CO₂GeoNet update
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CSLF Technical Group, December 2021
CO$_2$GeoNet: a growing European Network of Excellence on CO$_2$ geological storage

✓ Created as a EU FP6 Network of Excellence 2004-2009 became an Association under French law in 2008

✓ The Association continues to grow and now comprises 27 research institutes from 21 countries

www.co2geonet.com
Unites over 300 researchers with the multidisciplinary expertise needed to address all aspects of CO$_2$ storage.
Hystories – CO2GeoNet compiling geological database to enable Hystories to assess opportunities for H₂ storage

Depleted fields and aquifers: building on previous CO₂GeoNet Member work

Hystories: 17 countries covered by partners in-country, plus 5 additional neighbouring countries

ESTMAP

CO₂StoP

Salt deposits: no update, but use of SMRI-financed work (Horvath et al., 2018)

https://hystories.eu/
State of Play on geological storage in Europe (1)

• National policies and climate-protection strategies;
• National legislation and regulations;
• National storage options, potential and capacity;
• Large-scale and demonstration CCS projects, pilot and test sites for CO\(_2\) capture, transport and storage;
• Research activities with respect to CO\(_2\) storage;
• National actors driving CCS forward, public awareness and engagement.

State of Play on geological storage in Europe (2)

• Report summarises information provided by national experts from across Europe

• Detail on country by country basis in the Annex

• Session keynote at 2\textsuperscript{nd} EAGE Geoscience and Engineering for the Energy Transition Conference on 24/11/21

CO₂GeoNet invites candidates with a relevant MSc to apply for this specialist course. Applications to be sent to Sabina Bigi (sabina.bigi@uniroma1.it) with the subject line ‘ENOS MSc course 2021’.

Applications must be received by January 17th, 16:00 UK time. The school organisers will then select from the applications.

https://web.uniroma1.it/masterco2/en/course-description
COP26 – online events

• Exhibit - We need CO₂ capture and storage (CCS & CCUS) to meet the Paris Agreement targets

• EU pavilion - Meeting our Sustainable Development Goals through an integrated carbon management approach (CO₂GeoNet, GFZ, IASS)

• UNFCCC side event - Accelerating along the transformative pathway to net zero with large-scale carbon dioxide removal and storage (C2G and CO₂GeoNet)

http://www.cop26.co2geonet.com/
Key messages from EU pavilion event (1)

Meeting our Sustainable Development Goals through an integrated carbon management approach

• Achieving our SDGs and pathways for 1.5°C require rapid and large-scale reduction of and negative CO₂ emissions;

• Nature-based solutions and CO₂ capture and storage (CCS) are essential and complementary options to tackle the climate challenge;

• CCS is already safely storing millions of tonnes of CO₂ every year and can enable negative emissions;

• There is abundant geological capacity to safely store CO₂ captured from sources such as industrial and energy-intensive processes where CCS is the only option to cut emissions;

• CCUS can be accelerated and upscaled through the provision of, and access to, large scale transport and storage infrastructure;

http://www.cop26.co2geonet.com/
Key messages from EU pavilion event (2)

- CCU can offer long-term storage opportunities and help make CCS investable;
- Life cycle analysis is essential to ensure projects reduce emissions and support relevant SDGs;
- **Adapted carbon accounting** could support CCUS by providing fair recognition of all relevant technologies;
- Nature-based climate solutions can offer up to 1/3 of the emission reductions needed between now and 2030 to achieve the Paris Agreement targets;
- Nature-based climate solutions have a high acceptability by local communities and offer many ecosystem services essential for achieving SDGs and climate goals;
- Policy support and demand for low carbon activities is needed to enable these options to achieve their full potential in tackling the climate challenge.

http://www.cop26.co2geonet.com/
CO₂GeoNet Autumn webinars – 20 & 21 Sept

• Keynote from DG CLIMA on EU Green Deal and CCS strategy

• Status of European/ international forerunner projects; CTSCo Surat Basin, Northern Lights/Longship, new Canadian projects

• Emerging CCUS technologies and new projects; the Danish Greensands project, the ACCSESS project, Hydrogen in Portugal

• Keynote on the need for change from EU Climate PACT Ambassador

• Recent progress in industrial CCS projects; Longship CO₂ Capture from Oslo, CLEANKER, QUEST, Gorgon

• Research - Contributions to MMV, storage potential and risk assessment; FRS Canada, Hystories, State of play on CO₂ storage

CO$_2$GeoNet Autumn webinars (1)

My key takeaways:

• Data and tools needed that will enable projects to “prepare for swift decisions”

• **Dynamic, flexible approach needed** – buffer storage, CO$_2$ arriving from multiple locations…..

• Need for “Climate positive projects”. *Important to calculate the overall CO$_2$ reduction for different technologies and feedstocks*

• We need to develop commercially viable chains for negative emissions. **CCS should be approached the same as for other large scale waste disposal needs.** CCS can’t be driven by fossil fuels

• **CO$_2$ capture and transport challenge = cost. CO$_2$ storage challenge = risk**, but this reduces over time

• **Climate neutral hydrogen is key in the energy transition**

• **CCS on power is still needed!**

• Increased ambition in climate targets – Green Deal, ETS, Certificates etc to support. “**Ambitious but feasible**”. Europe is ready to store CO$_2$!

CO₂GeoNet Autumn webinars (2)

My key takeaways:

• A **future Danish hub** (Greensands project) for European CO₂ storage is emerging

• **Portugal is not looking for blue hydrogen** but will CO₂ capture be needed to blend with the grid gas supply?

• **CO₂ capture is ready to go in Oslo** (Fortnum Oslo Varne, Norway - awaiting full funding decision). Plastic is still a problem for recycling and much is burned through WTE

• Ready to form **Baltic CCUS clusters**. Ready to produce low carbon cement

• **Gorgon (Australia) installed wells to tackle site specific challenges**; CO₂ injection, reservoir surveillance, water producers, water injectors

• Canadian Field Research Station draws together international expertise and multiple approaches to consider 'what is the smallest amount of CO₂ we can detect?'

CO₂GeoNet
The European network of excellence on the Geological Storage of CO₂

Thank you for your time

Information: www.co2geonet.com
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