



11th Annual CO₂GeoNet Open Forum: Increasing the momentum for CCS

The 11th edition of the Open Forum will focus on the role CO₂ storage has to play in hitting the crucial low carbon targets in a post COP 21 world. Various aspects for the future implementation of CO₂ storage will be considered e.g. policy, market, society and science. The Open Forum will take place on May 9th and 10th, 2016 on San Servolo Island in Venice, Italy, and will be followed by three topical workshops on May 11th. The three-day event is organised in collaboration with the European Commission, the European Energy Research Alliance Joint Program on CCS and Gassnova from Norway.

At COP 21 in Paris last year many researchers and decision makers made it clear that CCS is a necessary component of a future with a decarbonised and sustainable economy that can meet the ambitious goal of the Paris Agreement to keep maximum global temperature increase well below 2°C. In such an economy, CCS is not only vital for the power sector but also for the carbon

intensive industries for emission reduction. While CO₂ storage technology is already available, near-future R&D efforts (including at field laboratory and pilot sites) need to focus on refining CCS technologies to provide lower cost and certified storage solutions to accelerate implementation of CCS.

The Open Forum is an opportunity to meet with colleagues, international CCS experts and stakeholders at one of the most prominent European CO₂ storage meetings. Attendees will learn about and discuss the latest news on European and international CCS policies

and strategies and discover the most recent scientific results and developments in deploying CCS pilot and demonstration projects.

For more information and to register, please go to:
<http://www.co2geonet.com>

We look forward seeing you all in Venice to help increase the momentum for CCS.

Axel Liebscher, GFZ, Germany

Open Forum - "Increasing momentum for CO₂ storage"

9th May 2016 - Outlook on CCS after COP 21

With the ambitious aim to keep the global temperature rise well below 2 °C, existing climate policies need to be reviewed and redefined. The status of policy development in various regions and states and emerging/non-traditional CCS options such as industry+CCS and bio-energy will be presented and discussed.

10th May 2016 – State of play of CCS and CO₂ storage

The status of large-scale integrated CCS projects, storage pilots and supporting R&D work will be presented and the future directions for CCS debated.

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11th May 2016 – Three workshops

← Full day →

1. Dealing with liability

Final closure, liability and transfer of responsibility of the storage site

Co-organisers: Gassnova & CO₂GeoNet

← 9:00-14:30 →

2. Enabling transport and storage networks to serve distributed capture projects - the missing link?

Co-organisers: EERA CCS & CO₂GeoNet

← 15:00-18:00 →

3. CO₂ storage pilots in Europe

Co-organizers: REPP-CO₂ * & CO₂GeoNet

*REPP-CO₂: Preparation of a Research Pilot Project on CO₂ Geological Storage in the Czech Republic



CO₂GeoNet actions at COP21

The 21st Conference of the Parties (COP21) represented an important opportunity to communicate the potential role for geological storage of CO₂ in a low carbon future to decision makers, the general public and other key stakeholders.

As a 'Research Institution Non-Governmental Organisation' (RINGO), CO₂GeoNet was able to access the negotiation 'blue zone' to organise and participate in knowledge sharing activities. CO₂GeoNet presented on 'North Sea Basin CO₂ storage opportunities' and 'CCS Pilot Projects in the EU; opportunities for developing country involvement'. CO₂GeoNet also led on a side event in the EU Pavilion on 'The role of CCS (Carbon dioxide Capture and Storage) in mitigating climate change'. The event in the EU Pavilion was well attended by official negotiation delegate members. CO₂GeoNet co-organised a booth which received many visitors, particularly from developing countries.

The events in the open access 'climate generations' area were also

very important for CO₂GeoNet as they offered an excellent opportunity to communicate the science supporting geological storage of CO₂ to a wider audience. Hands-on experiments were presented to the visitors to better explain how CO₂ is safely stored deep underground and what happens in the reservoir. Posters prepared by our co-organisers illustrated the full CCS process. The booth was visited by the general public, governmental representatives, non-governmental organisations (NGOs), students, oil companies, academics and many other interested parties. Generally the view on geological storage of CO₂ as a key emissions reduction technology was positive though there were some lively debates about how best to reduce greenhouse gas emissions, alternative options for reducing emissions and the role CCS could play as part of the pathway to a low carbon future.

