			0	0
PUAKO 95.1	85.8	70.6	78.2		87	27+	66	24		0	0	0	0	.34		.27	12	.0	0		1	0	0
PUU WAAHAA 94.1														2.37	.04	.75	14	.0	0		5	2	0
UMIKOA 118														.22	-1.94	.08	14	.0	0		0	0	0
WAIAKEA SCD 88.2														7.66		1.34	21	.0	0		16	6	1
ISLAND			71.6											3.73				.0					

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 94° ON THE 19TH AT KILAUEA POINT 1133, KAUAI

LOWEST TEMPERATURE: 33° ON THE 24TH AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 28.70 INCHES INCHES AT MOUNT WAIALEALE 1047, KAUAI

LEAST TOTAL PRECIPITATION: .00 AT 5 STATIONS

GREATEST ONE-DAY PRECIPITATION: 5.71 INCHES ON THE 21ST AT MOUNT WAIALEALE 1047, KAUAI

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY

September saw the passing of what for some areas appears to have been their most severe dry spell in at least 70 years (see the June, July, and August 1971 issues of this publication).

As the month opened, water rationing was in effect in East Maui's Kula and Hana areas, water was being pumped from the Lower Kula into the nearly exhausted Upper Kula system, and Maui County was on the verge of asking the Governor to declare a drought emergency as a means of obtaining State and Federal funds. The ditch that conveys water from watersheds in the ordinarily wet mountains of windward East Maui to sugar plantations in the central valley, and is the main source for the Haiku-Makawao-Pukalani County water system, held only 22 million gallons of its 200-million-gallon capacity, and supplies for Kula from the new 50-million-gallon Piihola Reservoir above Makawao were estimated at only 35 days. About 60 percent of Kula's residents were suffering from water shortages, and growers of the vegetables, fruits, and flowers for which the area is noted had been seriously hurt.

On September 1, the Hana and Koolau Forest Reserves in eastern and northeastern Maui were closed owing to extreme dry weather and critical fire danger conditions, and on September 3, all hunting and recreation activities were forbidden in the Kula and Kahikiniui Forest Reserves on Haleakala's northwestern and southeastern slopes. The possibility of developing additional water from untapped springs above Hana was being seriously looked into as a longer-range solution to water deficits and even cloud seeding had been proposed as a means of inducing or augmenting rainfall over East Maui, but this was quickly dismissed owing to the uncertainty of the techniques and the unsuitability of the clouds.

Other regions of the State were dry as well. Unirrigated sugarcane on Kauai and Hawaii was showing the effects of deficient rainfall, and by midmonth it had become evident that papaya production, most of it on Hawaii Island, had been cut by half.

Meanwhile, however, from about the second or third day of the month, and particularly over the East Maui watershed, trade wind showers had begun to return and to fill the ditches and replenish the reservoirs.

By September 10, bans were eased on the use of

water for domestic purposes in the Hana area, although conservation was still being urged and lawn watering and car washing forbidden. On September 13, the Waikamoi Reservoir held 11 million gallons, and irrigation in the Kula area, restricted since mid-August to only 6 hours weekly (9 a.m. to 3 p.m. once a week), was raised to 8 hours: 8 a.m. to noon, twice weekly. Water haulage to 40 families at Kalae, Molokai, was discontinued, although, in contrast, water was still being trucked to several families in Hawaii Island's Papaikou section, an area whose average annual rainfall exceeds 150 inches.

On September 20, water restrictions in Hana ended entirely, although retained elsewhere on Maui and Molokai, while at the same time, rationing was imposed on Lalamilo Farms, in Hawaii Island's Waimea district, with irrigation permitted only between 7 a.m. and 5 p.m. daily. Also on September 20-21, Naalehu recorded a 24-hour rainfall of 1.47 inches and Hilo of 2.24 inches, not a great deal as rainfall in those localities goes, but their first substantial rains since May.

As the month continued so did the showers, and by September 27 irrigation everywhere along the Kula pipeline was extended to Monday through Saturday between 8 a.m. and noon, although the County Board of Water Supply warned that the drought and rationing still existed and permitted only minimal water use for lawns and cars.

In contrast to August, when all the islands but Kauai and Lanai had large areas with less than one-fourth their average monthly rainfall, only a scattering of gages showed similar deficiencies in September. Nevertheless, monthly rainfall totals were well below half the September means on Oahu's extreme southeastern coast, in Maui's central valley, and in the eastern and southwestern portions of West Maui, at lower elevations on Lanai and Molokai, and particularly in Hawaii Island's Waimea district and throughout Hamakua, at both lower and higher elevations.

Also worth noting during the month was the large funnel cloud visible for about 15 minutes to thousands of persons in Oahu's Pearl Harbor-Waipahu area on the afternoon of September 25. The cone-shaped funnel, unusually broad at the base, descended at least 1,500 feet earthward from the bottom of a cumulonimbus cloud, and then withdrew and faded away.

Saul Price
Regional Climatologist for Pacific Region
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY TEMPERATURES

HAWAII
SEPTEMBER 1971

Table with columns: Station, Day of Month (1-31), MAX MIN, and Average. Rows include stations like KANALOHULUHULU 1075, KILAUEA POINT 1133, etc., across islands of Kauai, Oahu, Lanai, and Maui.

See Reference Notes Following Station Index

DAILY TEMPERATURES

HAWAII SEPTEMBER 1971

Continued

Table with columns for Station, Day of Month (1-31), and Average. Rows include KULA SANATORIUM 267, LAMAINA 361, HAILUKU 386, ISLAND OF HAWAII, HAINA 214, HAWAII VOLCANO HP HO 54, MILO WSO 87, KAINALIU 73.2, KAMUELA 1+2.2, KEAAU 92, KEALAKEKUA 26.2, KOHALA MISSION 175.1, KONA (KAILUA) 68.2, KULANI CAMP 79, MAUNA LOA SLOPE OBS, MOUNTAIN VIEW 91, NAALEHU 14, ODOKA 223, OPIHIHALE 2 24.1, PAMALA 21, PUAKO 95.1, UPDLU POINT USCG 159.2

EVAPORATION AND WIND

Table with columns for Station, Day of Month (1-31), and Total or Avg. Rows include ISLAND OF KAUAI (LIHUE WSO 1020.1), ISLAND OF OAHU (HONOLULU OBSERV 702.2)

See Reference Notes Following Station Index

STATION INDEX

HAWAII SEPTEMBER 1971

Main data table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. Includes sections for ISLAND OF HAWAII and ISLAND OF MOLOKAI.

STATION INDEX

HAWAII
SEPTEMBER 1971

STATION	INDEX NO. DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	STATION	INDEX NO. DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER					
							TEMP.	PRECIP.	EVAP.	SPECIAL									TEMP.	PRECIP.	EVAP.	SPECIAL						
ISLAND OF HAWAII																												
MOOLE HOUAUA RR. 1	A 8268	OW	KONA	4 19 37	155 58	475		FA			HONA EXPERIMENT STA	UMUKOA 118	8780	01	HAWAIIA	1 19 59	155 23	3420		7A				KUKAIUA RANCH CO				
MOOLE PEN 147.1	A 8270	01	KOHALA	1 20 08	155 50	1380		VAR			HAWAIIA RANCH CO	UPOLU POINT USCG 159.2	873	01	N KOHALA	1 20 15	155 53	61		8A			U S COAST GUARD					
MOUNTAIN VIEW 91	A 6409	03	PUNA	2 19 13	155 30	800		7A			HAWAIIAN RANCH CO	WAIKARA SCO 89.2	9028	02	S HILO	2 19 40	155 08	1010		7A			SMINICHI KANESHIRO					
NALEHU 14	A 6598	03	KAU	3 19 04	155 35	673		8A			PUNA SUGAR CO	HAIKANDOUA 178.6	930	01	N KOHALA	1 20 08	155 47	3830		7A			WAIKARA RANCH					
NAP000 228	A 8997	01	KONA	4 19 19	155 58	74		7A			HUTCHINSON SUGAR CO	CLOSED STATIONS																
NAUULU FOREST 38.8	A 7311	02	PUNA	2 19 19	155 09	1400		VAR			CLOSED 1/1/71	ISLAND OF HAWAII																
NIIULI 179	A 6805	01	N KOHALA	1 20 14	155 49	75		6A			HONA EXPERIMENT STA	HALEHAKU 492.2	1011	02	MAKAWA	1 20 55	156 17	690								CLOSED R/3/71		
ODHALA 213	7133	02	S HILO	2 20 01	155 17	430		7A			HAWAIIAN SUGAR CO	ISLAND OF HAWAII																
OPIMAHALE 2 24.1	7168	04	S KONA	4 19 18	155 33	1270		7A			MISS C LEDNARD	HAULU FOREST 38.6	6731	02	PUNA	2 19 19	155 08	1400		VAR							CLOSED 1/1/71	
ORCHID LAND EST 41.5	A 7185	02	PUNA	2 19 34	155 00	443		VAR			BOARD OF WATER SUPPLY																	
PAHUKA 217	7204	01	HAWAIIA	1 20 09	155 26	415		7A			PARAHUA SUGAR CO																	
PAULUO 221	7312	01	HAWAIIA	1 20 03	155 22	800		7A			HAWAIIA HILL CO																	
PANALA 21	A 7421	03	KAU	3 19 12	155 29	870		8A			HAWAIIAN AGR CO																	
PANHA 55	7457	02	PUNA	2 19 30	154 59	670		7A			PUNA SUGAR COMPANY																	
PAKAO 37	A 7043	03	KAU	3 19 29	155 28	5000		7A			HAWAIIAN RANCH CO, INC.																	
PAPAIKOU 144.1	7711	02	S HILO	2 19 47	155 06	200		7A			MAUNA KEA SUGAR CO																	
PAPAIKOU MAUKA 140.1	7721	02	S HILO	2 19 49	155 08	1270		7A			MAUNA KEA SUGAR CO																	
PEPEKE MAUKA 144	8003	02	S HILO	2 19 51	155 05	100		7A			LAUPANOE SUGAR CO																	
PIHONUA PV	A 8051	02	S HILO	2 19 44	155 10	1730					STATE DIV OF FORESTRY																	
POHAKULOA 107	A 8063	02	HAWAIIA	2 19 45	155 32	6311		VAR		C	STATE DIVISION OF PARKS																	
POKAI 94.1	A 8188	05	KOHALA	5 19 59	155 50	3		8A			ERWIN H. RAPP																	
POU TIME 120	A 8393	01	HAWAIIA	1 19 54	155 24	7730		7A			KUPAHIUA RANCH CO																	
POU LAI 102.1	A 8452	05	HAWAIIA	5 19 50	155 36	7440		7A			STATE DIV OF FISH-GANE																	
POU LEHUA 73	A 8460	04	N KOHALA	5 19 53	155 39	4880		7A			M.M. GREENWELL RANCH																	
POU MAI 113	A 8515	01	HAWAIIA	1 19 53	155 26	6900		7A			KUKAIUA RANCH CO																	
POU OO 82	A 8550	02	S HILO	2 19 44	155 23	6340		8A			MISS JACKIE BENLEHR																	
POU AKAKA 94.1	A 8559	03	S KONA	4 19 47	155 51	2320		7A			BILLINGHAM RANCH INC																	
SCOTT ROAD 1 84	A 8590	02	S HILO	2 19 42	155 12	2340					BOARD OF WTR SUPPLY																	
SOUTH POINT CORRAL 3	A 8675	03	KAU	3 18 57	155 41	500					HAWAIIAN RANCH COMPANY																	

I DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
2-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN
2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

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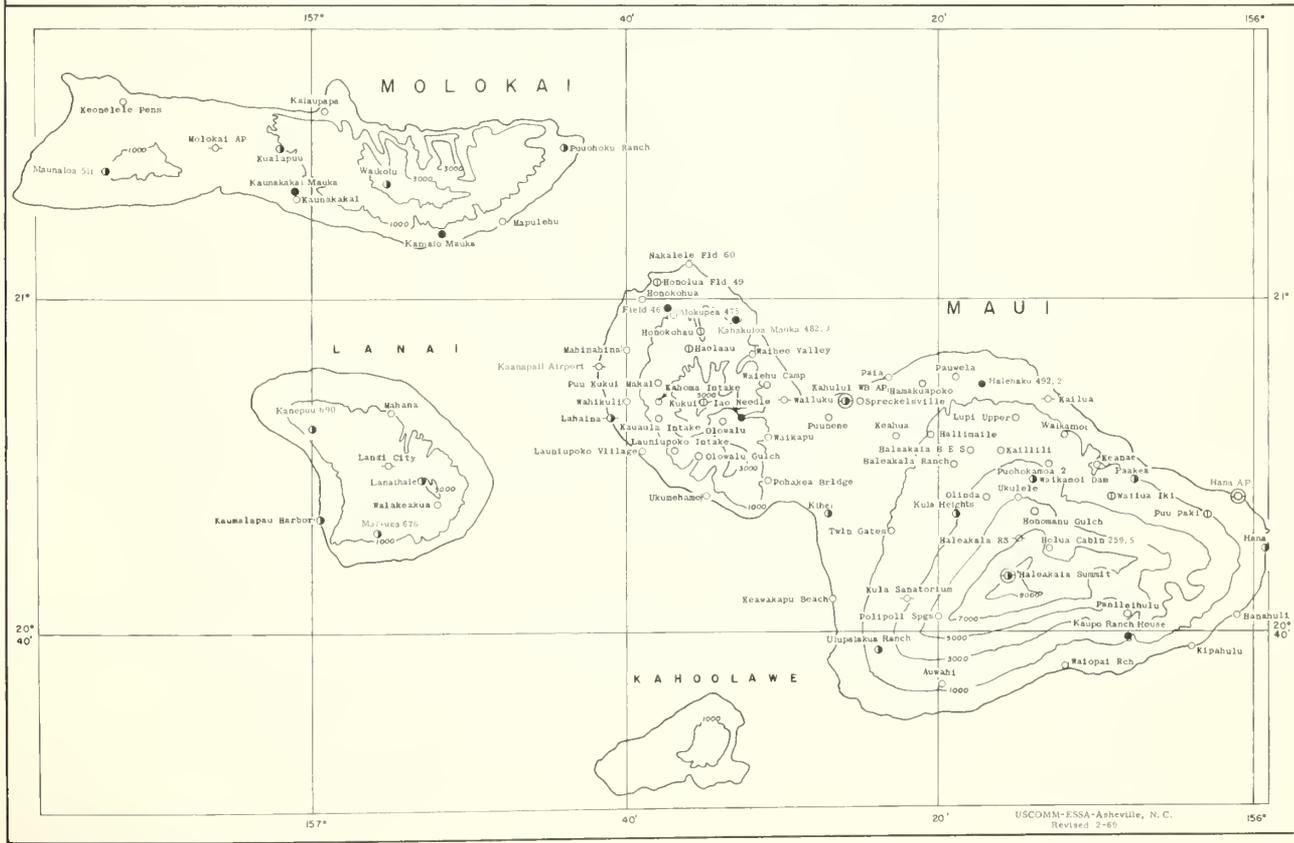
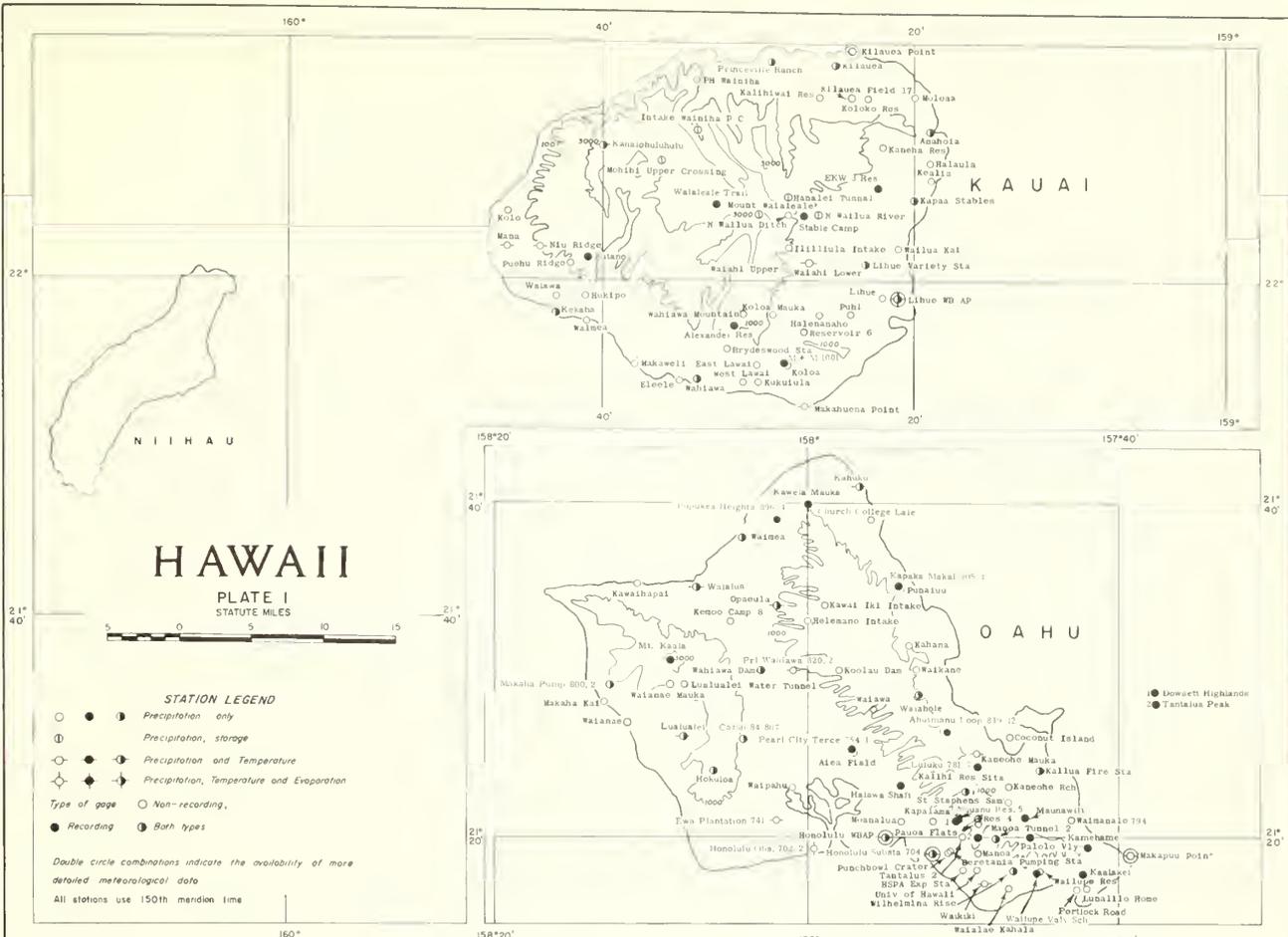
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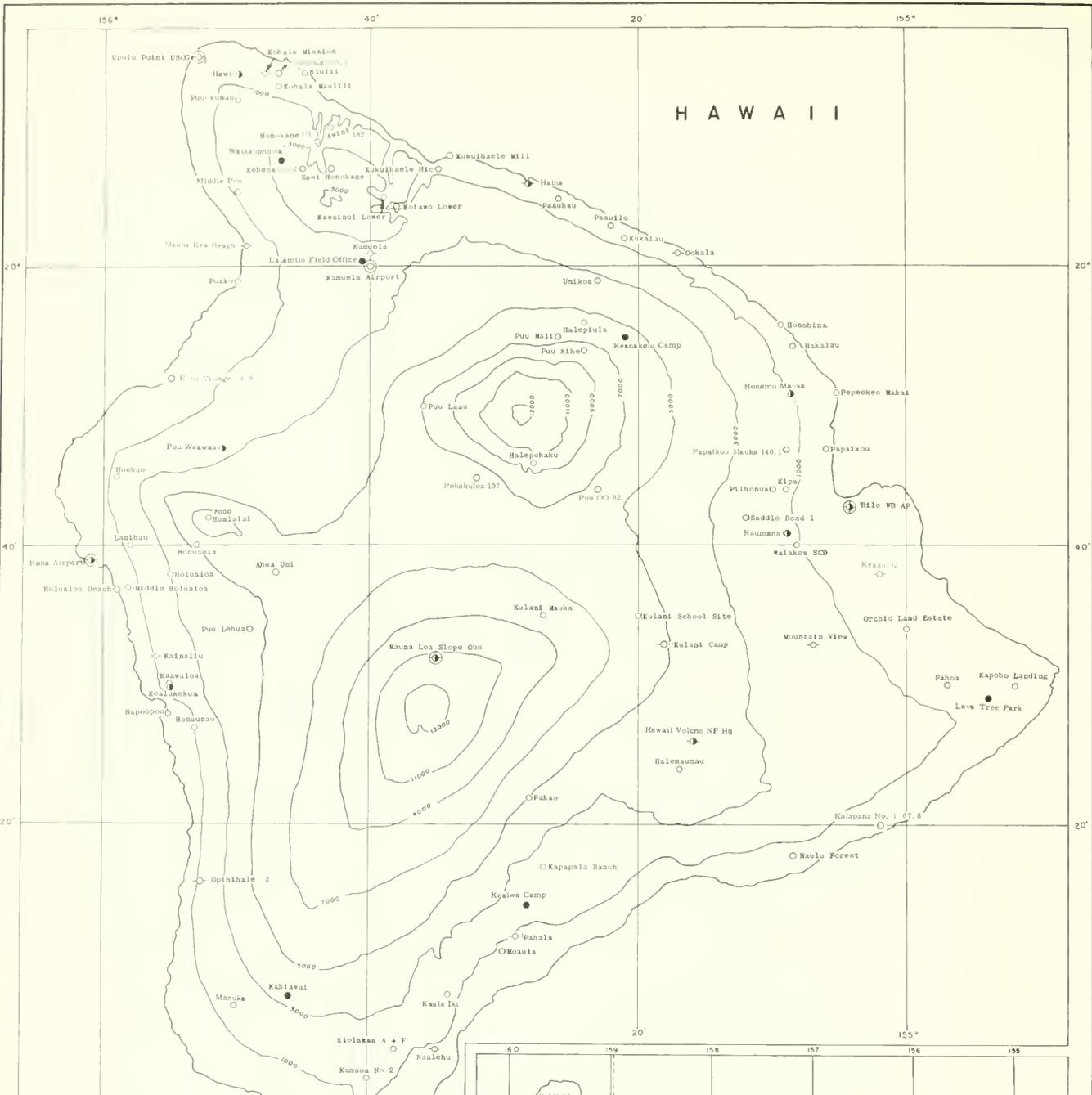
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I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.

William H. Hoggard
Director, National Climatic Center

USCOMM-NOAA-ASHEVILLE, N.C. 1/4/72-890





HAWAII

HAWAII

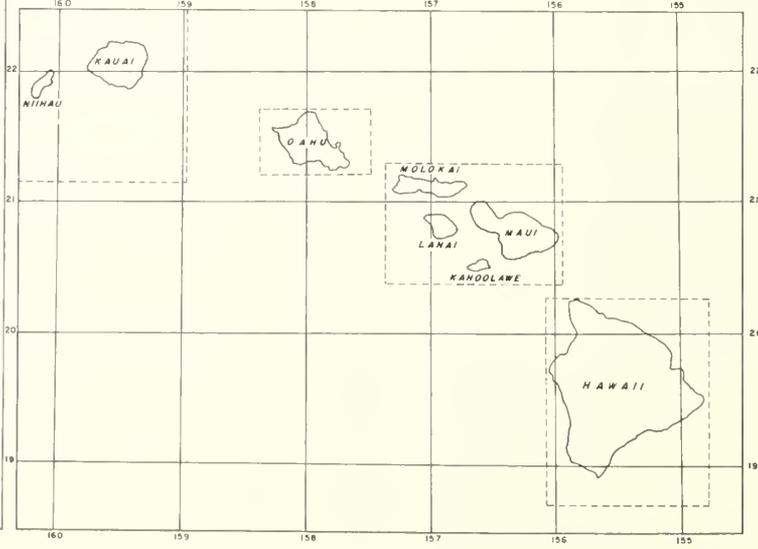
PLATE 2
STATUTE MILES



STATION LEGEND

- ● ● Precipitation only
- ⊕ Precipitation, storage
- ● ● Precipitation and Temperature
- ⊕ ● ● Precipitation, Temperature and Evaporation
- Type of gage ○ Non-recording, ● Recording
- ⊕ ● Both types

Double circle combinations indicate the availability of more detailed meteorological data
All stations use 150th meridian time



U.S. DEPARTMENT OF COMMERCE
NATIONAL CLIMATIC CENTER
FEDERAL BUILDING
ASHEVILLE, N.C. 28801



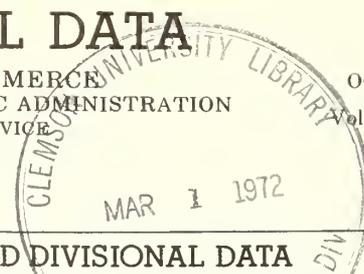
POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE

CLIMATOLOGICAL DATA

HAWAII

U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 ENVIRONMENTAL DATA SERVICE

OCTOBER 1971
 Volume 67 No. 10



MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature										Precipitation												
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	No. of Days			Total	Departure From Normal	Greatest Day	Date	Snow, Sleet		No. of Days					
									80° or Above	50° or Below	31° or Below					Total	Max Depth on Ground	Date	.10 or More	.50 or More	1.00 or More		
																						Max.	Min.
* * * ISLAND OF KAUAI																							
ANAHOLA 1114																							
KANALOHULUHULU 1075	71.0	52.3	61.7		76	10	46	26	0	0	0	0	1.14	- 3.78	1.11	31	.0	0	6	2	1		
KAPAA STABLES 1104													1.76				.0	0					
KILAUEA FIELD 17 1135													3.44	- 3.63			.0	0					
KILAUEA POINT 1133	80.8M	72.4	76.6M		87	17	67	17	0	0	0	0	3.14		.50	28	.0	0	14	1	0		
* * * ISLAND OF OAHU																							
KOLOA 936													3.31	- 2.00			.0	0					
LIHUE WSD 1020.1	83.0	73.6	78.3	- 1.4	85	17+	68	28+	0	0	0	0	3.18	- .85	1.15	29	.0	0	5	2	1		
MANA 1026	85.6	66.4	76.0	- 1.0	90	18	62	31	1	0	0	0	1.75	- .30	.91	30	.0	0	4	1	0		
N WAILUA QITCH 1051													13.32		3.66	19	.0	0					
PH WAINIHA 1115													3.31	- 4.93	.70	19	.0	0			1	0	
* * * ISLAND OF MAUI																							
PUEHU RIDGE 1040													3.11		1.50	30	.0	0			6	2	1
WAHIAWA 930													2.11	- .91	1.04	27	.0	0			19	5	1
WAIHI LOWER 1054	77.5	65.5	71.5		81	8	60	28	0	0	0	0	7.59		.95	19	.0	0			5	2	1
WAIMEA 947													2.38	.47	1.10	30	.0	0			5	2	1
* * * ISLAND OF HAWAII																							
* * * ISLAND OF MOLOKAI																							
* * * ISLAND OF LANAI																							
* * * ISLAND OF KAUAI																							
* * * ISLAND OF OAHU																							
* * * ISLAND OF MAUI																							
* * * ISLAND OF HAWAII																							
HALEAKALA B E S 434													2.20	- 2.09	1.00	22	.0	0	5	1	1		
HALEAKALA RS 338	63.5	44.1	53.8		70	16	37	27	0	0	0	0	1.15		.37	18	.0	0	7	0	0		
HANA AIRPORT 355	83.5	64.5	74.0		86	10	59	19	0	0	0	0	3.71		.56	24	.0	0	10	2	0		
HONOKOHUA 493													1.41	- 1.27			.0	0			1	1	0
KAANAPALI AIRPORT	83.3	66.1M	74.7M		86	14	62	18	0	0	0	0	1.04		.88	12	.0	0			1	1	0
KAHULUI WSD 398	86.7	66.6	76.7	- .6	92	13	60	28	1	0	0	0	.07	- .80	.02	21+	.0	0	0	0	0	0	
KAILUA 446	78.3	65.5	71.9	- .8	80	18	62	28	0	0	0	0	6.60	- 2.72	.83	1	.0	0	17	5	0		
KEANAE 346													8.20	- 7.15			.0	0			11	3	0
KIPAHULU 258													3.69	- 4.61	.68	22	.0	0			1	1	0
KULA SANATORIUM 267	73.3	57.6	65.5	- .7	76	31+	55	15	0	0	0	0	.95	- 1.31	.75	18	.0	0			1	1	0
LAHAINA 361	87.5	67.8	77.7		90	23	65	15	1	0	0	0	.20	- .80	.20	29	.0	0			1	0	0
PAIA 406													.43	- 1.73	.16	22	.0	0			1	0	0
WAILUKU 386	81.7M	69.8M	75.8M	- 1.2	85	14	66	28	0	0	0	0	.11	- 1.75	.07	2	.0	0			0	0	0
* * * ISLAND OF HAWAII																							
HAINA 214	81.3	67.0	74.2	.2	83	13+	64	19	0	0	0	0	1.90	- 3.35	.66	20	.0	0	4	2	0		
HAWAII VOLCONS NP HQ 54	69.9	53.0	61.5	- 1.4	75	25+	45	19	0	0	0	0	5.27	- 1.61	1.52	7	.0	0	12	3	1		
HILD WSD 87	83.7	67.0	75.4	.3	87	12	63	18	0	0	0	0	7.28	- 3.52	1.64	6	.0	0	16	5	1		
HUEHUE 92.1													.73	- 2.86			.0	0			7	2	0
KAINALIU 73.2	78.1	61.7	69.9		81	29+	59	19+	0	0	0	0	3.08	- 3.12	.86	31	.0	0			7	2	0

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY ON PAGE 121

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature										Precipitation																
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days						
										Max.		Min.						Total	Departure From Normal	Greatest Day	Date	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										80° or Above	31° or Below	31° or Below	31° or Below														
KEAAU 92	81.2	64.5	72.9	- 1.5	84	13	61	18+		0	0	0	0	8.27	- 4.11	1.58	7	.0	0		18	7	2				
KEALAKEKUA 26.2	78.6	63.5	71.1		81	31+	60	19+		0	0	0	0	2.07		.53	31	.0	0		4	2	0				
KONA (KAILUA) 68.3					87	11	67	18		0	0	0	0	.07		.05	13	.0	0		0	0	0				
KUKUI-AELE HIC 199					69	20	40	15		0	0	0	0	2.67	- 3.27	.82	7	.0	0		4	2	0				
KULANI CAMP 79	63.9	47.6	55.8		85	4	59	19		0	0	0	0	5.29		1.33	7	.0	0		10	4	1				
PAHALA 21					85	4	59	19		0	0	0	0	.72	- 3.29			.0	0				0	0			
PONAHAKULA 107														.81			31	.0	0				0	0			
PUDKO 95.1					88	24+	66	25+		0	0	0	0	.03		.02	31	.0	0				0	0			
PUU HAAWAA 94.1	85.8	70.2	78.0											.50	- 2.38	.20	13	.0	0				3	0			
UMIKOA 118														.80	- 4.15	.24	18+	.0	0				3	0			
WAIKOA SCO 88.2														9.23		2.52	7	.0	0		16	7	3				
ISLAND			69.9											3.05				.0									

TEMPERATURE AND PRECIPITATION EXTREMES

- HIGHEST TEMPERATURE: 92° ON THE 13TH AT KAHULUI WSO 398, MAUI
- LOWEST TEMPERATURE: 31° ON THE 17TH AT MAUNA LOA SLOPE OBS, HAWAII
- GREATEST TOTAL PRECIPITATION: 10.82 AT HONOMU MAUKA 138, HAWAII
- LEAST TOTAL PRECIPITATION: .00 AT 8 STATIONS
- GREATEST ONE-DAY PRECIPITATION: 3.86 ON THE 7TH AT MOUNTAIN VIEW 91, HAWAII

SPECIAL WEATHER SUMMARY

Although the month was devoid of spectacular or damaging weather, the first high surf of the season and a band of thunderstorms and intense, but scattered, showers brought a foretaste of the coming winter. Meanwhile, a prolonged dry spell hung on over much of the State, but the drought in Maui and Molekai was declared officially over.

High waves generated by a Pacific storm far to the north of Hawaii began arriving along the north and west shores of Kauai and Oahu on the morning of October 7. Swell of 8 to 9 feet over the open sea near the northern islands produced surf of 20 feet or more at Waimea Bay and of 12 to 15 feet at Sunset Beach and Haleiwa -- all noted surfing spots on Oahu's north shore. The surf reached heights of 30 feet at French Frigate Shoals but of no more than 6 to 8 feet along exposed coasts of Maui and Hawaii Island. Although the waves did no damage, a number of surfers and swimmers made incautious by a long summer of small surf had to be assisted ashore by lifeguards and fire rescue squads.

On October 17 and 18 a broad westward-moving band of bad weather, associated with low pressure systems at both lower and upper levels of the atmosphere, moved over the islands, accompanied by massive clouds, thunderstorms, and intense but widely scattered showers. Localized street flooding occurred in Honolulu and two waterspouts were observed off western Oahu.

During most of the rest of the month trade winds of moderate strength prevailed. These became strong and gusty at times and from 5 p.m. on the 21st to 5 a.m. on the 24th small craft warnings were in effect for Hawaiian waters.

The effects of the persistent dry spell that had affected the State since early in the year continued to dwindle away. By October 4 full water service had been restored to Maui's Kula residents after almost 2 months of strict rationing. A few days later, on October 8, forest reserves which had been closed since September 1 in the Koolau and Hana areas and since September 3 in the Kula and Kahikinui areas, all on East Maui, were reopened. And on October 18 the Maui County Board of Water Supply declared the drought in Kula and in Kalae, Molokai, officially over. The only remaining water restrictions in the State, those imposed September 20 on irrigation in Hawaii Island's Lalamilo area, were to be lifted October 31.

But despite the widespread drought-relieving trade wind showers, especially frequent over the mountain watersheds of the northern islands, and the scattered downpours of the October 17-18 period, rainfall totals for the month were still well below normal over much of the State, with large portions of all the islands reporting less than half their October means. This was true of northeastern Kauai, parts of Lanai and Oahu, all of Molokai, Maui's central valley and southeastern West Maui (many gages in both areas received no rain at all) and of Hawaii Island's Hamakua and Kona districts. In fact, October's rainfall deficiencies were so widespread as to make it seem premature to consider the drought safely over. Perhaps even more ominous, however, was the increasing number of stations with lengthening periods of deficient rainfall. A representative selection of those with below-normal rainfall in six or more successive months is listed below.

Station	Number of Successive Months With Below-Normal Rainfall (6 or more months, only)
<u>KAUAI</u>	
North Wailua River	6
Powerhouse Wainiha	6
<u>OAHU</u>	
Kahana	6
<u>LANAI</u>	
Lanai City	9
<u>MAUI</u>	
Hana	6

H A W A I I - O C T O B E R 1 9 7 1

SPECIAL WEATHER SUMMARY

Station	Number of Successive Months With Below-Normal Rainfall (6 or more months, only)
<u>MAUI</u> - Continued	
Kailua	6
Kula Sanatorium	6
Mahinahina	9
Paakea	6
Paia	6
Wailuku	9
<u>HAWAII</u>	
Haina	7
Halepiula	8
Honohina	6
Huehue	9
Kamuela	9
Mauna Loa Observatory	6
Niulii	7
Pahoa	6

Stations With Less Rain in October 1971
than in Any Previous October

(25 years of record or more, only)

Station	Length of Record (Years)	Previous Least October Total	October 1971
<u>KAUAI</u>			
Anahola	41	1.16 Inches	1.14 Inches
<u>HAWAII</u>			
Middle Holualoa	29	0.87	0.33
Napoopoo	31	1.54	1.29

Saul Price
Regional Climatologist for Pacific Region
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY TEMPERATURES

HAWAII
OCTOBER 1971

Station	Day of Month																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
ISLAND OF KAUAI																																	
KANALOHULUHULU 1075	MAX 58	70	71	73	70	75	73	73	72	73	76	75	67	69	73	75	74	73	69	74	73	71	70	70	72	69	67	71	66	64	62	71	71.0
KILAUEA POINT 1133	MAX 81	80	84	79	82	79	65	79	83	80	79	79	85	79	83	78	87	79	84	78	79	80	81	79	83	79	84	78	78	78	80	80.8	
LIHUE WSO 1020.1	MAX 74	83	83	83	83	84	84	85	83	84	83	82	85	84	84	85	85	83	83	82	83	83	83	83	82	83	84	81	79	78	82	83.0	
MAKAHUEA POINT 940.1	MAX 84	85	84	85	84	83	83	83	85	86	85	85	81	87	81	82	85	83	87	85	84	85	66	84	84	87	83	84	83	84	81	84.1	
HANA 1026	MAX 88	89	88	88	87	85	88	89	87	87	88	84	81	86	83	89	88	90	86	85	87	87	81	85	84	84	83	88	83	79	76	85.6	
NIU RIODE 1035	MAX 82	81	82	83	80	81	82	81	81	83	82	84	82	83	83	82	83	84	82	80	81	83	81	82	83	79	80	85	87	77	79	81.8	
WAIHAI LOWER 1054	MAX 77	78	78	78	79	79	78	81	80	80	78	77	78	77	78	78	80	80	78	77	76	78	76	76	76	76	78	78	72	72	75	77.5	
ISLAND OF OAHU																																	
EWA PLANTATION 741	MAX 84				84	86	85	87	86			86	87	84	85	85				86	86	85	84			84	83	84	86	83			
HONOLULU WSO 703	MAX 86	87	86	87	86	88	87	87	86	87	87	84	83	87	87	86	84	82	86	85	85	85	85	84	85	86	86	81	83	80	83	85.2	
HONOLULU SUBSTA 704	MAX 81	82	81	83	82	83	83	83	83	84	84	84	83	83	82	83	82	81	82	82	82	81	81	81	83	84	82	80	82	81	81	82.2	
KAHUKU 912	MAX 74				84	84	84	81	83			85	85	85	84				85	84	83	83			83	82	83	84	83				
KANEHOE MAUKA 781	MAX 81	82	83	82	83	83	80	83	84	82	83	84	82	84	83	84	84	83	83		82	81	82	82	80	80	83	82	80	85	80	82.3	
LUALUALEI 804	MAX 85	84	86	87	85	88	87	86	88	87	87	86	87	83	86	86	86	85	83	86	84	84	84	84	85	85	84	84	84	84	83	85.3	
MAKAPUU POINT 724	MAX 78	80	80	80	80	78	80	80	80	79	79	80	83	84	78	79	80	80	82	80	79	79	79	79	78	77	79	79	80	83	79	79.7	
OPAUELA 870	MAX 80	80	82	80	80	80	80	80	80	80	75	80	80	81	79	81	80	80	81	79	80	79	78	79	80	75	79	79	79	73	75	79.2	
PRI WAIHANA 820.2	MAX 83	82	83	84	86	85	87	86	86	84	86	86	86	85	85	86	84	85	84	82	82	81	81	78	82	82	84	84	83	80	76	83.5	
WAIALEE 896.3	MAX 84	84	85	85	88	86	86	88	86	87	87	88	88	87	86	85	86	84	84	85	84	82	83	83	83	85	85	85	83	85	76	84.9	
WAIALUA 847	MAX 84	84	85	84	88	86	86	83	84	85	85	83	88	85	81	83	84	85	84	85	86	85	86	86	87	86	86	85	83	84	68	84.1	
WAIKIKI 717.2	MAX 86	85	86	86	87	86	87	86	87	87	87	87	87	86	87	86	87	85	85	85	86	85	84	86	84	86	85	86	85	84	82	85.7	
WAIMANALO EXP FARM	MAX 82	84	84	84	85	85	85	85	85	84	84	84	85	86	85	84	84	85	80	82	83	82	83	82	80	82	82	83	81	82	82	83.4	
ISLAND OF MOLOKAI																																	
MOLOKAI AP 524	MAX 82	81	82	83	84	83	86	83	83	83	83	81	85	84	83	83	81	81	82	77	84	82	80	83	80	80	84	82	84	83	81	82.4	
ISLAND OF LANAI																																	
LANAI CITY 672	MAX 77				78	76	78	78	78		77	78	78	79	78				79	78	79	76			79	77	75	75					
ISLAND OF MAUI																																	
HALEAKALA RS 338	MAX 65	61	60	61	63	67	61	64	69	66	68	63	59	60	61	70	63	60	58	64	68	69	66	69	64	64	60	58	57	63	68	63.5	
HALEAKALA SUMMIT 338.4	MAX 55				57	58	58	54	57		60	60	57	62	61				59	53	56	55	57			62	54	53	56	56			
HANA AIRPORT 355	MAX 84	85	84	84	85	82	85	83	84	86	85	85	85	85	85	84	85	85	80	84	80	84	83	82	82	83	82	84	80	81	82	83.5	
KAANAPALI AIRPORT	MAX 86	87	86	84	85	84	84	85	83	84	84	84	82	86	84	84	84	82	84	81	84	82	82	83	83	83	82	83	82	83	82	83.3	
KAHULUI WSO 398	MAX 86	88	87	86	88	86	87	87	89	87	88	87	92	88	87	86	85	86	81	87	86	86	88	87	87	88	84	86	85	87	85	86.7	
KAILUA 446	MAX 78	78	79	78	78	78	76	78	78	78	79	79	79	79	79	79	79	80	79	78	78	78	78	77	77	78	78	77	79	79	79	78.3	
KEAWAKAPU BEACH 260.2	MAX 89	87	90	90	86	87	85	87	87	90	87	87	87	90	86	90	86	86	86	91	89	88	91	88	86	84	88	84	89	85	85	87.5	

See Reference Notes Following Station Index

DAILY TEMPERATURES

Station		Day of Month																															Average					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
KULA SANATORIUM 267	MAX MIN	72 59	70 59	75 57	73 57	74 56	71 57	72 57	75 58	73 58	72 59	74 58	75 55	75 57	72 57	73 57	76 57	75 57	73 57	76 57	75 57	74 58	72 57	75 57	73 57	73 57	72 57	71 56	75 57	73 60	76 59	73 59	76 59	73 57				
LAHAINA 361	MAX MIN	87 67	89 67	89 68	89 67	88 67	88 67	88 67	88 68	88 68	88 68	87 68	88 68	87 65	88 66	88 66	87 66	88 66	87 66	88 67	88 67	89 70	90 69	88 70	88 70	86 70	87 69	86 67	85 66	85 69	84 70	86 68	86 67	87 68	86 68			
WAILUKU 386	MAX MIN	83 71	81 70		82 70	81 71	82 72	82 73	81 70		82 70	82 70	82 70	85 70		82 67	81 69	80 71	82 72	81 70		82 70	81 70		83 70	81 67	81 69	80 66	82 68	82 69	81 70	81 70	82 68	82 68	81 68	81 68		
* * *																																						
ISLAND OF HAWAII																																						
HAINA 214	MAX MIN	82 69	80 69	82 65	82 67	82 66	82 66	78 67	82 67	83 68	82 67	82 69	82 67	83 65	81 66	82 66	81 66	81 66	82 66	82 64	77 69	80 68	81 68	81 68	82 66	81 65	81 67	82 66	82 65	81 66	82 66	82 68	81 68	81 68	81 68	81 68		
HAWAII VOLCNS NP HO 54	MAX MIN	70 55	64 54	69 54	70 53	71 53	70 57	67 55	72 55	72 55	70 56	70 56	69 58	74 53	73 52	72 52	72 52	75 54	68 56	69 55	75 52	72 52	71 52	71 52	69 52	69 52	69 52	69 52	69 52	69 52	69 52	69 52	69 52	69 52	69 52	69 52		
HILO WSO 87	MAX MIN	82 68	84 66	83 68	83 68	85 68	81 68	83 69	83 68	84 68	83 68	86 69	87 65	86 65	85 65	84 63	85 64	85 64	84 67	84 67	82 68	83 66	84 66	84 66	86 66	84 66	82 66	82 66	85 69	82 66	83 66	82 67	82 67	83 66	82 66	82 66		
KAINALIU 73.2	MAX MIN	80 63	74 62	78 60	78 61	79 61	79 61	79 61	79 63	79 63	80 63	81 62	79 62	79 63	77 61	77 60	76 60	78 60	79 60	78 60	77 61	77 61	78 61	79 61	79 61	78 61	78 61	79 61	80 61	81 61	81 61	81 61	81 61	81 61	81 61	81 61		
KAMUELA 192.2	MAX MIN	73 62	70 59	73 57	74 58	75 53	76 53	74 53	74 53	73 56	74 60	75 60	74 60	78 53	75 59	74 59	76 54	73 63	72 60	74 60	75 53	75 53	77 53	75 53	75 53	76 53	77 53	76 53	77 53	77 53	77 53	77 53	77 53	77 53	77 53	77 53		
KEAAU 92	MAX MIN	81 67	79 65	81 65	81 65	81 63	79 65	81 65	82 65	81 65	82 63	82 63	84 63	83 65	83 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	
KEALAKEUA 26.2	MAX MIN	79 66	75 64	79 63	79 62	80 62	80 62	80 65	78 63	79 63	80 63	81 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	
KOHALA MISSION 175.1	MAX MIN	80 69	80 70	82 67	82 67	81 68	75 69	80 69	80 69	80 69	80 69	81 69	81 69	79 65	80 66	81 66	81 66	81 66	81 66	81 66	81 66	81 66	81 66	81 66	81 66	81 66	82 66	82 66	82 66	82 66	82 66	82 66	82 66	82 66	82 66	82 66	82 66	
KONA (KAILUA) 68.3	MAX MIN	85 72		85 68	85 69	85 70	85 72	85 70		87 71	86 70	85 70	85 70	83 71	83 70	85 70	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	85 69	
KULANI CAMP 79	MAX MIN	64 52	61 50	63 50	64 46	65 44	65 53	65 48	67 50	65 54	67 52	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	67 46	
MAUNA LOA SLOPE 085	MAX MIN	52 37	53 36	57 35	58 39	62 35	55 42	55 38	55 38	55 38	58 37	54 37	54 37	58 39	56 42	56 39	58 39	59 50	58 39	59 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	58 39	
MOUNTAIN VIEW 91	MAX MIN	77 62	77 59	77 59	77 59	78 58	78 58	78 61	77 61	78 61	78 61	78 58	78 60	78 55	78 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	81 55	
NAALEHU 14	MAX MIN	80 70	80 70	82 65	82 65	80 69	81 69	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	80 64	
OKALA 223	MAX MIN	81 67	78 67	81 66	82 66	82 66	80 68	80 68	81 67	81 67	82 67	82 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67
OPIHIHALE 2 24.1	MAX MIN	75 63	74 60	75 60	76 59	80 59	78 61	79 61	80 61	78 61	77 61	75 61	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60	77 60
PAHALA 21	MAX MIN	81 67		85 62	83 62	82 62	82 67	82 63		82 63	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61	82 61
PUAKO 95.1	MAX MIN	86 76	85 73	86 73	87 85	85 85	87 87	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83	87 83
UPDLU POINT USCG 159.2	MAX MIN	82 67	82 72	80 72	82 70	84 67	81 69	83 68	83 71	85 69	85 70	83 70	84 66	82 67	82 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67	81 67

EVAPORATION AND WIND

Station		Day Of Month																															Total or Avg.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
* * * ISLAND OF KAUAI																																		
LIHUE WSO 1020.1	EVAP WIND MAX MIN	.31 212 82 63	.29 214 83 63	.31 192 83 62	.29 116 82 62	.27 109 84 64	.30 140 84 64	.32 149 84 64	.29 144 83 64	.24 138 84 64	.30 152 84 64	.31 139 84 64	.13 118 83 63	.20 134 84 63	.36 198 81 63	* 173 84 63	* 109 84 62	.95 83 58	.28 54 58	.28 182 81 58	.21 267 79 65	.26 270 79 63	.38 256 80 63	.32 194 80 63	.32 151 81 62	* 116 84 63	.56 85 58	.16 56 58	.15 56 58	- 75 61	.02 101 68	.02 101 66	.02 101 66	8.378 4552 81.0 62.3
* * * ISLAND OF OAHU																																		
HONOLULU OBSERV 702.2	EVAP WIND MAX MIN	.16 33 86 66	.30 40 89 66	.37 39 88 65	.30 35 90 65	.30 26 90 65	.21 24 86 65	.30 27 92 65	.27 27 90 64	.27 28 90 64	.30 28 91 66	.24 32 89 66	.08 31 90 66	.35 42 91 64	.45 23 90 64	.21 43 89 65	.23 20 89 65	- 23 87 63	.15 24 90 63	.16 51 87 63	.21 44 87 66	.16 51 88 66	.48 44 87 66	.15 30 86 65	.25 29 91 66	.15 23 90 66	.15 23 89 62	.25 20 89 63	.43 33 87 67	.05 14 75 65	.05 14 75 65	.05 14 75 65	7.718 951 88.4 65.0	

STATION INDEX

HAWAII OCTOBER 1971

Table with multiple columns: STATION, INDEX NO., DIVISION, DISTRICT, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. Includes sections for ISLAND OF KAUAI and ISLAND OF HONOLULUI.

