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Report on interactions with media – Months 1-17

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CO_2GeoNet-URS (Sapienza Università di Roma)

Authors: Samuela Vercelli (CO_2GeoNet-URS), Vit Hladik (CzGS), Rowena Stead (BRGM), Rob Arts (CO_2GeoNet-TNO), Alla Shogenova (TTUGI), Linda Wickström (SGU), Hervé Quinquis (CO_2GeoNet-IFPEN), György Falus (ELGI), Christian Müller (BGR), Marjeta Car (GEO-INZ)

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Dissemination Level *: PU

***PU** = Public

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1. Introduction

Interaction with media is regarded as a main channel for effective dissemination and is an integral part of dissemination activities of CGS Europe (WP5, task 5.6). . In the first project period, action was taken to set the scene for CGS Europe media communication encouraging the coordination of partners' resources. The main activity was an experience-sharing workshop for CGS Europe partners' communication people and researchers (Chapter 2).
Main events such as CO2GeoNet Open Forum or the Spring School have been accompanied by press releases translated into several languages (Chapter 3) and the project has been disseminated at European level with a number of activities linked to Public Service Review (Chapter 4).In addition, many initiatives have taken place at national level (Chapter 5) to present CO_2 geological storage in the media (newspaper articles, TV and radio interviews and debates, internet-based media, etc.)and to raise general awareness of CCS in the partner countries. **All the activities have been focused onto the provision of scientifically sound information to the media.**

2. Communication workshop Brussels

A workshop for researchers and communication officers of CGS Europe partner institutions, with a focus on communication in the field of CO_2 geological storage, was organised in Brussels on 22-23 September 2011, hosted by the Royal Belgian Institute of Natural Sciences - Geological Survey of Belgium. It was prepared and lead by the Task 5.6 leader Samuela Vercelli (CO_2GeoNet-URS), in cooperation with Enda Gallagher, marketing officer of the Geological Survey of Ireland (GSI). The workshop had 18 participants, 11 researchers and 7 communication people.

The workshop aimed at *raising awareness of CO_2 geological storage communication issues* and CGS Europe communication actions, both at the level of researchers and of people in charge of communication activities in the partner institutions. In particular, it was meant to address the need of getting organized for media interaction, to provide the media with high quality scientific information and position the Network at wide European level, gradually building a reputation for it to become a reference source on CGS science.

Previous to the workshop, and for its *preparation*, two *questionnaires* were prepared, one for researchers and one for press officers (see Annex I and II), and the possibility was given to all project participants to fill the questionnaire online on the project's website. 35 questionnaires were compiled, 15 by press officers and 20 by researchers, providing a rich input for the organization of the workshop. Information were gathered regarding topics considered more and less relevant to be discussed and areas of interest for exchange between researchers and media people.

The following *topics* were *discussed during the workshop* (also see the Agenda in Annex III):

- Issues related to communication about the project;
- Development of CGS Europe communication strategy;
- Different communication styles;
- Key contents of CGS communication, such as safety, site selection, monitoring, etc.;
- Conflicts of interest;
- The role of spokespersons;
- Ways to improve exchange and support communication within the network;
- How to get the messages across to different audiences;

- How to face difficult communication situations;
- Available communication toolkits;
- Case stories, examples from real projects.

First of all, the project was presented through an interactive activity with the project coordinator Isabelle Czernichowski. A simulated interview provided an interesting experience of possible communication hurdles and ways how to face them when presenting the project, while at the same time giving the possibility to those press officers who were not yet fully aware about the characteristics of the project to learn more. It was a good start for the team work that needs to be developed to back up communication activities, based on sharing, exercising together and making decisions about key messages.

Communication workshop in Brussels

A number of situations were considered, possible questions that could be raised by the media, and a number of ways were suggested on how to address them.

Three main goals for *CGS Europe communication strategy* were identified:

- To raise awareness of science journalists about the technology and the Network, through the media – answering the need for a reference scientific community they can go to when they want to know more about CGS;
- To communicate project's activities (events, results) to critical stakeholders like policy makers, international and national authorities;
- To enhance both the national and international role of the network.

