Local Source (Cascadia Subduction Zone) Tsunami Inundation Map
Warrenton North, Oregon

Introduction

The Cascadia Subduction Zone (CSZ) is a convergent oceanic plate boundary that occurs along the Pacific Northwest coast of the United States. The region is characterized by a series of earthquake events that have caused significant damage and destruction. The CSZ includes the Juan de Fuca and North American tectonic plates, which converge at a rate of about 1.5 inches per year. This convergence is associated with the formation of the Cascadia Fault Zone, which has been the site of several major earthquakes over the past century, including the 1960 earthquake off Chile and the 1964 earthquake off Alaska.

The frequency and size of these earthquakes are critical to understanding the tsunami hazard associated with the CSZ. The United States Geological Survey has estimated that the time interval between major ruptures of the full length of the CSZ ranges from 110 to 1,150 years, with a median time interval of 490 years. In 2008, the United States Geological Survey suggested that at least 19 major ruptures of the full length of the CSZ have occurred since the arrival of the first humans in the region.

The map shown here represents the tsunami inundation scenarios along the CSZ, specifically for the Warrenton North area. The map uses color coding to indicate the potential extent of inundation, with darker shades indicating higher inundation levels. The map also includes contour lines to show the wet and dry zones, which are critical for understanding the potential impact of a tsunami on coastal areas.

Map Explanation

The map is designed to illustrate the tsunami inundation scenarios at the profile locations shown on the map. The inundation scenarios are based on the slip geometry, subsidence, computer models, and the methodology used to assess the potential impact of a tsunami on the coastal areas. The map also includes contour lines to show the wet and dry zones, which are critical for understanding the potential impact of a tsunami on coastal areas.

References

1. Cascadia Subduction Zone Events over the Past Century: U.S. Geological Survey Fact Sheet 127-09

Software

The map was created using the ArcGIS software, which is a powerful tool for mapping and geographic information systems (GIS). The software allows for the creation of detailed maps and the analysis of geographic data.

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