Introduction

Tsunami inundation modeling has been a part of the Oregon Department of Geology and Mineral Industries (DOGAMI)’s work since 1995. DOGAMI’s work is designed to help cities, counties, and other sites in coastal areas reduce the potential for disastrous tsunami-related consequences by understanding and mitigating this geologic hazard. The Oregon Department of Geology and Mineral Industries (DOGAMI) was established in 1977, and its mission is to help Oregonians understand natural geologic hazards and their effects in order to improve the quality of life. DOGAMI is a division of the Oregon Department of Geology and Mineral Industries, which is a legislative branch of the State of Oregon, and is responsible for mapping and assessing the effects of geologic hazards, including tsunamis.

Map Description

This map is a Distant Source (Alaska–Aleutian Subduction Zone) tsunami inundation map for Mercer Lake, Oregon. The map was funded under award number 09-10-11715 by the National Tsunami Hazard Mitigation Program. The map was created and developed by DOGAMI, and was edited to improve the spatial accuracy of the data. Transportation data (2010) provided by Lane County was used as a base layer for the map. The map data were redigitized by Rachel L. Smith and Sean G. English and George R. Priest, Department of Geology, Portland, Oregon. Model data were created by John B. English and George R. Priest.

The map is based on the Continental Shelf of the Pacific Ocean and includes a grid of 0.25-meter cells (25 feet). Each cell is assigned values ranging from -25 to 25 feet. These values represent the time series graph and wave elevation profiles of the tsunami wave to arrive onshore. This map can be found in DOGAMI Special Paper 43 (Witter and others, 2011).

The model used in the creation of this map is based on the tsunami wave height and velocity observed. The model is not perfect, and there can be as much as a 20 percent error in the model when determining the maximum wave elevation over time. Therefore, DOGAMI recommends that people use the model as a guide for tsunami inundation planning and not as a definitive tool for evacuation decisions. DOGAMI also recommends that people verify the tsunami inundation map for a specific site with local experts and government officials.

Figure 3

Figure 3 shows the tsunami inundation at Bandon, Coos County, Oregon, from the Alaska Maximum Wet/Dry Zone tsunami, which occurred on December 26, 2004. The inundation is shown on this map.

Figure 4

Figure 4 depicts the tsunami wave height and velocity observed in the area. The model used by the U.S. Geological Survey (USGS) in their 2006 Alaska Maximum Wet/Dry Zone tsunami model is shown on this map. The model is based on the tsunami wave height and velocity observed. The model is not perfect, and there can be as much as a 20 percent error in the model when determining the maximum wave elevation over time. Therefore, DOGAMI recommends that people use the model as a guide for tsunami inundation planning and not as a definitive tool for evacuation decisions. DOGAMI also recommends that people verify the tsunami inundation map for a specific site with local experts and government officials.

Figure 5

Figure 5 depicts the tsunami wave height and velocity observed in the area. The model used by the U.S. Geological Survey (USGS) in their 2006 Alaska Maximum Wet/Dry Zone tsunami model is shown on this map. The model is based on the tsunami wave height and velocity observed. The model is not perfect, and there can be as much as a 20 percent error in the model when determining the maximum wave elevation over time. Therefore, DOGAMI recommends that people use the model as a guide for tsunami inundation planning and not as a definitive tool for evacuation decisions. DOGAMI also recommends that people verify the tsunami inundation map for a specific site with local experts and government officials.

Earthquake Size

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The earthquake size is shown on the map. The earthquake size is based on the magnitude of the earthquake. The magnitude of the earthquake is shown on the map.

Tsunami Inundation Scenarios

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Tsunami inundation scenarios are shown on the map. The scenarios are based on different earthquake sizes and locations. The map shows the tsunami inundation for each scenario.

Map Explorer

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The Map Explorer is shown on the map. The Map Explorer is used to explore the map data. The Map Explorer is used to explore the map data.

Map Data Creation/Development

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The map data were created and developed by DOGAMI. The map data were based on the tsunami wave height and velocity observed. The map data were edited to improve the spatial accuracy of the data. The map data were based on the tsunami wave height and velocity observed.

Tsunami Inundation Map Index

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The tsunami inundation map index is shown on the map. The tsunami inundation map index is used to show the tsunami inundation at different locations.

Base Data

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Tsunami Inundation Map Data

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Legend

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