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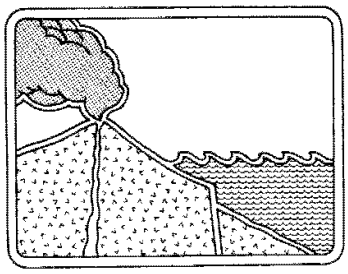

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# REGIONAL TSUNAMI EVACUATIONS FOR THE STATE OF HAWAII: A FEASIBILITY STUDY BASED ON HISTORICAL RUNUP DATA

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## ABSTRACT

Historical runup data for the Hawaiian Islands indicate that evacuations of only limited coastal areas, rather than statewide evacuations, may be appropriate for some small tsunamis originating along the Kamchatka, Aleutian, and Alaskan portion of the circum-Pacific arc. With such limited evacuations most statewide activities can continue with little or no disruptions, saving millions in lost revenues and overtime costs, and maintaining or enhancing credibility in state and federal agencies. However, such evacuations are contingent upon accurate real-time modeling of the maximum expected runup values. Also, data indicate that such evacuations may not be appropriate for small Chilean tsunamis. Furthermore, data from other regions are thus far too limited for an evaluation of the appropriateness of partial evacuations for small tsunamis from those regions.

# TSUNAMI DEPOSITS AT QUEEN'S BEACH, OAHU, HAWAII – INITIAL RESULTS AND WAVE MODELING

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## ABSTRACT

Photographs taken immediately after the 1946 Aleutian Tsunami inundated Queen's Beach, southeastern Oahu, show the major highway around the island was inundated and the road bed was destroyed. That road bed remains visible today, in an undeveloped coastline that shows like change in sedimentary deposits between 1946 and today (based on photographic evidence). Tsunami catalog records however indicate that the beach was repeatedly inundated by tsunami in 1946, 1952, 1957, and 1960. Tsunami runup was reported to have reached between 3 and 11 m elevation. Eyewitness accounts however indicate inundations of up to 20 m in Kealakipapa Valley (Makapu'u Lookout) during 1946 and photographic evidence indicated inundation reached 9 m in 1957. The inundation of Kealakipapa Valley has been successfully modeled using a 10-m tsunami wave model.

A comparison of the modern beach deposits to those near the remains of the destroyed highway demonstrate that the sedimentary deposits within the two areas have very different rock characteristics. We conclude the modern beach is dominated by the rounding of rocks (mostly coral) by wave activity. However, in the area that has experienced prior tsunami inundations, the rocks are characterized by fracturing and a high component of basaltic material. We conclude the area near the destroyed highway reflects past tsunami inundations combined with inevitable anthropogenic alteration.

# TSUNAMI GENERATED BY THE VOLCANO ERUPTION ON JULY 12-13, 2003 AT MONTSERRAT, LESSER ANTILLES

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## ABSTRACT

A major collapse of a lava dome occurred at the Soufrière Hills Volcano (Montserrat, Lesser Antilles), culminating late in the evening (11:35 PM local time) on July 12, 2003 (03:35 GMT on 13 July). This generated a tsunami, which was recorded on Montserrat 2-4 km from the generating area and Guadeloupe, 50 km from Montserrat. Results of field surveys are presented. Tsunami wave height on Montserrat may have been about 4 m according to the location of a strandline of charred trees and other floating objects at Spanish Point on the east coast of the island. The wave height on Guadeloupe according to "direct" witnesses was about 0.5-1 m at Deshaies and near Plage de la Perle. The tsunami at Deshaies caused the scattering of boats as confirmed by fishermen and local authorities. Data from the field survey are in agreement with the predicted tsunami scenario obtained by numerical simulation.