To attain these goals, two complementary tracks, one internal and one external, need to be developed, each referring to its own key messages. Internally, more clarity will be encouraged with regard to the role

of the network and its partner institutions in the wider context. From this point of view the proposed key messages concern:

- The uniqueness of the network: we are many institutes working together, sharing; there is no other similar entity;
- The potential to speak as a voice, produce consensual views on relevant aspects of CO_2 storage;
- The vocation to a European and international role for the network, positioning in relation to other initiatives, CSLF endorsement;
- The potential to act as experts for national authorities.

Externally, the communication strategy needs first of all some simple and straightforward messages - three main points were suggested:

- Climate change is happening;
- This is what we are doing (CCS is the story);
- Who we are.

Concerning CCS, the key messages could be:

- We are doing decisive work to enable the implementation of a technology for reducing emissions;
- There is a European Directive providing a common regulatory framework;
- There is a programme of application for demo projects etc.;
- Science is needed to support these actions, scientific view on that is needed now, gathering together we can give an answer to this need;
- We should already communicate as a long-term body;
- CGS can work if done properly; therefore, we need enough knowledge on the site.

A number of different actions were considered on how to support the implementation of the communication strategy and how to get the maximum help from the press officers, planning some time to prepare actions together.

Some technical topics were then discussed, providing an opportunity for press officers to learn more about important issues such as safety, the relationship between CCS and climate change, monitoring and site selection. Due to the high number of questions raised, it was proposed that researchers could work to provide some synthetic answers, ready for use in different occasions.

Possible conflict of interest issues were also brought to the attention of the participants, for example in relation to the collaboration with industry or national authorities and with regard to commercial interests which could bias the dissemination of scientific information. It was recognized it would be useful to share about procedures to preserve independency. Peer review processes could help when facing particularly challenging situations. This point will have to be considered with regard to the funding of the Network after the end of the EC contract.

The role of spokesperson was illustrated - how they can help researchers produce positive messages and get them across to the right audiences. The importance of giving the spokespersons very accurate messages has been clarified, which enables them to do a good job: if the message is accurate one can trust the expertise of spokespersons in producing the final message. Coordination between researchers and communication people should be enhanced, as well as coordination among communication people of the different institutes.

Practical advice was provided to increase our ability of getting the message across the targeted audiences, from how to proceed to how to prepare materials for the media, and from how to interact with journalists to how to deal with incorrect pieces of information.

For a wider perspective, and to support the use of available resources, toolkits that offer best practices and methods for the design and management of communication and engagement activities were presented. Although their use requires flexibility and adaptation to site specific conditions (and most of the time specific competence), they can at least offer an idea of the important factors to be considered and can give professionals of different backgrounds a base to get started.

Case stories from real CCS projects were also illustrated, as well as some common factors which can explain their outcome, such as when and how public communication took place.

Finally, plans for the future were made. The preparation of the SciTech Europe Masterclass on CGS, to take place in Brussels in November 2011, was addressed with the collaboration of all; and more generally the involvement of press officers in the Network's major event, the Venice Open Forum. Their participation to the Forum and the participation of external journalists were encouraged. Suggestions were also collected for the planned workshop with the European Association of Science Journalists (EUSJA).

