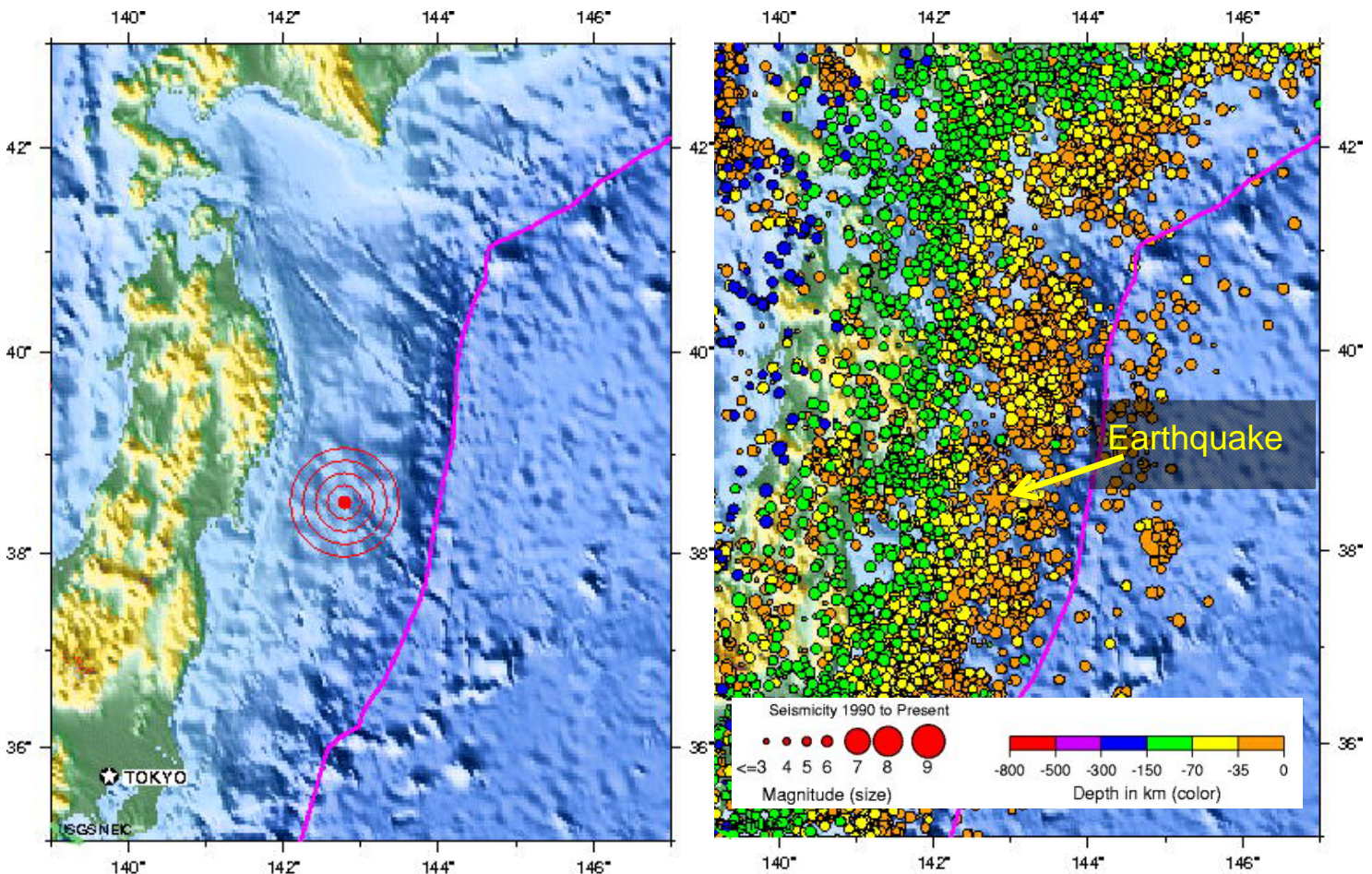


Magnitude 7.2 Major Earthquake Near East Coast of Honshu, Japan
Wednesday, March 9, 2011 at 02:45:18 UTC (March 8, 2011 18:45:18 PST)
Epicenter: Latitude 38.510°N, Longitude 142.792°E. Depth: 14.1 km

Earthquake Summary:

A major earthquake occurred Wednesday morning at 11:45:18 local time off the east coast of Honshu, about 413 kilometers (256 miles) northeast of Tokyo. The circle with surrounding rings on left-side map below illustrates the epicenter of this earthquake as determined by the US Geological Survey National Earthquake Information Center. The map on the right below shows historic earthquake activity near the epicenter (star) from 1990 to present. This earthquake occurred on the subduction zone boundary where the Pacific Plate subducts beneath the Eurasian Plate.

