

Report of the IAGA Division V Business Meeting

Thursday, August 29, 2013, Hotel Fiesta Americano, Mexico, 12:10-13:20

Chair: Alan Thomson

Co-Chair (Minutes): Pieter Kotzé

Agenda:

1. Acceptance of the Agenda
2. Report from Chair and Co-Chair: Alan Thomson
3. Report from WG V-OBS: Pavel Hejda
4. Report from WG V-DAT: Renata Lukianova
5. Report from WG V-MOD: Chris Finlay
6. IUGG 2015 session proposals from Division V
7. IAGA resolution proposals from Division V
8. Any other business

1. Acceptance of the Agenda

The agenda was accepted without any additional items.

2. Report from Division V Chair and Co-Chair

Presenter: Alan Thomson

Various Division-related Meetings and Workshops

- The **XVth IAGA Workshop on Geomagnetic Observatory Instruments, Data Acquisition and Processing** (http://iaga_workshop_2012.roa.es/) was hosted by the San Fernando geomagnetic observatory and took place in San Fernando, Spain from June 4 to 14, 2012. This very well organised workshop consisted of measurement sessions at the observatory and scientific sessions (39 oral and 57 poster presentations) at the Baha Sur hotel. The workshop was attended by over 120 participants from 5 continents. Additionally a press conference was held and several media were accredited (radio and television) during the event. INTERMAGNET took advantage of the event and carried out a meeting in round table format at the conclusion of the workshop, covering certain technical issues such as the 1-second sampling rate, and the generation of quasi-definitive data that could support the Swarm space mission.
- The European magnetic repeat station network **MagNetE** held its 6th workshop in Prague, Czech Republic, hosted by the Institute of Geophysics of the ASCR, from June 3 to 5, 2013 (<http://www.ig.cas.cz/magnete/>). The workshop was attended by 32 participants from 17 countries. The meeting was co-organised by the EPOS Working Group 9 on Magnetic Observations and discussions were held on aims and benefits to

- the geomagnetic community of the plan to integrate geomagnetic data into EPOS.
- A Workshop entitled "**The Space Climate 5 Symposium**" was held 15-19 June, 2013, in Sokos Hotel Eden at Oulu, Finland (<http://www.spaceclimate.fi/>).

Publications

- The **Proceedings of the XV IAGA Workshop on Geomagnetic Observatory Instruments, Data Acquisition and Processing** will be published in a special issue of the Data Science Journal
- The **Proceedings of the XIV IAGA Workshop on Geomagnetic Observatory Instruments, Data Acquisition and Processing** have been published in the Data Science Journal: https://www.jstage.jst.go.jp/browse/dsj/10/0/_contents/

Various other topics related to activities within the three WGs

Magnetic observatories

- **Newly established geomagnetic observatories (correspondence with WDC-Edinburgh, INTERMAGNET and V-OBS):**
Observatories that obtained IAGA codes from WG V-OBS in 2011-2013:
GAN: International Airport, Addu Atoll, Maldives (preliminary January 2012, operated by ETH Zurich in cooperation with Gan Meteorological Office and NGRI Hyderabad)

CKI1: Cocos (Keeling) Islands (preliminary January 2012, confirmed July 2013, operated by Geoscience Australia, Geomagnetism Section)

WIC: Wien Conrad, Austria (preliminary October 2011, operated by ZAMG Wien)

DUR1: Duroia, Italy (?)

GNG1: Gingin, Australia (Jan 2011?)

- **Closed geomagnetic observatories**
BNG: Bangui, Central African Republic (June 2011)
- **The IAGA database of geomagnetic observatories**
is currently being developed by Justin Mabie at NGDC. This issue was discussed at the V-OBS working group meeting.

Magnetic satellites

- **SWARM**
 - The launch of the SWARM satellite magnetic survey mission has again been delayed, due to problems with the launcher. Launch is now likely no earlier than December 2013 and will probably be delayed further as other satellites are due to

be launched on the Proton rocket ahead of SWARM.

