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Investigation of the atmospheric and oceanic excitation of the free core nutation.

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The free core nutation (FCN) is one of rotational eigenmodes of the Earth. Investigation of the FCN signal and its excitation is important scientific task, because its properties could constrain different geophysical parameters related to the internal constitution and rheological properties of the Earth as well as to models of the global circulation of its outer fluid layers. First, we extract the FCN component from various available solutions of the celestial pole offset determined from VLBI data analysis and make comparison. Of particular interest is how the derived parameters of the FCN mode depend on the individual solution and how they agree with the indirect estimates used in the MHB2000 transfer function. Then we use the available time series of the effective atmospheric and non-tidal oceanic angular momentum functions with subdiurnal resolution, to estimate their power contents at the FCN frequency. This excitation power is compared to the observed, that is derived from the VLBI data, power. Finally we attempt to make a time domain comparison between the observed FCN signal and the modeled atmospheric/oceanic excitation. The results of the comparisons are discussed.