The Ring of Fire is located at the borders of the Pacific Ocean, including the Oregon coast. Volcanoes make up continental plates.

Subduction — when thin, oceanic plates are forced beneath thicker, lighter plates that make up continental plates. Beneath the Pacific Ocean, the dense oceanic plates sink downward into the asthenosphere causing a subduction zone. This process occurs over a period of thousands to millions of years as the oceanic plates move in a long, narrow arc along the ocean floor.

Earthquakes and tsunamis are caused by the rupture of faults where the subduction zone intersects the ocean floor. These ruptures cause a vertical displacement of water that creates a tsunami. The tsunami waves move away from the source region and into the surrounding bodies of water, eventually reaching the Oregon coast.

DOGAMI manages the National Tsunami Hazard Mitigation Program, which includes the National Tsunami Warning Center located in Portland, Oregon. The National Tsunami Program provides earthquake and tsunami forecasts and early warnings to coastal communities.

Historically, about 28 distant tsunamis have been documented by offshore Alaska in 1964 and onshore in Oregon (Figure 2). These events have generated tsunami waves that have affected the Oregon coast: for example, offshore Alaska in 1964 and onshore in Oregon (Figure 1). The Ring of Fire is located at the borders of the Pacific Ocean, including the Oregon coast. Volcanoes make up continental plates.

The inundation maps show the areas that are at risk of tsunami inundation. Each building footprint was created by DOGAMI and the Building Footprint field was assigned values ranging from 49 to 98 feet. These values indicate the elevation of the building relative to the predicted tsunami inundation.

The computer simulation model output is provided to DOGAMI as the design flood elevations and building elevations for 49 feet, 60 feet, 90 feet, and 98 feet. The inundation maps show the areas that are at risk of tsunami inundation.

The Tsunami Inundation Map for the Yaquina River, Oregon, shows the areas that are at risk of tsunami inundation. The map includes a legend indicating the different elevation levels and their corresponding colors. The map also shows the regulatory tsunami inundation line (Oregon Senate Bill 379 line) and the tsunami evacuation routes.

Figure 3 shows the cumulative number of buildings inundated within the map area. The table and chart depict the tsunami waves as they arrive at a simulated gauge station. It shows the change in wave heights for the two Alaska tsunami scenarios over an 8-hour period.