

CO₂GeoNet Update

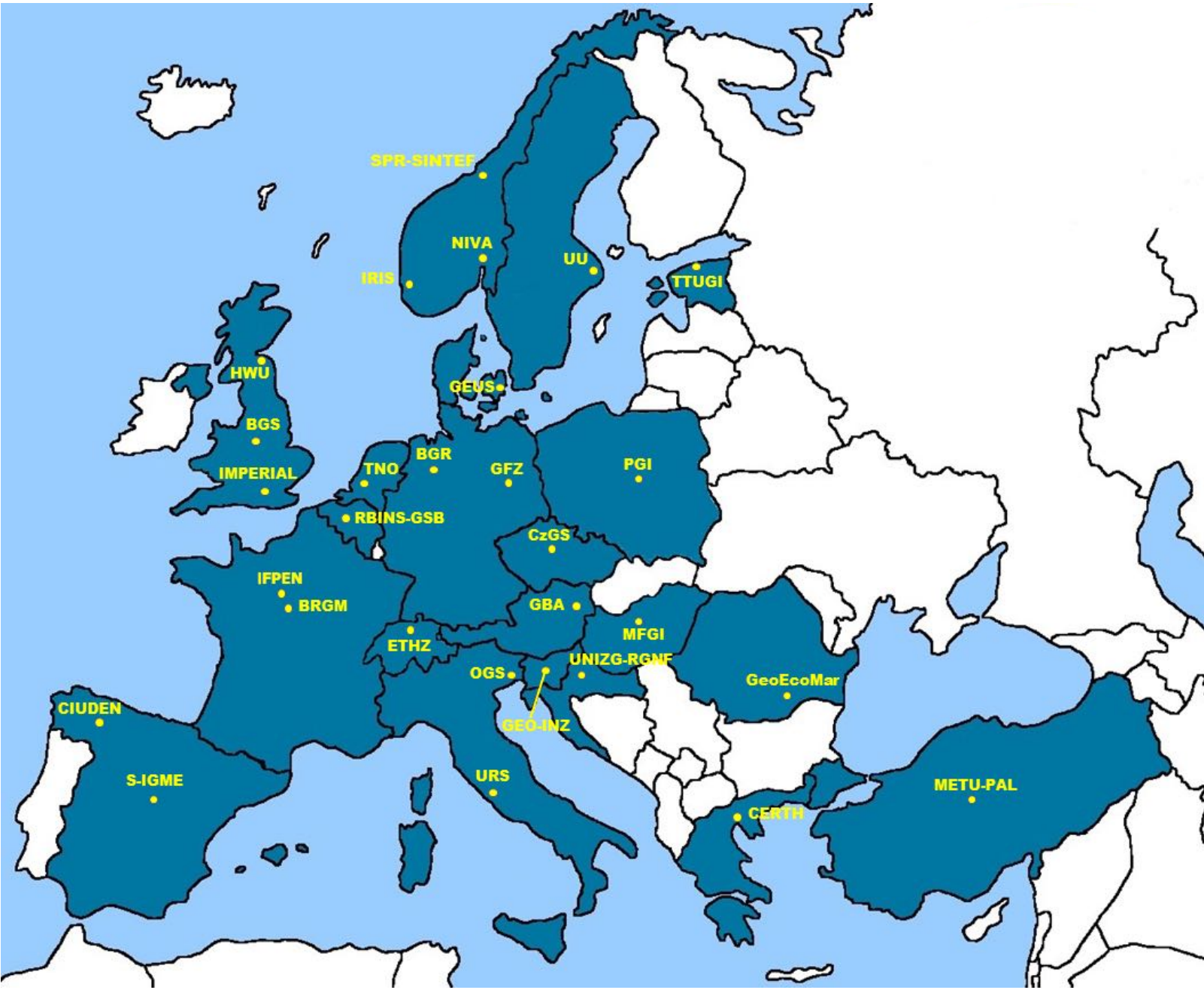
Sergio Persoglia – Secretary General

CSLF Technical Group Meeting - Melbourne – 17 October 2018



The European Network of Excellence on the Geological Storage of CO₂

CO₂GeoNet: a growing European Network of Excellence on CO₂ geological storage issues



- ✓ Created as a EU FP6 Network of Excellence 2004-2009
- ✓ Became an Association under French law in 2008
- ✓ The Association is growing and now comprises **29** research institutes from **21** countries
- ✓ Unites over **300** researchers with the multidisciplinary expertise needed to address all aspects of CO₂ storage

