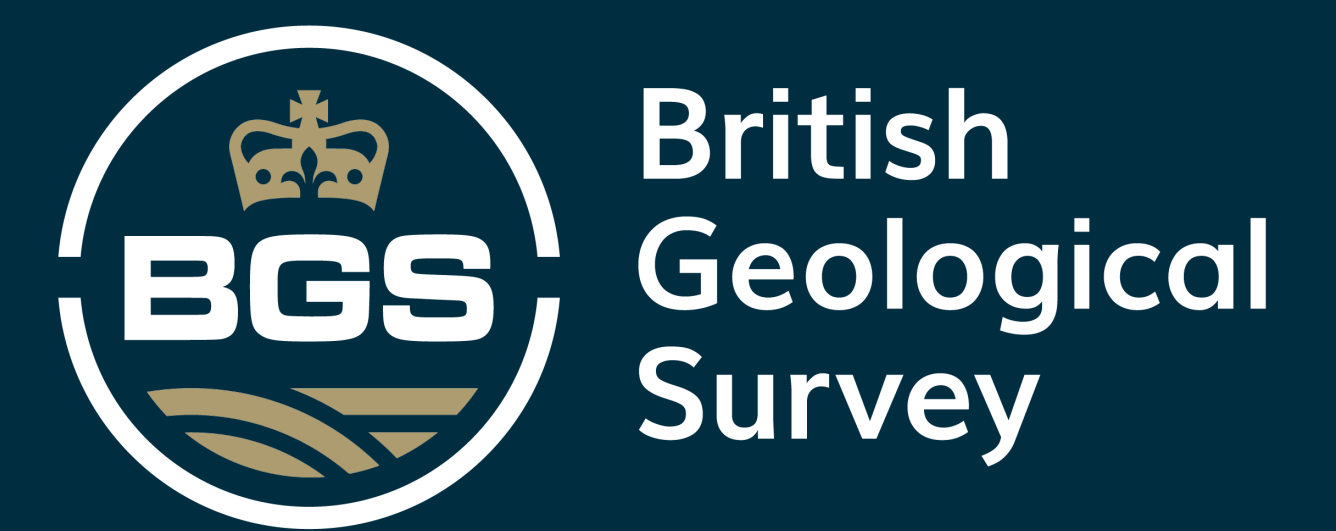


Current activities and developments by the World Data Centre for Geomagnetism, Edinburgh

Sarah Reay,
William Brown,
Adam Collins,
Simon Flower,
Ewelina Lawrence,
Peter Stevenson,
John Williamson

