



# Newsletter

### Project information

The MOET project started in April 2022 and is now coming to the end of Year 2 of its five-year programme. The project team has been reviewing its work streams in response to feedback received from you all and is planning some more focused activities in Year 3 – see below and attached.



Wishing you all a Happy Easter and a restful bank holiday!



### Meetings and engagement activities

In our last newsletter we promised to share a summary of the discussions held at the in-person meeting in November last year. The summary is attached here. It identifies what we consider to be in-scope activities and how these might be taken forward in the three remaining years of the MOET project. We have used this document to develop an engagement plan which will enable more focused discussions on specific topics of interest. The first phase will include a series of online focus groups on particular topics held in Year 3 (April 2024-March 2025). We will be in touch soon with more details.

In the meantime, please do feel free to send any comments or questions to us on anything held the attached summary.

### Work Package 1 update - Optimal use of subsurface geological resources for storage of H<sub>2</sub> and CO<sub>2</sub>

Joint elastic-electrical properties of Bunter sandstone during H<sub>2</sub> and CO<sub>2</sub> flow-through tests have been used, within a complementary research project, to develop laboratory-calibrated rock physics models to be used in seismic modelling for underground hydrogen storage operations. The MOET elastic-electrical properties flow-through experiment research findings were presented at the University of Lausanne, Switzerland, March 2024 and at an invited talk in Nanjing, China, December 2023. Development continues of the 4D seismic data modelling methodology to understand sensitivity to changes in saturation and pressure related to CO<sub>2</sub> injection. Data limits to microbial growth in UK offshore strata have been compiled and input to a trial interactive database to enable suitability of sites for gas storage. Mapping and depth conversion of Bunter sandstone and halite storage strata in the nearshore, southern North Sea, is nearing completion to assess H<sub>2</sub> and CO<sub>2</sub> potential storage capacities.

### Work Package 2 update – Understanding the shallow subsurface, seeps and the marine environment

To understand additional impacts and risks that could emerge from H<sub>2</sub> storage, in addition to CO<sub>2</sub> storage, lab experiments were conducted over a 3-week period. Different North Sea sediments collected from close to potential offshore H<sub>2</sub> storage sites (e.g. Dogger Bank), were exposed to both H<sub>2</sub> and CO<sub>2</sub>. Samples were analysed for changes in the geochemical and geophysical properties of sediments, microbial community structure and for the development of any chemical component that could have an adverse effect on the environment or could be used as a tracer for detecting leakage from future sub seafloor H<sub>2</sub> storage sites. First results indicate that sediment-H<sub>2</sub> reactions lead to production of hydrogen sulphide, while the sediment-CO<sub>2</sub> reactions lead to release of dissolved iron. Results are being provided to the modellers for model prioritisation.

The hydrogen module in the PLUME model is in the process of full testing. The grid covering two locations in the North Sea for windfarms and storage reservoirs are in the process of being developed in the hydrodynamic model FVCOM.

BGS has completed new detailed seabed geology mapping of the Offshore East Anglia area, which forms part of the southern North Sea areas of interest for the MOET project. The map interpretation is currently going through a review phase and should become available via the BGS GeoIndex within the next two months.

### Project management team

Jim White – Principal Investigator (BGS)

Maxine Akhurst – WP1 lead (BGS)

Jerry Blackford – WP2 lead and PML Principal Investigator (PML)

Elizabeth Gabe-Thomas – WP3 lead (PML)

Hazel Napier – WP4 lead (BGS)

Angus Best – NOC Principal Investigator (NOC)