STATION INDEX

HAWAII
OCTOBER 1971

CONTINUED

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE I	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE I	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER
								TEMP.	PRECIP.	EVAP.	SPECIAL USE INSTR.										TEMP.	PRECIP.	EVAP.	SPECIAL USE INSTR.	
ISLAND OF HAWAII																									
MIDDLE PEN 147-1	A 6270	01	N KOHALA	20 05	155 50	1380	VAR					KAMUA RANCH	WAIAKEA SCO 86-2	9025	02	S HILD	2 19 40	155 08	1050	7A			SHINICHI KANEHIRO		
MOUNTEIN VIEW 91	A 6407	03	KAU	19 12	155 30	500	6A	6A				HAWAIIAN RANCH CO	WAIKONANUOLA 178-6	9350	01	N KOHALA	1 20 08	155 47	3830	7A			KAMUA RANCH		
NAALEHU 14	A 6588	03	KAU	19 04	155 35	673	8A	6A				HUTCINSON SUGAR CO													
NAPOOPOO 28	A 6697	04	S KOHA	19 28	155 35	355	7A					KONA EXPERIMENT STA													
NIULII 179	A 6806	01	N KOHALA	20 14	155 45	75	6A					KOHALA SUGAR CO													
ONKALA 223	A 7131	02	N HILD	20 01	155 17	430	7A	7A				LAUPAHOE SUGAR CO													
OPHIKALE 2 24-1	A 7168	04	S KOHA	19 46	155 53	1270	7A	7A				MISS C LEONARD													
ORCHID LAND EST 91.5	A 7189	02	PUNA	19 34	155 00	445	VAR					BOARD OF WATER SUPPLY													
PAAHUAU 217	A 7204	01	HAMAKUA	1 20 05	155 26	415	7A					PAAHUAU SUGAR CO													
PAAULO 221	A 7312	01	HAMAKUA	1 20 03	155 22	800	7A					HAMAKUA MILL CO													
PAHALA 21	A 7421	03	KAU	19 12	155 29	870	8A	6A				HAWAIIAN AGR CO													
PANOA 65	A 7457	02	PUNA	19 30	154 57	670	6A					PUNA SUGAR COMPANY													
PAKAD 37	A 7643	03	KAU	19 22	155 28	5000	7A					HAWAIIAN RANCH CO, INC.													
PAPAIOU 144-1	A 7711	02	S HILD	19 47	155 06	200	7A					MAUNA KEA SUGAR CO													
PAPAIOU MAUKA 140-1	A 7721	02	S HILD	19 47	155 08	1270	7A					MAUNA KEA SUGAR CO.													
PEPEKED MAKAI 144	A 8000	02	S HILD	19 51	155 05	190	7A					PEPEKED SUGAR CO													
PILIKONUA 89	A 8031	02	S HILD	19 44	155 10	1750	7A					STATE DIV OF FORESTRY													
POHAKULOA 107	A 8063	02	HAMAKUA	19 45	155 32	6511	VAR	C				STATE DIVISION OF PARKS													
PUAKU 95-1	A 8186	05	KOHALA	19 59	155 50	5	8A	8A				ERWIN W. RAPP													
PUU KIME 120	A 8393	01	HAMAKUA	1 19 56	155 24	7750						KUKIAU RANCH CO													
PUU LAU 102-1	A 8452	05	HAMAKUA	1 19 50	155 36	7440						STATE DIV OF FISH-GAME													
PUU LEHUA 73	A 8460	04	N KOHA	1 19 34	155 49	4800						W.M. GREENWELL RANCH													
PUU MAUI 113	A 8515	01	HAMAKUA	1 19 55	155 26	6960						KUKIAU RANCH CO													
PUU OO 82	A 8550	02	S HILD	19 44	155 23	3340	6A	C				MISS JACKIE BENLNER													
PUU WAHAA 94-1	A 8555	05	N KOHA	1 19 47	155 51	2520	7A					DILLINGHAM RANCH INC													
SADDLE ROAD 1 84	A 8596	02	S HILD	19 42	155 12	2340	7A					BOARD OF WTR SUPPLY													
SOUTH POINT CORRAL 3	A 8675	03	KAU	1 18 57	155 41	500	7A	C				HAWAIIAN RANCH COMPANY													
UMIKIDA IIB	A 8760	01	HAMAKUA	1 19 59	155 23	3420	8A	7A				KUKIAU RANCH CO													
UPULU POINT USCG 159-2	A 8820	01	N KOHALA	1 20 15	155 53	61	8A	8A				U S COAST GUARD													

‡ DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN
2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3658, Honolulu, Hawaii 96811, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII."

DIMENSIONAL UNITS: Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in "F.", precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are tens of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.

OBSERVATION TIME: Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.

EVAPORATION: Is measured in the standard Weather Service-type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extremes of temperature of water in pan as recorded during 24 hours ending at time of observation. Wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 6-8 inches above the pan.

NORMALS: For all stations are climatological standard normals based on the period 1931-1960.

STATION NAMES: Hawaii state key numbers are included following station names in the several tables.

LATE REPORTS AND CORRECTIONS: will be carried only in the June and December issues of this bulletin.

INTERPOLATED VALUES: for monthly precipitation totals may be found in the annual issue of this publication.

IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, and the Station Index.

No record in the "Monthly Summarized Data" table and the "Daily Temperature" table is indicated by no entry.

+ And also on an earlier date or dates.

++ Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data.

* Amount included in following measurement, time distribution unknown.

A The letter "A" shown following station name in "Monthly Summarized Data" table, "Daily Precipitation" table, and "Station Index", indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.

B Adjusted to a full month.

J "Supplemental Data" table.

M One or more days of record missing; if average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.

R Amounts from recording gage.

T Trace, an amount too small to measure.

V includes total for previous month.

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

AR Observation made after rain.

C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Monthly Summarized Data" bulletin they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.

MO Gage read once monthly; usually on the last day.

OC Gage readings at periods varying from a few weeks to several months.

S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as late reports in the June issue of this publication.

SS Observation time is near sunset.

VAR Observation time is variable.

W1 Gage read weekly or irregularly only.

W2 Gage read weekly and last day of month.

Thermometers are generally exposed in a shelter located a few feet above sod-covered ground; however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.

Stations appearing in the tables with no data were either missing or received too late to be included in this issue.

General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

Information concerning the history of changes in locations, elevations, exposure, etc., of substations through 1957 may be found in the publication "Substation History" for this State, price 35 cents. Similar information for regular National Weather Service Offices may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

Subscription Price: 20 cents per copy, monthly and annual; \$2.50 per year. (Yearly subscription includes the Annual Summary.) Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.

William J. Hayward
Director, National Climatic Center

USCOM-WOAA-ASHEVILLE, N.C. 2/272-890

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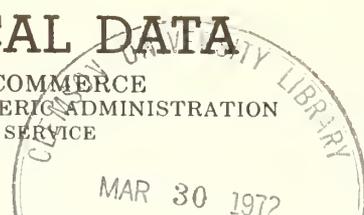
CLIMATOLOGICAL DATA

HAWAII

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ENVIRONMENTAL DATA SERVICE

NOVEMBER 1971

Volume 67 No. 11



MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation										
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow/Sleet		No. of Days		
										50° or Above	40° or Above	30° or Above	20° or Above					Total	Max. Depth on Ground	Date	.10 or More	.50 or More
* * * ISLAND OF KAUAI																						
ANAHOLA 1114	A																					
KANALOHULUHULU 1075		68.0	52.2	60.1		75	21	44	29													
KAPAA STABLES 1104	A																					
KILAUEA FIELD 17 1135	A																					
KILAUEA POINT 1133		79.4	71.1	75.3		87	7	64	3													
* * * ISLAND OF MAUI																						
KOOLA 936	A																					
LIHUE WSD 1020.1 AP	//R	81.3	72.6	77.0	2.5	83	7+	67	16													
MANA 1026		84.6	64.8	74.7	.0	87	24+	62	22+													
N WAILUA OITCH 1051	A																					
PH WAINIHA 1115																						
* * * ISLAND OF HAWAII																						
PUEHU RIDGE 1040																						
WAHIAWA 930	A	74.3	64.0	69.2		77	7+	60	16													
WAIHAI LOWER 1054																						
WAIIMEA 947																						
* * * ISLAND OF OAHU																						
* * * ISLAND OF MOLOKAI																						
HONOLULU OBSERV 702.2	R	82.0	69.4	75.7	-.2	85	6	64	30+													
HONOLULU WSPD 703 AP						86	1	55	17													
KANUKU 912	A																					
KANEHE MAUKA 781	A	79.0	70.5	74.8	.6	83	6	62	8													
KOOLAU OAM 833																						
* * * ISLAND OF LANAI																						
LUALUALEI 804	A	82.8	69.2	76.0		86	6	63	28													
MAKAPUU POINT 724		77.0	68.0	72.5		81	7+	52	8													
NUUANU RES 4 783																						
OPAEULA 870	A	73.7	61.9	67.8	-2.4	80	30+	59	4													
PALOLD VALLEY 718	R																					
* * * ISLAND OF MAUI																						
PRI WAHIAWA 820.2	A	79.9	64.2	72.1		86	8+	60	16+													
WAHIAWA OAM 853	A																					
WAIHOLE 837	A																					
WAIALEE 896.3																						
WAIALUA 847	A	82.2	63.5	72.9	-.5	86	6	60	11													
WAIKIKI 717.2		83.2	70.2	76.7		86	7	66	15													
WAIMANALO EXP FARM		80.5	70.8	75.7		84	6	66	15													
WAIPIHU 750	A																					
* * * ISLAND OF HAWAII																						
* * * ISLAND OF MAUI																						
KUALAPUU 534	A																					
MAPULEHU 542																						
MAUNALOA 511	A																					
MOLOKAI AP 524		80.3	69.1	74.7		84	16+	65	5+													
* * * ISLAND OF LANAI																						
LANAI CITY 672	A																					
* * * ISLAND OF MAUI																						
HALEAKALA 8 E S 434	A																					
HALEAKALA RS 338		61.8	44.4	53.1		69	28+	36	11													
HANA AIRPORT 355		80.4	63.8	72.1		84	5	59	20+													
HONOKOHUA 493	A																					
KAANAPALI AIRPORT		81.1	66.6	73.9		85	7	62	5													
KAHULUI WSD 398 AP	R	85.1	65.9	75.5	.5	90	4	60	29+													
KAILUA 446		75.9	65.2	70.6	-.4	79	11+	63	24+													
KEANAE 346	A																					
KIPAHULU 258																						
KULA SANATORIUM 267		72.7	56.7	64.7	.3	76	5+	54	22+													
LAHAINA 361		85.5	65.9	75.7		87	27+	63	23+													
PAIA 406																						
WAILUKU 386	A	80.5	69.1	74.8	.0	87	8	66	29													
* * * ISLAND OF HAWAII																						
HAINA 214		78.8	65.7	72.3	.3	82	26+	63	4													
HAWAII VOLCNS NP HQ 54		69.8	53.1	61.5	.7	75	25+	45	19													
HILD WSD 87 AP	R	81.1	66.5	73.8	.6	84	5+	62	20													
HUEHUE 92.1	A																					
KAINALIU 73.2		76.7	60.7	68.7		81	19	57	22													

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation											
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow. Sleet			No. of Days		
										Max.		Min.						Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										90° or Above	31° or Below	32° or Below	33° or Below										
KEAAU 92	78.4	64.4	71.4	- 1.2	81	6+	63	21+		0	0	0	0	19.08	5.15	4.20	25	.0	0		27	11	5
KEALAKEKUA 26.2	77.3	62.3	69.8		80	19+	59	23+		0	0	0	0	5.32		1.05	13	.0	0		13	3	1
KONA (KAILUA) 68.3	84.4M	69.2M	76.8M		88	9+	66	30		0	0	0	0	2.19	- 4.72	1.30	12	.0	0		4	2	1
KUKUIHAELE HIC 199														2.04		.40	9	.0	0		6	0	0
KULANI CAMP 79	58.9	46.4	52.7		65	5	35	11		0	0	0	0	17.89		3.02	25	.0	0		25	9	6
PAHALA 21					84	9	60	30+		0	0	0	0	13.08	7.64	5.18	25	.0	0				0
PONAKULOA 107														1.48		.02	25	.0	0				0
PUAKO 95.1														.03		.37	15	.0	0		0	0	0
PUU WAANAA 94.1														1.38	- .71	.89	9	.0	0		0	0	0
UMIKOA 118														2.53	- 3.87			.0	0				0
HAWAIIAN SCO 88.2														27.41		3.79	25	.0	0		27	14	10
ISLAND			69.3											7.80				.0					

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 90° ON THE 6TH AT KAHULUI WSO 398 AP, MAUI

LOWEST TEMPERATURE: 29° ON THE 22D AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 35.83 INCHES AT KIPA 89.2, HAWAII

LEAST TOTAL PRECIPITATION: .00 AT 9 STATIONS

GREATEST ONE-DAY PRECIPITATION: 6.85 INCHES ON THE 25TH AT NAALEHU 14, HAWAII

SPECIAL WEATHER SUMMARY

November continued what has thus far been a quiet winter, in contrast to last year's tempestuous weather. But there were occasional reminders of the season.

Toward the end of the month, a westward moving area of low pressure (trough) in the upper atmosphere brought a surge of rainfall to the southeastern slopes of Hawaii Island. The bulk of the rain occurred between about noon on the 24th and 8 p.m. of the 25th, with totals of 8 to 10 inches between South Point and the Pahala area. Although intensities did not exceed about 1.25 inches an hour, there was some flooding of fields and roads, with the Belt Highway closed for several hours.

On the 27th, surf along the north shores came up for the second time this season. The big waves, which reached heights estimated at up to 20 feet at Sunset Beach, contributed handsomely to a surfing exhibition, but did no damage, although the usual number of swimmers and surfers had to be helped ashore.

Otherwise, trade winds predominated throughout the month with small craft warnings in effect on four separate occasions, for a total of slightly over 7 days.

Although in terms of water availability, the State seemed to be recovering from the drought of earlier this year, rainfall remained deficient over large areas of all the islands. Thus, while good showers broke an 8-month dry spell in the Waimea area of Hawaii Island, Wailuku, on Maui, registered its tenth successive month of below-normal rainfall, with amounts less than one-fourth of the monthly mean in eight of those months. Elsewhere, western Kauai, Lanai, Maui's south-western coast and central valley, and other scattered gages also had less than one-fourth their average November rainfall.

Also worthy of note were the funnel clouds reported from Wheeler Air Force Base, Oahu, on November 3 and from Lihue, Kauai, on November 15. In the former instance, two funnels reached to within about 1,000 feet of the ground from cumulus clouds with bases at 4,000 feet and tops at 6,000 feet. The Lihue sightings also involved two funnel clouds. These were columnar in shape, one dark and one white, and extended down about 1,500 feet from cumulus clouds whose bases were estimated at 2,200 feet and tops at 4,500 feet. Most remarkable about these occurrences is that the funnels appear to have come from clouds only 2,000 to 4,000 feet thick, in contrast to the towering cumulo-nimbus clouds with which they are ordinarily associated.

Stations With Less Rain in November 1971
than in Any Previous November

(25 years of record or more, only)

Station	Length of Record (Yrs.)	Previous Least November Total	November 1971
<u>MAUI</u>			
Keahua	63	.34 inches	.22 inches
Waikapu	79	.17 inches	.06 inches

Saul Price
Regional Climatologist for Pacific Region
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY PRECIPITATION

HAWAII NOVEMBER 1971

Continued

Table with columns for Station, Precipitation (PPT), and Day of Month (1-31). Rows are grouped by island: ISLAND OF MOLOKAI, ISLAND OF LANAI, ISLAND OF MAUI, and ISLAND OF HAWAII. Each row lists a specific station and its recorded precipitation for each day of the month.

See reference notes following Station Index.

STATION INDEX

HAWAII NOVEMBER 1971

Main data table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE I, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE I, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. The table is split into two columns for Island of Kauai and Island of Molokai.

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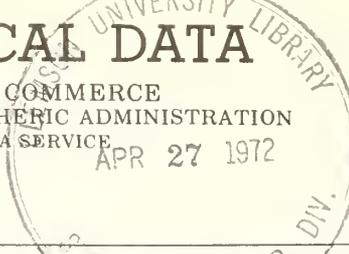
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CLIMATOLOGICAL DATA

U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 ENVIRONMENTAL DATA SERVICE

HAWAII
 DECEMBER 1971
 Volume 67 No. 12



MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation														
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet		No. of Days						
										90° or Above	80° or Above	70° or Above	60° or Above					Total	Total	Date	Total	Max. Depth on Ground	Date	10 or More	50 or More	100 or More
* * * ISLAND OF KAUAI																										
ANAOHOLA 1114	A	64.1	51.3	57.7		59	6+	43	31	0	0	0	0	12.54	7.14	2.96	19	.0	0	12	3	1				
KANALOHULUHULU 1075														6.66				.0	0							
KAPAA STABLES 1104	A													12.83				.0	0							
KIIAUEA FIELDO 17 1135	A													11.62	2.11			.0	0							
KILAUEA POINT 1133	A	77.1M	70.4M	73.8M		80	25+	65	16	0	0	0	0	11.86	3.80	19		.0	0	22	5	2				
* * * ISLAND OF OAHU																										
KOIOA 936	A													8.70	1.08			.0	0							
LIHUE WSO 1020.1 AP	//R	78.9	70.0	74.5	2.3	82	6+	64	18+	0	0	0	0	7.52	2.34	4.40	18	.0	0	7	2	2				
MANA 1026		83.3	62.6	73.0	.9	86	15+	59	31+	0	0	0	0	4.59	1.29	2.84	19	.0	0	8	1	1				
N WAILUA OITCH 1051	A													22.89				.0	0							
PH WAINIHA 1115														8.38	- 5.21	2.05	20	.0	0	16	5	2				
PUEHU RIDGE 1040														6.76		2.97	19	.0	0							
WAHIAWA 930	A					77	6	58	22	0	0	0	0	7.79	3.30			.0	0							
WAIAMI LDWR 1054														19.50		6.87	19	.0	0	27	10	4				
WAIMEA 947														7.25	3.90	4.47	19	.0	0	6	2	2				
ISLAND																										
ISLAND OF MAUI																										
HONOLULU OBSERV 702.2	R	79.4	67.2	73.3	-.3	83	9+	60	24	0	0	0	0	2.32		.91	17	.0	0	4	2	0				
HONOLULU WSPD 703 AP														2.88	- .11	1.47	17	.0	0	4	2	1				
KAHUKU 912	A													5.30	1.02			.0	0							
KANEHE MAUKA 781	A	77.2M	67.8M	72.5M	.4	82	19+	61	27	0	0	0	0	17.25	7.25	2.75	16	.0	0	22	9	5				
KOOLAU OAM 833	A																	.0	0							
LUALUALEI 804	A	80.6	67.6	74.1		85	6	60	31+	0	0	0	0	.86				.0	0							
MAKAPUU POINT 724	A	75.7	67.5	71.6		82	19	63	22	0	0	0	0	4.15	-.84	1.75	17	.0	0	3	3	2				
NUUANU RES 4 783														10.23	-.82	1.84	19	.0	0	17	7	4				
OPAFULA 870	A	75.8	61.4	68.6	1.1	82	6+	57	16	0	0	0	0	7.32	.35			.0	0							
PALOLO VALLEY 718	R													8.76	- 4.55	2.32	19	.0	0	15	5	3				
PRI WAHIAWA 820.2	A													5.32				.0	0							
WAHIAWA OAM 863	A													5.01		1.45	19	.0	0							
WAIANDLE 837	A													13.07	- 1.22			.0	0							
WAIALEE 896.3	A	77.3	65.9	71.6		82	19+	62	11+	0	0	0	0	8.45		3.75	18	.0	0	12	3	2				
WAIALUA 847	A	79.5	61.4	70.5	-.7	85	9+	55	22	0	0	0	0	6.31	2.37	4.04	18	.0	0	5	3	2				
WAIKIKI 717.2		81.2	67.0	74.1		85	6	59	25	0	0	0	0	2.58		.81	18	.0	0	7	2	0				
WAIMANALO EXP FARM		78.5	68.5	73.5		83	6	61	24	0	0	0	0	4.22		1.74	18	.0	0	5	2	2				
WAIPAHU 750	A													2.40	- 1.14			.0	0							
ISLAND																										
ISLAND OF MOLOKAI																										
KUALAPUU 534	A													.28	- 3.98			.0	0							
MAPULEHU 542														2.19	- 2.02	.58	30	.0	0	7	1	0				
MAUNALOA 511	A													1.87	- 1.63	1.75	17	.0	0	4	0	0				
MOLOKAI AP 524		78.2	66.8	72.5		84	7+	61	31	0	0	0	0	.56		.16	17+	.0	0							
ISLAND																										
ISLAND OF LANAI																										
LANAI CITY 672	A		M	M	M		83	20	55	27+	0	0	0	1.40	- 2.32			.0	0							
ISLAND																										
ISLAND OF MAUI																										
HAIKAKALA 8 E S 434	A	59.4	42.1	50.8		71	9	34	26+	0	0	0	0	4.57	- 5.89	1.15	14	.0	0	10	4	1				
HAIKAKALA RS 338														3.54		1.88	19	.0	0	6	2	1				
HANA AIRPORT 355		78.1	62.5	70.3		80	18+	56	11	0	0	0	0	3.46		.47	14	.0	0	14	0	0				
HONOKOHUUA 493	A													1.79	- 2.86	.75	14	.0	0							
KAANAPALI AIRPORT		79.1M	63.9M	71.5M		85	19	56	5	0	0	0	0	.91		.65	17	.0	0	1	1	0				
KAHULUI WSO 398 AP	R	82.7	62.6	72.7	-.0	89	18	56	26	0	0	0	0	.14	- 2.56	.07	11	.0	0	0	0	0				
KAILUA 446		73.6	63.6	68.6	-.3	79	19	60	19+	0	0	0	0	6.55	- 5.30	1.39	14	.0	0	16	4	1				
KEANAE 346	A													13.20	- 9.12			.0	0							
KIPAHULU 258														6.06	- 4.85	.73	14	.0	0	18	2	0				
KULA SANATORIUM 267		71.5	54.3	62.9	.6	78	19	50	26+	0	0	0	0	.10	- 2.93	.08	1	.0	0	0	0	0				
LAHAINA 361		84.3	63.8	74.1		91	19	60	28+	1	0	0	0	.00	- 2.29	.00		.0	0	0	0	0				
PAIA 406														.94	- 3.28	.30	12	.0	0	3	0	0				
WAILUKU 386	A	80.8M	63.1M	72.0M	-.6	89	27	52	31+	0	0	0	0	.20	- 4.12			.0	0	0	0	0				
ISLAND																										
ISLAND OF HAWAII																										
HAIANA 214		76.6	63.2	69.9	-.3	81	19	59	31	0	0	0	0	3.99	- 3.71	.92	15	.0	0	10	4	0				
HAWAII VOLCNS NP HO 54		62.5	50.4	56.5	- 2.2	68	6+	45	22+	0	0	0	0	22.96	12.82	5.30	19	.0	0	26	13	5				
HILO WSO 87 AP	R	77.7	64.0	70.9	-.6	83	7	60	22+	0	0	0	0	32.19	17.01	6.37	13	.0	0	27	15	8				
HUEHUE 92.1														1.93	-.43			.0	0							
KATNALIU 73.2	A	76.1	59.4	67.8		79	31+	56	23	0	0	0	0	3.32	.31	1.02	3	.0	0	6	3	2				

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY ON PAGE 143

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Continued

HAWAII
DECEMBER 1971

Station	Temperature											Precipitation																	
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days					Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days							
										Max.									Min.					Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										31° or Above	32° or Above	33° or Above	34° or Above	35° or Above					31° or Below	32° or Below	33° or Below	34° or Below	35° or Below						
KEAAU 92 KFALAKEKUA 26.2 KONA (KAILUA) 68.3 KUKUIHAELE HIC 199 KULANI CAMP 79	75.7	62.6	69.2	- 1.8	79	18+	59	23+		0	0	0	0	0	32.56	16.39	7.30	19	.0	0		27	14	6					
A	75.9	60.7	68.3		79	19+	57	23		0	0	0	0	0	2.30		.43	21	.0	0		9	0	0					
M					86	20	62	17		0	0	0	0	0	4.42		.23	16	.0	0		1	0	0					
H	57.5	44.7	51.1		66	6	40	22		0	0	0	0	0	4.21	- 5.01	1.10	30	.0	0		6	4	1					
A					82	13	55	22		0	0	0	0	0	6.43		T	26+	.0	0		0	0	0					
A	81.6	65.9	73.8		85	4	61	17		0	0	0	0	0	.51	2.00	T	26+	.0	0		0	0	0					
A										0	0	0	0	0	1.27	- .43	.49	27	.0	0		0	0	0					
A										0	0	0	0	0	4.46	- 7.03	1.01	15	.0	0		0	0	1					
HAWAIIAN ISLAND			65.9												38.26		6.30	14	.0	0		26	20	12					
															10.75				.0										

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 91° ON THE 19TH AT LAHAINA 361, MAUI
 LOWEST TEMPERATURE: 24° ON THE 31ST AT MAUNA LOA SLOPE OBS, HAWAII
 GREATEST TOTAL PRECIPITATION: 46.77 INCHES AT KIPA 89.2 HAWAII
 LEAST TOTAL PRECIPITATION: .00 AT 11 STATIONS
 GREATEST ONE-DAY PRECIPITATION: 9.83 INCHES ON THE 19TH AT PAPAIKOU MAUKA 140.1, HAWAII

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY

December continued what had thus far been a quiet winter, free from major storms. However, the month was marked by tragedy, when two lives were lost in a rain-swollen stream on Oahu. But while Oahu and, to a greater extent, Kauai were subjects to occasionally heavy rains, the islands to the south remained in the grip of an unrelenting dry spell which in some areas had already exceeded a year in length.

For much of the month, the Central Pacific was dominated by large areas of high pressure, which helped deflect to the north the cold fronts and migratory cyclones ordinarily responsible for most of Hawaii's heavier winter rains. However, this pattern and the trade winds associated with it were frequently interrupted by periods of rain and of light or southerly winds.

A brief chronological review of the month's more important weather events follows:

1. December 6. Scattered thunderstorms and rain occurred on Kauai and over the Ka'u (southeastern) slopes of Hawaii Island from moist unstable air and southeasterly winds accompanying a low pressure area about 500 miles west-northwest of Kauai.

2. December 10-12. Trade winds gusting to 46 m.p.h. stirred up the dust and numerous complaints in Maui's central valley and in the Puako area of Hawaii Island. On the 11th, the wind knocked down telephone lines in Kohala, disrupting service for about 4 hours.

Also on December 11, the Danish freighter, Heering Kirse, went down near Midway Island after a week of battling seas of up to 30 feet. Thirty-one of 36 persons aboard were rescued.

3. December 13. Low pressure aloft, over trade winds lower in the atmosphere, gave Hawaii Island's Hilo and Puna areas heavy rains and thunderstorms. Hilo Airport reported a waterspout 1/2 mile offshore. A 6-inch snowfall, wind-blown into 3-foot drifts, made the road to Mauna Kea Observatory almost impassable, and blanketed that mountain and Mauna Loa to an elevation of 10,000 feet.

4. December 16-18. Strong southerly winds, associated with a low pressure area as it moved from about 500 miles north to 750 miles northwest of Honolulu, brought heavy, but localized, rain and scattered thunderstorms to Kauai and Oahu, and on the 18th, to the Hilo area of Hawaii Island. Following intense rains (2-day storm totals in the area reached 8 to 10 inches) Kauai's Wailua River overflowed for about an hour on the afternoon of the 18th, inundating the Coco Palms

Hotel parking lot to a depth of about 3 feet and entering a home. In southern and southwestern Kauai, where rainfall totalled 5 to 9 inches, floodwaters and mudslides damaged roads at Kaumakani and in Lawai Valley. In the Kalaheo area alone, repairs to Kamualii Highway amounted to \$15,000.

At about the same time (at 2 p.m. on the 18th) a waterspout came ashore at Kaumakani and became a minor tornado that moved north-northeastward through Olokele Sugar Company fields, accompanied by a thunderstorm and heavy rain. Damage to cane and irrigation flumes was negligible. About an hour later, another funnel cloud was observed 2 miles east of Lihue Airport, while at Kealia, at 3:30 p.m., hailstones "the size of marbles," and others described as cigar-shaped and "up to 1/2 inch in diameter and 2 inches long," an extraordinarily large size for Hawaii, were reported to have occurred.

5. From about December 21 to the end of the month, freighters and barges caught in storms between Hawaii and the West Coast limped into Honolulu harbor with cargos damaged and losses of as high as 80 percent. One barge captain reported encountering 80- to 90-foot swell and 75 m.p.h. winds.

6. Between 1 and 2 p.m. on December 31, a group of people attempting to cross Kaluanui Stream just below Sacred Falls' pool on windward Oahu was swept downstream when the water, already rain-swollen to the height of a "man's shoulder," surged higher and the guide rope broke. A young girl and a woman who attempted to rescue her were drowned. A man suffered two broken toes and a boy bruises and contusions. The rain responsible for the flooding appears to have occurred from an isolated cloud tower. A rain gage 2 miles north of the site recorded only 1.35 inches between 8 and 9 a.m. (.60 inch within a very few minutes) and .39 inch between 1:30 and 2:30 p.m. No other rain of consequence was measured in the area.

Earlier that day, another waterspout came ashore at Kaumakani, Kauai, about 1/2 mile west of that of December 18, and moved northeastward through Olokele Sugar Company fields, but did little damage. These two waterspout-tornados occurred in the same area severely battered by a tornado in December 1967.

7. Small craft warnings were put into effect on four occasions - three times for gusty trades, once for strong southerly winds - for a total of 9 days during the month.

The occasional outbreaks of heavy rain over

SPECIAL WEATHER SUMMARY - Continued

Kauai, Oahu, and southeastern Hawaii Island, had left the central islands and even large portions of Hawaii Island dry. By month's end, pastures on leeward and lowland Molokai, and on Maui's Kula slopes and in western Maui were browning in places and badly deteriorated. Water was being hauled and supplemental feed used to counter the adverse effects on cattle in those areas.

On Kauai, rainfall was deficient only in the north-western section.

Oahu had as many gages with below their December rainfall average as above, and a scattering had less than half their monthly means.

The mountain watershed of windward East Maui, whose drought the Maui County Council had declared officially over in October 1971, again recorded well under its average monthly rainfall. Elsewhere, Maui's December rainfall ranged from below half its average for the month to less than 10 percent in the central valley and Kula. The Wailuku area recorded its eleventh successive month of below-normal rainfall, with amounts less than half the monthly mean in nine of those months. A number of gages on Maui read zero for the month - several of them, as the table below

shows, for the first time in long periods of record.

Molokai and Lanai were dry everywhere. Molokai's central valley - including the Kalae area, which until mid-October had been hauling in water to relieve its drought - had less than one-tenth of its mean December rainfall. No reporting gage on Lanai showed as much as 40 percent of its normal rainfall, and Lanai City had its eleventh successive month of deficient rainfall.

On the Big Island, most gages in the Ka'u (southeastern) District reached at least their average rainfall for the month, and in the Puna and Hilo areas, a number had two and occasionally three times their December means. In contrast, Kohala and Hamakua continued dry, with some lower-elevation gages on the western slopes of the Kohala Mountains reading zero. Kona was also dry at lower and higher elevations and about average in between.

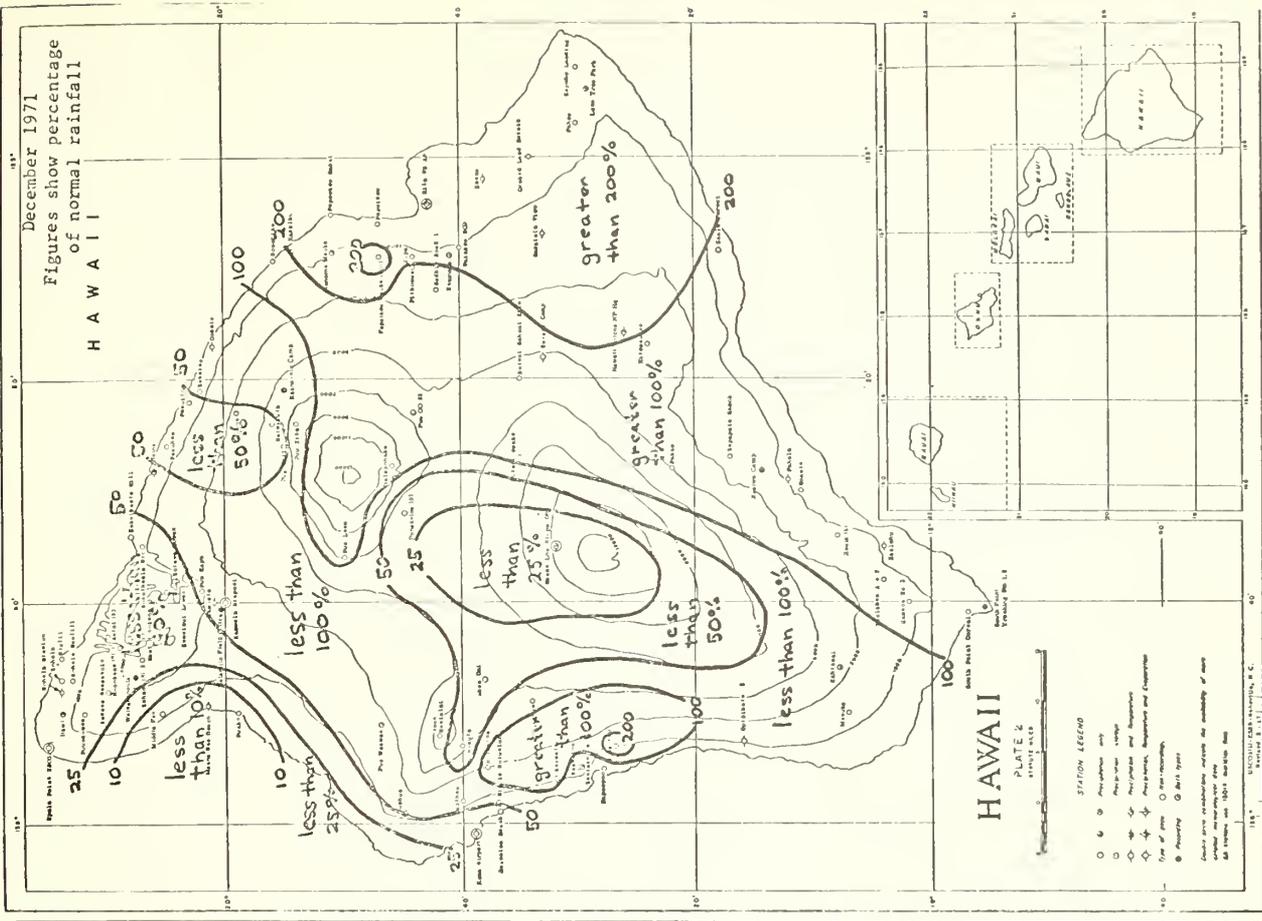
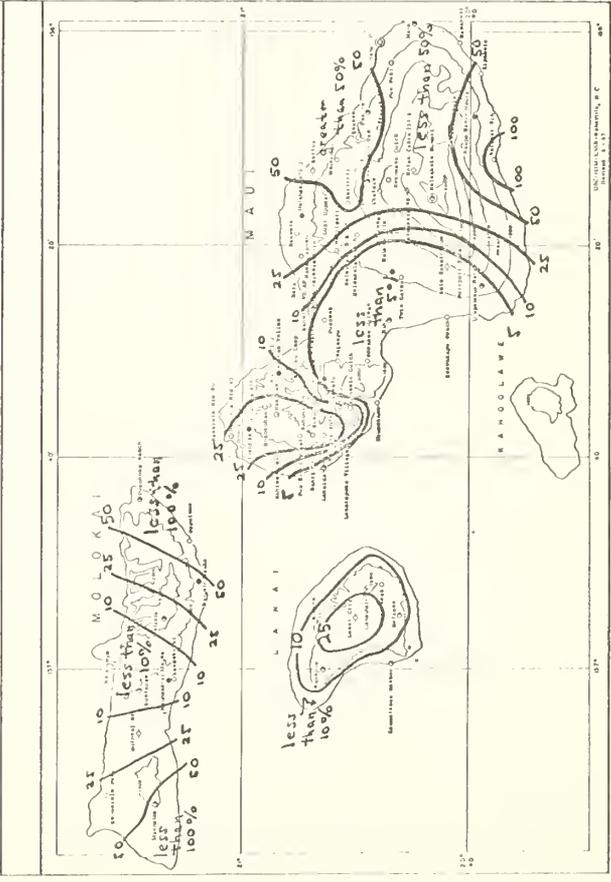
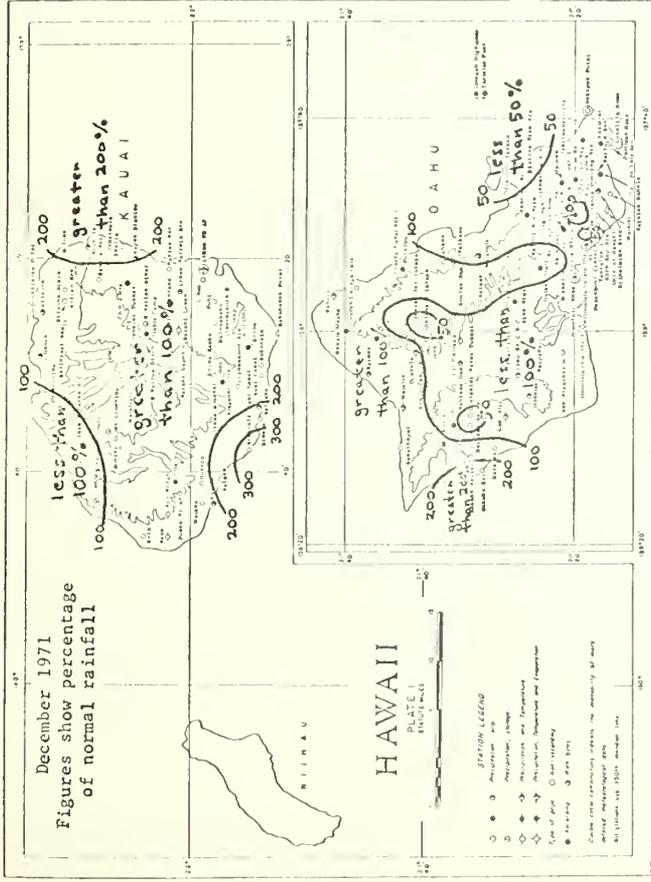
As the table below shows, a number of long-record stations on Maui and Molokai had less rain in December 1971 than in any previous December.

Stations with Less Rain in December 1971
than in Any Previous December

(25 years of record or more, only)

Station	Length of Record (Yrs.)	Previous Least December Total	December 1971
MAUI			
Keahua	47	0.30 Inches	0.14
Nakalele	34	1.27	0.79
Puunene	51	0.25	0.10
Spreckelsville	69	0.51	0.42
Ukuhamehame	43	0.02	0.00
Wahikuli	51	0.23	0.00
MOLOKAI			
Kalaupapa	33	1.40	0.35

Saul Price
Regional Climatologist for Pacific Region
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811



DAILY TEMPERATURES

HAWAII DECEMBER 1971

Continued

Table with columns: Station, Day of Month (1-31), MAX, MIN, and Average. Includes stations like KULA SANATORIUM 267, LAHAINA 361, KAILUOKU 386, etc.