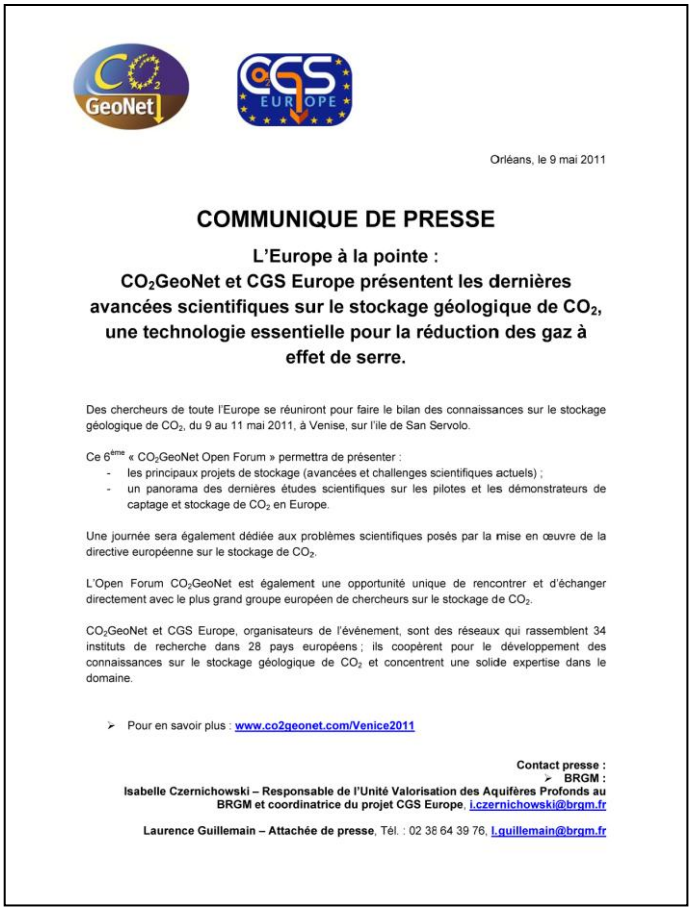
3. Press releases

Press releases prepared by the project consortium

Two press releases were prepared by CO_2GeoNet-URS on the occasion of the CO_2GeoNet Open Forum 2011. The first one was released on 5 May 2011, i.e. before the conference, and titled 'Europe at the forefront: CO_2GeoNet and CGS Europe present the latest scientific outcomes on the geological storage of CO_2 - an important technology for reducing greenhouse gas emissions'.

The second press release was issued on 17 June 2012 with the title 'Latest scientific outcomes on the geological storage of CO_2: CO_2GeoNet Open Forum 2011 presentations available on www.co2geonet.eu'. It brought i.a., information about the public availability of conference outcomes.

The press releases were distributed to all project partners with recommendation to translate them into national languages and distribute them. Several partners followed this recommendation in the first and/or second case, and the messages were distributed using the usual information distribution



Orléans, le 9 mai 2011

COMMUNIQUE DE PRESSE

L'Europe à la pointe :
CO_2GeoNet et CGS Europe présentent les dernières avancées scientifiques sur le stockage géologique de CO_2, une technologie essentielle pour la réduction des gaz à effet de serre.

Des chercheurs de toute l'Europe se réuniront pour faire le bilan des connaissances sur le stockage géologique de CO_2, du 9 au 11 mai 2011, à Venise, sur l'île de San Servolo.

Ce 6ème « CO_2GeoNet Open Forum » permettra de présenter :
- les principaux projets de stockage (avancées et challenges scientifiques actuels) ;
- un panorama des dernières études scientifiques sur les pilotes et les démonstrateurs de captage et stockage de CO_2 en Europe.

Une journée sera également dédiée aux problèmes scientifiques posés par la mise en œuvre de la directive européenne sur le stockage de CO_2.

L'Open Forum CO_2GeoNet est également une opportunité unique de rencontrer et d'échanger directement avec le plus grand groupe européen de chercheurs sur le stockage de CO_2.

CO_2GeoNet et CGS Europe, organisateurs de l'événement, sont des réseaux qui rassemblent 34 instituts de recherche dans 28 pays européens ; ils coopèrent pour le développement des connaissances sur le stockage géologique de CO_2 et concentrent une solide expertise dans le domaine.

➢ Pour en savoir plus : www.co2geonet.com/Venice2011

Contact presse :
➢ **BRGM :**
Isabelle Czernichowski – Responsable de l'Unité Valorisation des Aquifères Profonds au BRGM et coordinatrice du projet CGS Europe, i.czernichowski@brgm.fr

