



## **World Digital Magnetic Anomaly Map (WDMAM), First Edition**

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WDMAM is an international scientific joint effort – supported by IAGA and CGMW – to compile and publish a reliable world map of magnetic anomalies that are attributable to the Earth's uppermost lithosphere. The data are derived mostly from the multitude of aeromagnetic surveys executed over the continents in past decades and ship cruise data over the oceans. All data are referenced to satellite magnetometer measurements and geomagnetic observatories in a comprehensive way for the first time. The work is designed to attract users from the geological community to the value of magnetic anomaly data in the exploration of the earth, its tectonics and resources.

The results will be presented as a printed magnetic anomaly map of the World at scale 1:50 000 000 (consistent with Geological Map of the World by CGMW) and a digital database that includes anomaly values on a grid of resolution 3 arc minutes (about 5 km at the equator). The nominal observation altitude is defined at 5 km above the geoid. Wavelengths longer than about 2600 km have not been included.

Data has been provided from open sources of continental grids such as for North America and Australia and oceanic profiles held by various agencies. As-yet-unpublished continental-scale grids were invited from Russia, India, Argentina, South Africa, and several European countries. Global reference data was obtained from CHAMP measurements and the MF5-model (Maus et al. 2006). Map compilation methods were developed within five international teams that prepared seven candidate maps (Hemant et al., in press, Maus et al., in press, Hamoudi et al., in press). The final map is a combination of the work of all teams.

The magnetic anomaly map (First Edition) will be released at IUGG2007 in Perugia, July 2007. An updated anomaly map and a calculated magnetization map is planned for the 33<sup>rd</sup> International Geological Congress in Oslo, August 2008.

## References:

Maus, S., Lühr, H., Rother, M., Hemant, K., Balasis, G., Ritter, P., and Stolle, C. Lithospheric magnetic field modeling from CHAMP satellite measurements, submitted for publication in the proceedings of the geomagnetism workshop, Braunschweig, Germany, October 2006.

Hemant, K., Thebault, E., Mande, M., Ravat, D., and Maus, S. Magnetic anomaly map of the world: merging satellite, airborne, marine and ground-based magnetic data sets. Submitted for publication in Earth and Planetary Science Letters, August 2006.

Maus, S., Hemant, K., and Fairhead, D. The NOAA candidate for the World Digital Magnetic Anomaly Map. Submitted for publication in G3 November 24 2006.

Hamoudi, M., Thebault, E., Lesur, V., and Mande, M. GeoForschungsZentrum Anomaly Magnetic MAP (GAMMA): A candidate model for the World Digital Magnetic Anomaly Map" Submitted for publication in G3 December 8, 2006.