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Core signals in magnetic and gravity satellite data

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The Decade of Geopotential Field Research has made it possible to obtain high-resolution, high-accuracy gravity and magnetic satellite data, from GRACE, Orsted, and CHAMP satellite missions. These new data have been used to better describe, on one hand the gravity field, and on the other hand the core magnetic field, its secular variation and acceleration. We have built adequate geomagnetic models which have allowed us to get large improvements on the flow models at the top of the core. Also, dedicated gravity models have been built, which are also able to better explain and remove the large variations due to surface processes. Considering all these improvements in geopotential field description, we have investigated if the recently observed rapidly changes in the core flow may be distinguished in the gravity variations. The first results of our work to detect signals from the core in gravity field models, covering the period over which gravity and magnetic data are available, are presented.