- After launch of SWARM there will be a 3 month calibration/validation phase in which teams from the geomagnetic community will take part. Thereafter ESA will operate a distributed 'Level 2' data product system, with contributions from institutes in Europe and beyond. This system will provide high quality data and models for scientific and other uses.
- **Oersted**
 - Continues to return (intermittently) scalar magnetic data, well after the expected end of lifetime

Geomagnetic indices

- The issue of whether the PC index can be adopted as official IAGA index has not yet been resolved. A new report by the task group of M. Menvielle, C. Demetrescu and H. McCreadie was discussed at the WG V-DAT business meeting in Merida.

IGRF

- Preparations for the 12th generation IGRF model for the year 2015 with predictive secular variation up to 2020 will be undertaken by a task group set up by WG V-MOD.

ISO standard for geomagnetic field models

- There was significant activity on the draft ISO 16695 in autumn 2011. On 15th September 2011 Stefan Maus (NGDC, Univ of Colorado) circulated a revised draft (version 5.0) of ISO 16695 along with a response to the comments he had received on an earlier version. In particular a proposed coefficients file format that had proven contentious was dropped. The IGRF was specifically mentioned in an Annex of draft 5.0.
- The ISO Standard 16695 Geomagnetic Reference Models is now at the Final Draft International Standard (FDIS) stage. There is one more ballot. It is expected to be published as an international standard by the end of the year.
- The project status is given here:
http://www.iso.org/iso/home/store/catalogue_ics/catalogue_detail_ics.htm?ics1=49&ics2=140&ics3=&csnumber=57448

WDMAM update

- Sessions on WDMAM issues at EGU 2012, 2013
- Business meeting at CGMW General Assembly 2012 in Brisbane during the IGC34.
- New task force chair
- An WDMAM update is in progress

Metrology Standards and Geomagnetic Observatories

- The Asia-Pacific Metrology Program (APMP) (www.apmpweb.org), a Regional Metrology Organization within the framework of the CIPM Mutual Recognition Arrangement, launched (in February 2013) an international comparison of measurement standards in the field of magnetic flux density measurements, with the participation of six National Metrology Institutes (NMI) (from Germany, China, Korea, Russia and Czech Republic and UK), and two magnetic observatories of IAGA (Belgium and Australia)
- The APMP contacted Division 5 chair inviting other observatories to participate. The invitation was advertised to all through the ‘worldobs’ message board. Interest was subsequently shown by Spain (San Fernando observatory) and Austria (Conrad observatory)
- Comparisons are being made between observatory instruments and a portable ‘quantum standard’ magnetometer (proton magnetic resonance method with Overhauser effect), provided by the project managers, and which is exchanged between participating institutes.
- Results are due in January 2014. We will see at that time what lessons or knowledge is to be gained for IAGA as a whole, and for any observatories and institutes whose instruments are not already tied to national standards

3. Report from WG V-OBS

Presenter: Pavel Hejda

Agenda

1. Welcome and Agenda approval
2. Report on activity for the period from BM in Melbourne, July 2011
3. Report on the XV Observatory Workshop, San Fernando, 2012 (M. Catalan)
4. Information about the XVI Observatory Workshop that will be held in Hyderabad, India in October 2014 (Kusumita Arora)
5. Proposals for organizing the Observatory Workshop in 2016
6. List of observatories and IAGA codes (A. Chulliat)
7. Instructions for obtaining IAGA codes
8. Proposal for sessions and conveners for IUGG GA 2015, Prague
9. Proposals for resolutions
10. Other Business

1. Welcome and Agenda approval

Chair of the WG Pavel Hejda welcome the participants and presented the agenda. The agenda was unanimously approved

2. Report on activity for the period from BM in Melbourne, July 2011

The most important activities were

- site selection for XVI IAGA Observatory Workshop 2014 and cooperation with local organizers during preparatory phase