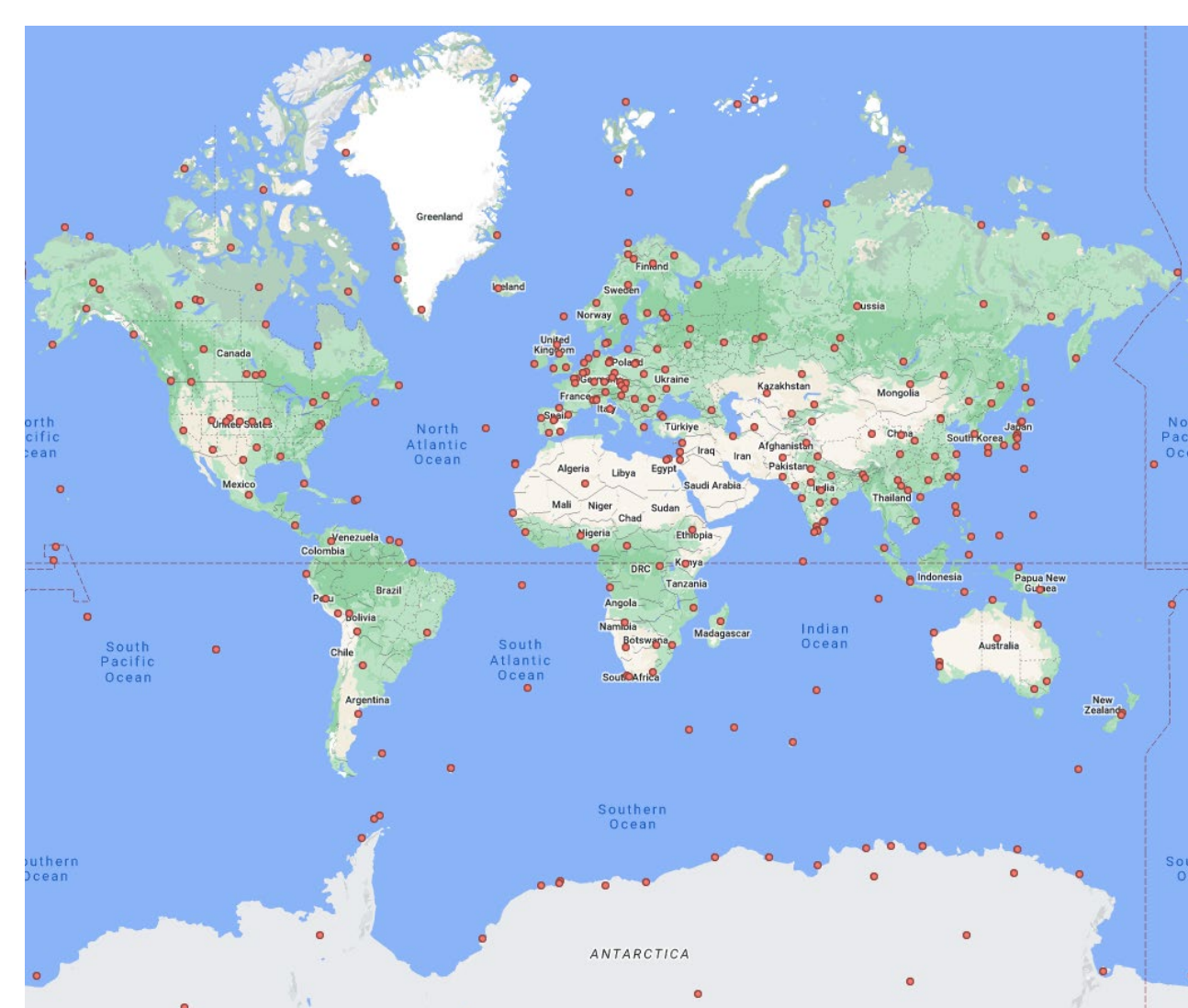
