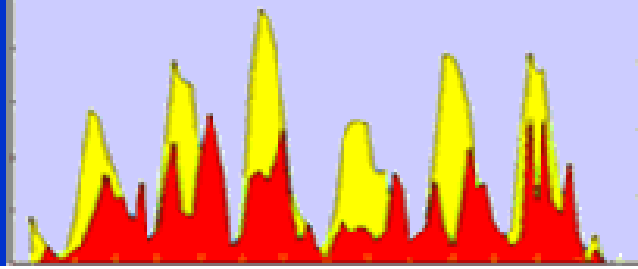
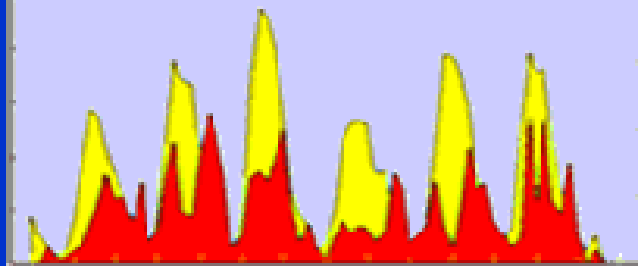


Working Group V-DAT Business Meeting

July 14, 2019

12:00-13:30 @ MCC - Floor 5 512A

Montreal, Canada



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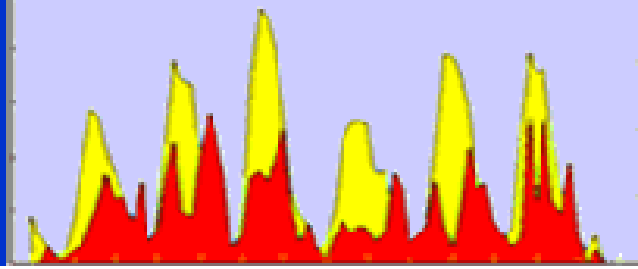

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ISGI Roadmap

Actions achieved 2018-2019

- Drafting of all *Living Documents* of ISGI Data Repository:
  - 3 Workflows Description (Calculation, Ingestion, Dissemination)
  - Documented storage procedures
  - Preservation plan
  - Data Management Plan

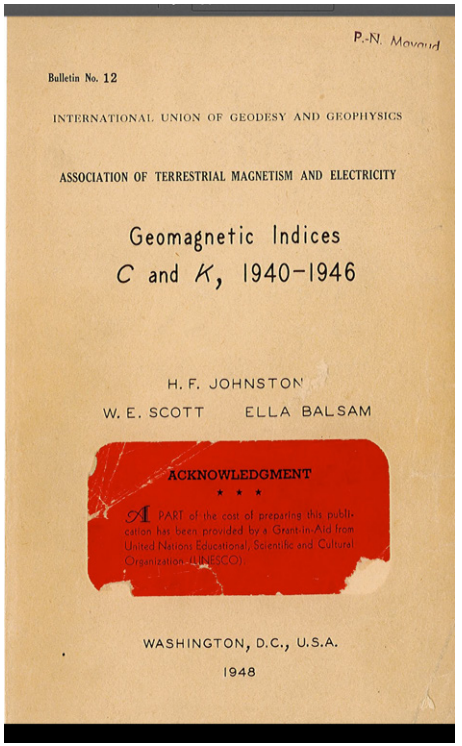
- Management of physical archives: Scan and OCR of **87 IAGA Bulletins**
  Already online!

- Exchanges with ISGI-Collaborating-Institutes & Customers

- Implementation of Web services (7 institutional customers)

Pending Actions

- *aa* & *am* DOI minting



Missing Bulletins:
No. 53, No. 50,
No. 48, No. 45, No. 43, No. 42, No. 41,
No. 38, No. 36, No. 34, No. 30,
No. 26, No. 24, No.23, No. 22,
No. 19, No. 17, No. 13, No. 11 and before

ISGI Roadmap

Actions planned 2020-2021

- Set up of new download formats (JSON, csv, …) for all IAGA-endorsed geomagnetic indices
- Make available *aa* and *am* monthly means and yearly means (demand of community in Space Climate)
- Ingest / Make available possible others indices on playground area
- Increase database of references

- Collaborate with WG V-DAT and V-OBS for adding K=9 Lower Limits to list of magnetic observatories managed by V-OBS
- Organised Metadata of *aa* and *am* indices for possible integration to OAI-PMH* protocol
- Renew WDS regular membership (*CoreTrustSeal* Certification)

*(Open Archives Initiative Protocol for Metadata Harvesting)

Gentle reminder:

Since 1987, K=9 Lower Limits of magnetic observatories are determined and provided by ISGI (Mayaud, 1980).

To disseminate information and keep records in the frame of development of **magnetic observatories' metadata system**, we propose to
integrate K=9 lower limits in *list of magnetic observatories* managed by V-OBS.

➔ **collaboration between WGs V-OBS, V-DAT and ISGI**

WGs V-OBS and V-DAT will thus ensure that new magnetic stations are getting suitable K=9 Lower Limit together with already provided unique IAGA 3 letter code for name.

Gentle recall:

Please, indicate into the metadata and/or header of K index files, the used K=9 Lower Limit for calculation.

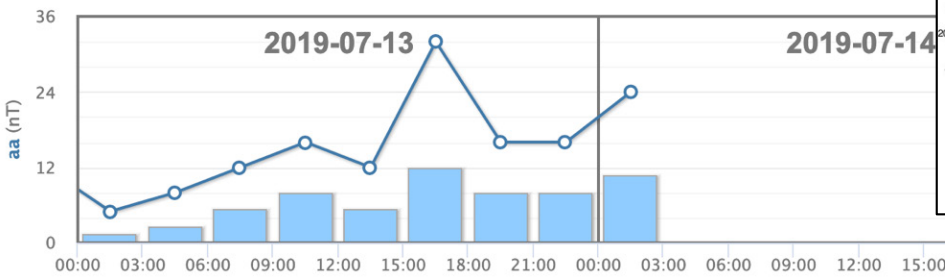
aa and *am* indices - status

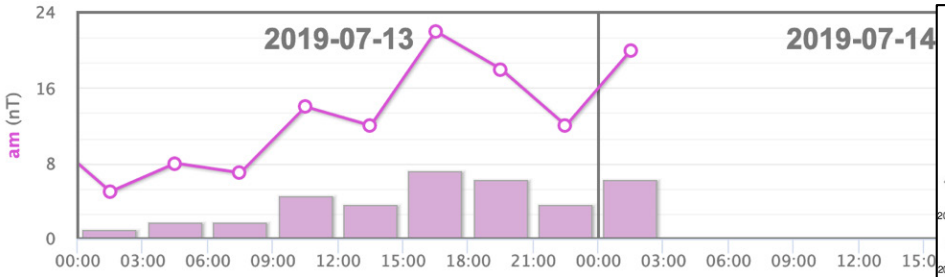
- *aa* and *am* indices are routinely calculated by EOST, Strasbourg

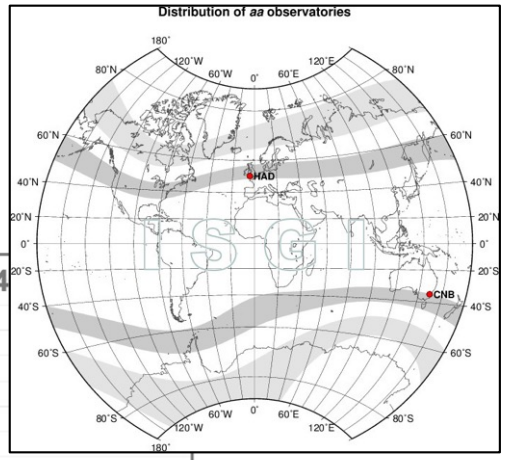
Quicklook

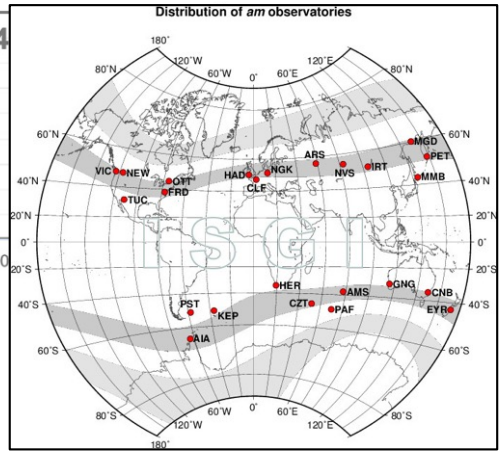
Provisional

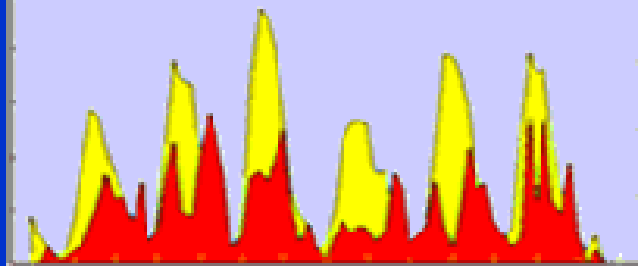
Definitive











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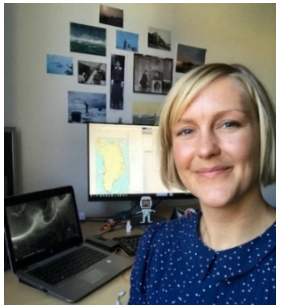
PC index - status