- cooperation with local organizers of the XV Observatory Workshop held in San Fernando in 2012
- new IAGA codes approved:
 - Cocos (Keeling) Island, Australia, CKI (confirmed July 2013, operated by Geoscience Australia, Geomagnetism Section)
 - Wien Conrad Observatory, Austria, WIC (preliminary October 2011, operated by ZAMG Wien)
 - Gan, Addu Atoll, Maldives, GAN – (preliminary January 2012, operated by ETH Zurich)
 - Krasnoe Lake (St. Petersburg), KRO and Klimovskoe, KLI – (Preliminary August 2013, operated by Geophysical Centre, Russian Academy of Sciences, Moscow and IZMIRAN)
- revision of list of observatories and IAGA codes

3. Report on the XV Observatory Workshop, San Fernando, 2012 (M. Catalan)

Manuel Catalan reported about the workshop, proceedings will be available in September in electronic form, free of charge.

4. Information about the XVI Observatory Workshop that will be held in Hyderabad, India in October 2014 (Kusumita Arora)

- co-organized by CSIR-NGRI and IIG
- date 6 Oct - 16 Oct 2014 (science sessions from 13 to 16 October)
- measurement sessions at Choupoutal observatory (60km from NGRI). This is a new geomagnetic observatory (former MT station) with 1.5 year of data collection.
- it is recommended to book accommodation through NGRI (to ensure standard services, incl. internet, etc)
- various funding options (including from Indian National Science Academy)
- short leaflet was distributed among the participants
- more information in the first circular, to be released in September

5. Proposals for organizing the Observatory Workshop in 2016

The call for proposals was distributed via worldobs and imocontact mailing list. As no proposals were received yet, the call will be repeated.

6. Revision of the list of observatories and IAGA codes

There are urgent reasons for the revision

- master list of IAGA codes maintained by NGDC is not public (the institutions cannot check correctness of their records)
- observatory list on web pages of WDC Edinburgh contains only observatories that contributed to this WDC
- observatory list compiled by Jean Rasson and published on web http://www.meteo.be/IAGA_WG_V.1/ is incomplete
- there is a conflict of IAGA official codes with codes of some other working observatories (e.g. in China)

Measures adopted

- chair and co-chair of the WG asked NGDC to transform the master list into a suitable database form and display it on Web
- authorized person of NGDC, Justin Mabie, started the revision and transformation by comparing all data with archive paper records and this task is nearly finished
- a small task force will be set up to carefully check the revised observatory list by comparing it to publicly available metadata (for example in WDC)
- once this preliminary check is completed, the database will be made accessible to geomagnetic community for their comments on errors or missing data
- the official list of IAGA observatory codes will be displayed on the new web pages of WG V-OBS that will be developed by BGS

7. Instructions for obtaining IAGA codes

It was discussed, whether IAGA code should be assigned only to observatories (with variometers and absolute measurements) or also to variometer stations. The consensus was for keeping the recent praxis and assign official and permanent IAGA code only to observatories with regular baseline control. The approved “Guidelines for obtaining IAGA codes for magnetic observatories” are attached.

Suggestion: separate variometer station and observatories and use 4-letter codes for variometer stations, in order to avoid confusion.

8. Proposal for sessions and conveners for IUGG GA 2015, Prague

1) Geomagnetic observatories; instrumental and operational news

Conveners: Bill Worthington, Juergen Matzka, B. Veendhari

2) Ground-based and satellite geomagnetic data in the Swarm era.

Conveners: Susan Macmillan, Arnaud Chulliat, Heather McCreadie

Joint with V-MOD, V-DAT, I-1

3) Geomagnetic observations under a quiet Sun

Conveners: Masahito Nose

Joint with divisions II and IV

9. Proposals for resolutions

No proposals were submitted

10. Other Business

Renata Lukianova noticed the 100th anniversary of Sodankyla observatory (established in September 1913) – the first auroral observatory.

Pavel Hejda thanked the participants for their active involvement.

