Towards a rigorous combination of VLBI and GPS using the CONT02 campaign

Abstract:

The International VLBI Service for Geodesy and Astrometry (IVS) set up a 15-day campaign of continuous VLBI observations, named CONT02, that took place October 16–31, 2002. The goal of CONT02 was to acquire state of the art VLBI data over a continuous two-week period to demonstrate the highest accuracy of which VLBI is capable. Using the two weeks of CONT02 data from VLBI and the global GPS data for the same time span, daily unconstrained normal equations were generated taking much care to use identical models and the same parameterization of the common parameters for both space geodetic techniques. Based on these normal equations first steps towards a fully rigorous combination of all common parameters were performed by including station coordinates and Earth orientation parameters (EOP) into the solutions. In addition, the impact of the local tie information on the combined solutions was studied. To assess the quality of the individual and combined solutions, polar motion and UT1-UTC parameters were set up with a two-hour time resolution and the results were compared with sub-daily models for ocean tide variations derived from altimetry and other space geodetic techniques.

Stichworte:

CONT02; Sub-daily EOPs; Local ties; Troposphere