

Leilani Smith and **Jeremy Giles** describe the Survey's treasure trove of carefully collected and catalogued specimens and field observations — a fundamental work of reference and the foundation for new cutting-edge research.

A world of information

The National Geoscience Data Centre (NGDC) functions, on behalf of the Natural Environment Research Council (NERC), as the national collection of geoscientific environmental data and information. It contains the most comprehensive collection of information on the surface and subsurface of Great Britain and the surrounding continental shelf. The collection has been gathered by our staff and their predecessors, over more than 175 years, along with information deposited by industry and academics.



(top) Photomicrograph of one of 250 000 thin sections in the Mineralogical and Petrological Collection.
(above) A trilobite from the Biostratigraphical Collection.

Our unique and irreplaceable collection of many millions of analogue and digital records, photographs, and rock and fossil samples is the core of the BGS's knowledge base, underpinning not only NERC research and international programmes but also our own national good. Some of our key collections are described below.

Rocks and minerals

The Mineralogical and Petrological Collection includes 250 000 thin sections and 500 000 hand specimens. It also contains the National Collection of Building Stones, including examples of the stones selected to build the Houses of Parliament. Historically important material includes the first rock samples collected from Antarctica and some of Charles Darwin's original specimens from the Galapagos and Ascension islands.

Fossils

The Biostratigraphical Collection comprises over 3 million fossil specimens, including much type, figured and cited material. It contains material of historical importance, including specimens

collected by Murchison, Salter, Buckland, Buckman, Conybeare, Davidson, Mantel, Kidston, McCoy, Owen, Smith and Sowerby.

Records and data

The records held within the NGDC comprise over nine million items dating from the eighteenth century to the present day, covering a range of topics and available in various formats. Some of the larger collections include;

- Field slips — the maps taken into the field by geologists to record their detailed observations.
- Reports — various series covering a wide range of research and operational activities.
- National Well Record Collection — observations from wells, boreholes and springs within England, Scotland and Wales which support the development of hydrogeological maps.
- Mine plans — of various types relating to all categories of mining activity and including working copies, interpretations and plans of abandonment.
- Site investigations — survey reports of specific localities containing borehole records, trial pit data, laboratory and other test data.

The records collection occupies over 11 kilometres of shelving with digital storage comprising approximately 195

terabytes online and a substantial amount of additional information held offline. Examples of the digital collections include 22.25 terabytes for maps, 0.5 terabytes for borehole records and 17 terabytes for project-related data.

Boreholes and logs

The National Onshore Borehole Archive includes over 250 kilometres of drillcore, 750 000 individual specimens and numerous sets of drill cuttings. Over 15 000 boreholes are represented and much of the material is available for examination and sampling. The Marine Samples collection incorporates a further 12 000 metres of core and 15 000 seabed samples. The NGDC also manages the UK Continental Shelf Hydrocarbon Well core and sample collection — 290 kilometres of core and 4.5 million cuttings samples from over 6800 wells.

The borehole collection is supported by approximately 1.3 million borehole records. As with the core itself, the records and the borehole logs cover both onshore and offshore locations. This information has been obtained from a variety of drilling activities and sources including our own investigations, commercial companies, and the oil and gas industry. Much of this information is available to consult in digital formats.

Maps and models

The map collection contains approximately 35 000 geologists' standards — the best interpretation of the geology at the time they were made. This collection covers surveying activities from the mid nineteenth century up to the present. More recent maps are created digitally rather than hand-drawn, feeding into the development of digital models.

Models can be constructed from mapped geological lines, borehole interpretations, isopach/isochor contours, cross-sections derived from seismic and other geophysical interpretations, as well as including geoscientific intuition. When visualised in 3D, these models can have real impact on the users' understanding. There are currently well over 100 models in the BGS system with many hundreds of associated digital surfaces.

Archives

The Archive comprises over 30 000 items relating to the operation of the BGS and its predecessors. It includes historical and scientific information from the UK and overseas activities and personal papers from scientists and related organisations. The records include a considerable amount of correspondence between geologists both within and outside the survey, including two letters by Charles Darwin. There are also drawings, photographs, notebooks, diaries and a wide range of other material.

The Archive also acts as an object museum. These artefacts incorporate an interesting variety of old and more modern objects including surveying equipment, geologists' boots and other attire, puppets used to perform a play at a geological dinner in 1953 and shrapnel from the German bomb responsible for damaging the Geological Museum at Exhibition Road, London on 10 September 1940.

Access and contacts

Access to information held by the NGDC is freely available to students, researchers and the general public. Commercial access is available for a fee. Further information is available from our headquarters in Keyworth, or email enquiries@bgs.ac.uk

For further information, contact:

Leilani Smith, BGS Keyworth
Tel: +44(0)115 936 3540
e-mail: lsmith@bgs.ac.uk

(from top)

- Borehole record being scanned.
- Over 250 km of drillcore are held in the BGS Core Store.
- 3D digital models may be constructed from data collected over more than 200 years.
- Edmund Teale (Geological Society Fellow for 61 years) and Reginald Charles Wilson prepare samples for shipping to the Imperial Institute, London. Portuguese East Africa. 1914.

