



Sub-daily VLBI antenna position estimates derived from the CONT11 campaign

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The International Very Long Baseline Interferometry (VLBI) Service for Geodesy and Astrometry (IVS) observed the continuous CONT11 campaign from 15 to 30 September 2011. The goal of this campaign was to assess the current capabilities of the VLBI technique, e.g. the accuracy of geodetic parameters. In this study, we investigate the possibility of estimating sub-daily antenna TRF (terrestrial reference frame) positions from the VLBI observations. First, we divided the 15 24-hour sessions of CONT11 into two hour (2h) and six hour (6h) observation files and analyzed them with the software VieVS (Vienna VLBI Software). We optimized the parameterization according to the 2h and 6h sessions, e.g. by excluding antennas from the sessions of which number of observations is not enough for performing a regular solution and by fixing celestial pole offsets. The a priori TRF coordinates and daily Earth Orientation Parameters (EOP) were obtained from a global solution for CONT11. Then, we estimated one offset per antenna per 2h and 6h session, applying no-net-translation and no-net-rotation conditions with respect to the TRF derived from our global solution. A noteworthy result from our study is that the sky distribution of the observations per antenna per sub-daily session should be homogeneous to derive reliable antenna positions, because homogenous sky coverage allows for a good separation of the coordinates and the tropospheric delays in the data analysis. Another result from our study is that the spectra of the position time series of certain antennas include significant amplitudes at sub-daily tidal frequencies which are discussed.