

Variation of Pn Amplitude Across Western Tien Shan

Previous researches suggested that the velocity gradient of upper mantle, heterogeneities in the mantle lid and Moho topography may influence the amplitude of Pn. In order to show which should mainly account for abnormal variation of Pn amplitude, Pn waves of an earthquake occurred on southwest margin of Tarim Basin recorded by CHENGIS and KN network stations are employed, and the amplitude variations of Pn across western Tien Shan are investigated. The results show that the Pn amplitude near 1Hz don't decrease systemically as distance increase, and Pn amplitudes at some stations are three times larger than those at other stations with approximately equal distance. The 2D Spectral Element Method is applied to simulate the propagation of Pn across western Tien Shan using the structure model derived from Moho depth model and Pn velocity structure in western Tien Shan. The Moho depth model is derived by Liu(2011) using receiver functions and the Pn velocity structure is inverted by Li(2007) using Pn travel time. The result obtained indicates that the variation of Moho depth along the wave propagation path may account for the abnormal variation of Pn amplitude.

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