Minutes of Business Meeting of IAGA Working Group V-MOD

Wednesday 28th August 2013

The meeting started at 12.35 on 28th August 2013

Chair: Chris Finlay (CF); co-chair: Erwan Thebault (ET)

Proposed Agenda

1. Status of data available for field modelling.
2. Progress with draft ISO standard: Geomagnetic Reference models.
3. Review of IGRF-11.
4. Plans for IGRF-12.
5. WDMAM: Election of new task force & ongoing revision.
6. Proposed sessions for IUGG 2015 in Prague.

The proposed agenda was accepted and followed.

1. Status of data available for field modelling

A summary of data currently available for geomagnetic field modelling was given by CF. This includes Observatory Definitive data, Quasi Definitive (QD) data from some observatories, and intensity data from the Oersted satellite. It is also hoped that magnetic field measurements from DMSP can be made freely available. ESA's Swarm satellite trio is to be launched in late 2013.

2. Progress with draft ISO standard: Geomagnetic Reference Models

The status of the draft ISO standard for geomagnetic reference models was described by CF. This has now reached "final draft international standard" stage. Stefan Maus (SM) was thanked for his efforts in compiling the documentation and moving the project forward towards acceptance. Vincent Lesur (VL) asked whether an explicit file format was part of the ISO. SM answered that, no, the file format description has been removed from the draft description.

3. Review of IGRF-11

A summary of IGRF activity was given by CF. There have been 80-90 email enquiries about the IGRF – from private companies, from government organizations, from engineers and from scientists including space scientists and biologists. There have been over 140 scientific citations so far. CF showed comparisons of the IGRF-11 SV compared to the latest version of CHAOS-4 - the predictive performance is comparable to previous IGRF generations.

4. Plans for IGRF-12

A list of volunteers for the IGRF-12 task force was presented by ET. A motion to accept the IGRF-12 task force with ET as chair was passed. It was proposed that the specifications for the IGRF-12 should remain essentially the same as for IGRF-11, with each institution only having one vote in the selection process.

Kathy Whaler (KW) queried to what extent these specifications require the Swarm mission to be operational? ET noted with the currently available Oersted and observatory data it should be possible to meet these specifications (referring to presentation by CF in Swarm session). KW further queried what would happen if Oersted data are not available by mid-2014, and if Swarm data were not ready. ET answered that if the data situation changes significantly by mid 2014 the IGRF-12 specifications may be changed by agreement of the IGRF-12 task force. Furthermore the deadlines (e.g. for submission of candidates) can in principle be modified e.g. if extra time is needed to include Swarm data.

Alan Thomson asked how the call for IGRF-12 candidates will be advertised? ET answered via the gpgmag list, similar to IGRF-11. Peter Kotzé asked what processes will be followed in the evaluation of the candidates? Will analysis of regional areas be allowed? ET replied that all contributions to evaluations are welcome. So independent regional data are very welcome to help assess the main IGRF model. A website will be established to hold the candidate models and that all interested workers are welcome to have access the candidate models for evaluation. ET noted that the primary means of evaluation will be statistical analysis of the candidates, for example looking at deviations from model averages and spectral consistency. It was mentioned that QD observatory data would also be a very useful independent check.

SM asked whether an extension of the IGRF-12 SV from degree 8 to degree 13 should be considered? Without Swarm this is would be difficult, but perhaps it should be considered if the mission is successfully launched. ET noted the possible difficulty for software users if the maximum degree was changed. SM responded that WMM SV to degree 12 SV lead to no complaints from users. SM further remarked that degree 13 test candidate models were deposited in 2010 as part of the IGRF-11 process and these could now be assessed. CF presented results of analysis of these test models, comparing extended IGRF-11 SV candidates to degree 13 against the latest CHAOS-4 field model. Candidate models with SV to degree 13, rather than to degree 8, agreed slightly better with CHAOS-4. VL remarked that considering the SV between degree 8 and 13 results in only a few nT change at Earth's surface – it is not clear whether changing the maximum degree of SV would really bring much benefit. Gauthier Hulot suggested that teams can again contribute both types of SV model (degree 8 and 13), so a record of whether there is an actual improvement accumulates over time. No consensus was reached on question of the maximum degree of SV in IGRF-12. It will dealt with by the IGRF-12 task force, after the launch of Swarm. The discussion ended due to time constraints.

5. WDMAM: **Election of new task force & ongoing revision.**

ET thanked the previous WDMAM chairman Juha Korhonen. A vote to accept the proposed new WDMAM task force (with chair and co-chair by Jerome Dyment and Manuel Catalan) was passed. Joachim Luis volunteered for the task force. The success of the previous WDMAM and the recent improvements to the datasets was described by ET. Candidate models for a revision of the WDMAM from GFZ/IPGP/USTHB and the GTK team were presented. The procedure to evaluate of these candidate models was discussed. In addition to the WDMAM teams, SM and two other groups are already committed to assist.

6. Proposed sessions for IUGG 2015 in Prague.

1. Results from Swarm and preceding missions: In honour of Eigil Friis-Christensen

Agreed that V-MOD should propose a large joint Swarm session together with other IAGA divisions and possibly other IUGG bodies. Nils Olsen, Claudia Stolle and Gauthier Hulot are willing to be co-conveners. David Knudsen and Rune Floberghagen also mentioned as co-conveners.

2. Lithospheric anomalies and tectonic implications

Conveners: Mike Purucker and Jerome Dyment.

3. Data Assimilation using magnetic measurements (Joint with DIV-1 and DIV-2)

Possible conveners: Joshua Rigler (Div II), Tomoko Matsuo (Div II), Alex Fournier (Div I), Also CF?

4. Planetary magnetic fields and geomagnetic secular variation (Joint with DIV-1 and SEDI)

Converners: CF, others from Div I.

These proposals are to be discussed at higher levels in IAGA (including Div V and the conference of delegates), and then again at IUGG level, so are likely to be subject to changes.

Any Other Business

It was agreed that Ingo Wardinski from GFZ will join the IGRF-12 task force.

Meeting adjorns at 13.25.

Ciaran Beggan, IAGA, Merida 2013.