

THE AXIAL DIPOLE AND FLOW AT THE CORE SURFACE

KATHRYN WHALER, Christian Lynch

School of GeoSciences, University of Edinburgh, West Mains Road, Edinburgh EH9 3JW, UK

Prior to 1840 and Gauss' method of measuring absolute intensity, the magnitude of the geomagnetic dipole was unknown. Various plausible assumptions as to the strength of the field before 1840 have been made, some of which are based on archaeomagnetic data. We have used and modified the gufm model of Jackson *et al.* (2000) to investigate the effect of changing the dipole field strength on the deduced core-mantle boundary (CMB) flow. We investigate steady flows in the 17th century, when the differences between the various dipole strength assumptions are greatest. The CMB flow was found to be relatively insensitive to the changes that were made to the gufm model. Steady flows in the mid to late 1600's resemble patterns observed at the present, but the flow around 1600 differs considerably in some regions of the CMB.

core-mantle boundary flows, axial dipole strength, historical field models

Kathy Whaler, School of GeoSciences, University of Edinburgh, West Mains Road, Edinburgh EH9 3JW, UK, tel. +44-131-650-4904, FAX +44-131-668-3184, e-mail kathy.whaler@ed.ac.uk