

Portland Hills Fault M 6.8 Earthquake

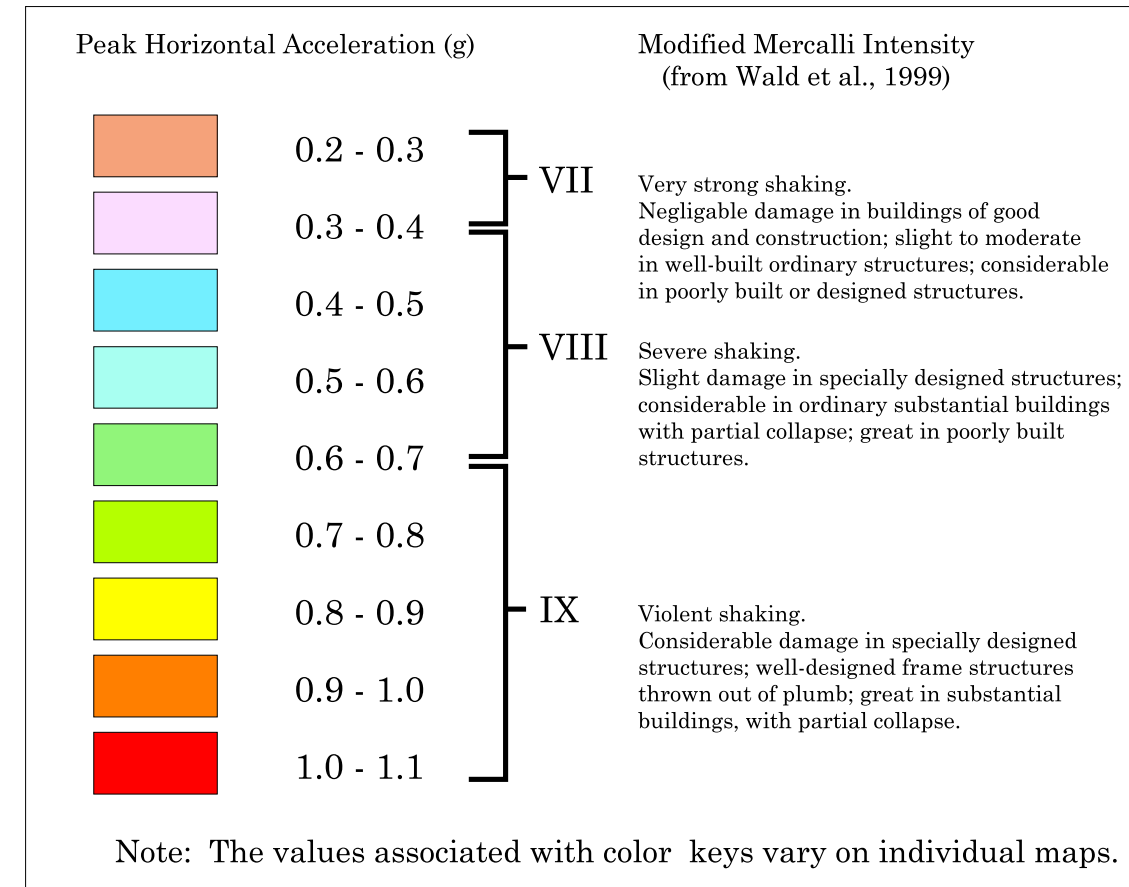
