



Determination of the Earth fluid core flattening from resonance effects in nutation as observed by VLBI

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Nutation has been now observed by VLBI for more than 25 years with ever increasing accuracy. Both amplitudes and phases of individual nutation terms are sensitive to parameters characterizing the internal structure of the Earth. Among these, the flattening of the outer fluid core is dominant since it gives rise to large resonance effects. All nutation terms are affected, but the most sensitive terms are those with periods close to the period of the retrograde Free Core Nutation (FCN) which, in turn, heavily depends on the dynamical flattening of the core. This period is about 430 days, so the most affected is the annual retrograde term. The amplitudes and phases of the most affected nutation terms observed by VLBI, with atmospheric and oceanic excitations removed, can thus serve to determine the flattening, and also the quality factor Q of the Earth at the FCN frequency.