

## Deep structure of the Japan Island estimated from the joint inversion of local and teleseismic data

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

[1] GRC, Ehime Univ

The 3-D P-wave velocity structures deep beneath the Japan Islands are estimated by simultaneously inverting a large number of local and teleseismic data using the joint inversion technique (Zhao et al., 1994). About 260,000 P-wave travel times with good ray path coverage for the whole Japan Islands are used. Several steps are performed for the data selection to assure the accuracy of event locations and data picking. The multi-channel cross-correlation (MCCC) technique (VanDecar and Crosson, 1990) is used to collect the teleseismic data. The Pacific slab is well imaged beneath the Japan Islands. It is stagnating at the 660 km discontinuity under Kyushu. The deep dehydration reactions of the Pacific slab are visible at depths of 400-600 km in the mantle wedge above the slab. The Philippine Sea slab is well imaged under southwest Japan. Its average thickness is 50 km. It subducts seismically down to 100 km depth beneath eastern Shikoku, and subducts aseismically to 300 km depth beneath western Shikoku and Chugoku, and to 500 km depth beneath Kyushu. Significant slow anomalies exist in the mantle below the subducting Pacific slab which may represent small-scale mantle plumes or hot upwelling associated with the subduction of the Pacific slab.