EVAPORATION AND WIND

Table with columns: Station, Day of Month (1-31), EVAP, WIND, MAX, MIN, and Total or Avg. Includes stations like ISLAND OF KAUAI, LIHUE WSD 1020.1 AP, ISLAND OF OAHU, HONOLULU OBSERV 702.2

PRECIPITATION MEASURED IN STORAGE GAGES

HAWAII
DECEMBER 1971

Station	Observation date	Amount since last obs.	Snow on ground	Station	Observation date	Amount since last obs.	Snow on ground	Station	Observation date	Amount since last obs.	Snow on ground
ISLAND OF KAUAI HANALEI TUNNEL 1053	1971			ISLAND OF MAUI HAELAAU 477	1971			ISLAND OF MAUI (CONTINUED) KUKUI 380	1971		
	JAN 31	21.20			JAN 30	19.00			JAN 30	50.00	
	FEB 28	4.00			FEB 28	2.00			FEB 28	8.00	
	MAR 31	4.40			MAR 29	9.00			MAR 29	29.25	
	APR 30	-			MAY 1	18.00			MAY 1	63.00	
	MAY 31	5.20			MAY 29	6.00			MAY 29	30.00	
	JUN 30	5.40			JUL 3	1.00			JUL 3	4.20	
	JUL 31	6.00			JUL 31	20.00			JUL 31	20.00	
	AUG 31	7.00			AUG 28	.00			AUG 28	7.60	
	SEP 30	7.00			OCT 2	4.00			OCT 2	22.00	
	OCT 31	12.40			OCT 31	3.00			OCT 31	12.00	
	NOV 30	14.20			NOV 29	5.00			NOV 29	25.00	
	DEC 31	28.00			DEC 30	5.00			DEC 30	18.00	
TOTAL	-		TOTAL	92.00		TOTAL	289.05				
N WAILUA RIVER 1055	1971			HONOLUA FLO 49 494	1971			MOKUPEA 475	1971		
	JAN 31	15.00			JAN 31	13.75			JAN 30	17.04	
	FEB 28	6.80			MAR 1	1.09			MAR 1	1.80	
	APR 7	29.00			MAR 31	4.33			MAR 31	8.64	
	APR 30	13.80			APR 30	4.57			APR 30	8.68	
	MAY 31	3.20			JUN 1	1.96			JUN 1	3.19	
	JUN 30	4.80			JUN 30	.41			JUN 30	1.48	
	JUL 31	4.80			JUL 31	.85			JUL 31	1.31	
	AUG 31	5.40			AUG 31	.76			AUG 31	.91	
	SEP 30	7.20			SEP 30	2.23			SEP 30	3.11	
	OCT 31	8.40			OCT 29	2.08			OCT 29	2.67	
	NOV 30	11.80			NOV 30	1.93			NOV 30	4.62	
	DEC 31	18.40			1972 JAN 3	1.60			1972 JAN 3	3.47	
TOTAL	128.60		TOTAL	35.56		TOTAL	56.92				
								PUU PAKI 352	1971		
									MAR 31	25.50	
									JUN 30	45.00	
									SEP 30	14.00	
								DEC 30	36.00		
								TOTAL	120.50		
								WAILUA IKI 348	1971		
									MAR 31	71.00	
									JUN 30	54.00	
									SEP 30	30.00	
								DEC 30	55.00		
								TOTAL	210.00		

LATE REPORTS DAILY PRECIPITATION

HAWAII

Station	Total	Day of Month																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
• • • JUNE 1971																																		
CAMPBELL IND PK 702.5 KALAUPAPA 563	A	1.45														.20	1.21	.04																
• • • OCTOBER 1971		1.04															.80																	
• • • MOUNT WAIALEALE 1047	R		.43	.35	.39	.24		.47	.43	.20	.28	.31	.39	.57	.12	.20	.24	.04	.08	4.84	.79	1.61	1.61	.16	1.06	.71	1.42	4.09	.16					

EVAPORATION AND WIND

Station		Day Of Month																															Total or Avg.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
• • • AUGUST 1971																																			
LIHUE WSD 1020.1 AP	EVAP	.41	.45	.30	.32	.27	.35	.29	.26	.27	.25	.37	.37	.37	-	.33	.45	.34	.29	.41	.41	.34	.39	.44	.37	.37	.31	.36	.33	.32	.40	.39	10.888		
	WIND	179	205	204	178	95	92	85	70	69	74	113	177	168	145	124	153	168	242	233	188	160	214	214	186	168	188	118	91	110	179	182	4772		
	MAX	86	84	82	84	84	87	86	84	85	88	89	86	85	85	88	85	86	82	84	84	85	84	84	83	85	86	85	87	87	87	86	85.3		
	MIN	64	63	64	64	65	64	72	60	61	61	61	64	66	64	65	64	64	65	65	64	62	63	63	63	63	63	63	62	63	65	64	63.7		

STATION INDEX

HAWAII
DECEMBER 1971

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE I	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES			OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE I	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES			OBSERVER
								TEMP	PRECIP	EVAP										TEMP	PRECIP	EVAP	
ISLAND OF HAWAII																							
KAHUA RANCH											KAHUA RANCH												
HAWAIIAN RANCH CO											HAWAIIAN RANCH CO												
PUNA SUGAR CO											PUNA SUGAR CO												
MUTCHINSON SUGAR CO											MUTCHINSON SUGAR CO												
KONA EXPERIMENT STA											KONA EXPERIMENT STA												
KONA SUGAR CO											KONA SUGAR CO												
LAUPAHEGE SUGAR CO											LAUPAHEGE SUGAR CO												
MISS C LEVINGR											MISS C LEVINGR												
BOARD OF WATER SUPPLY											BOARD OF WATER SUPPLY												
PRAUHAU SUGAR CO											PRAUHAU SUGAR CO												
HAWAIIAN HILL CO											HAWAIIAN HILL CO												
HAWAIIAN AGR CO											HAWAIIAN AGR CO												
PUNA SUGAR COMPANY											PUNA SUGAR COMPANY												
HAWAIIAN RANCH CO, INC.											HAWAIIAN RANCH CO, INC.												
MAUNA KEA SUGAR CO,											MAUNA KEA SUGAR CO,												
MAUNA KEA SUGAR CO											MAUNA KEA SUGAR CO												
REEPEKED SUGAR CO											REEPEKED SUGAR CO												
STATE DIV OF FORESTRY											STATE DIV OF FORESTRY												
STATE DIVISION OF PARKS											STATE DIVISION OF PARKS												
ERWIN H. RAPP											ERWIN H. RAPP												
KUKAIUA RANCH CO											KUKAIUA RANCH CO												
STATE DIV OF FISH-GAME											STATE DIV OF FISH-GAME												
W.M. GREENGLASS RANCH											W.M. GREENGLASS RANCH												
KUKAIUA RANCH CO											KUKAIUA RANCH CO												
MISS JACKIE BENLEHR											MISS JACKIE BENLEHR												
DILLINGHAM RANCH INC											DILLINGHAM RANCH INC												
BOARD OF WTA SUPPLY											BOARD OF WTA SUPPLY												
HAWAIIAN RANCH COMPANY											HAWAIIAN RANCH COMPANY												
KUKAIUA RANCH CO											KUKAIUA RANCH CO												
U S COAST GUARD											U S COAST GUARD												

† DRAINAGE CODE: KAULAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN
2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

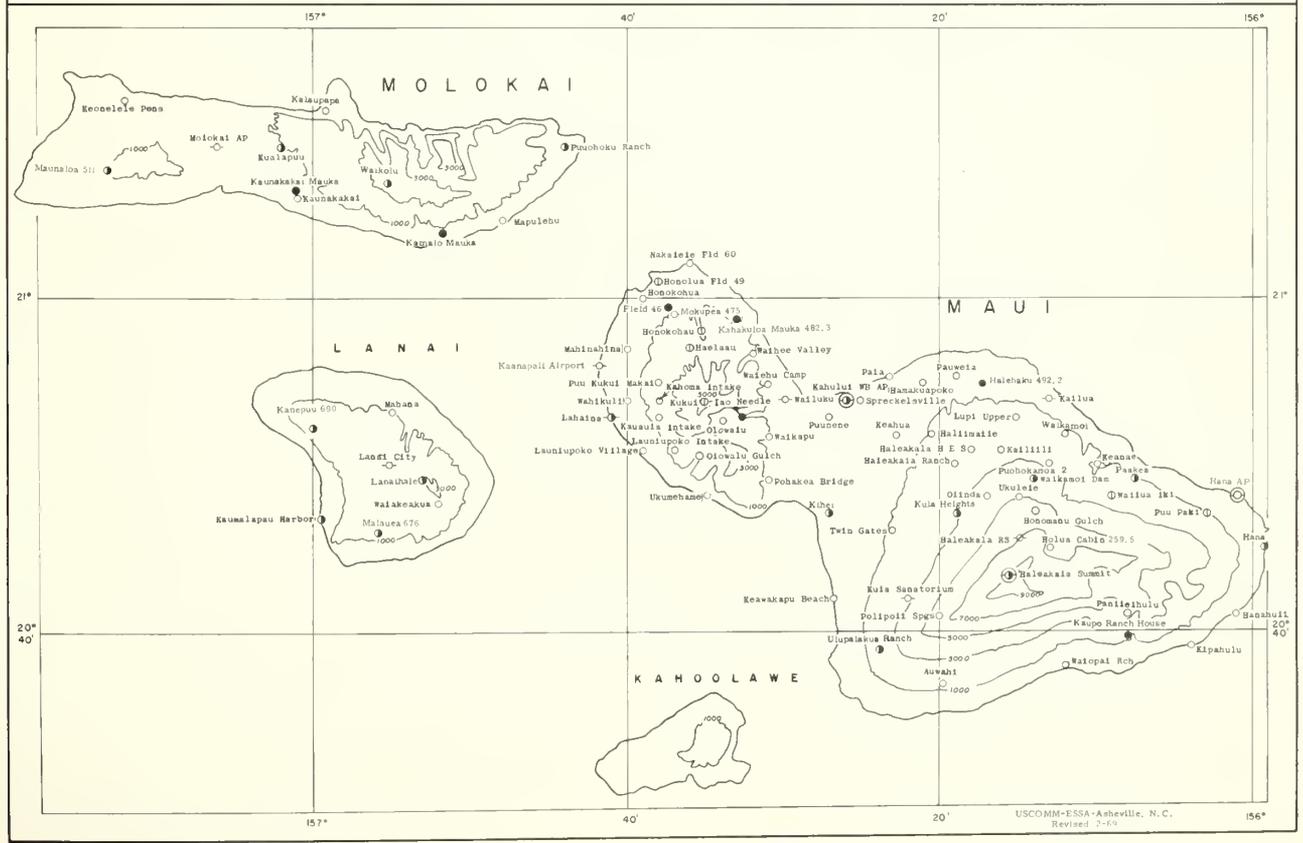
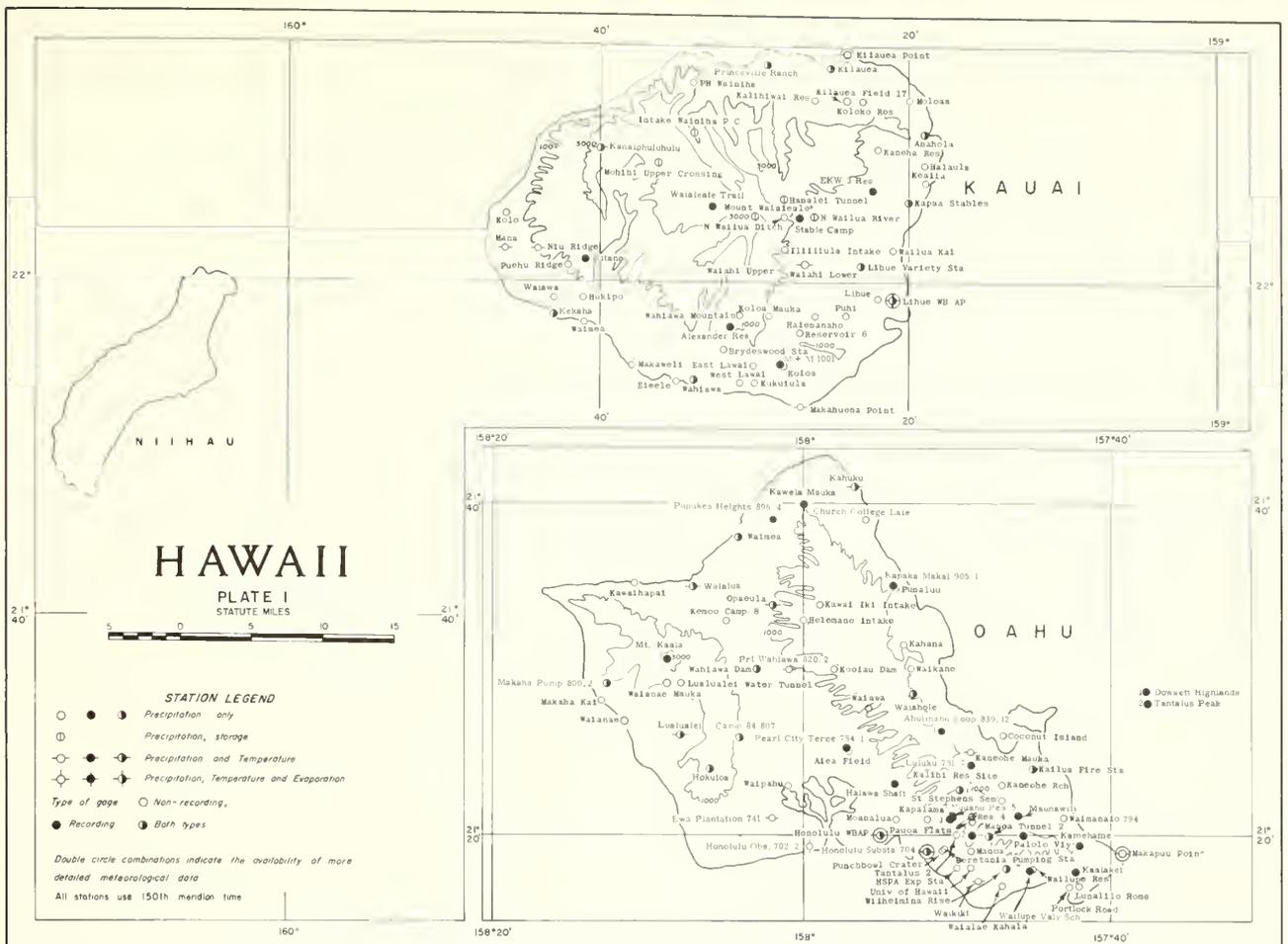
- Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii 96811, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII"
- DIMENSIONAL UNITS:** Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in °F., precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are tens of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.
- OBSERVATION TIME:** Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.
- EVAPORATION:** is measured in the standard Weather Service-type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extremes of temperature of water in pan as recorded during 24 hours ending at time of observation, Wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 6-8 inches above the pan.
- NORMALS:** for all stations are climatological standard normals based on the period 1931-1960.
- STATION NAMES:** Hawaii state key numbers are included following station names in the several tables.
- LATE REPORTS AND CORRECTIONS:** will be carried only in the June and December issues of this bulletin.
- INTERPOLATED VALUES:** for monthly precipitation totals may be found in the annual issue of this publication.
- IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:**
- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, and the "Summary Data".
 - No record in the "Monthly Summarized Data" table and the "Daily Temperature" table is indicated by no entry.
 - + And also on an earlier date or dates.
 - ++ Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data.
 - Amount included in following measurement, time distribution unknown.
 - A The letter "A" shown following station name in "Monthly Summarized Data" table, "Daily Precipitation" table, and "Station Index", indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
 - B Adjusted to a full month
 - J "Supplemental Data" table.
 - M One or more days of record missing; if average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
 - R Amounts from recording gage.
 - T Trace, an amount too small to measure.
 - V Includes total for previous month.
- IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:**
- AR Observation made after rain.
 - C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Monthly Summarized Data" bulletin they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
 - MO Gage read once monthly, usually on the last day.
 - OC Gage readings at periods varying from a few weeks to several months.
 - S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as late reports in the June issue of this publication.
 - NS Observation time is near sunset.
 - VAR Observation time is variable.
 - W1 Gage read weekly or irregularly only.
 - W2 Gage read weekly and last day of month.
 - Thermometers are generally exposed in a shelter located a few feet above sod-covered ground; however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.
- Stations appearing in the tables with no data were either missing or received too late to be included in this issue.
- General weather conditions in the U S for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.
- Information concerning the history of changes in locations, elevations, exposure, etc., of substations through 1957 may be found in the publication "Substation History" for this State, price 35 cents. Similar information for regular National Weather Service Offices may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

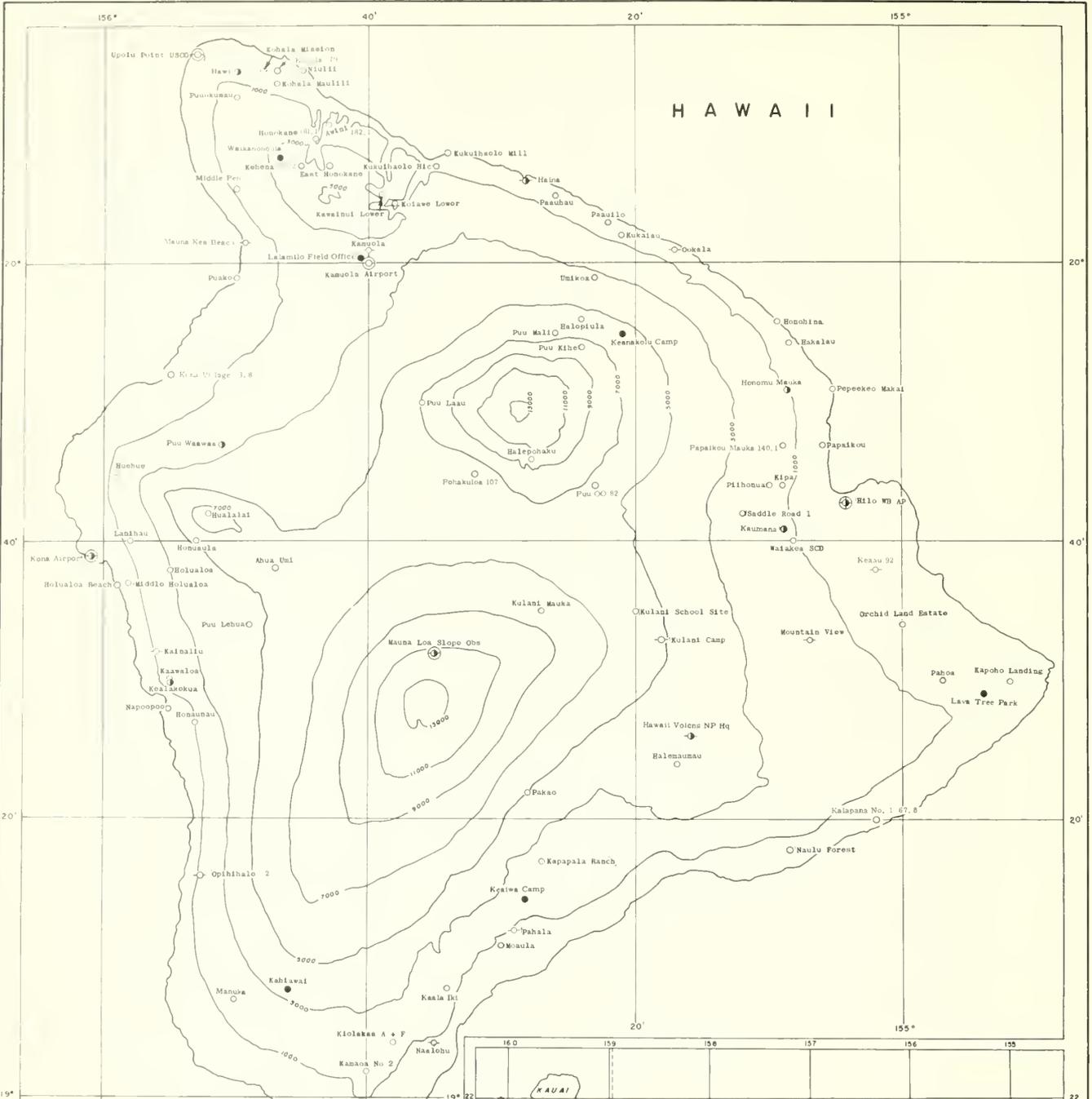
Subscription Price: 20 cents per copy, monthly and annual, \$2.50 per year. (Yearly subscription includes the Annual Summary.) Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.

William H. Hoggard
Director, National Climatic Center

USCOMM-NOTAA-ASHEVILLE, N. C. 4/5/72-890

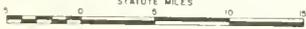




HAWAII

HAWAII

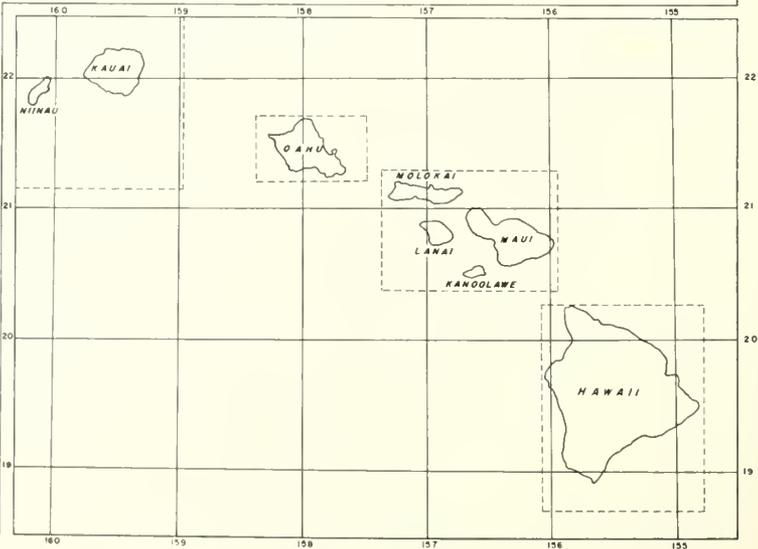
PLATE 2
STATUTE MILES



STATION LEGEND

- ● ① Precipitation only
 - ⊖ ② Precipitation, storage
 - ● ③ Precipitation and Temperature
 - ⊖ ● ④ Precipitation, Temperature and Evaporation
- Type of gage ○ Non-recording,
● Recording ● Both types

Double circle combinations indicate the availability of more detailed meteorological data
All stations use 1500h meridian time



U.S. DEPARTMENT OF COMMERCE
NATIONAL CLIMATIC CENTER
FEDERAL BUILDING
ASHEVILLE, N.C. 28801

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE



TEMPERATURE EXTREMES

Table 3

HAWAII
1971

Station	Highest	Date	Lowest	Date	Station	Highest	Date	Lowest	Date
* * *					* * *				
ISLAND OF KAUAI					ISLAND OF MAUI				
KANALOHULUHULU 1075	78	9-22+	35	1-30	HALEAKALA RS 338	75	3-25	31	1-30+
KILAUEA POINT 1133	94	9-19	57	1- 6	HALEAKALA SUMMIT 338.4	65	7-21+	-	-
LIHUE WSD 1020.1 AP	87	9-23+	53	1- 7	HANA AIRPORT 355	89	8-28	51	1- 8
MAKAHUENA POINT 940.1	90	8- 9	56	1- 6	KAANAPALI AIRPORT	88	8-16	55	1-26+
MANA 1026	92	9-10	55	1-16	KAHULUI WSD 398 AP	92	10-13+	52	1- 8
NIU RIDGE 1035	87	10-29	51	1-31	KAILUA 446	82	8-10+	55	1-23+
WAIHI LOWER 1054	88	7-28	45	1- 7	KEAWAKAPU BEACH 260.2	92	9- 6+	53	1-30+
* * *					KULA SANATORIUM 267	85	5-20	48	3-17+
ISLAND OF OAHU					LAHAINA 361	92	9-26	56	1- 7
EWA PLANTATION 741	88	9- 8+	52	1- 8	WAILUKU 386	89	12-27	52	12-31+
HONOLULU WSFO 703 AP	89	9- 7+	56	1- 7	* * *				
HONOLULU SUBSTA 704	85	9-18+	59	1- 7	ISLAND OF HAWAII				
KAHUKU 912	87	2-19	53	1- 8	HAINA 214	86	9-18	59	12-31+
KANEQHE MAUKA 781	89	8-13	56	1- 7	HAWAII VOLCNS NP HQ 54	75	11-25+	42	1- 2
LUALUALEI 804	91	9- 7	53	1- 7	HILU WSD 87 AP	91	8-14	54	3-18
MAKAPUU POINT 724	85	7-23	51	1- 8	KAINALIU 73.2	81	11-19+	55	1-21+
OPAEULA 870	90	8- 8+	52	1- 7	KAMUELA 192.2	81	11- 7	42	12-23+
PRI WAHIAWA 820.2	90	8- 6	50	1-11+	KEAAU 92	86	8-15+	58	1-22+
WAIALEE 896.3	-	-	-	-	KEALAKEKUA 26.2	82	8-31	53	2-23
WAIALUA 847	89	9-23+	52	1- 7	KOHALA MISSION 175.1	85	9-25+	58	1- 8+
WAIKIKI 717.2	90	9-17	53	1- 7	KONA (KAILUA) 68.3	88	11- 9+	60	1- 9
WAIMANALO EXP FARM	88	9-15+	55	1- 7	KULANI CAMP 79	82	5-13	33	1- 1
* * *					MAUNA LOA SLOPE OBS	63	6-22	19	1-22
ISLAND OF MOLOKAI					MOUNTAIN VIEW 91	82	9-16+	53	3-22+
MOLOKAI AP 524	87	9-19	57	1- 8+	NAALEHU 14	84	8-30+	58	1- 7+
* * *					OOKALA 223	86	9-19+	58	1-26+
ISLAND OF LANAI					OPIHIHALE 2 24.1	85	7-14+	52	1-21+
LANAI CITY 672	83	12-20	50	1- 8	PAHALA 21	-	-	55	12-22+
					PUAKO 95.1	90	8-17	58	1-21
					UPOLU POINT USCG 159.2	86	9-25+	56	12-12
					WAIMEA KOHALA	78	5-17	38	1- 3+

See Reference Notes Following Station Index

TOTAL EVAPORATION AND WIND MOVEMENT

HAWAII
1971

Table 4

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
* * * ISLAND OF KAUAI														
LIHUE WSD 1020.1 AP	EVAP	4.978	6.118	6.868	7.918	10.098	10.128	11.25	10.888	9.858	8.378	6.61	6.228	99.24
	WIND	2993	3289	5512	5186	4273	43908	5363	4772	4593	4552	4992	5649	55564
	MAX	75.8	80.8	76.8	81.1	84.3	84.2	85.2	85.3	84.8	81.0	77.1	75.2	81.0
	MIN	56.6	60.7	61.4	62.4	62.1	62.8	63.7	63.7	63.5	62.3	60.8	59.5	61.6
* * * ISLAND OF OAHU														
HONOLULU OBSERV 702.2	EVAP	3.868	5.05	6.64	6.75	8.44	8.87	9.86	10.53	7.75	7.718	5.23	5.028	85.71
	WIND	1231	701	1006	895	984	1191	1276	1272	979	951	876	924	12286
	MAX	77.6	85.7	84.4	86.8	88.7	89.8	91.3	92.2	89.5	88.4	83.0	80.1	86.5
	MIN	60.0	62.6	63.5	65.0	64.6	65.6	66.1	66.3	66.7	65.0	63.9	61.2	64.2

NAME	RELOCATION AND CHANGES OF EQUIPMENT	DATE
ISLAND OF KAUAI		
EKW #3 RESERVOIR 1094.1	EQUIPMENT MOVED 1000 FEET SE	APRIL 22, 1971
ILIIILIULA INTAKE 1050	EQUIPMENT MOVED 40 FEET N	AUGUST 1, 1970
PRINCEVILLE RANCH 1117	EQUIPMENT MOVED 25 FEET E	MARCH 12, 1971
ISLAND OF OAHU		
KAILUA FIRE STATION 791.3	EQUIPMENT MOVED 60 FEET W	DECEMBER 9, 1971
MOUNT KAALA #44	EQUIPMENT MOVED 225 FEET N	JUNE 30, 1971
PORTLOCK ROAD 724.4	EQUIPMENT MOVED 80 FEET S	JUNE 2, 1971
WAIKIKI 717.2	EQUIPMENT MOVED 375 FEET NNE	APRIL 1, 1971
WAIPAHU 750	EQUIPMENT MOVED 400 FEET NE	OCTOBER 1, 1971
ISLAND OF HAWAII		
HILO COUNTRY CLUB 86.6	EQUIPMENT MOVED 500 FEET N	JULY 22, 1971
KAMAOA 2 5	EQUIPMENT MOVED 175 FEET SW	APRIL 15, 1971
KAPAPALA RANCH 36	EQUIPMENT MOVED 30 FEET SE	JANUARY 14, 1971

See Reference Notes Following Station Index

STATION INDEX

HAWAII
1971

CONTINUED

Station	Index No.	Division No.	DISTRICT	Drainage	Latitude	Longitude	Elevation	Years of record		Opened or closed during yr.	Refer to tables	Station	Index No.	Division No.	DISTRICT	Drainage	Latitude	Longitude	Elevation	Years of record		Opened or closed during yr.	Refer to tables	
								Temp.	Precip.											Temp.	Precip.			
ISLAND OF HAWAII																								
HANUKA 2	A	5134	03 KAU	3	19 07 155 30	1760		43			2	PEPEKEO MAKAI 144	A	8050	02 S HILO	2	19 51 155 05	1900		82			2	
MAUNA LKA SLOPE DR3		6196	05 HAWAII	4	19 32 155 35	11146	16	17			1 2 3	PITIKOHA 89	A	8051	02 S HILO	2	19 44 155 10	1730		67			2	
MIDDLE HOUAUNO 68.1	A	5208	04 N KOHALA	4	19 37 155 58	475		30			2	POHAKULOA 107	A	8053	02 HAWAII	2	19 45 155 32	6511		35			2 C	
MIDDLE PLN 147.1	A	6270	01 N KOHALA	4	20 06 155 50	1380		8			2	PUAKO 95.1	A	8186	05 KOHALA	5	19 59 155 50	5		10			1 2 3	
MOAULA 18	A	6407	03 KAU	3	19 11 155 30	600		53			1 2 3	PUI KIME 120	A	8393	01 HAWAII	1	19 54 155 24	7750		58			2	
MOUNTAIN VIEW 91	A	6552	02 PUNA	2	19 33 155 07	1530		35	72		1 2 3	PUI LAU 102.1	A	8432	05 HAWAII	5	19 50 155 36	7440		40			2	
NALAHOU 16	A	6588	03 KAU	3	19 04 155 35	673	18	83			1 2 3	PUI LEHUA 73	A	8460	04 N KOHALA	4	19 34 155 49	4880		49			2	
NAP. UPU 28	A	6697	04 S KOHALA	4	19 28 155 55	395		32			2	PUI MAHI 113	A	8513	01 HAWAII	1	19 55 155 26	6960		40			2	
NATIVE FOREST 38.6	A	6791	02 PUNA	2	19 19 155 08	1400		7			2	PUIOKUNUA 107	A	8548	06 N KOHALA	1	20 12 155 50	1800		44			MAR	2
NAUHI 179	Z	6896	01 N KOHALA	1	20 14 155 45	75		87		JAN	2	PUI OO 82	A	8550	02 S HILO	2	19 44 155 23	6340		7			2 C	
ODKALA 223		7131	02 N HILO	2	20 01 155 17	430		52	82		1 2 3	PUI WAAHAA 94.1	A	8555	05 N KOHALA	5	19 47 155 51	2520		69			2 C	
OPINAHOLE 2 24.1		7186	05 S KOHALA	4	19 16 155 53	1270		15	16		1 2 3	SADOLE ROAD 1 84	A	8590	02 S HILO	2	19 42 155 12	2340		24			2 C	
ORCHID LAND EST 91.5	A	7185	02 PUNA	2	19 34 155 00	445		10			2	SOUTH POINT CORRAL 3	A	8675	03 KAU	3	19 57 155 41	500		24			2 C	
PARAHOU 217		7204	01 HAWAII	1	20 05 155 26	415		83			2	UMIKOA 118	A	8780	01 HAWAII	1	19 59 155 23	3420		79			2	
PARAUO 221		7312	01 HAWAII	1	20 03 155 22	600		70			2	UPOLU POINT USCG 159.2	A	8830	01 N KOHALA	1	20 15 155 33	61		14			1 2 3	
PAHALA 21	A	7421	03 KAU	3	19 12 155 29	870	63	81			1 2 3	WAIKANEKA SCJ 89.2	A	9025	02 S HILO	2	19 40 155 08	1050		20			2	
PAHOA 65	A	7457	02 PUNA	2	19 30 155 57	670		63			2	WAIKANDUOLA 178.6	A	9350	01 N KOHALA	1	20 08 155 47	3930					2 C	
PAHOA 37	A	7643	03 KAU	3	19 22 155 28	5000		44			2	WAIHEA KOHALA	A	9554	05 S KOHALA	5	20 00 155 40	2665		16	17		JUN	1 2 3
PAPAIAO 144.1	A	7711	02 S HILO	2	19 47 155 06	200		74			2													
PAPAIAO MAHIKA 149.1	A	7721	02 S HILO	2	19 47 155 08	1270		47			2													

I DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
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NORMALS for all stations are climatological normals based on the period 1931-1960. "DEP" in Table 4 refers to departures from long-term means based on periods varying from 10 to 29 years which are used in place of normals.

STATION NAMES Hawaii state key numbers are included following station names in the several tables.

DELAYED DATA AND CORRECTIONS will be carried in the June and December issues of Climatological Data.

IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- No record.
- + Also on earlier date (date) or months
- * Amount included in following measurement.
- A The letter "A" shown following station name, (Table 2 and Station Index): Amounts carried in the monthly "Precipitation" column are for the period from last measurement of a preceding month through the last measurement of the current month. See Oaily Precipitation Table of the monthly Climatological Data for the dates of measurement. Measurements made on the first of a month are credited to the last day of the preceding month.
- B Adjusted to a full month.
- E Amount is wholly or partially estimated.
- M One or more days record missing, if average value is entered, less than 10 days record is missing See monthly Climatological Data for detailed daily record.
- R Amounts from recording gage.
- T Trace, an amount too small to measure.
- V Includes total for previous month. V in annual column means total is for a two-year period

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- # Thermometers are generally exposed in a shelter located a few feet above eod covered ground; however, the reference indicates that the thermometers are exposed in a shelter located on the roof of a building.
- C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Climatological Data" bulletin they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
- S Storage precipitation station. Precipitation measurements, made at irregular intervals, will be published in the December issue of Climatological Data.

Years of record as shown in the Station Index are approximate since gaps in the records may not have been considered in arriving at the totals shown.

The four-digit identification numbers in the Index are assigned on an island basis. There will be no duplication of numbers within an island.

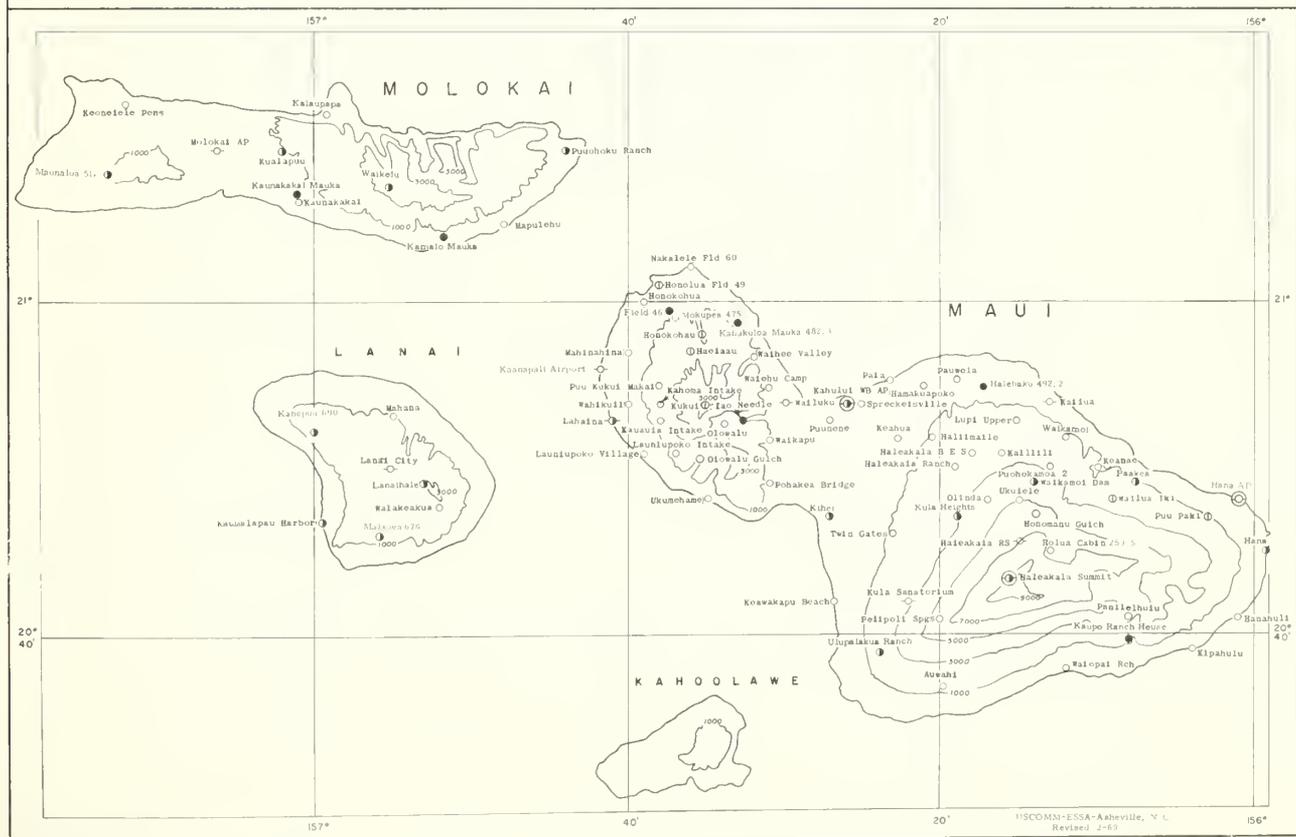
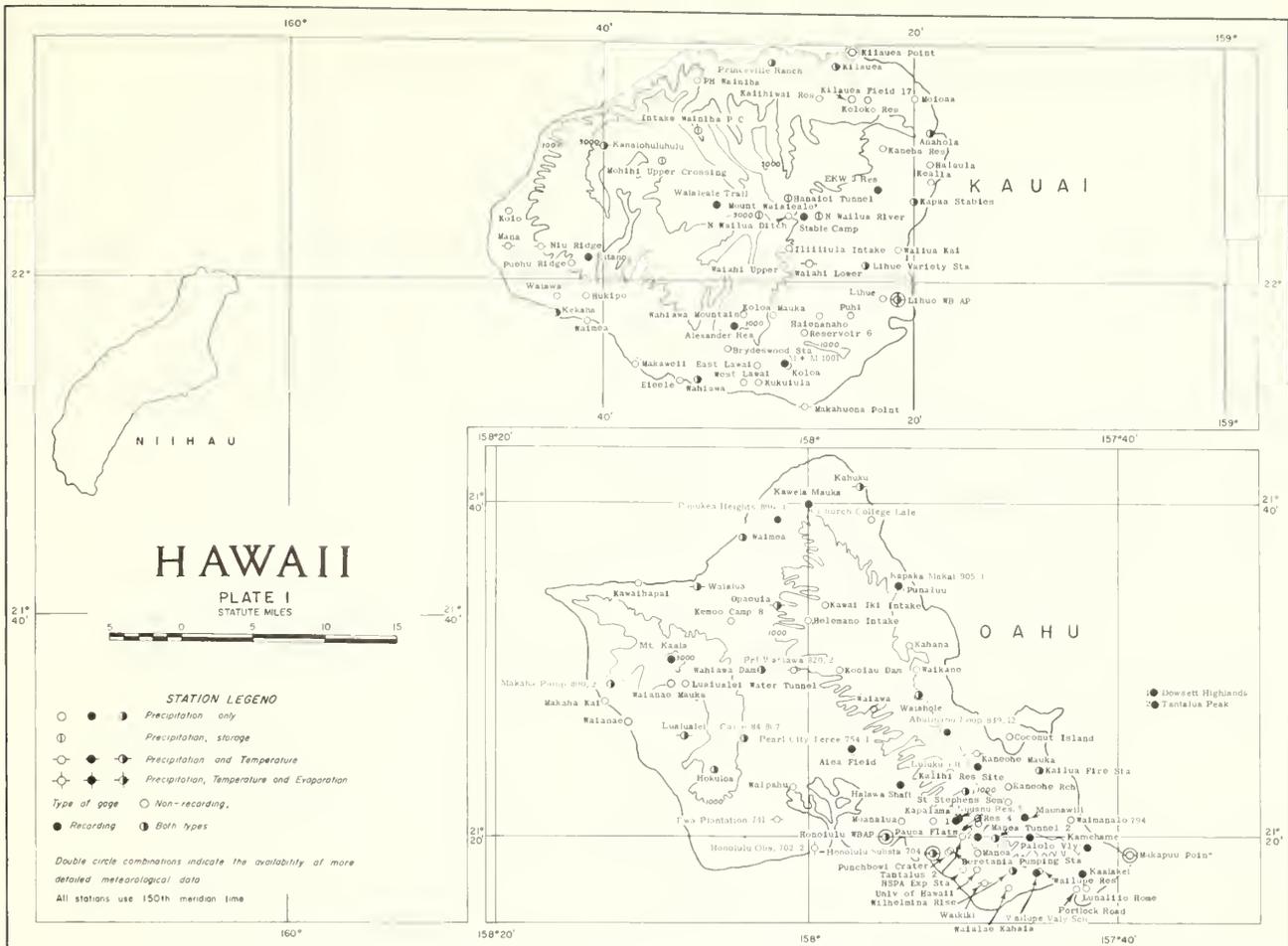
Information concerning the history of changes in location, elevations, exposures, etc., of substations through 1957 may be found in the publication "Substation History" for this State. That publication may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402, for 40 cents. Similar information for regular National Weather Service Offices may be found in the latest annual issue of Local Climatological Data, obtained as indicated above, price 15 cents.

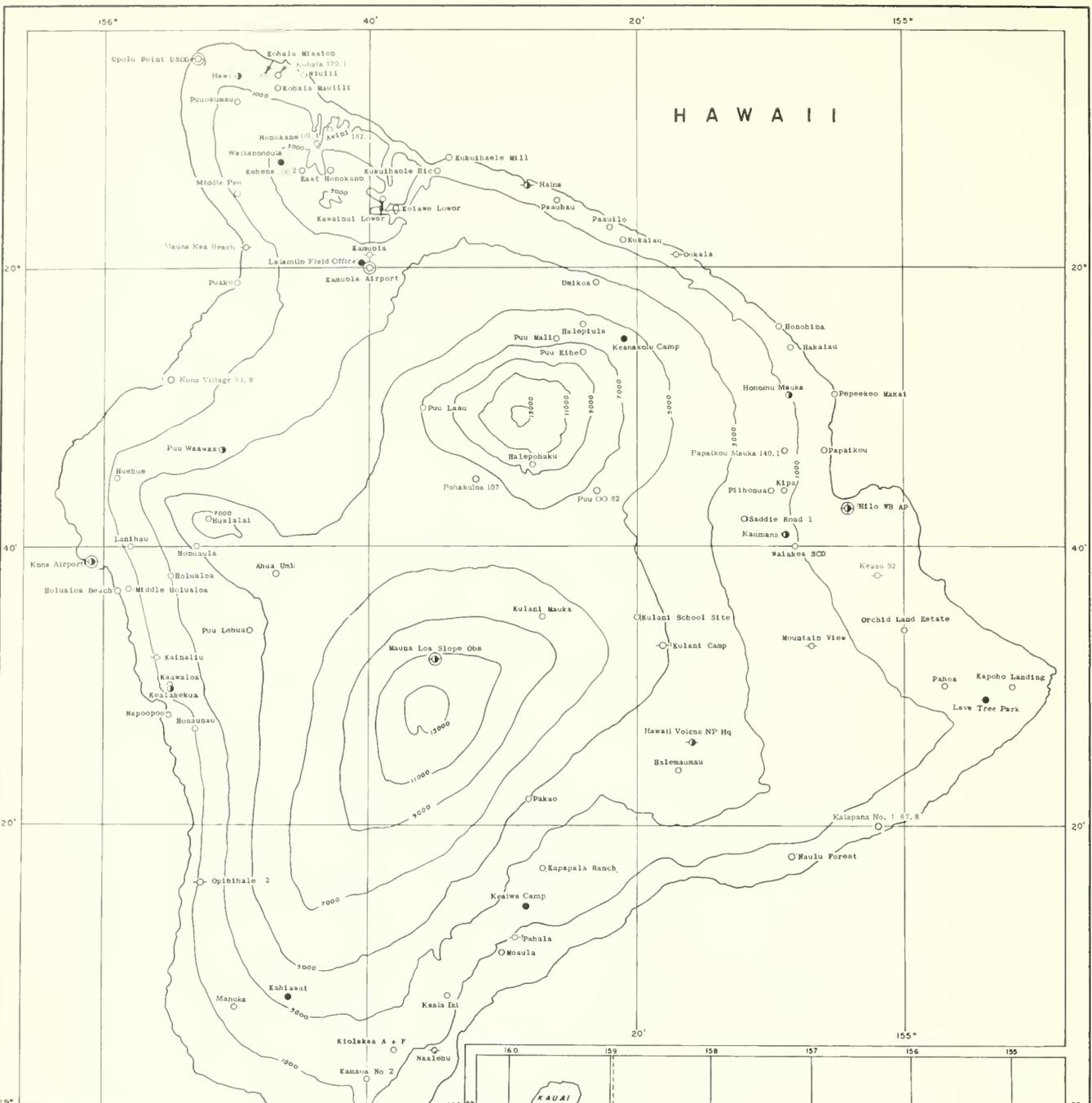
Subscription Price: 20 cents per copy, monthly and annual; \$2.50 per year (Yearly subscription includes the Annual Summary). Checks and money orders should be made payable to the Superintendent of Documents. Remittances and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.

William H. Hoggard
Director, National Climatic Center

USCOMM-NOAA-ASHEVILLE, N. C. 5/15/72-990





HAWAII

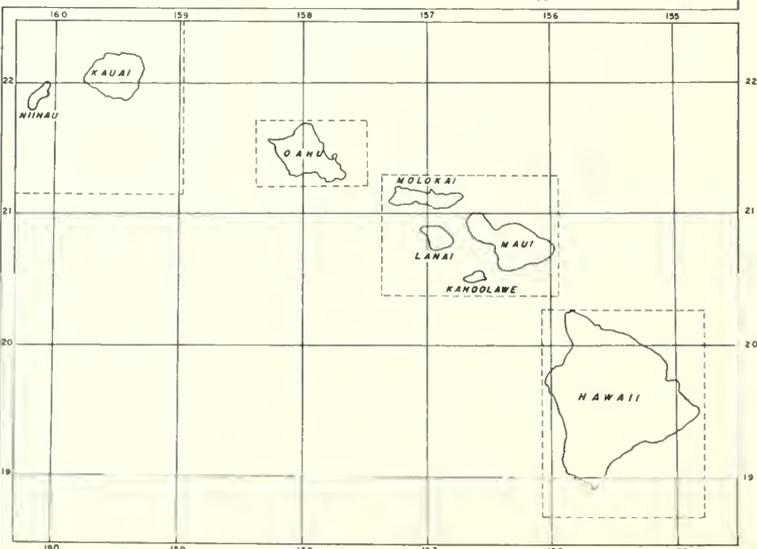
PLATE 2
STATUTE MILES



STATION LEGEND

- ● ● Precipitation only
- ⊙ Precipitation, storage
- ● ● Precipitation and Temperature
- ⊙ ● ● Precipitation, Temperature and Evaporation
- Type of page ○ Non-recording, ● Recording ● Both types

Double circle combinations indicate the availability of more detailed meteorological data
All stations use 150th meridian time



U.S. DEPARTMENT OF COMMERCE
NATIONAL CLIMATIC CENTER
FEDERAL BUILDING
ASHEVILLE, N.C. 28801

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U.S. DEPARTMENT OF COMMERCE



MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII
JANUARY 1972

Continued

Station	Temperature											Precipitation															
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days						
										Max.		Min.						Total	Departure From Normal	Greatest Day	Date	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										31° or Above	32° or Below	31° or Below	0° or Below														
KEAOU 92	75.5	61.2	68.4	- 1.9	81	14	58	12+		0	0	0	0	14.84	2.28	6.10	25	.0	0		12	6	3				
KEALAKEUA 26.2	74.6	59.7	67.2		78	21+	53	31		0	0	0	0	5.44		1.28	30	.0	0		10	5	1				
KONA (KAILUA) 68.3	80.9M	64.2M	72.6M		84	17+	60	31		0	0	0	0	2.71		1.19	25	.0	0				1				
KUKUIHAELE HIC 199														3.14	- 2.99	.92	28	.0	0		7	1	0				
KULANI CAMP 79	58.8	43.0	50.9		68	25	37	20+		0	0	0	0	8.45		2.80	25	.0	0		12	5	2				
PAHALA 21					80	26	55	30+		0	0	0	0	12.18	4.15	5.13	25	.0	0				0				
POHAKULDA 107														1.89				.0	0				0				
PUNAO 95.1					83	27+	58	31		0	0	0	0	1.08		.71	25	.0	0		3	1	0				
PUU WAHAA 94.1	80.3	63.7	72.0											3.35	.12	.83	17	.0	0		6	3	0				
UMIKOA 118														4.22	- 2.94	.80	28	.0	0		9	4	0				
WAIKOA SLO 88.2														14.13		3.97	22	.0	0		15	7	3				
ISLAND			65.8											6.79				.0									

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 88° ON THE 3D AT WAILUKU 386, MAUI

LOWEST TEMPERATURE: 24° ON THE 8TH AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 23.71 INCHES AT PAHOA 65, HAWAII

LEAST TOTAL PRECIPITATION: .35 INCH AT KAHULUI WSO 398 AP, MAUI

GREATEST ONE-DAY PRECIPITATION: 8.71 INCHES ON THE 25TH AT PAHOA 65, HAWAII

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY

The month's most significant weather event was the band of showers that spread southward through the island chain from a low pressure area to the north and brought their first substantial rains in many months to some of the dry fields and pastures of the central and southern islands.

Otherwise, the winter remained mild and un-spectacular. Until mid-January, atmospheric pressure continued higher than normal over the Central Pacific, shunting away from the islands the cold fronts and other storms migrating eastward across the Pacific to the north. From the middle of the month on, however, the high pressure belt weakened and shifted southward, permitting fronts and storm tracks to move nearer the State.

As the month opened, large portions of the central and southern islands remained in the grip of a prolonged dry spell, which had browned pastures, depleted reservoirs, and adversely affected cattle. Many areas had had no appreciable rain for 8 months or more. At Ulupalakua Ranch, in Maui's Kula area, rainfall from May through December 1971 totalled 6.58 inches, only 35 percent of the average for that period, and was below its monthly mean in each of the 8 months. Molokai's Keonelele Pens had had no rain at all since May 1971, except for a little in December. On January 14, the Mayor of Maui County declared pasturelands in West Maui and on Haleakala's western slopes from Omaopio to Ulupalakua, where the drought had severely affected 12,500 head of cattle, a disaster area. However, in only little more than a week, rains were to bring some relief to the region.

On the 22d, rain from a broad band of showers and isolated thunderstorms associated with a weak cold front northwest of Kauai began over northern and eastern Kauai and windward Oahu. The formation of a low pressure center on the front provided the impetus for the latter to strengthen and advance through the island chain, while the development of low pressure aloft helped intensify the rainfall. After a brief respite, steady rain resumed on Kauai and Oahu and spread southward into Maui, Molokai, Lanai, and northern Hawaii Island.

Rainfall accumulations were not exceptional by Hawaiian standards, with peak 1-day totals of about 10 inches and 2-day totals near 20 inches (see Table I for a selection of stations). Intensities were also relatively light, so that no serious flash flooding or water damage appears to have occurred.

However, a number of minor flooding incidents were reported. By early on the 23d, the Wailua River, in eastern Kauai, had overtopped its banks and large rocks were observed on roads in the area. In southwestern Kauai, streets were flooded in Waimea town while Koloa, in the southern part of that island, reported mud-slides.

On Oahu, on the 22d, a small stream in Ahuimanu (in the Kaneohe area) and Waimalu Stream in Pearl City overflowed and Lake Wilson in Wahtawa rose 2-1/2 feet. The following day, Kaelepulu Stream in Kailua, topped its banks, while over 50 people in Ewa (southwestern Oahu) were evacuated when Honouliuli Stream flowed over its banks at about 5 p.m. and washed into a few homes. In the Honolulu area, poorly drained roads in Waikiki and elsewhere flooded, water entered a home in Hawaii Kai after a drainage ditch overflowed, the Ala Wai Canal almost topped its banks and power outages occurred in several areas. Police received reports of water seeping into about 20 homes, chiefly in southeastern Oahu.

