Geodetic measurements for earthquake studies in Turkey

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SUMMARY

Determining direction and velocity of tectonic movement in a region, microblock rotations, locations of active faults, slip rates of active faults and slip rates components, shear deformation, magnitudes of earthquake potentials, and pre/co/post-seismic velocity fields can be counted as the main outputs of geodetic methods in tectonics and earthquake-induced deformation. Earthquakes occurred in the last twenty years in Turkey (October 1, 1995 Dinar; August 17, 1999 Izmit; November 12, 1999 Duzce; February 3, 2001 Cay and October 23 2011 Van) have been investigated by geodetic methods, and the results have contributed in many ways to other disciplines. The majority of crustal deformation studies are based on campaign mode GPS survey in the country. However, in the recent years, MAGNET in Marmara region (Marmara Continuous GPS Network) and TUSAGA in western Anatolia (Turkish National Permanent GPS Network) with the current TUSAGA-Active (Turkish National GPS RTK Network / a.k.a CORS-TR) covering the entire Turkey have been established to enhance GPS capability by providing high accuracy and integrity. In this presentation, geodetic infrastructure and geodetic studies for geodynamic research in Turkey is described and discussed.