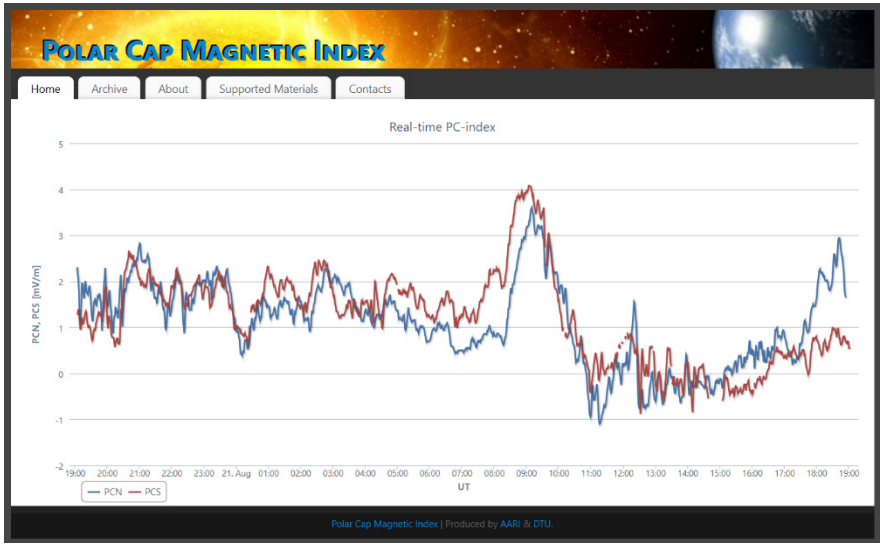
- PCS and PCN indices are routinely determined in a collaboration between AARI and DTU Space using the algorithm endorsed by IAGA in 2013

- Documentation, data and prototype programs are available at www.pcindex.org and at *WDC for Geomagnetism Copenhagen* space.dtu.dk/wdc/pcn-index.
  Data and documentation are also available at *The International Service of Geomagnetic Indices* (ISGI) http://isgi.unistra.fr

PCS Contact: Oleg Troshichev
olegtro@aari.ru



PCN Contact: Anna Willer
anna@space.dtu.dk



PC index - status

- Definitive PCN index

The definitive PCN index is based on definitive data from Qaanaaq (THL) observatory, and is now available for 1975 – 2017 from WDC for Geomagnetism Copenhagen and ISGI.

- License

PCN index by DTU Space is licensed under the Creative Commons Attribution 4.0 International (CC BY 4.0) https://creativecommons.org/licenses/by/4.0/