10th anniversary as a legal entity

CO₂GeoNet's ambition

- ✓ **Provide and disseminate integrated SCIENTIFIC RESEARCH results** and knowledge to contribute to the improvement of technical, economic, regulatory aspects and to raise the public awareness and perception of CO₂ storage. **Help identify knowledge gaps and formulate new research targets**
- ✓ **Be the preferred source of impartial SCIENTIFIC ADVICE and technical information** for the European Union, industry, regulators, the general public and other CCS stakeholders
- ✓ **Foster the TRAINING of upcoming generations of scientists** that will be needed for a widespread deployment of the technology, by being a source of unbiased information on CO₂ storage
- ✓ **Foster interaction and exchange of INFORMATION** views between CO₂ storage researchers and CCS stakeholders

Update since Venice, 23 April 2018

SCIENTIFIC RESEARCH

ENOS project - ENabling Onshore CO₂ Storage in Europe



Initiative of CO₂GeoNet

Sept. 2016 – Aug. 2020

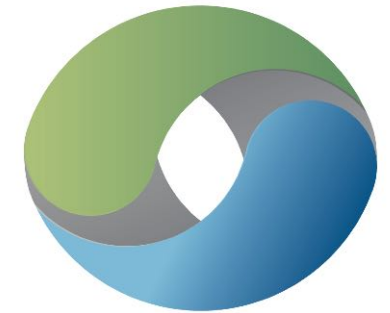
Coordinated by BRGM

29 partners

17 countries

5 injection/leakage test sites

<http://www.enos-project.eu/>



ENOS
Enabling Onshore CO₂ Storage

ENOS has received 12.5 M€ funding from the EU Horizon 2020 research and innovation programme under grant agreement No. 653718



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SCIENTIFIC RESEARCH

UK - GeoEnergy Test Bed:

injection in a shallow aquifer overlain by caprock
Sandstone (250 m)

Spain - Hontomin:
CO₂ injection pilot Deep saline aquifer
Carbonates (1500 m)



NL - Q16 Maas: CO₂ buffering and re-production for greenhouse horticulture

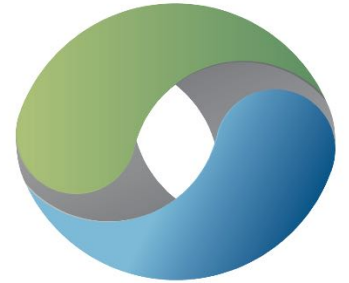
Depleted HC field
Sandstone (2800 m)

Czech Rep - LBR-1:

EOR + CO₂ storage
Abandoned oil field
Sandstone (1100 m)

Italy - Sulcis Fault Lab:

injection site through a fault
Volcanic rocks, clays and limestones (250 m)



ENOS
Enabling Onshore CO₂ Storage

.... see the **CO₂GeoNet Newsletter n.15**, soon available at:
<http://www.co2geonet.com/resources/#1379>