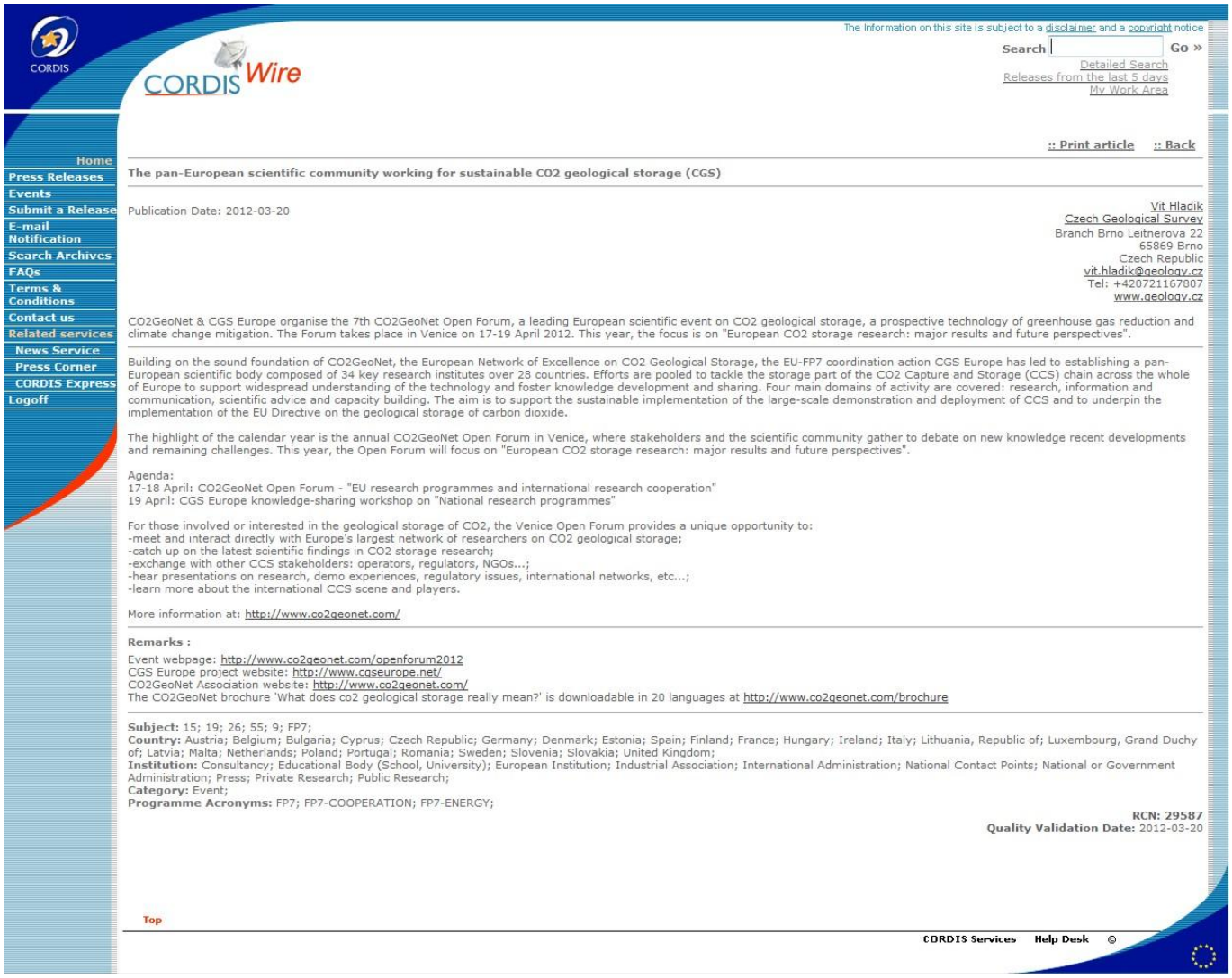
Laurence Guillemain – Attachée de presse, Tél. : 02 38 64 39 76, l.guillemain@brgm.fr

Press release announcing the 2011 Open Forum in French, published by BRGM

channels of individual institutions (through press officers, communication departments, spokepersons, etc.). Those partners who do not have distribution channels like this usually prepared website postings and/or distributed the messages directly by e-mail, etc.

CORDIS Wire

Two press releases were prepared by project partners (CzGS, CO_2GeoNet-GEUS, BRGM, CO_2GeoNet-OGS, CO_2GeoNet-URS) for CORDIS Wire, a press releases service provided by CORDIS, the Community Research and Development Information Service. The press releases brought information about events organised by CGS Europe – the Spring School on CO_2 geological storage at Leszcze, Poland (published in December 2011) and the CO_2GeoNet Open Forum 2012 in Venice (published in March 2012).