On Maui, except for minor flooding of Kahikiki Highway between Wailuku and Waihee, the steady rain was most welcome. The 11-million gallon reservoir at Olinda and the two 15-million gallon basins at Waikamoi were filled and the dry pastures moistened, although more rain would be needed to green the fields.

From the 27th through the 30th, high waves from a storm 900 miles northeast of the islands generated surf which occasionally reached heights of 20 feet along the northern shores of Kauai, Oahu, and Maui. During this period four drownings occurred, two of them attributable at least in part to the high waves. On the morning of the 29th, a man picking opihi (a small shellfish) on the rocks at Wahiawa, Kauai, was thrown into the sea by a wave and drowned. On the afternoon of the same day, two men drowned in attempting to swim to an anchored tanker about 2 miles away after rough seas capsized a 15-foot fishing boat 5 miles off Ewa Beach, Oahu. The next afternoon, at Kua Bay in North Kona, Hawaii Island, an opihi picker, attempting to swim to a waiting boat about 100 yards off the rocky shore, disappeared in the rough surf.

On the morning of the 29th, Mauna Loa and Mauna Kea were observed to be blanketed with fresh snow down to the 10,500-foot level, and on the last day of the month, cold arctic air streaming southward around the western periphery of the storm described above brought the islands their

HAWAII - JANUARY 1972

SPECIAL WEATHER SUMMARY - Continued

coldest weather of the present winter, dropping minimum temperatures at Honolulu International Airport to 53° and at Kahului Airport to 50°, compared to their record lows of 52° and 48°, respectively.

Disappointingly, January's rains appear, with few exceptions, to have been least helpful where they were most needed. Thus, while most of Kauai and Oahu had near or above their January means, Maui remained dry nearly everywhere, with only a scattering of gages reporting above their monthly averages.

In fact, Maui's central valley, the western slopes

of Haleakala, including the Kula area, and southwestern West Maui, had well under half, and in places less than one-fourth, their average January rainfall.

Lanai and Molokai, which had also been rainfall-deficient for some time, fared somewhat better, but even there monthly totals ran below normal in most areas.

On Hawaii Island, the northeastern slopes continued dry. Southward to the Hilo coast most gages reported less than their January means, with some in Kohala and Hamakua showing less than half their averages for the month.

TABLE 1

Rainfall at Selected Stations, January 22-25, 1972

<u>Location</u>	<u>Total Amount (Inches)</u>	<u>Time Began</u>	<u>Time Ended</u>	<u>Peak 1-Hour Intensity (Inches)</u>
<u>KAUAI</u>				
Kilauea	2.60	22: 1 a.m.	22: 10 a.m.	1.15
Koloa	6.20	22: 9 p.m.	23: 6 p.m.	1.35
<u>OAHU</u>				
Honolulu Substn (Federal Bldg.)	5.44	23: 2:30 a.m.	23: 11 p.m.	0.83
Maunawili	9.50	23: 3 a.m.	24: 6 p.m.	0.85
PRI Wahiawa	7.65	23: 3 a.m.	24: 2 a.m.	1.25
Waiahole	5.20	21: Midnight	22: 1:30 p.m.	1.90
Waimanalo	10.30	23: 2 a.m.	24: 2 a.m.	2.00
Wilson Tunnel	19.11	21: Midnight	23: Midnight	--
<u>MOLOKAI</u>				
Maunaloa	3.85	23: 4 a.m.	24: 4 a.m.	1.00
<u>LANAI</u>				
Kanepuu	3.75	23: 12 noon	24: 6 a.m.	1.45
<u>MAUI</u>				
Hana	2.00	24: 6 a.m.	24: 2 p.m.	0.60
Iao Needle	7.20	23: 11 p.m.	24: 12 Noon	--
<u>HAWAII</u>				
Lava Tree Park	11.00	23: 6 p.m.	25: 8 a.m.	0.85

Saul Price
Regional Climatologist for Pacific Region
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY PRECIPITATION

HAWAII JANUARY 1972

Table with columns for Station, Total, and Day of Month (1-31). Rows include stations like ANAHOA 1114, KILAUEA POINT 1133, and WEST LAHAI 931. Data values are in decimal form, with some rows marked with 'A' for Annual or 'R' for Rainfall.

See reference notes following Station Index

DAILY TEMPERATURES

HAWAII
JANUARY 1972

Station	Day of Month																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
KULA SANATORIUM 267	MAX 53	71	70	72	72	68	68	70	68	64	69	68	71	73	72	72	68	69	69	68	72	68	68	72	68	68	68	66	64	62	66	69.2	
LAHAINA 361	MAX 62	83	85	84	82	83	83	82	81	82	81	84	84	84	85	85	82	81	80	81	81	80	78	76	82	82	78	75	78	80	77	81.4	
WAILUKU 386	MAX 88			84	85	83	83	85		84	84	84	87	86		81	78	76	77	79				80	76	80	76	73		73	81.0		
* * *				57	50	50	51	54		53	52	50	52	52		58	63	66	60	59				63	67	62	63	62		54	57.0		
ISLAND OF HAWAII																																	
HAINA 214	MAX 60	79	78	77	74	75	76	74	72	75	75	75	77	81	78	80	77	76	76	75	76	75	75	78	75	73	77	75	70	71	68	75.5	
HAWAII VOLCNS NP HO 54	MAX 48	63	67	63	60	64	62	59	60	62	63	66	70	67	66	67	65	61	63	65	65	60	65	63	63	67	66	62	57	58	55	63.1	
HILO WSO 87 AP	MAX 60	81	79	77	78	78	70	73	77	78	77	80	83	80	81	81	78	79	80	81	79	74	80	75	75	78	76	73	73	77	77	77.7	
KAINALIU 73.2	MAX 57	74	76	76	72	68	73	74	74	72	73	75	76	76	78	74	72	73	74	73	77	75	76	75	78	73	74	73	71	67	72	73.8	
KAMUELA 192.2	MAX 50	74	75	76	74	65	70	70	72	67	68	72	75	73	73	75	74	73	67	69	75	75	74	74	69	69	71	67	65	63	67	71.0	
KEAAHI 92	MAX 60	75	79	79	76	75	76	76	69	72	74	74	76	81	80	79	78	76	75	76	75	76	77	75	73	77	75	72	71	72	75	75.5	
KEALAKEKUA 26.2	MAX 57	74	75	75	78	72	71	74	76	75	73	74	76	77	77	75	73	73	76	76	78	77	77	76	76	74	76	74	71	67	72	74.6	
KOHALA MISSION 175.1	MAX 61	78	78	78	78	75	75	74	74	72	75	75	77	78	72	80	78	76	76	75	75	74	75	76	81	75	77	73	71	65	72	75.3	
KONA (KAILUA) 68.3	MAX 64		84	81	80	80	82			81	80	79	82	83		84	80	80	82	82			82	78	81	83	78	79	79	80	80.9		
KULANI CAMP 79	MAX 41	59	60	63	49	54	59	55	56	54	47	55	56	57	59	59	66	65	62	59	63	62	62	62	63	68	65	60	50	60	58	58.8	
MAUNA LOA SLOPE OBS	MAX 27	43	46	45	47	43	43	40	46	46	48	48	48	45	43	43	44	46	52	51	46	47	46	44	49	52	49	41	39	44	45	45.0	
MOUNTAIN VIEW 91	MAX 55	76	76	76	76	72	72	72	68	68	68	71	74	74	78	75	75	70	71	73	72	72	72	72	71	69	74	71	68	68	68	72.2	
NAALEHU 14	MAX 65	71	76	76	76	72	74	75	75	75	75	73	74	74	79	79	75	75	75	75	75	75	74	73	85	77	77	77	71	71	75.1		
UOKALA 223	MAX 60	78	78	77	72	74	75	76	70	72	75	75	76	75	76	77	78	79	74	76	73	76	68	70	75	72	73	77	67	67	74	74.0	
OPIHIKALE 2 24.1	MAX 55	72	74	75	70	69	72	72	73	71	71	72	74	73	76	72	72	71	72	73	74	74	73	75	73	79	73	73	72	65	72	72.5	
PAHALA 21	MAX 58			78	72	76	74			75	75	76	73	79		76	75	76	76	78			76	70	80	77	75	69	67	67	75.0		
PUAKO 95.1	MAX 63	81	80	82	83	81	80	82	81	81	81	82	79	82	82	80	82	81	82	80	79	82	79	77	78	83	79	76	72	79	80.3		
UPOLU POINT USCG 159.2	MAX 55	81	80	81	80	78	78	77	77	77	77	77	78	79	80	78	82	79	75	77	73	79	79	80	80	82	82	82	81	74	69	76	78.3

EVAPORATION AND WIND

Station	Day of Month																															Total or Avg.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
* * * ISLAND OF KAUAI																																
LIHUE WSO 1020.1 AP	EVAP 1.15	.13	.13	.16	.14	.04	.21	.27	.26	.25	.28	.19	.04	.06	.12	.01	.18	.27	.21	.25	.21	.36	-	-	.36	.18	.23	.17	.15	.10	.20	5.688
	MAX 78	75	79	77	72	75	70	73	74	74	75	77	68	77	58	185	141	66	107	66	65	100	65	93	83	47	52	69	3239			
	MIN 56	56	56	60	57	54	53	56	57	56	57	54	54	55	55	57	56	56	56	57	53	-	-	-	-	-	-	53	50	48	55.0	
* * * ISLAND OF OAHU																																
HONOLULU OBSERV 702.2	EVAP 1.15	.15	.15	.15	.15	.15	.19	.22	.18	.20	.20	.15	.19	.13	.00	.19	.17	.19	.14	.13	.17	.18	-	.15	.15	.15	.07	.15	.05	.15	4.708	
	MAX 83	82	83	80	81	76	79	79	77	80	80	82	83	79	71	85	86	82	80	81	83	78	76	82	78	80	72	72	70	71	78	780
	MIN 58	60	60	62	59	59	56	57	57	57	57	57	57	61	62	60	60	62	60	57	57	58	63	65	59	59	60	57	57	54	52	58.7

STATION INDEX

HAWAII JANUARY 1972

Table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. The table lists numerous weather stations across the Hawaiian Islands, including Oahu, Maui, Hawaii, and the Line Islands, with detailed data for each.

STATION INDEX

HAWAII
JANUARY 1972

CONTINUED

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER
								TEMP.	PRECIP.	EVAP.	SPECIAL										TEMP.	PRECIP.	EVAP.	SPECIAL	
ISLAND OF HAWAII																									
MOAULA 18	A 6407	03	KAU	3	19 11	155 30	600					HAWAIIAN RANCH CO	PUU LAAU 102.1	A 8452	05	HAMAKUA	5	19 50	155 36	7440				STATE DIV OF FISH-GAME	
MOUNTAIN VIEW 91	A 6552	02	PUNA	19	33	155 07	1530	0A	0A			PUNA SUGAR CO	PUU LEMIA 73	A 8463	04	N KONA	4	19 34	155 49	4880				W.H. GREENWELL RANCH	
HALELEU 14	A 6588	03	KAU	19	04	155 35	679	0A	0A			HUTCHINSON SUGAR CO	PUU MALI 113	A 8515	01	HAMAKUA	4	19 55	155 26	6960				KUKAIAU RANCH CO	
NARPOPOO 28	A 6697	04	S KONA	19	28	155 55	395	7A				KONA EXPERIMENT STA	PUU OO 82	A 8550	02	S HILO	4	19 44	155 23	6340				MISS JACKIE BENLEHR	
NIULII 179	A 6800	01	N KAHALA	20	14	155 45	75	0A				KOHALA SUGAR CO	PUU MAAWA 94.1	A 8555	05	N KONA	19	47	155 51	2320	7A			HAWAIIAN RANCH COMPANY	
OKALA 223	7131	02	N HILO	20	01	155 17	430	7A				LAUPAHONGE SUGAR CO	SADDLE ROAD 1 84	A 8593	02	S HILO	19	42	155 12	2340				BOARD OF WTR SUPPLY	
OPITHALE 2 24.1	7100	04	S KONA	19	16	155 33	1270	7A				MISS C LEHARD	SOUTH POINT CORRAL 3	A 8675	03	KAU	3	18 57	155 41	300				HAWAIIAN RANCH COMPANY	
ORCHID LAND EST 91.5	7185	04	PUNA	19	34	155 00	445	VAR				BOARD OF WATER SUPPLY	UMIKOA 118	A 8763	01	HAMAKUA	19	59	155 23	3420				KUKAIAU RANCH CO	
PAPAHOU 27	7204	01	HAMAKUA	20	05	155 44	415	7A				PAAHOU SUGAR CO	UPOLU POINT USCG 159.2	A 8830	01	N KAHALA	19	40	155 08	1050	8A	7A		U S COAST GUARD	
PAUULO 221	7312	01	HAMAKUA	20	03	155 22	800	7A				HAMAKUA HILL CO	WAIKAEA SCD 08-2	A 9025	02	S HILO	2	19 40	155 08	1050	7A			SHINICHI KANESHIRO	
PAAHOLA 21	A 7423	03	KAU	3	19 12	155 29	870	0A	0A			HAWAIIAN AGR CO	WAIKANOONULA 178.6	A 9355	01	N KAHALA	1	20 08	155 47	3830	7A			KAHUA RANCH	
PAHIA 65	A 7457	02	PUNA	19	30	154 27	670	0A				PUNA SUGAR COMPANY													
PAKAO 37	A 7463	03	KAU	19	22	155 29	5000					HAWAIIAN RANCH CO, INC.													
PAPAIKOU 144.1	7711	02	S HILO	19	47	155 08	200	7A				MAUNA KEA SUGAR CO.													
PAPAIKOU MAUKA 140.1	7721	02	S HILO	19	47	155 08	1270	7A				MAUNA KEA SUGAR CO.													
PEPEKOE MAWAI 144	8000	02	S HILO	19	51	155 05	190	7A				PEPEKOE SUGAR CO													
PILIHOUA 89	A 8051	02	S HILO	19	44	155 10	1730					STATE DIV OF FORESTRY													
POMAKULA 107	A 8063	02	HAMAKUA	19	45	155 32	6511	VAR				STATE DIVISION OF PARKS													
PUAKO 95.1	A 8194	05	KOHALA	19	59	155 50		8A	0A			ERWIN W. RAPP													
PUU KIME 120	A 8393	01	HAMAKUA	1	19 54	155 24	7750					KUKAIAU RANCH CO													

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+ And also on an earlier date or dates.

⇨ Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data.

⇨ Amount included in following measurement, time distribution unknown.

A The letter "A" shown following station name in "Monthly Summarized Data" table, "Daily Precipitation" table, and "Station Index", indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.

B Adjusted to a full month.

J "Supplemental Data" table.

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T Trace, an amount too small to measure.

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VAR Observation time is variable.

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Information concerning the history of changes in locations, elevations, exposure, etc., of substations through 1957 may be found in the publication "Substation History" for this State, price 35 cents. Similar information for regular National Weather Service Offices may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

Subscription Price: 20 cents per copy, monthly and annual, \$2.50 per year. (Yearly subscription includes the Annual Summary.) Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.

William J. Hubbard
Director, National Climatic Center

USCOMM-NOAA-ASHEVILLE, N. C. 5/1/72-890

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NATIONAL CLIMATIC CENTER
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MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation												
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days			
										30° or Above	32° or Above	34° or Above	36° or Above					Total	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
KEAAU 92	76.0	61.5	68.8	- 1.5	83	6	59	20+		0	0	0	0	11.49	- 1.94	3.25	10	.0	0		16	6	4	
KEALAKEXUA 26.2	74.8	59.7	67.3		82	6	55	26+		0	0	0	0	3.65		1.60	26	.0	0		4	3	2	
KONA (KAILUA) 68.3	80.2M	64.0M	72.1M		85	29+	60	1		0	0	0	0	3.11		1.88	26	.0	0				1	
KUKUIHAELE 41C 199														5.81	- 1.50	1.96	19	.0	0		8	3	2	
KULANI CAMP 79	61.1M	44.2M	52.7M		71	6	39	27+		0	0	0	0	4.78		1.05	10	.0	0		13	3	1	
PAHALA 21	A	77.2M	59.5M	68.4M	- .4	87	7	56	21	0	0	0	0	5.29	- 1.30	3.54	22	.0	0				2	1
PONAKULOA 107	A													2.28		1.35	5	.0	0					1
PUAKO 95.1	A	80.9	63.3	72.1		86	5	58	26+	0	0	0	0	2.33		2.27	26	.0	0		1	1	1	
PUU WAHAA 94.1	A													2.02	- .55	1.50	26	.0	0		3	1	1	
UMIKOA 118														5.09	- 5.46			.0	0					
WAIKOA SCD 88.2														11.76		4.30	10	.0	0		15	5	3	
ISLAND			66.3											5.57				.0						

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 88° ON THE 6TH AT HAINA 214, HAWAII
 LOWEST TEMPERATURE: 25° ON THE 11TH AT MAUNA LOA SLOPE OBS, HAWAII
 GREATEST TOTAL PRECIPITATION: 49.50 INCHES AT MOUNT WAIKALEALE 1047, KAUAI
 LEAST TOTAL PRECIPITATION: 1.04 INCHES AT KONA VILLAGE 93.8, HAWAII
 GREATEST ONE-DAY PRECIPITATION: 7.00 INCHES ON THE 25TH AT LAUNIUPOKO VILLAGE 372, MAUI

SPECIAL WEATHER SUMMARY

What had previously been a rather lack-luster winter came to life in February. Storms migrating eastward across the Pacific along tracks more southerly than they had been earlier in the season brought Hawaii several intervals of strong gusty winds and of heavy rains and thunder-showers. Although some wind and rain damage did occur, the rains were probably more beneficial than harmful in their effects.

On February 4 a small intense low pressure area moving northeastward several hundred miles north of the islands, brought occasionally heavy showers and strong southerly winds to Kauai and Oahu. Peak gusts at a number of stations are given in Table I.

Winds were strongest where accelerated by topography. On Oahu's northeastern coast-- called "windward" because of its location relative to the prevailing east-northeasterly trade winds, but which for southerly or southwesterly winds, lies leeward of the steep eastern slopes of the Koolau Mountains -- gusts at the Kaneohe Marine Corps Air Station reached 69 m.p.h. In Waimanalo, Koolaupoko, and Waiahole 130 acres of banana trees toppled out of a total of 400 acres for an estimated loss of \$10,000 to \$50,000. (Some of the fruit is salvageable.) In Waimanalo itself a carport was ripped from its foundations; road, construction and store signs were knocked down and blown away; and, at the Beach Park, debris was blown into the ocean, trees and shrubs uprooted, and outdoor fireplaces and facilities ripped loose or overturned. A few lightly constructed roofs blew off, one of them at Kahaluu, and there was other scattered damage to roofs and windows of homes. In Keapuka several television antennas were blown away, and at Makapuu Beach Park a 6-inch layer of sand drifted over the highway. Elsewhere on Oahu, strong cross winds hindered aircraft at Honolulu Airport and high winds halted the Hawaiian Open Golf Tournament for 8 minutes.

On Kauai, property damage was lighter than on Oahu but broken branches, leaves, and other debris were strewn along highways, a large plate glass window broken in Hanalei, and at Metcalf Farms in Kilauea a grain storage bin 25 feet high by 8 feet in diameter was carried across the highway by the wind. Five acres of banana trees were toppled out of a total of 130 acres, but losses ran under \$10,000.

Maui's Kaanapali Airport was closed down to light aircraft, but no crop or property damage of consequence appears to have occurred on the island.

On Hawaii Island, the Hilo area reported minor wind damage to homes and business buildings. In Kohala, high winds lifted off a roof and knocked down a nearly completed two-story house. A few

papaya trees were felled and some vanda orchids destroyed in Kapoho and Pahoia, but damage is believed to have been light. Mauna Kea Summit reported fog, freezing drizzle, and winds estimated at 60 to 80 m.p.h.

Associated with the northeastward-drifting storm center was a trough of low pressure that progressed steadily down the island chain accompanied by scattered thunderstorms and heavy showers. On Oahu and Kauai peak intensities appear not to have exceeded about 1 inch an hour, although at one time 4 inches of water covered the Kalaniana'ole Highway at Kahana Bay in eastern Oahu.

On the eastern slopes of West Maui, 24-hour rainfall totals exceeded 10 inches. Elsewhere on Maui, the rain was lighter and in general, helpful, particularly to crops and pastures in Maui's Kula, Omaopio, and Ulupalakua areas where further moisture was needed despite January's rains.

On the evening of February 8, Maui was hit again by heavy rains associated with a low pressure trough traversing the island chain higher in the atmosphere. The Wailuku Sugar Company reported nearly 3.5 inches during a single hour and 20 acres of 2-month old sugarcane washed out at an estimated restoration cost of \$18,000. However, the storm also brought more than 10 inches of rain to northeastern Maui's Waikamoi reservoir, which had been so badly depleted during the long dry spell of the previous year.

Along the upper Hilo coast of Hawaii Island 2-day storm totals exceeded 11 inches in places, with peak intensities of approximately 1.5 inches an hour.

On the 17th and 18th another cold front moved through the islands accompanied by extensive clouds and showers. Strong, northeasterly trade winds in advance of the front left the heaviest rains on eastern Maui's windward slopes and generated high surf that on February 19 threw gravel and rocks onto the Bay Front Highway at Hilo, closing it for several hours.

On the evening of February 21 another low pressure area, similar to that of February 4 but further north, this time about 700 miles northwest of Honolulu, was drifting northeastward while drawing into its center broad converging currents of southerly winds that streamed across the islands.

At the same time a region of low pressure (trough) passing eastward through the island chain increased the instability of the moist air, permitting clouds to grow to great heights. Even on the previous day, February 20, lightning had slightly damaged one home in Hilo and barely missed

SPECIAL WEATHER SUMMARY - Continued

another. A dog was killed either by lightning or flying debris.

By the morning of February 22, a 240-mile-wide band of heavy showers and thunderstorms lay astride Molokai Channel and was moving south-eastward. A twin-engined aircraft attempting to reach Lanai from Honolulu through the weather front crashed at sea, killing all eight aboard. Hawaii Island's Volcano area reported hail at about 5:30 p.m.

On the 23d, heavy rain during the morning rush hour produced what was described as possibly Oahu's worst traffic snarl in history. Traffic on highways leading into Honolulu backed up for miles amidst stalled cars, minor accidents and, on the Pali Highway, a landslide. Earlier in the day lightning had hit a transmission line in Honolulu's Hawaii Kai district, shutting off power to 1,000 homes for about a minute. Another bolt, sounding to the occupants "like a jet airplane crashing into the roof," smashed a 2-foot hole in the garage roof of a home, throwing shingles and bricks around the yard and shearing off the top of a coconut tree.

A small plane attempting to fly from Hilo to Honolulu went far off course while circling massive thunderheads off western Molokai. During the evening hail fell on Hawaii Island, about 2 miles southwest of Hilo Airport.

The heavy rains reached Maui the evening of the 24th. In the Wailuku, Kahului, and Lahaina areas where rainfall rates reached 2 inches an hour, and totals of 5 to 8 inches occurred within a few hours, highways and roads turned into torrents.

Erosion was heavy. At the Wailuku Sugar and Pioneer Mill Companies most fields with young cane were washed out and foot-deep layers of mud, sand, rock, and other debris covered the roads. Numerous homes, lawns, and patios were flooded. Many cars stalled and poor visibility in rain caused a number of automobile accidents which injured at least three persons, none seriously. Flood waters at Paia halted traffic to Makawao and beyond.

In the Lahaina area, which received nearly half its mean annual rainfall within the space of about 5 hours, power and telephone circuits were out from 6:30 p.m. to 8 p.m. Lahaina's Front Street ran 2 to 3 feet deep with water, and by the morning of the 25th it was a river of mud and water. There, and on Waianee Street, where a drainage ditch overflowed, a number of houses sustained damage.

Following an almost day-long blizzard on the 25th, the astronomical observatory atop Mauna Kea reported 3 inches of new snow extending down to about the 9,000-foot level, with drifts of more than 6 feet closing the last 1,000 feet of the road to the summit.

As the month ended nearly all of the State had received moisture enough to put an end to the long dry spell of the previous year. A few areas had received too much rain and an island-wide papaya shortage from root rot and fruit rot was anticipated. On the other hand, a scattering of gages in western Kauai and on Oahu and Maui had less than their February averages, as did most of Hawaii Island's south Kohala, Hamakua coast, and Kau Districts.

TABLE I

Peak Gusts Observed on February 4

<u>Location</u>	<u>Speed (miles an hour)</u>	<u>Direction (from which the wind blows, in degrees)</u>
KAUAI		
Kokee	58	140°
Lihue	51	220°
OAHU		
Honolulu	36	200°
Kaena Point	52	195°, 215°, 225°
Kaneohe MCAS	69	180°

SPECIAL WEATHER SUMMARY - Continued

TABLE I - Continued
Peak Gusts Observed on February 4

<u>Location</u>	<u>Speed (miles an hour)</u>	<u>Direction (from which the wind blows, in degrees)</u>
MAUI		
Kaanapali	40	170°
HAWAII		
Hilo	44	170°
Kona	46	170°

Saul Price
Regional Climatologist for Pacific Region
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY PRECIPITATION

HAWAII FEBRUARY 1972

Continued

Table with 32 columns: Station, Total, and Day of Month (1-31). Rows list various weather stations such as #10LAKAA A & F 6, KIPA 89.2, KOHALA MAULILI 176, etc., with their respective precipitation values for each day.

SUPPLEMENTAL DATA

Table with 4 rows for stations: HILO WSO 87 AP, HONOLULU WSO 703 AP, KAHULUI WSO 398 AP, LIHUE WSO 1020.1 AP. Columns include Wind (Resultant Direction, Resultant Speed, Average, Fastest mile), Relative humidity averages-percent (Standard of Time), Number of days with precipitation (Trace, .01-.09, .10-.49, .50-.99, 1.00-1.99, 2.00 and over, Total), Percent of Possible sunshine, and Average sky cover sunrise to sunset.

See reference notes following Station Index

STATION INDEX

HAWAII
FEBRUARY 1972

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER
								TEMP.	PRECIP.	ET/EP.	SPECIAL										TEMP.	PRECIP.	ET/EP.	SPECIAL	
ISLAND OF HAWAII																									
HOLA LA 8	A 6407	03 KAU		3 19 11	155 30	601						HAWAIIAN RANCH CO	PUU LAHI 102.1	A 8452	05 HAWAIIA		5 19 50	155 30	7440				STATE DIV OF FISH-GAME		
HOJUPAIA 114 91	A 6550	02 PUNA		2 19 33	155 07	1530	8A	8A				PUNA SUGAR CO	PUU LEHUA 73	A 8460	04 N KONA		4 19 34	155 49	4880				W.M. GREENWELL RANCH		
HOLELE 16	A 6588	03 KAU		3 19 04	155 35	673	8A	8A				HUTCHINSON SUGAR CO	PUU MAHI 113	A 8515	01 HAWAIIA		19 55	155 26	6960				KUKAIAU RANCH CO		
HAPPOD 28	A 6674	04 S KONA		4 19 28	155 59	395	7A					KONA EXPERIMENT STA	PUU OO 82	A 8550	02 S HILO		19 44	155 23	4340				MISS JACKIE BENLEHR		
HILLI 174	A 6806	01 N KONA		2 20 01	155 17	430	7A					KONA CORPORATION	PUU WAAHA 94.1	A 8555	05 N KONA		19 47	155 51	1520				OILLINGHAM RANCH INC		
HOKA 223	A 6836	02 N HILO		2 20 01	155 17	430	7A					LAUPAHOE SUGAR CO	SAGOLE ROAD 1 84	A 8590	02 S HILO		19 42	155 12	2340				EGARD OFF-WTR SUPPLY		
JERIMALE 2 24.1	A 6860	04 S KONA		4 19 16	155 53	1270	7A					MISS C. LEONARD	SOUTH POINT CORRAL 3	A 8675	03 KAU		18 57	155 41	300				HAWAIIAN RANCH COMPANY		
JERICHO LAND EST 91.9	A 6788	02 PUNA		2 19 34	155 20	445	VAR					SQUARE OF WATER SUPPLY	UMUKO 118	A 8780	01 HAWAIIA		19 59	155 23	3420				KUKAIAU RANCH CO		
KAKAUMAI 217	A 6724	01 HAWAIIA		1 20 05	155 26	415	7A					PAAHAAU SUGAR CO	UPOLO POINT USGC 159.2	A 8830	01 N KONA		10 20	155 93	81	8A	7A		U S COAST GUARD		
KAAHI 0 271	A 6732	01 HAWAIIA		1 20 03	155 22	800	7A					HAWAIIA HILL CO	WAIKAKA SCO 84.2	A 9028	02 S HILO		19 40	155 08	1050				SHINICHI KANESHIRO		
KAHALA 2	A 7421	03 KAU		3 19 12	155 29	870	8A	8A				HAWAIIAN AGR CO	WAIKANDOLA 178.6	A 9350	01 N KONA		11 20 08	155 47	3630				KAHUA RANCH		
KAHUA 85	A 7457	02 PUNA		2 19 30	154 37	870	8A	8A				PUNA SUGAR COMPANY													
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- + And also on an earlier date or dates.
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- B Adjusted to a full month.
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- VAR Observation time is variable.
- W1 Gage read weekly or irregularly only.
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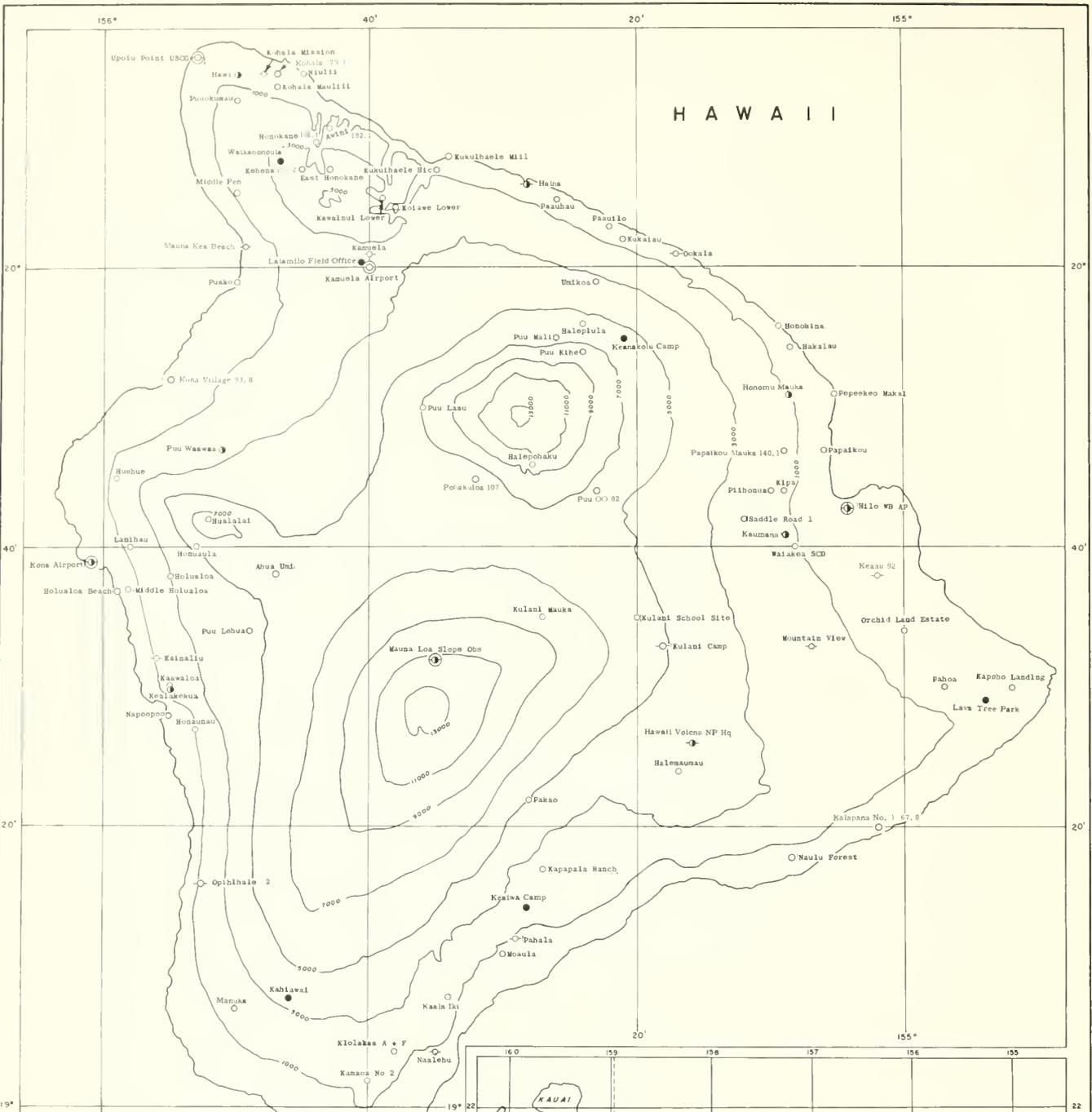
General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

Information concerning the history of changes in locations, elevations, exposure, etc., of substations through 1957 may be found in the publication "Substation History" for this State, price 35 cents. Similar information for regular National Weather Service Offices may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

Subscription Price: 20 cents per copy, monthly and annual: \$2.50 per year. (Yearly subscription includes the Annual Summary.) Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.

William H. Hoggard
 Director, National Climatic Center
 USCOM-NOAA-ASHEVILLE, N.C. 5/26/72-890



HAWAII

HAWAII

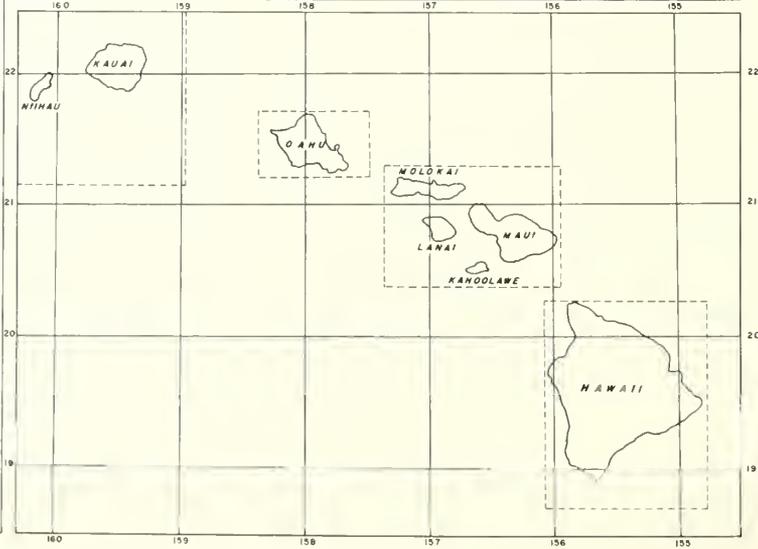
PLATE 2
STATUTE MILES



STATION LEGEND

- ● ① Precipitation only
- ① Precipitation, storage
- ● ① Precipitation and Temperature
- ● ① Precipitation, Temperature and Evaporation
- Type of gage ○ Non-recording, ● Recording ① Both types

Double circle combinations indicate the availability of more detailed meteorological data
All stations use 150th meridian time



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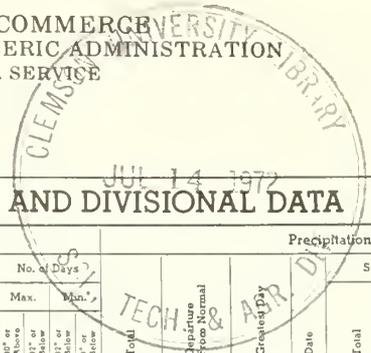


CLIMATOLOGICAL DATA

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ENVIRONMENTAL DATA SERVICE

HAWAII
MARCH 1972
Volume 68 No. 3

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA



Station	Temperature										Precipitation													
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days		Total	Departure From Normal	Greater Days	Date	Total	Snow/Sleet	No. of Days						
										91° or Above	81° or Above							71° or Above	61° or Above	51° or Above	41° or Above	31° or Above	21° or Above	11° or Above
* * * ISLAND OF KAUAI																								
ANAHOLA 1114 A						73	9	36	31				3.36	-2.85	1.60	3	.0	.0			3	1		
KANALOHULUHULU 1075	64.9	48.1	56.5							0	0	0	0	0	11.89	4.06	3	.0	.0			12	7	4
KAPAA STABLES 1104													3.18		1.50	3	.0	.0				2	1	
KILAUEA FIELD 17 1135													3.83	-6.05	2.60	2	.0	.0						
KILAUEA POINT 1133 A	77.7	68.4	73.1			85	22	60	28	0	0	0	5.28		1.63	2	.0	.0				10	2	1
* * * KOLA 936																								
LITHUE WSD 1020.1 AP //R	79.3	65.5	72.4	1.4	86	14	56	31		0	0	0	2.75	-3.88	1.64	3	.0	.0						
MANA 1026	81.6	63.3	72.5	1.3	89	15	57	20		0	0	0	1.99	-2.57	1.27	2	.0	.0						
N WAILUA OITCH 1051													3.76	1.11	2.42	3	.0	.0						
PH WAINIHA 1115													8.96		2.56	3	.0	.0						
* * * PUEHU RIDGE 1040																								
WAHIAWA 930 A	78.7	59.5	69.1		85	10	47	31		0	0	0	5.51	-.02	1.94	3	.0	.0				7	4	1
WAIAHI LOWER 1054													3.48		2.10	3	.0	.0						
WAIMEA 947													3.49	1.13	2.12	3	.0	.0						
* * * ISLAND OF MAUI																								
* * * ISLAND OF OAHU																								
* * * ISLAND OF MOLOKAI																								
HONOLULU OBSERV 702.2	79.6	65.9	72.8	.0	85	20	60	30+		0	0	0	2.17		1.20	3	.0	.0						
HONOLULU WSD 703 AP													2.45	-.44	1.83	3	.0	.0						
KAHUKU 912													3.17	-1.57			.0	.0						
KANEOME MAUKA 781	77.7M	66.6M	72.2M	.9	85	25	61	8		0	0	0	5.30	-1.96	1.70	21	.0	.0						
KOOLAUA OAH 833													4.72	-5.26	1.59	3	.0	.0						
* * * ISLAND OF HAWAII																								
LUALUALEI 804	79.9	64.5	72.2		84	20+	57	30		0	0	0	3.22		1.45	3	.0	.0						
MAKAPOU POINT 724	76.4	66.0	71.2		80	27+	62	30		0	0	0	3.18	-.74	1.71	3	.0	.0						
NUUANU RES 4 783													7.10	-4.91	3.48	3	.0	.0						
OPAEULA 870	78.5M	59.4M	69.0M	2.2	81	30+	55	30		0	0	0	1.94	-4.27	.80	29	.0	.0						
PAALO VALLEY 718													5.54	-7.31	2.62	3	.0	.0						
* * * ISLAND OF LANAI																								
PRI WAHIAWA 820.2	79.4	59.7	69.6		85	28+	53	30		0	0	0	2.28		1.22	3	.0	.0						
WAHIAWA DAM 863													2.99		1.87	3	.0	.0						
WAIAHOE 837													7.50	-7.30	3.22	3	.0	.0						
WAIALEE 896.3	79.6	66.2	72.9		83	23+	61	30		0	0	0	3.18		1.23	3	.0	.0						
WAIALUA 847	79.2	61.3	70.3	.0	85	15+	55	9		0	0	0	4.98	1.48	2.22	3	.0	.0						
WAIKIKI 717.2	80.7M	65.7M	73.2M		85	17	59	31+		0	0	0	2.48		1.48	3	.0	.0						
WAIMANALO EXP FARM	78.8	64.6	71.7		83	15+	56	30		0	0	0	3.08		1.90	3	.0	.0						
WAIPAHU 750													2.07	-1.11	1.25	3	.0	.0						
* * * ISLAND OF MOLOKAI																								
* * * ISLAND OF MAUI																								
KUALAPUU 534													5.33	.77			.0	.0						
MAPULEHU 542													3.73	-.49	1.72	3	.0	.0						
MAUNALDA 511													3.54	-.23			.0	.0						
MOLOKAI AP-524	77.0	66.1	71.6		82	18	58	31+		0	0	0	3.80		2.54	4	.0	.0						
* * * ISLAND OF LANAI																								
* * * ISLAND OF MAUI																								
* * * ISLAND OF HAWAII																								
HALEAKALA 8 E S 434	61.5	42.5	52.0		72	22	34	26		0	0	0	1.90	-7.31	.50	30	.0	.0						
HALEAKALA RS 338													3.33		1.53	5	.0	.0						
HANA AIRPORT 355	81.2M	63.0M	72.1M		86	24	58	10+		0	0	0	4.18		1.43	28	.0	.0						
HONOKOHUA 493													5.82	1.74			.0	.0						
KAANAPALI AIRPORT	78.5	65.5	72.0		84	13	60	31+		0	0	0	4.62		3.59	4	.0	.0						
KAHULUI WSD 398 AP	81.1	62.9	72.0	-.2	86	18	56	31+		0	0	0	2.00	-.22	1.43	4	.0	.0						
KAILUA 446	77.0	61.6	69.3	1.2	86	8	57	31+		0	0	0	2.15	-10.02	.60	18	.0	.0						
KEANAE 346													1.80	-20.36			.0	.0						
KIPAHULU 258													6.69	-2.87	2.11	30	.0	.0						
KULA SANATORIUM 267	70.1	55.9	63.0	1.8	80	3	50	30		0	0	0	4.93	1.63	1.86	5	.0	.0						
LAHAINA 361	81.3	64.9	73.1		84	21+	59	31+		0	0	0	3.86	-1.93	2.95	4	.0	.0						
PAIA 406													2.12	-1.93	.66	5	.0	.0						
WAILUKU 386	79.2M	65.0M	72.1M	.6	83	23+	59	9		0	0	0	3.30	-.45			.0	.0						
* * * ISLAND OF HAWAII																								
HALEAKALA RS 338	79.3	63.6	71.5	2.0	83	24+	59	31+		0	0	0	2.64	-5.92	1.39	29	.0	.0						
HAWAII VOLCNS NP HO 54	68.3M	50.8M	59.9M	2.0	75	8	44	27		0	0	0	4.90	-7.08			.0	.0						
HILD WSD 87 AP	83.7	63.9	73.8	3.2	93	23	57	10		1	0	0	.88	-13.82	.35	28	.0	.0						
HUEHUE 92.1													3.52	-.19			.0	.0						
KATNALIU 73.2	76.1	59.5	67.8		81	3	54	6		0	0	0	4.89	-.39	2.41	5	.0	.0						

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII
MARCH 1972

Continued

Station	Temperature											Precipitation															
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days						
										Max.		Min.						Total	Departure From Normal	Greatest Day	Date	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										80° or Above	32° or Below	32° or Below	0° or Below														
KEAAU 92	81.2	62.0	71.6	1.3	88	24	55	3		0	0	0	0	1.41	-14.17	.64	29		.0	0		4	1	0			
KEALAKÉKUA 26.2	77.0	60.8	68.9		82	3	56	6		0	0	0	0	5.48		2.53	5		.0	0		3	2	2			
KONA (KAILUA) 68.3	82.0M	65.8M	73.9M		85	3	60	31		0	0	0	0	3.14					.0	0							
KUKUIHAELE HIC 199														3.40	- 6.64	1.45	29		.0	0		5	2	1			
KULANI CAMP 79	66.8	45.0	55.9		76	9	36	24		0	0	0	0	2.22		.84	29		.0	0		6	1	0			
PAHALA 21	78.5M	61.0M	69.8M	.9	83	6	58	16+		0	0	0	0	3.30	- 2.28				.0	0							
POHAKULDA 107														1.24					.0	0							
PJAKO 95.1														2.41					.0	0							
PUU WAAWAA 94.1	82.1	64.6	73.4		86	24+	59	31		0	0	0	0	3.21	.00				.0	0		5	2	1			
UMIKO 118														2.55	-10.18				.0	0		6	2	0			
WAIAKEA SCD 88.2														1.84					.0	0		6	1	0			
ISLAND			68.7											2.94					.0								

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 93° ON THE 23D AT HILO WSO 87 AP, HAWAII
 LOWEST TEMPERATURE: 25° ON THE 30TH AT MAUNA LOA SLOPE OBS, HAWAII
 GREATEST TOTAL PRECIPITATION: 16.23 INCHES AT PANILEIHULU 259.2, MAUI
 LEAST TOTAL PRECIPITATION: .56 INCH AT PUU OO 82, HAWAII
 GREATEST ONE-DAY PRECIPITATION: 5.20 INCHES ON THE 5TH AT AUWAHI 252, MAUI

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY

The weather in March was underscored by high winds and rain during the first few days and by a later spell of dry mild weather. Trade winds were infrequent and the southerly flow that replaced them occasionally blanketed the State with volcanic haze from an eruption on Hawaii Island.

February's wind and rain continued into the first 4 days of March. Strong southerly winds converging into a low pressure area which moved from about 800 miles northwest of Honolulu on the 1st, to 450 miles north of Honolulu on the 4th, buffeted all the islands and brought widespread rain. High particulate matter measurements in Honolulu confirmed the northward spread of haze from the Mauna Ulu Volcano eruption on Hawaii Island, and the combination of haze and rain gave Hawaiian skies an unusually gloomy appearance.

Wind and rain damage was light. Some leafy crops were slightly bruised. On Oahu the southerly winds, made stronger and more turbulent in crossing the Koolau Mountains, tore shingles off a home at Punaluu; while on Hawaii Island, they unroofed a garage in Kaumana and part of a home in Puueo, and generated unusually rough seas that halted boating in Kailua Bay on the 4th and 5th. Also on the 5th a man picking opihi, a shellfish, drowned when an unexpectedly large wave swept him off the rocks near Halona Blow Hole, Oahu.

During the remainder of the month, fronts and squall lines migrating eastward across the Pacific weakened dramatically and turned northeastward just west of the Hawaiian Islands. This change in track of the weather systems, coupled with the absence of low pressure areas higher in the atmosphere and the infrequency of trade winds, gave rise to a dry spell over the ordinarily wet mountains and "windward" (relative to the northeasterly trades) slopes of the islands.

Particularly affected was the eastern third of Hawaii Island, from the Hamakua coast southward through the Hilo, Puna, and Kau Districts. On the 16th a forest fire burned about 15 acres of ohia trees and brush at Orchard Manor in Puna, Hawaii Island. On the 17th the Mayor

of Hawaii Island issued the first of three "drought disaster" proclamations, thus authorizing the trucking of emergency household water at State expense to families in Puna's Volcano and Glenwood areas, which depend upon roof catchment for domestic water supplies. The area thus designated was extended to Upper Puna, between Glenwood and Pahoa, on the 25th and 5 days later to Kapoho, Kaueleau, and Kalapana, although showers beginning on the 26th and continuing through the end of the month brought some relief.

