

Title **ECO2: Science and technology for monitoring, measurement, and verification at offshore CCS storage sites**

Speaker Prof. Ian Wright
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Date & Time Friday, January 20, 2012 4:00 p.m.

Place INAMORI Hall, Ito campus, Kyushu University

Abstract

ECO2 is a new European Union research consortium (comprising 27 research and industry partners) that proposes to assess risks associated with sub-seabed CO₂ storage. CCS is regarded as a key technology for the reduction of European CO₂ emissions, with the EU potentially supporting up to seven demonstration projects to promote, at industrial scale, the implementation of CCS in Europe. Several demonstration projects aim to store CO₂ below the seabed. Though CO₂ has been stored at the offshore Sleipner and Snøhvit storage sites over a period of years, short-term and long-term impacts of CO₂ storage on marine ecosystems are not well established. ECO2 has five underlying objectives; (1) assess the probability of leakage from sub-seabed storage, (2) document the effects of leakage on benthic organisms and marine ecosystems, (3) assess the risks of sub-seabed carbon storage, (4) test and deploy novel monitoring techniques, and (5) provide best environmental practices guidelines for sub-seabed storage. The science core of the programme will undertake integrated multi-disciplinary studies at existing Sleipner and Snøhvit sites, and potential B3 site in the Polish sector of the Baltic Sea – these sites cover depleted oil and gas reservoirs and saline aquifers located at continental shelf to upper continental slope depths. Fieldwork at storage sites will be supported by numerical modeling and laboratory experiments, and complemented by detailed process and monitoring studies at natural CO₂ seeps (Juiist, southern North Sea; Jan Mayen, Barents Sea; Panarea, Mediterranean Sea; and Okinawa Trough, offshore Japan) that will serve as analogs for potential CO₂ leaks. Novel monitoring techniques will be developed to detect and quantify the fluxes of formation fluids, natural gas, and CO₂ from storage sites. A best practice guide will be developed for the management of sub-seabed CO₂ storage sites considering the precautionary principal and costs of monitoring and remediation.

About the Speaker

Professor Ian Wright is Deputy Director, Directorate of Science and Technology (comprising some 210 researchers and technologists) at the National Oceanography Centre, UK. He leads a group working on seafloor geological and structural control of fluid flow at varying scales with original application in hydrothermal flow and volcanic edifice evolution. This work has involved synthesis of geochemical and geophysical data, real-time seafloor monitoring and water-column geochemistry into integrated models of fluid flow. This integrated geological / geophysical expertise is being currently applied to fluid flow at seeps, and CO₂ reservoir storage research. Currently he is leading research on seafloor emissions of methane gas release from Arctic sea hydrate dissociation, and two projects on understanding the potential environmental risks and developing monitoring technologies for sub-seabed CO₂ storage. The latter two projects comprise the EU-funded *Sub-seabed CO₂ Storage: Impact on Marine Ecosystems (ECO2)*, and the UK-funded *Quantifying and Monitoring Potential Ecosystem Impacts of Geological Carbon Storage (QICS)*, for which Professor Wright is the lead NOC Principal Investigator and a member of the Science / Steering Boards of both projects. Professor Wright has extensive experience in working with stakeholders to transfer research into applicable policy, management, and operational advances.

Host: Professor Kiminori SHITASHIMA

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