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Analysis of deflections of the vertical observed in the North Aegean Sea and geophysical interpretation

A. Somieski (1), B. Bürki (1) and H.-G. Kahle (1)

(1) Geodesy and Geodynamics Laboratory, ETH Zurich, 8093 Zurich, Switzerland (anna.somieski@geod.baug.ethz.ch)

Dedicated measurements for geoid determination were performed in the North Aegean Sea, Greece. Observations with the digital Zenith Camera DIADEM were conducted at 30 stations along the shoreline of the North Aegean Sea including nine islands. The distribution of Astro-stations was mainly motivated by the intention to cover the area around the North Aegean Trough (NAT). The NAT is an important geological feature of the test area and forms a continuation of the seismically active North Anatolian Fault Zone. The deflections of the vertical (xi, eta) observed reflect topographic and geological features in the station vicinity. By using mass and density models, the influence on the components xi and eta can be evaluated. The reduction of the observations for model based data yields residual deflections of the vertical, which indicate unmodelled mass anomalies. Recent Shuttle Radar Topography Mission data and information about the crust-mantle boundary (Moho) have been used for a calculation of reduced deflections of the vertical. A first interpretation of these data reveals an upwarp of the Moho discontinuity in the region of the NAT. A comprehensive analysis of the reduced data will be discussed with the aim to improve our knowledge about the structure of the crust-mantle boundary in the North Aegean Sea.