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World Data Centre for Geomagnetism, Edinburgh

WDC
MEMBERS
FORUM
2025



British
Geological
Survey

INTRODUCTION

World Data Centre for Geomagnetism, Edinburgh



- The World Data Centre (WDC) for Geomagnetism, Edinburgh serves the geomagnetism community by hosting and providing access to geomagnetic data.
- Regular member of WDS since 2012
- Holdings includes:

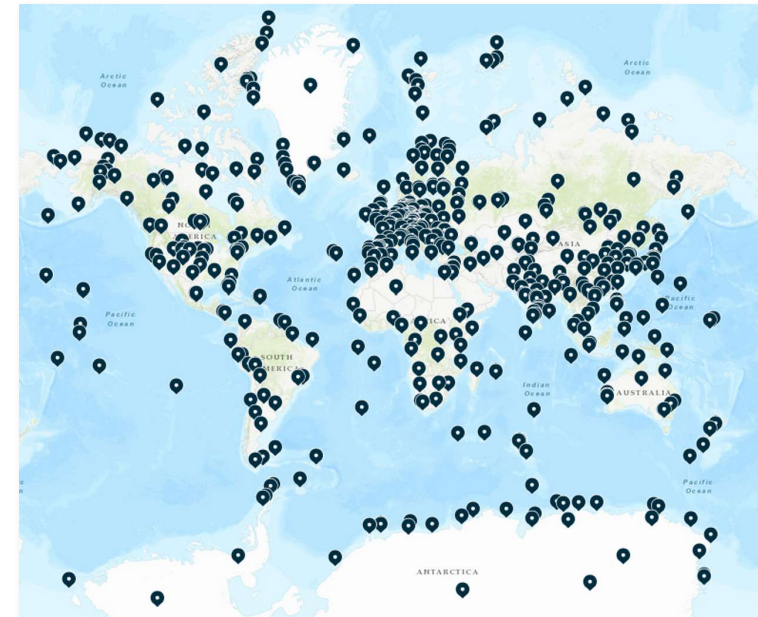
Data and metadata for ~500 magnetic observatories worldwide.

Definitive geomagnetic observatory data:
annual means (from 1813), hourly means (from 1883), minute means (from 1969)

Magnetic survey records & magnetic field models.

Historic UK magnetograms (from 1850), including an online archive of scans.

Physical storage of historic observatory yearbooks from UK and worldwide.



Progress 2023-2025



NEW DEVELOPMENTS

New WDC Portal

- Launched October 2024

Data discovery

- Temporal, spatial and text-based filtering.
- Filter by geographic or geomagnetic coordinates (quasi-dipole or dip angle).

The screenshot displays the BGS Geomagnetism World Data Centre for Geomagnetism portal. The interface is divided into several sections:

- Map:** A world map showing the distribution of observatories. A 'Text Filter' box is present, and a 'Reset Filters' button is located above it.
- Data:** A section for filtering data. It includes radio buttons for 'Geographic' (selected) and 'Geomagnetic'. Below these are input fields for 'Min Latitude' (-90), 'Max Latitude' (90), 'Min Longitude' (-180), and 'Max Longitude' (180). A 'Reset Selection' button is at the bottom right of this section.
- Selected Observatories:** A table listing selected observatories. It has columns for 'Code', 'Name', and 'Details'. One observatory, COI (Coimbra), is listed and selected.
- All Observatories:** A table listing all available observatories. It has columns for 'Code', 'Name', and 'Details'. Several observatories are listed, including ABN (Abinger), ABK (Abisko), ADA (Adak), AAE (Addis Ababa), AGN (Agincourt), and ALE (Alert).

