



Geophysical excitations of free core nutation, and the stability of its period and quality factor

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Recently we found, from the analysis of VLBI observations (using resonant effects in several forced nutation terms), small quasi-periodic fluctuations of the period of retrograde Free Core Nutation (FCN), ranging from 429.8 to 430.8 days. In our preceding studies we also demonstrated that the atmospheric and oceanic excitations are capable of exciting FCN; both amplitude and phase of the geophysically excited pole are consistent with the values observed by VLBI, in the interval of tens of years. Therefore, the geophysical excitations are now numerically integrated, using Brzezinsky's broadband Liouville equations, and removed from the observed celestial pole offsets. The remaining part is then used to derive the period and quality factor of FCN in running intervals, and to study the temporal stability of these important Earth parameters.