

## IEAGHG Information Paper: 2017-IP14; EU Project to Advance Environmental Monitoring for Offshore CO<sub>2</sub> Storage Projects

STEMM-CCS (Strategies for Environmental Monitoring of Marine Carbon Capture and Storage) is an EU Horizon 2020 funded project that will develop and test environmental monitoring at a controlled release of CO<sub>2</sub> in the North Sea. The project has just held its first annual meeting in Kiel, Germany. The key objectives of the project are:

- To produce new tools and techniques for environmental monitoring as well as CO<sub>2</sub> emission monitoring, leakage detection and location, quantification and assessment
- To generate new knowledge of the reservoir overburden by direct investigation of natural geological and manmade features, specifically chimneys.
- To deliver the first CCS demonstration project level implementation of an ecological baseline, incorporating geochemical and biological variability
- To promote knowledge transfer to industrial and regulatory stakeholders

The project builds on the QICS project which was a shallow controlled release, and the ECO2 project which through offshore surveys tested monitoring and baseline measurements at offshore sites. STEMM-CCS will develop new tools and test these on a controlled-release in the sea-bed at a typical water depth in the North Sea, around 110m.

The project will start to collect environmental baseline data from summer 2017 with a permanent seabed lander. The project recognises the complex and variable nature of environmental baselines and will provide new detailed evidence on this. The controlled release test will be in the summer of 2019. Various new devices are being developed for the monitoring, include sediment samplers, AUV- and ROV- mounted chemical and acoustic sensors. The project aims not only to show that any emitted CO<sub>2</sub> can be detected but to attribute (identify the source) of the CO<sub>2</sub> with tracer-based and process-based (stoichiometric) techniques, and very importantly to test techniques to quantify the CO<sub>2</sub>, an area in need of attention for carbon accounting purposes.



The project is coordinated by The UK's National Oceanography Centre, with a consortium of partners representing the leading marine science organisations in the EU and Norway. IEAGHG sits on the Stakeholder Advisory Board for the project to provide feedback.

The project has just held its first Annual Meeting in Kiel, hosted by GEOMAR. The quality of the research expertise and facilities being brought to this work are impressive. Good progress is being



made especially on sensor development, and planning is well advanced on the development of the engineering and techniques to collect data and the planning of the research cruises using UK and German research ships. GEOMAR also hosted a visit to their marine research facilities to see up close some survey hardware which will be used on this project.



This is an exciting and unique project that will advance offshore environmental monitoring, specifically CO<sub>2</sub> leakage detection and quantification, and CO<sub>2</sub> storage site characterisation. More details will be shared and discussed at the forthcoming IEAGHG Monitoring Network meeting in June 2017 in Michigan.

For more information and updates see <http://www.stemm-ccs.eu/> .

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