- DOI

Definitive PCN index by DTU Space has DOI https://doi.org/10.11581/DTU:00000057

landing page: www.space.dtu.dk/wdc/pcn-index

```
 Format                  IAGA-2002                                          |
 Source of Data          DTU                                                |
 Station Name            Polar Cap North (PCN) index (from THL obs.)        |
 IAGA Code               PCN                                                |
 Geodetic Latitude       77.467                                             |
 Geodetic Longitude      290.767                                            |
 Data Interval Type      1-min                                              |
 Data type               Definitive                                         |
 # Missing values are indicated by value 99999.00                          |
 # PCN: Polar Cap index North, unit 1 mV/m                                  |
 # License: CC BY https://creativecommons.org/licenses/by/4.0/             |
DATE       TIME         DOY       PCN                                      |
2015-01-01 00:00:00.000 001       -0.23
2015-01-01 00:01:00.000 001       -0.28
2015-01-01 00:02:00.000 001       -0.32
2015-01-01 00:03:00.000 001       -0.36
2015-01-01 00:04:00.000 001       -0.38
2015-01-01 00:05:00.000 001       -0.37
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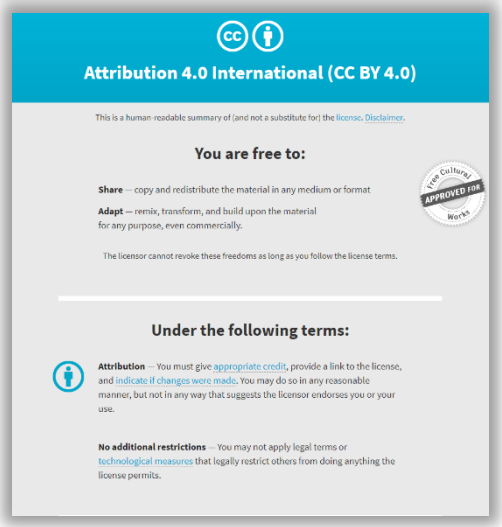
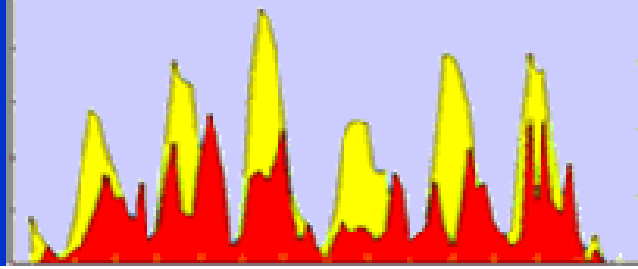


PC index – plans for near future

AARI and DTU Space are working on

- **Metadata on pcindex.org.** Enhanced presentation of PCS and PCN on pcindex.org and the WDC homepage in order to achieve consistency with other geomagnetic indices and to avoid confusion about index level (quick look, provisional or definitive).
  AARI and DTU Space
- Implementing a **DOI and license** for PCS index
  AARI
- Establishing a **new observatory** at **Thule Air Base** located nearby Qaanaaq (THL), to ensure long term data record (in a few years the present Qaanaaq observatory will likely be magnetically disturbed due to nearby houses and ongoing construction). Foundation for absolute house (with absolute pillar) and computer house are established. The buildings are planned to be ready in summer 2020
  DTU Space

Qaanaaq	QD lat, lon(deg.):	84.05 26.79
Thule Air Base	QD lat, lon(deg.):	83.19 25.25



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Report on the Kp index service IUGG Montreal, 2019

Jürgen Matzka, Oliver Bronkalla

GFZ German Research Centre for Geosciences, Potsdam, Germany
Geomagnetic Observatory Niemegk

Kp index

Contributing organisations:

- GA, GNS – Australia/NZ
- USGS, NRCAN - Americas
- BGS, SGU, DTU, GFZ – Europe

Australian Government
Geoscience Australia

GNS SCIENCE TE PŪ AO

BGS 1835

USGS science for a changing world

SGU Sveriges geologiska undersökning

Natural Resources Canada
Ressources naturelles Canada

DTU

GFZ Helmholtz-Zentrum POTSDAM

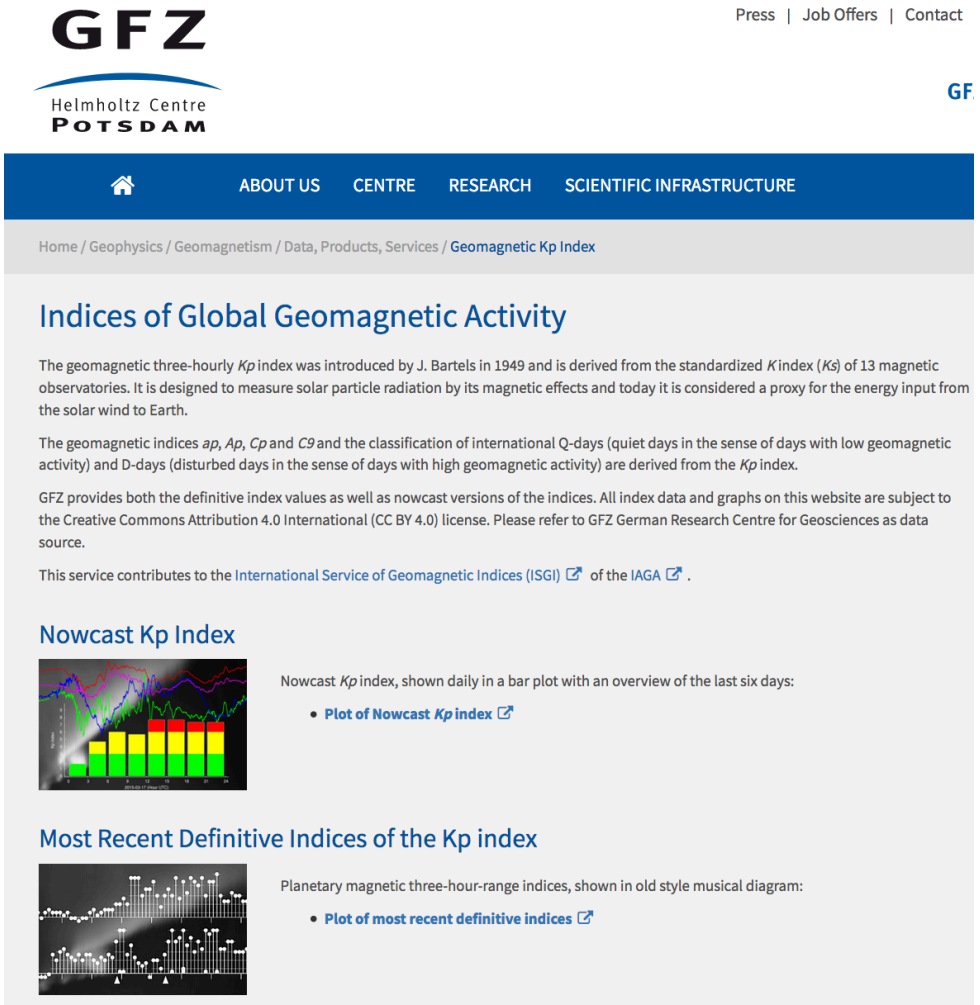
Properties:

- Available since 1932
- **3-hourly index**
- **0, 0+, 1-, 1o, …, 9-, 9**
- **Licence CC BY 4.0**, DOI coming soon

Kp index distribution

News:

- FTO server, no changes here
- Website easier for newcomers, more explanation for users higher up on the page

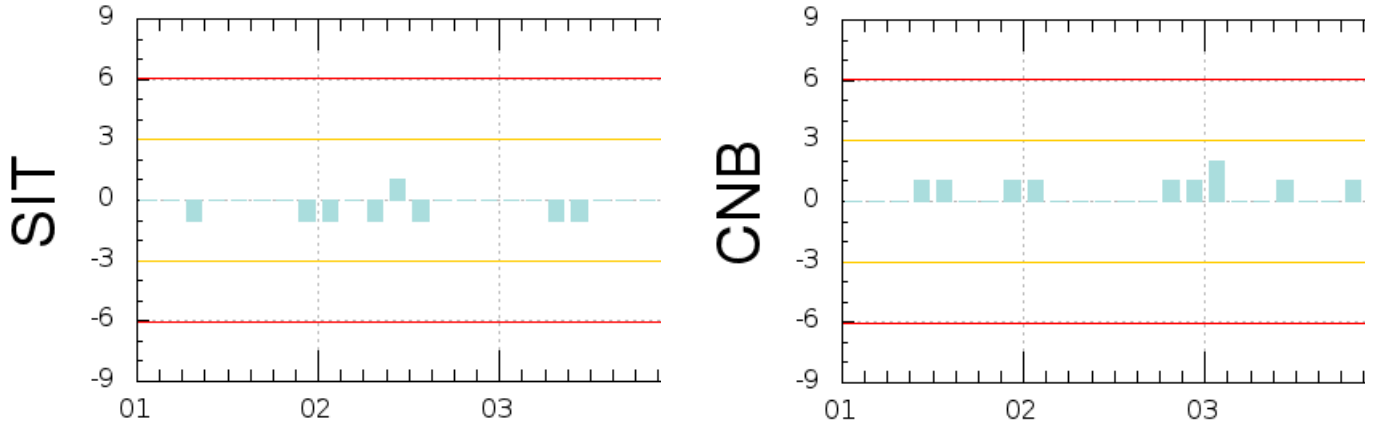


https://www.gfz-potsdam.de/en/kp-index/

Definitive Kp index

Based on K values reported by contributing organizations.
News:

- *sfe*s of September 6 and 10, 2017: K and non-flare K'
- Delays early 2019 due to US government shut down
- We looked at K-derivation methods used by individual organisations, example from January 2018:



FMI-algorithm minus definitive K is typically negative for SIT and positive for CNB. We are in contact with the contributing organizations to gain more knowledge on their algorithms.

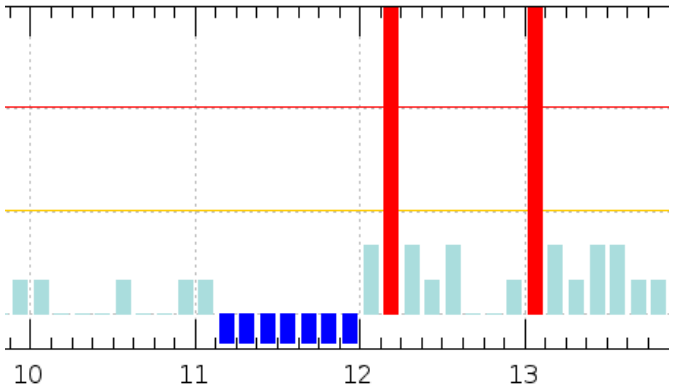
Nowcast Kp index

Based on NRT observatory data

News:

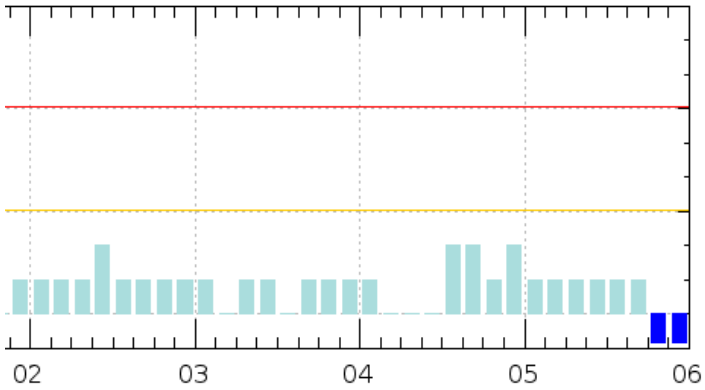
