



LOD estimation from DORIS observations

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The difference between astronomically determined duration of the day and 86400 seconds is called length of day (LOD). The LOD could be also understood as the daily rate of the difference between the Universal Time UT1, based on the Earth rotation, and the International Atomic Time TAI. The LOD is estimated using various Satellite Geodesy techniques as GNSS and SLR, while absolute UT1-TAI difference is precisely determined by VLBI. Contrary to other IERS techniques, the LOD estimation using DORIS (Doppler Orbitography and Radiopositioning Integrated by satellite) measurement did not achieve a geodetic accuracy in the past, reaching the precision at the level of several ms per day. However, recent experiments performed by IDS (International DORIS Service) analysis centre at Geodetic Observatory Pecny show a possibility to reach accuracy around 0.1 ms per day, when not adjusting the cross-track harmonics in the Satellite orbit model. The paper presents the long term LOD series determined from the DORIS solutions. The series are compared with C04 as the reference. Results are discussed in the context of accuracy achieved with GNSS and SLR. Besides the multi-satellite DORIS solutions, also the LOD series from the individual DORIS satellite solutions are analysed.