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On the no-net-translation condition for regional networks.

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During the last decade several Greek and foreign institutions have established permanent GPS stations around the country, a number of which (5 in 01/2011) is part of the EPN (European Permanent Network). Since the beginning of last year, the Laboratory of Higher Geodesy and the Dionysos Satellite Observatory of the National Technical University of Athens, have started to solve for all available permanent GPS stations covering Greece in a common network. The standard procedure of processing the data is using BERNESE v5.0 GPS Software in automatic mode. The outcome of this effort is aimed at acquiring an as dense as possible tectonic velocity field throughout Greece.

The data is processed using the Differenced Observables approach, utilizing the final products made available through IGS and CODE. The alignment of the network to a global reference frame (namely IGS05) is achieved via either of the procedures:
(a) a no-net-translation condition is imposed using the fiducial stations involved, and
(b) a full 7-parameter Helmert transformation via the same set of fiducial stations.
Both procedures are implemented through a minimal constrained solution.

In this study, we present the results obtained from the above mentioned cases as well as a comparison of the two procedures.