- After the INTERMAGNET FTP-server was changed in late 2018, data ingestion streamlined with the contributors:
- added redundancy: INTERMAGNET plus dedicated streams
- improved timeliness
- automatic and visual checks of K, example:

June 2019

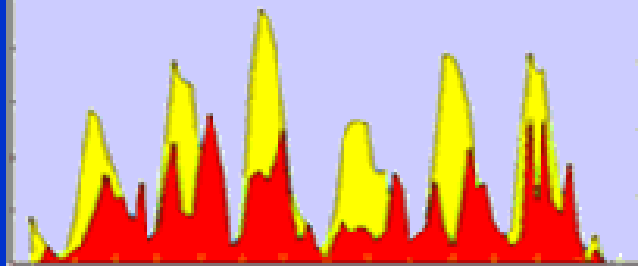


gaps, automatically removed K=9

July 2019



timeliness of NRT



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Status report on Dst and AE indices

Toh, H and S. Taguchi

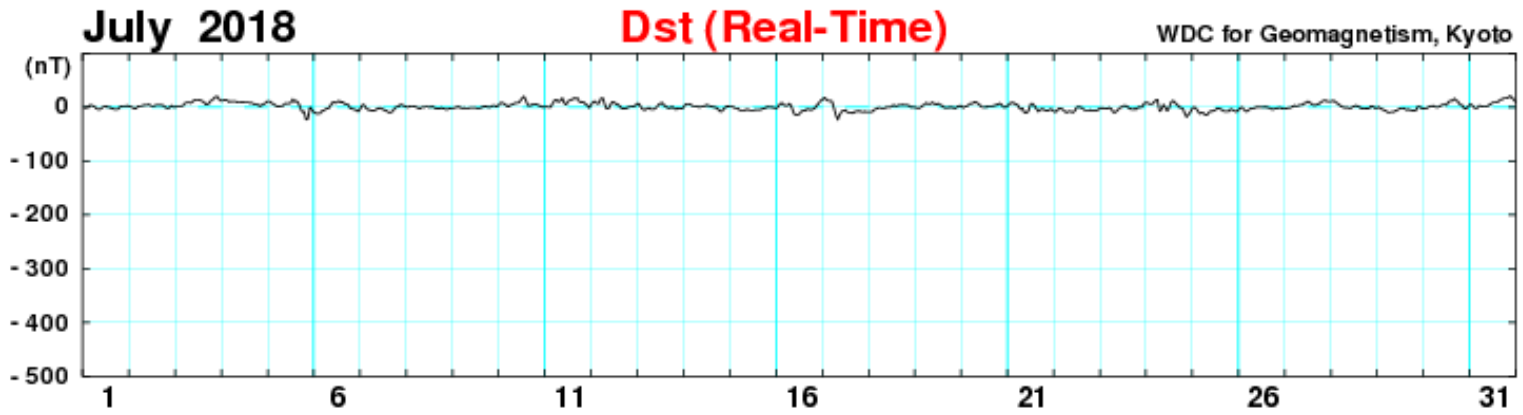
World Data Center for Geomagnetism, Kyoto

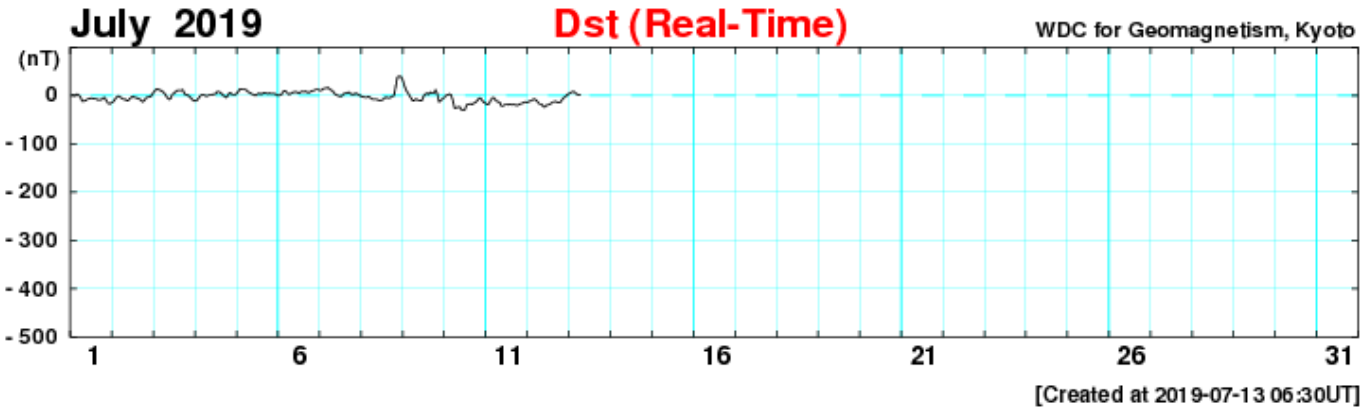
Current status of Dst index derivation (as of July 2019)

	Final	Provisional	Real-time
~2003	Done	←	
2004-2013	Done	←	←
2014		Done	←
2015 (+2017)		Done	←
2016-18			Done
2019/Jan-Jul			Done

- The Dst index is derived by cooperation with the following 4 stations.
  Kakioka [JMA, Japan], Honolulu and San Juan [USGS, USA], Hermanus [SANSA, South Africa]
- Digital data and plots are available at the following webpage:
  http://wdc.kugi.kyoto-u.ac.jp/dstdir/index.html
- DOI has been introduced. (doi:10.17593/14515-74000)

Example of Real-time Dst index





Current status of AE index derivation (as of July 2019)

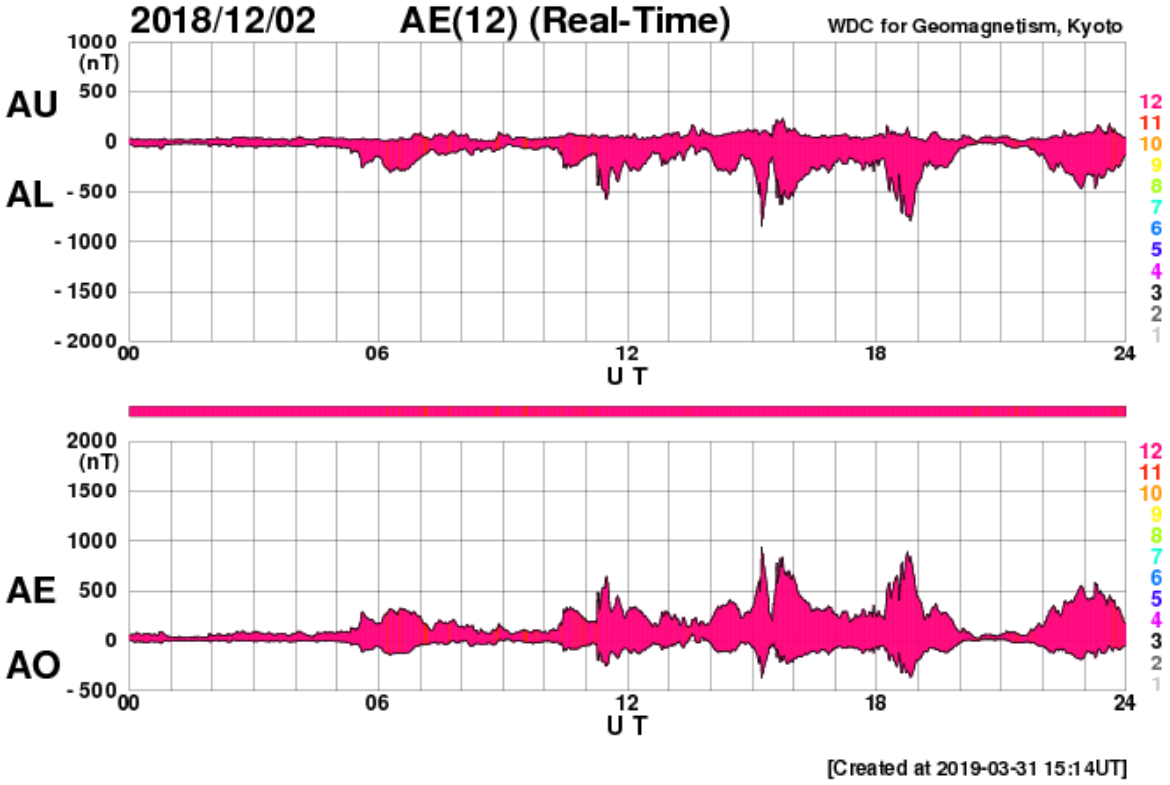
	Final	Provisional	Real-time
1978 – 1995	Done as final (or provisional)		
1996 – 2018 Feb 28		Done as provisional (substantially final)	
2018 Mar 01 – 2018 Oct 22			Done
2018 Oct 23 – present			Done (For most intervals, data from the complete 12 AE stations are used.)

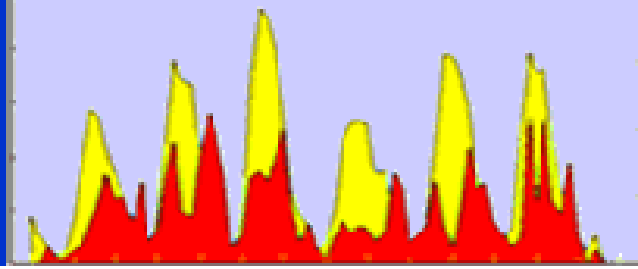
http://wdc.kugi.kyoto-u.ac.jp/aedir/index.html

DOI has been introduced: doi:10.17593/15031-54800)

Thanks to the effort for Pebek by the researchers at AARI, Russia

Example of Real-time AE index (from complete 12 AE stations)





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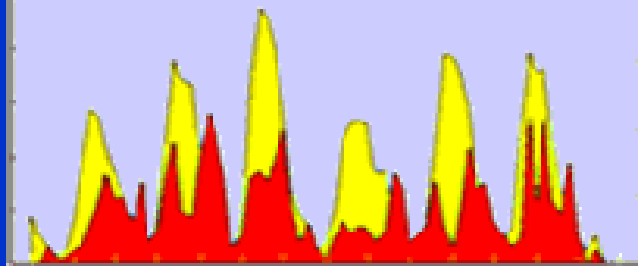
Service of Rapid Magnetic Variations. Lists of remarkable events: SC and Sfe

- Juan José Curto took the Service in 2018 after his predecessor, Fr. Alberca, died.
- Licence Creative Commons CC BY-NC 4.0
- To mint a DOI, a work in progress.
- 13 scientific papers in the last years to gain knowledge of the SC and SFE phenomena.
- A big effort in automatizing the process of detection. SC well developed, Sfe in progress.
- Use of new platforms (EPOS) to facilitate the access of the products to the users.
- Digitalization of old IAGA bulletins, so lists of Sfe (1970-1985) now available in digital form.
- Solar minimum: few events in the lists.
- Development of an ionospheric index from GSNN data being sensitive to solar flare as a proxy of Sfe (in this congress).



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British Geological Survey
Expert | Impartial | Innovative

Gateway to the Earth

Recent Developments in INTERMAGNET
An Update

www.intermagnet.org

Simon Flower[1], Alan W P Thomson[2]

[1]Chair, Operations Committee of INTERMAGNET
[2]Chair, Executive Council of INTERMAGNET

O
D

Aims and Activities

The INTERMAGNET mission is to

"Establish and maintain an organization with a worldwide membership drawn from institutes operating geomagnetic observatories that is dedicated to building a network of geomagnetic observatories supplying consistent data, with the geographical coverage, quality, and timeliness of delivery required to meet the evolving needs of research and applied science"

What we do

- Set standards for measurement, processing, formats and transmission
- Provide advice on establishing new observatories
- Support data services, as a member of the World Data System
- Communicate with data users to promote use of INTERMAGNET data
- Work closely with organizations concerned with magnetic observatory operations
- Maintain a dialog with technology providers

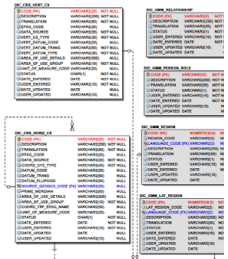
- Started in 1991
- Run by an Operations Committee and an Executive Council
- Produces an annual 1-minute definitive data set

