

CO₂GeoNet highlights

Ceri Vincent, CO₂GeoNet & BGS

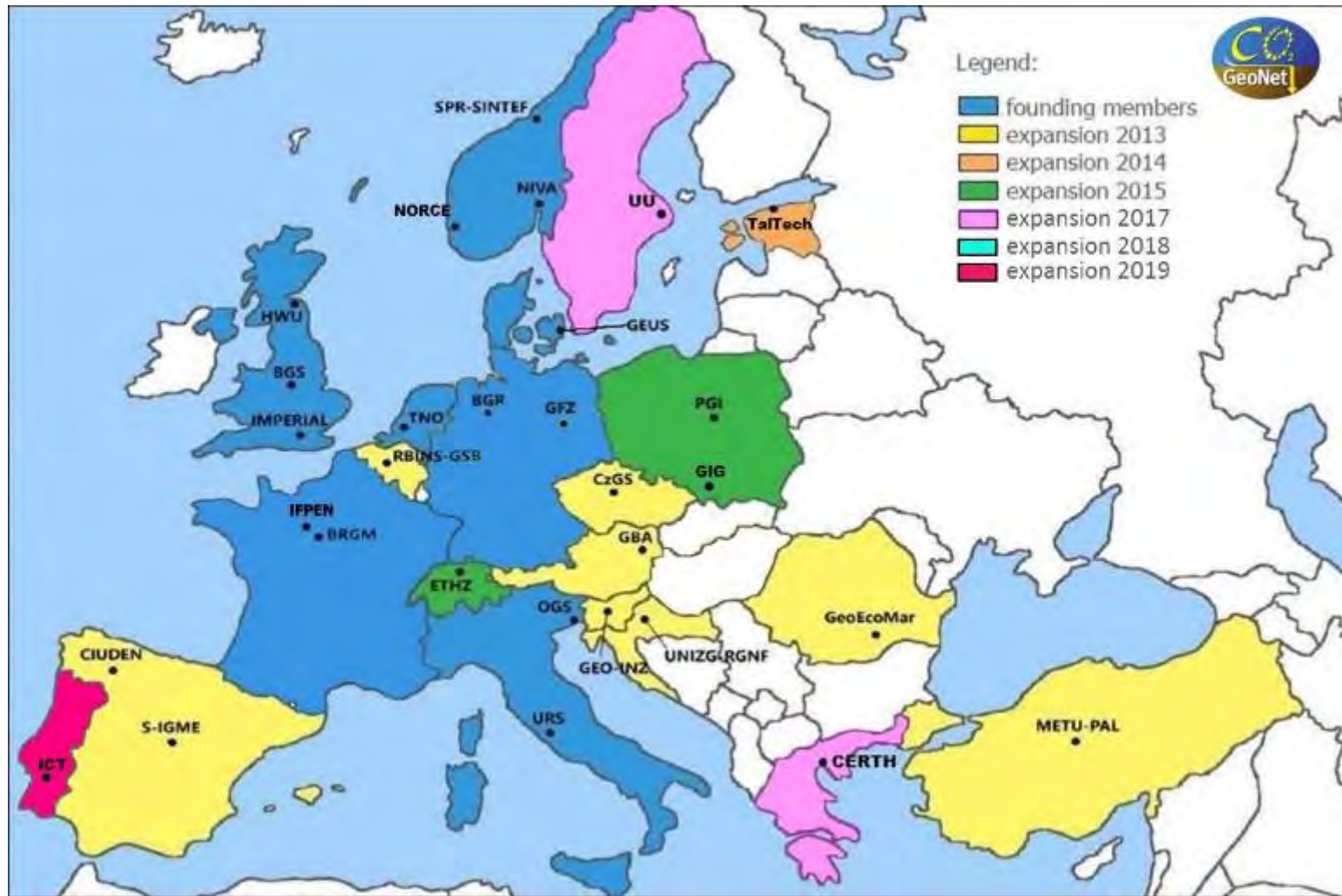
CSLF Technical Group Meeting

25 – 26 April 2019, Champaign, Illinois



THE EUROPEAN NETWORK OF EXCELLENCE ON THE GEOLOGICAL STORAGE OF CO₂

CO₂GeoNet celebrates 11th anniversary as a legal entity in 2019!



