



Monitoring of recent crustal movements in the Marmara region, Turkey, using GPS and gravity observations.

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The Marmara region is an active tectonic zone deforming along the branches of North Anatolian Fault Zone (NAFZ). Seismic risk in this region is also still high due to the past big earthquakes in the last century. The main goal of this study is to determine the elastogravitational long term deformations of the crust along the western branches of NAFZ between Izmit in the East and the Dardanelles in the West. For that we have established a network of GPS and gravity stations. The GPS-network consists of a subnet of the Marmara Continuous GPS Network (MAGNET) and two profiles perpendicular to the main branch of NAFZ. The eastern profile is perpendicular to the 17 August 1999 Izmit earthquake rupture zone. The western profile crosses the Saros fault zone near the Dardanelles. The gravity network consisting of 23 sites includes the profile stations and 4 MAGNET stations. GPS-observations were carried out since 2002. Gravity observations have started in fall 2003. The sampling rate for GPS- and gravity observations amounts 6 months. In the study we present the results of the particular GPS- and gravity observation campaigns. Combined analysis of deformation vectors and gravity changes in time were developed in order to estimate the present stress status along the western part of NAFZ