

Inverting satellite magnetic field data for the Earth's magnetization

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Satellite magnetic field data are traditionally used as input into various inversion schemes in order to obtain models of the lithospheric magnetic field. The use of vector Spherical Harmonics allows us, however, to relate the Gauss coefficients of the lithospheric magnetic field to the Gauss coefficients of the part of the magnetization that contributes to this magnetic field. We make use of this formalism and invert magnetic field data directly for this visible part of the magnetization. Such an inversion offers the flexibility of applying appropriate constraints that depend on the characteristics of the magnetization distribution and not on the characteristics of the magnetic field. Here we present some preliminary results of the inversion of Swarm and CHAMP magnetic field data for a global magnetization model which accounts for the difference in thickness between the oceanic and the continental crust.