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A model of present-day plate motions from the DORIS system

L. Soudarin (1), J.F. Crétaux (2)

(1) CLS, Ramonville-St-Agne, France, (2) CNES/LEGOS, Toulouse, France
(laurent.soudarin@cls.fr / Phone: +33 5 61 39 48 49)

In the frame of the International DORIS Service (IDS), the LEGOS/CLS Analysis Center (also named LCA) processes the DORIS measurements from the Spots, Topex and Envisat satellites and provides weekly SINEX files of stations coordinates to the IDS and the IERS for the realization of the Terrestrial Reference Frame. In this paper we present the horizontal and vertical motions of 60 sites derived from 12 years of data from 5 DORIS receivers. 3-D positions and velocities of the stations with stable motions are estimated simultaneously from the 12-year combined matrix. From this solution, we propose a model (LCAVEL-1) for the motion of 9 major tectonic plates. Poles of rotation and angular velocities are compared to the recent global models: PB2002, APKIM2000, REVEL, GSRM-1. We present the horizontal motions for the sites in stable plate interiors and for the sites located close to plate boundaries or in deformation zones according to the model of plate boundaries PB2002. The DORIS coverage of Africa allows discussing the relative motion of the pair Nubia-Somalia.