



The Mantle Lithosphere in China and Sidelobes of S-Receiver Functions

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We selected about 26 000 S-receiver functions from the Chinese National Seismic Network to study the large scale structure of the mantle lithosphere in all of China. At first we studied the technical problem of the influence of sidelobes of the input SV signal on the waveform of the signal from the lithosphere-asthenosphere boundary (LAB). We found that the influence of sidelobes is not negligible. In our data sidelobes may double the amplitude of the LAB signal. This results in a velocity reduction at the LAB of not more than about 3% in our data. We obtained good images of the Moho, the LAB, the 410 km discontinuity and a relatively new low velocity zone directly above the 410 km discontinuity. The LAB is generally shallow, near 100 km depth. This is the depth range where in other cratons frequently the Mid-Lithospheric Discontinuity (MLD) is observed. There is no indication of a cratonic LAB which could be expected near 200 km depth. The largest part of the upper mantle below the Chinese cratons seems very transparent. Generally the LAB is deepening from about 100 km at the cratons in eastern China to about 150 km below eastern Tibet. There is not much difference between the LAB depth of the North China Craton and the South China Block. However, in the region of the Central China Orogen between both cratons the LAB is locally sharply deepening to about 150 km depth indicating possibly Precambrian subduction.