

GEOMAGNETIC JERKS – WHERE DO WE STAND?

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During the recent years large efforts have been made to understand the dynamics of our deep Planet, mainly at short time-scales. In order to describe these short-time variations, various datasets are used, from old magnetic measurements to recent high-quality data provided by magnetic observatories (worldwide distributed) and magnetic satellite missions (MAGSAT, SAC-C, Ørsted, and CHAMP, the last still flying). The rapid changes in the core secular variation, known as geomagnetic jerks, are not yet completely understood, but may reflect the contribution of hydromagnetic motions in the outer core over small scales. Moreover, these phenomena are difficult to study, because of their small amplitudes and the overlap of their frequency range with the effect of solar-dependent external variations. Here, I review our current state of knowledge on geomagnetic jerks, discuss the challenges to maximizing the utility of combining ground and satellite data, indicate the improvements obtained in these events detection and characterisation, and finally detail on their possible origins.

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