

## Highlights of the INTERMAGNET Meeting in Hermanus



The meeting was held between 3<sup>rd</sup> September and 5<sup>th</sup> September 2017 at the South African National Space Agency, Hermanus, South Africa.

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## Communications within and beyond INTERMAGNET

There was considerable discussion at the meeting about ways to improve communications, particularly with the observatories who provide data to INTERMAGNET.

**DECISION:** INTERMAGNET will publish the full minutes of this and future meetings on the INTERMAGNET web site for all to see. Any sensitive material in the minutes, such as discussions about individual observatories, will be removed before publication.

Work was done during the meeting on the next version of the INTERMAGNET technical manual. There have been a number of advances within INTERMAGNET since the last edition of the manual and it is now a priority to complete the new manual in order to adequately describe these changes.

## Digital Object Identifiers (DOIs)

The creation of DOIs for time series data is complicated by the ever-changing nature of time series data sets. However the advantages of DOIs (credit and acknowledgment to data providers, scientific reproducibility of data for users) are clear and INTERMAGNET needs to play its part in creating DOIs where it is appropriate to do so. An important consideration when creating DOIs is that INTERMAGNET does not own any data (data is owned by the institutes providing it) and that credit and acknowledgment for the data needs to be passed to these institutes.

To start with, INTERMAGNET will concentrate on the relatively easy task of creating DOIs for definitive data before tackling more complex data types. INTERMAGNET wishes to encourage institutes to create DOIs for their own data sets and will create and publish guidance on this.

**DECISION:** INTERMAGNET will create DOIs for each of the annual INTERMAGNET CDs and DVDs published since 1991.

## Publication of 1-minute definitive data

INTERMAGNET has published its members' definitive data since 1991, first on CD and more recently on DVD. DVD devices are becoming less frequently used; modern computers are unlikely to have a DVD drive. With this in mind, INTERMAGNET discussed the medium on which 1-minute definitive data should be published.

Publishing creates an incentive for institutes to provide data in a timely manner. However publication could take place in other ways, such as online, with incentives such as DOIs. The physical DVD is a useful object for some institutes to help justify work to their funding agencies; however, other objects, such as DOIs or certificates that INTERMAGNET might publish, could replace the DVD.

**DECISION:** INTERMAGNET will stop publishing data on DVDs. Data from 2014 may be published on either DVD or USB memory stick. 2015 data will be published on USB stick. For 2016 data and onwards publication will move to an online publication method, but also be published on USB stick every couple of years.

The primary place of publication for 1-min definitive data is the INTERMAGNET web site and definitive data from IMOs will continue to be published on-line as soon as they are accepted and without the delay required to publish data on DVD or USB.

Delay in the publication of 1-minute definitive data is a concern that was discussed at the meeting. We kindly ask IMOs to provide all files that are necessary for compilation on or before the deadline. We would also be grateful if the volunteer data checkers could work with IMOs to speed up the quality control and data acceptance process.

### [INTERMAGNET format for 1-second data - ImagCDF](#)

It is finally here! INTERMAGNET is proud to announce the publication of the ImagCDF data format standard. We invite the community to read the documentation found under the INTERMAGNET website ([http://www.intermagnet.org/publications/im\\_tn\\_8\\_ImagCDF.pdf](http://www.intermagnet.org/publications/im_tn_8_ImagCDF.pdf)) and contribute any feedback. In the coming year, INTERMAGNET will start distributing data on the FTP in IAGA2002 and ImagCDF; we will convert your data for you.

### [Progress on 1-second definitive data](#)

38 observatories provided 1-second data for 2014. These data have been checked and data from 36 out of the 38 accepted. Work is ongoing to publish this data.

Although providing 1-sec definitive data is not compulsory, we encourage IMO's to collect and submit 1-second data where possible. 1-sec definitive data should be provided in ImagCDF format. The format is described here: [http://www.intermagnet.org/publications/im\\_tn\\_8\\_ImagCDF.pdf](http://www.intermagnet.org/publications/im_tn_8_ImagCDF.pdf)

A presentation from Reiner Friedel outlined the usefulness of high-resolution ground-based magnetic data to the space physics community in constraining radiation belt models. This community is exploring the transfer function between ground-based data and what is observed in space. There was also discussion of the INTERMAGNET real-time activity map and the importance of observatories providing real-time data to populate this useful tool.

### [Analysis of Geomagnetic data](#)

The MagPy software (<https://github.com/geomagpy/magpy>) has made great steps forward to help the scientific community in regards to data analysis. The creator of MagPy will instruct data checkers on how to use this package for definitive data validation. We invite the community to try the library and provide any feedback to the contributors on the GitHub environment.

### [Licensing our data](#)

The license that is used when distributing data via INTERMAGNET was created many years ago: <http://www.intermagnet.org/data-donnee/data-eng.php#conditions>. Licensing ideas have moved on since that time and it is becoming increasingly important that the licenses we use are internationally accepted and "machine readable", meaning that a computer can understand and make decisions about distribution of an asset based on the associated license. IAGA has created a task force to look into this issue. INTERMAGNET will not mandate that any particular license be used with the data it distributes on behalf of observatories, but it is likely to make a recommendation on licenses that it thinks observatories would be prudent to adopt and also to adopt a default license for observatories that have not expressed a preference. A candidate for INTERMAGNET to adopt as a default license is the Creative Commons Version 4 Attribution-Non-Commercial license. INTERMAGNET welcomes your opinions on this proposal. You can see more about the Creative Commons Version 4 Attribution-Non-Commercial license here: <https://creativecommons.org/licenses/by-nc/4.0/>

### [Other items of interest](#)

INTERMAGNET will contribute data to the European Plate Observing System (EPOS): <https://www.epos-ip.org/>. An update on the status of EPOS was given at the meeting.

The INTERMAGNET web service, ftp service and data archive, currently held at the Geological Survey of Canada, need to be moved to a new host. Work is ongoing in INTERMAGNET to identify an institute who can host these services.

### [INTERMAGNET officers](#)

There was no change in the membership of the INTERMAGNET Executive Council.

Before this meeting Simon Flower was elected as chair of the INTERMAGNET Operations Committee following the resignation of Jean Rasson. Before this meeting Simon resigned from his role as chair of the GIN/World Wide Web/Data Formats subcommittee and Charles Blais was appointed to replace him. Tim White (USGS) resigned as an INTERMAGNET officer before this meeting.

The current organisational structure can be seen on the INTERMAGNET website: <http://www.intermagnet.org/structops-eng.php>

### [Next meeting](#)

The next INTERMAGNET meeting will be held in Vienna following the IAGA workshop at Conrad observatory. The provisional dates for the meeting are 2<sup>nd</sup> to 4<sup>th</sup> July 2018. Guest are welcome at the meeting – please get in touch with the Operations Committee Chair, Simon Flower ([smf@bgs.ac.uk](mailto:smf@bgs.ac.uk)) if you would like to attend. Your contribution at the meeting will be welcome!

### [Thanks to...](#)

The meeting was organized by the South African National Space Agency (SANSA) at its Hermanus observatory. We were welcomed at the beginning of the meeting by Mike Kosch, Chief Scientist at SANSA. The SANSA staff provided valuable support: airport pick-ups and drop-offs, transport, meals and equipment as well as much needed facilities and help for the participants in the preparation and execution of their tasks. A meal at the restaurant "Beintangs Cave" on the waterfront in Hermanus was a highlight of the meeting. Many thanks to Mike and the staff at Hermanus for the great hospitality and support.

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