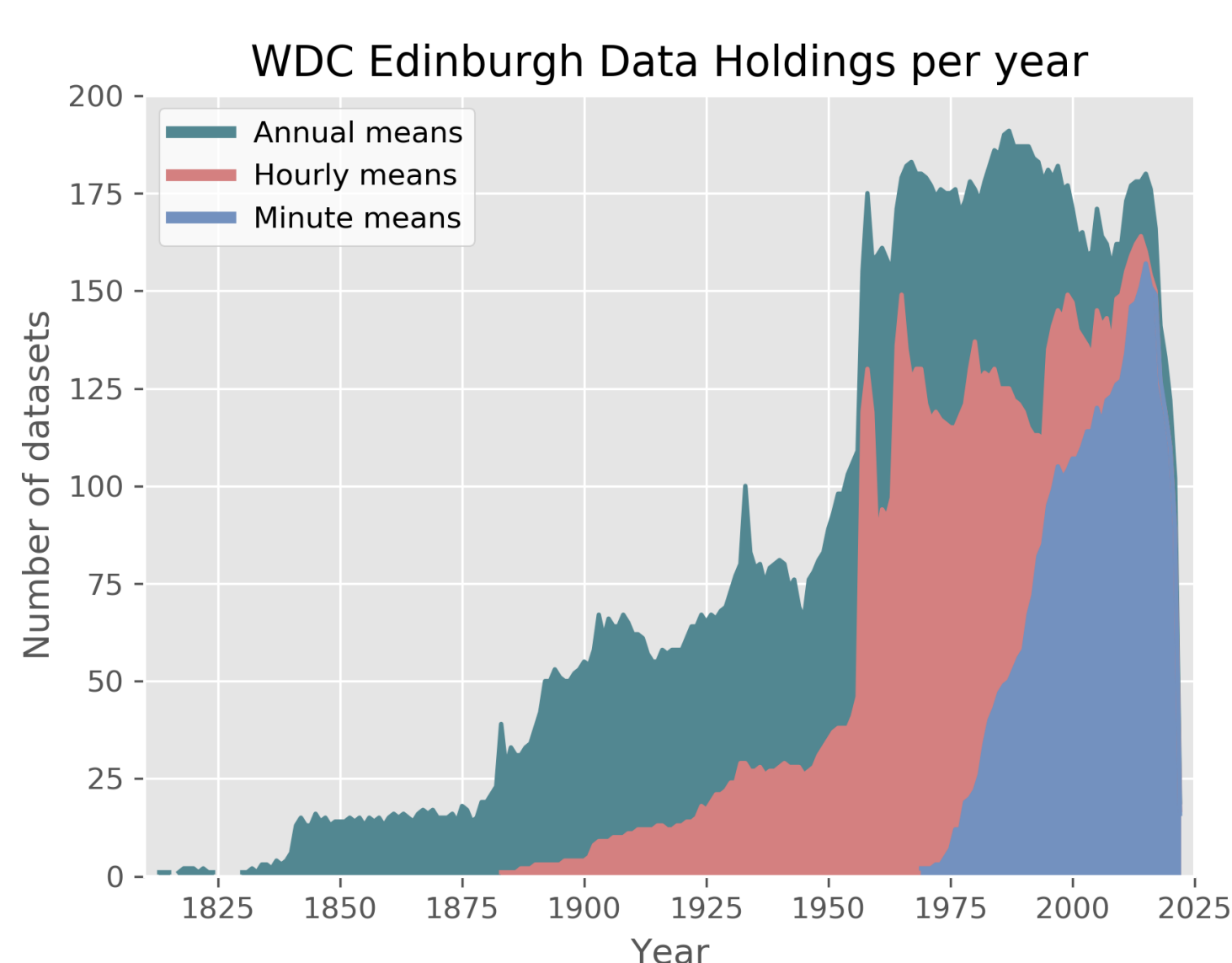


