Contributions of GNSS observations to UT1 in the ultra-rapid and subdiurnal bands

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Abstract

Among the five Earth Orientation Parameters, UT1 has always been determined by VLBI observations.
We present hourly UT1 time series generated with GINS/DYNAMO software. Observations of GPS and Galileo constellations from 2017 to 2022 are analyzed jointly, and a-priori UT1 is fixed to C04 value one point per day at midnight. We evaluate the performance of the obtained UT1 series against the reconstructed UT1 values from atmospheric and oceanic angular momentum series. It appears that our series better matches the hydro-atmospheric reconstruction than VLBI or EOP combined daily solutions in the ultra-rapid band (from 0.2 to 0.5 cpd).

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