

DETERMINATION OF THE EARTH POLAR MOTION BY DORIS TECHNIQUE

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ABSTRACT

DORIS was included in the IERS as the fifth geodetic technique in 1995 in addition to Laser tracking to the Moon and to artificial satellites (LLR and SLR), Radio-interferometry to extra-galactic sources (VLBI) and GPS. Although the Earth orientation monitoring is not its primary objective, DORIS technique brings information on polar motion which can be useful for near-real time estimations as well as an external check for orbital analysis.

The IDS Central Bureau initiated in November 2001 an analysis campaign initially focused on terrestrial frames realizations derived from Spot2, Spot4 and Topex/Poseidon satellites. This campaign was extended in March 2002 to the estimation of polar motion components. Several analysis centers provided EOP time series. We have analysed these series with respect to the combined IERS C04 solutions. Systematic errors and rms with respect to the IERS C04 are presented. The accuracy of DORIS solutions is in the range of 1-1.5 mas corresponding to 3-5 cm on the Earth surface. A preliminary combined DORIS solution taking into account the available individual solutions was made and compared to other solutions. We assumed a better accuracy be reached when the contributions of ENVISAT, JASON and SPOT5 spacecrafts observations will be available.