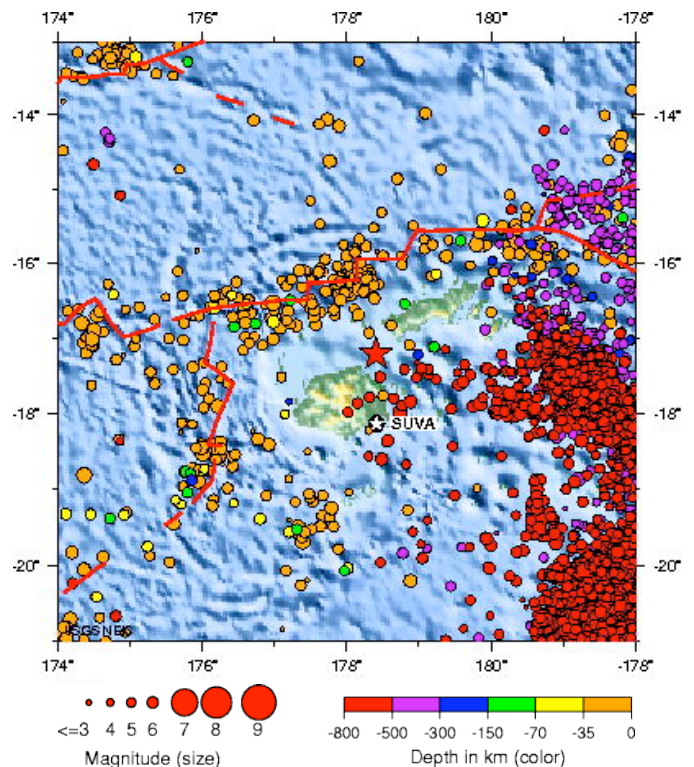
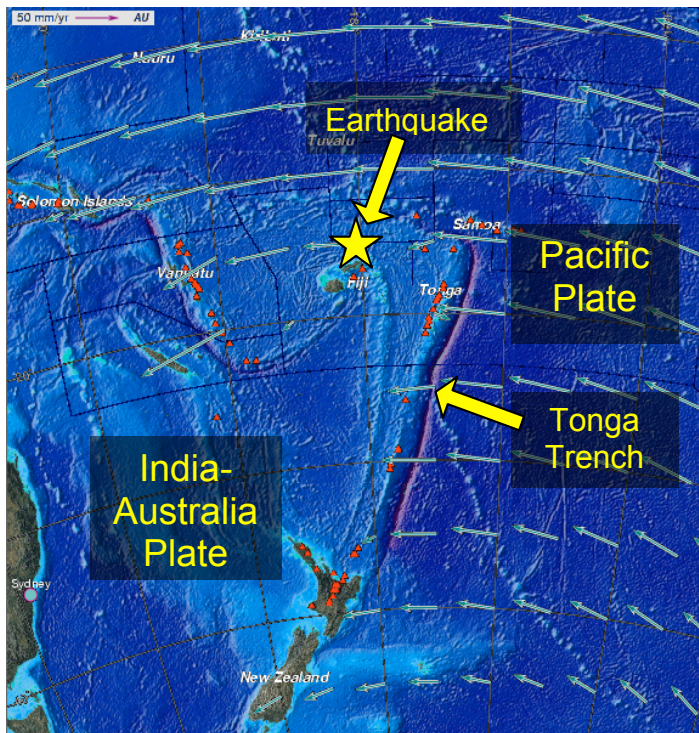


Magnitude 7.2 Earthquake Near Fiji Monday, November 9, 2009 at 10:44:54 UTC 02:44:54 AM Pacific Standard Time

Epicenter: Latitude 17.212°S, 178.412°E (indicated by stars on maps below).
Depth: 585 kilometers.

A major earthquake occurred early this morning Portland time in the subduction zone beneath Fiji in the southwestern Pacific Ocean. Because this earthquake occurred deep below the surface of the Earth, no tsunami was produced. As shown on the left-side map below, this earthquake occurred within the Pacific Plate that is subducting into the deeper mantle at the Tonga Trench where the Pacific and India-Australia plates converge. Historic earthquakes from 1990 to present are shown on the right-side map centered on Fiji. From this map you can see that deep earthquakes are common beneath Fiji. The rate of convergence at the location of this earthquake is about 60 mm/yr. This is about twice the rate of convergence between the Juan de Fuca and North America plates at the Cascadia Subduction Zone off the coast of Oregon and Washington.



The seismogram of the Fiji earthquake recorded by the University of Portland seismometer in Portland, Oregon is shown below. The magnitude 7.2 earthquake in Fiji was 82.09 degrees (9112 km) away from the seismometer. This earthquake was very deep at 585.1 km below Earth's surface. Because the source is so far below the surface, it produced no surface wave energy, only body waves. The first P wave energy arrives 11 minutes 20 seconds after the earthquake. This body wave travels directly from the earthquake to the recording station through the mantle. The pP wave arrives 13 minutes 24 seconds after the earthquake. This body wave is energy that left the earthquake and traveled to the surface of the Earth (above the earthquake), before bouncing off the surface and traveling through the mantle to the recording station. The difference in arrival times between the P arrival and the pP energy can be used to determine the depth of the earthquake. A third pressure wave, PP, is clearly observed on the seismogram. PP is energy that bounced once off the Earth's surface halfway between the earthquake and the recording station. This PP wave energy arrives 14 minutes 39 seconds after the earthquakes. The S waves follow the same paths with the first S wave energy arriving 20 minutes 47 seconds after the earthquake. The sS wave arrives 24 minutes 29 seconds after the earthquake. Finally, the SS wave energy arrives 26 minutes 25 seconds after the earthquake.

