

De-risking green energy from mine waters by developing a robust hydrogeological conceptual model of the UK Geoenergy Observatory in Glasgow

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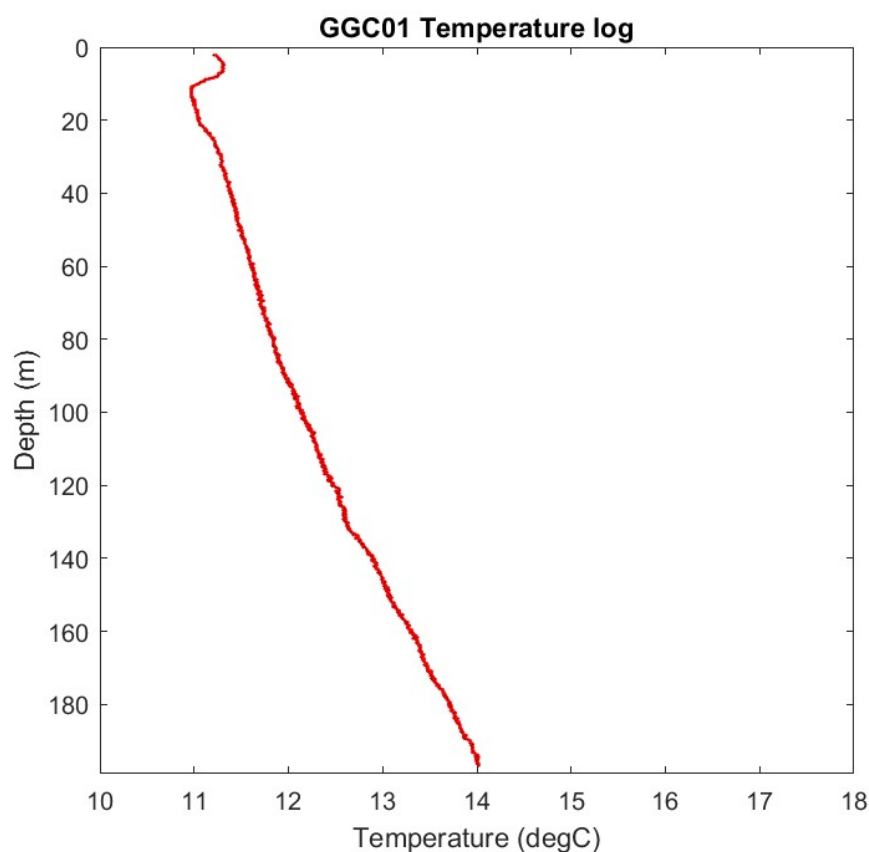


Figure S1. Temperature log from GGC01 (data from Monaghan et al., 2021; Starcher et al., 2019)

Note S1. Data used in the cluster analysis

List of parameters used for clustering analysis (inorganic traces that were below lower limits of detection (LLC) for some of the samples were not included as variables): calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), bicarbonate (HCO_3), chloride (Cl), sulphate (SO_4), bromide (Br), fluoride (F), silicon (Si), barium (Ba), strontium (Sr), manganese (Mn), iron (Fe), boron (B), vanadium (V), chromium (Cr), cobalt (Co), nickel (Ni), zinc (Zn), arsenic (As), rubidium (Rb), yttrium (Y), zirconium (Zr), uranium (U), ammonium (NH_4), and dissolved organic carbon (NPOC).

