



12th CO₂GeoNet Open Forum

May 8-9, 2017

Driving CCS towards implementation

May 10, 2017

Side event co-organized by IRIS and Gassnova

Fit-for-purpose solutions for CCS

Side event co-organized by BGS and GEUS

Bringing CCS into new regions - developing countries

ENOS Open Workshop organized by BRGM

Experience sharing focus groups: framing the topics

Young researchers' networking event

May 11, 2017

ENOS Open Workshop organized by BGS and RGNF

Research priorities and future pilots

CO₂GeoNet - a resource for Europe providing scientific support for the geological storage of CO₂

CO₂GeoNet - an Association of 28 members over 21 countries

The Forum - to make scientific research and researchers available to stakeholders

Venice, San Servolo Island, Italy



Organized by CO₂GeoNet in collaboration with:



Endorsed by:



Through the EU funded Horizon 2020 project ENOS, a CO₂GeoNet initiative



AGENDA

Monday May 8 - The role of CCS in national mitigation strategies

8:30 Registration

9:00 Welcome

Sergio Persoglia, CO₂GeoNet Secretary General

9:05 Objectives of the 12th CO₂GeoNet Open Forum

Ton Wildenborg, President of CO₂GeoNet

Keynote Talk – Setting the scene

Chair: Ton Wildenborg, CO₂GeoNet-TNO & Aage Stangeland, Research Council of Norway

09:15 After 20 years - can CCS reach its potential?

Niels Berghout, IEA Energy Analyst - CCS Unit, France

10:00 Panel discussion

10:15 Coffee break

Session 1: Meeting the COP targets - worldwide engagement

International perspectives on the impact of the Conference of the Parties

Chair: Isabelle Czernichowski, CO₂GeoNet-BRGM & Manfred Treber, Germanwatch

10:45 The role of CCS in delivering the Paris Agreement

John Scowcroft, Global CCS Institute, Executive Adviser Europe

11:05 Summary and status of major CCS research, development and demonstration projects in the United States

Thomas Sarkus, NETL US-DOE, USA

11:25 Engagement in Africa

Joseph Essandoh-Yeddu, Energy Commission, Ghana

11:45 European industries, reconciling employment and climate action

Keith Whiriskey, Climate Technologies, Bellona Foundation

12:05 Panel discussion

12:30 Lunch break

Session 2: Decarbonising industry - the vital role of CCS

Integrating CCS into the industrial sector

Chair: Ceri Vincent, CO₂GeoNet-BGS & John Scowcroft, GCCSI

13:45 Tomakomai CCS Demonstration Project

Yoshihiro Sawada, Japan CCS

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- 14:05 European Commission initiatives on CCUS**
Vassilios Kougionas, DG Research & Innovation, European Commission
- 14:25 Needs in research and development for CO₂ usage and valorization**
Gabriel Marquette, The National Centre for Scientific Research, CNRS, France

14:45 Panel discussion

15:15 Coffee break

Session 3: New opportunities and synergies for CCS
CO₂ utilization and integrating CCS with energy technologies
Chair: Conny Schmidt-Hattenberger, CO₂GeoNet-GFZ & Thomas Sarkus, NETL US-DOE

- 15:45 A new paradigm for CCS – carbon utilization for subsurface energy resource management**
Srikanta Mishra, Battelle, USA
- 16:05 Making CO₂ sequestration affordable by coupling it with geothermal energy extraction**
Martin Saar, CO₂GeoNet-ETH Zürich, Switzerland
- 16:25 Near term deployment opportunities for Bio-Energy with CCS (BECCS) to meet Paris Agreement mitigation targets**
Henrik Karlsson, Biorecro, Sweden
- 16:45 CO₂ utilization in the industry - overview, prospects and recommendations**
Valérie Czop, Club CO₂, France

17:05 Panel discussion

- 17:25 Closing remarks Day 1**
Ton Wildenborg, President of CO₂GeoNet

From 18:00 Icebreaker evening and poster session
San Servolo Island - Room Basaglia

- 18:10** Niels Poulsen, CO₂GeoNet-GEUS, Denmark: **Welcomes young researchers**

Young researchers (PhD and PostDoc) present their scientific work in a poster session at the Icebreaker evening.

In parallel: **Advisory Committee Meeting**

Tuesday May 9 - Accelerating implementation of CCS

8:30 **Welcome and introduction**
Sergio Persoglia, CO₂GeoNet Secretary General

Session 4: Lessons learned for future applications

Building on practical experience (test bed - pilot - demo scales)

Chair: Roman Berenblyum, CO₂GeoNet-IRIS & Kari-Lise Rørvik, Gassnova

08:35 **Quest - industrial CCS in action**
Owain Tucker, Global CCS Deployment Shell, UK

08:55 **The Otway stage 3 project – low impact, fit for purpose monitoring & verification**
Max Watson, CO₂CRC, Australia

09:15 **Current CCS research and development activities and major demonstration projects in Japan**
Ziqiu Xue, RITE Kyoto, Japan

09:35 **Small scale field test demonstrating CO₂ geologic storage in Arbuckle saline aquifer and CO₂-EOR at Wellington field in Southern Kansas**
Evgeny Holubnyak, Kansas Geological Survey, USA

