



An updated set of nutations derived from the reanalysis of 3.5 decades VLBI observations

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The global VLBI observation started in the 1979. After that the qualities of the measurements are continuously improving by taking into account various instrumental and environmental effects. The MHB2000 models was introduced in 2002 (Mathews, et.al. 2002, [1]) and it has a good agreement ($5 \mu\text{as}$) on the short period nutation series (<400 days) with the values derived from 2 decades (1979-2000) VLBI data while a higher uncertainties up to $56 \mu\text{as}$ for those longer periods (>400 days) nutation series (Herring et.al. 2002). In MHB2000, the forcing frequencies of the nutation series are solved by least-squares fitting to the VLBI data in frequency domain. Koot et al. (2008), have processed another similar set of nutation series by inverting the time series of VLBI data (1984-2005) using a Bayesian approach. In the present work, we will repeat both approaches using the up-to-date 3.5 decades VLBI observations (1980-2014) meanwhile paying more attention on the results of longer period (>400 days). Finally some features of Earth's interior structure will be discussed based on the determined nutation series.

- [1] Mathews, P.M., Herring, T.A. & Buffett, B.A., 2002. Modeling of nutation and precession: new nutation series for nonrigid Earth and insights into the Earth's interior, *J. Geophys. Res.*, 107, 2068, doi: 10.1029/2001JB000390.
- [2] Herring, T. A., P. M. Mathews, and B. A. Buffett, Modeling of nutation and precession: Very long baseline interferometry results, *J. Geophys. Res.*, 107, B4, 2069, doi: 10.1029/2001JB000165, 2002
- [3] Koot, L., Rivoldini, A., de Viron, O. & Dehant, V., 2008. Estimation of Earth interior parameters from a Bayesian inversion of very long baseline interferometry nutation time series, *J. Geophys. Res.*, 113, 8414, doi: 10.1029/2007JB005409.