Astrophysics > Earth and Planetary Astrophysics

Large Variations of the coefficient J_2 of geopotential, and the dynamical Love number k_2^d from the analysis of laser ranging to LAGEOS~1 and LAGEOS~2

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Secular and seasonal variations of the coefficient J_2 of the geopotential are studied from the analysis of laser measurements of distances to the geodetic satellites LAGEOS~1 (1988--2003) and LAGEOS~2 (1992--2003). It is confirmed that beside the well-known annual variations with the amplitude $\approx 2.5 \times 10^{-10}$ there also exist very significant semi-annual variations of a comparable amplitude. Phases of these two modes are such that the total effect may be described as a sharp postive splash of J_2 in August and considerably smaller variations in the rest part of year.

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