Geophysical Research Abstracts, Vol. 7, 04653, 2005
SRef-ID: 1607-7962/gra/EGU05-A-04653

Relative palaeointensity studies in Sweden: separating true records of geomagnetic field intensity from those afflicted by environmental bias

I. Snowball (1), **T. Stanton** (1), P. Sandgren (1), L. Zillén (1)

(1) Quaternary Sciences, GeoBiosphere Science Centre, Lund University, Sweden.

(ian.snowball@geol.lu.se / Fax: +46 46 222 4830 / Phone: +46 46 222 3952)

Relative palaeointensity (RPI) studies have been carried out on seven Holocene lake sediment sequences in Sweden. Of these seven sites, six are varved and one is partially varved. The RPI of three of these sequences was determined by the pseudo-Thellier technique (Tauxe et al. 1995) while the RPI of the four remaining sites was obtained using more conventional single step normalization to anhysteretic remanent magnetization. The site with the highest sediment accumulation rate produces pT-RPI estimates that correlate with bulk magnetic properties (magnetic susceptibility, SIRM) and the data set suffers from environmental bias. The other sites conform to criteria for palaeointensity studies and a comparison between the results indicates that several time-dependent features are reproduced in the different records. These features include (i) an early Holocene peak in field intensity between 9000 and 8000 cal BP, (ii) a Holocene minimum at c. 7000 cal BP and (iii) a rapid rise in geomagnetic field intensity over a 100 year interval to a Holocene maximum that occurred between c. 3000 and 2200 cal BP. The decrease from 2200 cal BP to today's value was not smooth, but was probably punctuated by short term increases. All records indicate that the most distinct kink in vector direction had maximum curvature at 2800 cal BP. This feature, however, is not characterized by a minimum in field intensity as has been suggested by Dergachev et al. (2004). Thus, our high-resolution palaeomagnetic data do not support theories of a causal relationship between geomagnetic field variability and climate change at 2800 cal BP.