09:55 Panel discussion

10:15 *Coffee break*

Session 4: Continued

Chair: Niels Poulsen, CO₂GeoNet-GEUS & Vit Hladik, CO₂GeoNet-CGS

10:45 **The Ketzin pilot site – post-injection and abandonment phase**
Conny Schmidt-Hattenberger, CO₂GeoNet-GFZ, Germany

11:05 **Hontomin Technology Development Plant - from characterization to injection**
José Carlos de Dios, CO₂GeoNet-CIUDEN, Spain

11:25 **Sulcis Fault Lab - preparation for drilling phase**
Sabina Bigi, CO₂GeoNet-La Sapienza, Italy

11:45 **Assessing monitoring technologies at the UK GeoEnergy Test Bed**
Ceri Vincent, CO₂GeoNet-BGS, UK

12:05 Panel discussion

12:30 *Lunch break*

Session 5: Accelerating implementation of CCS

Showcasing results from EU projects

Chair: Marjeta Car, CO₂GeoNet-GEO-INZ & Franz May, CO₂GeoNet-BGR

13:45 **Highly controlled CO₂ injection experiments at Heletz (Israel)**
Jacob Bensabat, EWRE Ltd., Israel

14:05 The Rotterdam Nucleus - a pilot case for CO₂ transport infrastructure
Marie Bysveen, CO₂GeoNet-Sintef, Norway

14:25 CO₂ storage activities in Greece
Nikolaos Koukoulas, CO₂GeoNet-CERTH, Greece

14:45 IMPACTS – CO₂ quality and CCS system design and performance
Ton Wildenborg, CO₂GeoNet-TNO, The Netherlands

15:05 Panel discussion

15:30 Coffee break

Session 5: Continued

Chair: Sabina Bigi, CO₂GeoNet-La Sapienza & Keith Whiriskey, Bellona

16:00 Implementation of the European CCS research infrastructure ECCSEL - experiences and remaining activities
Michela Vellico, CO₂GeoNet-OGS, Italy

16:20 An update on the ROAD project
Andy Read, Maasvlakte CCS Project C.V., The Netherlands

16:40 The Smeaheia site and its role in upcoming CCS projects
Kari-Lise Rørvik, Gassnova, Norway

17:00 Panel discussion

17:20 Closing remarks Day 2
Ton Wildenborg, President of CO₂GeoNet

17:55 Departure by boat to the Gala Dinner

Parallel WORKSHOP I: Fit-for-purpose solutions for CCS

Side event of the CO₂GeoNet Open Forum, co-organized by IRIS and Gassnova

Chairs: Aage Stangeland, Research Council of Norway & Kari-Lise Rørvik, Gassnova

09:00 Welcome and introduction

Roman Berenblyum, IRIS, Norway

09:10 Screening of potential sites on the Norwegian continental shelf

Kari-Lise Rørvik, Gassnova, Norway

09:30 Study of the BECCS potential in the Nordic countries

Timur Delahaye, BioRecro, Sweden

09:50 Drivers for CCS and industry – demand for low carbon products

Sarah Tennison, Tees Valley Combined Authority, UK

10:10 Coffee break

10:40 CO₂ DISSOLVED - an innovative CCS approach fitted to small industrial emitters

Christophe Kervevan, BRGM, France

11:00 Break-out group I: Does BECCS need large-scale CO₂ storage?

Break-out group II: Can low carbon products and involvement of small emitters influence CCS acceleration?

11:30 Summary from both groups & joint discussion

12:00 Lunch break

Parallel WORKSHOP II: Bringing CCS into new regions - developing countries

Side event of the CO₂GeoNet Open Forum, co-organized by BGS and GEUS

Chairs: Ceri Vincent, BGS & Niels Poulsen, GEUS

09:00 Welcome and introduction

Ceri Vincent, BGS, UK

09:10 Climate Technology Centre & Network (CTCN) - implementing CCS in Africa

Joseph Essandoh-Yeddu, Energy Commission, Ghana

09:30 CCS in Nigeria - the journey so far

Felicia Mogo, Nigerian Maritime Administration and Safety Agency, Nigeria

09:50 Growing opportunities for CCS in India?

Jonathan Pearce, BGS, UK

10:10 Coffee break

10:40 CCS opportunities and challenges in the community of Portuguese language countries - overview from Angola, Mozambique, Cape Verde and others

Júlio Carneiro, University of Evora, Portugal

11:00 New projects in South Africa

Nigel Hicks, Council for Geoscience, South Africa

11:20 Panel discussion and summary

12:00 Lunch break

Young researchers' networking event

Side event of the Open Forum, organized by CO₂GeoNet

Chair: Sabina Bigi, CO₂GeoNet-La Sapienza

13:30 Young researchers' networking event

Niels Poulsen, CO₂GeoNet-GEUS, Denmark

14:00 Presentation of Erasmus program

Sabina Bigi, CO₂GeoNet-La Sapienza, Italy

14:30 Closing remarks

Niels Poulsen, CO₂GeoNet-GEUS, Denmark

ENOS Open Workshop I - Experience sharing focus groups: framing the topics

Organised by BRGM for ENOS

All discussions led by Thomas Le Guéan, BRGM

13:30 ENabling Onshore CO₂ Storage in Europe (ENOS)

Roman Berenblyum, IRIS, Norway

14:00 Experience sharing focus groups and purpose of the workshop

Thomas Le Guéan, BRGM, France

14:15 Break-out group: In what areas could developing European onshore pilots learn from international experience? Ideas for future topics

15:15 *Coffee break*

15:45 Break-out group: Planning the experience sharing focus groups - what topics should be tackled in priority and how?

