



Seismic Refraction Experiments and Crustal Structure in Turkey

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A series of controlled source seismic refraction recordings were conducted in north-west, central and eastern part of Turkey in order to investigate crustal structure. P-wave velocity models were constructed from analysis of seismic refraction data collected during 1998-2004. Temporary and permanent stations of the Turkish National Seismic Network were used in the studies. Using various amounts of explosives detonated Land shots. Evidence from the obtained models strongly suggests that Marmara region, northwest Anatolia, crossed by the North Anatolian Fault Zone has a complexity in the local velocity structure and it has a thickness of 32 km in the north and increases gently to a maximum of 35 km in the south. In central Anatolia crustal thickness varies between 36 and 42 km. Crustal thickness changes laterally and it is slightly thicker in eastern Anatolia. The southeast Anatolian refraction profile crosses the Arabian Plate and East Anatolian Fault Zone indicates a crustal thickness of 40 km. The most remarkable feature from overall experiments is the unusually low upper mantle velocities in the range between 7.70 km/s and 7.90 km/s. This may due to the high upper mantle temperatures, possibly accompanied by partial melt.