



Global magnetic field modelling with archeomagnetic and historical data

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Global geomagnetic field models on different time scales are useful tools to study the field evolution and gain insights into underlying processes in the Earth's outer core. However, historical full vector field data are only available from 1840 on, and millennial scale field models based on archeo- and paleomagnetic data have, in general, rather low temporal and spatial resolution.

This study complements the high resolution data of historical sources with archeomagnetic data in order to expand the time range back to 1000 AD and add total magnetic field informations in the times from 1590 AD to 1840 AD. This makes it possible to constrain the axial dipole moment with actual observations unlike the `gufm1` model, which does so through linear extrapolation (Jackson et al. 2000). The resulting model is compared against new paleomagnetic data from the island Fogo of Cap Verde. The age of the sampled volcanic flows spans between 1600 AD and 1900 AD.

The final objective of this study is to use this model to uncover details of the decaying behaviour of the dipole moment and the development of the South Atlantic Anomaly.