On the evening of the 28th snow fell down to the 9,000-foot level on Mauna Loa and Mauna Kea; and on Mauna Loa, was drifted into snow banks 4 feet high by the strong southwesterly winds.

Hilo Airport recorded its driest March (see Table I) and its warmest March day of record. Only 8 days had measurable rain (.01 inch or more), as compared to a March average of 24 days; and the 93° observed on the 23d exceeded by 5° the previous March high of 88° (in 26 years of record) and came within 1° of its peak high of 94°.

On all the major islands monthly rainfall totals ran well above average in some areas and well below average in others. With southerly winds replacing the northeasterly trades for most of the month, the mean rainfall patterns were also reversed, the ordinarily drier "leeward" areas tending to be wetter than normal and the normally wetter mountain and "windward" areas drier than normal. Thus, while gages in the western sections of Kauai, Oahu, Maui, and Hawaii Island caught well over their March averages (the Lahaina, Kihei, and Waipai areas had twice their normal for March), eastern and mountain areas were relatively dry, with many stations on the windward (eastern and northeastern) slopes of Maui and Hawaii Island reporting less than 25 percent and some less than 10 percent of their average March rainfall.

As Table I shows, a number of gages with long periods of record had less rainfall than in any previous March.

H A W A I I - M A R C H 1972

SPECIAL WEATHER SUMMARY - Continued

TABLE I

Stations with Less Rain in March 1972 than
in Any Previous March

(25 years of record or more, only)

<u>Station</u>	<u>Length of Record (Yrs.)</u>	<u>Previous Least March Total (Inches)</u>	<u>March 1972 (Inches)</u>
MAUI			
Kailili	48	2.60	1.93
Keanae	68	2.33	1.80
Puohokamoa 2	50	6.53	1.40
Waikamoi	66	3.13	1.70
HAWAII			
Hilo Airport	30	2.97	.88
Honomu Mauka	61	3.16	2.89
Kulani Camp	25	3.30	2.22
Kulani School Site	25	1.13	.39
Papaikou	74	1.62	1.52
Papaikou Mauka	47	1.89	1.85
Piihonua	48	2.58	1.60
Waiakea SCD	42	3.29	1.84

TABLE II

Peak Gusts Observed During March 1-4, 1972

<u>Location</u>	<u>Peak Wind Speed (m.p.h.)</u>
KAUAI	
Barking Sands	53
Kokee	46
Lihue Airport	36
OAHU	
Honolulu Airport	30
Kaena Point	52
Kaneohe MCAS	43
MAUI	
Kahului Airport	44
HAWAII	
Hilo Airport	34

SPECIAL WEATHER SUMMARY - Continued

TABLE III

Percent of Trade Winds (NNE through E)
for March 1972 and Mean from Hourly Observation

Station	MARCH 1972 (Percent)	MEAN (Percent)
Honolulu Airport	24	63
Kahului Airport	27	46
Lihue Airport	28	61

Saul Price
Regional Climatologist for Pacific Region
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
Acting Climatologist for Hawaii
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY PRECIPITATION

Continued

HAWAII
MARCH 1972

Station	Total	Day of Month																																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
		KIDOLAKAA & L F 6	6.10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.10
KIPA 89.2	1.16					.07																													
KOHALA MAULILI 176	3.96																																		
KOHALA WISSIDN 175.1	6.02																																		
KOIAHE LOWER 196	5.40			1.20																															
KONA (KAILUA) 68.3	3.14																																		
KONA VILLAGE 93.8	3.14																																		
KUKAIU 222	3.15																																		
KUKUIAEE MIC 199	3.40																																		
KUKUIAEE MILL 206	2.84																																		
KULANI CAMP 79	2.22																																		
KULANI MAIKA 76	1.85																																		
KULANI SCHOOL SITE 78	1.39																																		
KANIKAU 68.2	4.40																																		
MAKANA AU 103	3.12																																		
HANUKA 2	6.90																																		
MAUNA LOA SLOPE OBS	2.48																																		
MIDDLE HOUAALOA 68.1	5.83																																		
MIDDLE PEN 147.1	2.96																																		
MOAUA 18	4.40																																		
MOUNTAIN VIEW 91	1.90																																		
NAALEHU 14	3.55																																		
NAPPOPOH 78	2.32																																		
NEILUI 179	3.66																																		
ODKALA 223	4.36																																		
OPHIHALE 2 24.1	4.38																																		
ORCHIO LAND EST 91.5	1.89																																		
PAAUHAU 217	2.56																																		
PAAULU 221	2.47																																		
PAHALA 21	3.30																																		
PAHOA 65	3.08																																		
PAAKAO 37	6.00																																		
PAPAIKOU 144.1	1.52																																		
PAPAIKOU MAUKA 140.1	1.85																																		
PIIHONUA 89	1.60																																		
POHAKUOA 107	1.24																																		
PUAKO 95.1	2.41																																		
PUU KIME 120	2.53																																		
PUU LAU 102.1	3.20																																		
PUU LEHUA 73	4.50																																		
PUU MAI 113	1.63																																		
PUU OO 82	1.56																																		
PUU WAAWA 94.1	3.21																																		
SAOOLE ROAD 1 84	4.19																																		
SOUTH POINT CORRAL 3	4.47																																		
UMIKOA 118	2.55																																		
UPOLU POINT USCG 159.2	4.21																																		
WAIKAEA SCO 88.2	1.84																																		

SUPPLEMENTAL DATA

	Wind (Speed - m.p.h.)						Relative humidity averages- percent				Number of days with precipitation						Percent of Possible sunshine	
	Resultant Direction	Resultant Speed	Average	Fastest mile	Direction of fastest mile	Date of fastest mile	Standard of Time 150TH MERIDIAN				Trace	.01-.09	.10-.49	.50-.99	1.00-1.99 and over	Total	Percent of Possible sunshine	Average sky cover sunrise to sunset
							02	08	14	20								
HILO WSO 87 AP	14	2.7	7.3	29	SE	02	85	74	62	82	5	5	3	0	0	13	54	6.2
HONOLULU WSO 703 AP	20	2.3	10.9	26	E	19+	82	78	65	74	7	4	3	0	1	15	74	6.0
KAHULUI WSO 398 AP	16	1.6	9.3	31	SW	03	88	82	64	82	4	3	3	0	1	11	65	5.2
LIHUE WSO 1020.1 AP	19	1.9	8.7	29	SW	02	86	80	67	77	5	7	3	0	1	16	62	5.9

DAILY TEMPERATURES

HAWAII MARCH 1972

Table with columns for Station, Day of Month (1-31), and Average. Rows include stations like ISLAND OF KAUAI, ISLAND OF OAHU, ISLAND OF MOLOKAI, ISLAND OF LANAI, and ISLAND OF MAUI.

STATION INDEX

HAWAII MARCH 1972

Main data table with columns for STATION, INDEX NO., DIVISION, DISTRICT, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER.

STATION INDEX

HAWAII
MARCH 1972

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE I	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE I	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER		
								TEMP.	PRECIP.	EVAP.	SPECIAL										TEMP.	PRECIP.	EVAP.	SPECIAL			
ISLAND OF HAWAII																											
MOAULA 18	A 4407	03 KAU			3 19 11	155 30	600					HAWAIIAN RANCH CO	PIU LAU 102.1	A 8452	05 HAWAIIA			5 19 50	155 36	7440				STATE DIV OF FISH-GAME			
MOUNTAIN VIEW 91	A 6552	02 PUNA			2 19 33	155 07	1530	8A	8A			PUNA SUGAR CO	PIU LEMUA 73	A 8460	04 N KOHA			4 19 34	155 49	4880				W.M. GREENWELL RANCH			
NALEHU 14	A 6588	03 KAU			8 19 04	155 35	673	8A	8A			MUTCHINSON SUGAR CO	PIU MALI 113	A 8518	01 HAWAIIA			1 19 55	155 28	6940				KUKIAU RANCH CO			
NAPOODO 28	A 6697	04 S KOHA			4 19 28	155 55	395		7A			KONA EXPERIMENT STA	PIU OO 82	A 8550	02 S HILD			2 19 44	155 23	6340				MISS JACKIE BENLEHR			
NIULII 179	A 6806	01 N KOHALA			1 20 14	155 45	75		4A			KOHALA CORPORATION	PIU WAHAA 94.1	A 8555	05 N KOHA			5 19 47	155 31	2520				DILLINGHAM RANCH INC			
OKALA 223	7131	02 N HILD			2 20 01	155 17	+30	7A	7A			LAUPAHEHE SUGAR CO	SADOLE ROAD 1 84	A 8550	02 S HILD			2 19 42	155 12	2340				BOARD OF WTR SUPPLY			
OPINIAHALE Z 24.1	7166	04 S KOHA			4 19 16	155 53	1270	7A	7A			MISS S. LEONARD	SOUTH POINT CORRAL 3	A 8675	03 KAU			3 18 57	155 41	500				HAWAIIAN RANCH COMPANY			
ORCHARD LAND EST W1.5	A 7180	02 PUNA			1 19 34	155 00	445	VAR	VAR			BOARD OF WATER SUPPLY	UMIKO 118	8780	01 HAWAIIA			1 19 59	155 23	3420				KUKIAU RANCH CO			
PAUHAU 217	7204	01 HAWAIIA			1 20 05	155 26	415		7A			PAAUHAU SUGAR CO	UPOU POINT USCC 159.2	8830	01 N KOHALA			3 20 15	155 53	61				U. S. COAST GUARD			
PAUULO 221	7312	01 HAWAIIA			1 20 03	155 22	800		7A			HAWAIIA HILL CO	WAIKAEA SCO 88.2	9025	02 S HILD			2 19 40	155 08	1050				SHINICHI KANESHIRO			
PAHALA 21	A 7421	03 KAU			1 19 12	155 29	870	8A	8A			HAWAIIAN AGR CO	WAIKANONDULA 178.6	9350	01 N KOHALA			1 20 08	155 47	3830					KAHUA RANCH		
PAHOA 85	A 7457	02 PUNA			2 19 30	154 57	870		8A			PUNA SUGAR COMPANY	CLOSED STATIONS														
PAKED 37	A 7643	03 KAU			3 19 22	155 28	5000					HAWAIIAN RANCH CO, INC.	ISLAND OF MAUI														
PAPAI'OU 144.1	7711	02 S HILD			2 19 47	155 06	200		7A			HAUNA KEA SUGAR CO.	OLDOWALU GULCH 377	A 7006	04 LAHAINA			4 20 51	156 36	800						CLOSED 2/29/72	
PAPAI'OU MAUI 140.1	7721	02 S HILD			2 19 47	155 08	1270		7A			HAUNA KEA SUGAR CO.	PIU KUKUI MAHAI 472	A 8444	04 LAHAINA			4 20 55	156 38	2500						CLOSED 2/29/72	
PEPEKEE MAHAI 144	8000	02 S HILD			2 19 51	155 05	100		7A			CLOSED 2/29/72	ISLAND OF HAWAII														
PIHONUA 89	A 8051	02 S HILD			2 19 44	155 10	1730		7A			STATE DIV OF FORESTRY	PEPEKEE MAHAI 144	8000	02 S HILD			2 19 51	155 05	100							CLOSED 2/29/72
POWAKUKI 107	A 8083	02 HAWAIIA			1 19 35	155 30	6511	VAR	K			ERWIN H. RAPP															
PUKO 95.1	A 8184	05 KOHALA			5 19 59	155 50	5	8A	8A			MUKIAU RANCH CO															
PUU KIH 120	A 8393	01 HAWAIIA			1 19 54	155 24	7750																				

↓ DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN
2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii 96811, or to any National Weather Service Office near you. Additional precipitation data are contained in "MONTHLY PRECIPITATION DATA HAWAII".

DIMENSIONAL UNITS: Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in °F., precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are tens of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.

OBSERVATION TIME: Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.

EVAPORATION is measured in the standard Weather Service-type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extremes of temperature of water in pan as recorded during 24 hours ending at time of observation. Wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 6-8 inches above the pan.

NORMALS for all stations are climatological standard normals based on the period 1931-1960.

STATION NAMES: Hawaii state key numbers are included following station names in the several tables.

LATE REPORTS AND CORRECTIONS will be carried only in the June and December issues of this bulletin.

INTERPOLATED VALUES for monthly precipitation totals may be found in the annual issue of this publication.

IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, and the Station Index.
- No record in the "Monthly Summarized Data" table and the "Daily Temperature" table is indicated by no entry.
- + And also on an earlier date or dates.
- + Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data.
- Amount included in following measurement, time distribution unknown.
- A The letter "A" shows following station name in "Monthly Summarized Data" table, "Daily Precipitation" table, and "Station Index", indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
- B Adjusted to a full month.
- J "Supplemental Data" table.
- W One or more days of record missing: if average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
- R Amounts from recording gage.
- T Trace, an amount too small to measure.
- V Includes total for previous month.

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- AR Observation made after rain.
- C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Monthly Summarized Data" bulletins they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
- MO Gage read once monthly; usually on the last day.
- OC Gage readings at periods varying from a few weeks to several months.
- S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as late reports in the June issue of this publication.
- SS Observation time is near sunset.
- VAR Observation time is variable.
- W1 Gage read weekly or irregularly only.
- WM Gage read weekly and last day of month.
- # Thermometers are generally exposed in a shelter located a few feet above sod-covered ground; however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.

Stations appearing in the tables with no data were either missing or received too late to be included in this issue.

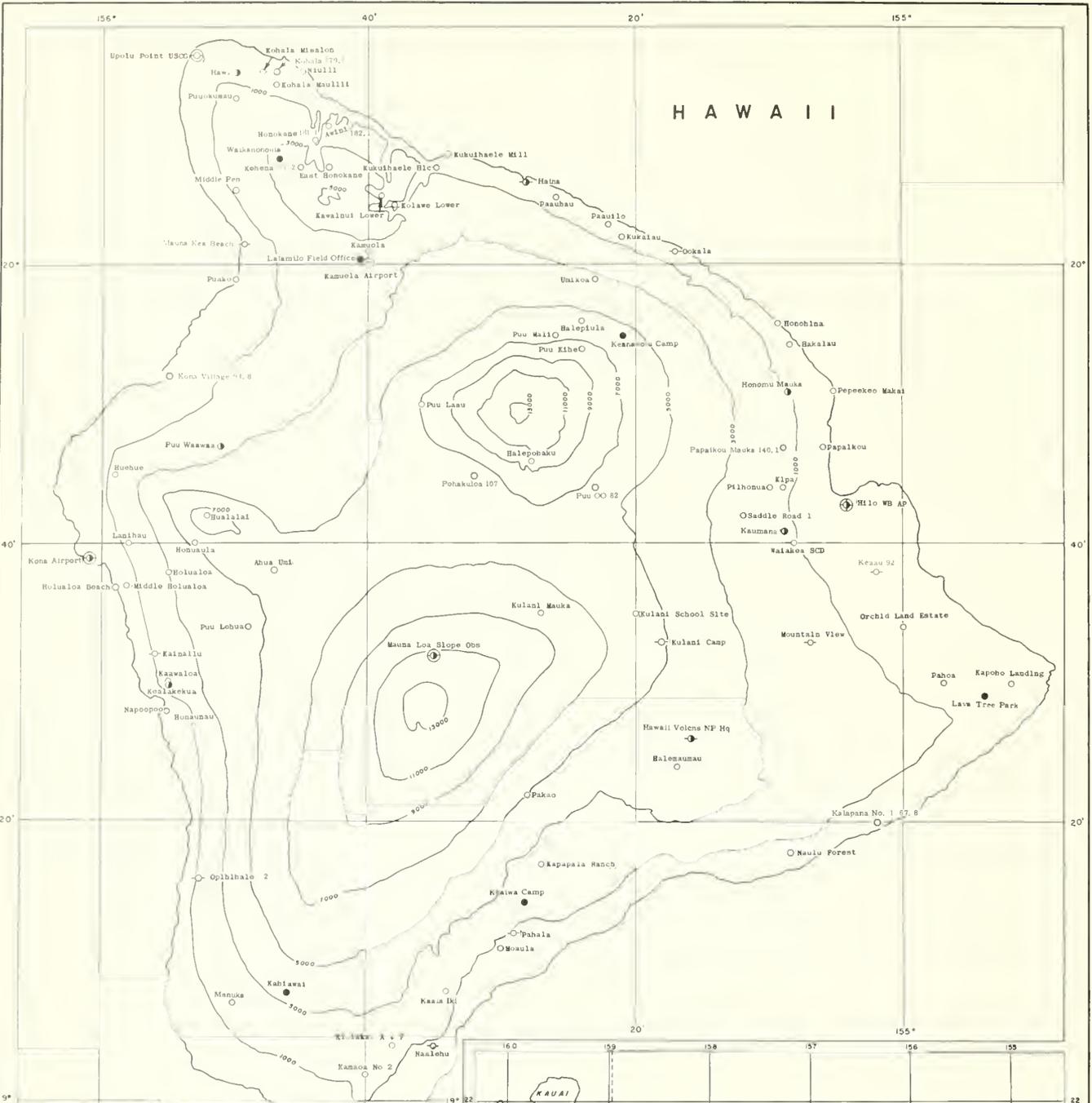
General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

Information concerning the history of changes in locations, elevations, exposures, etc., of substations through 1957 may be found in the publication "Substation History" for this State, price 35 cents. Similar information for regular National Weather Service Offices may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

Subscription Price: 20 cents per copy, monthly and annual; \$2.50 per year. (Yearly subscription includes the Annual Summary.) Checks and money orders should be made payable to the Superintendent of Documents. Resittance and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.

William H. Hoggard
Director, National Climatic Center
USCOMM-NOAA-ASHEVILLE, N. C. 6/28/72-890



HAWAII

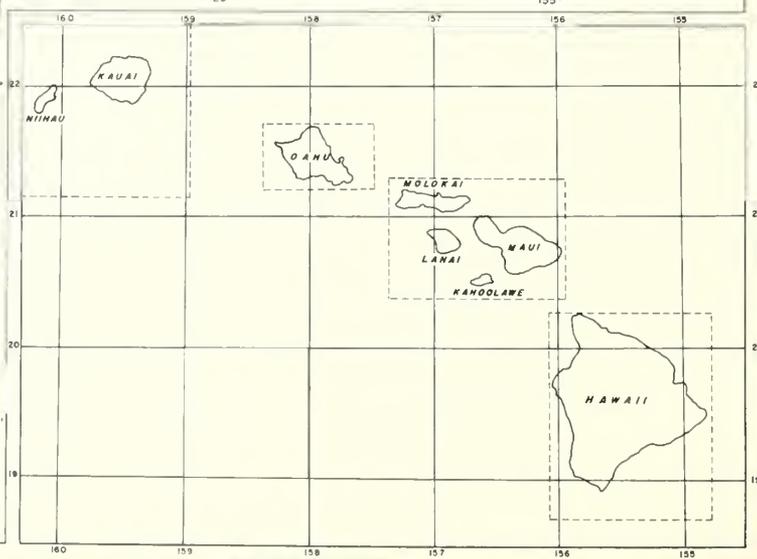
PLATE 2
STATUTE MILES



STATION LEGEND

- ● ① Precipitation only
- ⊕ Precipitation, storage
- ● ① Precipitation and Temperature
- ⊕ ● ① Precipitation, Temperature and Evaporation
- Non-recording,
- Recording ① Both types

Double circle combinations indicate the availability of more detailed meteorological data
All stations use 150th meridian time



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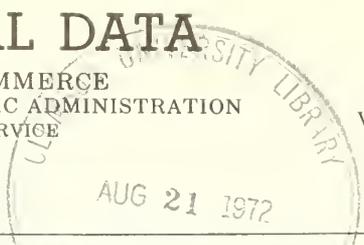
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CLIMATOLOGICAL DATA

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ENVIRONMENTAL DATA SERVICE

HAWAII
APRIL 1972
Volume 68 No. 4



MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature										Precipitation													
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Dale	Lowest	Dale	Degree Days	No. of Days			Total	Departure From Normal	Greatest Day	Date	Snow, Sleet		No. of Days					
										80° or Above	80° or Below	32° or Below					Total	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More	
																								Max.
* * * ISLAND OF KAUAI																								
ANAOHOLA 1114	A																							
KANALOHULUHULU 1075	A	66.8	51.6	59.2		72	19	39	1	0	0	0	0	15.01	10.90			.0	0					
KAPAA STABLES 1104	A													8.59				.0	0					
KILAUEA FIELD 17 1135	A													16.67				.0	0					
KILAUEA POINT 1133	A	76.3	68.5	72.4		84	16	62	26	0	0	0	0	14.00	6.19	2.30	14	.0	0			9	4	3
KOLOA 936	A													10.47	5.74			.0	0					
LIHUE WSO 1020.1 AP	//R	78.1	69.9	74.0	1.5	81	30+	60	1	0	0	0	0	10.65	7.31	5.33	15	.0	0			7	4	3
MANA 1026	A	83.5	62.6	73.1	.4	87	29+	59	27+	0	0	0	0	3.80	2.55	1.91	16	.0	0			5	2	2
N WAILUA OITCH 1051	A													28.89				.0	0					
PH WAINIHA 1115	A													8.33	- 3.94	1.67	9	.0	0			14	6	2
PUEHU RIOGE 1040	A													6.38		2.58	16	.0	0			7	3	2
WAHIAWA 930	A	75.5	62.7	69.1		79	29+	57	1	0	0	0	0	6.71	4.79			.0	0					
WAIHI LOWER 1054	A													18.96		7.46	16	.0	0			20	9	3
WAIIMEA 947	A													7.26	6.13	3.39	16	.0	0			4	3	3
ISLAND																								
* * * ISLAND OF OAHU																								
HONOLULU OBSERV 702.2	R	81.1	68.8	75.0	.8	84	30+	62	1	0	0	0	0	3.71		3.12	15	.0	0			3	1	1
HONOLULU WSO 703 AP	A													5.15	3.84	3.90	14	.0	0			5	2	1
KAHUKU 912	A													9.96	7.11			.0	0					
KANEHE MAUKA 781	A	78.1	67.5	72.8	.3	83	27	65	7+	0	0	0	0	13.77	8.24	5.30	25	.0	0			15	7	2
KODIAU DAM 833	A													13.76	6.81	3.75	15	.0	0			18	7	4
LUALUALEI 804	A	80.6	67.8	74.2		84	18	59	3	0	0	0	0	3.69				.0	0					
MAKAPUU POINT 724	A	74.9	66.5	70.7		79	15	58	6	0	0	0	0	2.11	.33	.90	15	.0	0			5	1	0
NUUANU RES 4 783	A													15.24	5.23	3.34	14	.0	0			17	11	3
OPAEULA 870	A	72.7	60.1	66.4	- 1.6	82	3	56	1	0	0	0	0	7.51	3.35	3.40	15	.0	0					
PALOLO VALLEY 718	R													15.64	3.13	2.66	14	.0	0			17	11	6
PRI WAHIAWA 820.2	A	78.4	62.1	70.3		84	18	53	3	0	0	0	0	7.19				.0	0					
WAHIAWA OAM 863	A													5.07				.0	0					
WAIHOLE 837	A													20.55	7.25			.0	0					
WAIALEE 896.3	A	77.7	66.8	72.3		82	14	62	1	0	0	0	0	6.76		2.03	17	.0	0			8	3	3
WAIALUA 847	A	78.4	62.0	70.2	- 1.3	84	14	54	2	0	0	0	0	4.75	3.03	2.10	15	.0	0			6	3	2
WAIKIKI 717.2	A	80.6	67.8	74.2		84	19	61	1	0	0	0	0	4.07		2.00	15	.0	0			6	3	1
WAIMANALO EXP FARM	A	78.1	67.8	73.0		82	14	59	1	0	0	0	0	5.28		2.21	15	.0	0			6	3	2
WAIPAHU 750	A													7.43	5.55			.0	0					
ISLAND																								
* * * ISLAND OF MOLOKAI																								
KUALAPUU 534	A													.89	- 2.17			.0	0					
MAPULEHU 542	A													2.80	- .25	.34	2	.0	0			13	0	0
MAUNALO 511	A													1.38	- .93			.0	0					
MOLOKAI AP 524	A	77.0	67.0	72.0		80	20+	61	13	0	0	0	0	.87		.40	15	.0	0			2	0	0
ISLAND																								
* * * ISLAND OF LANAI																								
LANAI CITY 672	A	73.5M	58.8M	66.2M	- .8					0	0	0	0	1.84	- 1.08			.0	0					
ISLAND																								
* * * ISLAND OF MAUI																								
HALEAKALA 8 E S 434	A													9.07	1.11	2.80	10	.0	0			11	5	3
HALEAKALA RS 338	A	59.1	41.1	50.1		64	24+	36	26+	0	0	0	0	5.23		3.05	10	.0	0			7	2	1
HANA AIRPORT 355	A	78.8M	65.7M	72.3M		81	27+			0	0	0	0	6.45		1.52	7	.0	0			14	4	1
HONOKOHU 493	A													2.42	- .76			.0	0					
KAA NAPALI AIRPORT	A	79.7M	66.1M	72.9M		84	18	61	1	0	0	0	0			.46	16	.0	0			2	0	0
KAHULUI WSO 398 AP	R	82.6	64.5	73.6	.2	85	18+	57	1	0	0	0	0	.30	- 1.14	.06	15	.0	0			0	0	0
KAILUA 446	A	73.9	63.1	68.5	- .6	78	26+	58	1	0	0	0	0	11.48	- .05	1.52	29	.0	0			21	11	3
KEANAE 346	A													21.90	- 3.20			.0	0					
KIPAHULU 258	A													8.36	1.32	2.14	13	.0	0			16	4	2
KULA SANATORIUM 267	A	69.9	55.5	62.7	.7	74	16+	50	12	0	0	0	0	2.88	.19	1.90	17	.0	0			4	1	1
LAHAINA 361	A	82.9	64.5	73.7		86	17	60	1	0	0	0	0	.46	- .59	.45	15	.0	0			1	0	0
PAIA 406	A													1.24	- 1.89	.19	23	.0	0			6	0	0
WAILUKU 386	A													.70	- 2.00			.0	0					
ISLAND																								
* * * ISLAND OF HAWAII																								
HAINA 214	A	76.3	64.2	70.3	.3	80	15	60	12	0	0	0	0	4.66	- 3.01	.97	2	.0	0			13	2	0
HAWAII VOLCONS NP HO 54	R	63.7M	52.3M	58.0M	- 1.1	69	15	48	25	0	0	0	0	16.10	7.70	2.24	9	.0	0			23	12	4
HILD WSO 87 AP	R	79.3	66.0	72.7	1.1	85	14	60	28	0	0	0	0	17.79	5.87	3.57	1	.0	0			25	8	4
HUEHUE 92.1	A													1.09	- 1.92			.0	0					
KAINALIU 73.2	A	75.5	60.7	68.1		79	17+	58	28+	0	0	0	0	3.07	- 2.59	.43	25	.0	0			9	0	0

See Reference Notes Following Station Index
SPECIAL WEATHER SUMMARY ON PAGE 43

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature										Precipitation												
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days		
										Max.		Min.						Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										90° or Above	32° or Higher	32° or Higher	0° or Below										
KEAAU 92	76.3	63.6	70.0	- 1.1	81	28+	59	30		0	0	0	0	21.20	8.78	4.50	2	.0	0		29	11	5
KEALAKEUA 26+2	75.7	61.8	68.8		80	19+	59	13+		0	0	0	0	3.97		1.61	20	.0	0		11	2	1
KONA (KAILUA) 68.3										0	0	0	0	1.43				.0	0				0
KUKUIHALE HIC 199										0	0	0	0	6.21	- 3.02	1.11	8	.0	0		15	6	1
KULANI CAMP 79	60.1M	46.8M	53.5M				38	1		0	0	0	0	20.39		3.50	10	.0	0		27	11	7
PAHALA 21					79	17				0	0	0	0	6.59	3.43			.0	0				
POHAKULOA 107										0	0	0	0	2.37				.0	0				
PUAKO 95.1					87	9	62	1		0	0	0	0	.11		.06	17	.0	0		0	0	0
PUU WAAWAA 94.1	83.2	68.0	75.6							0	0	0	0	.14	- 2.16			.0	0		0	0	0
UMIKOA 118														12.28	2.95	5.67	10	.0	0		4	4	3
WAIKOA SCD 88.2														31.94		6.46	17	.0	0		26	15	9
ISLAND			67.1											9.33				.0					

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 88° ON THE 9TH AT KEAWAKAPU BEACH 260.2, MAUI
 LOWEST TEMPERATURE: 21° ON THE 27TH AT HALEAKALA SUMMIT 338.4, MAUI
 GREATEST TOTAL PRECIPITATION: 43.08 AT KIPA 89.2, HAWAII
 LEAST TOTAL PRECIPITATION: .00 AT 2 STATIONS
 GREATEST ONE-DAY PRECIPITATION: 9.50 ON THE 2D AT KIPA 89.2, HAWAII

HAWAII - APRIL 1972

SPECIAL WEATHER SUMMARY

April in Hawaii frequently straddles the seasons, uncertain whether to become part of winter or summer. This year it chose to be both. Although never very severe, the weather was highly varied, running the gamut from gusty trade winds to thunderstorms, waterspouts and funnel clouds, hail, flooding and drought-relieving rains, and high waves that caused several boating accidents and deaths.

April's proverbial showers began on the very first day of the month, when welcomed downpours brought 24-hour rainfall totals ranging from 1.74 inches at Pahoa to 7.86 inches at Honomu Mauka and ended a dry spell that had led to designating portions of eastern Hawaii Island a drought disaster area the previous month.

A brief chronology of the month's more significant weather-related events follows.

APRIL 5. A Catholic nun, twice swept into the ocean from rocks near Fleming's Beach, Lahaina, Maui, was rescued twice but succumbed to her injuries 10 days later.

APRIL 10 and 11. Gusty northeasterly trade winds from a strong high pressure area 1,000 miles to the north, buffeted the islands. Damage was minimal: some vegetable crops bruised; and roof damage to an apartment house in Honolulu's Kapiolani district (\$8,000), leaving five families temporarily homeless, and to an industrial building in Kakaako, Oahu. At Waimea-Kohala Airport shortly after noon on the 11th, 35 to 45 m.p.h. trade wind gusts flipped over a light aircraft turning to taxi for takeoff. The pilot, the only one aboard, was uninjured, but the aircraft's tail section was damaged and later its wing while being righted.

APRIL 12. During the evening two narrow funnel clouds (not reaching the sea surface) were sighted about 7 miles northeast of Lihue Airport, Kauai, while other less well-defined funnels appeared to form and dissipate along the cloud base.

APRIL 14-17. Oahu and Kauai experienced minor flooding and damage from thunderstorms and occasionally heavy rain associated with a surface band of low pressure (trough) that extended from a low pressure center 400 miles northwest of Honolulu. During that period, peak 1-hour rainfall intensities exceeded 1.5 inches at many gages, 2 inches at some, and reached 3.10 inches at a gage in Oahu's Pearl City Terrace area. Twenty-four-hour rainfall totals of 6.52 inches and 4.21 inches set new April records at Honolulu Airport and Lihue Airport, respectively.

APRIL 15, ON KAUAI:

1. Lightning struck Kauai Electric Company's Lihue substation during the morning, leaving almost the entire island without power for 2 hours. Lightning also shattered a TV antenna pole in Hanamaulu.

2. Flooding in low-lying areas made most of Wailua Golf Course a "water hazard."

3. Heavy rain and low clouds forced two commercial flights en route to Lihue to turn back to Honolulu.

4. Water up to about 4 feet deep in low-lying areas near Brennecke Beach in Poipu, flooded four homes and caused about \$2,500 in damage to household effects and three vehicles.

5. Runoff eroded shoulders and gutters and washed mud and debris onto highways between Waimea and Hanapepe, at Huleia, between Lihue and Anahola, at Wailua Homesteads, and between Kapaia and Wailua Falls.

APRIL 15, ON OAHU:

1. Mud slides occurred at the Moanalua Road-Halawa Road intersection from nearby construction projects and at Waimalu Stream in that area; as well as on Lilipuna Road and on Kaneohe Bay Drive at the Saddle Road cutoff.

2. Kauhale Stream in Aiea overflowed, flooding the basements of two buildings.

3. Pensacola Street was flooded between King and Beretania Streets.

On West Molokai, the Marines called off amphibious landing exercises because of heavy surf.

APRIL 16. At mid-morning three dark, rope-like waterspouts were sighted 8 miles south of Waimea, Kauai. An afternoon thunderstorm gave Kula Sanatorium, Maui, pea-sized hail and Haleakala Summit rain and small hail.

APRIL 17. Intense rains, caused apparently by the ascent of moist trade winds over the Koolau Range, fell on the mountain slopes behind Kahaluu, Oahu, (a favored location for such rains), flooding the grounds of Kahaluu School, washing 3 feet deep over Kamehameha Highway near Kahekili Highway, and undermining the footing of Ahaolelo Road Bridge No. 2, dropping the bridge into the stream. Waiahole, at an elevation of 745 feet a few miles north of Kahaluu, registered 3.65 inches between 2 p.m. and 7 p.m., with a peak 1-hour intensity of 1.90 inches between 3:30 p.m. and

H A W A I I - A P R I L 1 9 7 2

SPECIAL WEATHER SUMMARY - Continued

4:30 p.m. Ahuimanu Loop, upslope of Kahaluu, recorded a 1-day total of 6.2 inches, beginning at 8 a.m. on the 17th.

APRIL 19. Two men were drowned after gusty trade winds or a large swell upset their sailboat 3 miles off Honolua Bay, West Maui. A third man, swimming with the current, reached Molokai after 16 hours in the water.

APRIL 29. Rain showers and low clouds reduced visibility at Hilo Airport to 2 miles or less continuously from 7:15 a.m. to nearly 5 p.m.

APRIL 30. A wave alleged to be twice as large as others at the time overturned an 18-foot boat in Kaiwi Channel. One man died while clinging to the partially submerged hull. Two others were rescued by Coast Guardsmen after nearly 24 hours in the water.

Small craft advisories were in effect for Hawaiian waters on 15 days. Eleven of these had gusty northeasterly trades; four had southerly winds.

The month's rains gave most of Kauai and Oahu,

which had been quite dry in March, well above their April averages. Kauai's southwestern coast was particularly wet with five to eight times its average rainfall, while its eastern coast and western and southern Oahu had three to five times their April averages. Lihue Airport had 10.65 inches, its wettest April in 22 years of record and substantially over the 8.86 inches in April 1962.

All of Molokai and most of Lanai received well under their April average, while Maui's central valley had less than half and in places less than one-fourth of its average for April.

On Hawaii Island rainfall in the Kohala and Hamakua Coasts and the Kona district ran somewhat below normal, with some gages in North Kona and the Kawaihae area totalling less than one-fourth their April averages. In general, the island showed an interesting reversal in rainfall distribution from the previous month, with most of the eastern half of the island well above normal in contrast to its very low rainfall in March.

Saul Price
Regional Climatologist for Pacific
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
Acting Climatologist for Hawaii
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY PRECIPITATION

HAWAII APRIL 1972

Continued

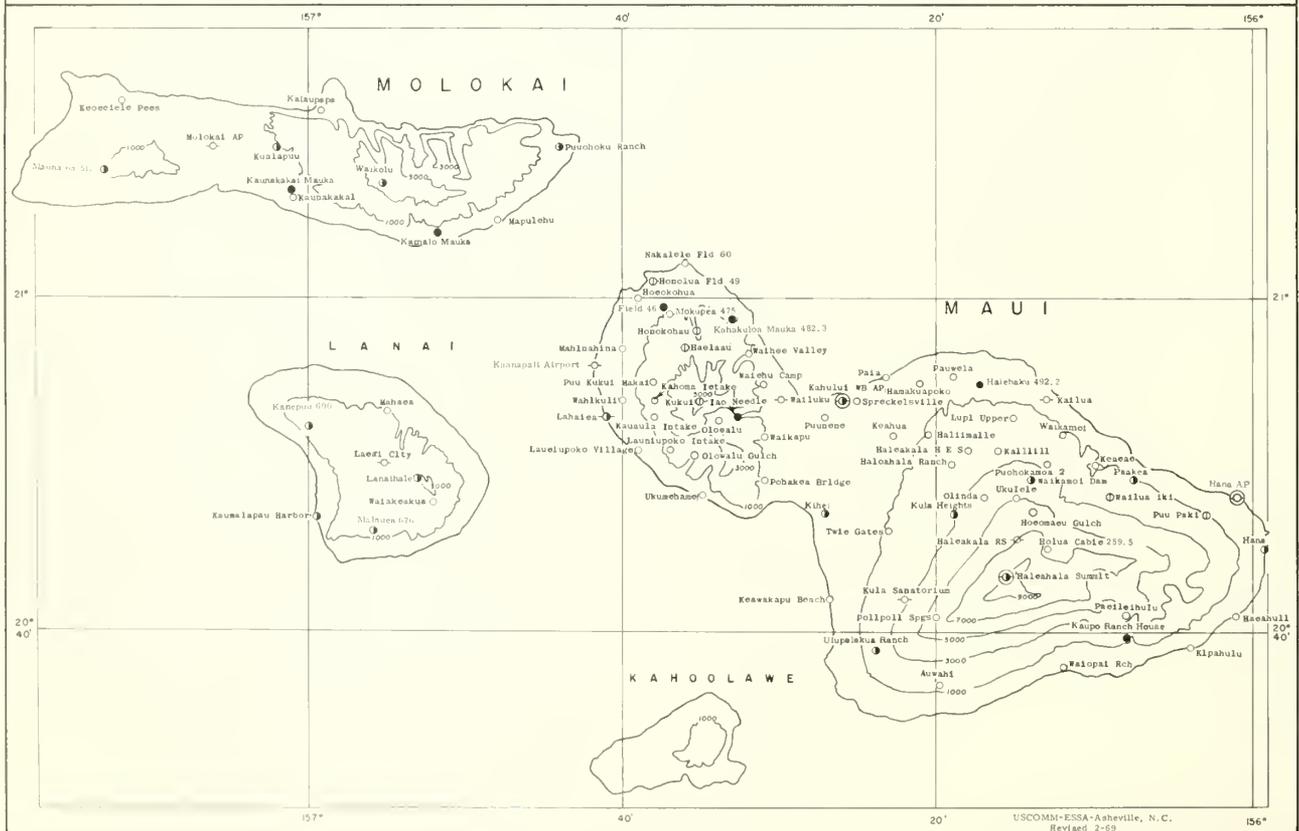
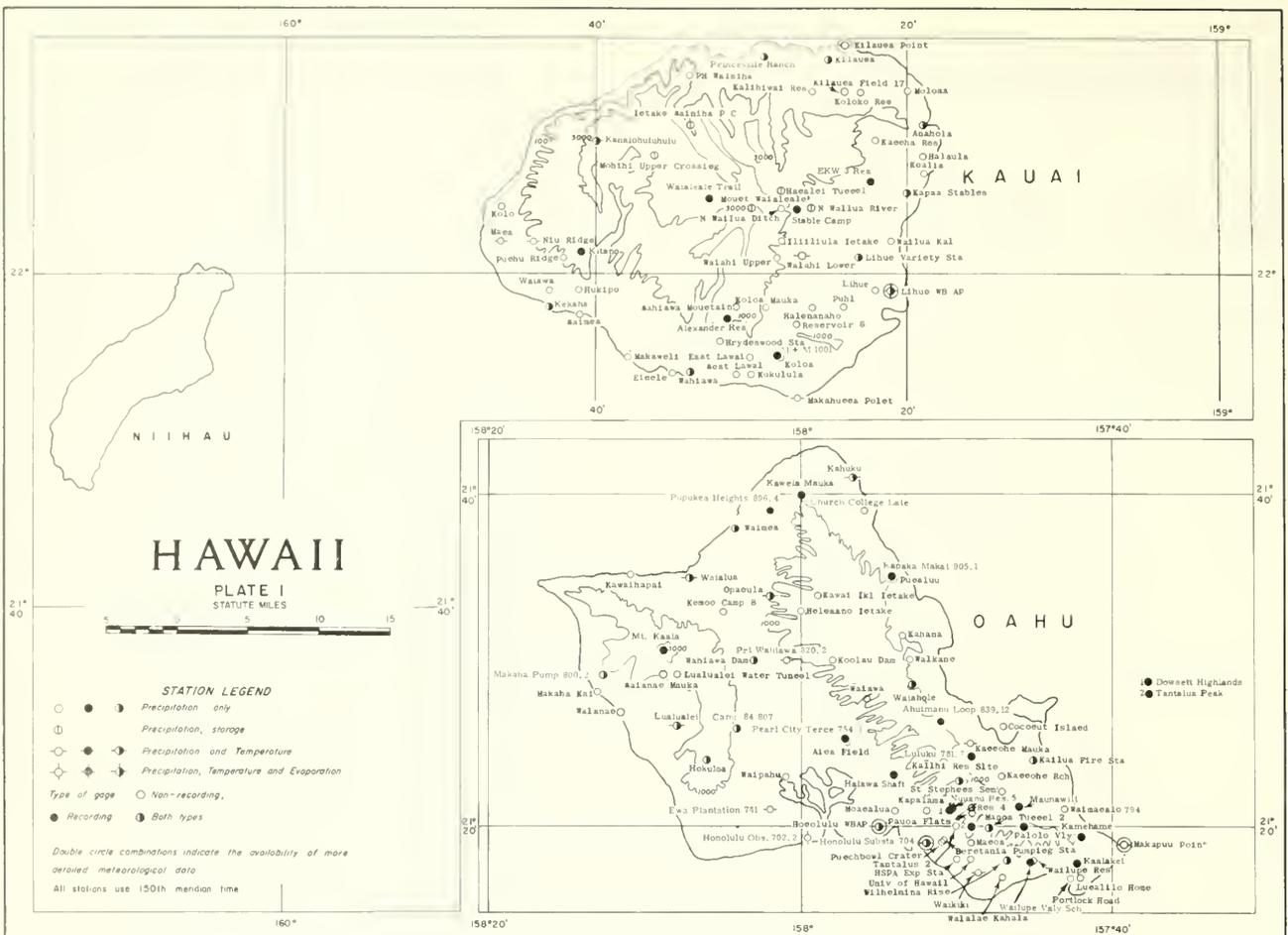
Table with columns for Station, Total, and Day of Month (1-31). Rows list various locations such as KEONELELE PENS, KUALAPU, MAHANA, etc., with numerical precipitation data for each day.

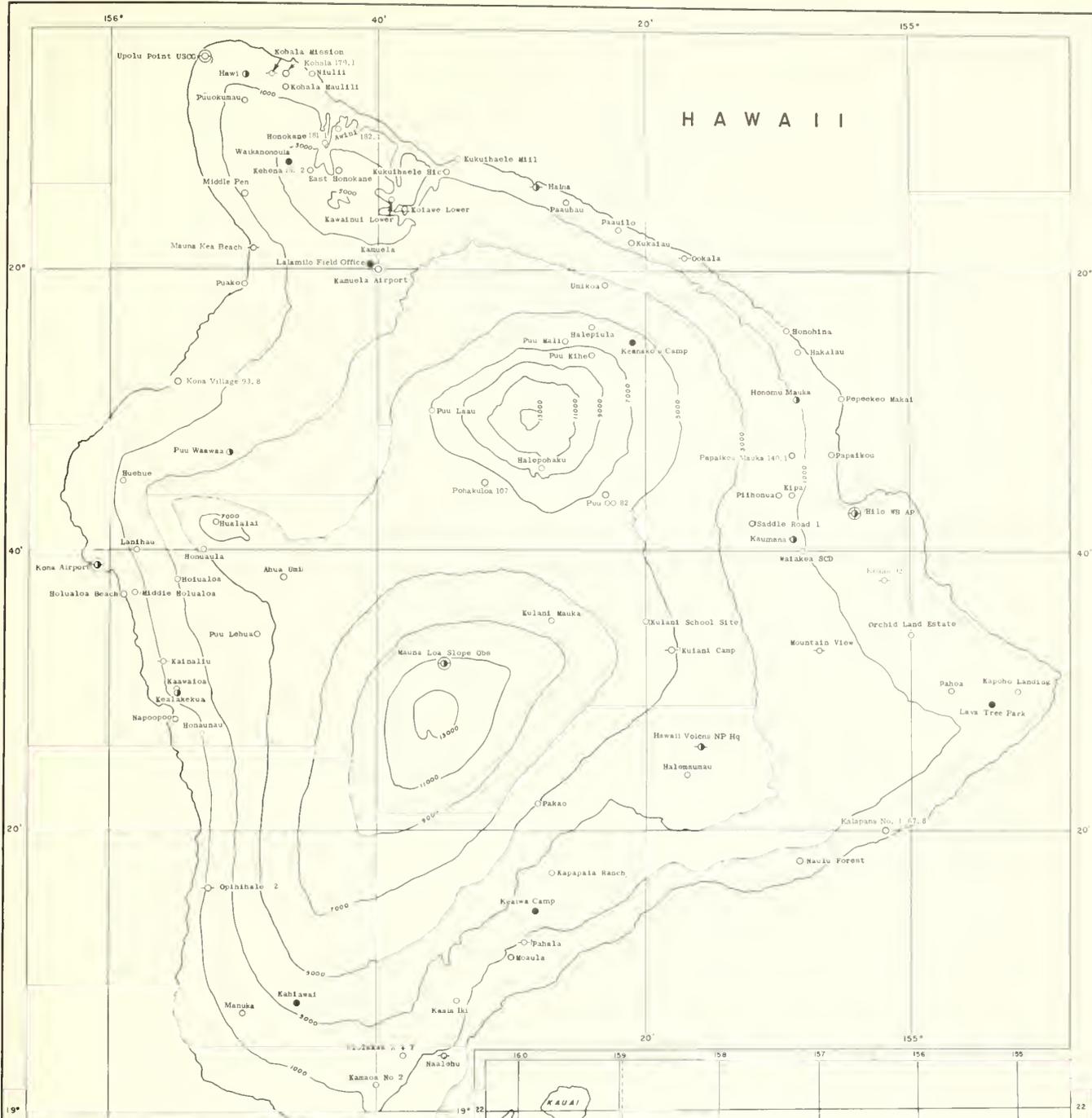
See reference notes following Station Index

STATION INDEX

HAWAII 1972

Main data table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER.