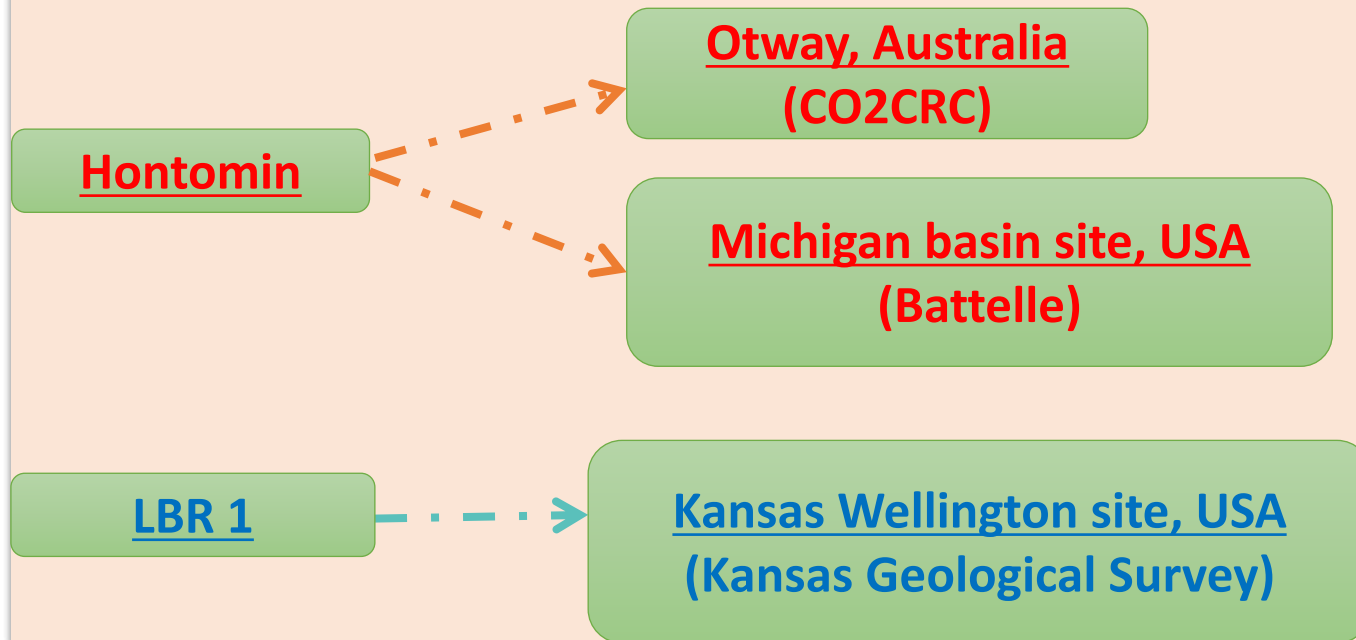


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SCIENTIFIC RESEARCH

Through ENOS, CO₂GeoNet is fostering international collaboration

Twinning programme
of onshore CO₂ storage pilots



Experience-sharing workshops/webinars
on specific topics, open to all

Leakage simulation alliance
between onshore sites

- GeoEnergy Test Bed (UK)
- Sulcis Fault Lab (Sardinia, Italy)
- K-COSEM and KIGAM sites (Korea)
- Carbon Management Canada (CMC) Field Research Station (Alberta, Canada)
- CO₂CRC Otway Shallow CO₂ Controlled Release Experiment (Australia)
- CO₂MOVE project (Brasil)
- CO₂ Field lab (Svelvik) (NO)

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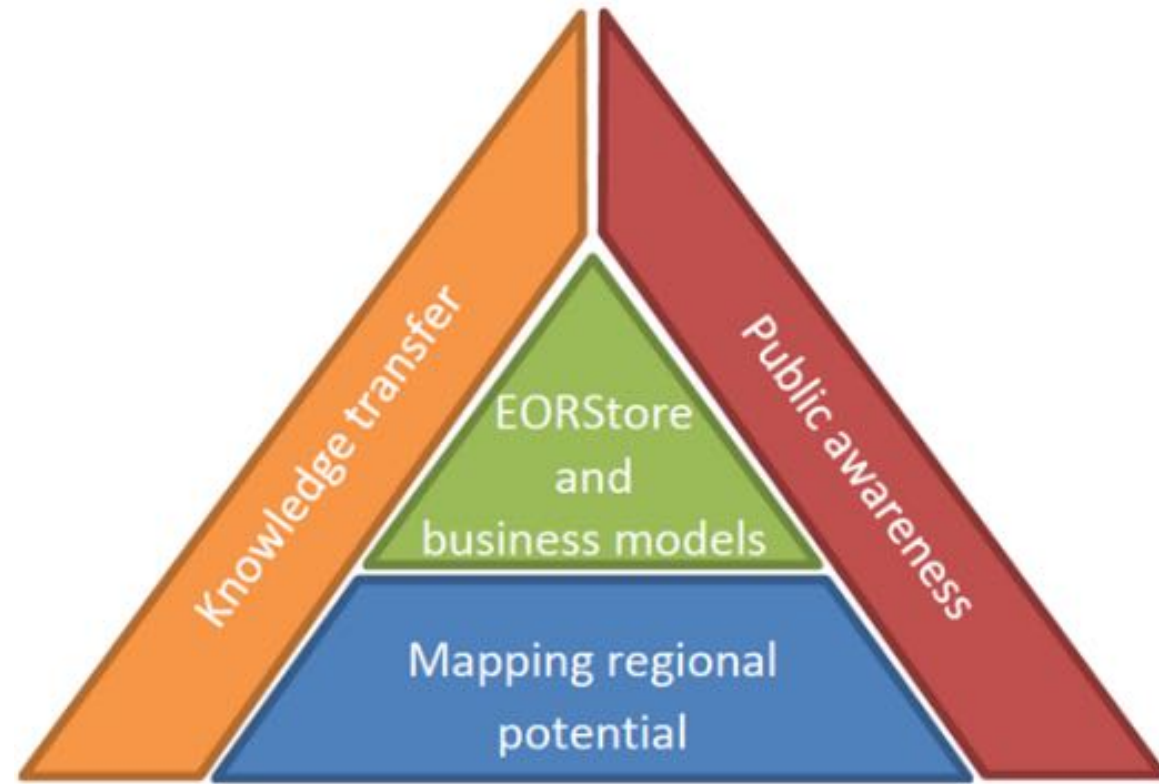
Current ERA-ACT project