Explore the new portal: wdc-dataportal.bgs.ac.uk

NEW DEVELOPMENTS

New WDC Portal

Data discovery

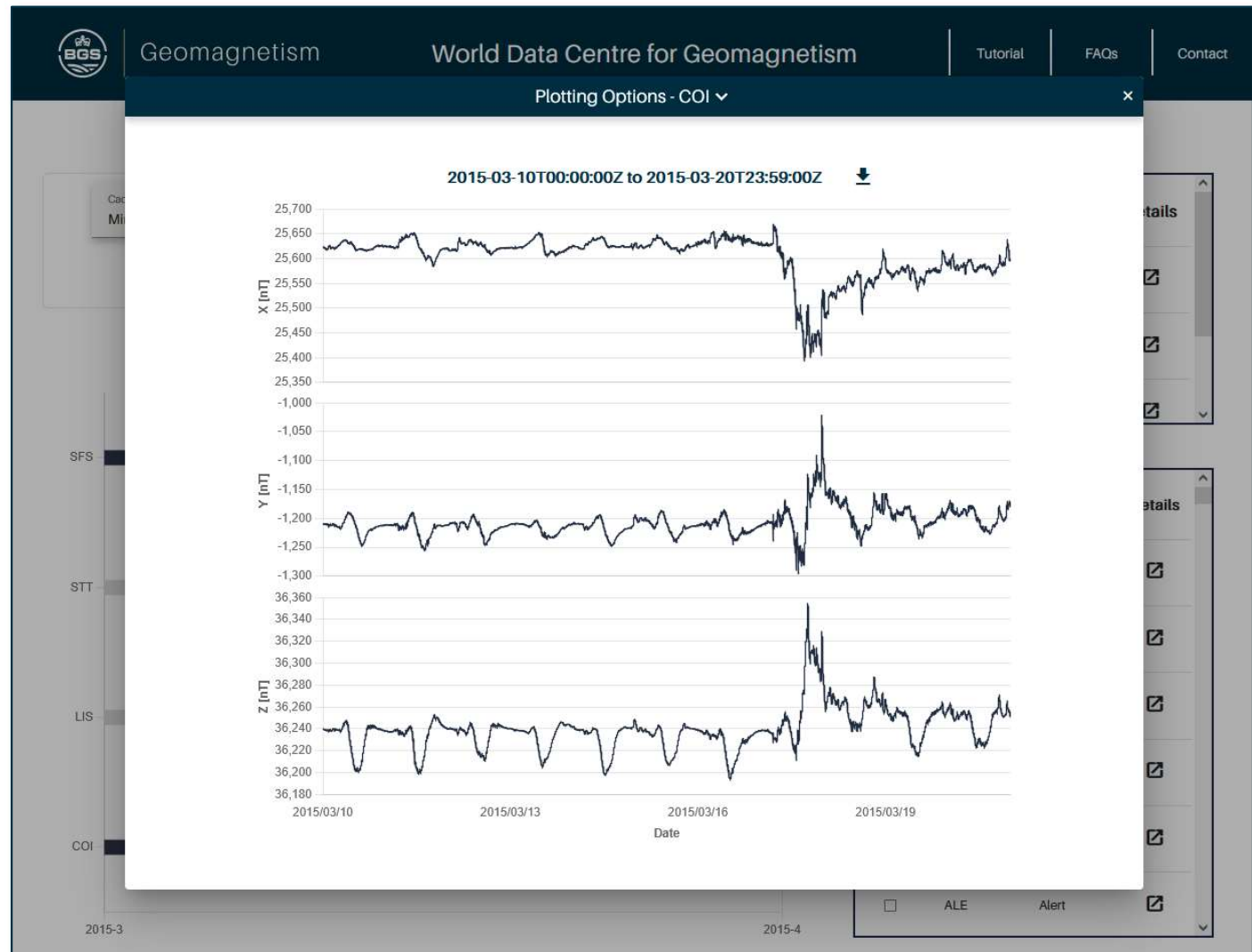
- Data availability can be displayed as a chart.

Data plotting and preview

- Users can view the original dataset or convert orientation

Data downloads

- Data download options in range of interoperable and community-standard formats.



Explore the new portal: wdc-dataportal.bgs.ac.uk

NEW DEVELOPMENTS

New API (application programming interface)

- Conforms to OpenAPI Specification (OAS) defining a standard, language-agnostic interface to HTTP API.
- Various Endpoints available for data and metadata discoverability and download.
- Community endpoints for:
 - HAPI (*Heliophysics Data Application Programmer's Interface*)
 - INTERMAGNET
 - EPOS (*European Plate Observing System*)

WDC Portal | INTERMAGNET | EPOS

Geomagnetism WDC Edinburgh API

World Data Centre (WDC) API 1.0.0 OAS 3.1

</openapi.json>

Here you can find the home of the documentation for the API for the World Data Centre for geomagnetism at Edinburgh, hosted by the British Geological Survey.

Data is available in all standard formats (IAGA-2002, WDC, XML, JSON, CSV) as zipped downloads or as text endpoints.

Metadata for all observatories are also available. The metadata database will be updated soon, ensuring the latest up-to-date results.

WDC Endpoints

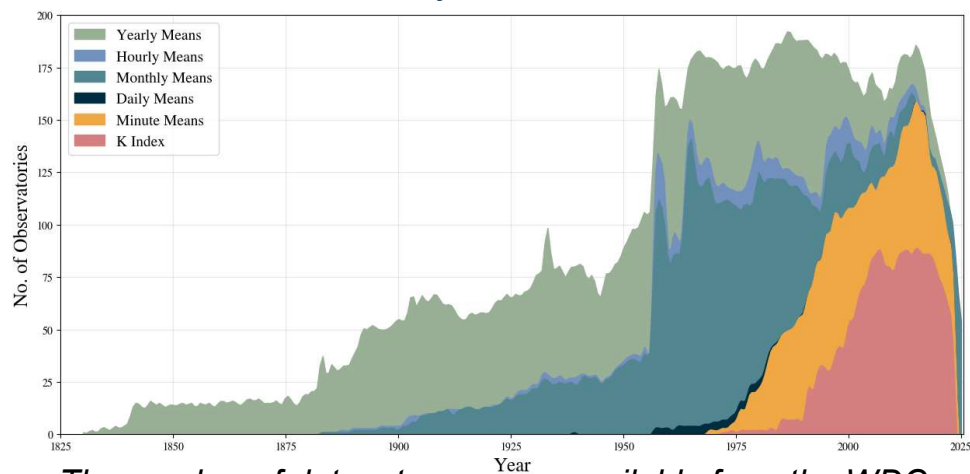
- Observatory Metadata - All Metadata and Contacts
- WDC GeoJSONs
- Data Availability
- Zipped Data
- Text Data
- Monthly Mean Files in BGS Format
- Annual Means Catalogue
- Observatory Acknowledgement

