DETERMINATION OF EARTH ORIENTATION PARAMETERS AND STATION COORDINATES FROM COMBINATION OF IERS CPP DATA (INTERNAL COMPARISONS)

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ABSTRACT. A method for non-regular combination of solutions for different techniques is applied to the data collected for the "IERS Combination Pilot Project" (CPP). The method is based on combining station position vectors transformed to the celestial reference frame, in which they are functions of both the station coordinates and the Earth orientation parameters. These position vectors are treated as fictitious observations.

The equation system is stabilised by a no-net rotation constraint. The EOP at the adjacent epochs are tied by adding pseudo-observations, a weighting of whose controls smoothness of the solution.

Results of the particular techniques enter the common adjustment as the input data. For VLBI the EOP were derived from session combined normal equations (as given in the CPP database) taking station coordinates over from the VTRF2005 IVS Conventional Reference Frame.

High quality of the GPS and VLBI data collected in the CPP database allowed to study effects of various modes of the method on the combination results. Especially, it was proved that the method is able to reflect the short periodic variations present in the data to both the station coordinates and the EOP when they are combined as a series of successive one monthly solutions, while the long-term effects became distinct when the data from the whole time interval is combined in one common adjustment.