

## **VLBI2010 (FWF P18404)**

Geodetic Very Long Baseline Interferometry (VLBI) is the unique technique to determine the earth angular velocity, the parameters of nutation and precession and the Celestial Reference Frame (CRF) realized by the positions of extragalactic radio sources. Due to increasing demands on accuracy, reliability, and time resolution of geodetic parameters, the International VLBI Service for Geodesy and Astrometry (IVS) is forced to reconsider the design of their networks and observing strategies. Thus in October 2003 the IVS established Working Group 3 (WG3) „VLBI2010“. As a result of the final report of WG3 (Niell et al., 2005) the VLBI2010 committee (V2C) was established as a permanent institution of the IVS to push the investigations on hardware, software and observing strategies for the next generation VLBI system. The most important strategies proposed by WG3 are to significantly increase the observation density (i.e. the number of observations per 24 hours), densify the station network (especially on the southern hemisphere) and to reduce stochastic errors. This should significantly improve accuracy and will provide a position accuracy at sub-mm level. The high demands on accuracy of space geodetic techniques, such as VLBI or Global Navigation Satellite Systems (GNSS), come from the decision to establish a Global Geodetic Observing System (GGOS) in order to understand the interactions between the various components of System Earth more thoroughly. When reaching the goal of sub-mm accuracy, VLBI will play a key role within GGOS and will make it possible to observe such subtle effects as non-linear station motions or sea-level rise.

The FWF project ‘Optimum design of geodetic VLBI networks and observing strategies’ at the Institute of Geodesy and Geophysics of the University of Technology, Vienna, is contributing to the realization of the new generation of VLBI with the simulations of the VLBI2010 system and ensures that the goals of GGOS will be reached. Austria’s contribution to the V2C will strengthen the participation to IVS significantly and will importantly contribute to the new generation VLBI systems and GGOS.