PREDICTING CRUSTAL SECULAR VARIATION

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Changes in the field of internal origin are usually attributed to changes in the core field itself, the secular variation. It however is now well established that a significant fraction of the lithospheric magnetization is due to the magnetic susceptibility of rocks. Secular variation of the core field is thus bound to also lead to changes in the lithospheric magnetization, and to changes in the secondary field produced by the lithosphere, leading to what one may then define as « crustal secular variation ». Here, we will report on our recent investigations of this crustal secular variation, using a forward approach based on a recent geological model of lithospheric magnetization. This approach makes it possible to predict the likely contribution of the crustal secular variation to the observed changes in the field of internal origin. We will discuss the implications of this contribution both in terms of crustal concealing of the core secular variation, and in terms of regional secular variation, which could possibly be detected with the help of past and future ground and satellite data.

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