



Effect of the potential due to lunisolar deformations on the Earth precession

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Currently used IAU 2000 and 2006 models of nutation and precession show the high level of accuracy got in the modelling of the Earth rotation after the intense research effort aimed at improving our understanding and predictability of such motion. Most of the theoretical results concern nutations, where several different approaches were developed accounting for many various effects arising from the non-rigidity of our planet. The investigations addressing the precession of a non-rigid earth have been rather sparse, maybe since the corresponding effects are known to be much smaller and they are usually neglected and their study is replaced by using empiric models. The deformations of the Earth due to the lunisolar attraction give rise to an additional tidal potential usually described in terms of Love numbers. In this work we consider a two-layer model and use the Hamiltonian method stated by Getino and Ferrándiz to derive a complete analytical solution for the effects of that tidal additional potential on the precession. The numerical results show that those effects are non negligible and amount to some ppm of the total precession constant