



Vienna VLBI Simulations Software (VV-Sim)

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Geodetic VLBI is one of the major space geodetic techniques that contributes to the realization of the International Terrestrial Reference Frame (ITRF). Error contributions due to atmospheric propagation effects, loading phenomena, thermal effects and technical reasons at the radio telescopes have been minimized during the last years. Today the accuracy of geodetic VLBI results is on sub-cm level. In recent years there has been a lot of discussion how VLBI could exploit its present resources more efficiently and how future VLBI networks should look like. In October 2003 the International VLBI Service for Geodesy and Astrometry (IVS) installed Working Group 3 (WG3) 'VLBI 2010' to examine current and future requirements for geodetic VLBI systems. The sub-group on "observing strategies" of WG3 requested that thorough and systematic simulation studies should be carried out. At the IGG, Vienna different simulations will be done to propose new observing strategies and schedules, to improve troposphere and clock modeling, to find the best antenna configuration and to optimize the network geometry. The simulation studies will be realized by a sequence of three software programs. After scheduling the observations with SKED (Vandenberg, 1999), the artificial observations are transformed to NGS format. These files are the input for the VLBI analysis software package OCCAM (Titov et al., 2001), which will be adapted for the simulations. The covariance and correlation matrices from OCCAM will be available in SINEX format and will be the input for a Matlab program called VV-SIM (Vienna VLBI Simulation Software), which allows the interpretation of the results with distinct numbers and figures to deliver objective criteria for comparison.