- A CO₂GeoNet initiative
- 8 partners, 5 countries, 1.2M€ (2017 – 2020)
- Develop **detailed and integrated roadmaps** for CCUS, including EORStore, **in SE Europe**

<http://ecobase-project.eu/>

SCIENTIFIC RESEARCH ECOBASE

Enhanced oil recovery with storage



Norway

Netherlands

Greece

Romania

Turkey

Establishing CO₂ enhanced Oil recovery Business Advantages in South Eastern Europe

ECOBASE has received 1.2 M€ of financial support from the H2020 specific ERA-NET Cofund ACT programme

(Accelerating CCS Technologies) - National funding and EU Horizon 2020 programme under grant agreement No 691712



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SCIENTIFIC ADVICE

- ✓ Advising on and monitoring of actions on CCS/CCU in the European SET Plan. The Subgroup on Storage is lead by Jonathan Pearce (CO2GeoNet member representing EERA-CCS) and Ton Wildenborg (CO2GeoNet President)
- ✓ Consultation on the Innovation Fund
- ✓ Contributing to WG3 Storage (co-author in TP4 on Management system and review process) of **ISO 27914**, 2017: Carbon dioxide capture, transportation and geological storage
- ✓ Informing MS delegates on importance of storage pilots in H2020 work programme (**position paper coming soon**)
- ✓ **Active role in COP24**

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SCIENTIFIC ADVICE

- ✓ Side events and booths since **COP21** (... all materials available at our website)
- ✓ COP24 - **Demystifying negative emission technologies (working title)**, side event in a series of 12 events discussing the EU's Long-term Strategy on emission reduction (2050) - 12 December 2018, 16.30-18.00 hours
- ✓ COP24 - **Renewables and CO2 storage: 1/2 of your climate solution** (*pending*)
- ✓ COP24 - **Booth** (*together with Bellona, CCSA, Un.Texas at Austin, TCCSUA*)
- ✓ **CCUS – Capture CO2 emissions in industrial regions** (*at and with GIG - Glowny Instytut Gornictwa, Poland*)

