

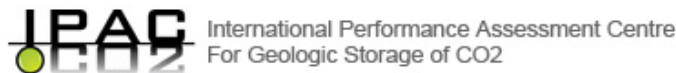


IEA Greenhouse Gas R&D Programme

Natural Releases of CO₂: Building Knowledge for CO₂ Storage Environmental Impact Assessments

**Hosts : CO₂GeoNet and BGR
Sponsor : IPAC – CO₂**

Maria Laach, Germany, 2-4 November 2010



www.ieaghg.org

IEA Greenhouse Gas R&D Programme (IEAGHG)



- A collaborative international research programme founded in 1991
- Aim: To provide information on the role that technology can play in reducing greenhouse gas emissions from use of fossil fuels.
- Producing information that is:
 - Objective, trustworthy, independent
 - Policy relevant (but NOT policy prescriptive)
 - Peer reviewed by external Expert Reviewers
- Focuses on Carbon Dioxide Capture and Storage (CCS)
- **Activities:** Studies and reports (>120); International Research Networks: *Wells, Risk, Monitoring, Modelling, Oxy, Capture, Social Research*; Communications (GHGT conferences, IJGGC, etc); facilitating and focussing R&D and demonstration activities eg Weyburn; working with IEA (including Regulators Network), GCCSI, CSLF, EU ZEP, US RCSP, CO2CRC, UNFCCC etc.

ALSTOM

B&W
power generation group

BG GROUP



CEZ GROUP



CIAB

VATTENFALL



ConocoPhillips



TOTAL



ieaghg



Enel
L'ENERGIA CHE TI ASCOLTA.

Statoil



e.on

Schlumberger



EPRI

RWE
The energy to lead

REPSOL YPF

JGC

GLOBAL CCS INSTITUTE

ExxonMobil

IEAGHG Research Workshops



- Bring together international key groups of experts to share knowledge and experience
- Identify and address knowledge gaps
- Publish report of discussions, conclusions and recommendations (ppts on web site)
- Benefit experts and wider stakeholders
- Depend on experts' time and inputs – valuable and widely appreciated



Environmental Impacts of Leakage



- IEA GHG Report by BGS, IEAGHG 2007/3
- Workshop held to help define R&D needs, 15-17 Sep 2008, BGS, UK. ~30 experts
- Presentations and discussions on regulatory needs, experimental releases (ZERT, ASGARD) and monitoring research on natural analogues
- Workshop Report IEAGHG 2008/15

Environmental Impacts of Leakage



Findings:-

- *Some techniques are able to detect CO₂ to low levels = few tonnes pa – needs further assessment*
- *Near-surface transport needs better understanding*
- *Effects on ecosystems of multiple stressors*
- *Development of monitoring techniques for environmental impacts*
- *Definitions of ‘significant’ impacts on different ecosystems*

Key conclusions:-

- *CO₂ release experiments providing valuable data*
- *Natural CO₂ leakage provides good analogues and learning opportunities*
- *Some learning cannot be achieved with experimental releases or analogues, eg displacement of saline water, impacts on ground water, effects of other substances, testing system models – need real large scale storage projects*
- *Such projects would also provide regulatory learning by example, eg **EIAs***

Environmental Impacts of Leakage



Recommendations:

Findings to feed into Risk and Monitoring Networks

Improve learning from natural leakage analogues

- Hold larger workshop on research on natural leakage analogues
- Database of research on analogues



Natural Releases Workshop

Agenda



0. Welcomes and Introductions
1. Setting the Scene
2. Releases Magnitudes and Impacts – Marine; Terrestrial
3. Mobilisation of Brine and Metals
4. Near surface vs Deep Subsurface Mechanisms
5. Monitoring Challenges
6. Conclusions and Key Outcomes

Field Trip



Steering Committee for Natural Releases Workshop



Tim Dixon – IEAGHG

Franz May – BGR (Host)

Lee Spangler – Montana State University

Travis McLing – Idaho National Laboratory

Jonathan Pearce – BGS

Katherine Romanak – BEG, University of Texas at Austin

Ameena Camps – IEAGHG

Salvatore Lombardi – ‘La Sapienza’ University of Rome

Also Heike Rutters, BGR, Julie West, BGS, Sam Neades, IEAGHG

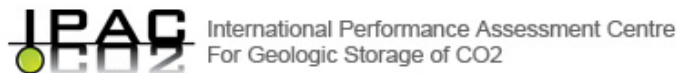


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