

## SCIENTIFIC COMMITTEE

Jacob Bear, TECHNION, Israel, (co-chair)  
Auli Niemi, Uppsala University, Sweden (co-chair)  
Jacob Bensabat, EWRE Ltd, Israel (co-chair)  
Philippe Pezard, CNRS, France (co-chair)  
Philippe Gouze, CNRS, France  
Jesús Carrera, CSIC, Spain  
Meritxell Martell, Merience, Spain  
Martin Sauter, University of Göttingen, Germany

## CONTACT INFORMATION

### Scientific program:

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### Registration:

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### Local arrangements:

Philippe Pezard ([philippe.pezard@gm.univ-montp2.fr](mailto:philippe.pezard@gm.univ-montp2.fr))

Information on TRUST project: <http://trust-co2.org>

## COURSE VENUE

CNRS Amphitheater  
CNRS Délégation régionale  
1919 route de Mende,  
F-3493, Montpellier, France

## REGISTRATION

There will be a registration fee of 75 Euro per participant (including tuition fees and coffee breaks). Register for the course online at:

<https://trustco2course.wordpress.com/registration>

Kindly indicate your name, affiliation (university or company), VAT number of the institution to which the invoice should be addressed, postal address and email address.

## MORE INFORMATION

<http://trustco2course.wordpress.com/>



# Advanced Course on CO<sub>2</sub> Sequestration in Deep Geological Formations

19-21 October 2015

Montpellier, France

[www.trustco2course.wordpress.com](http://www.trustco2course.wordpress.com)

**ANALYTICAL – EXPERIMENTAL – NUMERICAL**  
*including field trip to experimental CO<sub>2</sub> injection site*

**Carbon Capture and Storage (CCS)** is a rapidly expanding technique, with globally addressed scientific and technical challenges, aimed at reducing carbon dioxide in the atmosphere and preventing climate change. In this course, we will **focus on storage of CO<sub>2</sub> in deep geological formations**.

The course is organized by the European Commission FP7 TRUST project with the participation of CNRS, CSIC, EWRE, Imperial College, Merience, Nottingham Centre for CCS, Technion – Israel Institute of Technology, University of Edinburgh, University of Göttingen and Uppsala University.

The course will provide the participants with the **current state of the art knowledge** concerning the scientific and technical issues for the successful operation of CO<sub>2</sub> sequestration projects in deep, brine-containing geological formations.

The course will focus on the **technical and scientific considerations of CO<sub>2</sub> injection, spreading and trapping in the target formation and on the mathematical and numerical modeling of CCS projects**. Experts will lecture on site characterization and investigations of critical processes by laboratory studies and field techniques, as well as on planning of experimental projects and monitoring techniques aimed at verifying the conceptual models. Emphasis will be on understanding the flow and transport mechanisms that provide the foundation for planning full scale projects. Risk issues and societal aspects will be also presented and discussed.



## AUDIENCE

This course is intended for graduate students and post-doctoral researchers, including M.Sc. and Ph.D. students in the fields of engineering (civil, chemical, mechanical and petroleum engineering), geology, and geophysics, as well as professionals who wish to gain a greater understanding of current research findings, modeling and planning elements of CCS projects. *The number of participants is limited to 75.*

## Introduction to CCS: Technologies, Sites and Societal Aspects

Introduction to geological storage of CO<sub>2</sub> and examples of field projects (Auli Niemi, University of Uppsala, Sweden)  
Experiences from natural analogues (Stuart Gilfillan, University of Edinburgh, UK)  
Capacity estimates of CO<sub>2</sub> geological storage sites (Stuart Gilfillan, University of Edinburgh, UK)  
Approaches to large scale problems (Auli Niemi, Uppsala University, Sweden)  
Public perception and societal challenges associated with CCS (Meritxell Martell, Merience, Spain).

## Mathematical and numerical modeling of CCS

Mathematical models for CO<sub>2</sub> spreading and related processes (part 1; two-phase flow; part 2, non-isothermal transport, deformable porous media) (Jacob Bear, Technion, Israel)  
Numerical Modeling of Geological Storage – part 1; Methodologies, part 2; Results and examples. Hontomín example (Jesús Carrera, CSIC, Spain)  
Modeling geochemical aspects of CO<sub>2</sub> injection and spreading in geological formations (Philippe Gouze, CNRS, France)  
Scale effects and upscaling (Marco Dentz, CSIC, Spain)  
Fractured rock hydrology and implications for carbon storage / sequestration (Robert Zimmerman, Imperial College, UK)  
Advanced methods for fracture propagation modeling (Adriana Paluszny, Imperial College, UK)  
Injection well-reservoir interaction (Myra Kitron-Belinkov, Technion, Israel)  
Fluid mechanics and resulting geological response of sequestration (Herbert Huppert, University of Cambridge, UK)  
Hydro-mechanical processes (Henry Power, Nottingham Centre for Carbon Capture and Storage, UK)

## CCS Injection Site

Geophysical monitoring of CO<sub>2</sub> geological storage sites, Ketzin case study (Monica Ivandic, Uppsala University)  
Characterization methods for geological reservoirs (Martin Sauter, University of Göttingen, Germany)  
Hydro-geophysical monitoring methods: lessons from shallow injection experiments at Maguelone (Philippe Pezard, CNRS, France)  
Characterization and monitoring of an injection experiment – Example from Heletz, Israel (Jacob Bensabat, EWRE, Israel)  
Laboratory experiments for CO<sub>2</sub> geological characterization (Katriona Edlmann, University of Edinburgh)  
Risk assessment in geological storage of CO<sub>2</sub> (Katriona Edlmann, University of Edinburgh)

### FIELD TRIP!!

*A trip to the Maguelone experimental site will be organised by the Centre National de la Recherche Scientifique (CNRS) after the course. The site offers a natural laboratory to study porous coastal reservoirs in a clastic and clay-rich context saturated with mostly saline fluids.*

