REALISATION OF THE TERRESTRIAL REFERENCE SYSTEM BY A GLOBAL GPS NETWORK AS A BASIS FOR GLOBAL GEODYNAMIC INVESTIGATIONS

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ABSTRACT.

For the investigation of global geodynamics a consistent and log-term stable realisation of the International Terrestrial Reference System (ITRS) is crucial. We present a GPS-only reference frame, based on the results of a homogeneous reprocessing of a global GPS network. The reference frame is realised in the center of mass system. This implies that a self-consistent model considering the reference frame and loading dynamics has been applied. The determined station coordinates and their linear rates are evaluated in terms of self-consistency and are compared to other realisations of the ITRS, such as ITRF2000, ITRF2005, IGb00 and IGS05. The results show the high potential of homogeneously reprocessed GPS observations for the realisation of the ITRS. Finally, we will use the determined station velocities to validate models of glacial isostatic adjustment.