

# Seismic structure under Tibet, Iceland and South Africa derived from data recorded by portable seismic networks

# Keiji Yamamoto[1]; Mitsugu Hirata[2]; Kazuhiro Hirano[3]; Jianshe Lei[4]; Dapeng Zhao[4]

[1] Biology and Earth Sci., Ehime Univ; [2] Biology and Earth Sci, Ehime Univ; [3] Biology and Earth Sci, Ehime Univ ; [4] GRC, Ehime Univ

In the present study we have collected a large number of teleseismic P-wave arrival time data recorded by dense portable seismic networks in Tibet, Iceland and South Africa to study the heterogeneous structure of the crust and upper mantle under the three regions. The new data sets we collected in this work are as follows: (1) 4700 P arrivals from 177 events recorded by 80 stations in Tibet; (2) 1600 P arrivals from 86 events recorded by 30 stations in Iceland; and (3) 3800 P arrivals from 98 events recorded by 113 stations in South Africa. We first made analyses using the relative travel time residuals and found significant lateral variations of the relative residuals in each of the study areas, which suggest the existence of strong lateral heterogeneities in these regions. Strong slow anomalies are revealed under Iceland, which reflect the effects of the Iceland mantle plume. Fast anomalies are found under the seismic array in South Africa, which reflect the structure of the old and stable craton. A complex pattern of relative residuals appear in the array in Tibet, which may be caused by the very thick crust and the subducting Indian plate under the Tibet. These data will be analyzed by using the teleseismic tomography method of Zhao et al. (1994) to determine 3-D velocity structure of these tectonically active regions.