Geophysical Research Abstracts,
Vol. 10, EGU2008-A-07628, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-07628
EGU General Assembly 2008

Mapping the secular variation. Significance of various trends in data

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Data from the European network of geomagnetic observatories in the time interval 1970 -2004, have been processed to obtain a complex and detailed model of the lateral and temporal evolution of the main geomagnetic field and its secular variation. The interpretation of data corresponding to long-term trends in the observed time-series, after removing the solar cycle contribution, is discussed in terms of secular variation and acceleration of the field, revealing regional peculiarities of the lateral distribution of these parameters. A model based on DGRF/IGRF data for an extended time interval (1900-2004) is presented as well. The secular variation one determines from data is in fact the result of the modulation of the main field secular variation by the differential magnetic induction in the crustal rocks and by the differential electromagnetic induction in the mantle and crust.