The outcomes of COP21 represent a turning point for stabilising atmospheric concentrations of greenhouse gases. It is anticipated that interest in CO₂ storage as a key mitigation technology will only increase now as signatories to The Paris Agreement begin to assess how to achieve the ambitious greenhouse gas emission reduction targets. It is important to

maintain momentum from the Paris Agreement and action is urgently needed to meet climate change mitigation targets. This was recognised at high level in the Paris Agreement including through appointment of two 'champions' to facilitate rapid global collaborative action: Mr. Pasztor will support efforts to 'mobilise world leaders and all sectors of society to Implement the Paris Agreement' (UN Press release 29/1/16) and Ms. Tubiana will support national leaders and other actors in their efforts to advance major initiatives and commitments to accelerate climate change mitigation actions, with a particular focus on what can be achieved before 2020 (<http://cop21.gouv.fr/en/>).

All the information presented at COP21 and more detail on the CO₂GeoNet events is available through our dedicated website <http://cop21.co2geonet.com/>

*Ceri J. Vincent, BGS, UK
Ton Wildenburg, TNO, The Netherlands*



Observing Negotiations at COP21



Side event in the public 'climate generations' area



Booth in the public 'climate generations' area

CO₂GeoNet in ISO TC 265 Technical Committee on CO₂ Storage



International
Organization for
Standardization

The International Organization for Standardization (ISO) international Technical Committee (TC265) was formed in 2012 to investigate the need to normalise elements of CCS technology. International consensus achieved through the ISO provides a powerful tool for the implementation of CCS.

The ISO is a worldwide federation of national standards bodies (ISO member bodies). Founded in 1947, the organisation promotes worldwide proprietary, industrial and commercial standards. It has headquarters in Geneva, Switzerland, and works in 164 countries. It was one of the first organisations granted general consultative status with the United Nations Economic and Social Council.

The work of preparing International Standards is normally carried out through the ISO Technical Committees. Member bodies are represented on committees in which they have an interest. International, governmental and non-governmental organisations may also liaise with ISO in setting standards.

CO₂GeoNet was granted a Category A Liaison to ISO TC265 in early 2014. Category A Liaisons are organisations that are expected to make an effective contribution to the work of the Technical Committee.

Several CO₂GeoNet Members are also deeply involved in the ISO process as part of their national role.

With access to all relevant committee documentation CO₂GeoNet were invited to Working Group (WG) meetings with nominated experts. The Technical Committee is divided into 6 WGs (WG 1: Capture, WG 2: Transportation, WG 3: Storage, WG 4: Quantification & verification, WG 5: Crosscutting issues, WG 6: Enhanced Oil Recovery).

The objective is to provide recommendations for the safe and effective storage of CO₂ in subsurface geological formations through all phases of CCS. The Standard will be supplemented by best practices highlighted in key CO₂ storage research projects and standards and recommendations developed for the oil and gas industry. The Standard recognises that site

selection and management are unique for each project and that risk and uncertainty will be dealt with on a site-by-site basis.

In July 2015, CO₂GeoNet submitted comments for the Committee Draft on Storage and then participated in the ISO Technical Committee meeting in Oslo, September 2015 (Working Group Meetings 7th - 9th and Plenary Meetings 10th - 11th). In Oslo Members of CO₂GeoNet participated in the plenary meeting as country representatives and also gave a presentation about CO₂GeoNet. CO₂GeoNet also participated in WG 3, which discussed, updated and corrected items for discussion in the Committee Draft document on storage. WG 3 has Technical Panels (TP) for each chapter, i.e. on storage scope, normative references, terms and definitions, management system, site selection, risk, infrastructure, operation, monitoring and verification and closure. CO₂GeoNet was co-author in TP4 on management system.

Following on from the meeting in Oslo, CO₂GeoNet helped prepare the draft chapter for TP4 which was submitted to the ISO Editorial Committee. The final draft was prepared in April 2016 and will be discussed at the TC265 and WG's plenary in Laramie, Wyoming, USA in May 2016. When the WGs reach agreement, ISO takes on the procedure, before putting the finalised 'Draft International Standard' (DIS) to

a majority vote. This is likely to take place at the end of 2016.

It is worth noting that the ISO TC265 terms are comparable with the EU CCS Directive in many chapters, however, as it is a worldwide standard, many of the definitions also vary from those in the CCS Directive.