16:45 Wrap-up & preparation for next experience sharing focus groups event

17:30 Closing remarks

Thomas Le Guéan, BRGM, France

ENOS Open Workshop II - Research priorities and future pilots

Organised by BGS and RGNF for ENOS

All discussions led by Jonathan Pearce, BGS & Bruno Saftic, RGNF

09:00 Introduction and aims of the workshop

Jonathan Pearce, BGS, UK

09:20 Discussion session: future storage site design and operational feasibility

- Improving storage capacity estimation and management
- Flexible storage design

09:45 Discussion session: optimising use of strategic reserves

- Pore-space optimisation
- Maximising storage following EHR
- Improving controls on injectivity

10:15 *Coffee break*

10:45 Discussion session: assuring site conformance

- Maintaining seal rock integrity
- Improvements in monitoring technologies to lower cost and increase efficiencies
- Risk profiles for CO₂ storage and methodologies for site conformance
- Improved leakage mitigation technologies

11:45 *Lunch break*

13:00 Prioritisation of studies for three future pilot/small-scale projects based on morning discussion sessions to feed into EERA and ENOS deliverables

Jonathan Pearce, BGS, UK

13:15 Discussion and finalisation of workshop outcomes – prioritised research topics for three pilot / small-scale projects

Bruno Saftic, RGNF, Croatia

13:45 Closing remarks

Jonathan Pearce, BGS, UK

Sponsors



French national hub in the field of CO₂ capture, transport, use and storage (CCUS)



Italian national institute of oceanography and experimental geophysics

GEOTEC SPA

Soil investigations and land surveying



San Servolo Island



CO₂GeoNet **The European Network of Excellence** **on the Geological Storage of CO₂**

About CO₂GeoNet

CO₂GeoNet is the European scientific body on CO₂ geological storage. The Association currently comprises 28 research institutes from 21 European countries, and brings together over 300 researchers with the multidisciplinary expertise needed to address all aspects of CO₂ storage. With activities encompassing joint research, training, scientific advice, information and communication, CO₂GeoNet has a valuable and independent role to play in enabling the efficient and safe geological storage of CO₂. CO₂GeoNet was created in 2004 as a Network of Excellence supported by the EC FP6 programme for 5 years. In 2008, CO₂GeoNet became a non-profit association under French law. From 2013, the membership of CO₂GeoNet expanded thanks to the support of the now completed FP7 CGS Europe project. New Members continue to join CO₂GeoNet to further enhance the pan-European coverage and expertise of the Association.

More about CO₂GeoNet at www.co2geonet.com

CO₂GeoNet members

Austria: GBA - Geologische Bundesanstalt; **Belgium:** RBINS-GSB - Royal Belgian Institute of Natural Sciences; **Croatia:** UNIZG-RGNF - University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering; **Czech Republic:** CGS - Czech Geological Survey; **Denmark:** GEUS - Geological Survey of Denmark and Greenland; **Estonia:** TTUGI - Institute of Geology at Tallinn University of Technology; **France:** BRGM - Bureau de Recherches Géologiques et Minières; **Germany:** BGR - Bundesanstalt für Geowissenschaften und Rohstoffe; **Germany:** GFZ - German Research Centre for Geosciences / Deutsches GeoForschungsZentrum; **Greece:** CERTH - Centre for Research & Technology Hellas; **Hungary:** MFGI - Magyar Földtani és Geofizikai Intézet; **Italy:** OGS - National Institute of Oceanography and Experimental Geophysics; **Italy:** URS - Università di Roma "La Sapienza"; **The Netherlands:** TNO - Netherlands Organisation for Applied Scientific Research; **Norway:** IRIS - International Research Institute of Stavanger; **Norway:** NIVA - Norwegian Institute for Water Research; **Norway:** SPR - SINTEF Petroleum Research; **Poland:** PGI-NRI - Polish Geological Institute - National Research Institute; **Romania:** GeoEcoMar - National Institute of Marine Geology and Geoecology; **Slovenia:** GEO-INZ - Geoinženiring d.o.o.; **Spain:** CIUDEN - Fundación Ciudad de la Energía; **Spain:** IGME - Instituto Geológico y Minero de España; **Sweden:** UU - Uppsala University; **Switzerland:** ETH - Swiss Federal Institute of Technology Zurich; **Turkey:** METU-PAL - Middle East Technical University Petroleum Research Center; **UK:** BGS - British Geological Survey; **UK:** HWU - Heriot-Watt University; **UK:** IMPERIAL - Dept. of Earth Science and Engineering, Imperial College London.