



## **Character of 410 km discontinuity - two boundaries around the top of mantle transition zone**

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Several petrological studies suggest influences of fluids (especially H<sub>2</sub>O) on the character of 410 km discontinuity. Some seismic data also evidences, that a zone of transition exists above 410's. In this work we used P wave travel - times recorded between 800 and 3000 km offset in order to test the existence of a reflection boundary above 410 km discontinuity and low velocity zone between them. Thybo and Perchuc (1997) analyzing the PNE long-range profiles data suggested existence of two reflection boundaries separated by a LVZ in the area of Siberian platform. Theoretical travel-times for the 'hot' and 'cold' models of the upper mantle are discussed and tested against selected seismological data. For the offset range used in our study the refracted wave from the upper boundary in 'hot' areas are recorded as first arrivals for relatively short range between 2000 and 2600 km. In 'cold' areas this wave is recorded as secondary phases. Critical point for the upper boundary is farther than for the deeper one (410's). All differences in experimental data can be explained by effect of temperature on the transformations within olivine-wadsleyite system.