# Three dimensional S-wave structure beneath the ridges and hotspots in the Atlantic region

# Kuniaki Matsubara[1]; Reiji Kobayashi[2]; Dapeng Zhao[3]

[1] GRC, Ehime University; [2] ERI, Univ. Tokyo; [3] GRC, Ehime Univ

http://www.ehime-u.ac.jp/

The three-dimensional S-wave velocity structure beneath the Atlantic Ocean is determined by inverting fundamental-mode group velocities of Love and Rayleigh waves in order to reveal mantle dynamics beneath this region. The data set consists of 1799 seismograms from about 200 earthquakes. The ray paths used mainly pass through the oceanic areas in order to avoid the effects of strong refraction at the continental margins. The group velocities at periods between 18 and 200 s are measured. A striking feature in our results is that prominent low velocity anomalies exist along the ridge axis down to 130 km depth. The slowest velocity is located at depths around 50 km. There is a correlation between the lateral extent of the slow velocity anomalies across the ridges and the spreading rate of the ridges. Stronger low velocity anomalies are visible beneath the Azores, Ascension, and Tristan hotspots. In particular, under the Azores and Tristan hotspots slow velocity anomalies amounting to 2-3 % extend continuously down to 250 km depth. This may indicate that these hotspots are associated with mantle plumes.