

Flooding on O‘ahu, April 13, 2018

Intense, localized rainfall on the evening of Friday, April 13, 2018 resulted in severe flooding and property damage in southeast O‘ahu. The U.S. Geological Survey (USGS) operates three real-time stream-gaging stations and five peak-streamflow gaging stations in this area. All of the gages recorded peaks during the event, although the real-time gage on Makawao Stream near Kailua was damaged during the flood. USGS personnel collected gage data and repaired the Makawao gage on the Monday following the flood.

The National Weather Service (NWS) rain gage at Niu Valley in southeast O‘ahu recorded 5.52 inches of rain during 19:00–21:00, which is a rainfall rate with a recurrence interval of 100–200 years (written communication, Kevin Kodama, NWS, Honolulu Forecast Office). The [recurrence intervals of streamflow peaks](#) during the flood ranged from about 2 to 50 years. Flooding recorded at the Kuli‘ou‘ou gage was exceeded only once since 1970, when the gage was installed, during the New Year’s Eve flood of December 31, 1987 when the peak was 3.54 feet higher.

Provisional streamflow peaks on April 13, 2018 at USGS gaging stations in southeast O‘ahu, Hawai‘i.

[Station number includes the online link to all available data for the station in the USGS National Water Information System (NWIS); NWIS database limitations preclude the use of Hawaiian diacritical marks in USGS station names, which are modified slightly to avoid abbreviations in the table; TBD, to be determined; annual flood recurrence intervals are at-station estimates available from <https://pubs.usgs.gov/sir/2010/5035/>, or are otherwise regression-equation estimates from <http://streamstats.usgs.gov/ss/>; years of historic record are not necessarily continuous years, and some peaks have reported stages but no discharges, and some discharges have no reported stage. The data for April 2018 are preliminary or provisional and are subject to revision. They are being provided to meet the need for timely best science. The data have not received final approval by the U.S. Geological Survey (USGS) and are provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the data.]

Station number	Station name	April 13, 2018 peak				Historic peak		
		Time, in Hawaiian Standard Time	Stage, in feet	Discharge, in cubic feet per second	Recurrence interval, in years	Discharge, in cubic feet per second	Date	Years of historic record
16244000	Pukele Stream near Honolulu	21:00	4.32	479	2	2,600	4/11/1930	66
16247550	Wailupe Gulch at E. Hind Dr. Bridge	21:00 ¹	18.80	2,720	25–50	621 ²	2/11/2017	3
16247900	Kuliouou Valley at Kuliouou	21:00 ¹	33.01	1,700	10–25	4,700	12/31/1987	45
16248200	Kalama Valley Drainage Canal	21:00 ¹	12.63	TBD	TBD	383	2/11/2017	1
16248950	Kahawai Stream at Waimanalo	20:00 ¹	14.66	380	Less than 2	517	7/24/2016	19
16249000	Waimanalo Stream at Waimanalo	20:00	12.34	1,070	Less than 2	4,560	3/6/1963	49
16249100	Kaelepulu Stream Tributary at Kailua	20:00 ¹	6.26	332	5–10	488	4/2/2006	54
16254000	Makawao Stream near Kailua	20:00 ¹	14.67	3,130	10–25	6,000	2/4/1965	58

¹Estimated.

²A higher peak discharge of 3,600 cubic feet per second was reported on December 18, 1967 about a half mile upstream at USGS stream-gaging station [16247500](#), which is no longer active.