British Geological Survey,
Edinburgh, UK

INTRODUCTION

The World Data Centre (WDC) for Geomagnetism, Edinburgh serves the geomagnetism community by providing access to geomagnetic data records from around the world. It is a regular member of the World Data System, a community of trusted scientific data repositories.

The WDC holds minute, hourly, and annual means of magnetic observatory data. It also makes available information about magnetic field models and records from magnetic surveys. A collection of historic data including magnetograms from observatories within the United Kingdom and a library of observatory yearbooks from around the world is also held.



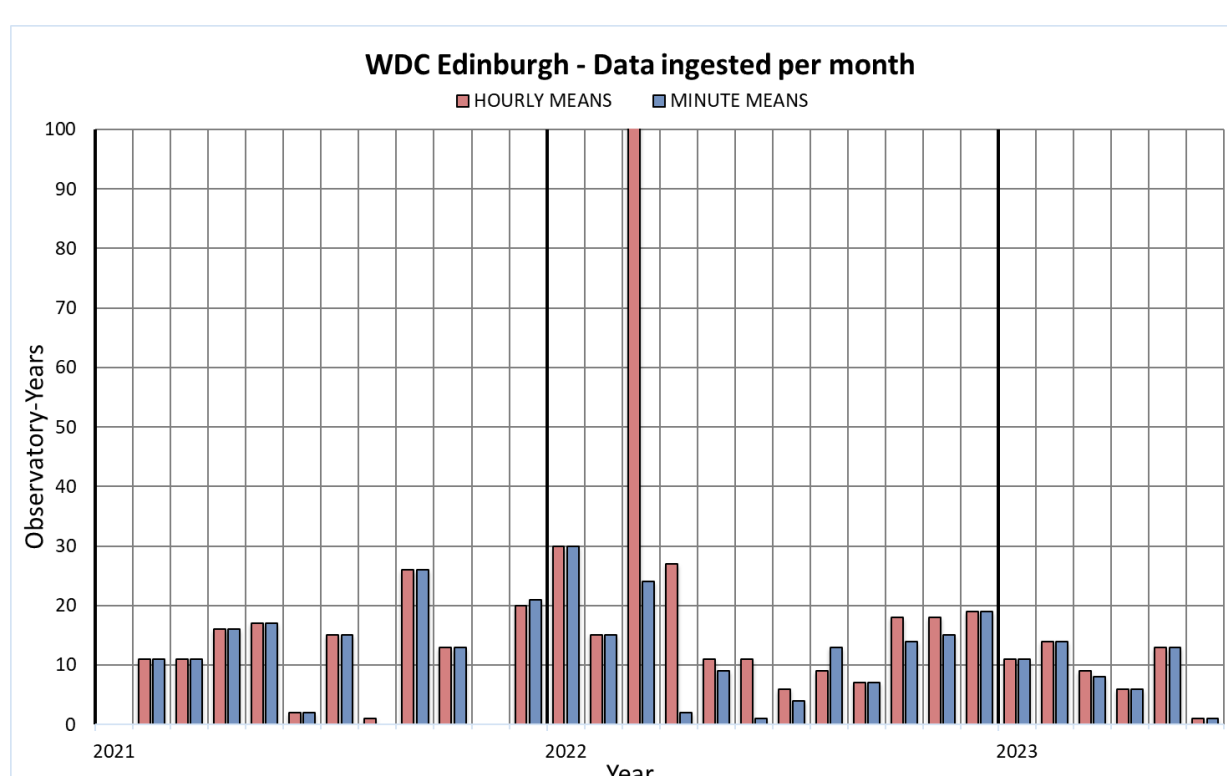
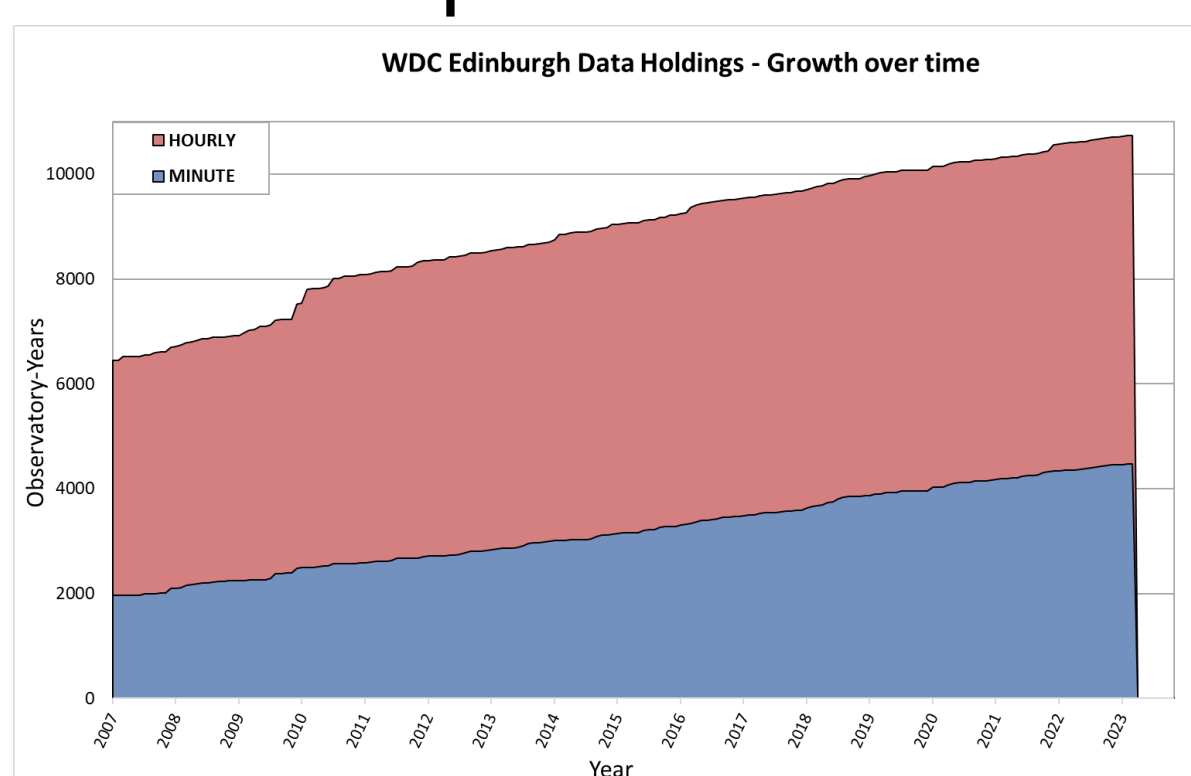
Locations of current and past geomagnetic observatories with data in the WDC, Edinburgh