HAWAII

HAWAII

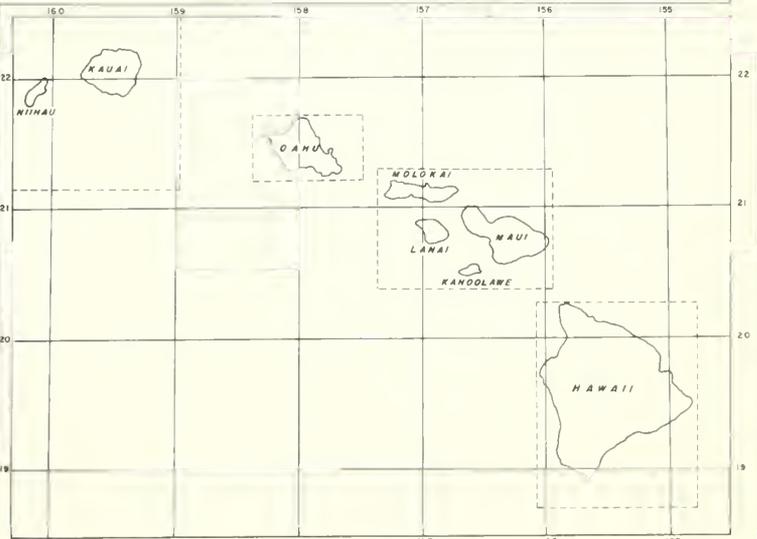
PLATE 2
STATUTE MILES



STATION LEGEND

- ● ● Precipitation only
- ⊙ Precipitation, storage
- ● ● Precipitation and Temperature
- ⊙ ● ● Precipitation, Temperature and Evaporation
- Type of gage ○ Non-recording.
- Recording ⊙ Both types

Double circle combinations indicate the availability of more detailed meteorological data
All stations use 150th meridian time



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MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation												
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days			
										Max.		Min.						Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More	
										90° or Above	32° or Below	32° or Below	27° or Below											27° or Below
KEAAU 92	78.8	62.9	70.9	- 1.6	81	29+	59	10+		0	0	0	0	5.78	- 4.10	.76	5	.0	0		21	2	0	
KEALAKEUA 26.2	76.4	61.7	69.1		78	20+	59	27+		0	0	0	0	4.46		1.69	3	.0	0		9	2	1	
KONA (KAILUA) 68.3	83.1M	69.3M	76.2M		87	9	66	26		0	0	0	0	3.61		.0	0	.0	0		3	1	0	
KUKUIHAELE HIC 199					70	5	42	30+		0	0	0	0	1.67	- 5.04	.59	8	.0	0		3	1	0	
KULANI CAMP 79	61.8	45.9	53.9							0	0	0	0	5.81		1.10	1	.0	0		13	2	1	
PAHALA 21	78.3M	61.6M	70.0M	- 1.0	81	29	58	29		0	0	0	0	1.69	- .63	1.37	5	.0	0			1	1	
POHAKULOA 107														.00		.00		.0	0			0	0	0
PUAKO 95.1														.16		.08	21	.0	0			0	0	0
PUU WAHAA 94.1	84.3	69.0	76.7		88	28+	66	22+		0	0	0	0	3.27		.54		.0	0			2	0	0
UMIKOA 118														.47	- 4.59	.22	2	.0	0			2	0	0
WAIAKEA SCD 88.2														10.00		1.78	5	.0	0		22	7	2	
ISLAND			69.0											3.51				.0						

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 89° ON THE 22D+ AT 4 STATIONS

LOWEST TEMPERATURE: 29° ON THE 8TH+ AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 11.18 AT KIPA 89.2, HAWAII

LEAST TOTAL PRECIPITATION: .00 AT 18 STATIONS

GREATEST ONE-DAY PRECIPITATION: 2.90 ON THE 9TH AT MANOA TUNNEL 2 716, OAHU

H A W A I I - M A Y 1 9 7 2
SPECIAL WEATHER SUMMARY

May's weather was mild, warm, sunny -- and very dry, threatening many areas with a resurgence of the prolonged dry spell, only intermittently interrupted by the rains of the past winter. Light to moderate trade winds persisted throughout, except on the 10th through the 12th, when replaced by light southerly winds, and between the 27th and 28th, when they became gusty enough to call for 12 hours of small craft advisories.

The State was exceptionally dry nearly everywhere. Most sections had well under half, and large areas less than one-fourth, their average rainfall for May. Of the several hundred gages reporting, only three exceeded their May normals, and then only slightly: Wahiawa, Kauai, and Puu Waawaa and Kailua-Kona, in western Hawaii Island.

On Kauai, a band extending from the south-central coast through central and into eastern Kauai was only moderately deficient in rainfall (over 50 percent of the May normal), but elsewhere rainfall was below half its average for May, and along the southwestern coast, below one-fourth.

On Oahu, rainfall reached even half or slightly above the May average only in a scattering of upland gages above Waianae and Honolulu, on the northern coast from Waimea to Kahuku, and near Kaneohe. All other areas were well under 50 percent of normal, and the western and northwestern coasts, from Nanakuli to Mokuleia, less than 10 percent of normal.

Maui was especially dry everywhere. Only the extreme eastern coast near Hana had even as much as half May's normal rainfall, while most of the central valley and southwestern coast

had no rain at all. The Kula District on Haleakala's southwestern slopes had less than 10 percent of its May average. Even in ordinarily wet windward East Maui, most gages registered well under half their monthly average. This return of dry weather to areas not yet recovered from their recent prolonged drought was of great concern to agricultural and ranching interests on the island.

In the western two-thirds of Molokai, no reporting gage exceeded 5 percent of normal, while the eastern third had less than half its May average.

All of Lanai was dry. Coastal areas had no rain at all, while even upland gages near Lanai City received little more than a fourth of their normal May rainfall.

On Hawaii Island, South Kohala and the Hamakua coasts and uplands had under half, and in places less than one-fourth, their average rainfall for May, thus continuing the extended dry spell affecting those localities. Haina, for example, has exceeded its monthly mean rainfall in only one of the past 16 months. The balance of eastern Hawaii, from Honomu and Pepeekeo south of Pahoia and southwest nearly to South Point, registered above half (although still below) its normal May rainfall, as did most lower elevation gages in the Kona District.

At the Federal Building in downtown Honolulu, May's rainfall total of 0.10 inch was the second lowest since 1905 when records began there. Only May 1949 had less, with 0.06 inch.

Kahului Airport, Maui, had its driest May -- only a trace of rain -- since records began in 1952.

As the list below shows, a number of other long-term gages had their driest May of record.

Stations With Less Rain in May 1972 than
in Any Previous May

(25 years of record or more, only)

Station	Length of Period (Yrs.)	Previous Least May Total (Inches)	May 1972 (Inches)
KAUAI			
Waiawa	68	0.17	0.09
OAHU			
Opaepula	68	0.31	0.28
MAUI			
Haleakala Ranger Stn	34	0.64	0.38

H A W A I I - M A Y 1 9 7 2

SPECIAL WEATHER SUMMARY - Continued

Station	Length of Period (Yrs.)	Previous Least May Total (Inches)	May 1972 (Inches)
MAUI - Continued			
Nakalele	35	0.93	0.16
Paia	68	0.24	0.04
HAWAII			
Manuka	44	1.69	1.25

Saul Price
 Regional Climatologist for Pacific Region
 National Weather Service Office
 P. O. Box 3650
 Honolulu, Hawaii 96811

Paul Y. Haraguchi
 Acting Climatologist for Hawaii
 National Weather Service Office
 P. O. Box 3650
 Honolulu, Hawaii 96811

STATION INDEX

HAWAII MAY 1972

Main data table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. Includes sections for ISLAND OF MOLOKAI and ISLAND OF MAUI.

STATION INDEX

HAWAII
MAY 1972

CONTINUED

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES			OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES			OBSERVER
								TEMP.	PRECIP.	SPECIAL										TEMP.	PRECIP.	SPECIAL	
ISLAND OF HAWAII																							
MOUNTAIN VIEW 91	A 6552	02	PUNA	2 19 33	155 07	1530	6A	NA			PUNA SUGAR CO	PUU MALI 113	E 8515	01	HAWAIIA	1 19 55	155 26	6900				KUKAIAU RANCH CO	
NAALEHU 14	A 6588	03	KAU	3 19 04	155 35	673	8A	8A			HUTCHINSON SUGAR CO	PUU OO 82	E 8550	02	S MILO	1 19 44	155 23	6340	9A			MISS JACKIE BENLEHR	
NEPOPOPO 28	A 6597	04	S KONA	4 19 28	155 35	673	7A	7A			KONA EXPERIMENT STA	PUU WAHAA 94.1	E 8558	03	N KONA	1 19 47	155 31	6250	7A			OILLINGHAM RANCH INC	
NIULII 179	A 6606	01	N KONA	1 20 14	155 45	75	9A	9A			KONA CORPORATION	SAOOLE ROAD 1 B4	E 8590	02	S MILO	1 19 42	155 12	2340				BOARD OF WTR SUPPLY	
KOHALA 223	7131	02	N MILO	2 20 01	155 17	430	7A	7A			LAUPAHOE SUGAR CO	SOUTH POINT CORRAL 3	E 8675	03	KAU	3 18 57	155 41	500				HAWAIIAN PANCH COMPANY	
OPICHOLE 2 24.1	A 7183	02	PUNA	2 19 34	155 00	445	VAR	VAR			MISS C. LEONARD	UMUKA 118	E 8780	01	HAWAIIA	1 19 59	155 23	3420	7A			KUKAIAU RANCH CO	
PAIHU 217	7204	01	HAWAIIA	1 20 05	155 26	415	7A	7A			STATE DIV OF FORESTRY	UPULU POINT USCG 159.2	E 8830	01	N KONA	1 20 15	155 53	61	8A	8A		U S COAST GUARD	
PAUHAU 221	7312	01	HAWAIIA	1 20 03	155 22	400	7A	7A			STATE DIV OF FISH-GAME	WAIKAKA SC 89.2	E 9025	02	S MILO	2 19 40	155 08	1030	7A			SMITHSONIAN KANESHIRO	
PANALA 21	A 7421	03	KAU	3 19 12	155 29	870	8A	8A			HAWAIIAN AGR CO	WAIKANOOUA 178.6	E 9350	01	N KONA	1 20 08	155 47	3830	7A			KAHUA RANCH	
PANOA 65	7457	02	PUNA	2 19 30	154 57	870	0A	0A			PUNA SUGAR COMPANY	NEW STATIONS ISLAND OF OAHU											
PAKAO 37	A 7643	03	KAU	3 19 22	155 28	5000	7A	7A			HAWAIIAN RANCH CO. INC.	KAENA POINT 841.3	2410	04	WAIALUA	4 21 34	158 13	1240	9A			LOCKHEED BALL MISS DIV	
PAPAIAKU 144.1	7711	02	S MILO	2 19 47	155 08	1270	7A	7A			MAUNA REA SUGAR CO.												
PAPAIAKU MAUKA 140.1	7721	02	S MILO	2 19 44	155 10	1730	7A	7A			MAUNA REA SUGAR CO.												
PIMOHUA 89	A 8051	02	S MILO	2 19 44	155 10	1730	VAR	VAR			STATE DIV OF FORESTRY												
PONAKULA 107	A 8093	02	HAWAIIA	2 19 45	155 32	9511	VAR	VAR			STATE DIVISION OF PAPRS												
PUNAKO 95.1	A 8186	05	KOHALA	5 19 59	155 50	5	8A	8A			ERWIN W. RAPP												
PUU KINE 120	A 8393	01	HAWAIIA	1 19 56	155 24	7750					KUKAIAU RANCH CO												
PUU LAU 102.1	A 8452	05	HAWAIIA	1 19 56	155 24	7440					STATE DIV OF FISH-GAME												
PUU LEHUA 73	A 8460	04	N KONA	4 19 34	155 49	4880					W.M. OPEENHILL RANCH												

↑ DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAUA 3-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN 5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN 2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii 96811, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII."

DIMENSIONAL UNITS: Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in "F.", precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are tens of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.

OBSERVATION TIME: Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.

EVAPORATION is measured in the standard Weather Service-type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extremes of temperature of water in pan as recorded during 24 hours ending at time of observation. Wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 6-8 inches above the pan.

NORMALS for all stations are climatological standard normals based on the period 1931-1960.

STATION NAMES: Hawaii state key numbers are included following station names in the several tables.

LATE REPORTS AND CORRECTIONS will be carried only in the June and December issues of this bulletin.

INTERPOLATED VALUES for monthly precipitation totals may be found in the annual issue of this publication.

IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, and the Station Index.
- No record in the "Monthly Summarized Data" table and the "Daily Temperature" table is indicated by no entry.
- + And also on an earlier date or dates.
- ++ Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data.
- * Amount included in following measurement, time distribution unknown.
- A The letter "A" shown following station name in "Monthly Summarized Data" table, "Daily Precipitation" table, and "Station Index" indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
- B Adjusted to a full month.
- J "Supplemental Data" table.
- M One or more days of record missing; if average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
- R Amounts from recording gage.
- T Trace, an amount too small to measure.
- V Includes total for previous month.

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- AR Observation made after rain.
- C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Monthly Summarized Data" bulletin they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
- MO Gage read once monthly; usually on the last day.
- OC Gage readings at periods varying from a few weeks to several months.
- S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as late reports in the June issue of this publication.
- SS Observation time is near sunset.
- VAR Observation time is variable.
- W1 Gage read weekly or irregularly only.
- W2 Gage read weekly and last day of month.
- # Thermometers are generally exposed in a shelter located a few feet above sod-covered ground; however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.

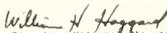
Stations appearing in the tables with no data were either missing or received too late to be included in this issue.

General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

Information concerning the history of changes in locations, elevations, exposure, etc., of substations through 1957 may be found in the publication "Substation History" for this State, price 35 cents. Similar information for regular National Weather Service Offices may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

Subscription Price: 20 cents per copy, monthly and annual; \$2.50 per year. (Yearly subscription includes the Annual Summary.) Checks and money orders should be made payable to the Superintendent of Documents. Resittance and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.


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MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation												
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days			
										Max.		Min.						Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More	
	90° or Above	32° or Below	32° or Below	0° or Below																				
KEAAU 92	81.0	65.4	73.2	- .5	85	4	63	23+		0	0	0	0	4.89	= 2.97	.90	28	.0	0		17	2	0	
KEALAKEUA 26.2	76.7	63.1	69.9		80	6	60	23+		0	0	0	0	3.83		.71	16	.0	0		11	3	0	
KONA (KAILUA) 68.3	84.2M	70.1M	77.2M		88	6	66	30+		0	0	0	0	2.08		1.22	20	.0	0		1	1	1	
KUKUIAOLE HIC 199														1.31	= 1.73	.82	28	.0	0		1	1	0	
KULANI CAMP 79	64.5	48.3	56.4		70	15+	41	2		0	0	0	0	4.48		.76	28	.0	0		13	1	0	
PAMALA 21	79.8M	63.3M	71.6M	- .6	83	8+	59	21		0	0	0	0	1.61	.28	.0		.0	0				0	
POHAKULOA 107														.12		.0		.0	0				0	
PUAKO 95.1														.47		.0		.0	0				0	
PUU WAAWAA 94.1														1.68	= .44	.74	12	.0	0				1	0
UMIKOA 118														1.44	= .26	.38	28	.0	0					0
WAIKOA SCO 88.2														7.87		1.42	28	.0	0		17	6	2	
ISLAND			70.7											3.31				.0						

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 92° ON THE 13TH AT KEAWAKAPU BEACH 260.2, MAUI
 LOWEST TEMPERATURE: 32° ON THE 20TH AT MAUNA LOA SLOPE OBS, HAWAII
 GREATEST TOTAL PRECIPITATION: 18.07 INCHES AT MOUNT WAIKOA 1047, KAUAI
 LEAST TOTAL PRECIPITATION: .00 AT 2 STATIONS
 GREATEST ONE-DAY PRECIPITATION: 4.66 INCHES ON THE 20TH AT LANIHAU 68.2, HAWAII

SPECIAL WEATHER SUMMARY

Mild weather prevailed over the State, with an otherwise uneventful June interrupted only by an episode of high waves, funnel cloud sightings, and record low atmospheric pressures.

On the 3d, a low pressure area (trough) 300 miles northwest of Oahu gave Lihue and Honolulu Airports their lowest sea-level pressure readings for June (29.80 inches) in 23 and 24 years of record, respectively. Pressures at Hilo and Kahului Airports were only 0.01 inch above their June record lows.

The low pressures were accompanied during the early morning of the 3d by showers that accounted for a good part of, and in some instances all, June's total rainfall on leeward Oahu, Molokai, Lanai, and Maui.

On the afternoon and evening of the 4th, high waves of undetermined origin (but generated possibly by an intense Southern Hemisphere storm near Lat. 65° S. and Long. 170° W, or by tropical storm IDA near the Solomon Islands, or by both) swept onto the southern shores of the islands. Swells of 10 to 12 feet were reported at Makahuena Point at the southern tip of Kauai and of 10 feet at nearby Poipu Beach. From about 3 p.m. to 10 p.m., waves up to 15 feet rolled into the narrow southward-opening entrance to Honolulu's Ala Wai Yacht Harbor. Shortly after 3 p.m., they capsized a 16-foot sailboat, and at about 3:45 p.m. an 18-foot sailboat and a 16-foot Boston Whaler. The 16-foot sailboat sank, the 18-foot boat righted itself, but with only the bare hull remaining, and the Boston Whaler lost all its equipment except the motor. At 5:30 p.m. a 30-foot sailboat, turned broadside by the high waves, lost some sails and rigging when the next wave broke across it, but managed to get back out to sea. The large waves occurred in sets of 6 to 10, with an average period of about 15 seconds, and appeared to build up suddenly from smaller waves at about 10-minute intervals.

High waves, presumably from the same source, were reported to have sunk two lighters loading copra at Washington Island (about Lat. 4° 43' N Long. 160° 24' W) on the 3d, but this has not been confirmed.

On the 10th, from 2:57 p.m. to 3:08 p.m., a dark cone-shaped funnel cloud was observed over the valley west of Pacific Palisades, Pearl City, Oahu. The funnel was described as sloping southeastward, extending downward about 1,000 feet from dark cumulus clouds having a flat base at 2,400 feet and tops of undetermined height. Nearby ground observers remarked on the counterclockwise rotation of the funnel and the narrow diameter (estimated at 10 feet) of its base, as it

moved toward the southwest.

On the night of the 19th, debris and high water closed Kuakini Highway in Kona, Hawaii Island, following a few hours of heavy rain.

Dry conditions continued to plague residents and cattlemen in the Makawao District, on the western slopes of Haleakala, on East Maui. Although rainfall in the area was near normal, June is one of the very driest months, so that amounts were quite inadequate to replenish the water supply or to meet current demands. Pastures were reported as deteriorating. Beginning on the 16th, fire permits were required in the area.

Elsewhere in the State, rainfall varied widely. Some stations reported many times their June normals, although actual amounts were small. For example, the modest 1.12 inches at Kaunakakai, Molokai, was fourteen times its average for the month.

On Kauai, rainfall was relatively evenly distributed throughout the month. Some gages in the Moloaa-Kapaa area in eastern Kauai, between Elele and Waimea on the southwestern coast, and Kolo near the western coast, had several times their average June rainfall. The central mountains, northern areas near Hanalei, southern coastal districts near Wahiawa, and Mana in the western portion of the island, ranged between 50 and 100 percent of normal, while all other areas had above their June average.

Oahu was driest (below one-third the June normal) in upland regions near Opaepa in the Koolau Mountains, in scattered gages above Waianae, and near Mokuleia on the northwest coast. Elsewhere, amounts ranged from somewhat below to somewhat above their average for June.

Lanai City had an average June, while other gages on the island were wetter than normal.

On Maui, rainfall in the central valley and in the Ulupalakua area exceeded normal by two to ten times, with most of the rain falling on the 3d. Windward East Maui watersheds ran above 50 percent, but below normal.

On Hawaii Island, most gages read less than the monthly normal. The Hamakua and Hilo coasts, while not as dry as in some recent months, were still reporting below their June averages. South Kona and North Kohala were below 50 percent of normal. It was reported that the continuing dry spell in North Kohala might result in an earlier than usual harvesting of cane, and a faster phase-out of some jobs at the recently closed Kohala Sugar Company.

SPECIAL WEATHER SUMMARY - Continued

Stations With More Rain in June 1972
than in Any Previous June

(25 years of record or more, only)

Station	Length of Period (Yrs.)	Previous Greatest June Total (Inches)	June 1972 (Inches)
<u>KAUAI</u>			
Anahola	42	3.91	4.17
Kapaa Stables	32	4.44	4.96

Stations With Less Rain in June 1972
than in Any Previous June

(25 years of record or more, only)

Station	Length of Period (Yrs.)	Previous Least June Total	June 1972
<u>HAWAII</u>			
Ahua Umi	51	0.14	0.07

Saul Price
Regional Climatologist for Pacific Region
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
Acting Climatologist for Hawaii
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY TEMPERATURES

HAWAII
JUNE 1972

Station	Day of Month																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
ISLAND OF HAWAII																																
KANALOHULU HSO 1075	MAX 52	68	66	68	72	70	75	70	72	71	77	72	72	75	77	73	71	72	74	73	71	75	74	65	70	69	68	67	71	73	71.4 53.5	
KILA EA POINT 1133	MAX 80	80	84	85	84	82	81	83	88	84	84	83	81	82	82	81	81	82	82	83	83	84	84	82	80	79	80	80	81	82	82.2 75.3	
LIHUE HSO 1020.1 AP	MAX 82	81	84	80	82	82	83	84	85	83	83	84	84	85	85	83	84	84	84	84	83	82	83	84	81	80	84	82	83	84	83.1 72.0	
MAKAHUNA POINT 940.1	MAX 83	84	86	75	86	86	86	83	82	89	89	89	82	83	83	84	84	85	82	85	85	85	86	85	85	82	83	83	83	84	84.2 71.5	
MANA 1024	MAX 84	84	86	83	85	87	87	87	88	87	89	85	89	85	85	90	88	89	90	89	89	89	85	87	89	87	86	88	90	88	90	87.7 67.1
MIU RIDGE 1435	MAX 78	82	81	82	80	82	82	82	81	80	81	82	83	83	84	84	83	82	84	83	84	81	81	81	82	83	80	81	82	83	81.9 62.5	
WAIAMI LOWER 1054	MAX 79	80	82	83	78	78	80	81	80	81	80	80	80	82	81	81	82	81	81	81	81	82	81	81	80	79	78	79	80	81	80.4 63.9	
ISLAND OF OAHU																																
EWA PLANTATION 741	MAX 84	85		84	85	87	87	88		88	88	85	85	86		87	86	85	88	88		88	88		87	82	85	83	86	85.9 68.0		
HONOLULU HSO 703 AP	MAX 86	83	82	82	85	87	86	88	82	84	82	88	87	86	87	86	87	87	86	87	88	87	86	88	87	86	85	87	87	85.7 72.1		
HONOLULU SUBSTA 704	MAX 82	82	81	81	82	82	82	83	81	80	80	83	81	81	82	80	81	80	81	80	82	81	83	80	81	80	80	81	82	82	81.2 72.0	
KAHUKU 912	MAX 84	83	86	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86.7 74.0	
KANEOME MAUKA 781	MAX 80	81	81	80	79	81	82	82	84	78	82	84	84	83	82	83	82	83	81	82	82	83	84	82	80	80	79	82	81	83	81.7 70.9	
LUALUALEI 804	MAX 84	84	85	83	85	85	84	85	85	85	85	86	86	86	86	89	86	87	88	89	88	85	84	87	85	87	85	86	88	85.7 70.0		
MAKAPUU POINT 724	MAX 77	78	73	74	73	78	80	74	81	80	84	85	85	80	81	82	80	79	80	80	75	80	81	76	75	76	76	78	76	79	78.2 69.5	
OPAEOULA 870	MAX 80	80	80	80	80	80	80	80	80	80	83	80	81	81	76	79	80	80	79	75	75	75	78	79	82	78	79	72	74	76	78.7 61.9	
PRI WAIHAWA 820.2	MAX 82	84	82	80	83	84	84	84	86	80	86	86	87	82	83	84	82	82	83	83	83	85	85	84	80	85	81	81	82	84	83.2 65.0	
WAIALEE 896.3	MAX 83	83	82	81	83	82	84	84	85	83	86	85	86	84	84	84	83	84	83	85	83	85	84	85	84	82	84	82	83	85	83.7 69.6	
WAIALUA 847	MAX 85	86	83	82	79	81	86	85	88	82	81	83	89	85	85	86	83	84	83	86	85	87	84	81	83	83	83	83	85	84.1 64.4		
WAIKIKI 717.2	MAX 84	83	84	83	84	87	85	85	83	86	85	86	86	85	86	86	85	86	86	85	86	86	85	85	85	85	84	82	83	84	85	84.8 70.3
WAIMANALO EXP FARM	MAX 82	82	82	82	76	79	83	82	83	83	84	85	84	83	83	84	83	84	83	84	83	83	84	83	83	83	81	83	83	85	82.7 70.4	
ISLAND OF MOLOKAI																																
MOLOKAI AP 524	MAX 80	81	80	77	77	79	82	78	83	82	80	81	85	83	82	82	80	81	81	83	81	81	79	80	78	80	81	80	81	81	80.6 69.4	
ISLAND OF LANAI																																
LANAI CITY 672	MAX 57	55	59	52	58	58	62	63	64	65	60	65	66	66	63	54	58	58	58	56	54	53	50	58	65	66	51	56	55	58.8 41.7		
ISLAND OF MAUI																																
HALEAKALA RS 338	MAX 67	61	59	56	60	67	68	70	69	71	67	59	73	71	70	65	67	64	63	62	62	63	58	62	67	74	71	64	69	63	65.4 45.9	
HALEAKALA SUMMIT 338.4	MAX 53	53	59	52	58	58	62	63	64	65	60	65	66	66	63	54	58	58	58	56	54	53	50	58	65	66	51	56	55	58.8 41.7		
MANA AIRPORT 355	MAX 84	84	82	84	83	82	83	83	84	83	83	84	84	85	84	85	82	84	84	85	85	83	83	83	83	83	83	83	83	84	83.5 66.4	
KAANAPALI AIRPORT	MAX 85	83	81	79	79	82	84	84	85	84	84	85	88	85	84	85	84	85	83	86	84	85	83	84	84	85	82	82	84	85	83.8 68.8	
KAHULUI HSO 398 AP	MAX 86	84	81	80	83	82	83	87	88	88	87	87	87	86	86	87	88	87	88	88	88	86	88	88	87	84	84	85	87	87	85.7 66.3	
KAILUA 446	MAX 76	76	76	77	77	76	77	77	77	76	76	78	78	79	79	79	79	80	80	77	79	80	80	78	77	77	78	76	77	77	77.6 65.7	
KEAOKAPU BEACH 260.2	MAX 89	88	88	81	86	87	87	85	84	86	86	86	92	90	90	90	88	89	90	90	88	84	85	85	88	88	88	89	87	88	87.4 65.9	

See Reference Notes Following Station Index

LATE REPORTS MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII

Station	Temperature										Precipitation									
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest Date	Lowest Date	Degree Days	No. of Days			Total	Departure From Normal	Greatest Day Date	Snow, Sleet			No. of Days			
								Max.		Min.				Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More	
								50° or Less	51° or Below	32° or Below										0° or Below
* * * JULY 1971 WAIALEE 896.3	83.3	71.3	77.3		85	27+	67	26	0	0	0	1.19		.53	10	.0	0	2	1	0
* * * AUGUST 1971 WAIALEE 896.3	84.2M	71.3M	77.8M		86	11+	67	21+	0	0	0	1.70		.49	14	.0	0	5	0	0
* * * SEPTEMBER 1971 HANA AIRPORT 355 WAIALEE 896.3	84.7 84.7	65.6 71.5	75.2 78.1		87	1	60	27	0	0	0	5.54 1.27		.84 .31	24 24	.0 .0	0	14 4	3 0	0 0
* * * OCTOBER 1971 WAIALEE 896.3	83.2M	69.7M	76.5M		85	30+	63	29	0	0	0	1.87		.67	30	.0	0	5	1	0
* * * NOVEMBER 1971 WAIALEE 896.3	79.8	66.8	73.3		84	6	60	23	0	0	0	3.95		.78	16+	.0	0	10	2	0

See Reference Notes Following Station Index

LATE REPORTS DAILY PRECIPITATION

HAWAII

Station	Total	Day of Month																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
* * * JULY 1971																																		
WAIALEE 896.3	1.19		T	T		.02				.34	.07	.53	.02		.01					.04	.01	.01	.03		.02					.02	.01	.04	.02	
* * * AUGUST 1971																																		
WAIALEE 896.3	1.70		.17	.02	.07	.02					.03		.03	.28	.49				.19	.02	.01	.05	.05			.05			.20	.01	.01			
* * * SEPTEMBER 1971																																		
HANA AIRPORT 355 WAIALEE 896.3	5.54 1.27	.04 .07	.26 .04	.66 .25	T .13	T .02	.26 .03	.08 .05	.70 .06	.17 .07	.30 .01	.21 .01	.17 .02	.04 .03	.06 T		.08	.02		.20	.11	.42 .01	T .01		.84 .31	.41 .02	.04 .02	.02	.31 .01	.07 .11	.07 .01			
* * * OCTOBER 1971																																		
WAIALEE 896.3	1.87	.12	.04	.02	.03	.01	.03	.06				.03	.01					.04			.06			.02	.19	.16	.36	.01		.67	.01			
* * * NOVEMBER 1971																																		
PUUHEKU RANCH 542.1 WAIALEE 896.3	3.95	.02	.08	.02	.03				.01	.05	.07	.06	.13	.07	.01	.24	.78	.76	.08	.02		.01	.01			2.00 .11	.01	.12	.24	.28	.01	.28	.05	.38

DAILY TEMPERATURES

Station	MAX MIN	Day of Month																															Average		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
* * * JULY 1971																																			
WAIALEE 896.3		83 70	84 72	85 73	84 73	83 70	83 71	83 71	82 69	82 71	81 72	83 74	83 73	83 72	83 71	83 70	84 71	84 71	84 71	84 71	83 71	83 70	84 72	85 72	83 72	84 73	83 72	83 67	85 68	84 70	83 71	83 71	84 72	83.3 71.3	
* * * AUGUST 1971																																			
WAIALEE 896.3		83 71	83 67	83 68	83 70	85 68	85 70		83 72	86 73	82 72	86 78	84 74	85 72	85 72	84 70	85 72	84 71		84 67	84 72	83 67	84 73	85 73	84 73	84 73	85 73	85 72	84 72	85 70	85 73	84 71	85 73	84.2 71.3	
* * * SEPTEMBER 1971																																			
HANA AIRPORT 355 WAIALEE 896.3		87 65	86 65	86 64	86 67	86 66	85 64	86 66	84 66	86 72	85 65	83 69	84 65	85 65	85 64	85 64	86 64	86 67	86 69	85 66	83 64	83 66	83 66	84 63	85 62	84 65	84 62	84 67	84 60	81 67	84 64	84 65	84.7 65.6		
* * * OCTOBER 1971																																			
WAIALEE 896.3		83 69	83 70	84 72	83 70	85 68	83 72	84 72	84 72	84 72	84 72	84 72	83 69	84 71	85 71	84 70	85 71	85 74	86 72	87 72	85 72	86 75	85 73	85 74	85 72	84 72	86 71	84 68	85 70	84 73	83 72	83 66	83 66	83 71	84.7 71.5
* * * NOVEMBER 1971																																			
WAIALEE 896.3		82 69	82 65	80 68	81 66	83 68	84 70	82 70	82 69	80 65	78 63	77 63	79 64	74 64	80 68	80 67	81 65	80 70	79 69	81 70	79 69	79 65	78 65	79 60	78 66	79 63	79 70	79 71	80 67	79 67	80 68	79.8 66.8			

STATION INDEX

HAWAII 1972

Table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. Contains two columns of station data.

STATION INDEX

HAWAII
JUNE 1972

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER		
								TEMP.	PRECIP.	EVAP.	SPECIAL										TEMP.	PRECIP.	EVAP.	SPECIAL			
ISLAND OF HAWAII																											
MOAULA 18	A 6407	03	KAU	3 19 11	155 30	600							HAWAIIAN RANCH CO	PUU LEHUA 73	A 8400	04	N KONA	4 19 34	155 49	4680							W.H. GREENWELL RANCH
MOUNTAIN VIEW 91	A 6552	02	PUNA	2 19 33	155 07	1330	6A						PUNA SUGAR CO	PUU MAUI 113	A 8519	01	HAWAIIAN	1 19 55	155 26	6960							KAWAIAU RANCH CO
HALELOU 14	A 6508	03	KAU	3 19 04	155 35	673	8A						HUTCHINSON SUGAR CO	PUU OO 82	A 8550	02	S HILO	2 19 44	155 23	6340							MISS JACKIE BENLEMP
NAPPOPOO 28	A 6697	04	S KONA	4 19 28	155 55	395	7A						KONA EXPERIMENT STA	SADOLE ROAD 1 84	A 8560	02	S HILO	3 19 47	155 51	2520							ADKRO DR WTR SUPPLY
NIHULI 179	A 6898	01	N KONA	1 20 14	155 45	75	6A						KONA CORPORATION	SOUTH POINT CORRAL 3	A 8675	03	KAU	3 18 57	155 41	500							HAWAIIAN RANCH COMPANY
ODUALA 628	A 7131	02	N HILO	2 20 01	155 17	430	7A						LAUPAHELE SUGAR CO	UMUKOA 118	A 8780	01	HAWAIIAN	1 19 59	155 23	3420							KAWAIAU RANCH CO
OPIMUHALE 2 24.1	A 7166	04	S KONA	4 19 16	155 53	1270	7A						MISS C LEONARD	UPULU POINT USCC 159.2	A 8830	01	N KONA	1 20 15	155 53	61							U S COAST GUARD
OPICHO LAND EST 91.5	A 7185	02	PUNA	2 19 34	155 00	448	VAR						ROPO OF WATER SUPPLY	WATAKEA SCO 86.2	A 9043	02	S HILO	2 19 40	155 08	1050							SHINICHI KANESHIRO
PAAHU 217	A 7204	01	HAWAIIAN	1 20 05	155 24	415	7A						PAAHU SUGAR CO	WATRAMONDULA 176.6	A 9350	01	N KONA	1 20 08	155 47	3850							KANUHA RANCH
PAAHULO 221	A 7312	01	HAWAIIAN	1 20 03	155 22	800	7A						HAWAIIAN MILL CO	NEW STATIONS ISLAND OF OAHU													
PAHALA 21	A 7471	03	KAU	3 19 12	155 29	870	8A						HAWAIIAN AGR CO	MOHILANI 835.1	A 6547	03	OAHU	1 21 25	147 56	325							CHESTER R KAINUMA
PAMOA 65	A 7437	02	PUNA	2 19 30	154 57	670	6A						PUNA SUGAR COMPANY	PUNAHUU PUMP 905.2	A 8314	01	KOOLAUPA	3 21 25	157 54	20							DEAN FUJII
PAPAKU 37	A 7643	03	KAU	3 19 23	155 28	5000	NO						HAWAIIAN RANCH CO. INC.														
PAPAIKOHI 144.1	A 7711	02	S HILO	2 19 47	155 06	200	7A						HAUNA KEA SUGAR CO.														
PAPAIKOU MAUNA 140.1	A 7721	03	S HILO	2 19 47	155 08	1270	7A						HAUNA KEA SUGAR CO.														
PIIOMUA 89	A 8091	02	S HILO	2 19 44	155 10	1790	NO						STATE DIV OF FORESTRY														
POMAKULUA 107	A 8063	02	HAWAIIAN	2 19 45	155 32	6511	VAR						STATE DIVISION OF PARKS														
PUNAKU 95.1	A 8186	02	KONA	4 19 59	155 50	4	8A						ERWIN M. RAPP														
PUU KIME 120	A 8393	01	HAWAIIAN	1 19 54	155 24	7750	NO						KUKAIAU RANCH CO														
PUU LAU 102.1	A 8452	05	HAWAIIAN	5 19 50	155 36	7440	NO						STATE DIV OF FISH-GAME														

↑ DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN
2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii 96811, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII."

DIMENSIONAL UNITS: Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in °F., precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are tens of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.

OBSERVATION TIME: Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.

EVAPORATION: is measured in the standard Weather Service-type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extremes of temperature of water in pan as recorded during 24 hours ending at time of observation. Wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 6-8 inches above the pan.

NORMALS: for all stations are climatological standard normals based on the period 1931-1960.

STATION NAMES: Hawaii state key numbers are included following station names in the several tables.

LATE REPORTS AND CORRECTIONS: will be carried only in the June and December issues of this bulletin.

INTERPOLATED VALUES: for monthly precipitation totals may be found in the annual issue of this publication.

IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, and the Station Index
- No record in the "Monthly Summarized Data" table and the "Daily Temperature" table is indicated by no entry
- + And also on an earlier date or dates.
- ++ Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data.
- * Amount included in following measurement, time distribution unknown.
- A The letter "A" shown following station name in "Monthly Summarized Data" table, "Daily Precipitation" table, and "Station Index". Indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
- B Adjusted to a full month.
- J "Supplemental Data" table.
- M One or more days of record missing; if average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
- R Amounts from recording gage.
- T Trace, an amount too small to measure.
- V Includes total for previous month.

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- AR Observation made after rain.
- C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Monthly Summarized Data" bulletin they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
- MO Gage read once monthly; usually on the last day.
- OC Gage readings at periods varying from a few weeks to several months.
- S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as late reports in the June issue of this publication.
- SS Observation time is near sunset.
- VAR Observation time is variable.
- WI Gage read weekly or irregularly only.
- WM Gage read weekly and last day of month.
- # Thermometers are generally exposed in a shelter located a few feet above sod-covered ground; however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.

Stations appearing in the tables with no data were either missing or received too late to be included in this issue.

General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

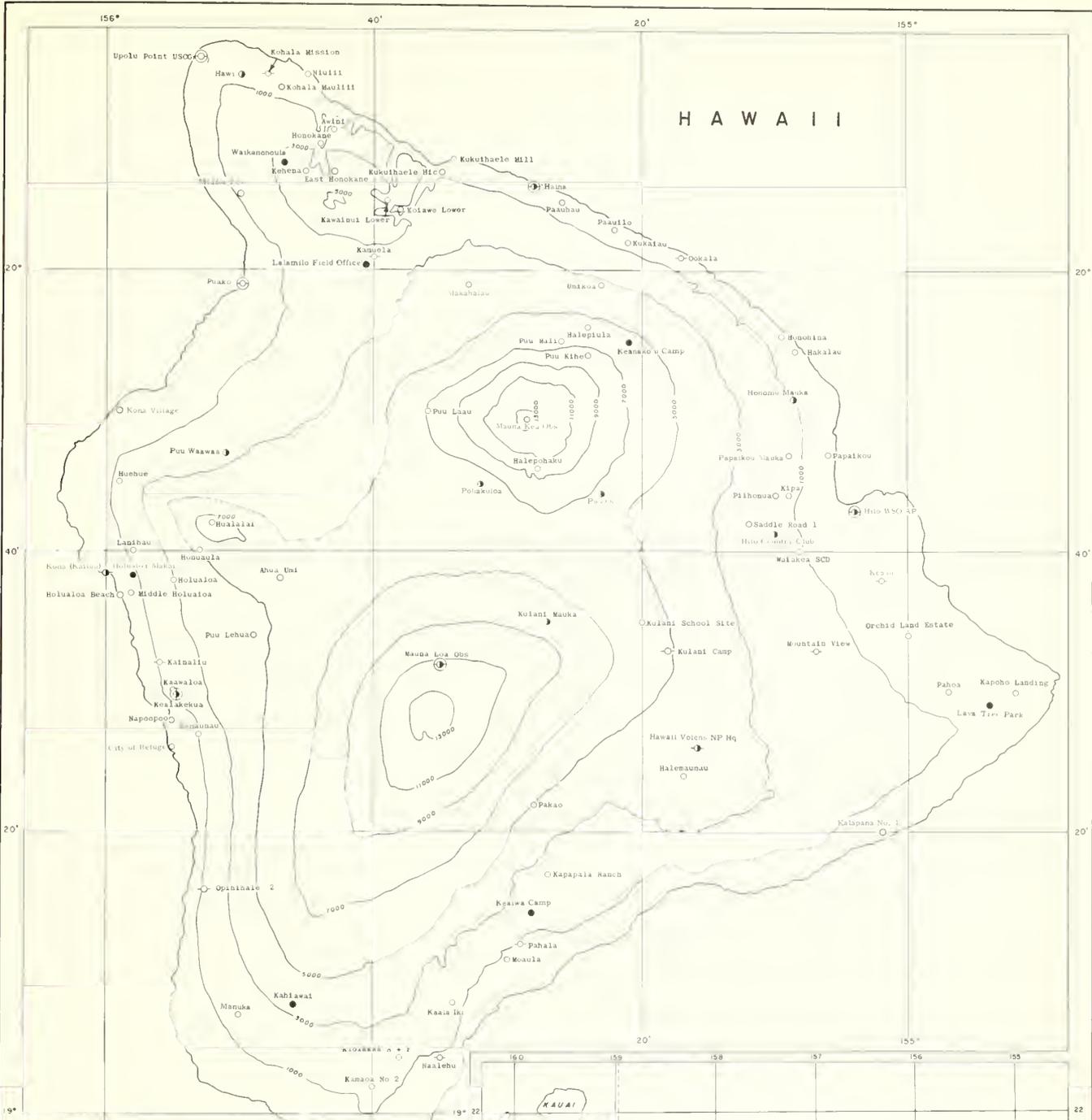
Information concerning the history of changes in locations, elevations, exposure, etc. of substations through 1957 may be found in the publication "Substation History" for this State, price 35 cents. Similar information for regular National Weather Service Offices may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

Subscription Price: \$2.50 a year for each section including annual summary, \$1.00 additional for foreign mailing, 20¢ single copy, 20¢ annual summary. Make checks payable to Department of Commerce, NOAA; send payments and orders to: National Climatic Center, Federal Building, Asheville, N. C. 28801. Attn: Publications.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.

William H. Hoggard
Director, National Climatic Center

USCOMM-NOAA-ASHEVILLE, N. C. 9/28/72-890



HAWAII

HAWAII

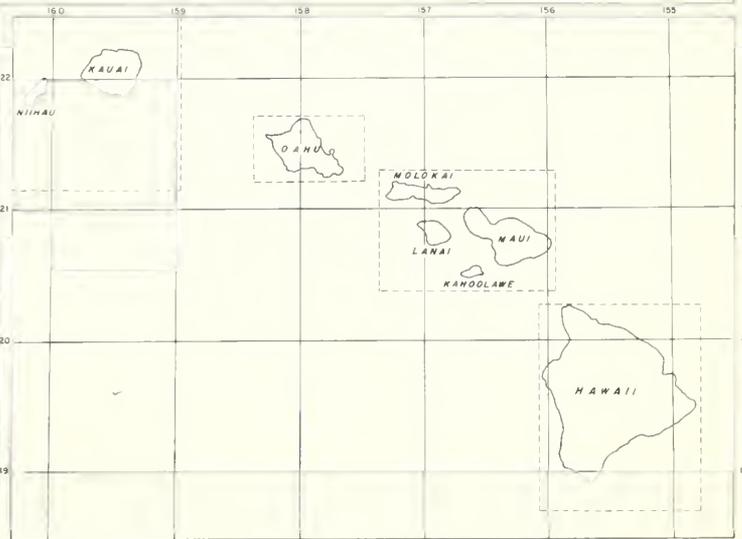
PLATE 2
STATUTE MILES



STATION LEGEND

- ● ○ Precipitation only
- ○ Precipitation, storage
- ● ○ Precipitation and Temperature
- ● ○ Precipitation, Temperature and Evaporation
- Type of 9000 ○ Non-recording,
- Recording ○ Both types

Double circle combinations indicate the availability of more detailed meteorological data
All stations use 150th meridian time



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CLIMATOLOGICAL DATA

HAWAII
JULY 1972

Continued

Station	Temperature										Precipitation																
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days						
										Max.		Min.						Total	Departure From Normal	Greatest Day	Date	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										34° or Above	32° or Below	32° or Below	30° or Below														
KEAAU 92	80.3	67.2	73.8	- .6	82	26+	65	31+		0	0	0	0	10.68	.54	1.60	26		.0	.0		17	7	4			
KEALAKEKUA 26.2	77.8	65.3	71.6		81	27	61	31		0	0	0	0	8.20		2.62	9		.0	.0		10	4	3			
KONA (KAIIUA) 68.3					89	7	69	17		0	0	0	0	4.82					.0	.0							
KUKIHAELE HIC 199														6.88					.0	.0							
KULANI CAMP 79	63.6	49.7	56.7		72	24	42	22		0	0	0	0	6.15	1.34	.98	27		.0	.0		12	6	1			
PAHALA 21					84	18+	61	19		0	0	0	0	.48		.30	27		.0	.0		1	0	0			
POHAKULOA 107														.00		.00			.0	.0		0	0	0			
PUNAO 95.1														.01		.01	19		.0	.0		0	0	0			
PUU WAAWAA 94.1	86.6	73.5	80.1		89	30+	70	31		0	0	0	0	.57	1.53	.20	1		.0	.0		0	0	0			
UMIKOA 118														1.89	1.10	.47	14		.0	.0		6	0	0			
WAIKAE SC0 88.2														15.71		2.41	26		.0	.0		20	11	6			
ISLAND			70.6											5.56					.0								

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 93° ON THE 25+ AT KEAWAKAPU BEACH 260.2, MAUI

LOWEST TEMPERATURE: 34° ON THE 21+ AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 20.80 INCHES AT PUOHOKAMOA 2 343, MAUI

LEAST TOTAL PRECIPITATION: .00 INCH AT 18 STATIONS

GREATEST ONE-DAY PRECIPITATION: 7.09 INCHES ON THE 10TH AT MOUNT WAIKAELE 1047, KAUAI

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY

It was a mild July, highlighted only by continued dry weather over much of the State and by an unseasonable fall of snow on the twin peaks of Mauna Loa and Mauna Kea.

There were also two drownings caused by high waves. Both occurred on Hawaii Island. In the first of these, on the 4th, a 17-year-old boy, climbing a large rock in Hilo to pick opihi, a shellfish, was swept into the water by waves unexpectedly larger than the preceding ones. Two days later, on the 6th, a couple, spin-fishing from the rocks along the shore at Opihikao, were washed into the ocean. The woman drowned. Her husband was rescued 150 yards offshore with facial injuries and in shock.

Between the evening of the 14th and the early morning of the 15th, heavy rain, associated with an upper-level trough of low pressure, fell in the Princeville area of north Kauai, but appears to have done no damage. During the 5 hours between 9:15 p.m. and 2:15 a.m., the gage at Princeville Ranch registered 6.3 inches of rain, of which

3 inches fell in a single hour, 11:30 p.m. to 12:30 a.m.

On the afternoon of the 18th, Mauna Loa Observatory, at an elevation of 11,000 feet, reported 1/2 inch of snow, accompanied by hail and rain - its first snowfall in July since the Observatory opened 15 years ago. Twenty-four hours later, snow also fell at Mauna Kea Observatory, at the summit of Mauna Kea.

Rainfall exceeded its July normal only in eastern and northeastern Kauai, from Lihue to Princeville, and in extreme western Kauai; at a few gages in the Honolulu and Kaneohe areas; and in most of Hamakua, Hilo, and North Kona Districts of Hawaii Island. Nearly everywhere else amounts were less than half the July average, with all of Lanai, western Molokai, Maui's Central valley and western Kohala, on Hawaii Island, reporting little or no rain.

Several stations with long periods of record had less rain than in any previous July.

