Geophysical Research Abstracts
Vol. 12, EGU2010-1634, 2010
EGU General Assembly 2010

Integration of Receiver Function and Moment Tensor Inversion Methods to Study the 2007 Earthquakes of Egirdir, SW Turkey

Selda Altuncu Poyraz (1) and Ali Pınar (2)

(1) Kandilli Observatory and Earthquake Research Center, National Earthquake Monitoring Center, Turkey (selda.altuncu@boun.edu.tr), (2) Istanbul University, Department of Geophysics, Avcılar, Istanbul, Turkey

The Isparta Angle is a prominent tectonic feature in Eastern Mediterranean region lying to the north of Africa-Anatolia collision zone and to the east of Aegean extensional zone. ISP and AKSU seismic stations are located in this area. In order to model the crustal structure beneath the ISP and AKSU seismic stations the receiver function and surface wave group velocity joint inversion method were applied. Well described 32 earthquakes selected from 205 eartquakes recorded by broand-band ISP seismic station in the year between 2005-2008 and 45 earthquakes selected from 117 earthquakes recorded by AKSU seismograph station were solved by using receiver function and surface wave group velocity joint inversion method. It was found that the crustal thickness under ISP station was approximately 31-35 km and under the AKSU station was approximately 33-36km. The very low shear wave velocity for ISP and AKSU station found by receiver function technique could be related to shallow asthenospheric mantle.

Using the two crustal structures derived from Receiver function method we calculated mechanism of 21 Egirdir earthquakes with magnitudes between 3.5>M>5.0 using regional moment tensor inversion technique. The Eğirdir local earthqukes of 2007 took place on a fault plane striking NW-SE showing normal faulting with strike slip component mechanism which we infer as a fault plane considering the epicentral distribution of the seismic activity. The event distribution show that these earthquakes did not take part on the well-know NNE-SSW trending Eğirdir fault but rather they were either on the Eğirdir conjuction fault or on the fault that is the extension of the Aksu fault that have NW-SE strike.