CURRENT ACTIVITIES

Data ingestion

Geomagnetic observatory data are regularly ingested into the WDC. Definitive observatory data are either received directly from observatory operators or collected via INTERMAGNET. New data providers are always welcome and IAGA V-OBS will advise on new or upcoming observatories.

Each year the WDC sends a 'call for data' email to the existing list of observatory operators. This email informs them of the current, recent data holdings for their observatory and requests any available updates.



Left: growth in WDC data volume since 2007.

Right: Evidence of regular ingestion of new datasets to the WDC.

Data Holdings

The WDC holds more than 16,600 observatory-years of annual mean data, over 9500 observatory-years of hourly-mean data and over 4000 observatory-years of minute-mean data from approx. 500 observatories worldwide. These data span back to the early 1800s for annual, 1880s for hourly and 1960s for minute mean data.

CoreTrustSeal Certification

The WDC for Geomagnetism, Edinburgh are in the review stage of an application for CoreTrustSeal certification. This certification is based on 16 requirements which reflect the characteristics of a trustworthy data repository. This includes providing evidence related to organisational infrastructure, digital object management and IT & security.



NEW DEVELOPMENTS

Community Metadata Database

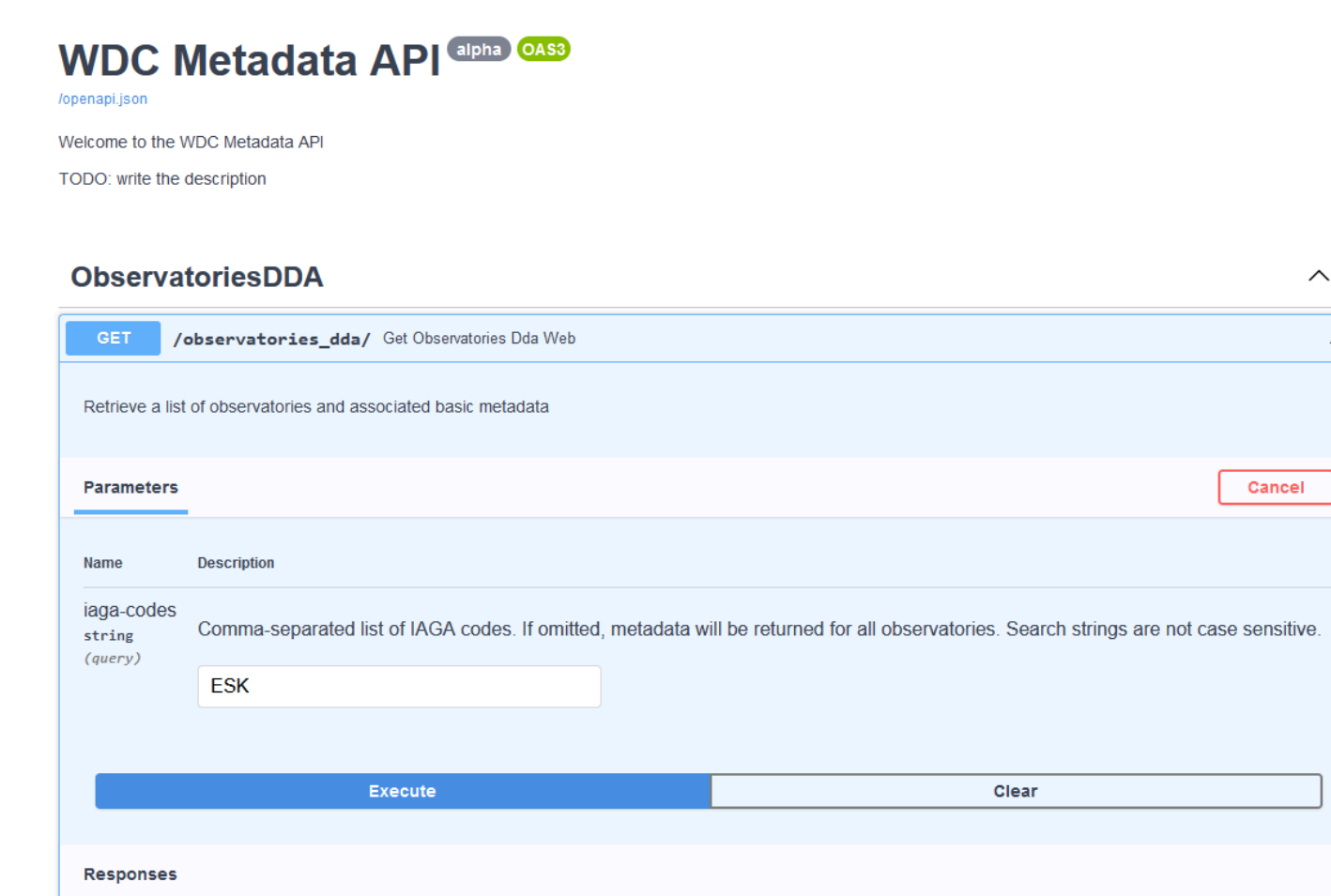
A community consultation is in progress to review the BGS Geomagnetism Observatory Metadata Database. This database is the back end for applications from WDC and INTERMAGNET (intermagnet.github.io), which are also included in the EPOS (European Plate Observation System) portal (www.epos-eu.org). The consultation is part of ongoing work to further develop and integrate these services - including client interfaces for presentation and review of the data holdings.

Data providers - Coming soon!

Information will soon be sent to data providers with details about they can review and update the metadata held about their magnetic observatories.

API Developments

The current work on the Observatory Metadata Database will feed into work to develop a wider range of API (Application Programming Interface) services and consequent improvements to user access including much improved web access to the observatory metadata and the linkage to the time-series data available from the magnetic observatories. The API will be OpenAPI compliant.