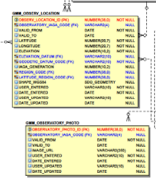
O
D

Acces

Project	: GeomagMetadataCorporate.DM1
File Name	: GeomagMetadataCorporate.DM1
SubModel	: GMM
Author	: Anne Richardson
Company	: British Geological Survey
Version	: 2.7 | Modified: 18/06/2019
Copyright (c) 2019 British Geological Survey	

Existing BGS Dictionary | GMM Table | GMM Dictionary





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AREA_OF_USE_GROUP	VARCHAR2(10)	NOT NULL
UNIT_OF_MEASURE_CODE	VARCHAR2(20)	NULL
STATUS	CHAR(1)	NOT NULL
DATE_ENTERED	DATE	NOT NULL
USER_ENTERED	VARCHAR2(10)	NOT NULL
DATE_UPDATED	DATE	NULL
USER_UPDATED	VARCHAR2(10)	NULL

DIC_CRS_HORIZ_CS

CODE (PK)	VARCHAR2(20)	NOT NULL
DESCRIPTION	VARCHAR2(200)	NOT NULL
TRANSLATION	VARCHAR2(80)	NOT NULL

GMM_CONSTANT_PROPERTIES

CONSTANT_PROPERTIES_ID (PK)	NUMBER(38,0)	NOT NULL
GROUP_NAME	VARCHAR2(50)	NULL
CONST_NAME	VARCHAR2(50)	NULL
CONST_VALUE	VARCHAR2(250)	NULL
ADDITIONAL_INFO	VARCHAR2(250)	NULL
USER_ENTERED	VARCHAR2(10)	NOT NULL
DATE_ENTERED	DATE	NOT NULL
USER_UPDATED	VARCHAR2(10)	NULL
DATE_UPDATED	DATE	NULL

DIC_GMM_RELATIONSHIP

CODE (PK)	VARCHAR2(5)	NOT NULL
DESCRIPTION	VARCHAR2(250)	NOT NULL
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STATUS	VARCHAR2(1)	NOT NULL
USER_ENTERED	VARCHAR2(10)	NOT NULL
DATE_ENTERED	DATE	NOT NULL
USER_UPDATED	VARCHAR2(10)	NULL
DATE_UPDATED	DATE	NULL

GMM_INTERMAGNET_OBSERV

OBSERVATORY_IAGA_CODE (PK)(FK)	VARCHAR2(4)	NOT NULL
INTERMAGNET_GIN_CODE (FK)	VARCHAR2(20)	NULL
PUBLICATION_DELAY	NUMBER(10,2)	NULL
PLOT_DELAY	NUMBER(10,2)	NULL
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DATE_ENTERED	DATE	NOT NULL
USER_UPDATED	VARCHAR2(10)	NULL
DATE_UPDATED	DATE	NULL
GIN_COMMS	VARCHAR2(100)	NULL

DIC_GMM_PERSON_ROLE

CODE (PK)	VARCHAR2(5)	NOT NULL
DESCRIPTION	VARCHAR2(250)	NOT NULL
TRANSLATION	VARCHAR2(50)	NOT NULL
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USER_ENTERED	VARCHAR2(10)	NOT NULL
DATE_ENTERED	DATE	NOT NULL
USER_UPDATED	VARCHAR2(10)	NULL
DATE_UPDATED	DATE	NULL

GMM_INST_PERSON_CONN

INST_PERSON_CONN_ID (PK)	NUMBER(38,0)	NOT NULL
INSTITUTE_ID (FK)	NUMBER(38,0)	NULL
PERSON_ID (FK)	NUMBER(38,0)	NOT NULL
VALID_FROM	DATE	NOT NULL
VALID_TO	DATE	NULL
ROLE_CODE (FK)	VARCHAR2(5)	NULL
USER_ENTERED	VARCHAR2(10)	NOT NULL
DATE_ENTERED	DATE	NOT NULL
USER_UPDATED	VARCHAR2(10)	NULL
DATE_UPDATED	DATE	NULL

DIC_GMM_REGION

CODE (PK)	NUMBER(38,0)	NOT NULL
REGION_CODE	VARCHAR2(5)	NOT NULL
LANGUAGE_CODE (FK)	VARCHAR2(2)	NOT NULL
DESCRIPTION	VARCHAR2(250)	NOT NULL

1-Second Data

Table 1 – INTERMAGNET One-second Definitive Data Specifications	
General Specifications	
Time-stamp accuracy	0.01 s
Phase response	±0.01 s
Maximum filter width	25 seconds
Instrument Amplitude Range	≥±4000 nT High Latitude, ≥±3000 nT Mid/Equatorial Latitude
Data resolution	1 pT
Pass band	DC to 0.2 Hz
Maximum component orthogonality error	2 mrad
Maximum Z-component verticality error	2 mrad
Pass Band Specifications [DC to 8 mHz (120 s)]	
Noise level	≤100 pT RMS
Maximum offset error	±2. 5 nT
Maximum component scaling & linearity error	0.25%
Pass Band Specifications [8 mHz (120 s) to 0.2 Hz]	
Noise level	≤10 pT/√Hz at 0.1 Hz
Maximum gain/attenuation	3 dB
Stop Band Specifications [≥ 0.5 Hz]	
Minimum attenuation in the stop band (≥ 0.5Hz)	50 dB
Auxiliary measurements:	
Compulsory full-scale scalar magnetometer measurements with a data resolution of 0.01 nT at a minimum sample period of 30 seconds. Compulsory vector magnetometer temperature measurements with a resolution of 0.1 °C at a minimum sample period of one minute.	

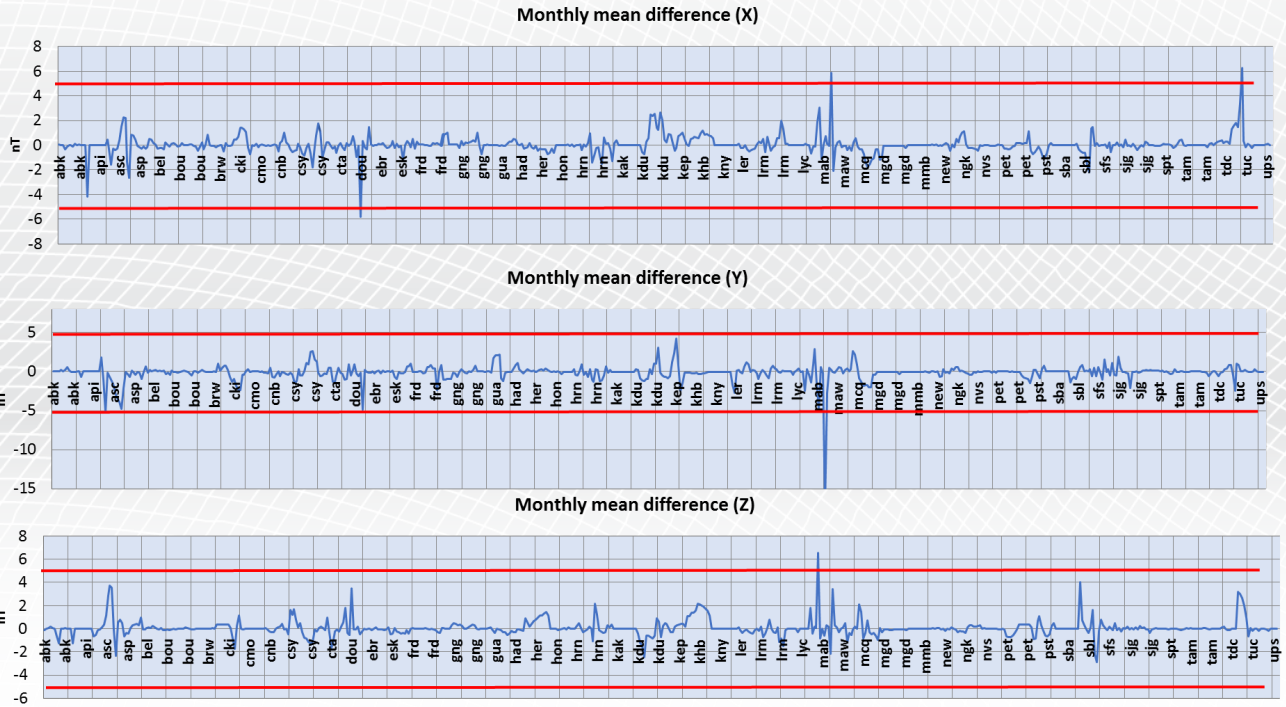
In response to new developments in instrumentation and the requirements of the research community, **INTERMAGNET has set a new quality standard for 1-second data and has called for observatories to supply absolute one-second data.**

The INTERMAGNET definitive one-second standard demands not only a faster sampling rate, but also sets higher demands on noise, absolute level and frequency response of the published data sets.