- ✓ Created as EU FP6 **Network of Excellence** in 2004, Became a not for profit **Association** under French law in 2008
- ✓ **Now has Pan European coverage**; comprises **30** research institutes from **21** countries
- ✓ Draws together **over 300** researchers with the multidisciplinary expertise needed to address all aspects of CO₂ storage

CO₂GeoNet mission: support the safe and efficient deployment of CO₂ storage



Disseminate integrated research results, including via training courses

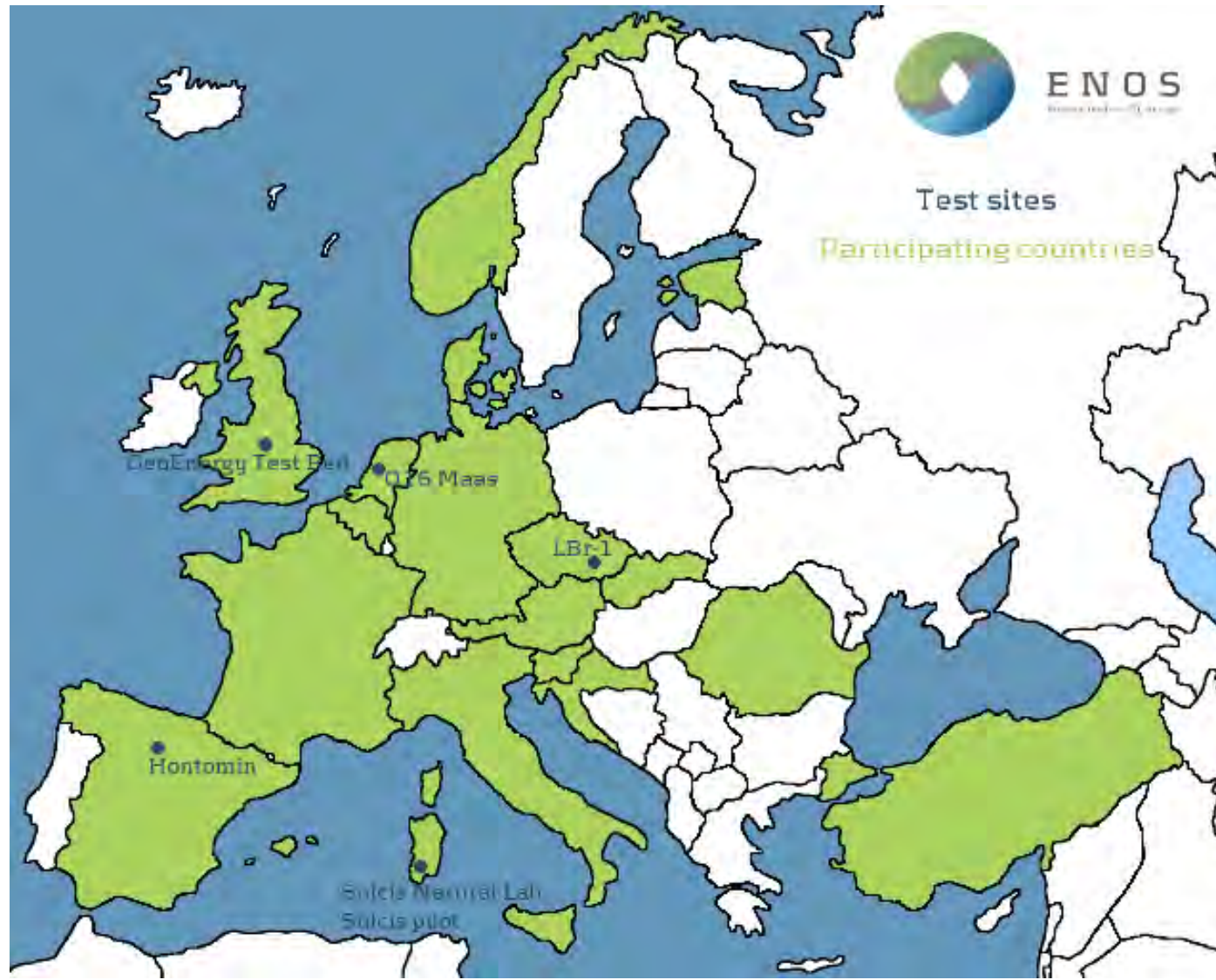
Undertake joint scientific research activities

