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Software for strain estimation from magnetic susceptibility

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At EGU 2004 we presented a method and its computer implementation for the inversion of magnetic susceptibility to strain. The method was based on theoretical results of March (1932), Jeffery(1922), Willis (1977), Sanderson and Meneilly (1981) and Jezek & Hrouda (2002). Input data were the bulk susceptibility tensor or its equivalent (magnetic parameters P and T) and some assumptions about the carriers of magnetism, especially the magnetic susceptibility of grains, their shape, initial orientation, and rotational response to deformation (line-plane or viscous model). The estimation of strain from bulk susceptibility was based on pre-computed S-O tables and graphs relating irrotational strain and orientation tensor. Recent progress is that we prepared a user-friendly software that automatically inverts the bulk susceptibility to strain. Our approach was extended by a possibility to define initial pre-deformational fabrics. In the contribution we also describe some technical details concerning the simulation of isotropic distribution that influences estimation errors.