For example, the CCS Directive uses 'Closure' as the point in time at which injection ceases whereas ISO defines a 'Closure' stage during which the Project Operator must demonstrate the site meets the site closure acceptance criteria. After it has been demonstrated the site meets the acceptance criteria (ISO and CCS Directive), the site can be handed over to the Designated Authority for long term stewardship during the 'Post Closure' (ISO Standard) or 'Post Transfer' (CCS Directive) stage.

These examples show why clarifying which terms are being used is important; there is a need to understand timing and criteria for transfer of responsibility for the site to the appropriate body for long term stewardship. In addition, the ISO Standard does not apply after handover to the Designated Authority, but the EC Directive continues to apply.

It is therefore critical to be aware of which definitions are being used and to ensure terms can be understood by the interested public and authorities.

Niels Poulsen, GEUS, Denmark

International Sulcis Summer School on CCS Technologies 2016

The fourth edition of the International Sulcis Summer School on CCS Technologies will be held in Carbonia (Cagliari, Sardinia), at the Sotacarbo Research Centre, from the 28th of June to the 1st of July 2016. The Summer school is organised by Sotacarbo, ENEA, The University of Cagliari (Department of Mechanical, Chemical and Materials Engineering), IEA CCC and CO₂GeoNet.

The programme includes talks and interactive sessions dealing with all

aspects of Carbon dioxide Capture and Storage. The first day will be dedicated to a general introduction, and in particular CCS in European and Italian policies as well as outcomes from COP21 conference in Paris. Dedicated sessions will follow: capture approaches and technologies (29th June); CO₂ utilisation technologies (30th June) and CO₂ storage with examples from pilot and demo sites.

Sabina Bigi, La Sapienza, Italy



Award for CGS Europe project

The CGS Europe project (which was an initiative of CO₂GeoNet) received the Carbon Sequestration Leadership Forum (CSLF) Global Achievement Award during the 6th CSLF Ministerial Meeting in Riyadh, Saudi Arabia (held 1st – 5th November, 2015). CGS Europe, 'the Pan-European coordination action on CO₂ geological storage' was funded within the 7th Framework Programme of the European Community for research. Technological development and demonstration activities ran during 2010 – 2013. The project was coordinated by Isabelle Czernichowski-Lauriol, BRGM. Major achievements of the project included increased international collaboration on CO₂ geological storage activities and production of key documents on the state-of-play in Europe on CO₂ geological storage, state-of-the-art monitoring techniques, site selection and characterisation methods and a review of directives and regulatory regimes (<http://www.cgseurope.net>)

The Award was given to CGS Europe, as a successful collaborative venture that involved 34 research institutes from 28 countries in Europe. Through the project an extensive structured network was developed and through this widespread knowledge transfer and dissemination of results was undertaken. Building upon the previous CO₂GeoNet project (which is also recognized by CSLF), CGS Europe successfully developed an independent and durable pan-European scientific body for CO₂ geological storage. The CO₂GeoNet Association continued after the CGS Europe project was completed and continues to provide a reference source for national, European and international stakeholders and to play an active role in supporting the large-scale implementation of CO₂ geological storage.

*Sergio Persoglia, CO₂GeoNet
Marjeta Car, GEO-INZ, Slovenia*



ENOS: New Horizon 2020 project



ENOS – 'Enabling Onshore CO₂ Storage in Europe' - has been selected for a 12.5M€ grant by the EC and will last for 4 years. The Project is an Initiative of CO₂GeoNet and brings together research organisations, SME's and industry. The objective of ENOS is to enable the development of CO₂ storage onshore in Europe by:

- 1) Developing, testing and demonstrating key technologies specifically adapted to onshore contexts in the field at pilot and field laboratory sites;
- 2) Demonstrating the benefits of integrating CO₂ geological storage into the socio-economic fabric of the concerned territories;
- 3) Contributing to the creation of a favourable technological and societal environment for onshore storage across Europe.

Marie Gastine, BRGM, France

Isabelle Czernichowski-Lauriol, CO₂GeoNet President Emeritus presented CGS Europe Project to the audience and received the CSLF Global Achievement Award from the hands of Mr. Ali bin Ibrahim Al-Naimi, Minister of Petroleum and Mineral Resources of Saudi Arabia and Mr. Ernest Moniz, Secretary of Energy of United States (CSLF Ministerial Co-Chairs)



"CO₂GeoNet Highlights" is the online newsletter issued by The European Network of Excellence on the Geological Storage of CO₂ Association

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