

Designing a DORIS processing software for orbit determination and estimation of geodetic parameters

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Abstract. Dionysos Satellite Observatory (DSO) of the National Technical University of Athens, has long been involved in the DORIS community, hosting a system beacon since 1989 in its infrastructure, located at mountain Penteli, in Attika, Greece. Starting a year ago, the laboratory decided to take its involvement and contribution one step further, via the in-house design and development of a brand new DORIS processing software suite. Apart from precise orbit determination, the DORIS technique allows for accurate positioning as well as estimation of geodetic, earth orientation parameters. It is one of the four fundamental satellite techniques, contributing to the realization of the ITRF. The latest contribution of International DORIS Service (for ITRF2020), covered a data span starting in early 1993. In this study, we present first results from designing and implementing a state-of-the-art DORIS data processing software. We focus on methodology issues and estimation techniques relevant to parameters of geodetic interest, that have a strong effect on the realization of global reference frames.