

At the Australian School of Petroleum researchers are focusing on the following areas.

RESERVOIR AND SEALS CHARACTERIZATION AND STRATIGRAPHY

The project is to assess sedimentological and stratigraphic heterogeneity of reservoirs and seals, and to determine the impact on geological storage of CO₂ .

Discipline Leader: **Dr Bruce Ainsworth (ASP)**

Key Researchers: **Dr Mario Werner (ASP), Dr Ric Daniel (ASP), Dr Boyan Vakarelov (ASP), Ms Sally Edwards (ASP)**

GEOMECHANICS AND PETROPHYSICS

The project is to conduct research related to geomechanical and petrophysical aspects of CO₂ storage and apply that knowledge to potential CCS sites in Australia and New Zealand.

Discipline Leader: TBA

Key Researchers: **Prof Richard Hillis (ASP)**, Dr David Dewhurst (CSIRO), Dr Andy Nicol, Dr Ranjight Pathegama Gamage (Monash Uni), Dr Sandrine Vidal-Gilbert (ASP), Dr Eric Tenthorey (GA), **Mr Jacques Sayers (ASP)**, Ms Richa Shulka (Monash Uni)

RESERVOIR MODELLING

This research focuses on reservoir engineering to provide information on the injection, migration and final containment of carbon dioxide stored in geological formations. This will assist in the assessment of sites as candidates for geosequestration, and feed into well location, design, monitoring and economic evaluation. This research includes simulation using commercial software. Site-based simulations rely on geological models developed in other activities. The performance of simulation codes is evaluated. Simulation involving coupled geochemistry, coupled geomechanics and coupled hydrodynamics is undertaken and studied.

Discipline Leader: Lincoln Paterson (CSIRO)

Key Researchers: Jonathan Ennis-King (CSIRO), Guangwen Wu (CSIRO), Yildiray Cinar (UNSW), **Quingjun Yang (ASP)**, Donghai Xu (GA).

GEOCHEMISTRY

Investigation of offshore natural analogues for CO₂ geosequestration

Investigate offshore natural accumulation of CO₂ with the aim of better understanding the behaviour of CO₂ in the subsurface. Existing natural accumulations of CO₂ in the subsurface will be reviewed and the reservoir and seal rocks sampled and investigated to examine changes related to CO₂ influx.

Discipline Leader: Jim Undershultz (CSIRO)

Key Researchers: Chris Boreham (GA), Karen Higgs (GNS), Allison Hening (CSIRO), **Ulrika Schacht (ASP)**

Investigation of onshore natural analogues for CO₂ geosequestration

Investigate onshore natural accumulations of CO₂ with the aim of better understanding the behaviour of CO₂ in the subsurface. Existing natural accumulations of CO₂ in the subsurface will be reviewed and the reservoir and seal rocks sampled and investigated to examine changes related to CO₂ influx.

Discipline Leader: Jim Undershultz (CSIRO)

Key Researchers: **Ulrike Schacht (ASP)**

Investigation of CO₂ migration in natural analogues via soil gas measurements

Investigate migration of CO₂ with the aim of better understanding the behaviour of CO₂ in the subsurface. Undertaking measurements of natural CO₂ migration via soil gas measurements at the CO₂CRC Otway Project site to understand natural behaviour and provide a baseline for later injection activities.

Discipline Leader: James Underschultz (CSIRO)

Key Researchers: **Ulrike Schacht (ASP)**

Fluid-rock interaction geochemical modelling

To conduct forward modelling on petrologically characterised samples from sites and natural analogues to predict CO₂ –water-rock interaction using equilibrium, kinetic and reactive transport modelling.

Discipline Leader: James Underschultz (CSIRO)

Key Researchers: **Ulrike Schacht (ASP)**, Dirk Kirste (Simon Fraser University)