



Common Adjustment of TRF, EOP and CRF for a Consistent Realization of Reference Systems

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The International Celestial Reference System is realized today solely by VLBI which is the only space geodetic technique which allows the observation of the inertial space. In contrast, the International Terrestrial Reference System is currently realized through the combination of four space geodetic techniques: GNSS, VLBI, SLR and DORIS. To connect two systems, Earth orientation parameters (EOP) are estimated simultaneously with Terrestrial Reference Frame (TRF) fixing Celestial Reference Frame (CRF) at DGFI-TUM. This way of estimation/combination intrinsically contains inconsistency between TRF, EOP and CRF because the data and geometry of the contributing networks are different. To overcome this inconsistency, a combined normal equation system where all parameters (TRF, EOP and CRF) are included would ensure a common network.

In this presentation, we simultaneously estimate TRF, EOP and CRF using most recent data (2005-2015) of GNSS, VLBI and SLR. We show the latest results of the consistent realization and discuss the pros and cons of the simultaneous estimation.