



Q0 tomography of S wave attenuation and velocity structure of uppermost mantle from Pn tomography in Northeast China

Lian Sun and Qingju Wu

Institute of Geophysics, China Earthquake Administration, China (sunl@cea-igp.ac.cn)

The Northeast China is an important region of the occurrence of deep earthquakes. In our work we have selected lots of ML amplitudes and travel times of Pn arrivals as reported in the Annual Bulletin of Chinese Earthquakes and regional seismic network of Northeast China. A two-dimensional tomography method is employed to find regional variation of crustal attenuation, Pn velocity and anisotropy in the uppermost mantle in Northeast China and its adjacent regions. Regions with the highest attenuation are beneath Bohai Basin, and Songliao Plain and Hailaer Basin also have low Q0 values, as these areas have thick sedimentary and strong tectonic activity. The entire Northeast region shows distribution of alternating high and low attenuation. And Pn velocity structure is close to the regional tectonic structure and shows distribution of alternating high and low Pn velocity in the direction of NE-NNE. Quantitative analysis result indicates that Pn velocity is positively correlated with crust thickness and negatively correlated with Earth's heatflow. The Pn velocities in the Changbai volcano and Jingpohu volcano activities are obviously low. In addition, the overall performance of Pn anisotropy is weak. This study was supported by the international cooperation project of the Ministry of Science and Technology of China (NO.2011DFB20210) and NSFC (Grant No.41004034).