1-second data are currently available from 36 INTERMAGNET observatories from 2014 onwards.

O
D

Quasi-Definitive Data



Quasi-Definitive Data (QDD) are data that have been corrected using provisional baselines.

Produced soon after acquisition, 98% of the differences between QDD and definitive data (X, Y, Z) monthly mean values should be less than 5nT.

QDD are intended to support field modelling activities during the modern satellite survey era, providing extra constraints on, for example, secular variation modelling.

Data quality example from 2015: 53 INTERMAGNET observatories

- Only 1% of data falls outside the 5nT acceptance limit (from 4 observatories)
- 23% of daily QDD failed to be delivered within 90 days of measurement

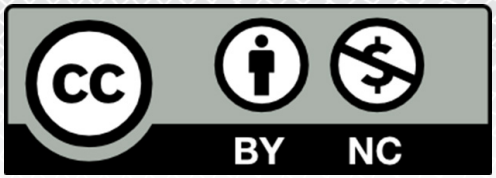
O
D

Data Licensing

The Creative Commons 4.0 CC-BY-NC is the default license for data available from INTERMAGNET. This allows products to be developed from the data but protects against unauthorised commercial use.

The existing data licence available for many years on the INTERMAGNET web site is similar in substance to the CC-BY-NC licence but changing to a Creative Commons licence will mean:

- The licence is widely understood
- It is machine readable
- It is available in multiple languages



Some INTERMAGNET institutes may have less restrictive licenses attached to their data.

Previous INTERMAGNET Data License

"The data made available through INTERMAGNET are provided for your use and are not for commercial use or sale or distribution to third parties without the written permission of the institute operating the observatory."

D

Digital Object Identifiers

INTERMAGNET has published its first DOI, for the 2013 definitive data DVD. The landing page (right) for the DOI is hosted by GFZ. Data for 2013 are also available from this site.

INTERMAGNET will replace publishing data on physical objects (CD, DVD or USB) with publication of DOIs for 2016 data and onwards.

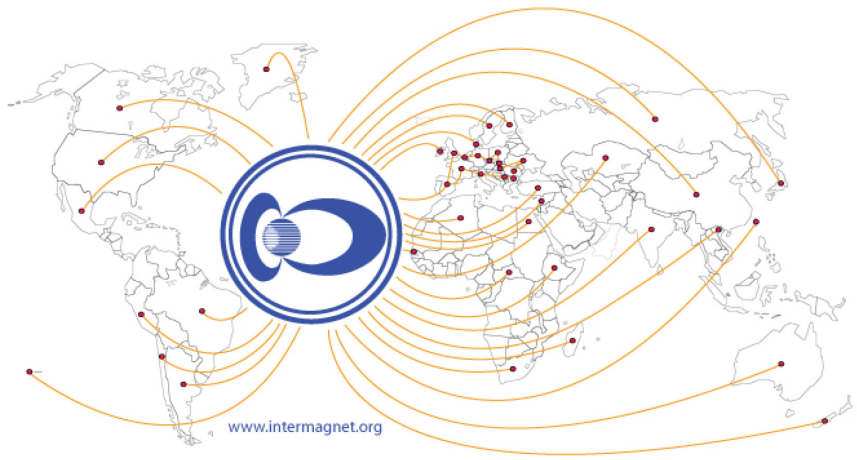
INTERMAGNET will also mark the last production of definitive data on a physical medium, by producing a 'celebration' USB for the 2015 data, which will include all definitive data produced since 1991. **For 2016 data onwards, we will introduce the concept of an INTERMAGNET Reference Data Set (IRDS).**

The DOI system should:

- allow citation of data
- allow acknowledgment for data providers
- allow discovery and on-line access to data
- allow re-use and reproducibility of data
- include metadata to uniquely identify data

D

Technical Manual



INTERMAGNET

Technical Reference Manual

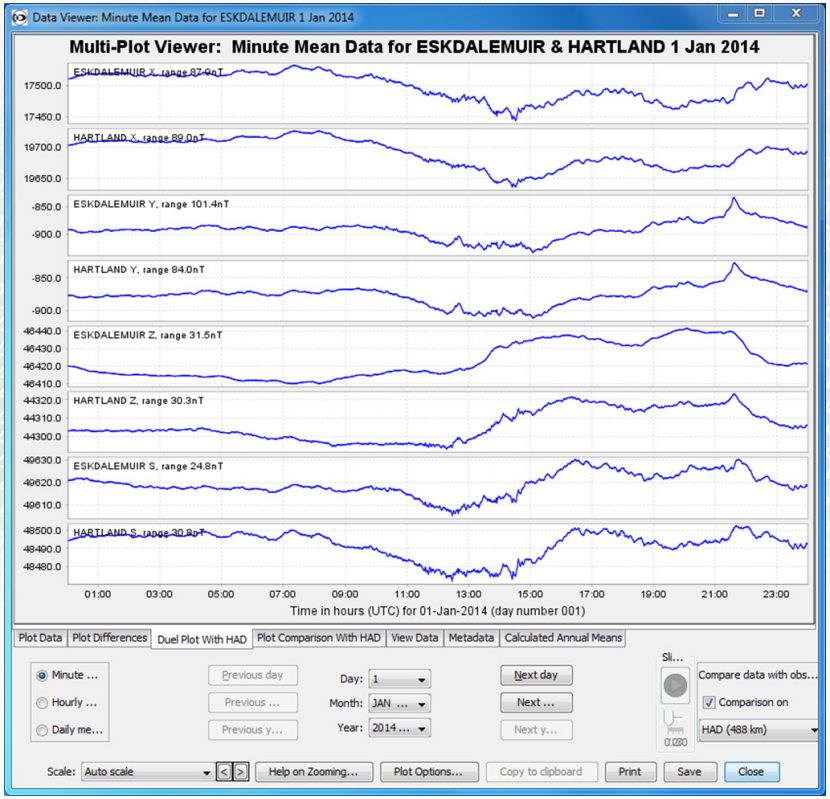
www.intermagnet.org/publication-software/technicalsoft-eng.php

Version 5.0.0 draft 0.9 (2018)

INTERMAGNET's technical manual describes standards for data measurement, processing, formatting and data submission to INTERMAGNET. The manual also describes how to join INTERMAGNET.

Version 5 of the technical manual is nearing completion and will soon be released to existing and prospective INTERMAGNET members.

Software



INTERMAGNET develops software for community use.

A collection of source code can be found on the **INTERMAGNET GitHub**. This includes routines and toolboxes in Python, Mathematica, Matlab, IDL and Java for reading and writing the INTERMAGNET CDF format *ImagCDF*. This repository is open for other source code that would be useful to the community and **we encourage software contributions from the scientific community**.

Examples

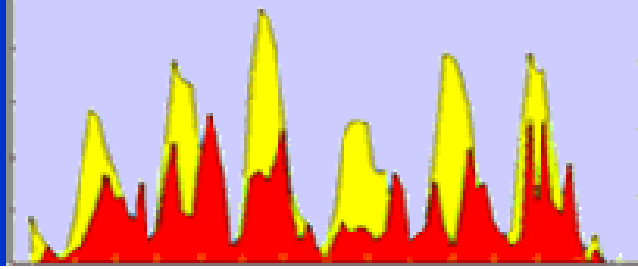
Imcdview (left) is an application for manipulating 1-minute definitive data and works with IAGA-2002 format.

Gm_convert allows conversion between many magnetic data formats, such as IAGA-2002, WDC format and several INTERMAGNET formats.

MagPy is a Python package for analysing data.

http://intermagnet.org/publication-software/software-eng.php