32 participants

4. Report from WG V-DAT

Presenter: Renata Lukianova

Business Meeting WG V-DAT

Tue, 27 August 2013, 12:30 – 13:30, Room “Merida”, Fiesta Americano., Merida, Mexico

1. Status of IAGA indices

Kp (J. Linthe, GFZ)

am, *aa* (A. Chambodut, ISGI)

AE, *Dst* (M. Nose, Kyoto University)

Kp is in a good health

am and *aa* are in good health

ISGI computers were moved to the new LATMOS site

Dst is in good health

AE is now calculated using 12 auroral stations

2. ISO document regarding the geomagnetic indices

(M. Nose, Kyoto University)

The document can be downloaded from:

http://www.iso.org/iso/catalogue_detail.htm?csnumber=57451

3) Referencing of geomagnetic data products - the challenge of getting better recognition for data production (M. Korte, GFZ)

- **Need of measurable output indicators** like number of publications and in particular citations

- Possibilities of **referencing geomagnetic data products by DOI** (Digital Object Identifiers)

Prompt response from the community and lively discussion show that the problem is important

New Task Force is established: Monika (Chair)

4) Report on the status of Polar cap (PC) index

- i) Presentation of the joint proposal
(J. Matzka, DTU, and O. Troshichev, AARI)
- ii) Report by TF for the Endorsement of PC as an IAGA index
(H. McCreadie, UKZN)
- iii) Discussion
- iv) Vote for “the PC index satisfy Criteria for IAGA endorsement of indices”

In 2010, the WG-DAT elaborated the document “*Index Criteria for endorsement of indices by IAGA*” (IAGA website, section Products and Services).

In 2011 in Melbourne, the Task Force was appointed for the Endorsement of the Polar cap (PC) index as an IAGA index.

The 2 members of the PC family (PCN) and (PCS) are calculated using respectively the Northern Polar Cap data (obs. Thule, operated by DTU) and the Southern Polar Cap (obs. Vostok, operated by AARI).

Substantial progress for the PC index calculation has been made

Presentation of the joint proposal

(J. Matzka, DTU, and O. Troshichev, AARI)

Report by TF for the Endorsement of PC as an IAGA index

(H. McCreadie, UKZN)

The TF established that the index in its present form satisfies the Criteria and fully recommends endorsement of the PC index

with the subject to AARI installing an automated system for data access accounting to make the data immediately freely available

Thanks for the DTU and AARI staff involved and the TF members for their efforts !

5) Proposal for resolution (PC index)

IAGA,

noting

that the polar cap magnetic activity is a geophysical quantity not already described by existing IAGA indices,

considering

that the polar cap (PC) index may serve as a proxy for energy that enters into the magnetosphere during solar wind – magnetosphere coupling,

recognizing

that the contribution will come from the Arctic and Antarctic Research Institute (AARI) (Russian Federation) and the National Space Institute, Technical University of Denmark (DTU)

emphasizing

that the usefulness of such an index is dependent on having a continuous data series,

recommends

the provision of the PC index to the international scientific community in near-real time and definitive forms

and urges

that all possible effort be made to maintain continuous operation of the geomagnetic observatories contributing to this index.

6) Suggestions for IAGA 2013 Sessions

Geomagnetic diagnosis of the Sun and the near-Earth space

Convenors: ... R. Lukianova, K. Mursula, ...

Division V, III, IV

7) Any other business (submitted but not discussed because time was up)

INTERMAGNET: 1-sec values are available

New brochure on the geomagnetic indices is available from ISGI

5. Report from WG V-MOD

Presenter: Chris Finlay

SUMMARY OF V-MOD BUSINESS MEETING

Merida, Mexico, Wed 28th August 2013

Topics Discussed:

- Data sources for field modelling and IGRF-12:
- Ground Observatories (including QD data)

- Ørsted (scalar data)
- Hopefully SWARM
- ISO standard 16695: Geomagnetic Reference Models, now at final draft stage
- Explicitly mentions IGRF as an example in annex

IGRF-12 Plans:

- Agreed on task force for IGRF-12
- Model parameterization similar to IGRF-11, but final details to be determined in spring 2014 when more is known regarding Swarm.
- Call for candidates by April 2014 via gpmag list.
- Oct 2014: Deadline for submission of candidates
- Nov 2014: Evaluation of candidates
- By Jan 2015: Release of IGRF-12.