API Documentation: wdcapi.bgs.ac.uk/docs

NEW DEVELOPMENTS

More data types available

- More data types, and time cadences, now available from the portal and API
 - Daily Means
 - K-index
 - One-second data
 - Annual Means
 - Monthly Means



The number of datasets per year available from the WDC Edinburgh for each data type.

Improved Metadata access

- Web pages displaying detailed metadata for each magnetic observatory are now available.

Geomagnetism

Home Data About Usage Submission Contact

Coimbra

World Data Centre for Geomagnetism

WDC Observatory Information

Expand All

Observatory Details	
Name	Coimbra
IAGA Code	COI
Acknowledgement	Instituto Geofísico, Universidade de Coimbra
Website	Visit

Address Information

Locations

Institutes

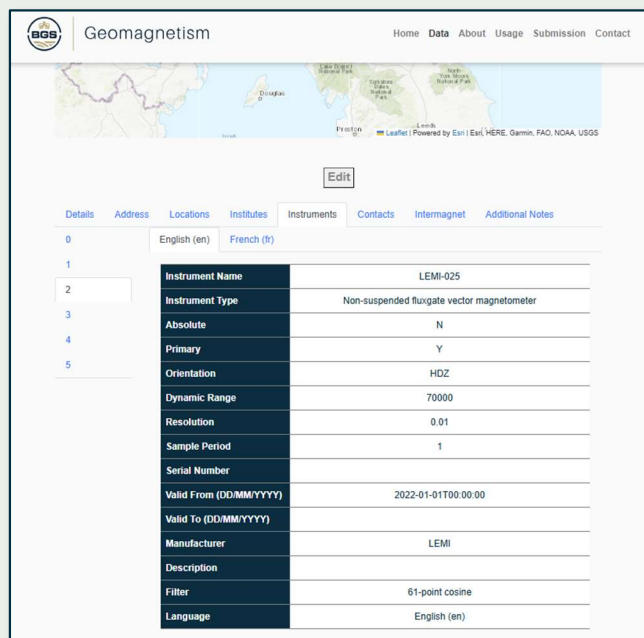
Instruments

Persons

FUTURE PLANS

Priorities for 2025-2027

Develop a metadata update tool



The screenshot shows the BGS Geomagnetism website with a map of the British Isles and a metadata form. The form is titled 'Edit' and contains the following fields:

	English (en)	French (fr)
Instrument Name	LEMI-025	
Instrument Type	Non-suspended fluxgate vector magnetometer	
Absolute	N	
Primary	Y	
Orientation	HDZ	
Dynamic Range	70000	
Resolution	0.01	
Sample Period	1	
Serial Number		
Valid From (DD/MM/YYYY)	2022-01-01T00:00:00	
Valid To (DD/MM/YYYY)		
Manufacturer	LEMI	
Description		
Filter	61-point cosine	
Language	English (en)	

Enable data providers to review and submit changes to magnetic observatories metadata

Improve data submission process



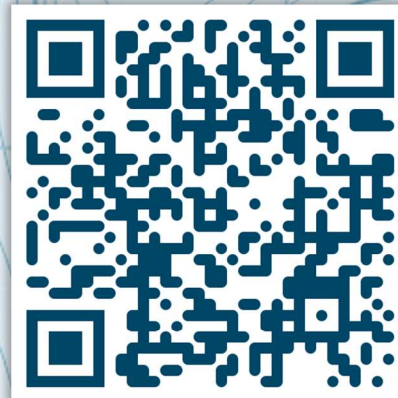
Develop an interface to allow data providers to easily deposit data

Combine metadata submission at time of data submission

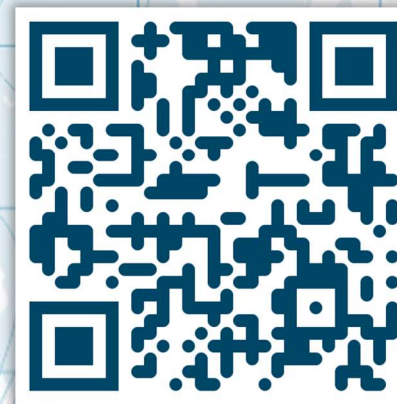
Conclusion

- New WDC Data Portal and API launched
- Users can now easily search for, plot, and download observatory data
- More data types (K-index, Daily & Monthly means) now available
- WDC has been certified by the CoreTrustSeal as a trustworthy data repository

Data Portal



wdc-dataportal.bgs.ac.uk



API Documentation

wdcapi.bgs.ac.uk/docs