Working Group V-DAT: Geomagnetic Data and Indices



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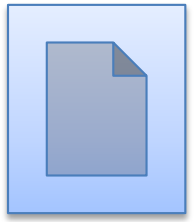
Data DOI Task Force

- This Task Force discusses issues related to the DOI-minting to the geomagnetic data products and shares the results of discussion with the WG V-DAT members.
- TF members
  - Masahito Nosé, Susan Macmillan, Erin Rigler, Manoj Nair, Brian Meyer, Aude Chambodut, Ellen Clarke, Kusumita Arora, Bhaskara Veenadhari, Renata Lukianova, Simon Flower, Jürgen Matzka, Gerhard Schwarz, Alena Rybkina, Vincent Lesur, Kirsten Elger, Heather McCreadie, Anatoly Soloviev (18 members)

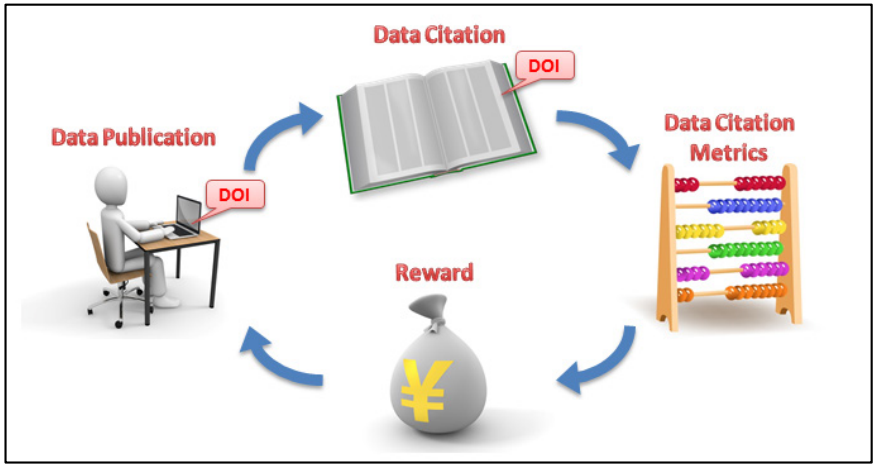
- The TF made a survey about present status of DOI-minting to geomagnetic data or indices. Survey results are compiled in a report.
- The report for 2019 is available from the V-DAT web page. (https://www.ngdc.noaa.gov/IAGA/vdat/TaskForce/doi.html)

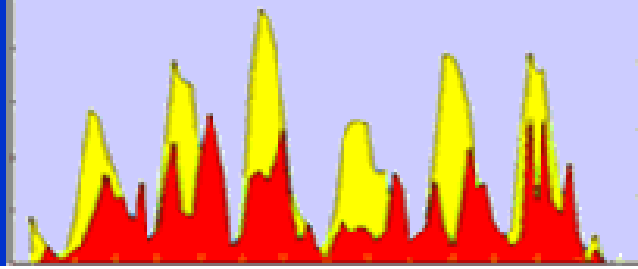


TF Report on "Present Status of Data Publication and Data Citation of Geomagnetic Data/Indices"

	Data Publication (Number of DOI-minting)	Data Citation (Number of DOI-citing)
Denmark (DTU)	1 [PCN]	0
France (BCMT)	2	0
Germany (GFZ)	6	6
INTERMAGNET	1	0
Japan (WDCs)	18 [Dst, AE]	3
Russia (RAS)	72	10
USA (NECI)	9	0

- Data citation has just started.
- That's one small step for each data center, one giant leap for the Division V community.





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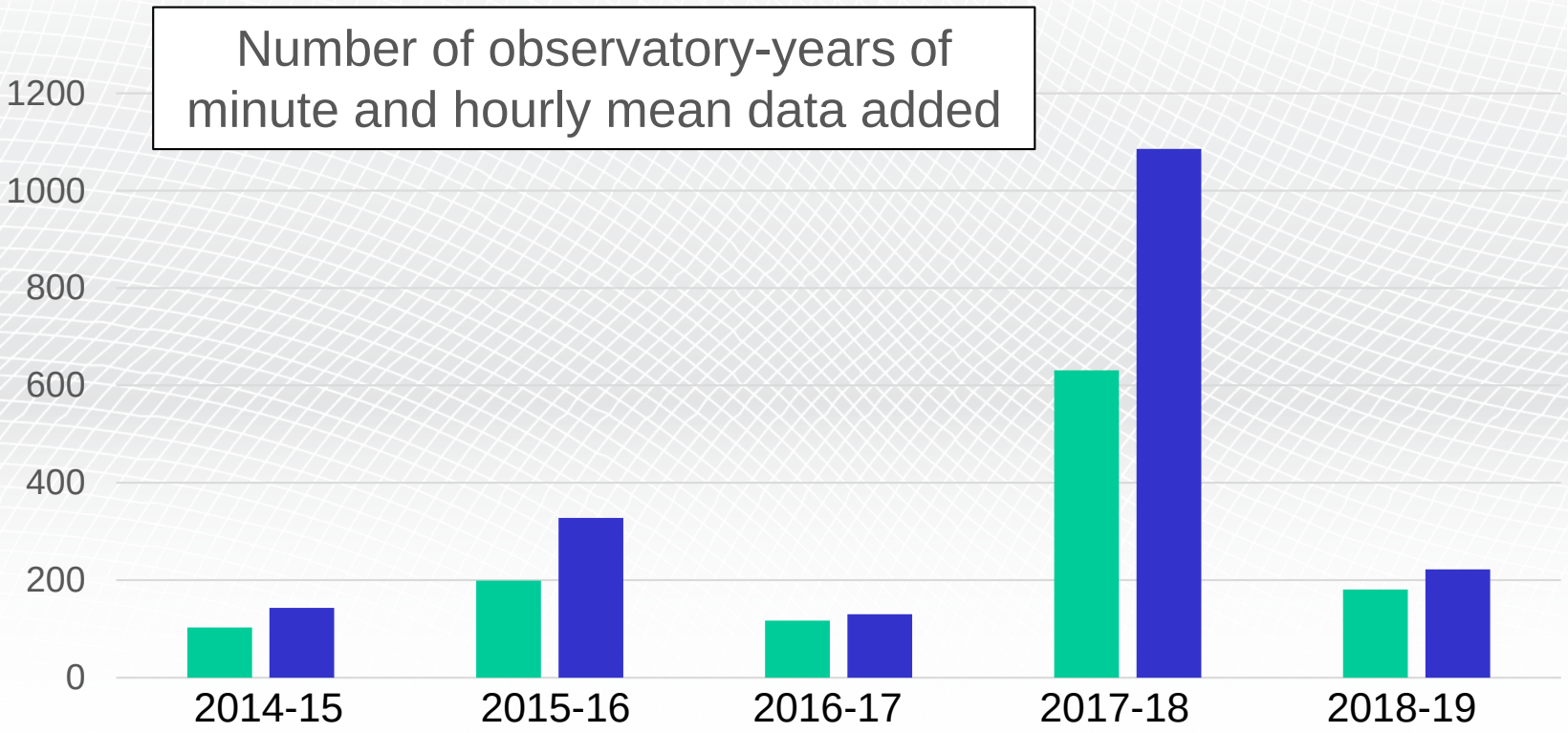
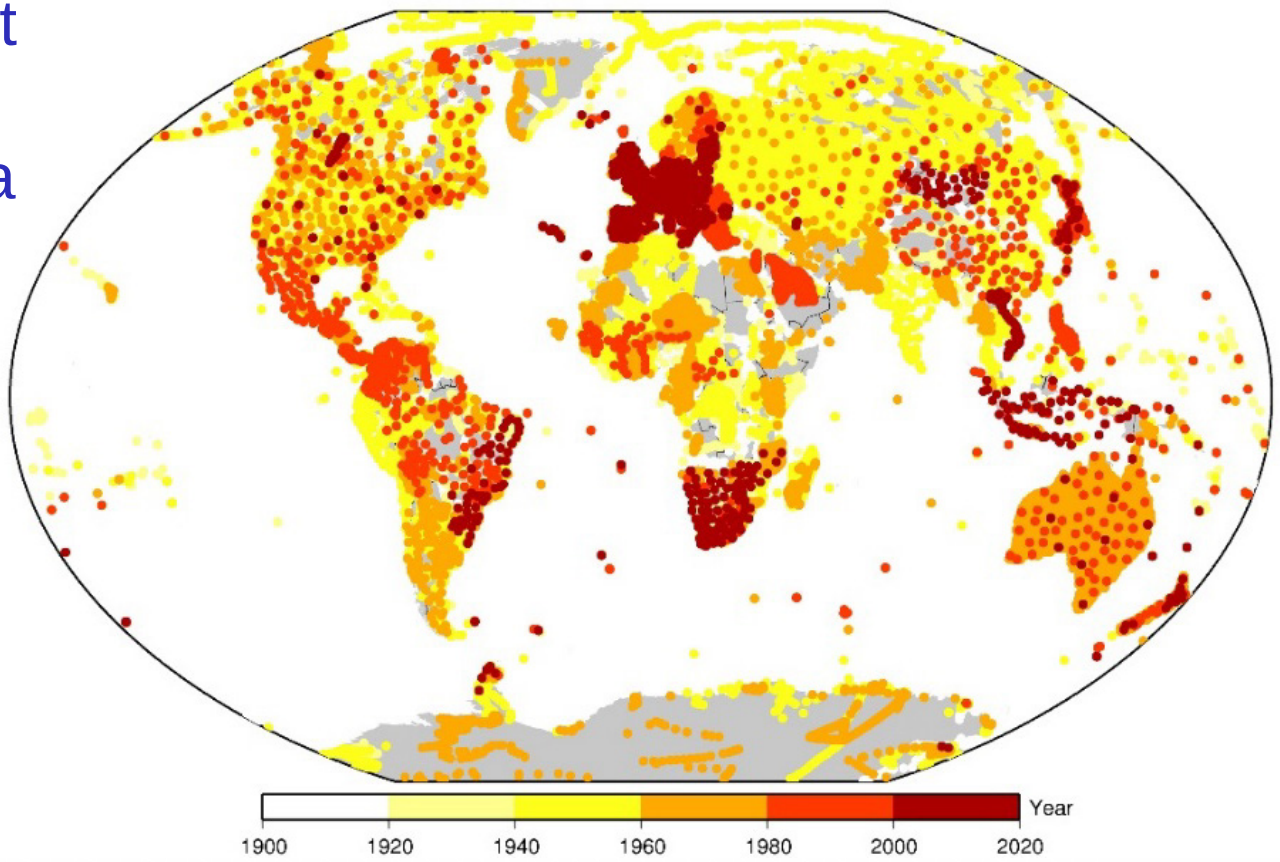
World Data Centre- BGS Edinburgh

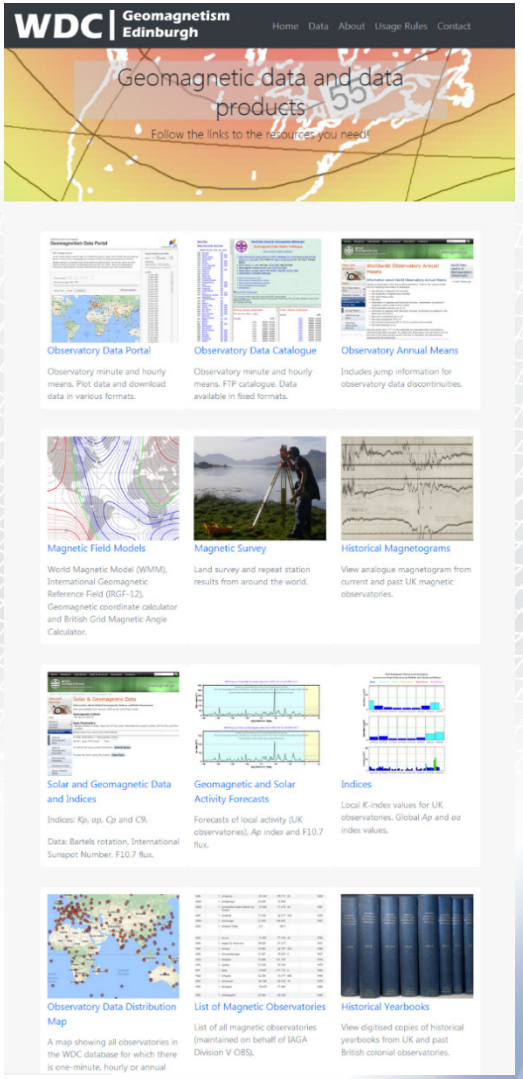


World Data Centre- BGS Edinburgh

Most recent repeat station data added



New WDC website



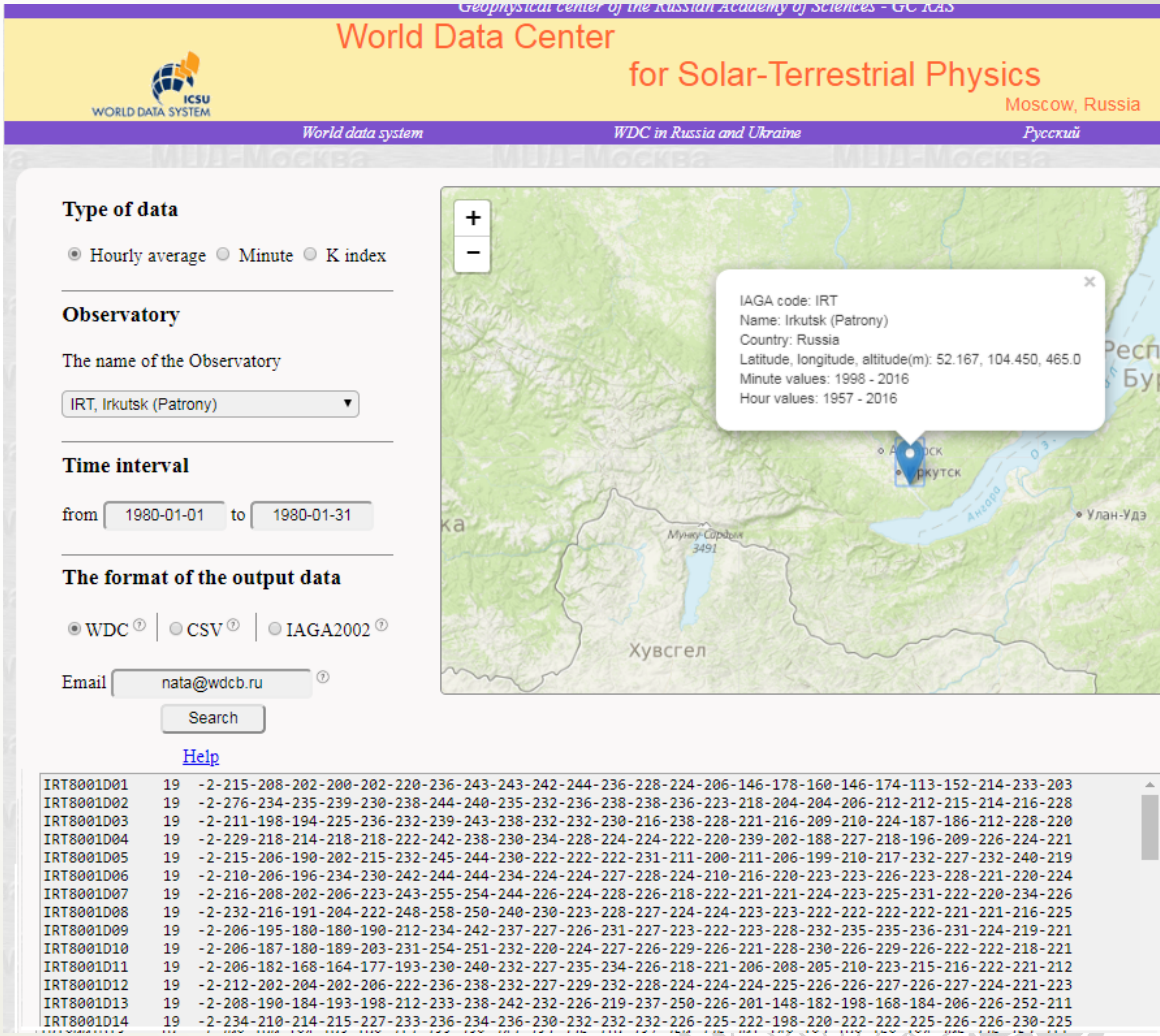
wdc.bgs.ac.uk

WDC for STP in Moscow activities

Database for geomagnetic data and **special software** are being created to upgrade the storage technology of large data arrays and modify the means of access to them. Simple, user-friendly interface for the work with online database will be provided to users.

Online database will contain hourly mean and one-minute values of geomagnetic field components, and values of *K* index according to the observatories of Russia and CIS countries.

The user can get data in one of three output formats, such as WDC, CSV or IAGA2002, and save sampling.



WDC for STP in Moscow activities

"Earth Science DataBase" Project

Goals: - creation of a modern system for geophysical data registration and publication with Digital Object Identifier (DOI) minting through Crossref agency;

- promotion of a culture of data citation.

DOIs are assigned to geomagnetic data of the WDC for STP and observatories of the Russian-Ukrainian INTERMAGNET segment

http://esdb.wdcb.ru

Earth Science DataBase
GEOPHYSICAL CENTER RAS

Please enter the doi that you want to resolve:
10.2205/KLI2011
Crossref

Home | DOI

Main Page of the Central Repository

About ESDB

ICSU-World data System, CODATA, DataCite, CrossRef, Force 11 and other
facilitation of access to high-quality scientific data for researchers and ack
research that is used during the creation of scientific products and is to be
articles, books etc.

At the same time Earth Science DataBase - ESDB project was started in the
Terrestrial Physics that is the regular member of ICSU-WDS. The focus of E
data registration, publication and DOI assignment used for unique identifi

The system of registration and publication of geophysical data being creat
identification and management of intellectual content, metadata manager
including detailed description of data itself and information about data pr

Home | D

© 2014— 2019 Geophysical Cente

Earth Science DataBase
GEOPHYSICAL CENTER RAS

Please enter the doi that you want to resolve:
10.2205/KLI2011
SUBMIT
Crossref

Geomagnetic data recorded at Geomagnetic Observatory White Sea (IAGA code: WSE)

WSE geomagnetic database

Landing Page

Abstract

