

INUNDATION OF FORD ISLAND

Historical data for tsunami inundation in Pearl Harbor is based primarily on tsunami data from 1946 (Aleutians; Mw = 8.0), 1952 (Kamchatka; Mw = 9.0), 1957 (Aleutians; Mw = 8.6), 1960 (Chile; Mw = 9.6), and 1964 (Alaska; Mw = 9.2). [See "Science of Tsunami Hazards" on the net, v.18 – 2, pg. 69, 2000.] Although we've had these "megatsunamis" from the North Pacific and Southeast Pacific, the largest Mw from the Western Pacific in the 20th century was only an 8.4 and from the Southwest Pacific an 8.5. The magnitude profile for these regions is similar to that of the Indonesian Arc for the 20th century and through 25 December 2004. [See "STH" v.23 – 1, pg. 17, 2005.] A megatsunami from these regions could have effects on the southern and western shores of the Hawaiian Islands far beyond those resulting from tsunamis generated in the North Pacific or Southeast Pacific.

Also, preliminary modeling suggests that a locally generated tsunami similar to those occurring off the Big Island in 1868 and 1975 could generate a destructive tsunami throughout the State were such an event to occur off the Kona Coast.

Therefore, it is important to consider possible risks from these types of tsunamis (i.e., Southwestern Pacific, Western Pacific, and locally generated) and to model their effects to see if such hazards are significant or benign. In the case of Pearl Harbor, attention should be focused on horizontal motions (currents) as well as vertical displacements. Could ships be loosened from their moorings; and / or could the Bridge be damaged by powerful currents resulting from a megatsunami from the Western or Southwestern Pacific, or by a large tsunami off the Kona Coast? We can speculate one way or another about the answer. However, no move should be planned until these issues are resolved with good, hard science. Such research should be of great interest to the Navy.

ABILITY TO GIVE ADEQUATE WARNINGS

At a 5 August 2005 meeting at PTWC to discuss revising local warning criteria, all were in agreement that the absence of water level recorders on the Southeast Coast of the Big Island from Punaluu to Kapoho is a severe handicap in efforts to issue a timely warning for the Big Island and Maui, and for the rest of the State in the event of a very large tsunami. I believe that any effort by NOAA to eliminate this deficiency would have the total support of Civil Defense and its tsunami advisors.

Also, in the event of a local tsunami, data must be quickly evaluated against historical benchmarks to arrive at the best decision as to the advisability and extent of the warning. Based on the tasks that have to be done, I'm not sure that two PTWC personnel are adequate for local tsunamis. Seconds of delay can mean, for example, that another beach along the Kona Coast will be struck by a large tsunami. PTWC will have to consider the adequacy of staffing for locally generated tsunamis under the revised criteria and guidelines arising from our 5 August meeting. Any delays in local tsunami warnings because of short staffing will not be acceptable.

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