



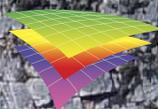
Multi-Client Project Proposal: Characterising Carboniferous Fractures and Karst in the UK

Overview

Carboniferous karstified limestones have high fracture permeability that can support flow of significant volumes of fluids. The connectivity of karst volumes is not fully understood - better understanding of the flow network would be commercially beneficial to hydrocarbon and geothermal industries.

This project will analyse a wide range of exposed limestone pavements, cliff sections and caves, to understand and quantify the fracture and karst system in unprecedented detail. Using a combination of data types, including satellite imagery, lidar, drone and ground-based photogrammetry, traditional outcrop transects, petrography and well data we will provide a multi-scale quantitative characterisation of the connectivity network.





Fractures & Karst

GRL has extensive commercial experience in quantitative, multi-scale characterisation of fracture systems and karst.

Proposed Project Scope

- Systematic acquisition of 1D, 2D and 3D fracture data from cliff-sections, pavement and underground caves.
- Application of rigorous fracture characterisation methodologies to quantify the background fracture network, together with the geometry and spatial relationships of karst bodies.
- Analysis of geometrical connectivity, and where possible, correlation with proven volumetric flow.
- Evaluation of viable genetic links between karst bodies and the pre-existing fracture network.
- Comparison of surficial karst, formed through the action of meteoric waters, and subsurface karst, formed through reactions with hydrothermal fluid.

Deliverables

- Quantitative characterisation of the karst system (directionality, cavity/matrix ratios, morphology, volumes, dimensions and spatial distribution).
- Quantitative characterisation of the background fracturing (robust fracture parameters suitable for input for reservoir & DFN modelling).
- All data in digital format, geospatially referenced.
- Detailed report summarising key quantitative and qualitative conclusions, and describing acquisition, processing and analysis methods.

Pricing & Further Information

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GRL: About Us

- We have a proven record of commercial success in providing specialist services and multiclient studies for the energy sector worldwide.
- We are at the forefront in application of new spatial technologies for outcrop analysis, and have an active research profile in characterisation of fracture networks (geospatial-research.com/research-archive/). Our fracture workflows are streamlined and highly cost-effective.
- Based in Durham in the NE of England we already have a long legacy of field analysis of spectacular Carboniferous outcrops, and have existing digital datasets that will be incorporated into this project at no extra cost.

Lidar laser-scanning of karst systems, Puglia, Italy