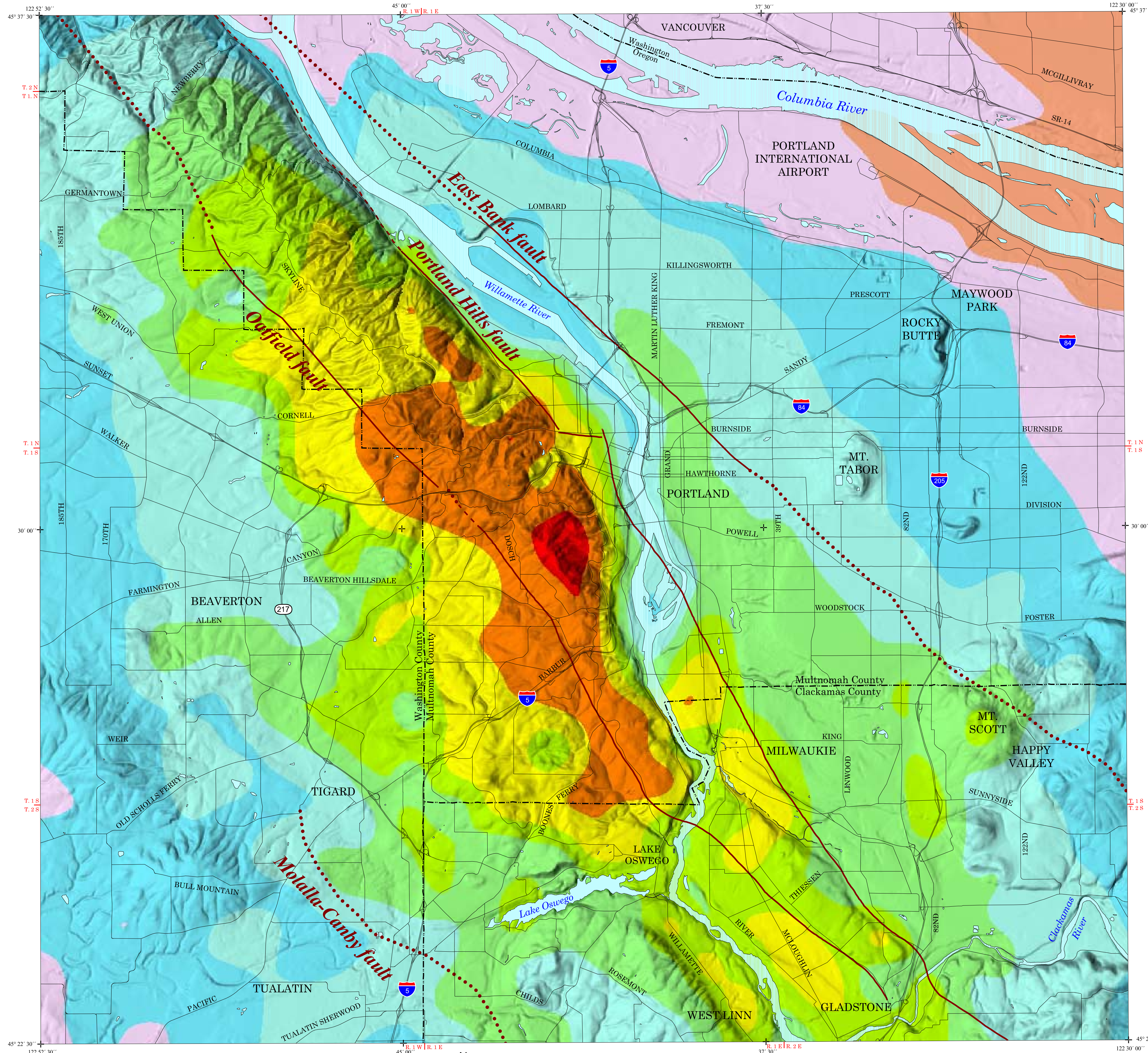
Peak Horizontal Acceleration (g) at the Ground Surface