INTERNATIONAL COLLABORATION

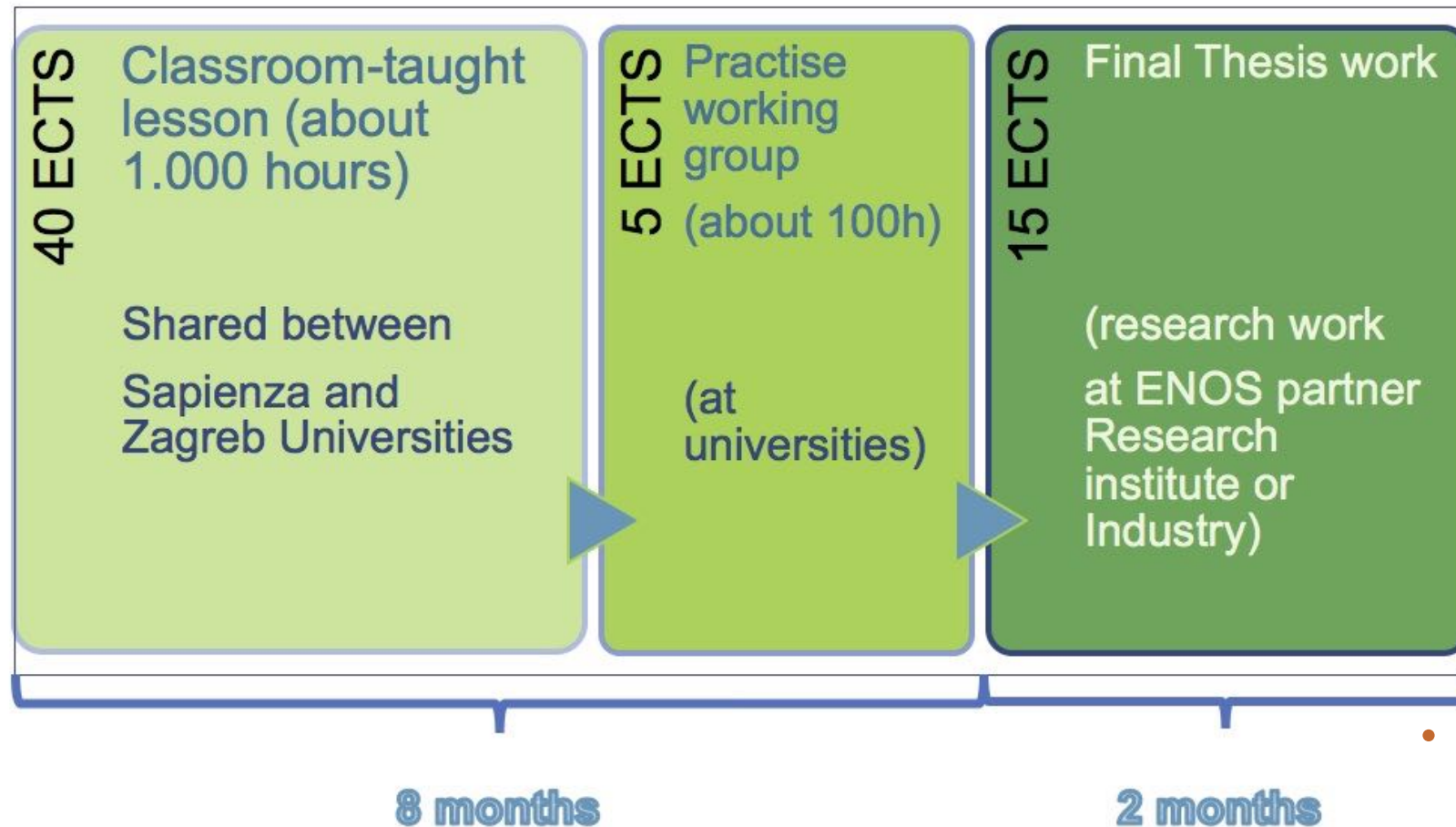


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TRAINING

Through ENOS, CO₂GeoNet is contributing to:

- ✓ **Training schools** on CO₂ geological storage for students (3 x years)
- ✓ **Online e-lectures**: reaching out to a broader audience
- ✓ **Master on CO₂ Geological Storage**






- see the ENOS training activities at: <http://www.enos-project.eu/highlights/>

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TRAINING

Members involved and sites

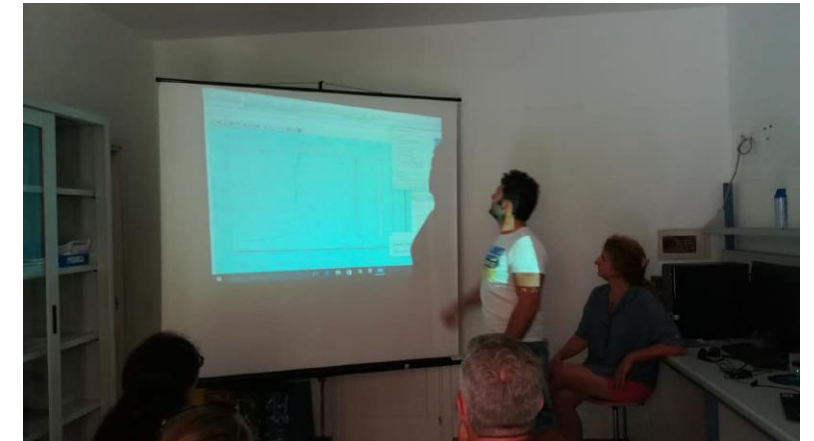
Main agreement (signed by the Rectors, to include the Master into the educational offer)	Teacher from other ENOS partner Universities	Other research institutes will host student for thesis work (some of them still to confirm)
		
<p>These two Universities will provide the sites for lesson and other facilities. They will host one student each for the thesis work</p>	<p>These Universities will allow professors to teach in the Master as hosting professors and will host one student each for the thesis work</p>	<p>These research institution will host student for the final thesis work</p>