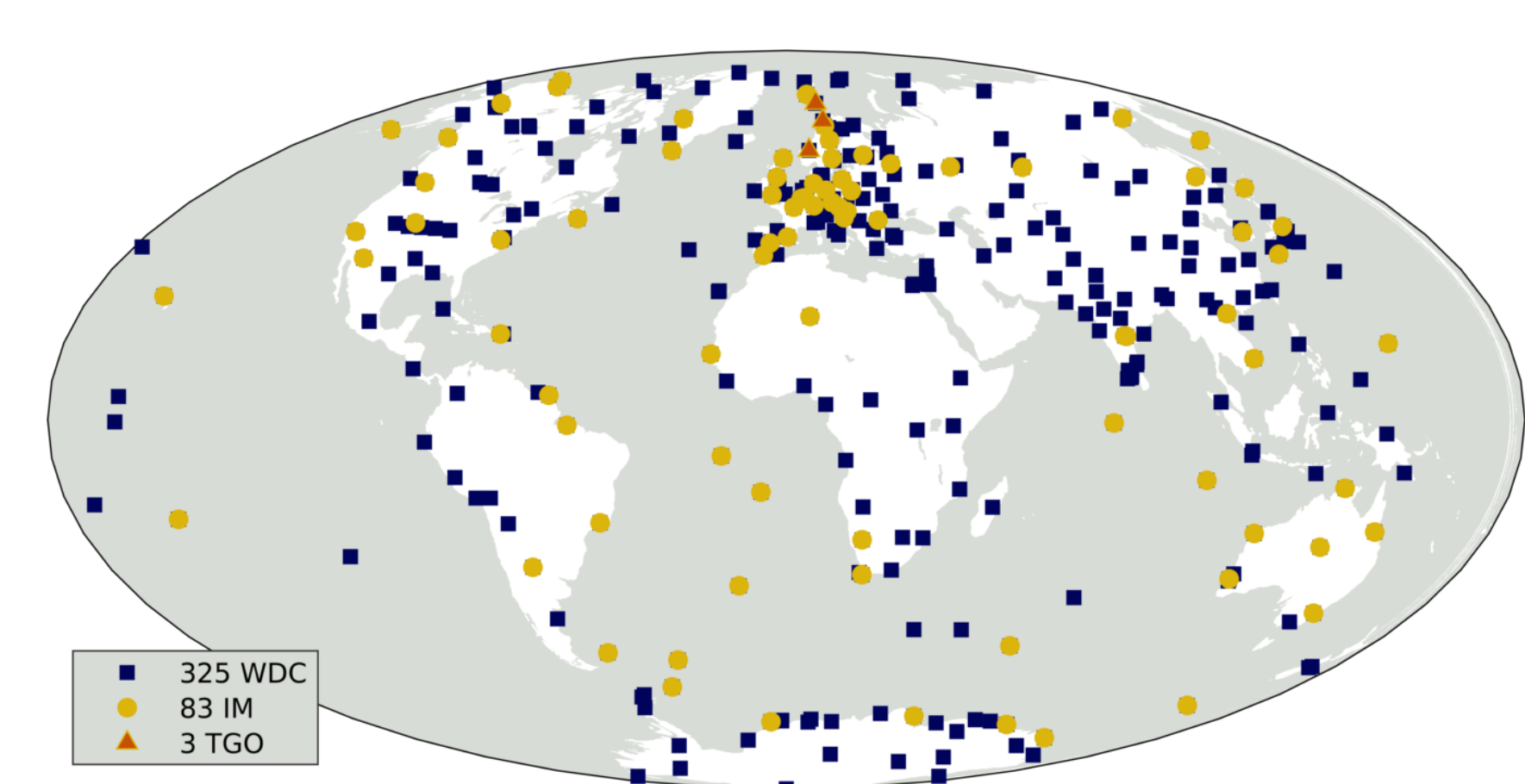
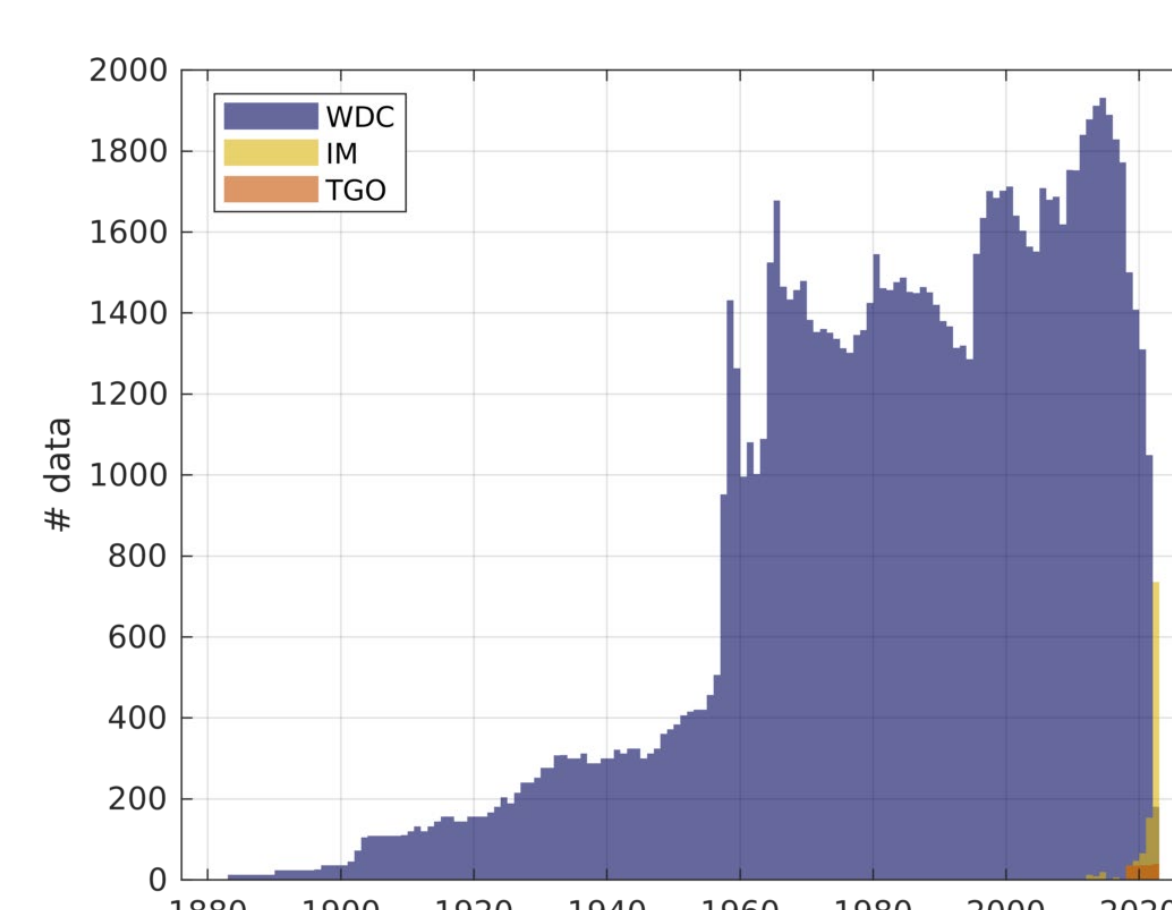
Screenshot of WDC Metadata OpenAPI interface

WDC users!

We would welcome feedback from the geomagnetism community on their future requirements for the API, or any volunteers for user testing as applications are developed.

Monthly Means Database

A new database of observatory monthly mean data has been created. These data are derived from all available hourly definitive data in the WDC, as well near-definitive minute data from INTERMAGNET and Tromsø Geophysical Observatory observatories. Monthly means are a useful tool for the study Earth's core field as the sampling is frequent enough to capture secular variation and long enough to average out much of the rapid external field variation.



The database can be found at: <https://wdc.bgs.ac.uk/monthlymeans>

CONTACT US or SEND YOUR DATA TO:

wdcgeomag@bgs.ac.uk

wdc.bgs.ac.uk

