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Geokinematical implications from reprocessing of network of permanent GPS stations in Central Europe (1996-2008)

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The network of 54 permanent GPS stations situated in Central Europe and the adjacent territories was reprocessed at the Slovak University of Technology. The reprocessing period covers the interval from 1996.0 to 2008.5 with continuously increasing number of stations starting with network of 10 sites in 1996. The satellite orbits and EOPs until 2004.6 were adopted from reprocessing of global IGS network performed by Steinberger et al., 2006, after 2004.6 the combined routine IGS products are applied. The whole 12.5-year interval is processed using the Bernese GPS software Version 5.0 with setting homogeneous parameters, like unique troposphere modeling, absolute antenna phase centers, ITRF2005 referencing, unique ambiguity resolution strategies, etc. The additional effects of stations receiver/antenna change displacements are estimated from raw coordinate time series. Resulting cleaned coordinate series are free from reference frame changes influences, model alterations, and other known disturbing phenomena, however some unexplained station behavior remained. The improvements of velocities are on level of several mm/year when compared to older non-homogeneous processing runs and slightly influence the geokinematical features of the Central Europe and Balkan region. We discuss the long-term stability of seasonal terms in coordinate variations and station zenith total delays as well as the consistency of our products with ITRF and APKIM velocities.