3-second values of Y and Z components and total intensity F of the Earth's magnetic field recorded by POS-4 vector Overhauser magnetometer at White Sea geomagnetic observatory

Contributor: Geophysical Center of the Russian Academy of Sciences (GC RAS), Moscow, Russia;

Institution: Geophysical Center of the Russian Academy of Sciences (GC RAS), Moscow, Russia;

Publisher: Geophysical Center of the Russian Academy of Sciences (GC RAS), Moscow, Russia (http://www.gcras.ru/eng/)

doi: https://doi.org/10.2205/WSE-database

Citation: Soloviev, A., R. Sidorov, A. Grudnev, A. Khokhlov, M. Dobrovolsky, D. Kudin, V. Sapunov (2019), Geomagnetic data recorded at Geomagnetic Observatory White Sea (IAGA code: WSE). E https://doi.org/10.2205/WSE-database.

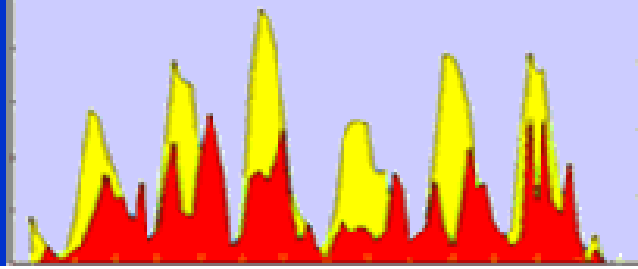
License: This work is licensed under a Creative Commons Attribution-NonCommerc

URL for downloading: http://geomag.gcras.ru/dataprod-down.html

© 2014— 2019 Geophysical Center RAS

In 2014-2019 DOIs were assigned to 8 Databases & 58 Data sets

Working Group V-DAT: Geomagnetic Data and Indices



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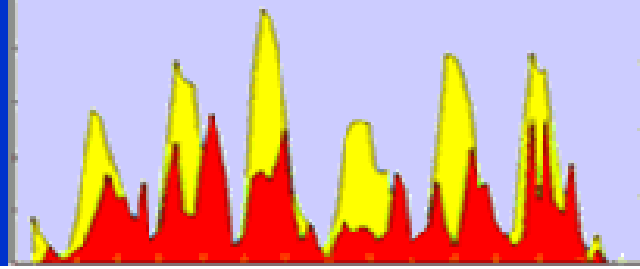


Election of new officers

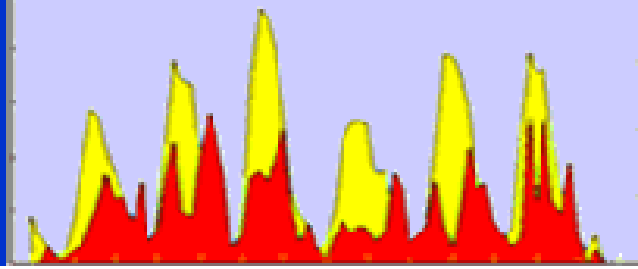
Chair:

- Ellen Clarke (British Geological Survey, United Kingdom)

Co-Chair:

- Anna Willer (DTU, Denmark)
- Any other candidates?

Working Group V-DAT: Geomagnetic Data and Indices



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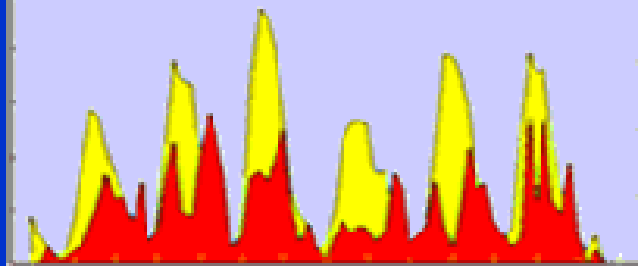


Resolution (proposed)

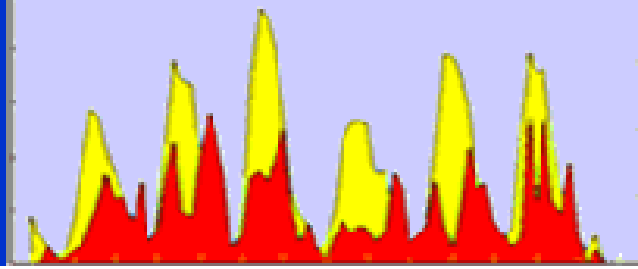
- Resolution: SC and SFE lists of remarkable events: support to Ebro observatory

  IAGA,
  recognising the outstanding contribution of the Ebro Observatory in providing long time series of data on geomagnetism, ionospheric physics, and solar activity, and the ever-increasing need for continuing these long series of data for present and future studies such as those related to Global Change,

  and noting that, in accordance with IAGA Resolutions no 6 at the XVI IUGG General Assembly (1975), and no 8 at the 8th IAGA Scientific Assembly (1997), Ebro, Observatory is responsible for the collection and preparation of SC and SFE Lists of magnetic remarkable events,

  expresses deep appreciation for the work performed by the Observatory,
  and recommends that every possible effort be made to continue operation of Ebro Observatory and production of SC and SFE lists of remarkable events.

Working Group V-DAT: Geomagnetic Data and Indices



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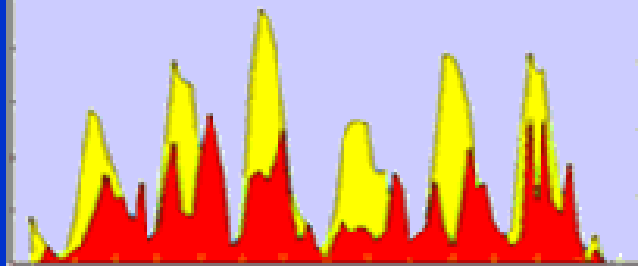


Sessions for IAGA-IASPEI 2021

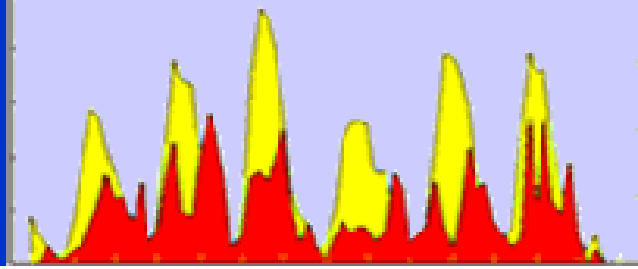
- Geomagnetic indices: derivation, history, evolution, application for space weather, real-time service, prediction and forecasting, ….
- Licensing, data publication, data citation (+trustworthy repository???) (+IASPEI)
- Geomagnetic observations for Earth and space science and for space weather and climatology applications?? (V-OBS, V-DAT, Div 4 and IDSW?)

IUGG 2019, Montreal, Canada:
- Geoscience data licensing, production, publication, and citation
- Dependable, long-term geomagnetic indices and modern, index-based services: 70th anniversary of the Kp index
- Geomagnetic observations for Earth and space science and for space weather applications

IUGG 2017, Cape Town, South Africa:
- Magnetic data, indices and derived products for space weather and space climate research
- The referencing of geophysical data products: The role of DOIs

IUGG 2015, Prague, Czech Republic:
- Geophysical and Geomagnetic Diagnosis of the Sun and Near-Earth Space
- Geomagnetic Observations under a Quiet Sun: the 50th Anniversary of the "International Year of the Quiet Sun"
- Use of Indices and Recovered Analogue Records in Geophysical Data Analysis

Working Group V-DAT: Geomagnetic Data and Indices



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