

Background

Theme C: Secure Carbon Storage

Summary

Theme C focuses on carbon storage issues in a broad sense. Of paramount importance to the geological storage of CO₂ in current CCS programs is the ability to quantitatively track the injected CO₂ plume in the storage formation and to detect and remediate any leaks. Verification of storage is vital for public acceptance of CCS and will become a regulatory requirement for commercial projects. Comprehensive monitoring protocols need to be established, using a wide range of technologies including next-generation sensors and robust borehole sensing devices. A key component of CCS implementation and commercialization is having trained and qualified personnel to deploy at actual storage projects. A training site and programs for students, postdoctoral fellows and industry technologists are being developed. In addition to current subsurface CCS, CO₂ injection concepts, other energetically and economically viable non CO₂ carbon storage materials and processes are being sought. Accelerated rock weathering and biogeochemical routes to carbon storage in the crust or oceans are being evaluated and developed.

Leadership

Dr. Don Lawton, Professor and CSEG Chair in Exploration Geophysics, University of Calgary

Dr. Lawton is involved in integrated geophysical and geological research studies in fold-thrust belts to better understand the evolution and 3-D geometry of complex foothills structures. Other interests include physical and numerical seismic modelling studies for improved acquisition and processing of reflection seismic data in complex structural environments. In addition, he looks at acquisition, processing and interpretation of multicomponent and conventional seismic data and near surface geophysical studies for environmental applications and for reflection static corrections.

Dr. Lawton is Associate Director of the Consortium for Research in Elastic Wave Exploration Seismology (CREWES).

Round 1 Funded Projects

In 2010, CMC funded 17 Canadian research projects. Theme C funded projects were:

- Storage Geochemistry
- Adapting Probabilistic Seismic Hazard Assessment Methods to Site Evaluation for CCS
- Storage Geophysics and Monitoring
- Seismic behaviour of CO₂ saturated sandstones: laboratory measurements and modelling
- CO₂ for CCS from Fuel Cells
- Carbon Mineralization in Mine Wastes