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IMS - 15
Earthquake Scenario and Probabilistic Ground Shaking Maps
for the Portland, Oregon, Metropolitan Area

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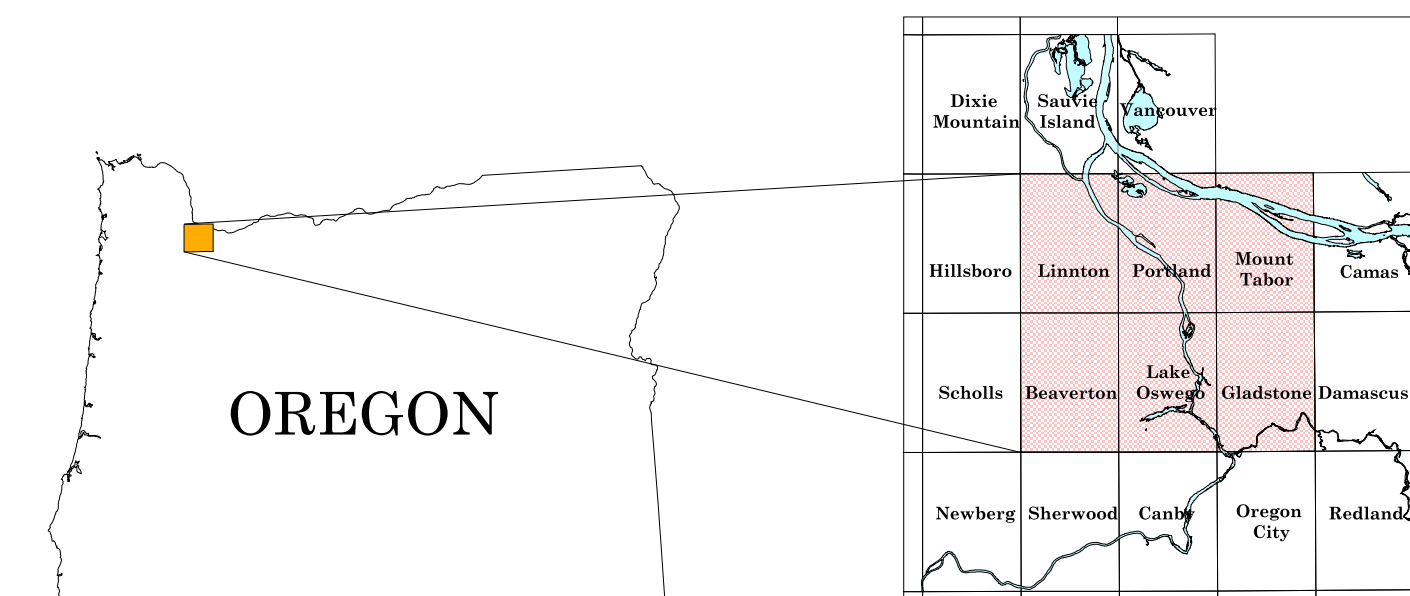


POTENTIALLY SEISMOGENIC FAULTS

- Mapped
- - - Inferred in this study
- · · · · Interpreted from aeromagnetic data

Data Sources: Madin, 1990, Beeson et al., 1991, and Blakely et al., 1995

Note: The locations of faults as depicted on these maps may have errors of up to 500 meters or more, particularly if they are concealed or based on aeromagnetic data.



MAP AREA LOCATION

USGS 7 1/2 Minute Quadrangles

Explanation

This map shows the predicted ground shaking from a hypothetical earthquake of moment magnitude (M_w) 6.8 occurring on the Portland Hills fault. The fault traverses through Portland and generally defines the base of the Portland Hills along its central section. If this earthquake were to occur, the actual ground motions are expected to be similar to the values shown on this map; however, the uncertainties in the depicted values are large, and differences are to be expected.

A report and an additional 11 maps depicting ground motions expressed in terms of peak horizontal ground acceleration and spectral accelerations at periods of 0.2 and 1.0 seconds, can be found in IMS-# "Earthquake Scenario and Probabilistic Ground Shaking Maps for the Portland, Oregon, Metropolitan Area" (Wong et al., 1999). The maps display ground motion estimates for (1) a Portland Hills fault M_w 6.8 scenario earthquake; (2) a Cascadia subduction zone M_w 9.0 megathrust scenario earthquake; (3) a 500-year return period; and (4) a 2,500-year return period. The latter two maps are probabilistic in nature.

Limitations

There are large uncertainties associated with ground motion prediction in the Pacific Northwest due to a limited amount of region-specific information and data on the characteristics of seismic sources and ground motions. Additional uncertainty stems from the characterization of the subsurface geology beneath Portland and the estimation of the associated site response effects on ground motions. Thus the maps should not be used for site-specific design or in place of site-specific hazard evaluations.

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Base Map Data from REGIONAL LAND INFORMATION SYSTEM, Metro Data Resource Center. Relief Shading Derived From USGS 7.5 Minute Quadrangle Digital Elevation Model Data.

Universal Transverse Mercator Projection, Zone 10
1927 North American Datum.