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TRAINING

Scientific Diving Summer School of Panarea

- ✓ Three past edition (2016, 2017 and 2018) endorsed by CO2GeoNet
- ✓ **From 2019 co-organised by CO₂GeoNet**
- ✓ Provide 5 – 10 dives (from -12 to -30 meters)
- ✓ Practical exercises underwater, lessons and data elaboration at OGS NatLab (part of ECCSEL)
- ✓ Open to students, PhD, professionals and researchers
- ✓ Teachers from Sapienza University, OGS, Stazione Zoologica Anton Dohrn, Amphibia, INGV



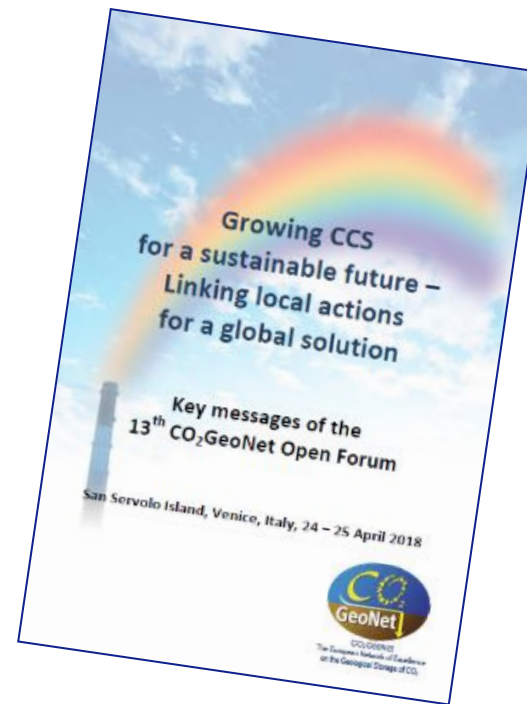
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INFORMATION & COMMUNICATION

13th Open Forum on 24-25 April 2018

'Growing CCS for a sustainable future: Linking local actions for a global solution'

- ✓ presentations, videos and **Key Messages** available at: <http://conference2018.co2geonet.com/>
- ✓ 116 registered persons from 27 countries
- ✓ 2 additional workshops from ENOS and 1 meeting with journalists
- ✓ 1 knowledge-exch.workshop organised by Gassnova and ARI



- CCS is back on the agenda
- Industry says 'we need CCS'
- 1.5 degrees scenario requires CCS
- Regional actions lead to a global solution
- Key enablers to embed CCS into strategies to meet climate targets (need for political support and regulatory stability)
- Let's work together!

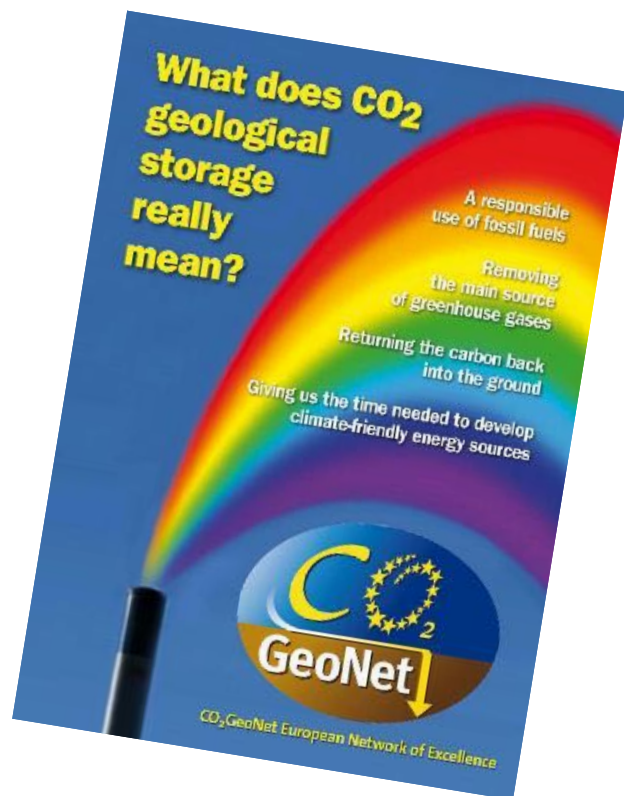
Save the date!
14th Open Forum on 7-8 May 2019