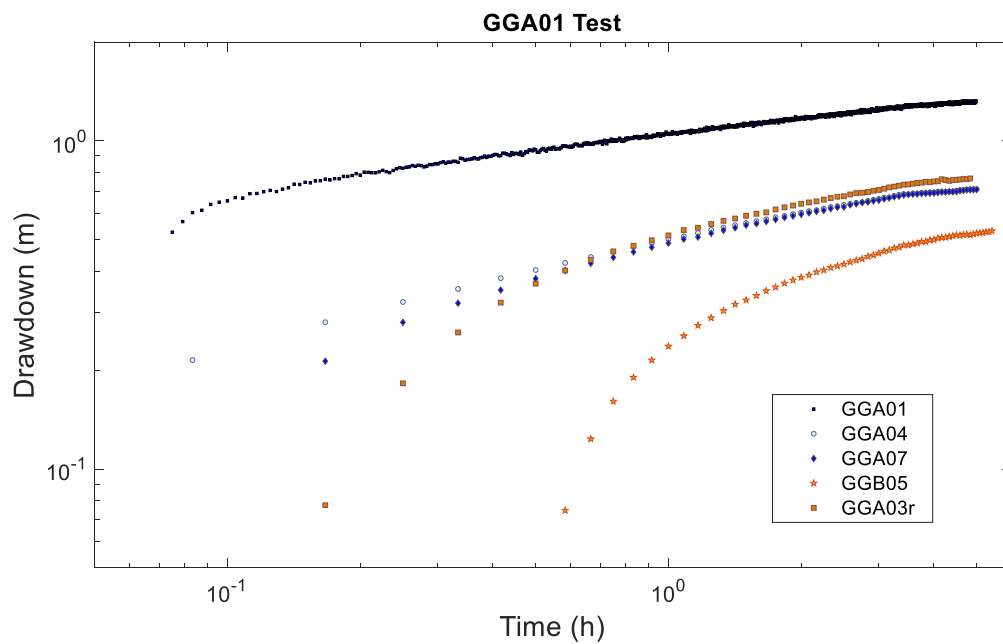


Figure S2. Log-log plots of the pumping test in borehole GGA01 the Glasgow Upper mine working (GGA01) and observation boreholes (GGA04, GGA07) and boreholes in the bedrock above (GGB05, GGA03r) (data from Shorter et al., 2021)

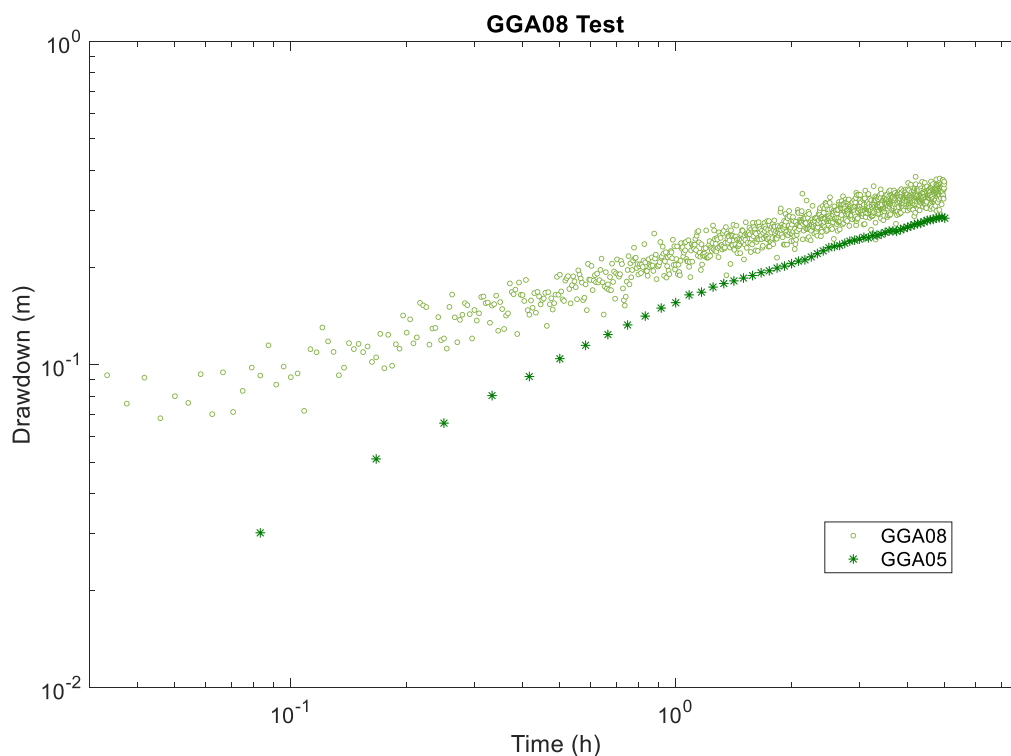


Figure S3. Log-log plot of the pumping test in borehole GGA08 in the Glasgow Main mine working and the observation borehole (GGA05) (data from Shorter et al., 2021)

ESM References

- Monaghan, A.A., Damaschke, M., Starcher, V., Fellgett, M.W.; Kingdon, A., Kearsey, T., Hannis, S., Gillespie, M., Shorter, K., Elsome, J., Barnett, M. (2021). UK Geoenergy Observatories Glasgow: GGC01 cored, seismic monitoring borehole – final data release. Nottingham, UK, British Geological Survey, 64pp. OR/21/031
- Shorter, K., Ó Dochartaigh, B.É., Butcher, A., MacDonald, A., Elsome, K. and Burke, S. (2021). Data release and initial interpretation of test pumping of boreholes at the Glasgow UK Geoenergy Observatory. British Geological Survey Open Report, OR/21/016
- Starcher, V., Shorter, K., Barron, H., Burkin, J., Elsome, J., Fellgett, M., Kingdon, A., Barnett, M., Monaghan, A. (2019). GGC01 cored, seismic monitoring borehole – initial data release. Nottingham, UK, British Geological Survey, 14pp, OR/19/021