

Seismic imaging of crustal heterogeneity in central Japan

Mohamed Farouk Abdelwahed[1]; Dapeng Zhao[1]

[1] GRC, Ehime Univ

The crustal heterogeneity in central Japan is investigated through comprehensive P and S-wave and Poisson's ratio tomographic studies. We used 42790 P and 46093 S-wave high-quality arrival times from 5107 events accurately located and recorded by national research institutes and universities in Japan and compiled by the Japan Meteorological Agency (JMA) in the period of June 2002 - November 2004. Checkerboard resolution tests conducted in this study indicate that the spatial resolution is 10-15 km in the horizontal direction and 4-6 km in the vertical direction. The relationship between seismic tomography and the major tectonic features is investigated. Low-Vs and high-Poisson's ratio anomalies are visible beneath most of the active volcanoes up to 15 km depth. This might indicate the effect of fluid/magma saturation. The majority of the earthquakes are associated with either the low-velocity patterns or at the transition between the high and low velocity patterns. Significant correlation between velocity perturbation patterns at shallow depths and fault distributions are found.