Provide information for and communicate with key stakeholders

Provide impartial, evidence-based scientific advice

ENOS project

SCIENTIFIC RESEARCH



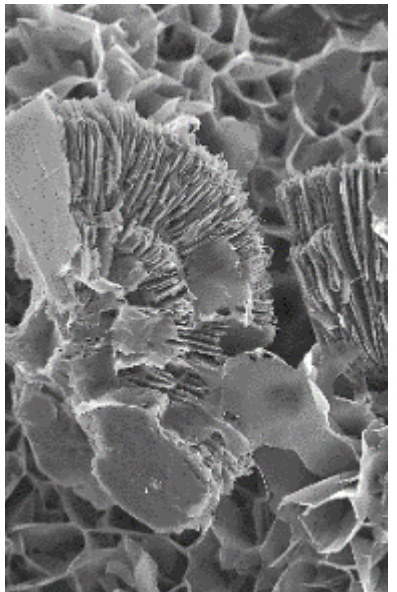
- **ENOS project**; 29 partners from 17 countries, **5** field laboratories/ pilot sites, Sept. 2016 – Aug. 2020
- Focus on **practical experience**
- **Ensure safe storage operations** and integrate CCS with local economic activities
- **Advance monitoring tools/techniques** and site characterisation methodologies
- **Engage with stakeholders** to engender a more favourable environment for CCS & to share ENOS innovations

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



GeoEnergy Test Bed

Rock core testing underway
Soil gas station installed



Coordination with local communities

Talking to local groups – meetings held in the Netherlands and UK

CO₂-EOR optimization model for LBr-1

Model for optimisation of storage and oil production
Lab tests on oil

Monitoring tool development:

Deep sampling tool tested

Sotacarbo Fault Lab

Near-final sensor array design

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

<http://www.enos-project.eu/highlights/enos-newsletter/enos-newsletter-n2/>

Training – ENOS project

TRAINING



MSc in CO₂ storage

Call for students will open November 2019

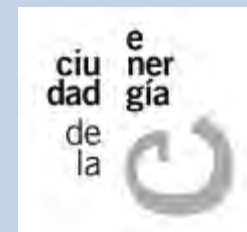
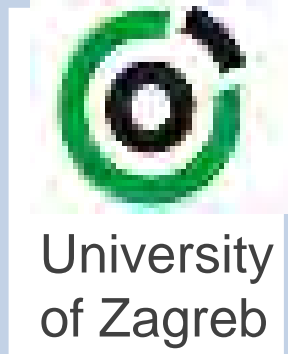
Course will start February 2020

ENOS partners involved

Universities granting degree

Universities/research institutes providing host lecturers

Research institutes supporting thesis work



<http://www.enos-project.eu/highlights/project-news/international-master/>



European Commission



- **European Commission and stakeholders:**

- ✓ Advising on and monitoring implementation plans on CCUS
- ✓ Informing member states on importance of storage pilots in H2020
- ✓ Cooperating with ETIP ZEP, EERA CCS, etc.
- ✓ Seeking advice from European Commission DGs on strategic actions for CO₂GeoNet

- **Globally:**

- ✓ **CSLF:** recognised project since 2005; Allied Org. since April 2018
- ✓ **IEAGHG:** MoU signed in 2008
- ✓ **GCCSI:** Member since 2013, Associate 2014-2018
- ✓ **UNFCCC:** recognized Observer - Research NGO (RINGO) since 2013
- ✓ **CTCN:** Associate Network Member since 2016
- ✓ **ISO:** Category A Liaison to ISO TC265 since 2014



Position paper: building a “champion” CO₂ geological storage pilot project

CO₂ storage pilot projects....

- improve the business case for full scale CCUS (demonstrate policy support, reduce costs, reduce uncertainty....)
- move the conversation on CO₂ storage forward (build relationships, build capacity...)
- offer powerful research and innovation platforms



Communicating the role for CCS

SCIENTIFIC ADVICE



- **Joint press release at COP24:** CO₂GeoNet – CCSA – EERA – GCCSI – ZEP
- The role for CO₂ Capture and Storage (CCS) in meeting global climate targets



GLOBAL CCS
INSTITUTE



Press Release

Katowice, 6 December 2018

The role for CO₂ Capture and Storage (CCS) in meeting global climate targets

Climate targets can only be achieved by using all the tools we have at our disposal. CO₂ Capture and Storage (CCS) can be used alongside and synergistically with renewables and energy efficiency, to rapidly reduce emissions. CCS is also an enabler of negative emissions, i.e. taking CO₂ out of the atmosphere.

