Local Source (Cascadia Subduction Zone) Tsunami Inundation Map
Heceta Head, Oregon

Introduction

The Cascadia Subduction Zone (CSZ) is a converging boundary between the Pacific Plate and the North American Plate and the Juan de Fuca Plate. The two plates are stuck in place at a rate of about 1.5 inches per year, but the movement is not smooth because the two plates are converging. As shown in Figure 1, these plates are bulging up because of the stress that builds over time. At intervals, this accumulated energy is violently released as an earthquake, resulting in an increase of the tsunami inundation onshore. The North American Plate snaps westward over estuaries 6 miles inland, resulting in an increase of the tsunami inundation onshore. Older tsunami sand deposits have also been discovered inland along the Oregon coast. Some of this research was supported by the National Tsunami Hazard Mitigation Program. DOGAMI's work is designed to help cities, counties, and other sites on the Oregon coast since 1994. In Oregon, DOGAMI manages the National Tsunami Hazard Mitigation Program, which is funded by the U.S. Geological Survey and the National Oceanic and Atmospheric Administration. The computer simulation model output is provided to DOGAMI as part of this program.

Map Explanation

In Oregon, DOGAMI produces maps of tsunami inundation using federal funding awarded by NOAA. DOGAMI produced this tsunami inundation map for Heceta Head, Oregon, in 2013. The map was funded under award #NA09NW54670014 by NOAA's National Oceanic and Atmospheric Administration. Hydrology data, contours, critical facilities, and building footprints were obtained from the U.S. Geological Survey and the Oregon Department of Geology and Mineral Industries (DOGAMI), Portland, Oregon. Model data was obtained from Oregon Health and Science University, Portland, Oregon. Model data was generated using the University of California Earthquake Research (UCERF 2) Probabilistic Seismic Hazard Assessment Method. This tsunami inundation map displays the output of computer models that simulate a tsunami scenario.

Time Series Graphs and Wave Elevation Profiles

Using federal funding awarded by NOAA, DOGAMI has developed a new tsunami inundation map for Heceta Head, Oregon. This map was funded under award #NA09NW54670014 by NOAA's National Oceanic and Atmospheric Administration. The computer simulation model output is provided to DOGAMI as part of this program.

Legend

The map legend depicts the expected maximum tsunami wave elevation for the five "tsunami T-shirt scenarios" along lines of latitude and longitude. These profiles depict the expected maximum tsunami wave elevation for the five "tsunami T-shirt scenarios" along lines of latitude and longitude. These profiles depict the expected maximum tsunami wave elevation for the five "tsunami T-shirt scenarios" along lines of latitude and longitude. These profiles depict the expected maximum tsunami wave elevation for the five "tsunami T-shirt scenarios" along lines of latitude and longitude. These profiles depict the expected maximum tsunami wave elevation for the five "tsunami T-shirt scenarios" along lines of latitude and longitude. These profiles depict the expected maximum tsunami wave elevation for the five "tsunami T-shirt scenarios" along lines of latitude and longitude.

Data References

This tsunami inundation map was sponsored by the Oregon Statewide Lambert Conformal Conic, Unit: 15-Minute, 3rd Degree, State Plane Oregon Feet Coordinate System 1983.

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