PRESS RELEASE

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UK scientists pave the way for open data to be at the heart of public decision making on natural resources

Geoscientists have launched an open data source from a world-first network of observatories investigating the underground, designed to put scientific evidence into the heart of decision making on the natural environment.

The British Geological Survey (BGS), the Natural Environment Research Council (NERC) and researchers from 20 leading earth science institutes have joined forces to develop plans for a world-first observatory that would provide unprecedented data, information and knowledge on the rocks beneath our feet.

The UK Geoenergy Observatories will serve up one of the world's most comprehensive datasets on the underground environment, and this is being made open to industry, business, government, regulators and communities in real time wherever possible.

Prof Mike Stephenson, executive chief scientist for decarbonisation at the BGS, said: 'Many of the solutions to decarbonisation, climate change and environmental management lie beneath our feet. We're creating world-class observatories to monitor this environment and we have set out to make as much of the data from them freely and openly accessible to the UK public.

'The UK Geoenergy Observatories have been designed so any scientist or research team working in this area can access the data. We hope this will lead to exciting new international science collaborations and the speeding up of the accumulation of knowledge.'

BGS data analyst Carl Watson said: 'Data is today's most valuable commodity: by joining the movement to open data up to everyone, we can leverage global capability to address some of our biggest challenges.'

The observatories will set the standard for environmental monitoring and empower society to make evidence-based decisions on the ever-increasing pressures on the underground, whether that's around using rocks to store excess carbon emissions from the atmosphere or using geothermal energy to heat us.

NERC director of corporate affairs Alison Robinson said: 'Making sure people have access to robust, impartial scientific evidence is always important. Given the degree of public debate surrounding geoenergy, we worked with Sense about Science to make sure that everyone who is interested would be able to get hold of sound, impartial information in ways that people can understand, can use and would meet their expectations.'

Tracey Brown OBE, director of Sense about Science, said: 'Engagement with the public on the open data source is on a different scale to what has gone before and it sets a precedent for the future. NERC and the BGS consulted widely with people in the local area as plans for the observatories were developed. Sense about Science is taking this open approach even further,

bringing the BGS and NERC together with community and environmental groups, open data experts and other researchers, to co-create the open data source.'

UK Geoenergy Observatories data is being made available at www.ukgeos.ac.uk.

Ends

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Notes for Editors

UK Research and Innovation (UKRI)
UKRI works in partnership with universities, research organisations, businesses, charities, and government to create the best possible environment for research and innovation to flourish. UKRI aims to maximise the contribution of each of its component parts, working individually and collectively. UKRI works with many partners to benefit everyone through knowledge, talent and ideas. Operating across the whole of the UK with a combined budget of more than £7 billion, UK Research and Innovation brings together the Arts and Humanities Research Council; Biotechnology and Biological Sciences Research Council; Engineering and Physical Sciences Research Council; Economic and Social Research Council; Innovate UK; Medical Research Council; Natural Environment Research Council; Research England, and Science and Technology Facilities Council.

The Natural Environment Research Council (NERC)
NERC is the UK's main agency for funding and managing research, training and knowledge exchange in the environmental sciences. NERC's work covers the full range of atmospheric, Earth, biological, terrestrial and aquatic science, from the deep oceans to the upper atmosphere and from the poles to the equator. NERC coordinates some of the world's most exciting research projects, tackling major issues such as climate change, environmental influences on human health, the genetic make-up of life on Earth, and much more. NERC is part of UK Research & Innovation, a non-departmental public body funded by a grant-in-aid from the UK government.

The British Geological Survey (BGS)
The BGS is a world-leading applied geoscience research centre that is part of UKRI and affiliated to NERC. BGS core science provides objective and authoritative geoscientific data, information and knowledge to inform UK Government on the opportunities and challenges of the subsurface. It undertakes national and public good research to understand earth and environmental processes in the UK and globally. The BGS annual budget of approximately £60 million pa is funded directly by UKRI, as well as research grants, government commissions and private sector contracts. Its 650 staff work across the UK with two main sites, the head office in Nottingham and Lyell Centre, a joint collaboration with Heriot-Watt University in Edinburgh. BGS works with more than 150 private sector organisations, has close links to 40 universities and sponsors about 100 PhD students each year. Please see www.bgs.ac.uk.

Sense about Science
Sense about Science (www.senseaboutscience.org) is an independent charity that works to ensure the public interest in sound science and evidence is recognised in public life and policy making. Our public engagement team draws from extensive public networks and over a decade of working with the public on some of the trickiest issues concerning evidence. Our ethos is

public led, expert fed — which means engaging early and directly addressing people's questions and concerns.

The UK Geoenergy Observatories
The UK Geoenergy Observatories are establishing new centres for research into the subsurface environment, how natural processes can control resource availability, and how natural resources can be used responsibly for present and future generations. The knowledge they generate will contribute to an understanding of new low-carbon energy technologies both in the UK and internationally. The £31 million is funded through the UK Government's 2014 £6 billion Plan for Growth of Science and Innovation.

The UK Geoenergy Observatories comprise more than 100 boreholes in three different UK locations: Cardiff, Cheshire and Glasgow. Each observatory is monitoring a unique geological environment affected by a range of past, present and potential industrial activities.

The observatory in Cardiff is looking at the shallow geothermal environment below the city's famous former docklands. Inherited from the Cardiff Harbour Authority, the BGS has repurposed the boreholes to install some 100 sensors looking at the temperature, biology and chemistry of the groundwater.

Cheshire West and Chester Council has just approved (2 July 2019) the observatory for Cheshire. It will comprise 50 boreholes across a 12 km^2 area, down to 1200 m. The seismic and groundwater monitoring network comprises 1800 sensors capable of generating millions of terabytes of data over a 15-year-period. The seismic network will be so sensitive it will be able to pick up earth movements from the other side of the world.

The observatory in Glasgow is currently being drilled and comprises 12 boreholes across a 4 km^2 area to characterise the mine workings below Glasgow, which could potentially be a source of sustainable geothermal heat.

Together these sites form a macroscope for the geological environment. Macroscopes are used widely to understand the oceans, atmospheres, wildlife and rainforests. The geological sphere is critical to understanding the natural environment and how it's changing as a result of human activities. These observatories will make us better equipped to deal with environmental change.

Photographs are available from our ftp server: ftp://ftp.bgs.ac.uk/pubload/bgspress. These are provided free for media use with copyright acknowledgement.