Stakeholder engagement

COP24 – engage with decision takers and the public

- **CCUS locally and at European level:** external Side event:
- **CO₂GeoNet on CO₂ storage:** meet the expert session
- **Demystifying negative emission technologies:** side event in EC pavilion:
- **We need CO₂ Capture & Storage (CCS) to meet the Paris Agreement targets:** joint booth with CCSA, TCCSUA, Uni. Texas at Austin, IEAGHG

KNOWLEDGE SHARING





Selection of actions since previous CSLF TG meeting

- **RD&D priorities for CO₂ storage and cross-cutting aspects of CCUS** presentation at the *Accelerating CCUS: a global conference to progress CCUS* (organised by BEIS, 28 – 29 November 2018, Edinburgh)
 - **European collaboration on CCUS – a CO₂GeoNet perspective** presentation at *International roundtable: strengthening collaboration on Carbon Capture, Utilization and Storage* (organised by C2ES, RITE and supported by METI, 13 – 14 February 2019, Washington DC)
 - **CLIMIT Summit 2019**: CLIMIT is the Norwegian research programme for accelerating the commercialisation of Carbon Capture and Storage (CCS) (26 – 27 February 2019, Oslo)
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2019 Open Forum and workshops

KNOWLEDGE SHARING



CSLF-CO₂GeoNet workshop 6 May

- CO₂ storage stories: learning by doing

Open Forum 7 – 8 May

- Four years after the Paris Agreement
- Leading Edge Trends in CCUS
- Plug and play Storage – how close are we?
- Communication – putting people at the centre
- Integrating CCS

Workshops 9 May

- National networking: driving CCS forward (ENOS)
- Towards commercialization: insights from US and Norway (CLIMIT-ARI)



**P.S. Save the date –
Open Forum 2020 will
be w/c 11th May!**

<http://conference2019.co2geonet.com/>

Some upcoming actions (1)



Joint research activities

- **ENOS project** continues – advancing monitoring tools and techniques etc
- CO₂GeoNet Members are working together on proposals for H2020 and have submitted proposals to ACT

Training and capacity building

- **ENOS Spring school** will be hosted at Hontomin pilot site (22 – 29 May 2019)
 - **Sulcis Summer School** (June 2019) – call opening soon
 - **ENOS MSc course** will start February 2020 – call open November 2019
 - **Scientific Diving School** at NATLAB, Panarea (an ECCSEL facility) - CO₂GeoNet will be a co-organiser of the 4th school (September 2019)
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Some upcoming actions (2)



Communication and knowledge sharing

- **CO₂GeoNet Open Forum** in Venice (6 – 9 May 2019 and 11 – 14 May 2020)
- **Booth at 11th World Conference of Science Journalists** - joint CO₂GeoNet-ENOS action (1 – 5 July 2019, Lausanne, Switzerland)
- **COP25** – planning for joint booth and side events (2 – 13 December 2019, Chile)
- **CO₂GeoNet newsletter**

Scientific Advice

- **ZEP Implementation Working Group** on Action 9 of the SET Plan (‘renewing efforts to demonstrate CCS in the EU...’) in collaboration with EERA
 - **ISO standards** - CO₂GeoNet will continue to contribute to ongoing work
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THANK YOU FOR YOUR TIME

