

Analysis of the ITRF2014 tie vector discrepancies at the DORIS sites

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In the perspective of the forthcoming realization of the DORIS contribution to the ITRF2020, the IDS (International DORIS Service) Combination Center (CC) reviews the discrepancies between the estimated and physical tie vectors at the DORIS sites.

From the ITRF2014 DORIS-to-DORIS tie discrepancies, we first discretize the tie differences with respect to its amplitudes with respect to the station position a-posteriori errors. Then, for the highest values of these two indicators, we look at different parameters (distance between the stations, time interval between the two stations, effect of the South Atlantic Anomaly - SAA, change in the site velocity, amplitude of the annual signals...) which may explain the discrepancies. When possible, we also look at the time evolution of the tie discrepancies between the ITRF2008 and ITRF2014 realizations as well as to the DORIS-to-GNSS tie differences. Finally, based on the latest DORIS cumulative position and velocity solution from 1993.0 to 2019.0, we forecast the ITRF2020 DORIS-to-DORIS tie discrepancies and the effect of longer time series and of the latest technical evolutions (e.g. new type of antenna, SAA corrections) on it.