



The World Digital Magnetic Anomaly Map over oceanic areas: assessment, possible improvements, and expected applications

J. Dyment

Institut de Physique du Globe de Paris, CNRS UMR 7154, Paris, France (jdy@ipgp.jussieu.fr)

A first version of the World Digital Magnetic Anomaly Map (WDMAM-1) has been released in 2007 (Korhonen et al., 2007; <http://projects.gtk.fi/WDMAM/>). The quality of this map is rather uneven over oceanic areas, reflecting in part the highly variable data coverage. The anomalies are well-resolved over densely-covered areas such as the North Pacific, North Atlantic and Arctic Oceans, where WDMAM-1 has benefited from previous data compilation efforts (Verhoef et al., 1996). A somewhat patchy anomaly pattern is associated to areas where the data coverage is rather limited. Areas where no data was available have been complemented by a model based on the digital age map of the ocean, based on magnetic anomaly identifications along ship tracks and the plate reconstruction models derived from them.

Beyond the intrinsic shortcoming of data availability, the WDMAM-1 has also suffered the so-far relatively limited involvement of the marine geophysical community. As an example, the North Atlantic and Arctic magnetic anomaly compilation is the result of a tremendous effort in gathering data from a variety of sources (Verhoef et al., 1996). Similar efforts should be specifically attempted by the research community working on marine magnetic anomalies for other oceans, possibly under the auspices of the WDMAM and other IAGA committees.

The interest of such data compilations is obvious in terms of short wavelength magnetic anomalies, useful to decipher the age, structure and evolution of ocean basins. Examples will be shown from a compilation of Indian and French unpublished magnetic anomaly data complemented by a Russian magnetic anomaly map and various

international data. Other outcomes are constraints on the geomagnetic secular variation over the last 40 years in the main harbours and long wavelength magnetic anomaly maps to be directly compared to satellite magnetic anomaly data, as exemplified by several examples in and around the Indian Ocean.

Korhonen, J. V., J.D. Fairhead, M. Hamoudi, K. Hemant, V. Lesur, M. Manda, S. Maus, M. Purucker, D. Ravat, T. Sazonova, E. Thébault 2007, Magnetic Anomaly Map of the World; Map published by Commission for Geological Map of the World, supported by UNESCO, 1st Edition, GTK, Helsinki, 2007. ISBN 978-952-217-000-2

Verhoef, J; Roest, W R; Macnab, R; Arkani-Hamed, J; Project Team, 1996, Magnetic anomalies of the Arctic and north Atlantic oceans and adjacent land areas, Geological Survey of Canada, Open File 3125a, 1996.