

[4-4]

RECENT ACTIVITIES OF THE WORLD DATA CENTRE FOR GEOMAGNETISM (EDINBURGH)

S J Reay^{1*}, *T S Humphries*, *S Macmillan*, *S M Flower*, *P C Stevenson* and *E Clarke*

¹*British Geological Survey, West Mains Road, Edinburgh, EH9 3LA, United Kingdom*

Email: sjr@bgs.ac.uk

For almost 50 years the World Data Centre for Geomagnetism (Edinburgh) has been a custodian of geomagnetic data. In particular, over recent years the scope of the data holdings has been increased, quality control measures introduced and better interfaces to make the data more accessible to users are being developed.

The WDC hold geomagnetic time-series data from around 280 observatories worldwide at a number of time resolutions along with various magnetic survey, model, and geomagnetic activity indices. These data are of value to various scientific communities. Commonly the spatial and temporal coverage of geomagnetic observatory data are valuable for geomagnetic field modelling and contribute to models such as the International Geomagnetic Reference Field (Thébault *et al.*, 2015) and the World Magnetic Model (Chulliat *et al.*, 2015). More recently long-time series of geomagnetic data at a higher-cadence (one-minute means) have been useful in the space weather community, for example in extreme event analysis to estimate likely maxima in geomagnetic activity levels (Thomson *et al.*, 2011). Furthermore recent efforts to digitise historic data and magnetograms may help scientists to re-analysis the largest geomagnetic storms of the past such as the 1859 ‘Carrington Event’ (Humphries *et al.*, 2015).

The World Data Centre accepts definitive observatory data from all operating observatories who submit their data. The primary aim is to provide a repository of data that is freely accessible to all. That said, good quality science requires good quality data and to that end various quality control checks are applied to on all new data received. Work has also been carried out to assess and improve the quality of our long-standing datasets.

Recent activities have focused on the development of an improved user interface in the form of a new Data Portal for geomagnetic observatory data (<http://www.wdc.bgs.ac.uk/dataportal/>). This sits atop a RESTful web service which should allow other users or data platforms to integrate the data in the WDC more directly into their applications. This and other activities will be presented. We would welcome feedback from the community on these efforts.

REFERENCES

Chulliat, A., Macmillan, S., Alken, P., Beggan, C., Nair, M., Hamilton, B., Woods, A., Ridley, V., Maus, S., Thomson, A. (2015) The US/UK World Magnetic Model for 2015-2020. BGS and NOAA report, 112pp.

Humphries, T., Clarke, E., Williamson, J., Reay, S.J., Dawson, E., McIntyre, B.M., McIntosh, R.P., Nash, G.V., Thomson, A. (2015) An online digital archive of magnetograms from 1846 to 1987. Poster presented at: *IUGG 26th General Assembly*, Prague, Czech Republic. <http://nora.nerc.ac.uk/511248/>

Thébault, E., Finlay, C.C., Beggan, C.D., Alken, P., Aubert, J., Barrois, O., Bertrand, F., Bondar, T., Boness, A., Brocco, L., Canet, E., Chambodut, A., Chulliat, A., Coïsson, P., Civet, F., Du, A., Fournier, A., Fratter, I., Gillet, N., Hamilton, B., Hamoudi, M., Hulot, G., Jager, T., Korte, M., Kuang, W., Lalanne, X., Langlais, B., Léger, J.-M., Lesur, V., Lowes, F.J., Macmillan, S., Manda, M., Manoj, C., Maus, S., Olsen, N., Petrov, V., Ridley, V., Rother, M., Sabaka, T.J., Saturnino, D., Schachtschneider, R., Sirol, O., Tangborn, A., Thomson, A., Tøffner-Clausen, L., Vigneron, P., Wardinski, I., Zvereva, T. (2015) International Geomagnetic Reference Field: the 12th generation. *Earth, Planets and Space*, 67 (79). doi:10.1186/s40623-015-0228-9

Thomson, A.W.P., Dawson, E.B., Reay, S.J. (2011) Quantifying extreme behaviour in geomagnetic activity. *Space Weather* (9), S10001. Doi: 10.1029/2011SW000696