



Short-term (decadal) and long-term (over geological history) correspondence of length of day and geomagnetic field

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The interrelation between the length of day (LOD) and the geomagnetic field in decadal time-scale is explained commonly with circulation in the liquid outer core which leads to the temporal variations of the core angular momentum. In case of long-term variations, over the lifetime of the Earth this link was not studied yet first of all due to lack of data of length of day variations (Δ LOD).

1. First authors are going to describe the connection of Δ LOD with centered and eccentric geomagnetic dipole fields with the use of Gaussian coefficients derived from global geomagnetic observations and length of day time-series published by IERS for the epoch 1900-2000. The statistical comparison of earth magnetic and astronomical data shows close correlation of geomagnetic dipole momentum and Δ LOD. It should be mentioned that the correlation is closer when the centred geomagnetic dipole is used for statistical modelling. In the same time no relation was found between Δ LOD and the orientation of the geomagnetic dipole.
2. In case of long-term variations the possible correlation of the geomagnetic field and the Earth spin can not be explained with convectional processes of the liquid core expressed by core angular momentum. For the study of this problem a critically selected data set the strength of the Earth's magnetic field was completed and compared with the despinning data derived from paleontological and

paleosedimentological information. It was found that the intensity of the geomagnetic field had a minimum during (100-250) Ma BP. For this epoch an anomaly of the angular speed was observed, what coincides with the relative minimum in rates of lithospheric plate motion.