

Denis Peach, BGS Chief Scientist, explains why, after 175 years, the UK needs a modern, forward-looking geological survey as much as it ever has.

Twenty-first century survey

In April 1835, the year that the Ordnance Geological Survey of Great Britain was founded, Viscount Melbourne succeeded Sir Robert Peel as Prime Minister, William IV was King of the United Kingdom of Great Britain and Ireland and of Hanover, and Queen Victoria would not ascend the throne for another two years. The Geological Survey came into existence, with Sir Henry De la Beche as its first Director, as a result of funding provided by the Board of Ordnance to cover the costs of colouring topographical maps of the Trigonometrical Survey. The publication of the Geological Survey Act on 31 July 1845 provided the Survey with a legal framework designed 'to facilitate the Completion of a Geological Survey of Great Britain and Ireland', and renamed the organisation as The Geological Survey of Great Britain and Ireland.

In his presidential address to the Geological Society of London in 1836 Charles Lyell said:

“ we drew up a joint report in which we endeavoured to state fully our opinion as to the great advantages which must accrue from such an undertaking, not only as calculated to promote geological science, which alone would be sufficient object, but also as a work of great practical utility bearing on agriculture, mining, road-making, the formation of canals and railroads and other branches of national industry. ”

This was true in those long-gone days, at the height of the Industrial Revolution, and it remains true today. The Geological Survey has always had two functions; to underpin and promote excellence in geological scientific research and to serve as a provider of earth science expertise, knowledge and data to support the national good.

The socio-economic drivers of the mid nineteenth century were quite different to those we face now, but there has never been a greater need for the functions of a national geological survey to be treasured, protected and enhanced.

The challenges that society faces today are arguably much more severe than

those of 1835. Then, the British Empire was growing, industry was expanding and Britain was leading the world. Now, the planet faces enormous environmental change issues; our energy resources are insecure, because of the imperative need to mitigate climate change; our water and food resources are threatened by poor management, population growth and climate change. Not only this, but the resources for tackling the scientific questions that will help find solutions to these problems are severely constrained by the global recession and huge national deficits. We need to implement strategies, such as carbon capture and storage and the geological disposal of radioactive waste; to develop alternative energy resources; to mitigate against extreme events like droughts and floods, or



Digital models provide a powerful framework for integrating spatial datasets. They can be delivered quickly and conveniently using web-based technologies.

geohazards like volcanic eruptions; and to guard against the impacts of shallow geohazards like ground instability. All this requires us to work better, smarter, and faster — to collaborate genuinely, integrating our ideas across boundaries, not only within our own scientific areas, but across the scientific disciplines, across the country, Europe and the globe. We must reach out to ecologists, engineers, meteorologists, and the socio-economic disciplines — and we must work together. The geosciences, in general, and the BGS, in particular, play a pivotal role in providing solutions to the problems we all face due to environmental change and resource security.

Since 1966, the BGS has been a component part of the Natural Environment Research Council and is its principal supplier of national capability in geoscience. This capability underpins the knowledge required to develop and manage energy resources, minerals, soil and water; to mitigate the impacts of natural and man-made geohazards and environmental change; and to develop the urban and rural environment in a sustainable way.

In order to do this we must continue to play a major part in improving understanding heterogeneity and scaling issues in the subsurface. This will require us to develop new measurement



Sir Henry De la Beche, the Survey's first Director, was mandated to systematically produce geological maps for the whole of Great Britain, which was a world first in 1835.



© iStockphoto.com/LodienScheffl

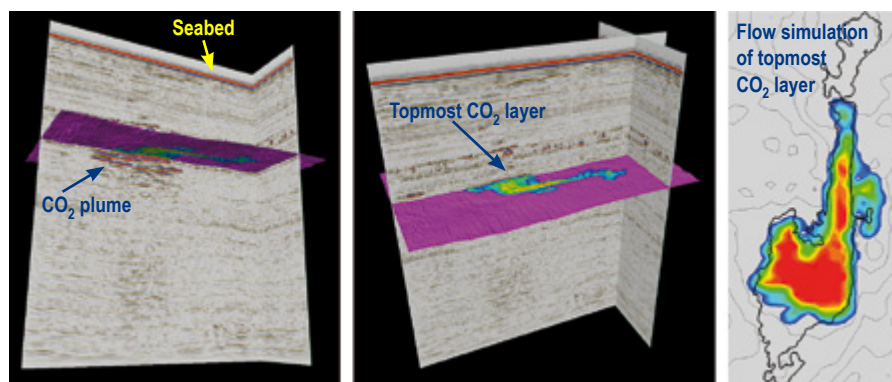
The BGS plays a crucial role in advising government about natural geological hazards such as the volcanic plume from the Icelandic volcano Eyjafjallajökull.

and survey techniques, to collaborate and integrate research programmes across Europe and internationally, and make optimum use of state-of-the-art laboratories and scientific facilities. We must develop monitoring, survey, analysis and models across discipline boundaries to drive a focus on integrated science allowing a whole-system approach to solving the major scientific problems. Finally, we must provide easy access to our geospatial and temporal data, information and models. Only in this way will government, researchers, industry and the public be equipped to make better-informed policies and decisions.

We look forward to delivering quality-assured predictive models; continuing to lead the world in the management and delivery of geoscientific data, information and knowledge; and being recognised as the national centre for applied geoscience, in partnership with universities, research centres, government and industry.

For further information, contact:

Denis Peach, BGS Keyworth
Tel: +44(0)115 936 3469
e-mail: dwpe@bgs.ac.uk



Numerical modelling of carbon dioxide injection into a deep aquifer beneath the North Sea to predict its fate and transport.