Geophysical Research Abstracts
Vol. 21, EGU2019-7410, 2019
EGU General Assembly 2019

On the consistent realization of CRF, TRF, and EOP

Robert Heinkelmann (1), Susanne Lunz (1), Tobias Nilsson (2), Harald Schuh (1,3)

(1) GFZ Potsdam, Geodesy, Potsdam, Germany (heinkelmann@gfz-potsdam.de), (2) Lantmäteriet, Gävle, Sweden, (3) Technische Universität Berlin, Berlin, Germany

We assess the consistency of the current conventional geodetic and astronomical reference frames - ICRF3, ITRF2014, and the associated IERS 14 C04 EOP (Earth Orientation Parameters) series - by various VLBI analyses. For this we are making use of data collected and archived by the IVS. (i) We determine a CRF and a TRF simultaneously by using our GFZ VLBI software. These VLBI-only consistent frames are then compared with the conventional frames. (ii) We determine time series of EOP consistent with the various combinations of frames, i.e. GFZTRF + GFZCRF, GFZTRF + ICRF3, ITRF2014 + GFZCRF, and ITRF2014 + ICRF3.The resulting EOP time series are then compared among each other and against the reference series (IERS EOP 14 C04). From the solutions mentioned above we compute meaningful statistics useful to characterize the level of (in)consistency of these important products from the VLBI point of view. We conclude our presentation with remarks about practical possibilities on how to achieve more consistent geometric products.