Stations With Less Rain in July 1972
than in Any Previous July

(25 years of record or more, only)

Station	Length of Period (Years)	Previous Greatest July Total (Inches)	July 1972 (Inches)
<u>OAHU</u>			
Waianae Mauka	68	1.04	0.64
<u>MOLOKAI</u>			
Maunaloa	49	0.04	0.02
<u>MAUI</u>			
Waiehu Camp	63	0.05	0.03
Wailuku	71	0.02	0.01
<u>HAWAII</u>			
Manuka	44	1.60	1.35

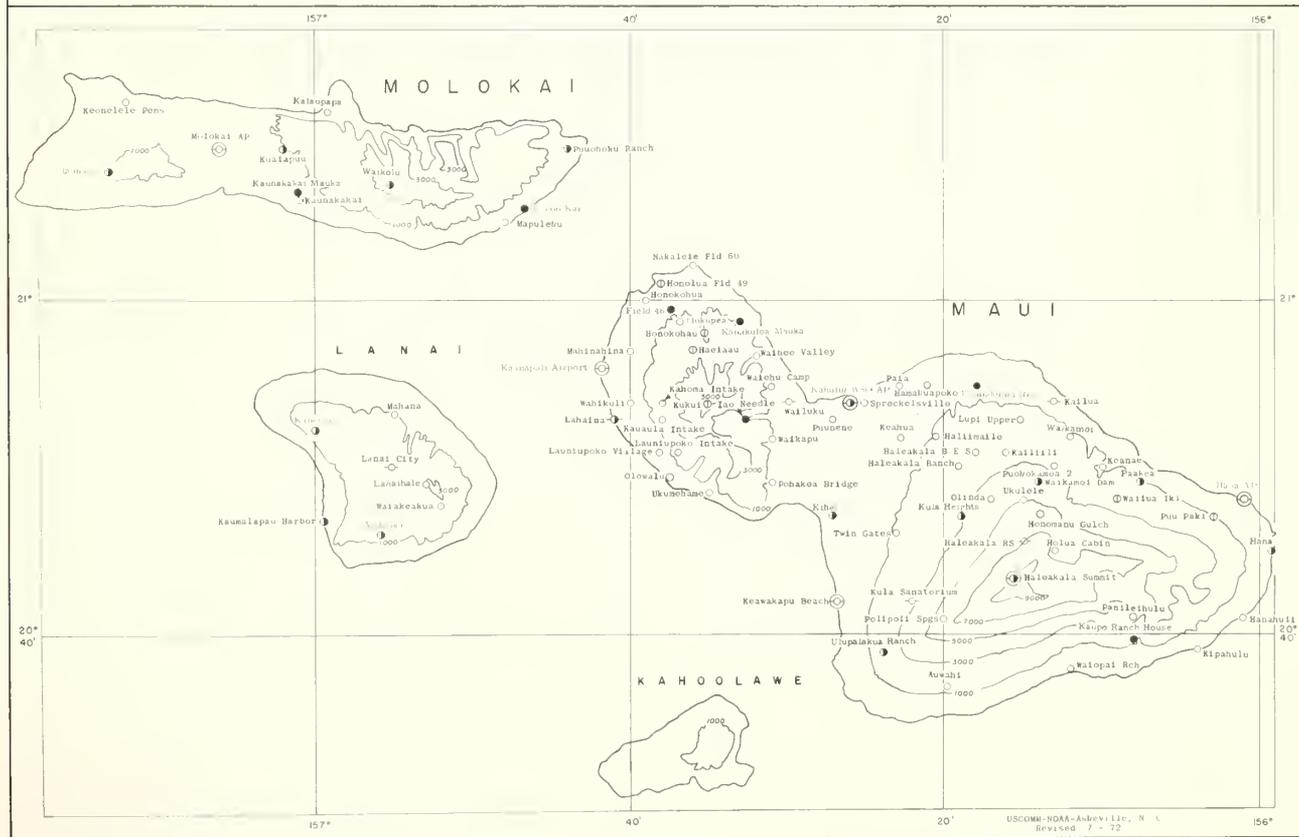
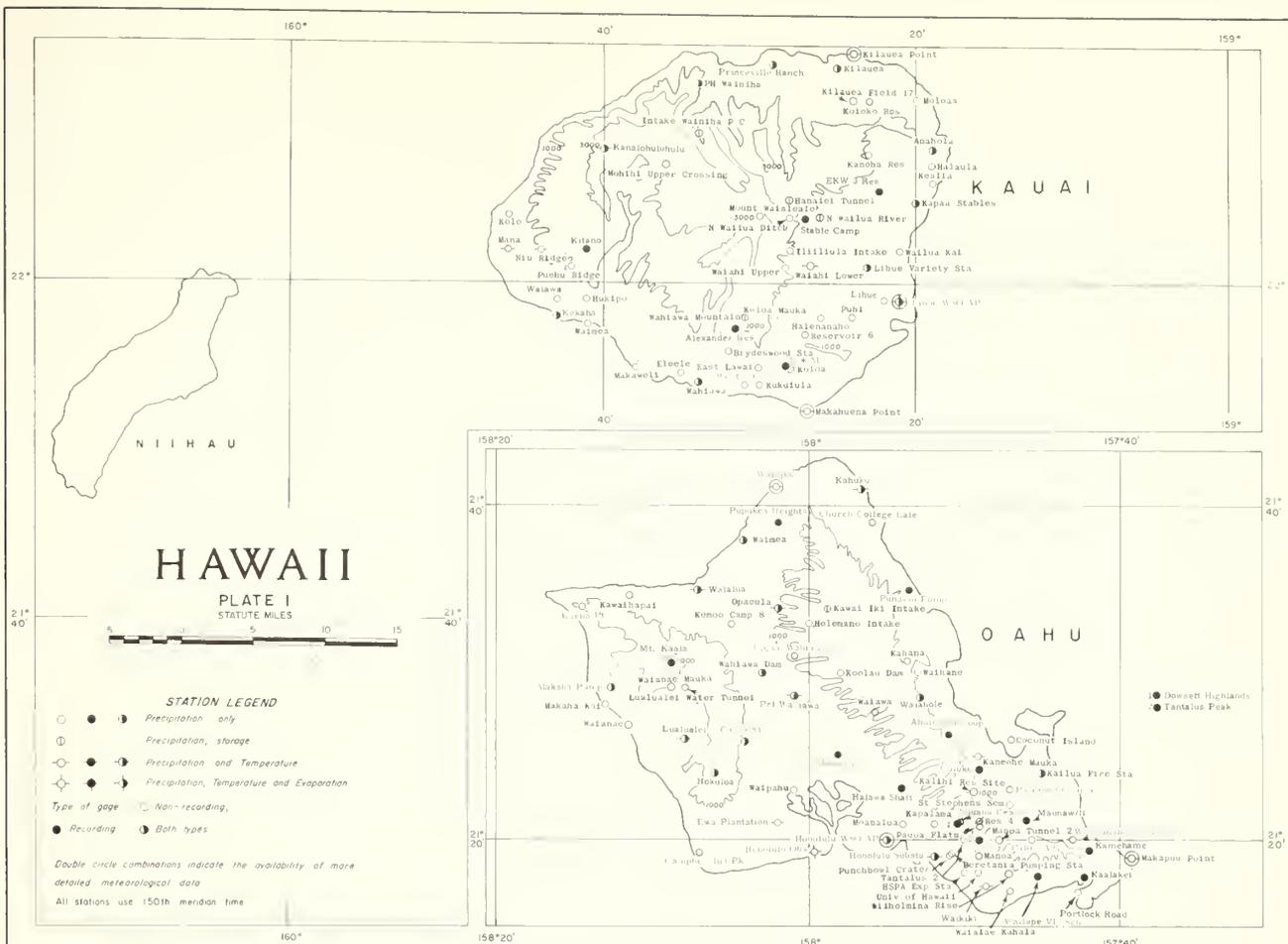
Saul Price
Regional Climatologist for the
Pacific Region
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

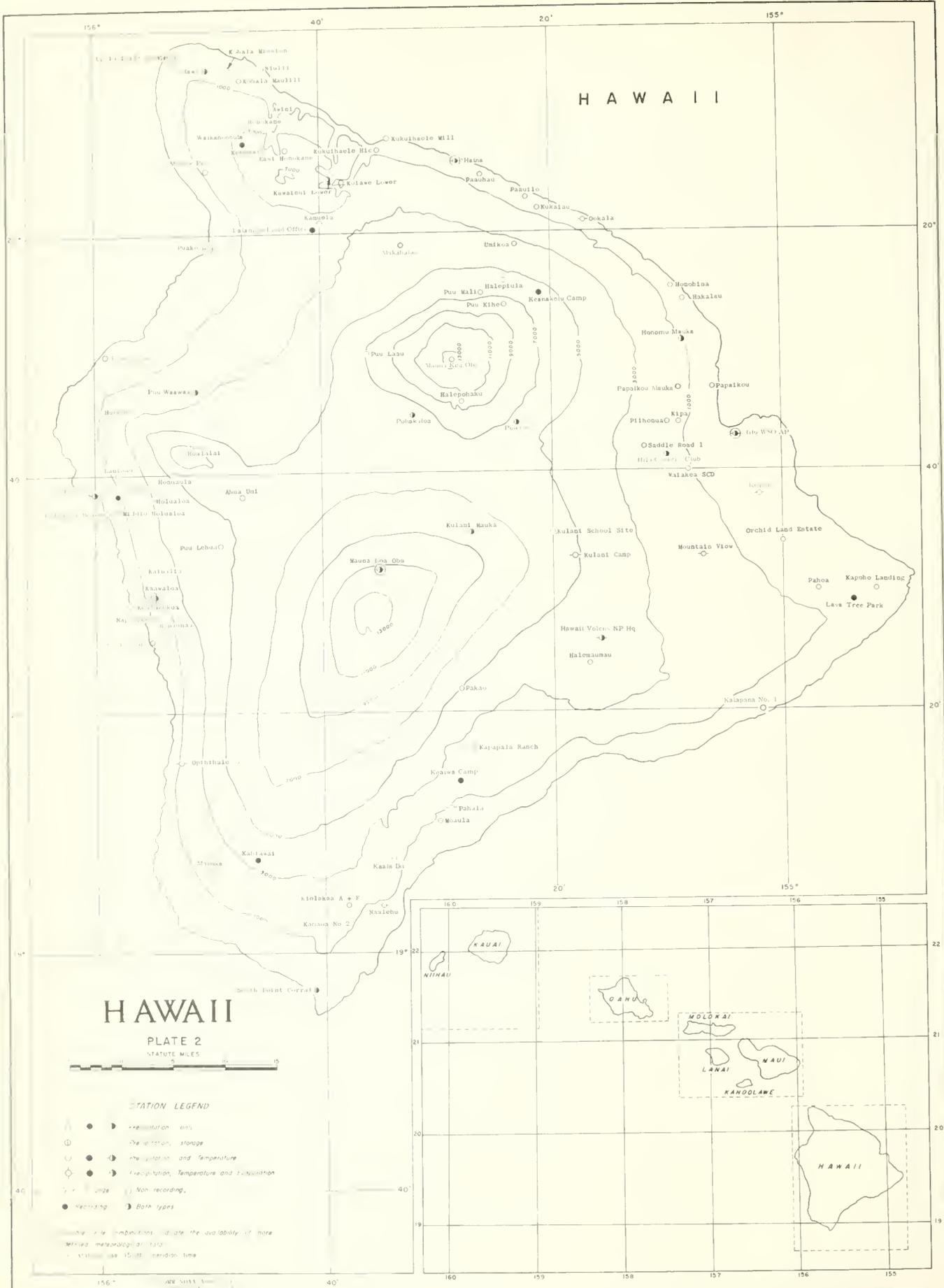
Paul Haraguchi
Acting Climatologist for Hawaii
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

STATION INDEX

HAWAII JULY 1972

Main data table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. The table contains numerous rows of station data across the Hawaiian Islands.





HAWAII

HAWAII

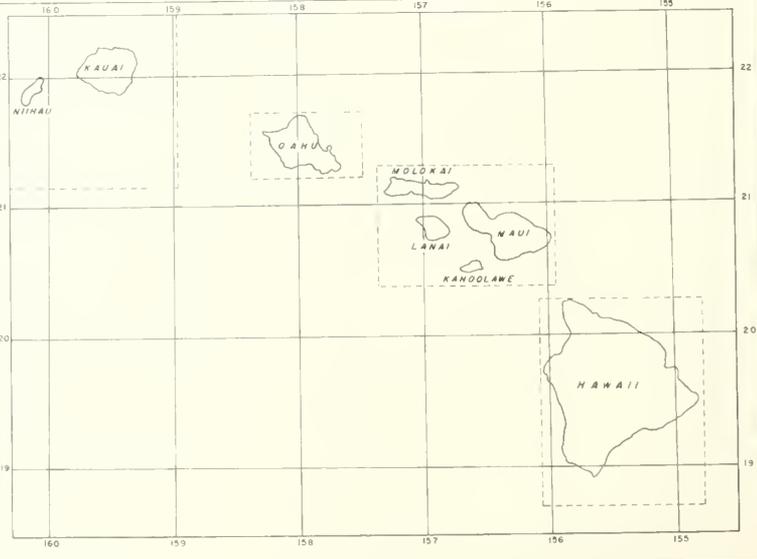
PLATE 2
STATUTE MILES



STATION LEGEND

- Precipitation only
- Precipitation, storage
- Precipitation and Temperature
- Precipitation, Temperature and Evaporation
- Non recording
- Recording
- Both types

Station symbols indicate the availability of more than one meteorological data
 - Station use 15:30 standard time



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MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII
AUGUST 1972

Continued

Station	Temperature											Precipitation												
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days			
										90° or Above	32° or Above	32° or Below	0° or Below					Total	Total	Max. Depth on Ground	Date	1.0 or More	5.0 or More	1.00 or More
KEAAU 92	82.4	66.9	74.7	- .4	87	31	62	25		0	0	0	0	10.30	- 1.45	2.25	19	.0	0		14	6	3	
KEALAKEKUA 26.2	80.2	65.0	72.6		84	19+	61	26		0	0	0	0	6.71		2.75	31	.0	0		7	4	3	
KONA (KAILUA) 68.3	86.8M	72.2M	79.5M		93	29	70	25+		1	0	0	0	.84		.77	31	.0	0		1	1	0	
KUKI IMAELE HIC 199					72	30+	45	24+		0	0	0	0	6.40	.43	2.10	19	.0	0		10	4	2	
KULANI CAMP 79	66.5	50.6	58.6							0	0	0	0	7.81		2.90	31	.0	0		10	4	3	
PAHALA 21	83.1M	64.7M	73.9M		89	18	60	28		0	0	0	0	9.76				.0	0					
POHAKULOA 107														1.31			30+	.0	0					
PUAKO 95.1	87.6	73.2	80.4		91	29+	70	5+		5	0	0	0	T		.30	12	.0	0		0	0	0	
PUU WAAWAA 94.1														.32	- 1.81	.30	12	.0	0		1	0	0	
UMIKOA 118														11.48	6.42	7.22	18	.0	0					
WAIKOA SCD 88.2														16.41		4.02	21	.0	0		15	10	4	
ISLAND			72.7											6.24				.0						

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 94° ON THE 19+ AT 2 STATIONS

LOWEST TEMPERATURE: 33° ON THE 11TH AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 21.78 INCHES AT HONOMU MAUKA 138, HAWAII

LEAST TOTAL PRECIPITATION: .00 INCH AT 2 STATIONS

GREATEST ONE-DAY PRECIPITATION: 7.22 INCHES ON THE 18TH AT UMIKOA 118, HAWAII

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY

During the last three weeks of August, Hawaii was threatened by three tropical storms that drifted into the area from their spawning grounds off the coast of Mexico and Central America. The first of these, Hurricane CELESTE, passed westward well south of the State and went on to strike Johnston Island. The other two, Tropical Storms DIANA and FERNANDA, swung northward before reaching Hawaii, although DIANA's course brought it close to the islands during its dying stages.

In life cycle and track, CELESTE, DIANA, and FERNANDA were reminiscent of LORRAINE and MAGGIE in August 1970 and DENISE and ELEANOR in July 1971. All formed off Mexico and Central America, failed to undergo the usual northward recurvature in the Eastern Pacific, and then travelled thousands of miles westward toward Hawaii along the southern periphery of a strong high pressure area.

CELESTE attained full hurricane strength on the morning of the 10th, near 16° N, 131° W. It then gradually swept west-southwestward, reaching its southernmost latitude on the evening of the 13th, when about 480 miles south-southeast of South Point, Hawaii Island. From this point CELESTE turned west-northwestward on a direct course for Johnston Island, passing about 380 miles south-southwest of South Point, its closest approach to the Islands. Waves up to 15 feet high pounded the coast of Hawaii Island, from Kapoho to South Point on the 14th and Kona on the 16th. On the 17th, three small fishing boats west of South Point were swamped and one of them smashed against the rocks, for a total loss of \$2,000.

Early on the 19th, CELESTE, which had been heading directly toward Johnston Island, abruptly swerved to a more northwesterly course. That afternoon the storm center passed only about 25 miles northeast of Johnston, sweeping the island with hurricane-force winds; but then weakened rapidly as it moved north-northwestward. The tiny island had been entirely evacuated as a precaution against the possible escape of the toxic gases stored there, but appears not to have sustained serious damage. Further details may be found in the August 1972 issue of Climatological Data, Pacific.

DIANA, born a few days after, and about 500 miles southeast of CELESTE, became a hurricane on the afternoon of the 12th after reconnaissance aircraft reported maximum surface winds of 75 m.p.h. DIANA continued northwestward, reaching 19° N, 137° W on the afternoon of the 15th, and then swung westward. By the evening of the 17th, DIANA lay about 320 miles east of South Point, having weakened to tropical storm strength on the

morning of the 16th. The storm then began a slow recurvature to the northwest, still aimed at Hawaii. On the morning of the 19th, DIANA was poised 60 miles northeast of Hilo, nearly stationary, and still a threat to the State. But this proved to be her closest approach. She then moved off northwestward, parallel to the Islands, and rapidly dissipated.

On the morning of the 18th, waves estimated to be 30 feet in height struck Hawaii Island's Puna coast at Kalapana, Kapoho Beachlots and Kapoho Vacationland. At Vacationland, which was most severely hit, the waves swept four homes off their foundations, extensively damaging one of them, flooded another home, washed rocks and debris inland, and eroded 200 feet of a private road. A couple suffered minor cuts and bruises when they were knocked down and swept into the bushes by a wave. Damage was estimated at \$75,000 to the homes, excluding furnishings, and at \$2,000 to a swimming pool in nearby Pohoiki. Tides at Hilo Harbor rose 4 to 5 feet above normal, beginning about 8 a.m. of the 18th and lasting throughout the day.

On Maui, the only reported storm damage was the loss of some sand from Hamoa Beach on the eastern shore by waves estimated at up to 20 feet high, but of short duration.

FERNANDA formed near 11° N, 104° W on the morning of the 19th and moved west-northwestward, reaching hurricane strength on the afternoon of the 21st, when near 13° N, 111° W. It was downgraded to a tropical storm early on the 26th. Coming to within 450 miles east of Hawaii Island by the afternoon of the 27th, FERNANDA's forward motion slowed, and it recurved to the northwest. On the morning of the 29th, diminishing rapidly in strength, it passed within 220 miles of Hilo, its closest approach to the islands.

On the afternoon of the 31st, perhaps as an aftermath of FERNANDA, a flash flood from rains in Hawaii Island's Kohala Mountains overtopped Waipio Stream, damaging a farmer's pickup truck and destroying his 16 bags of taro.

Rainfall over the State was uneven; above normal in some areas, but -- despite DIANA and FERNANDA -- below normal in most.

Kauai's rainfall reached its August mean at only a few places in the northeast, and then only barely. Elsewhere, it was below normal. Southwest and northwest areas were driest, with less than one-fourth their means for the month.

On Oahu, also, only an occasional gage exceeded its monthly mean, while a greater number, mainly

SPECIAL WEATHER SUMMARY - Continued

leeward of the Koolaus, reported less than half their August normals.

On Molokai, owing largely to FERNANDA, rainfall exceeded August normals except in the southwestern portion of the island, but neighboring Lanai was deficient everywhere.

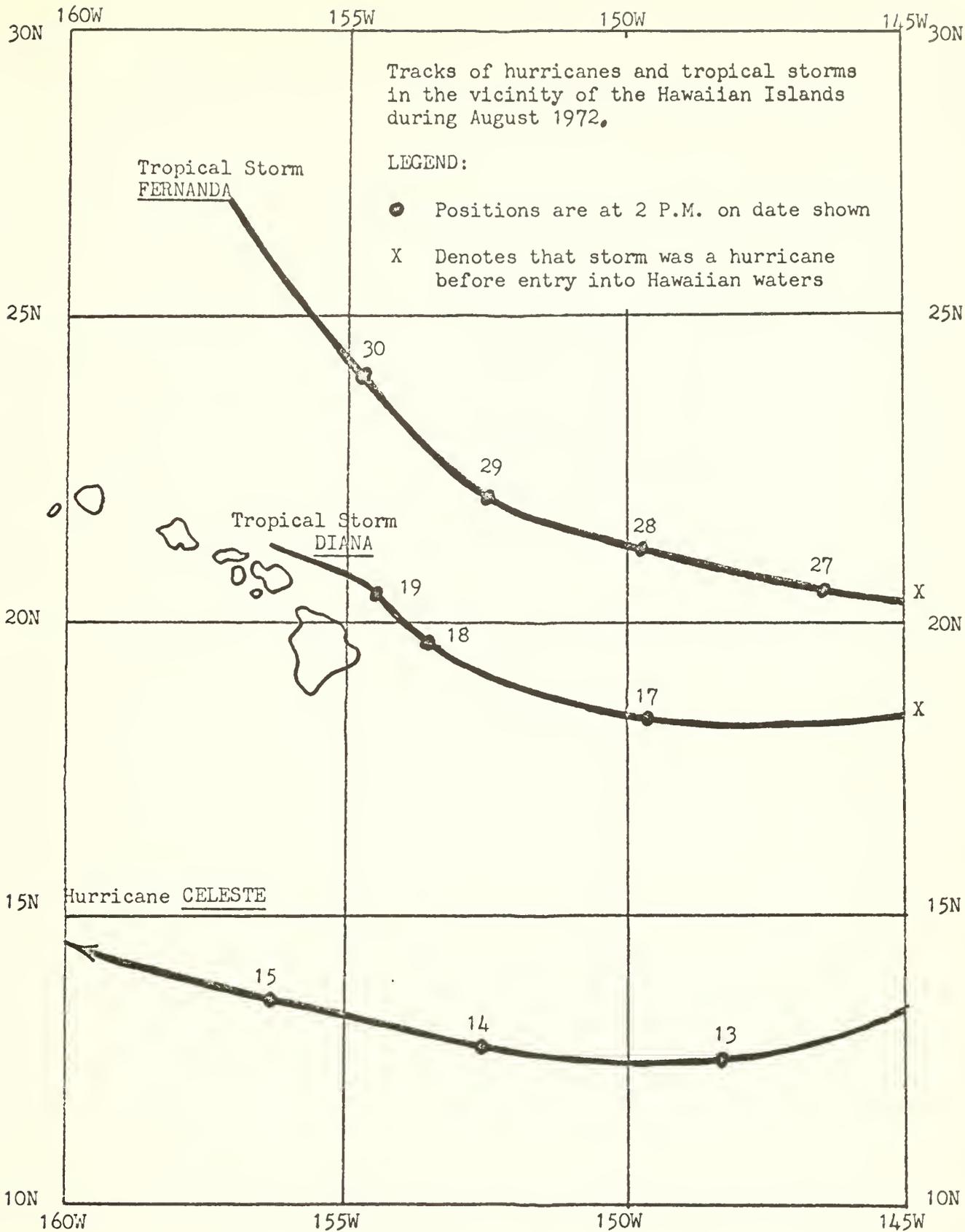
Maui's central valley had two to three times its August normal -- mainly from FERNANDA on the 29th, and much needed in that long-dry area. But East Maui, including the mountain watersheds, was below normal, despite rains from DIANA

in the Waikamoi Dam and Paakea areas.

On Hawaii Island, Moaula, and Pahala on the southeastern slopes of Mauna Loa, registered two and three times, respectively, their normals for the month, aided by DIANA. Relieved, also, was the chronically deficient Hamakua Coast. At Haina, for example, this was only the second month out of the past 17 in which rainfall reached or exceeded its monthly mean. Kohala, on the other hand, as well as the North Kona and Hualalai Districts, had under half their August averages, and the Kawaihae area was entirely dry.

Saul Price
Regional Climatologist for Pacific Region
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
Acting Climatologist for Hawaii
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811



STATION INDEX

HAWAII 1972

Table with columns: STATION, DIVISION, COUNTY, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, COUNTY, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. The table lists numerous weather stations across Hawaii, including locations like ISLAND OF KAUAI, ISLAND OF MOLOKAI, ISLAND OF MAUI, and ISLAND OF HAWAII.

STATION INDEX

HAWAII
AUGUST 1972

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES				OBSERVER
								TEMP.	PRECIP.	EVAP.	SPECIAL										TEMP.	PRECIP.	EVAP.	SPECIAL	
18	113	KAUAI	3	9	11	155	30	600	HA		HAWAIIAN RANCH CO	PUU LEHIA 73	A 8400	04	N KONA	4	19	34	155	49	4800	HO	H.H. GREENWELL RANCH		
18	114	KAUAI	3	9	11	155	07	1530	HA	9A	PUNA SUGAR CO	PUU MALI 113	A 8515	01	HAWAIIA	1	19	55	155	26	6500	HO	KUKAIKU RANCH CO		
18	115	KAUAI	3	9	11	155	05	875	HA	9A	HUTCHINSON SUGAR CO	PUU OO 92	A 8550	02	S HILO	2	19	44	155	23	8300	HA	MISS JACKIE BENLEH		
18	116	KAUAI	3	9	11	155	55	935	HA	7A	HONG KONG EXPERIMENT STA	PUU WAANAA 94.1	A 8555	05	N KONA	5	19	47	155	51	2520	HA	DILLINGHAM RANCH INC		
18	117	KAUAI	3	9	11	155	45	75	HA	9A	KAHALA CORPORATION	KAODLE RD 84	A 8590	02	S HILO	2	19	42	155	12	2340	HA	BOARD OF WTR SUPPLY		
18	118	KAUAI	3	9	11	155	17	435	HA	7A	LEIAPAHOME SUGAR CO	SOUTH POINT CORRAL 3	A 8625	03	KAUAI	3	18	57	155	41	250	HA	HAWAIIAN RANCH COMPANY		
18	119	KAUAI	3	9	11	155	51	75	HA	9A	KAHALA CORPORATION	UMIKOIA 118	A 8780	01	HAWAIIA	1	19	59	155	23	3420	HA	KUKAIKU RANCH CO		
18	120	KAUAI	3	9	11	155	31	1270	HA	7A	MISS C. LEONARD	UPDLO POINT USCO 159.2	A 8830	01	N KONA	1	20	15	155	58	81	HA	U.S. COAST GUARD		
18	121	KAUAI	3	9	11	155	00	445	VAR		BOARD OF WATER SUPPLY	WAIKAEA SC 89.2	A 9025	02	S HILO	2	19	40	155	08	1050	HA	SHINICHI KANESHERD		
18	122	KAUAI	3	9	11	155	18	815	HA	7A	PAAKAAUI SUGAR CO	WAIKANDIULUA 176.6	A 9350	01	N KONA	1	20	08	155	47	3830	HA	KAHUA RANCH		
18	123	KAUAI	3	9	11	155	22	800	HA	7A	PAAKAAUI SUGAR CO														
18	124	KAUAI	3	9	11	155	29	870	HA	9A	HAWAIIAN AGR CO														
18	125	KAUAI	3	9	11	155	57	670	HA	9A	PUNA SUGAR COMPANY														
18	126	KAUAI	3	9	11	155	28	4000	HO	HO	HAWAIIAN RANCH CO INC														
18	127	KAUAI	3	9	11	155	06	200	HA	7A	HAUNA KEA SUGAR CO														
18	128	KAUAI	3	9	11	155	08	1270	HA	7A	HAUNA KEA SUGAR CO														
18	129	KAUAI	3	9	11	155	00	1790	HO	HO	STATE DIV OF FORESTRY														
18	130	KAUAI	3	9	11	155	32	6511	VAR	K	STATE DIVISION OF PARKS														
18	131	KAUAI	3	9	11	155	00	5	HA	9A	ERWIN H. RAPP														
18	132	KAUAI	3	9	11	155	24	7750	HA	HO	KUKAIKU RANCH CO														
18	133	KAUAI	3	9	11	155	36	7440	HO	HO	STATE DIV OF FISN-GAME														

DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN
2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 4060, Honolulu, Hawaii 96811, or to any National Weather Service Office near you. Additional precipitation data are contained in "MONTHLY PRECIPITATION DATA HAWAII."

DIENSIONAL UNITS: Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in °F., precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are tens of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.

OBSERVATION TIME: Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.

EVAPORATION: Is measured in the standard Weather Service-type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extremes of temperature of water in pan as recorded during 24 hours ending at time of observation. Wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 6-8 inches above the pan.

NORMALS: For all stations are climatological standard normals based on the period 1931-1960.

STATION NAMES: Hawaii state key numbers are included following station names in the several tables.

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- And also on an earlier date or dates
- ** Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data.
- * Amount included in following measurement, time distribution unknown.
- A The letter "A" shown following station name in "Monthly Summarized Data" table, "Daily Precipitation" table, and "Station Index", indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
- B Adjusted to a full month.
- B One or more days of record missing; if average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
- B Amounts from recording gage.
- T Trace, an amount too small to measure.
- V Includes total for previous month.

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- AR Observation made after rain
- C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Monthly Summarized Data" bulletin. If daily amounts are published in "Monthly Summarized Data" bulletin they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Monthly Precipitation Data" Bulletin.
- MO Gage read once monthly, usually on the last day.
- W Gage readings at periods varying from a few weeks to several months.
- S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as late reports in the June issue of this publication.
- SD Supplemental Data" table.
- SU Observation time is near sunset.
- VAR Observation time is variable.
- W Gage read weekly or irregularly only
- WM Gage read weekly and last day of month.
- # Thermometers are generally exposed in a shelter located a few feet above sod-covered ground; however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.

Figures appearing in the tables with no data were either missing or received too late to be included in this issue.

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Subscription Price: \$2.50 a year for each section including annual summary; \$1.00 additional for foreign mailing, 20¢ single copy; 20¢ annual summary. Make checks payable to Department of Commerce, NOAA. Send payments and orders to: National Climatic Center, Federal Building, Asheville, N. C. 28801. Attn: Publications.

This is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801

William H. Hoggard
Director, National Climatic Center

USCOMM-NOAA-ASHEVILLE, N. C. 11/30/72-890

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MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII
SEPTEMBER 1972

Continued

Station	Temperature											Precipitation															
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days						
										Max.		Min.						Total	Departure From Normal	Greatest Day	Date	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										90° or Above	32° or Below	32° or Below	32° or Below														
KEAAU 92	82.7	66.8	74.8	- .1	88	14	62	6		0	0	0	0	6.06	- 2.99	1.34	4	.0	0		13	4	1				
KEALAKEKUA 26.2	80.0M	64.5	72.3M		83	26+	62	9+		0	0	0	0	5.64		1.58	5	.0	0		8	6	2				
KONA (KAILUA) 68.3	86.4M	71.6M	79.0M		90	26	69	5		1	0	0	0	2.67		1.89	5	.0	0		2	1	1				
KUKUIHAELE HIC 199														3.21	.42	1.62	11	.0	0		7	1	1				
KULANI CAMP 79	66.4	49.5	58.0		78	4	45	6		0	0	0	0	3.32		.80	11	.0	0		10	2	0				
PAHALA 21		M	M	M	84	18	61	11		0	0	0	0	4.15				.0	0								
POHAKULOA 107														1.95				.0	0								
PUKO 95.1														.95		.50	2	.0	0		2	1	0				
PUU WAAWAA 94.1					90	26+	68	26+		2	0	0	0	.91	- 1.42	.34	1	.0	0		3	0	0				
UMIKOA 118														.82	- 1.34	.43	11	.0	0		2	0	0				
WAIKOLEA SCO 88.2														6.38		1.24	4	.0	0		19	2	1				
ISLAND			72.2											3.43				.0									

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 94° ON THE 15TH AT WAIALUA 847, OAHU

LOWEST TEMPERATURE: 34° ON THE 20 AT HALEAKALA SUMMIT 338.4, MAUI

GREATEST TOTAL PRECIPITATION: 21.43 INCHES AT MOUNT WAIKOLEA 1047, KAUAI

LEAST TOTAL PRECIPITATION: .00 AT 2 STATIONS

GREATEST ONE-DAY PRECIPITATION: 4.75 INCHES ON THE 5TH AT WAIKOLEA 540, MOLOKAI

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY

September was mild and uneventful except for a brief threat of local flooding on Oahu on the 1st, a few days of volcanic haze during mid-month, and the formation of a tropical storm far to the south near the end of the month.

On the afternoon of the 1st, an intense thunderstorm deluged Central Oahu between the Koolau and Waianae Mountains with almost 3 inches of rain in 3 hours or less. Gages at Hokuloa, Leilehua, Mount Kaala, and Wahiawa Dam recorded 1-hour amounts of 1.5, 1.6, 2.0, and 2.2 inches, respectively. Three teen-age boys, catching frogs in an almost dry drainage canal near Pearl City, were caught by the abruptly rising water, but managed to hold on to bridge beams until one of them could climb out and get help from a nearby fire station. By the time assistance arrived, the water in the canal had risen to a depth of about 5 feet.

On the 14th and 15th, the trade winds gave way to light southerly winds that carried volcanic smoke and haze northward along the island chain from eruptions of Kilauea Volcano. The smoke was reported on Kauai on the 16th.

On the 24th, Tropical Storm JUNE began its short-lived career in the very active Inter-tropical Convergence Zone about 600 miles south-

southwest of Hawaii Island -- the latest in a long series of tropical storms that have entered or formed within the Central Pacific during the past several months. JUNE then moved west-northwestward directly toward Johnston Island, only 5 weeks after Hurricane CELESTE had struck that island. But although JUNE passed within 50 miles of Johnston, the storm remained at only moderate strength and did no damage. Further details may be found in the September 1972 issue of Climatological Data, Pacific.

Rainfall for September continued uneven. A few gages on the leeward (or western) side of Kauai, Oahu, Maui, and Hawaii Island collected from twice to over six times their average for the month, mainly from the rains of the 1st, while most other areas were drier than normal.

Thus, rainfall was less than a fourth its monthly mean in the eastern end of Oahu and in Maui's central valley. Molokai was below average except at higher elevations, and Lanai above normal in the Kanepuu and Malauea areas, but deficient elsewhere. On Hawaii Island, rainfall was up to four times its September mean in the chronically dry Kohala District, slightly above normal at a few other isolated locations, but below average over most of the island. In North Kona, rainfall continued at under half of normal.

Saul Price
Regional Climatologist for Pacific Region
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
Acting Climatologist for Hawaii
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

STATION INDEX

HAWAII
SEPTEMBER 1972

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES			OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES			OBSERVER
								TEMP	PRECIP	EVAP										TEMP	PRECIP	EVAP	
ISLAND OF HAWAII																							
KAUAI	A 6007	03 KAU			3 19 11	155 30	800	HA			HAWAIIAN RANCH CO	PUU LEHUA 73	A 8400	04 N KOHA		19 34	155 49	4880	HA		W.M. GREENWELL RANCH		
	A 6520	02 PUHA			2 19 39	155 07	1530	HA			PUNA SUGAR CO	PUU HALI 113	A 8510	01 HAWAII		19 55	155 26	6960	HA		KURAIKAI RANCH CO		
	A 6548	03 KAU			3 19 04	155 35	675	HA			HUTCHINSON SUGAR CO	PUU OO 82	A 8550	02 S HILO		19 42	155 12	2340	HA		MISS JACKIE BENEVEN		
	A 6697	04 S KOHA			4 19 29	155 55	395	HA			KONA EXPERIMENT STA	PUU WAAHA 94.1	A 8555	05 N KOHA		19 47	155 51	2520	HA		CAPT CDDK CATTIE CO		
	A 6896	01 N KOHALA			1 20 14	155 45	75	HA			KOHALA CORPORATION	SADOLE ROAD 1 8A	A 8990	01 S HILO		19 42	155 12	2340	HA		BOARD OF WTR SUPPLY		
	A 7121	02 N HILO			2 20 01	155 15	490	HA			LAUPAHEHE SUGAR CO	SOUTH POINT COPRAL 3	A 8675	03 KAU		18 57	155 41	570	HA		HAWAIIAN RANCH COMPANY		
	A 7186	04 S KIHA			4 19 16	155 53	1270	HA			UMIKA 116	UMIKA 116	A 8780	01 HAWAII		19 59	155 23	3420	HA		KURAIKAI RANCH CO		
	A 7240	01 HAWAII			2 19 38	155 20	445	HA			WAIKAEA 510 99.2	WAIKAEA 510 99.2	A 9025	02 S HILO		19 40	155 08	1050	HA		U.S. COAST GUARD		
	A 7312	01 HAWAII			1 20 03	155 22	800	HA			WAIKAEA 178.6	WAIKAEA 178.6	A 9350	01 N KOHALA		1 20 08	155 47	3850	HA		SHINICHI KANESHIRO		
	A 7421	03 KAU			3 19 12	155 29	970	HA			HAWAIIAN AGR CO												
	A 7457	02 PUHA			2 19 30	154 57	870	HA			PUNAN SUGAR COMPANY												
	A 7653	03 KAU			3 19 22	155 28	9000	HA			HAWAIIAN RANCH CO INC												
	A 7711	02 S HILO			2 19 47	155 06	200	HA			MAUNA KEA SUGAR CO												
	A 8051	02 S HILO			2 19 44	155 10	1730	HA			MAUNA KEA SUGAR CO												
	A 8063	02 HAWAII			2 19 45	155 32	6511	HA			STATE DIV OF FORESTRY												
	A 8106	02 HAWAII			2 19 58	155 20	5	HA			STATE DIVISION OF PARKS												
	A 8393	01 HAWAII			1 19 54	155 24	7750	HA			ERWIN H. RAPP												
	A 8492	05 HAWAII			5 19 50	155 36	7440	HA			HUPAIAU RANCH CO												
	A 8492	05 HAWAII			5 19 50	155 36	7440	HA			STATE DIV OF FISH-GAME												

[DRAINAGE CODE: KAUALI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD 2-KOOLAU 3-HONOLULU 4-SOUTH-CENTRAL 5-WESTERN
5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN
2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii 96811, or to any National Weather Service Office near you. Additional precipitation data are contained in "MONTHLY PRECIPITATION DATA HAWAII".

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 - + And also on an earlier date or dates
 - ++ Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data.
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 - A The letter "A" shown following station name in "Monthly Summarized Data" table, "Daily Precipitation" table, and "Station Index", indicates amount carried in the "Total" column is for the period from last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. * Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
 - B Adjusted to a full month.
 - M One or more days of record missing. If average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
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 - T Trace, an amount too small to measure.
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 - OK Gage readings at periods varying from a few weeks to several months.
 - S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as late reports in the June issue of this publication.
 - J "Supplemental Data" table
 - SS Observation time is near sunset.
 - VAR Observation time is variable.
 - W1 Gage read weekly or irregularly only.
 - W2 Gage read weekly and last day of month.
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I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801

William H. Fitzgerald
Director, National Climatic Center

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MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

Station	Temperature											Precipitation																
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days					Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days						
										88° or Above	32° or Below	31° or Below	30° or Below	29° or Below					Total	Departure From Normal	Greatest Day	Date	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
KEAAU 92	82.1	66.6	74.4	.0	88	14	63	29		0	0	0	0	0	10.43	= 1.95	4.02	4	.0	0		15	6	1				
KEALAKEUA 26.2	80.7	64.4	72.6		86	14	62	26+		0	0	0	0	4.93		2.34	18	.0	0		6	3	1					
KONA (KAILUA) 68.3	87.1M	71.3M	79.2M		89	16+	69	31+		0	0	0	0	.43		.15	31	.0	0		1	0	0					
KUKUHAOLE HIC 199																												
KULANI CAMP 79	66.2M	49.4M	57.8M		75	14	42	29		0	0	0	0	2.67		.75	3	.0	0		10	1	0					
														5.31		1.12	24	.0	0		11	5	1					
PAHALA 21	81.7M	64.2M	73.0M		87	31	62	26+		0	0	0	0	5.91				.0	0									
POHAKULDA 107														1.59				.0	0									
PUAKO 95.1														1.13		1.07	31	.0	0			1	1	1				
PUU WAAWAA 94.1	86.2	70.4	78.3		89	16	66	13		0	0	0	0	2.03	= .85	1.11	31	.0	0		2	2	1					
UMIKOA 118														2.18	= 2.77	1.17	31	.0	0			1	1	1				
WAIAKEA SCD 88.2														20.26		9.60	4	.0	0		19	9	4					
ISLAND			72.2											5.28				.0										

EXTREMES TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE: 96° ON THE 5TH AT LUALUALEI 804, OAHU

LOWEST TEMPERATURE: 33° ON THE 29+ AT 2 STATIONS

GREATEST TOTAL PRECIPITATION: 27.79 INCHES AT MOUNT WAIALEALE 1047, KAUAI

LEAST TOTAL PRECIPITATION: .00 AT 2 STATIONS

GREATEST ONE-DAY PRECIPITATION: 9.60 INCHES ON THE 4TH AT WAIAKEA SCD 88.2, HAWAII

SPECIAL WEATHER SUMMARY

It was a relatively mild October, highlighted by a tropical cyclone, waterspouts off Maui and Kauai, hail on Mauna Kea and Mauna Loa, and the first cold front of the "winter" season.

The worst of the month's weather occurred on the morning of the 3d, when a tropical cyclone that had formed near 16° N 130° W on September 28, and travelled westward to about 150 miles south of Hawaii Island, set off thunder, lightning, and rain over the entire State. Thunderstorms were most active in the Hilo, Puna, and National Park areas of eastern Hawaii Island. At the latter location, the Volcano Observatory was put out of action when lightning struck some of its seismometers, while lightning and heavy rain disrupted telephone service from Laupahoehoe to Volcano and knocked out electricity in Hilo town, as well as transmission lines to eight outlying areas. Storm totals were greatest in Puna, where Kurtistown recorded 10.49 inches and Mountain View 8.10 inches over periods of 20 hours or so.

Peak 1-hour amounts appear to have ranged under 2 inches, except at Honomu Mauka and the Hilo Country Club, where they reached 2.70 and 3 inches, respectively. While the storm was not at all severe by Hawaiian standards, its effects, which included a number of small landslides and washouts, were sufficiently widespread and inconveniencing to induce the Mayor of Hawaii Island to declare a brief emergency.

Two waterspouts were sighted over Hawaiian waters during the month: on the 13th, about 4 miles north of Kahului, Maui, and on the 18th, east of Lihue, Kauai.

On the afternoon of the 14th, hail fell atop Mauna Loa and Mauna Kea on Hawaii Island.

On the 28th, the "winter's" first cold front brought widespread rain and cloudiness to Kauai and Oahu.

Rainfall for the month as a whole continued uneven over the State.

Kauai exceeded its October average nearly everywhere, and by two to over three times in the southwestern sections.

On Oahu, rainfall was moderately deficient in the Kahuku area and in about the southeastern fourth of the island, including Kaneohe and most of Honolulu.

On Molokai and Lanai, most gages recorded slightly less than normal.

Maui's rainfall was below normal in most areas except on the northern slopes of East Maui, with gages in Kula and along the southern coast of West Maui recording less than half their October average.

On Hawaii Island, rainfall was most deficient in the North Kona-Hualalai area, where monthly totals were well below half the October mean. Along the Kohala-Hamakua coast, which has been experiencing a prolonged dry spell, rainfall was again below normal. Most of the Hilo district had above its monthly average, although at Hilo Airport this was the sixth successive month of deficient rainfall.

Saul Price
Regional Climatologist for the Pacific Region
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
Acting Climatologist for Hawaii
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

STATION INDEX

HAWAII OCTOBER 1972

Main data table with columns: STATION, INDEX NO., DIVISION, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER.

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210



FIRST CLASS

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII
NOVEMBER 1972

Station	Temperature											Precipitation													
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days				
										Max.	Min.	30° or Above	32° or Above					32° or Below	30° or Below	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
KEAAU 92	78.7	64.9	71.8	- .8	83	30	60	22		0	0	0	0	15.88	1.95	3.31	11	.0	0		21	11	6		
KEALAKEKUA 26.2	78.4	62.2	70.3		82	8+	58	30		0	0	0	0	1.57		.45	15	.0	0		4	0	0		
KONA (KAILUA) 68.3	84.3M	70.2M	77.3M		88	1	65	30		0	0	0	0	.09				.0	0		0	0	0		
KUKUIHAELE HIC 199														10.28	3.52	1.90	16	.0	0		14	7	4		
KULANI CAMP 79	62.8	46.6	54.7		72	3	39	30+		0	0	0	0	15.49		2.39	11	.0	0		17	8	6		
PAHALA 21		M	M	M		83	10+	59	27		0	0	0	1.80		1.15	28	.0	0				1	1	
POHAKULOA 107														.28				.0	0						
PJAKO 95.1														T		T	27+	.0	0		0	0	0		
PUU WAAWAA 94.1	83.8	70.1	77.0		88	9	63	30		0	0	0	0	.15	1.94	.10	11	.0	0		1	0	0		
UMIKOA 118														6.91	.51	2.44	12	.0	0				4	1	
WAIKAEA SCO 88.2														27.17		4.73	11	.0	0		20	14	10		
ISLAND			69.6											7.38				.0							

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE, 94° ON THE 25+ AT LUALUALEI 804, OAHU

LOWEST TEMPERATURE, 31° ON THE 19+ AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION: 49.20 INCHES AT PUHOKAMO A 2 343, MAUI

LEAST TOTAL PRECIPITATION: .00 AT 3 STATIONS

GREATEST ONE-DAY PRECIPITATION: 7.11 INCHES ON THE 11TH AT KIPA 89.2, HAWAII

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY

Other weather events of the month were overshadowed by the rough seas and high surf that claimed six lives in five separate incidents during the last third of November. Also noteworthy, however, were the formation of a hurricane far to the south, record low temperatures brought by the first cold front to transit the entire State this winter, snow on Hawaii's high mountains, and the continuation of widespread dry weather.

On the 3d, as a preview of things to come, waves up to 15 feet high (the winter's first) pounded Oahu's north shore from Waimea to Sunset Beach, but did no damage.

On about the 7th, the vortex which later became Typhoon RUBY, developed near 3° N 159° W in the Intertropical Convergence Zone. It then moved northwestward, reaching typhoon strength by the 13th just before crossing the International Date Line at 12° N. After passing westward about 200 miles south of Wake on the 17th, RUBY ended its career a few days later about midway between Wake and Guam. Wake's peak gust was 49 m.p.h. from the east on the 18th.

On the 10th, the winter's first major snowfall blanketed Mauna Kea to a depth of about 1-1/2 inches down to the 11,000-foot level. And from the 19th on the month's weather was dominated by high waves generated by storms north of the State and by a fast-moving cold front.

On the 19th, off Oahu's north shore, two men drowned and a number of others barely escaped from rough seas and surf up to 13 feet high. While the latter is not at all uncommon for the place and season, the first high waves of winter almost invariably lead to a number of drownings and close calls, particularly among young servicemen and other inexperienced or foolhardy venturers into these dangerous waters. The 19th was no exception. In one incident, two of four servicemen caught in high surf at Sunset Beach were dragged by receding waves into the rough sea, where one was lost and the other rescued nearly unconscious. Earlier, a surfer who lost his board had managed to reach shore before help arrived, while another had to be hauled out by a fire rescue squad. The day's second drowning occurred at nearby Waimea Bay, when a young man rock-climbing with two companions was knocked down by a large wave and swept out to sea. And in rough waters at Alii Beach and Lanikakes, two young men were rescued by helicopter.