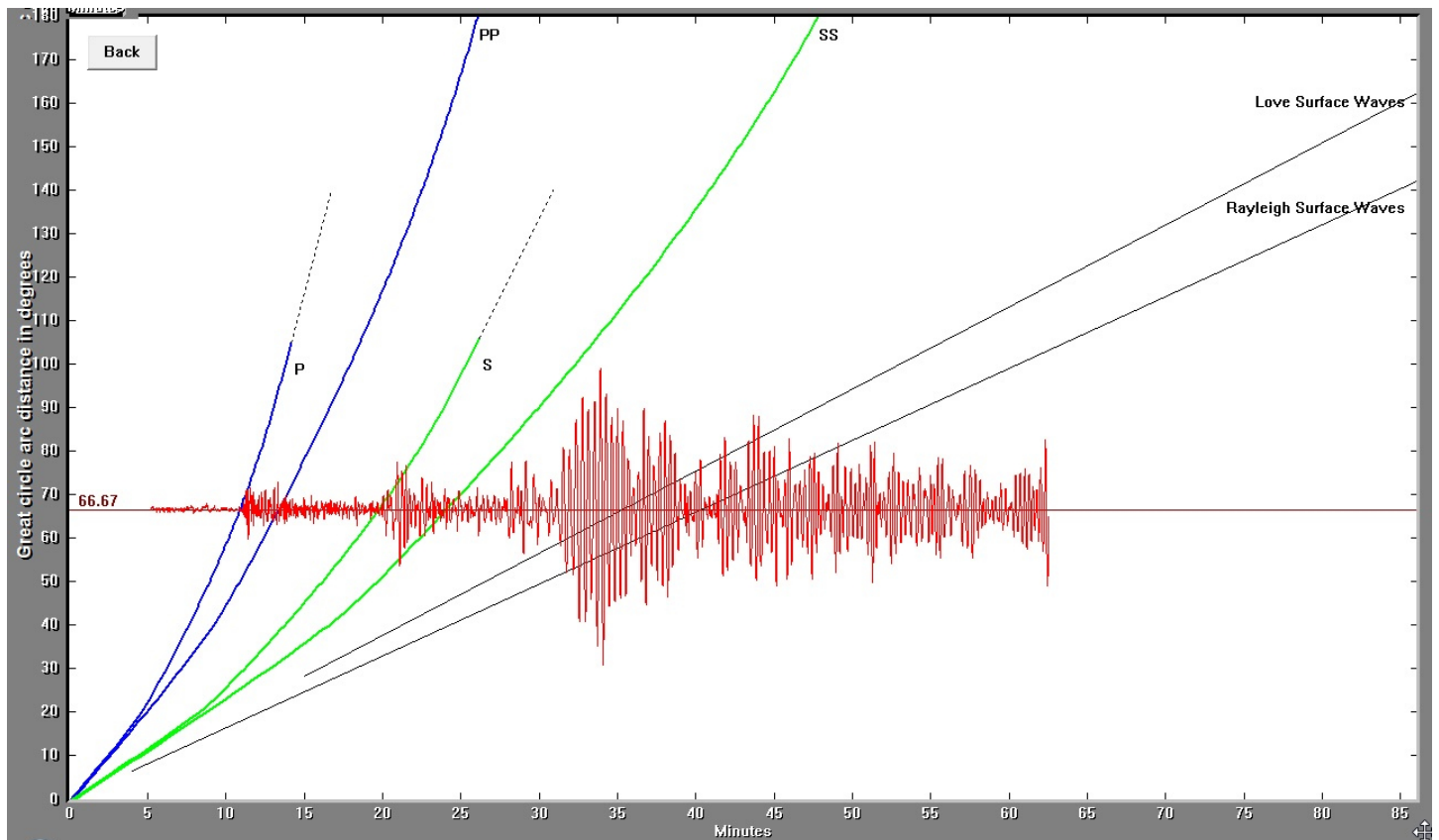
An earthquake at shallow depth beneath the ocean can produce a tsunami if the ocean floor is significantly displaced. Indeed a tsunami of 54 cm (1.8 feet) height was observed at the coastal town of Ofunato. The Pacific Tsunami Warning Center in Hawaii issued a bulletin that “no tsunami threat exists for other coastal areas in the Pacific although some other areas may experience small non-destructive sea level changes lasting up to several hours.” As yet there are no reports of damage or injuries.



Images courtesy of the US Geological Survey

Seismogram Description:

The record of the M7.2 earthquake that occurred near the east coast of Honshu, Japan on the University of Portland seismometer (UPOR) is illustrated below. Portland is about 7386 km (4589 miles, 66.54°) from the location of this earthquake. Following the earthquake, it took 10 minutes and 49 seconds (649 seconds) for the compressional P waves to travel a curved path through the mantle from Japan to Portland. PP waves are compressional waves that bounce off the Earth's surface halfway between the earthquake and the station. PP energy arrived 13 minutes and 15 seconds (795 seconds) after the earthquake. S waves are shear waves that follow the same path through the mantle as P waves. The S waves arrived 19 minutes and 40 seconds (1180 seconds) after the earthquake. Surface wave energy required approximately 28 minutes and 8 seconds (1688 seconds) to travel the 7386 km (4589 miles) around the perimeter of the Earth from Japan to Portland, Oregon.



Teachable Moments are a service of the University of Portland and IRIS Education and Outreach