The Decade of Geopotential Field Research has made it possible to obtain high-resolution, high-accuracy magnetic and gravity satellite data. Satellite missions, as Oersted, SAC-C, CHAMP and GRACE, and GOCE launched at different times since 1999, have brought a huge amount of new data. Mainly, satellite data provided by Oersted, CHAMP and GRACE have been used to better describe, on one hand the core magnetic field, its secular variation and acceleration, and on the other hand the gravity field, over a decade time-span. The new geomagnetic models have allowed us to get large improvements on the flow models at the top of the core. The gravity models are also able to better explain and remove the large variations due to surface processes. The improved main field and its secular variation models give insights into the fast changes in the core flow. A question arises linked to investigation of the possibility to detect these rapid variations in the gravity variations. The first results of our work to detect signals of the core motion in the gravity field models are presented. Implications of these results in future geopotential field missions are also discussed.