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Velocity profiles along continuous GPS stations in central and western Greece: Comparison with geological data

A. Ganas, K. Chousianitis, M. Papanikolaou, P. Argyrakis, G. Drakatos, and K. Makropoulos
National Observatory of Athens, Institute of Geodynamics, Athens, Greece (aganas@noa.gr)

We processed 30-s GPS data from permanent stations in central and western Greece, with 12 of them belonging to the NOANET network, the real-time, high-rate GNSS network of the National Observatory of Athens. The horizontal and vertical velocities in the ITRF2005 and the Eurasian-fixed reference frame were calculated using the Kalman filtering approach, accounting for time-correlated noise content. The station distribution allowed us to draw velocity profiles and calculate rates of baseline length change in western and central Greece. We measure shortening onshore Lefkada (Ionian Sea), as the baseline between stations located nearly 20 km apart, shortens at a rate of 2.8 mm/yr, imposing a strain of 1.4 $\times$ 10-7 per year (140 nstrain). In central Greece, we observe a velocity "plateau" at 30 mm/yr for stations located in Attica and on the south coast of the Gulf of Corinth. The coherent picture of velocity for Attica and north-eastern Peloponnese stations indicates that these areas belong to the same crustal block. Our estimates of crustal extension (0.6 – 4.6 mm/yr) along the transect Thessaly – Corinth are in general agreement with fault slip rates in central Greece.