



Data from the Romanian repeat station network in the time interval 1980-2004

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Geomagnetic data obtained by QHM and proton magnetometer measurements taken in the time interval 1980-2004 in the 26 stations of the Romanian repeat station network 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 from which the sunspot solar cycle contribution is removed, in terms of the secular variation and acceleration of the main field, rendered evident regional peculiarities of the lateral distribution of these parameters. From the perspective of long series of European observatory data (50-150 years) the analyzed main field should have components with periods of ~80 years (amplitude of 7-800 nT in Z and 5-600 nT in H, peak to valley) and 22 years (amplitude of 20-40 nT) superimposed on a so called steady field. All variations discussed contain the response of the Earth to their source variations, by magnetic induction in the crustal rocks and by electromagnetic induction in the conductive mantle and crustal structures. The secular variation one determines from data is in fact the result of the modulation of the main field secular variation (whether we include the 80- and 22-year variations in it or not) by the differential magnetic induction in the crustal rocks and by the differential electromagnetic induction in the mantle and crust. For magnetic mapping purposes, maps of the field components for certain geomagnetic epochs and isopore maps for characteristic time intervals are presented.