
Minutes of Business Meeting for IAGA Working Group V-MOD
IUGG 2015, Prague

Chair: C. Finlay (CF)
Co-chair: E. Thebault (ET)

The meeting started at 18.10 on Wednesday 24th June 2015.

Proposed Agenda

1. Status of data available for field modelling
2. Report on IGRF-12
3. Report on WDMAM, version 2
4. Election of new co-chair
5. Proposed sessions for IAGA, Cape Town, 2017

The proposed agenda was accepted and followed.

1. Status of data available for field modelling

CF described the data sources currently available for field modelling. ESA's *Swarm* satellite trio constellation mission is now providing good quality magnetic field data suitable for geomagnetic field modelling. The constellation is evolving to lower altitudes and increased local time differences between the satellites. The Oersted satellite has not been contacted since mid-2013.5 and is currently tumbling. DMSP data have been used by NGDC/NOAA for field modelling. Although the magnetic data are freely available, positions are not currently provided.

Ground observatories continue to play a crucial role in field modelling. There are 172 currently operating observatories, 66 providing definitive or close to definitive data in 2015. CF noted the importance of quasi-definitive data in producing up-to-date geomagnetic field models, and thanked the observatory community for their continuing efforts.

2. Report on IGRF-12

ET (Chair of IGRF-12 task force) discussed the details of the construction of the 12th generation International Geomagnetic Reference Field. This was released on time in late December 2014 and consisted of a new DGRF for epoch 2010, a new IGRF for epoch 2015 and a new predictive SV for 2015-2020. Data from the *Swarm* mission and ground observatories were crucial for the epoch 2015 model. More candidate models were received than for any previous IGRF generation. The IGRF-12 task force voted (but not unanimously) to implement an iterative-reweighting scheme in space to determine the weights to be allocated to the candidate models in the construction of the final products. The model is available online at:

<http://www.ngdc.noaa.gov/IAGA/vmod/igrf.html>

A special issue of Earth Planets and Space devoted to IGRF-12 will be published before the end of the year. Many of the papers are already available online. This includes the main paper documenting IGRF-12, a paper describing the evaluation of candidate models and papers on the candidate models.

CF described an offer from Frank Lowes to prepare a document discussing what field sources should be included in future versions of the IGRF. There is currently some discrepancies over how different teams interpret the current description of “internal (main) field”, in particular whether or not they seek to explicitly remove internal induced signals produced by ionospheric field variations. Vincent Lesur (VL) noted that although it is currently very challenging to estimate and remove the induced ionospheric field contributions (since these rely on assumed conductivity models) it may be reasonable to state that the IGRF aims to remove them. Nils Olsen (NIO) commented that it is likely better to carry out some correction for the ionospheric induced field than completely ignoring it. CF noted that any change in the definition might result in a non-physical change in the IGRF coefficients with time. Overall, there was consensus to ask Frank Lowes to prepare a document discussing the definition of the field to be included in the IGRF and to distribute this for discussion amongst WG V-MOD members in preparation for IGRF-13.

Rune Floberghagen (RF) asked if there was interest in updating IGRF more frequently, especially given the availability of Swarm data. CF replied that this indeed might be of interest for some scientific applications but that a 5 year update was apparently sufficient for many users. Manoj Nair (MN) noted that many users already complained about the need for 5 year updates of their software.

3. Report on WDMAM, version 2

Jerome Dymant (JD) reported on the release of an update of the world digital magnetic anomaly map (WDMAM, version 2). The WDMAM task force, led by JD and Manuel Catalan (MC), finally received only 1 candidate model, from a merged team of GFZ-Potsdam and IGP-CNRS, Paris. The map was reviewed by a team of 9 independent assessors, was corrected, and was released in June 2015 as WDMAM 2.0. It is now available from <http://www.wdmam.org>

The map contains a number of new data sources and is a notable advance in the oceans. WG-V-MOD voted unanimously to endorse the new version of WDMAM, and to allow the WDMAM task force to proceed with incremental subversion updates (2.1, 2.2 etc) as new data becomes available, using the same technique.

4. Election of new co-chair

CF will stand down as task force chair following IUGG. WG V-MOD voted unanimously for ET to continue as WG V-MOD chair. There was also a unanimous vote in favour of Patrick Alken (NOAA/NGDC) becoming the new co-chair, with responsibility of the IGRF-13 task force.

5. Session proposals for IAGA 2017

The sessions below for IAGA 2017 were agreed and proposed to IAGA Division V. It was remarked that young scientists should be encouraged to convene these sessions.

- (i) Results from *Swarm* and preceding satellite missions
Conveners: Claudia Stolle, Patrick Alken, Ciaran Beggan
(Inter-Commission. Joint with other divisions)
- (ii) Lithospheric field, WDMAM, and geological/tectonic interpretations
Conveners: Erwan Thebault, Foteini Vervelidou, Stavros Kotsiaros
- (iii) Secular Variation: Studies from ground and satellite data and modelling core dynamics
Conveners: Vincent Lesur, Nicolas Gillet
(Joint with WG V-OBS, DIV I)

6. Any other business?

There were no other remarks and the meeting adjourned at 19.15.

Chris Finlay and Erwan Thebault
Prague
26.06.2015