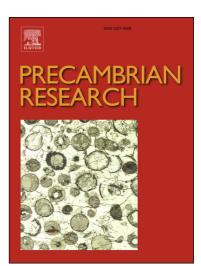
## Accepted Manuscript

Mesoproterozoic geomagnetic reversal asymmetry in light of new paleomagnetic and geochronological data for the Häme dyke swarm, Finland: Implications for the Nuna supercontinent

J. Salminen, R. Klein, T. Veikkolainen, S. Mertanen, I. Mänttäri

PII:	S0301-9268(16)30230-3
DOI:	http://dx.doi.org/10.1016/j.precamres.2016.11.003
Reference:	PRECAM 4610
To appear in:	Precambrian Research
Received Date:	28 June 2016
Revised Date:	24 October 2016
Accepted Date:	1 November 2016



Please cite this article as: J. Salminen, R. Klein, T. Veikkolainen, S. Mertanen, I. Mänttäri, Mesoproterozoic geomagnetic reversal asymmetry in light of new paleomagnetic and geochronological data for the Häme dyke swarm, Finland: Implications for the Nuna supercontinent, *Precambrian Research* (2016), doi: http://dx.doi.org/10.1016/j.precamres.2016.11.003

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## CCEPTED MANUSCRIPT

Mesoproterozoic geomagnetic reversal asymmetry in light of new paleomagnetic and geochronological data for the Häme dyke swarm, Finland: Implications for the Nuna supercontinent

Salminen, J.<sup>1\*</sup>, Klein, R.<sup>1</sup>, Veikkolainen, T.<sup>1</sup>, Mertanen, S.<sup>2</sup>, and Mänttäri, I<sup>2</sup>

(1) Department of Physics, University of Helsinki, P.O Box 64, 00014 Finland; Johanna.m.salminen@helsinki.fi; robert.klein@helsinki.fi; toni.veikkolainen@helsinki.fi

(2) Geological Survey of Finland, P.O. Box 96, FI-02151 Espoo, Finland; satu.mertanen@gtk.fi; irmeli.manttari@gtk.fi NANU

\* Corresponding author

## Abstract

Baltica represents one of the key continents of the Mesoproterozoic supercontinent Nuna forming the core of it together with Laurentia and Siberia. This study presents new geochronological and paleomagnetic data obtained for Häme diabase dyke swarm in southern Finland. New U-Pb (baddeleyite) ages  $1642 \pm 2$  Ma and  $1647 \pm 14$  Ma for two reversely magnetized dykes are acquired. Demagnetization revealed a dual polarity remanent magnetization direction carried by magnetite. The combined normal (N) and reversed (R) polarity direction for 11 dykes (=sites) is  $D = 355.6^\circ$ ,  $I = -09.1^\circ$  (k = 8.6 and  $\alpha 95 = 16.6^\circ$ ) yielding a paleomagnetic pole at 23.6°N, 209.8°E (K = 10.6 and A95 = 14.7°) with Van der Voo value Q = 7. N and R magnetized units for the Häme dyke swarm show asymmetry in declination values, probably caused by an age difference between the dykes. The Geocentric Axial Dipole (GAD) model indicates that all geomagnetic reversals should be symmetric (in inclination), yet it has been noted that this is not always the case (e.g. 1.57 Ga Satakunta and Åland dykes in Baltica). By analyzing global dual polarity paleomagnetic data we show that the GAD model is a valid assumption at 1.7 - 1.4 Ga and that the asymmetry between some

1

Download English Version:

## https://daneshyari.com/en/article/5784910

Download Persian Version:

https://daneshyari.com/article/5784910

Daneshyari.com