Dehydration of the Subducting Philippine Sea Slab and Its Influence on the Initiation of the 1995 Kobe Earthquake

Fumiko Ochi [1], Dapeng Zhao [1]

[1] Earth Sci.,Ehime Univ

We have applied a tomography method to 40000 arrival times to determine 3-D P-wave velocity structure under Shikoku and Chugoku. Our results show that the slab has a thickness of 35 km and a P-wave velocity 3-5% higher than the normal mantle. Earthquakes occur within the slab down to 80 km beneath Shikoku. Aseismic slab is descending under Chugoku. Slow anomalies exist below the volcanoes in Chugoku and above the slab, indicating that magma chambers exist under the volcanoes and they are due to the slab dehydration. Slow anomalies over the slab and under Awaji Island extend to the focal area of the Kobe earthquake, and they existed before the Kobe earthquake. The fluids from the slab dehydration may have contributed to the initiation of the Kobe earthquake.