On the morning of the 25th, after waves capsized their 8-foot skiff, a 79-year-old fisherman was lost off Niu, Oahu, when he was left standing on the reef 300 yards offshore, while

his friend walked ashore in chest-deep water for help.

That night a 20-foot outboard motorboat returning to Pokai Bay, Oahu, was swamped by high waves off Makaha when brought too close to shore in seeking the rain-obscured lights of the Bay. Three of the five fishermen aboard were swept safely to shore, but one man was drowned and another lost. The boat was later found washed ashore.

Early on the morning of the 26th, a 26-foot boat off northwest Molokai between Ilio and Mokio Points was flipped over by breaking waves when it lost or dragged its anchor and drifted too close to shore. Two of the three men aboard reached shore safely, but the third was lost. According to the survivors, who were asleep until minutes before the accident occurred, the seas had been calm when they turned in. Pieces of the wrecked boat were later found on the shore. On the 30th, 15- to 20-foot waves generated by a storm 800 miles to the north struck the northern shores of Kauai and Oahu, but did no damage.

The first cold front to make its way completely through the islands this winter did so in just 18 hours, passing Lihue between 1 and 2 p.m. on the 25th, Honolulu between 7 and 8 p.m., Kahului on the 26th between 1 and 2 a.m., and Hilo between 7 and 8 p.m. Fans at the San Jose-University of Hawaii football game in Honolulu Stadium were drenched and windblown by the pre-frontal showers and southwesterly winds.

The most noticeable effect of the front, however, and a popular topic of conversation, was the cold air that blanketed the islands in its wake. As compared to the 25th, the day preceding the frontal passage, the daily maximum and minimum temperatures dropped sharply throughout the State: 5° and 7°, respectively, at Lihue; 3° and 6° at Honolulu; 11° and 8° at Wheeler Air Force Base, Oahu; 9° and 5° at Kahului; and 6° and 3° at Hilo. Honolulu and Kahului Airports registered their lowest November temperatures in 26 and 8 years of record, respectively: 58° at Honolulu on the 27th, compared with the previous minimum of 59°, and 55° at Kahului on the 28th, compared with its previous 58°.

Small craft warnings (to be called small craft advisories beginning January 1, 1973) for Hawaiian waters were in effect on 18 days because of gusty trade and frontal winds.

Despite the showers that accompanied the frontal passage, it was a dry November. On Oahu, Kauai,

SPECIAL WEATHER SUMMARY - Continued

and Maui, only a small scattering of gages reached or exceeded their average rainfall for the month. Much of eastern and southwestern Kauai and of coastal Oahu, all of Lanai, and most of Molokai had less than half and in places less than one-fourth their November means. Maui was dry nearly everywhere. Especially along the southwestern coast and in the central valley and Kula, most gages had less than one-fourth their aver-

age rainfall for November and many none at all. On Hawaii Island, however, most stations in the drought-plagued Kohala-Hamakua coast reached or exceeded their monthly means. But that island's southeastern and western sections were very dry, with almost all gages registering well below one-third of their average November rainfall.

Saul Price
Regional Climatologist for Pacific
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
Acting Climatologist for Hawaii
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

STATION INDEX

HAWAII NOVEMBER 1972

Table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER. The table lists numerous weather stations across Hawaii, including their identifiers, coordinates, altitudes, and the personnel responsible for observations.

STATION INDEX

HAWAII
NOVEMBER 1972

STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES			OBSERVER	STATION	INDEX NO.	DIVISION	DISTRICT	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES			OBSERVER
								TEMP	PRECIP	EVAP										SPECIAL	TEMP	PRECIP	
ISLAND OF HAWAII																							
MIDDLE MOULUA 88.1	A 6268	04	N KONA	4 19 37	155 58	475	8A				CAPT COOK CATTLE CO	PUU KIME 120	A 8393	01	HAWAIIA	1 19 54	155 24	7750	7A	HO		KUKIAIU RANCH CO	
MIDDLE PEN 147.1	A 6270	01	N KOHALA	1 20 06	155 50	1380	VAR				KAMUA RANCH	PUU LAU 102.1	A 8452	05	HAWAIIA	8 19 50	155 36	7440	HO	HO		STATE DIV OF FISH-GAHE	
MOAULA 18	A 6407	03	KAU	3 19 11	155 30	600	MO				HAWAIIAN RANCH CO	PUU LEHUA 73	A 8460	04	N KONA	8 19 34	155 49	4880	HO	HO		W.H. GREENWELL RANCH	
MOUNTAIN VIEW 91	A 6592	02	PUNA	2 19 33	155 07	1500	6A				PUNA SUGAR CO	PUU MALI 113	A 8515	01	HAWAIIA	19 55	155 26	6960	HO	HO		KUKIAIU RANCH CO	
NAALEHU 14	A 6588	03	KAU	3 19 04	155 35	673	6A	8A			HUTCHINSON SUGAR CO	PUU OT 82	A 8540	02	S HILO	19 44	155 23	6340	6A	6A		MISS JACKIE BUNLEHR	
NAPOPOO 28	A 6897	04	S KONA	4 19 28	155 55	395	7A				KONA EXPERIMENT STA	PUU WAAMAA 94.1	A 8555	03	N KONA	19 47	155 51	2520	7A	7A		PUU WAAMAA RANCH CO	
NIHILI 179	A 6806	01	N KOHALA	1 20 14	155 45	75	6A				KOHA CORPORATION	SADDLE ROAD 1 84	A 8590	02	S HILO	19 42	155 12	2340	WM	WM		BOARD OF WTR SUPPLY	
OKALA 223	7131	02	N HILO	2 20 01	155 17	430	7A	7A			LAUPAHEHUE SUGAR CO	SOUTH POINT CORRAL 3	A 8675	03	KAU	3 18 37	155 41	501	MI	C		HAWAIIAN RANCH COMPANY	
OPINIHOLE 2 24.1	7186	04	S KONA	4 19 45	155 32	6511	VAR				NISS C LEONARD	UMIKOA 118	8780	01	HAWAIIA	1 19 59	155 23	3420	7A	7A		KUKIAIU RANCH CO	
ORCHID LAND EST 91.5	A 7185	02	PUNA	2 19 34	155 00	443	VAR				BOARD OF WATER SUPPLY	UPOLU POINT USC 159.2	8830	01	N KOHALA	1 20 15	155 53	801	8A	8A		U S COAST GUARD	
PAALUHA 217	7204	01	HAWAIIA	1 20 05	155 26	415	7A				PAALUHA SUGAR CO	WAIKES 500 84.2	9025	02	S HILO	2 19 40	155 08	1050	7A	7A		SHINICHI KANESHIRO	
PAALUHA 221	7312	01	HAWAIIA	1 20 03	155 22	800	7A				HAWAIIA MILL CO	WAIKONDOLUA 178.0	9350	01	N KOHALA	1 20 08	155 47	3830	7A	7A		KAMUA RANCH	
PAHALA 21	A 7421	03	KAU	3 19 12	155 29	870	8A	6A			HAWAIIAN AGG CO	NEW STATIONS											
PANDA 65	7437	02	PUNA	2 19 30	154 57	670	6A				HAWAIIAN RANCH CO INC	ISLAND OF OAHU											
PAHAO 37	A 7643	03	KAU	3 19 22	155 28	5000	MO				MAUNA KEA SUGAR CO	HAWAII KAI 724.11	1298	02	HONOLULU	2 21 18	157 43	30					
PAPAIAKU 144.1	7711	02	S HILO	2 19 47	155 08	200	7A				MAUNA KEA SUGAR CO	WAIKANE-HAWAII 801.1	9234	04	OAHU	4 21 28	158 11	40					
PAPAIAKU MAUKA 140.1	7721	02	S HILO	2 19 47	155 08	200	7A				MAUNA KEA SUGAR CO	WAINANALO-HONOKI-795.2	9534	01	OAHU	1 21 20	157 43	120					
PIIHNUNA 89	A 8051	02	S HILO	2 19 44	155 10	1730	MO				STATE DIV OF FORESTRY	ISLAND OF HAWAII											
PONAKULOA 107	A 8063	02	HAWAIIA	4 19 45	155 32	6511	VAR				STATE DIVISION OF PARKS												
PUAO 95.1	A 8186	05	KOHALA	5 19 59	155 50	5	8A	8A			ERWIN H. RAPP												

↓ DRAINAGE CODE: KAUAI: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
5-NORTH-CENTRAL MOLOKAI: 1-INO INTRA-ISLAND DIVISIONS LAHAI: 1-INO INTRA-ISLAND DIVISIONS MAUI: 1-NORTHEASTERN
2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii 96811, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII".

DIMENSIONAL UNITS: Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in °F., precipitation and evaporation in inches, and wind movement in miles. In "Supplemental Data" table directions entered in figures are tens of degrees. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations.

OBSERVATION TIME: Data in the "Monthly Extremes", "Daily Precipitation" table, "Daily Temperature" table, and "Evaporation and Wind" table are for the 24 hours ending at time of observation unless indicated otherwise by reference letters in the Station Index. The Station Index shows observation time in local standard time.

EVAPORATION is measured in the standard Weather Service-type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are extremes of temperature of water in pan as recorded during 24 hours ending at time of observation; wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 6-8 inches above the pan.

NORMALS for all stations are climatological standard normals based on the period 1931-1960.

STATION NAMES: Hawaii state key numbers are included following station names in the several tables.

LATE REPORTS AND CORRECTIONS will be carried only in the June and December issues of this bulletin.

INTERPOLATED VALUES for monthly precipitation totals may be found in the annual issue of this publication.

IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- No record in the "Supplemental Data" table, "Daily Precipitation" table, "Evaporation and Wind" table, and the Station Index
- No record in the "Monthly Summarized Data" table and the "Daily Temperature" table is indicated by no entry.
- + And also on an earlier date or dates.
- ++ Highest observed one minute windspeed. This station is not equipped with an instrument to measure fastest mile data.
- * Amount included in following measurement, time distribution unknown.
- A The letter "A" shown following station name in "Monthly Summarized Data" table, "Daily Precipitation" table, and "Station Index" indicates amount carried in the "Total" column is for the period from the last measurement of a preceding month through the last measurement of the current month. See "Daily Precipitation" table of this and previous bulletins for dates of measurement. Where gages are read only once monthly, measurements made on the first of a month are credited to the last day of the preceding month.
- B Adjusted to a full month.
- M One or more days of record missing; if average value is entered, less than 10 days record is missing. See "Daily Temperature" table for detailed daily record.
- R Amounts from recording gage.
- T Trace, an amount too small to measure.
- V Includes total for previous month.

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- AR Observation made after rain.
- C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Monthly Summarized Data" bulletin they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
- MO Gage read once monthly; usually on the last day.
- OC Gage readings at periods varying from a few weeks to several months.
- S Storage Precipitation Station. Precipitation measurements, made at irregular intervals, are published in the December issue, or as late reports in the June issue of this publication.
- J "Supplemental Data" table.
- SS Observation time is near sunset.
- VAR Observation time is variable.
- W1 Gage read weekly or irregularly only.
- WM Gage read weekly and last day of month.
- # Thermometers are generally exposed in a shelter located a few feet above sod-covered ground; however, this reference indicates that the thermometers are exposed in a shelter located on the roof of a building.

Stations appearing in the tables with no data were either missing or received too late to be included in this issue.

General weather conditions in the U. S. for each month are described in the publications MONTHLY WEATHER REVIEW, CLIMATOLOGICAL DATA NATIONAL SUMMARY, and STORM DATA, all of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

Information concerning the history of changes in locations, elevations, exposure, etc., of stations through 1957 may be found in the publication "Sub-Station History" for the State, price 35 cents. Similar information for regular National Weather Service Offices may be found in the latest annual issue of Local Climatological Data, price 15 cents. These publications may be obtained from the Superintendent of Documents at the address shown above.

Subscription Price: \$2.50 a year for each section including annual summary; \$1.00 additional for foreign mailing, 20¢ single copy; 20¢ annual summary. Make checks payable to Department of Commerce, NOAA; send payments and orders to: National Climatic Center, Federal Building, Asheville, N. C. 28801. Attn: Publications.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.

William H. Hoggard
Director, National Climatic Center

USCOM-NOAA-ASHEVILLE, N. C. 2/28/73-890

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FIRST CLASS

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA

HAWAII
DECEMBER 1972

Station	Temperature										Precipitation																	
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days					Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days						
										Max.		Min.							Total	Departure From Normal	Greatest Day	Date	Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
										41° or Above	31° or Below	32° or Below	0° or Below	0° or Below														
KEAAU 92	77.9	62.6	70.3	- .7	89	19	57	21		0	0	0	0	2.90	-13.27	.58	16	.0	0		9	1	0					
KEALAKEKUA 26.2	76.7	59.5	68.1		83	19	53	21		0	0	0	0	4.53		1.75	10	.0	0		5	3	2					
KONA (KAILUA) 68.3					85	18	60	20		0	0	0	0	3.89		1.89	19	.0	0		2	1						
KUKUIHAELE HIC 199														6.51	= 2.71	2.10	20	.0	0		9	4	2					
KULANI CAMP 79	63.2	44.4	53.8		77	21	38	6+		0	0	0	0	3.23		.50	16	.0	0		1	0						
PAHALA 21					83	26+	54	21		0	0	0	0	1.23		.35	15	.0	0			0	0					
POHAKULOA 107														2.64				.0	0									
PUAKO 95.1														3.54		1.83	19	.0	0		4	2	2					
PUU WAAWAA 94.1														4.61	= 2.91	1.91	19	.0	0				2					
UMIKOA 118	80.2	63.5	71.9		85	19	52	20		0	0	0	0	5.39	= 6.10	1.54	9	.0	0		3	2						
WAIAKEA SCO 88.2														4.06		.70	28	.0	0		12	3	0					
ISLAND			66.4											4.32				.0										

TEMPERATURE AND PRECIPITATION EXTREMES

HIGHEST TEMPERATURE:
89° ON THE 27+ AT 3 STATIONS

LOWEST TEMPERATURE:
29° ON THE 20TH AT MAUNA LOA SLOPE OBS, HAWAII

GREATEST TOTAL PRECIPITATION:
8.59 INCHES AT KANALOHULUHULU 1075, KAUAI

LEAST TOTAL PRECIPITATION:
.57 INCH AT KAALA IKI 12, HAWAII

GREATEST ONE-DAY PRECIPITATION:
3.72 INCHES ON THE 31ST AT HANA AIRPORT 355, MAUI

See Reference Notes Following Station Index

SPECIAL WEATHER SUMMARY

The month was mild and relatively uneventful for December -- a brief period of moderately high surf, a few funnel cloud sightings, seasonal snows on Hawaii's high mountains, a spell of cool weather, and unusually high atmospheric pressures. But perhaps more important than any of these was the continued absence of widespread winter rains, with persistent dry weather prevailing over much of the State.

On November 30, swell from a storm 800 miles to the north generated surf that reached heights of 15 to 20 feet on northern Kauai, 12 feet at Sunset Beach, Oahu, and 10 feet on Kahului, Maui. Although the waves did no damage and quickly subsided, seas remained rough for a few days, and on the 3d five persons had to be rescued at Waimea Bay, Oahu, including a young

soldier pulled unconscious from the water.

While cold fronts frequently reach the islands during the winter, four of them -- a greater number than usual -- completely traversed the island chain in December, moving through on the 2d to 3d, 7th to 9th, 16th to 19th, and 30th to January 1. Although these fronts brought relatively little rain, they were accompanied by gusty winds, which required the frequent hoisting of small craft warnings, as well as by unusually high atmospheric pressure, cool weather, and funnel clouds.

On the 20th, a high pressure area that followed a frontal passage gave all four Airport weather stations their highest sea-level pressures of record for December.

TABLE I

DECEMBER SEA-LEVEL PRESSURE MAXIMUMS (INCHES)

Airport Locations	December 1972	Previous December Maximum and Year	Years of Record
Honolulu	30.27	30.24 1970	24
Lihue	30.33	30.26 1960, 1965	23
Kahului	30.28	30.22 1969, 1970	11
Hilo	30.29	30.27 1952	22

Cold air in the wake of the fronts, aided by clear nighttime skies and light winds, sent the

month's average minimum temperatures well below December's long-term means.

TABLE II

DECEMBER AVERAGE MINIMUM TEMPERATURES

Airport Locations	December 1972	December Long-Term Mean	Years of Record
Lihue	63.2°	65.7°	23
Honolulu	63.1°	67.9°	26
Kahului	62.4°	64.8°	19

Daily minimum temperatures rose above long-term December average minimums on only 8 days at Honolulu, on 10 days at Lihue and on 7 days at Kahului. The month's lowest temperature, 55° F. at Honolulu, Lihue, and Kahului, approached within only a degree or two the lowest ever recorded there in December: 54°, 53°, and 52°, respectively.

Funnel clouds, most of them also associated with the cold fronts, were sighted on the afternoon of

the 3d over the Halemaumau fire pit at Kilauea Crater, Hawaii Volcano National Park; on the afternoon of the 17th over Kalihi Valley, Oahu; and on the afternoon of the 28th over the eastern slopes of the Waianae Mountains near Kunia, Oahu. None of these reached the ground.

On the morning of the 13th, however, at least five waterspouts in advance of an approaching cold front churned up the sea surface for about an hour and a half, as they formed and dissipated about

SPECIAL WEATHER SUMMARY - Continued

8 miles northwest of Barking Sands, Kauai.

From the night of the 14th and into the 15th, a heavy fall of snow blanketed Mauna Kea to about the 11,000-foot level, with drifts up to 2 feet deep in places. Although snow presumably fell on Mauna Loa as well, no reports were received to confirm this.

On the afternoon of the 17th, a 29-year-old man picking opihi, a shellfish, at Kawaihoa Point, Koko Head, Oahu, was drowned when swept off a ledge by a large wave and carried out to sea. Despite repeated drownings under similar circumstances, many of them well publicized and all preventable, they continue to occur.

The frequent frontal passages, each with its showers, still left the State drier than usual for the season. Since much of the rain was associated with the southwesterly winds that preceded the fronts, the islands tended to be relatively wetter in their western than eastern portions, a reversal of the usual pattern.

On Kauai, not a single gage reached its average December rainfall, with virtually all the eastern two-thirds of the island having less than half and in places less than one-fourth its monthly average. Oahu was similarly dry even in normally wet windward and mountain areas, with only a scattering of gages on the ordinarily dry western and southern coastal plains reporting their normal for the month

or a bit above.

Conditions on the central and southern islands were much the same. Maui's normally wet windward slopes had less than half their mean December rainfall, as did much of Molokai and Lanai. Hawaii Island was dry from the Kohala Mountains to Puna and southwestward to South Point, with most gages in those areas reporting well under half, and many less than one-fourth, their mean rainfall for December. In contrast, in most of the Kona District, rainfall was at or above its December average.

During the past two years (24 months) rainfall has been below its monthly mean for from 18 to 19 months along the northeastern coast of Hawaii Island from Kohala to Hilo and from sea level to elevations of 2,000 feet or more. In terms of the number of rainfall-deficient months, dry weather appears to have been more prolonged in 1971 than in 1972 in Kohala and the northern Hamakua coast, and in 1972 than in 1971 in the Hilo and southern Hamakua areas.

Long dry spells have also marked much of Maui. Thus, Kailua and Paakea in East Maui's rainy watershed have recorded rainfall deficiencies in 17 and 18 months, respectively, of the past 24, Haleakala Summit in 19, and Paia in 20. A number of other localities have been equally dry.

Saul Price
Regional Climatologist for
the Pacific Region
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

Paul Y. Haraguchi
Acting Climatologist for Hawaii
National Weather Service Office
P. O. Box 3650
Honolulu, Hawaii 96811

DAILY TEMPERATURES

Table with columns for Station, Day of Month (1-31), and Average. Rows include KULA SANATORIUM 267, LAHAINA 361, WAILUKU 386, ISLAND OF HAWAII, HAINA 214, HAWAII VOLCNS NP HO 54, HILO WSO 87 AP, KAINALIU 73.2, KAMUELA 192.2, KEAAU 92, KEALAHEKUA 26.2, KOHALA MISSION 175.1, KONA (KAILUA) 68.3, KULANI CAMP 79, MAUNA LOA SLOPE 085, MOUNTAIN VIEW 91, NAALEHU 14, OOKALA 223, OPIHIHALE 2 24.1, PAHALA 21, PUAKO 95.1, UPOLO POINT USCG 159.2.

EVAPORATION AND WIND

Table with columns for Station, Day of Month (1-31), and Total or Avg. Rows include ISLAND OF KAUAI, LIHUE WSO 1020.1 AP, ISLAND OF OAHU, HONOLULU OBSERV 702.2.

PRECIPITATION MEASURED IN STORAGE GAGES

HAWAII
DECEMBER 1972

Station	Observation date	Amount since last obs.	Snow on ground	Station	Observation date	Amount since last obs.	Snow on ground	Station	Observation date	Amount since last obs.	Snow on ground	
494	1972			LAWAHA MAUI	1972			ISLAND OF MAUI (CONTINUED)	1972			
	JAN 31	14.00			JAN 29	4.00			KUKUI 380	JAN 29	24.75	
	FEB 29	1.00			FEB 26	1.50				FEB 26	40.40	
	MAR 31	10.00			MAR 30	6.50				MAR 30	13.00	
	APR 30	1.00			APR 29	11.00				APR 29	36.00	
	MAY 31	9.00			MAY 28	4.00				MAY 28	19.60	
	JUN 30	10.00			JUL 3	4.00				MAY 28	19.60	
	JUL 31	1.20			JUL 31	4.20				JUL 3	20.40	
	AUG 30	8.00			AUG 30	10.00				JUL 31	19.00	
	SEP 30	11.00			SEP 30	2.00				AUG 30	26.00	
	OCT 31	1.00			NOV 4	9.00				SEP 30	11.00	
	NOV 30	1.40			DEC 3	6.50				NOV 4	30.00	
DEC 31	1.00		DEC 28	7.00			DEC 3	20.00				
TOTAL		107.10		TOTAL		85.70		TOTAL		272.15		
494	1972			HONOLUA FLD 49 494	1972			MOKUPEA 475	1972			
	JAN 31	10.00			JAN 31	2.32				JAN 31	3.70	
	FEB 29	17.60			FEB 29	6.13				FEB 29	11.93	
	MAR 31	1.00			APR 3	5.41				APR 3	5.72	
	APR 30	17.60			MAY 1	2.55				MAY 1	13.80	
	MAY 31	7.20			MAY 31	.64				MAY 31	2.45	
	JUN 30	7.80			JUN 30	1.04				JUN 30	2.53	
	JUL 31	7.80			JUL 31	1.34				JUL 31	3.32	
	AUG 31	7.00			AUG 31	3.39				AUG 31	7.30	
	SEP 30	1.0			OCT 2	1.79				OCT 2	1.60	
	OCT 31	1.00			OCT 30	2.79				OCT 30	5.00	
	NOV 30	1.00			NOV 30	1.86				NOV 30	2.20	
DEC 31	2.40		DEC 29	4.11			DEC 29	5.58				
TOTAL		111.40		TOTAL		33.37		TOTAL		65.13		
352	1972			PUU PAKI 352	1972			WAILUA IKI 348	1972			
	MAR 30	49.00			MAR 30	49.00				MAR 30	35.00	
	JUN 30	41.00			JUN 30	41.00				JUN 30	49.00	
	SEP 30	40.00			SEP 30	40.00				SEP 30	29.00	
	DEC 29	36.00			DEC 29	36.00				DEC 29	37.00	
TOTAL		166.00		TOTAL		166.00		TOTAL		150.00		

See reference notes following Station Index.

LATE REPORTS DAILY PRECIPITATION

HAWAII

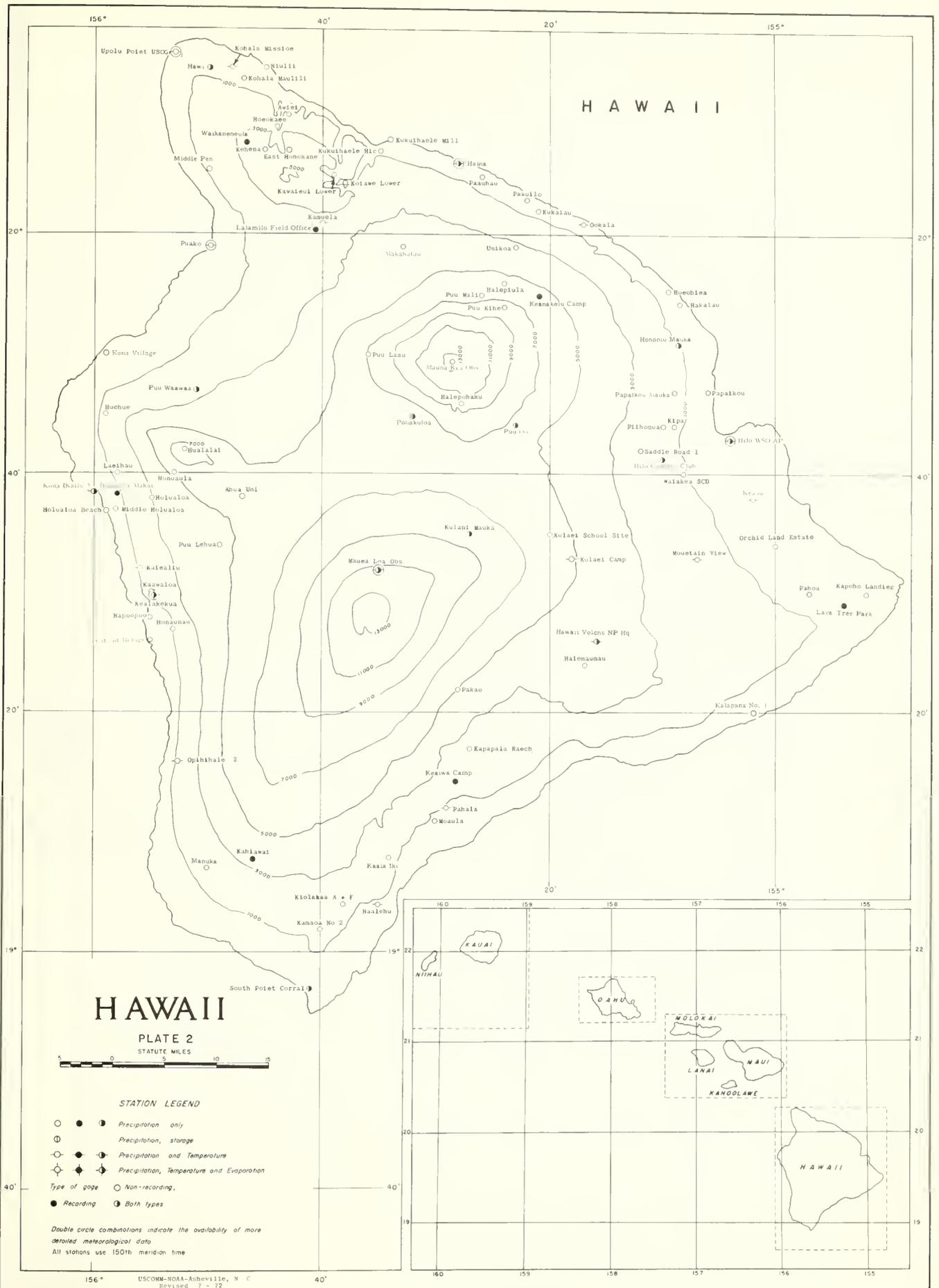
Continued

Station	Total	Day of Month																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
• • • MARCH 1972																																		
MOUNT WAIALEALE 1047 R	8.66	3.27	3.50	.31	.28	.04	.04													.24	.04	.94												
• • • APRIL 1972																																		
MOUNT WAIALEALE 1047 R	57.75		.35	1.85		.79	3.70	.16	.71	4.21	.51	.43	.47	1.30	9.02	8.94	1.61	4.25	7.80	3.31	2.20	.55	1.18	.28	.31	.20	.39	.35	.91	1.85	.12			
• • • MAY 1972																																		
MOUNT WAIALEALE 1047 R	24.02	.71	.24	1.02	.04			1.06	.08	1.22	.20	.39	1.77	1.54	3.78	1.57	.16	.20	.08		1.06	3.43	.31	1.02	.51	.04			.87	1.57	.91	.24		

STATION INDEX

HAWAII DECEMBER 1972

Main data table with columns: STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER, STATION, INDEX NO., DIVISION, DISTRICT, DRAINAGE, LATITUDE, LONGITUDE, ELEVATION, OBSERVATION TIME AND TABLES, OBSERVER.



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FIRST CLASS

TOTAL PRECIPITATION AND DEPARTURES FROM NORMAL

HAWAII 1972

TABLE 2

Table with columns for Station, Precipitation, and Departure from Normal for each month from January to December and an annual total. The table is divided into sections for 'ISLAND OF KAUAI', 'ISLAND OF MAUI', and 'ISLAND OF HAWAII'.

See Reference Notes Following Station Index

TEMPERATURE EXTREMES

Table 3

HAWAII
1972

Station	Highest	Date	Lowest	Date	Station	Highest	Date	Lowest	Date
* * *					* * *				
ISLAND OF KAUAI					ISLAND OF MAUI				
KANALOHULUHULU 1075	80	8-29	36	3-31+	HALEAKALA RS 338	75	7-13+	31	2- 1
KILAUEA POINT 1133	90	9-16		-	HALEAKALA SUMMIT 338.4	70	8- 3	21	4-27
LIHUE WSD 1020.1 AP	88	9-14	55	12-11	HANA AIRPORT 355	88	9-14+	51	1-31
MAKAHUENA POINT 940.1	90	10-19+	50	1-21	KAANAPALI AIRPORT	89	8- 7	53	1-11
MANA 1026	92	8-19+	53	12-31+	KAHULUI WSD 398 AP	94	8- 6	50	1-31+
NIU RIDGE 1035	87	9-27	52	2-27+	KAILUA 446	86	3- 8	55	2- 1+
WAIAMI LOWER 1054	88	8-29	47	12-11+	KEAWAKAPU BEACH 260.2	95	9-28	52	1-31
* * *					KULA SANATORIUM 267	81	8-19	47	2- 2
ISLAND OF OAHU					LAHAINA 361	91	9-17+	57	12-13+
EWA PLANTATION 741	91	10-16	50	2- 2	WAILUKU 386	89	10-16	50	1-12+
HONOLULU WSD 703 AP	90	8-15+	53	1-31	* * *				
HONOLULU SUBSTA 704	88	10-14	61	2- 1+	ISLAND OF HAWAII				
KAHUKU 912	89	7-17+		-	HAINA 214	88	2- 6	57	12-20
KANEDHE MAUKA 781	89	10-14	59	2- 2+	HAWAII VOLCNS NP HQ 54	79	10-25+	44	12-20+
LUALUALEI 804	96	10- 5	53	12-11	HILO WSD 87 AP	93	3-23	57	3-10+
MAKAPUU POINT 724	87	9- 1	56	5-16	KAINALIU 73.2	86	10-15	52	1-31
OPAEULA 870	88	10-15+	49	1-31	KAMUELA 192.2	85	10-14	39	2- 1
PRI WAHIAWA 820.2	92	9-17	49	12-12+	KEAAU 92	89	12-19	55	3- 3
WAIALEE 896.3	89	10-16+	60	2- 1	KEALAKEKUA 26.2	86	10-14	53	12-21+
WAIALUA 847	94	9-15	53	2-28+	KOHALA MISSION 175.1	87	9-14	56	3-31
WAIKIKI 717.2	91	10-16+	52	2- 1+	KONA (KAILUA) 68.3	93	8-29	60	12-20+
WAIMANALO EXP FARM	95	10-14	54	1-31	KULANI CAMP 79	78	9- 4	36	3-24
* * *					MAUNA LOA SLOPE 08S	66	6-25	24	1- 8
ISLAND OF MOLOKAI					MOUNTAIN VIEW 91	87	12-26+	48	12-20
MOLOKAI AP 524	87	10-18+	56	12-11	NAALEHU 14	89	8-30	57	2- 1
* * *					OOKALA 223	87	6- 5	54	2-20
ISLAND OF LANAI					OPIHIHALE 2 24.1	89	10-13		-
LANAI CITY 672	85	9-26+	52	2-14+	PAHALA 21	89	8-18	54	12-21
					PUAKO 95.1	91	8-29+	52	12-20
					UPOLU POINT USCG 159.2	89	12-25+	55	1- 1

See Reference Notes Following Station Index

TOTAL EVAPORATION AND WIND MOVEMENT

HAWAII
1972

Table 4

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
HAWAII														
* * * ISLAND OF KAUAI														
LIHUE WSO 1020.1 AP	EVAP	5.688	6.328	7.098	7.918	9.27	8.79	9.77	10.22	9.448	7.868	6.37	5.198	93.91
	WIND	3239	4584	3027	53308	5038	4241	-	4947	4576	3600	5084	2668	-
	MAX	-	73.8	77.9	76.0	80.8	81.6	82.9	91.2	90.1	88.0	82.3	78.7	-
	MIN	55.0	55.1	56.0	57.3	59.9	61.3	64.0	71.1	69.6	69.6	66.3	59.8	62.1
* * * ISLAND OF OAHU														
HONOLULU OBSERV 702.2	EVAP	4.708	5.008	6.568	7.718	10.13	8.688	10.45	10.03	9.22	7.44	6.32	5.19	91.43
	WIND	780	926	977	1121	1021	1118	1213	997	907	803	509	403	10775
	MAX	78.9	80.7	86.3	85.4	89.0	89.6	89.5	91.4	90.9	88.2	82.8	77.3	85.8
	MIN	58.7	59.1	62.5	62.4	63.9	66.0	65.9	67.3	66.2	65.6	62.3	57.4	63.1

RELOCATION AND CHANGES OF EQUIPMENT

ISLAND OF HAWAII		
HILO COUNTRY CLUB 86.6	EQUIPMENT MOVED 1000 FEET SSE	JULY 10, 1972
ISLAND OF KAUAI		
KOLOKO RESERVOIR 1137 PRINCEVILLE RANCH	EQUIPMENT MOVED 800 FEET NNE EQUIPMENT MOVED 100 FEET SE	DECEMBER 21, 1971 SEPTEMBER 28, 1972
ISLAND OF MAUI		
KULA HEIGHTS 323.2 ULUPALAKUA RANCH 250	FISCHER & PORTER GAGE REPLACES UNIVERSAL GAGE FISCHER & PORTER GAGE REPLACES UNIVERSAL GAGE	FEBRUARY 14, 1972 FEBRUARY 8, 1972
ISLAND OF OAHU		
HALAWA SHAFT 771.2 KAMEHAME 724.7 KAWAIHAPAI 841 LUALUALEI 804	FISCHER & PORTER GAGE REPLACES UNIVERSAL GAGE EQUIPMENT MOVED 200 YARDS SE EQUIPMENT MOVED 0.9 MILE WSW EQUIPMENT MOVED 300 FEET SW	MAY 1, 1972 APRIL 4, 1972 JANUARY 11, 1972 JULY 6, 1972

See Reference Notes Following Station Index

STATION INDEX

HAWAII
1972

Station	Index No.	Division No.	DISTRICT	Drainage†	Latitude	Longitude	Elevation	Years of record		Opened or closed during yr.	Refer to tables	Station	Index No.	Division No.	DISTRICT	Drainage†	Latitude	Longitude	Elevation	Years of record		Opened or closed during yr.	Refer to tables	
								Temp.	Precip.											Temp.	Precip.			
ISLAND OF HAWAII																								
KOHALA MAUIILLI 176	A	4675 01	N KOHALA	1	20 13 155 47	960			66															
KOHALA MISSION 175.1	A	4680 01	N KOHALA	1	20 14 155 48	537			83		1	2												
KOIHAE LOWER 196	A	4682 01	HAKAUA	1	20 05 155 38	720			69															
KONA (KAILUA) 08.3	A	476 04	N KONA	4	19 39 156 00	30			24		1	2												
KONA VILLAGE 93.8	A	4785 04	N KONA	4	19 50 155 59	20			6															
KURAIKU 222	A	4815 01	HAKAUA	1	20 02 155 21	840			78															
KURUHALE WIC 199	A	4926 01	HAKAUA	1	20 07 155 35	980			65															
KURUHALE HILL 206	A	4938 01	HAKAUA	1	20 08 155 34	3000			83															
KULANI CAMP 76	A	5011 02	S HILO	2	19 33 155 18	5170			14		1	2												
KULANI MAUKA 76	A	5018 05	N HILO	5	19 35 155 27	8300			22															
KULANI SCHOOL SITE 78	A	5021 02	S HILO	2	19 35 155 20	5735			26															
ALAMULO FLD OFF 191.1	A	5200 01	S KOHALA	1	20 01 155 41	2615																		
LANIMAU AB 2	A	5330 04	N KONA	4	19 40 155 58	1930			31															
LAVA TRIE PARK 66.1	A	5400 02	PUNA	2	19 29 154 54	650																		
MAKAKALAU 103	A	3761 02	HAWAII	1	19 59 155 33	3820			2															
MAUNA 2	A	6134 03	KAU	3	19 07 155 50	1760			44															
MAUNA KEA BEACH 98	A	6180 04	S KOHALA	1	20 01 155 50	103			5															
MAUNA KEA HILLS 112.2	A	6183 02	HAWAII	1	19 49 155 28	13770			1															
MAUNA WIA SLOPE 085	A	6186 03	HAWAII	1	19 32 155 35	11146			18															
MIDDLE HONULULOA 68.1	A	6268 04	N KONA	4	19 37 155 58	475			31															
MIDDLE PEN 147.1	A	6270 01	N KOHALA	1	20 08 155 50	1380			9															
MOKUA 18	A	6407 03	KAU	3	19 11 155 30	600			54															
MOUNTAIN VIEW 91	A	6532 02	PUNA	2	19 53 155 07	1530			36															
NABIEHU 14	A	6536 03	KAU	3	19 04 155 35	679			19															
NAPOOPOO 28	A	6697 04	S KONA	4	19 28 155 55	395			33															
NIULII 179	A	6806 01	N KOHALA	1	20 14 155 45	75			88															
OKALA 223	A	7131 02	N HILO	2	20 01 155 17	430			53															
OPHIHALE 2 24.1	A	7166 04	S KONA	4	19 16 155 53	1270			15															
ORCHID LAND EST 91.5	A	7185 02	PUNA	2	19 34 155 00	445			10															

† DRAINAGE CODE: KAUAU: 1-NORTHERN 2-SOUTHEASTERN 3-SOUTHWESTERN OAHU: 1-WINDWARD KOOLAU 2-HONOLULU 3-SOUTH-CENTRAL 4-WESTERN
5-NORTH-CENTRAL MOLOKAI: 1-(NO INTRA-ISLAND DIVISIONS) LANAI: 1-(NO INTRA-ISLAND DIVISIONS) MAUI: 1-NORTHEASTERN
2-SOUTHERN 3-CENTRAL 4-WESTERN HAWAII: 1-NORTHERN 2-EASTERN 3-SOUTHERN 4-WESTERN 5-CENTRAL

REFERENCE NOTES

Additional information regarding the climate of Hawaii may be obtained by writing to the National Oceanic and Atmospheric Administration Regional Climatologist, P. O. Box 3650, Honolulu, Hawaii 96811, or to any National Weather Service Office near you. Additional precipitation data are contained in "HOURLY PRECIPITATION DATA HAWAII."

DIMENSIONAL UNITS: Unless otherwise indicated, dimensional units used in this bulletin are: Temperature in °F, precipitation and evaporation in inches, and wind movement in miles.

EVAPORATION: Is measured in the standard Weather Service-type pan of 4-foot diameter unless otherwise shown by footnote following the Evaporation and Wind table. Max and Min values in the Evaporation and Wind table are monthly averages of daily extremes of temperature of water in pan as recorded during 24 hours ending at time of observation. Wind is the total wind movement in miles over the evaporation pan as determined by a continuous anemometer recorder located 6-8 inches above the pan.

NORMALS: for all stations are climatological normals based on the period 1931-1960. "DEP" in Table 4 refers to departures from long-term means based on periods varying from 10 to 29 years which are used in place of normals.

STATION NAMES: Hawaii state key numbers are included following station names in the several tables.

DELAYED DATA AND CORRECTIONS: will be carried in the June and December issues of Climatological Data.

IN THE DATA TABLES THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- No record.
- + Also on earlier date (date) or months.
- * Amount included in following measurement.
- A The letter "A" shown following station name, (Table 2 and Station Index). Amounts carried in the monthly "Precipitation" column are for the period from last measurement of a preceding month through the last measurement of the current month. See Daily Precipitation Table of the monthly Climatological Data for the dates of measurement. Measurements made on the first of a month are credited to the last day of the preceding month.
- B Adjusted to a full month.
- E Amount is wholly or partially estimated.
- M One or more days record missing; if average value is entered, less than 10 day record is missing. See monthly Climatological Data for detailed daily record.
- R Amounts from recording gage.
- T Trace, an amount too small to measure.
- V Includes total for previous month. V in annual column means total is for a two-year period.

IN THE STATION INDEX THE SYMBOLS AND LETTERS WHEN USED INDICATE THE FOLLOWING:

- # Thermometers are generally exposed in a shelter located a few feet above sod covered ground; however, the reference indicates that the thermometers are exposed in a shelter located on the roof of a building.
- C In Special Column of Station Index indicates Recording Rain Gage Station. Hourly precipitation values are processed for special purposes, and are published later in the "Hourly Precipitation Data" bulletin. If daily amounts are published in "Climatological Data" bulletin they are from a separate non-recording gage, except where indicated by reference "R". Such amounts may differ from amounts published from the recording gage in the "Hourly Precipitation Data" bulletin.
- S Storage precipitation station. Precipitation measurements, made at irregular intervals, will be published in the December issue of Climatological Data.

Years of record as shown in the Station Index are approximate since gaps in the records may not have been considered in arriving at the totals shown.

The four-digit identification numbers in the Index are assigned on an island basis. There will be no duplication of numbers within an island.

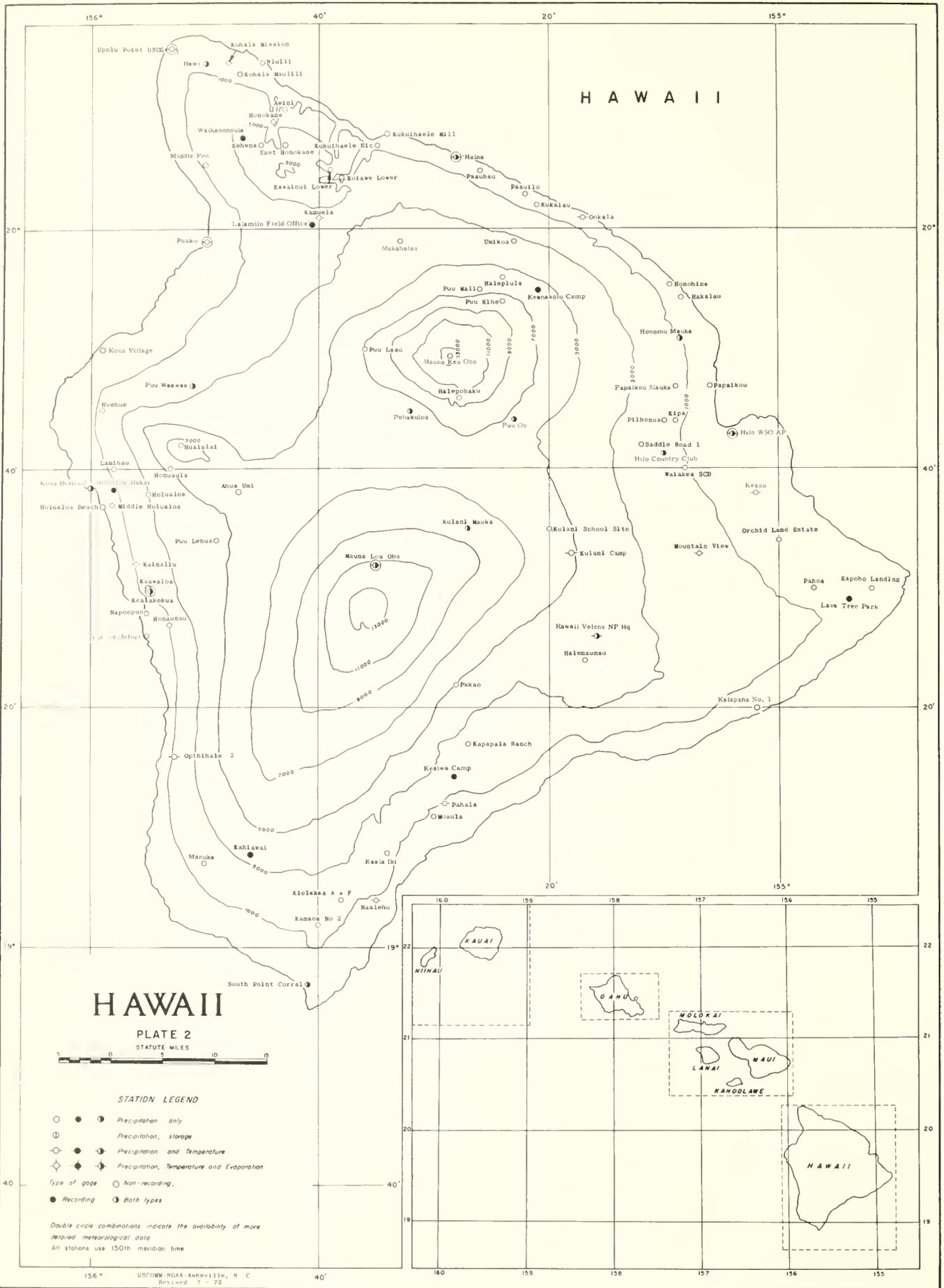
Information concerning the history of changes in location, elevations, exposures, etc., of substations through 1957 may be found in the publication "Substation History" for this State. That publication may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402, for 40 cents. Similar information for regular National Weather Service Offices may be found in the latest annual issue of Local Climatological Data, obtained as indicated above, price 15 cents.

Subscription Price: \$2.50 a year for each section including annual summary; \$1.00 additional for foreign mailing; 20¢ single copy; 20¢ annual summary. Make checks payable to Department of Commerce, NOAA; send payments and orders to: National Climatic Center, Federal Building, Asheville, N. C. 28801. Attn: Publications.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records on file at the National Climatic Center, Asheville, North Carolina 28801.

William H. Hoggard
Director, National Climatic Center

USCOM-NOAA-ASHEVILLE, N. C. 6/14/73-990



HAWAII

HAWAII
PLATE 2

STATUTE MILES

STATION LEGEND

- ● (Precipitation only)
- ⊕ (Precipitation, storage)
- ⊖ ● (Precipitation and Temperature)
- ⊖ ● (Precipitation, Temperature and Evaporation)
- (Non-recording)
- (Recording)
- ⊕ (Both types)

Double circle combinations indicate the availability of more detailed meteorological data
All stations use 150th meridian time

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