



Earth Rotation: Theoretical aspects, observation of temporal variations and physical interpretation

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In this invited talk we will concentrate on nutation period time-scale and on the Earth orientation changes and vaguely cover rest. We will revise the determination of the interior Earth parameters as determined from VLBI data and their interpretation in terms of physics of the Earth deep interior (in collaboration with Zhu Ping, Laurence Koot and Attilio Rivoldini). These parameters and in particular values determined at the core-mantle boundary (CMB) and at the inner core boundary (ICB) can be interpreted in terms of coupling mechanisms at the CMB and ICB. We will describe the electromagnetic, topographic, gravitational and viscous coupling and detail the recent advances in these computations. In particular the topographic coupling will be evaluated in collaboration with Jérémy Requier, Marta Folgueira, Antony Trinh. The existence of inertial waves inside the fluid core has been examined in that frame. These inertial waves consequences on the fluid behaviour, which will be illuminated as well with the help of numerical simulations (collaboration with Raphael Laguerre, Santiago Andres Triana, Antony Trinh). Numerical simulations will be presented in detail at EGU in session GD4.1/PS9.10 but the most important consequences will be revised here. VLBI analysis results in this session.