www.co2geonet.com

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ENOS test sites

STORAGE

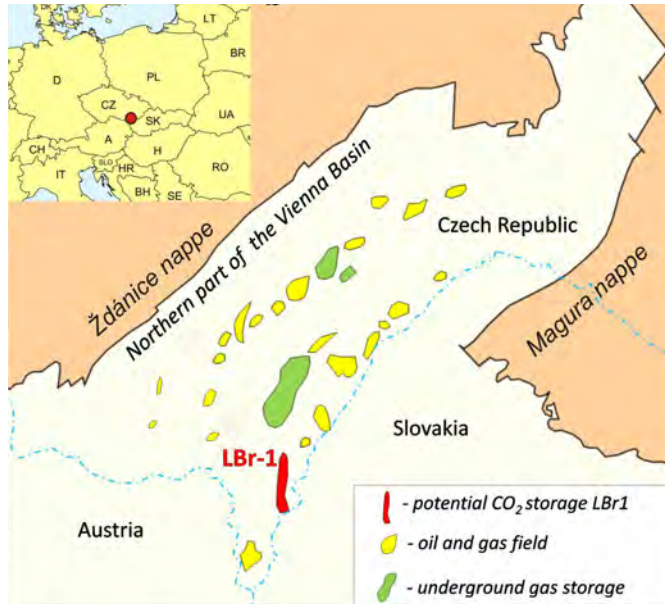
LEAKAGE



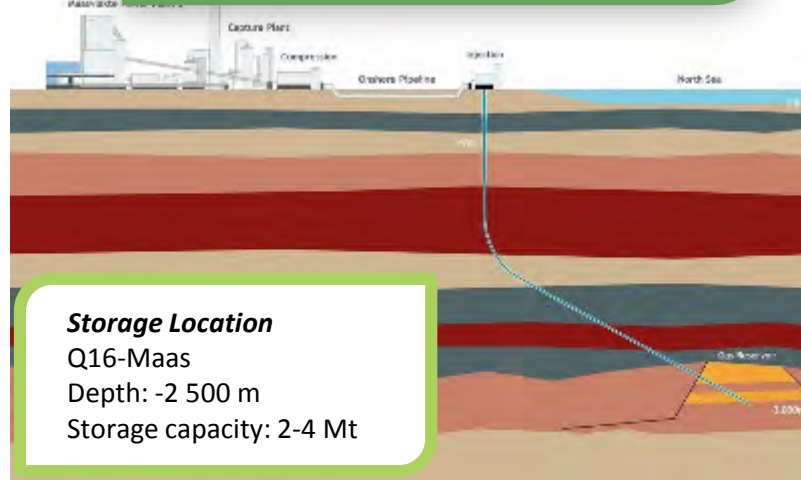
Hontomin, Spain: **unique onshore pilot CO₂ injection site in the EU**, recognized by the European Parliament as a key test facility (E.P. Resolution 2014)
 Deep saline aquifer – carbonates – 1500 m depth



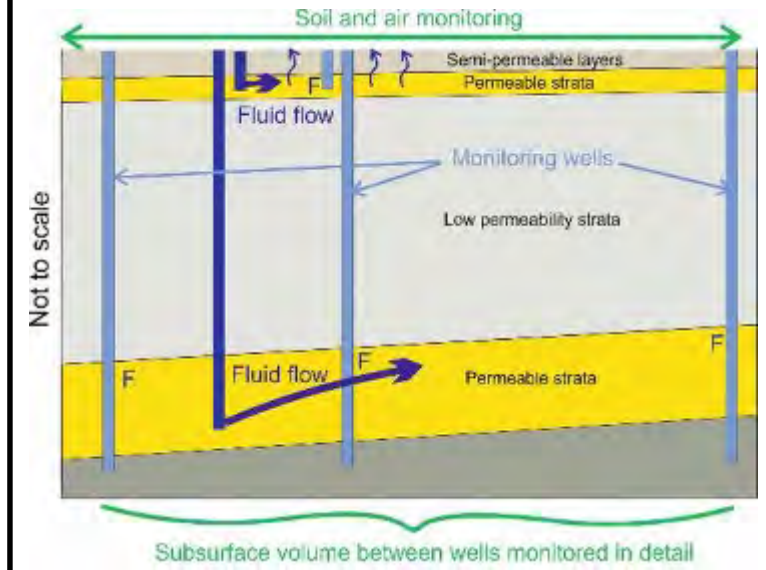
Sotacarbo Fault Lab, Italy: injection site through a **fault**
 250 m depth – volcanic rocks, clays and limestones



LBR-1, Czech Republic: **abandoned oil field sandstone, 1100 m depth**
 Desktop study
CO₂ storage and oil production



Q16 Maas, NL: **depleted HC field, sandstone, 2800 m depth**
 Desktop study. **CO₂ buffering and re-production for greenhouse horticulture /shipping**



UK GeoEnergy Test Bed (GTB):
 injection site in a **shallow aquifer** overlain by a caprock
sandstone, 250 m depth