



Correlations between sub-daily ERP and GNSS orbit modeling

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The Center for Orbit Determination in Europe (CODE) is one of the Analysis Centers of the International GNSS Service (IGS). For computing the GNSS satellite orbits we estimate in addition to the initial conditions also (once-per-revolution) radiation pressure parameters and stochastic pulses to compensate for unmodeled effects on the satellite trajectory. Together with these orbit parameters for all GNSS satellites we solve for Earth orientation parameters.

The density of the GNSS observation network of the IGS and the high sampling rate makes GNSS measurements well suited for observing the sub-daily variation in the rotation of the Earth. It has to be kept in mind, however, that GNSS orbit parameters are correlated with the Earth orientation parameters.

In our analysis we will study such correlations and look for the limitations due to the orbit representation of the GNSS satellites and the resolution in time for the Earth orientation parameter.