

Contribution of VLBI to Earth Orientation Monitoring: State-of-the-Art and Future Prospects

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Abstract

The Earth Orientation Center of the IERS is making use of the different astro-geodetic techniques, SLR, GPS and VLBI to derive optimal combined time series of Earth Orientation Parameters (EOP). VLBI as the only inertial astro-geodetic technique is essential for UT1 and nutation offsets variabilities determination in addition to pole coordinates. In the presentation we discuss the weaknesses and the strengths of VLBI contributions for EOP time series combinations, and present the evolution and the state-of-the-art of the contribution in the IERS analyses with respect to the other techniques. A fundamental issue is the consistency of long-term EOP with respect to both terrestrial and celestial reference frames, ITRF and ICRF. We present the various methods currently applied at the IERS to check and monitor it. Future prospects are finally presented. They concern rigorous methods based on a simultaneous estimation of the terrestrial frame and EOP and which are now being implemented within the IERS.