WDMAM

- New task force elected.
- Chair: J. Dyment, Co-chair: M. Catalan
- Revision currently underway.
- Two candidates submitted
- Plans for assessment based on regional expertise
- Release Schedule: By Feb 2014.

6. IUGG 2015 Session Proposals from Division V

The following proposals for sessions at the next IUGG Meeting in 2015 in Prague were proposed and submitted for final approval:

1) Geomagnetic observatories, variometers and repeat surveys: instrumental and operational developments and applications (V-OBS)

Conveners: Bill Worthington, Juergen Matzka, B. Veenadhari

Duration; 1.0 days

2) Geomagnetic observations under a quiet Sun: the 50th anniversary of the 'International Year of the Quiet Sun' (V-OBS, Divisions 2, 4, IAMAS)

Conveners: Masahito Nose, B. Veenadhari

Duration 1.0 days

3) Geophysical and geomagnetic diagnosis of the Sun and near-Earth space (V-DAT, Divisions 3, 4)

Conveners: R Lukianova, K. Mursula

Duration 1.0 days

4) Use of indices and recovered analogue records in geophysical data analysis (V-DAT)

Conveners: H McCreddie, A. Chambodut

Duration 0.5-1.0 days

5) Results from Swarm, ground based data and earlier satellite missions (V-MOD, V-DAT, V-OBS, Divisions 1, 2, 3): in recognition of Eigil Friis-Christensen

Conveners: Claudia Stolle, Nils Olsen, Gauthier Hulot, Susan Macmillan, Arnaud Chulliat, David Knudsen, Rune Floberghagen

Duration 1.5 days

6) Lithospheric field modeling, the WDMAM and tectonic implications (V-MOD)

Conveners: Mike Purucker and Jérôme Dyment

Duration 1.0 days

7) Data assimilation using magnetic measurements (V-DAT and Divisions 1 and 2)

Conveners: Joshua Rigler, Alex Fournier, Tomoko Matsuo

Duration 1.0 days

8) Planetary magnetic fields and geomagnetic secular variation (V-MOD and Division 1, 3 and SEDI)

Conveners: Chris Finlay,...

Duration 1.0 days

9) Invited reporter reviews on topics in division 5 and in joint sessions with division 5

Conveners: Alan Thomson, Pieter Kotze

Duration 0.5 days

10) High resolution data for studies of space plasma turbulence and applications in space weather and space climate (V-DAT, V-MOD and Divisions 3, 4, 5)

Conveners: Giuseppe Consolini, Marius Echim, Kalevi Mursula

Duration 1.0 days

7. IAGA resolution proposals from Division V

The following resolution was proposed by WG-V DAT regarding the adoption of the PC index by IAGA:

IAGA,

noting

that the polar cap magnetic activity is a geophysical quantity not already described by existing IAGA indices,

considering

that the polar cap (PC) index may serve as a proxy for energy that enters into the magnetosphere during solar wind – magnetosphere coupling,

recognizing

that the contribution will come from the Arctic and Antarctic Research Institute (AARI) (Russian Federation) and the National Space Institute, Technical University of Denmark (DTU)

emphasizing

that the usefulness of such an index is dependent on having a continuous data series,

recommends

the provision of the PC index to the international scientific community in near-real time and definitive forms

and urges

that all possible effort be made to maintain continuous operation of the geomagnetic observatories contributing to this index.

8. Other Business

None

The chair thanked those present for their attendance and contributions and closed the meeting at 13:20.

A total of 32 people attended the meeting.