



## **Earth's nutation: recent advances in improving the accuracy of their measurement by VLBI**

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Accurate measurements of Earth nutation by VLBI opens the door to internal geophysics and insights into the deformability of and the coupling mechanisms at the core-mantle and core-inner core boundaries. Several analysis centers propose nutation series obtained through a similar datasets but with small variations in the analysis configuration. In addition, geophysical studies need a precise fitting of the nutation amplitudes at tidal frequencies and a thorough examination of the free nutation associated with the free rotational mode of the liquid core (FCN). We address here several recent studies led at Paris Observatory concerning: (i) the obtention of an improved nutation series taking benefit of a rigorous combination of GNSS and VLBI with the French DYNAMO software, (ii) the gain of accuracy obtained with a global adjustment of nutation amplitudes directly on VLBI time delays after introducing the relevant partials into the Calc/Solve VLBI software, (iii) the possible improvement of the precession induced by a direct correction of the Galactic aberration in the VLBI analysis and of the nutation by a more accurate celestial reference frame, and (iv) the step forward the determination of geophysical parameters.