Collecting, storing and delivering data

National Geological Records Centre

A unique and important resource

by Rod Bowie, *Keyworth*

The National Geological Records Centre is a unique archive of national importance containing over three million items with information dating back over 200 years. The collections are a valuable resource that is used by the BGS and a wide variety of academic and commercial researchers. The records contain a wealth of data from detailed geological field observations and land-use information through to laboratory test results. Originally used as an aid to production of the geological map, the collections now provide information for a wide variety of uses including environmental assessments, safety, and planning.

Since its inception, the National Geological Records Centre has maintained, collated, and indexed large collections of geological data. These are the result of the Surveys own activities, the acquisition of major collections, and routine donations by other organisations. The Data Centre is a recognised Place of Deposit for Public Records and is also the Natural Environment Research Council's Designated Data Centre for data generated by research in earth sciences.

History

William Whitaker joined the Survey in 1857. He is now considered to be the father of English hydrogeology, but he also provided the foundations for the current Records Centres. He started to collect and register information from wells and trial holes bored for water. In 1897 he received information from 56 wells. At the time this was considered a very large amount of data and it was decided that memoirs should be published of all borings in England and Wales. In 1899 the first, the *The Water Supply of Sussex* was published and the total collection of well records then numbered about one thousand.

Advances in drilling technology and the expansion of mining activity in the early 1900s led to large amounts of data being produced, but being lost to the Geological Survey because there were no procedures for systematic recording. To help rectify this, the Mining Industry Act in 1926 gave the Geological Survey statutory rights to data for bores drilled to a depth greater than 100 feet, or 30 metres, and also access to examine all mining plans.

Paul Tod, BGS © NERC

A small part of the borehole records collection.

In 1927 the Survey was notified of 108 bores which were all followed up and recorded by two officers appointed solely for this task, one in Scotland and one covering England and Wales.

By the late 1930s the collection had grown to some 20 000 records and, by the early 1950s, mining had expanded to such an extent that notifications had risen to over 3000 bores per year and the Survey was also beginning to receive information from bores drilled for site investigations.

Rights to information on water drilling were added in 1945 for all boreholes drilled over 50 feet, or 15 metres. These rights are now covered by the Water Resources Act of 1991 and the Water Act (Scotland).

Systematic recording of data in relation to the then new National Grid began in the late 1950s. At this time, individual Survey field units still held their own data. Management of the data was varied and some groups were beginning to be swamped by large volumes of information. The time taken to manage the data was starting to eat into the mapping programme. Therefore the field units combined resources and set up a records unit within each main office. This was the precursor to the Data Centre and was a great success.

In 1984 the National Geosciences Data Centre (NGDC) was formed and all Land Survey Records were centralised at either the Edinburgh or Keyworth offices (except for local data required at the Regional Offices).

In 1986 a new purpose built Records Centre building at Keyworth was completed. The borehole records were rehoused in new archival box files in 1:10 000 quarter sheet order. Standard maps, field slips, and other data were brought together from various separate collections and housed in a fireproof strong room. Improved facilities were provided for visitors to examine the data. The Records Centre became an Approved Place of Deposit under the Public Records Act. Work began on producing a comprehensive computer index to all the data holdings

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In 1991/92 the NGDC was split into its component parts, the Material collections, the Documentary collections and Sales and Customer Services. The Records repository was renamed the National Geological Records Centre and this now includes the Centres at Keyworth, Edinburgh and Exeter.

The launch in 1992 of the first version of the Geoscience Data Index was designed to improve access to BGS data. It allowed complex spatial searches of the data to be carried out quickly and accurately. Due to the improved access to our holdings and because of the increased awareness of the databases there was a very rapid increase in donations of site investigation reports and borehole records and an even greater rise in the number of enquiries.

The main NGRC collections

The main collections comprise the records of boreholes, shafts, and wells from all forms of drilling and site investigation work. There are nearly 900 000 records dating back to around 1790 and ranging from one metre to several thousand metres in depth. The majority of the records contain written descriptions of the ground encountered. About 50 000 new records are received every year.

Many of the records are for boreholes drilled for water and additional information is also held in the National Well Record Archive.

A small percentage of the borehole records are held commercial-in-confidence for various reasons and cannot be released without the authority of the originator.

There are also over 30 000 Geologists' field maps and notebooks. These include the original OS maps taken into the field on which a geologist has recorded his observations with accompanying notes.

An important component of the collection are geological map 'Standards' at 1:10 560 and 1:10 000 scale. These are the final interpretation of the geology after synthesis of all the available information. The collection numbers more than 30 000 maps dating from the 1860s.

There are some 30 000 site investigation reports containing borehole records, trial pit data, laboratory and test data donated by external organisations.

Paul Tod, BGS © NERC

Staff registering and indexing new records.

The Report series cover a wide range of subjects and are designed for the rapid dissemination of geological information resulting from the work carried out by the Survey. There are currently over 18 000 reports of which 9000 are held on open file.

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The NGRC holds some 60 000 plans of various types relating to mining activity, including abandonment plans. Some original plans date back to the early 1800s. The coverage for Northern England and Scotland is more comprehensive than for the rest of the country and includes non-coal plans (other than oil shale) for Scotland, which are held on behalf of HSE. A microfilm set of Scottish coal plans is held on behalf of the Coal Authority. The plans also include working copies, compilations and interpretations. Some may be copyright or confidential and therefore cannot be made available to the public. The general nature of some of the plans means that they may not be applicable to a specific site. However, the presence of mining data could indicate that further specialist advice or interpretation is required.

The Sheet File collection consists of a wide variety of different types of data collected as part of survey work or as the result of enquiries. The information has been sorted into 1:50 000 or 1:10 000 sheet areas as appropriate. There may be photographs, analyses, correspondence, plans, papers, theses, mining data, etc.

There are notable large collections, including quantities of ex-British Coal geological data and the complete site investigation archives from some companies. Data are also being received from NERC Thematic Research Programmes and from work carried out on individual research grants.

Other data include sections, information on waste sites, photographs, mineral exploration records, significant enquiries and other archives.

The future

Plans have been approved for the major expansion and improvement of the existing Records buildings at Keyworth and Edinburgh. The extension of the existing Records area at Keyworth will enable the BGS to house the geological data currently held by the Coal Authority and accept other large donations. The storage conditions and fire protection measures will also be improved at both offices to meet BS5454 –2000.

Far more data are now being received in digital format. In addition, digital raster back-up copies of many records are now being produced by scanning. This allows greater flexibility in the provision and dissemination of data, both internally and externally, by using up-to-date electronic means.

The majority of the holdings are now digitally indexed and searches can be carried out interactively via the Geoscience Data Index, available as part of a comprehensive enquiry service or by consulting the BGS Web Site (see other articles in this issue). Development work and refinements will improve and add value to the records so that, in conjunction with other data, they can continue to be used more efficiently and for new purposes.

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