

Deep structure of the Japan Islands derived from S and ScS data

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The 3-D P-wave velocity structure of the crust and mantle under the Japan Islands has been well determined by using regional and global tomographic studies (e.g., Zhao et al., 1994; Zhao, 2001, 2004). However, 3-D S-wave velocity structure of the upper and lower mantle under Japan has not been determined well because ISC S-wave data contain large picking errors. In this work we have picked up over 12,000 S and ScS wave arrival times recorded by the Hi-net seismic network from 15 deep earthquakes which occurred in and around the Japan Islands. Then we applied the global tomography method of Zhao (2001, 2004) to the collected S and ScS data to determine 3-D S-wave structure under Japan. Our preliminary results show the existence of strong lateral heterogeneity not only in the upper mantle but also in the lower mantle under Japan. Geophysical and geodynamic implications of the results will be investigated.