

BGS services in mine water energy

1. UK Geoenergy Observatory in Glasgow

The [UK Geoenergy Observatory in Glasgow](#) is a research facility for investigating shallow, low-temperature coal mine water heat energy and potential heat storage resources. Boreholes penetrating abandoned and flooded mine workings at depths of 45–90m are located in research compounds with extensive monitoring capability. Environmental monitoring boreholes targeting both the superficial deposits and the unmined bedrock provide ongoing information about environmental changes in the area.

The Observatory site is typical of towns and cities with a post-industrial urban and coalfield legacy. It provides ready-to-use borehole and geothermal infrastructure in conditions directly applicable to mine water heat abstraction and re-injection. Its unique set up has been designed to be flexible to enable testing, monitoring, model validation, and to create perturbations of flow and heat from the natural baseline. An extensive set of open characterisation and monitoring data is already available [here](#).

Examples of the research capabilities are given [here](#) and example opportunities for reducing uncertainties, costs and to answer scientific questions on mine water energy are provided [here](#).

The Glasgow Observatory is open to commercial, academic and other users for onsite investigations. More details provided [here](#), with services provided including:

- Standard access using ‘pay-as-you-go’, for exclusive use of the boreholes, research compounds and geothermal infrastructure.
- Joint partnership projects being developed to answer key technical questions for commercialisation of mine water energy. These are likely to be of particular interest to organisations who are involved in exploring the potential of shallow geothermal for renewable heat, but who do not wish to carry out specialist investigative work themselves.
- ‘Samples and sensors’ calls for users who do not require exclusive Observatory use for groundwater samples, or to test new sensors and equipment.
- Training access

Users are encouraged to contact the UK Geoenergy Observatories team using ukgeosenquiries@bgs.ac.uk to discuss their ideas and requirements further.

2. IEA mine water energy expert group

The IEA Geothermal Technology Collaboration Programme has set up an international working group on mine energy within Working Group 14, starting in March 2022. BGS runs the mine water energy expert group on behalf of the community, with some funding from UK Government.

The mine water expert group is preparing case studies for successful heat schemes. It is also looking to document where lessons can be learnt to improve future outcomes, for

example from unsuccessful boreholes; and to provide other information on data sources, regulatory regimes etc.

The web page is <https://iea-gia.org/areas-of-activity/geothermal-heating-and-cooling/mine-water-geothermal-energy-group/>

The IEA mine water energy expert group with BGS, Coal Authority and BEIS has also run three international symposia in 2021, 2022 and 2023. The recordings are available at <https://iea-gia.org/workshop-presentations/>

A summary blog for the 2023 symposium with evolving themes in mine water energy is available at <https://www.bgs.ac.uk/news/collaboration-progress-and-emerging-themes-in-mine-water-heating-cooling-and-storage/>

3. Data

- The BGS onshore Geoindex contains a range of relevant data, including links to borehole drilling records <https://mapapps2.bgs.ac.uk/geoindex/home.html>
- The BGS maps portal contains scans of geological maps at a range of scales <https://webapps.bgs.ac.uk/data/MapsPortal/>
- BGS Edinburgh provides a viewing service for Coal Authority mine plan scans for users in Scotland.