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INFORMATION & COMMUNICATION

Select your language

- Arabic
- Bulgarian
- Chinese brief
- Chinese traditional
- Croatian
- Czech
- Danish
- Dutch
- English
- Estonian
- Finnish
- French
- German
- Greek
- Hungarian
- Italian
- Latvian
- Lithuanian
- Norwegian
- Polish
- Portuguese
- Romanian
- Russian
- Serbian
- Slovakian
- Slovenian
- Spanish
- Swedish
- Turkish
- Ukrainian



'What does geological storage of CO₂ really mean? brochure available in 30 languages



- Information: www.co2geonet.com
- Contact:
- info@co2geonet.com



Motivation for CO₂GeoNet efforts as a European research association

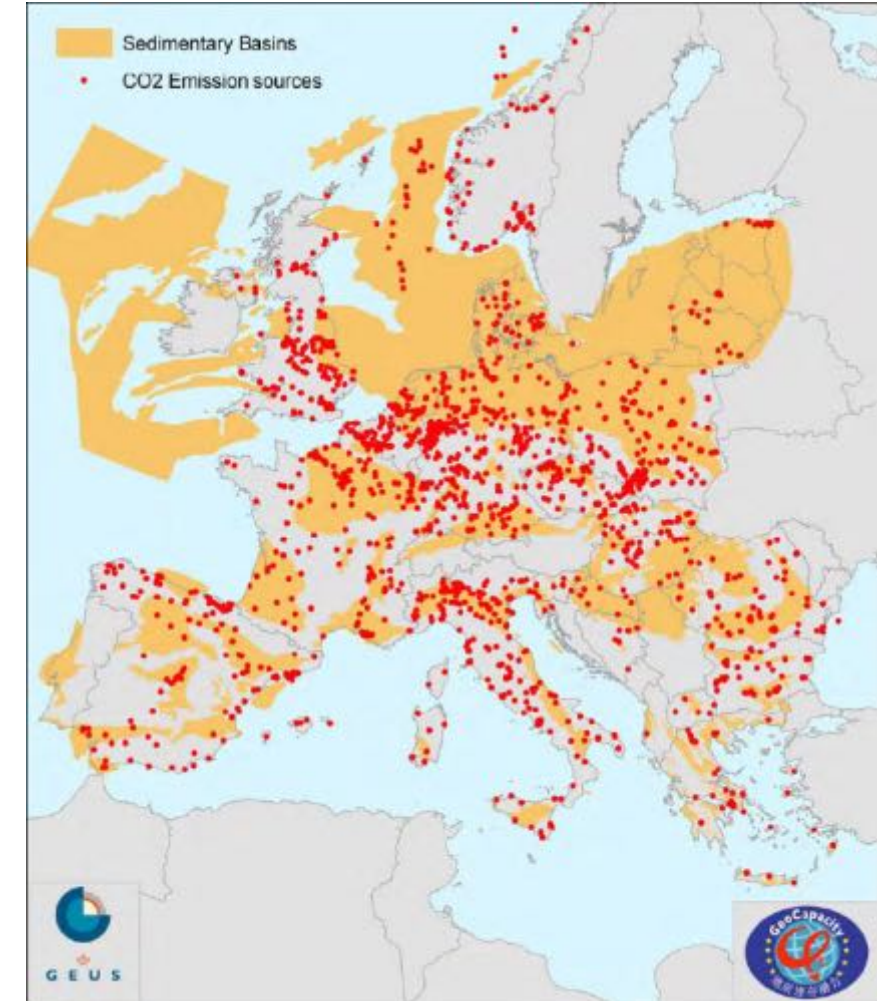
EU commitment of an overall reduction of greenhouse gas emissions of **at least 80% by 2050**

This means storing **3 to 13 billion tonnes of CO₂** across Europe by 2050

Europe cannot rely solely on the North Sea, despite its great and readily available storage potential

Need **onshore storage**, relatively near the emission points, to:

- ✓ **reduce the costs** of CCS
- ✓ enable **territories** to manage their CO₂ emissions **locally**
- ✓ **build lasting public confidence** in CCS as a mitigation option that can also contribute to local economic development



To reach ambitious goal of **GHG reduction**, while ensuring the security, flexibility and **competitiveness of energy supply and low emission industrial manufacturing**, deployment of onshore CO₂ storage will be crucial !!!