Geophysical Research Abstracts, Vol. 7, 01636, 2005
SRef-ID: 1607-7962/gra/EGU05-A-01636
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# Atmospheric tides and the Free Core Nutation of the Earth

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The Free Core Nutation (FCN) is one of a normal mode of the Earth. It is observed as retrograde oscillation with period of 430 days and variable amplitude. In this study, the theory of the atmospheric tides is used to predict amplitude of the $\psi_1$ tide and estimate the atmospheric contribution to the FCN term. In our approach the $\psi_1$ atmospheric tide is result of semi-annual modulation of the thermal tide $S_1$, amplitude of which depends on global water vapour distribution and can be found as solution of the Laplas tidal equation. The residuals between the observed nutation using VLBI and the different nutation models, including MHB2000, are compared with the atmospheric contribution to the FCN term and analyzed.