CORDIS Wire

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The pan-European scientific community working for sustainable CO2 geological storage (CGS)

Publication Date: 2012-03-20

Vít Hladík
Czech Geological Survey
Branch Brno Leitnerova 22
65869 Brno
Czech Republic
vit.hladik@geology.cz
Tel: +420721167807
www.geology.cz

CO2GeoNet & CGS Europe organise the 7th CO2GeoNet Open Forum, a leading European scientific event on CO2 geological storage, a prospective technology of greenhouse gas reduction and climate change mitigation. The Forum takes place in Venice on 17-19 April 2012. This year, the focus is on "European CO2 storage research: major results and future perspectives".

Building on the sound foundation of CO2GeoNet, the European Network of Excellence on CO2 Geological Storage, the EU-FP7 coordination action CGS Europe has led to establishing a pan-European scientific body composed of 34 key research institutes over 28 countries. Efforts are pooled to tackle the storage part of the CO2 Capture and Storage (CCS) chain across the whole of Europe to support widespread understanding of the technology and foster knowledge development and sharing. Four main domains of activity are covered: research, information and communication, scientific advice and capacity building. The aim is to support the sustainable implementation of the large-scale demonstration and deployment of CCS and to underpin the implementation of the EU Directive on the geological storage of carbon dioxide.

The highlight of the calendar year is the annual CO2GeoNet Open Forum in Venice, where stakeholders and the scientific community gather to debate on new knowledge recent developments and remaining challenges. This year, the Open Forum will focus on "European CO2 storage research: major results and future perspectives".

Agenda:
17-18 April: CO2GeoNet Open Forum - "EU research programmes and international research cooperation"
19 April: CGS Europe knowledge-sharing workshop on "National research programmes"

For those involved or interested in the geological storage of CO2, the Venice Open Forum provides a unique opportunity to:
-meet and interact directly with Europe's largest network of researchers on CO2 geological storage;
-catch up on the latest scientific findings in CO2 storage research;
-exchange with other CCS stakeholders: operators, regulators, NGOs...;
-hear presentations on research, demo experiences, regulatory issues, international networks, etc...;
-learn more about the international CCS scene and players.

More information at: http://www.co2geonet.com/

Remarks :

Event webpage: http://www.co2geonet.com/openforum2012
CGS Europe project website: http://www.cgseurope.net/
CO2GeoNet Association website: http://www.co2geonet.com/
The CO2GeoNet brochure 'What does co2 geological storage really mean?' is downloadable in 20 languages at http://www.co2geonet.com/brochure

Subject: 15; 19; 26; 55; 9; FP7;
Country: Austria; Belgium; Bulgaria; Cyprus; Czech Republic; Germany; Denmark; Estonia; Spain; Finland; France; Hungary; Ireland; Italy; Lithuania, Republic of; Luxembourg, Grand Duchy of; Latvia; Malta; Netherlands; Poland; Portugal; Romania; Sweden; Slovenia; Slovakia; United Kingdom;
Institution: Consultancy; Educational Body (School, University); European Institution; Industrial Association; International Administration; National Contact Points; National or Government Administration; Press; Private Research; Public Research;
Category: Event;
Programme Acronyms: FP7; FP7-COOPERATION; FP7-ENERGY;

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Press release on the 2012 Open Forum published on Cordis Wire

4. Media with international outreach

Public Service

A strong and fruitful media relationship was established with Public Service, including the publication of three successive articles on CO_2 geological storage by Isabelle Czernichowski (BRGM), Coordinator of CGS Europe and President of CO_2GeoNet, and reviewed by CGS Europe partners. The Public Service Review presents analyses of issues that crucially affect the public sector throughout Europe, including health, education, transport, science and the environment. It is distributed by name to almost 6,000 individuals within government departments, directorates and agencies in the regional and central governments of the 27 EU Member States. The Review engages, spreads and promotes Best Practice and identifies the ideas that could herald the next big breakthrough, and is a must-read for anyone interested or involved in Europe's public sector.

- *Public Service Review - European Union, issue 22, September 2011*:
  'CO_2 Geological Storage: CGS Europe - a Pan-European scientific body for facilitating CCS demonstration and implementation of the EU Directive'

The article introduces the basics of the CO_2 geological storage technology, the scientific challenges, and the role of CGS Europe, including lighthouse actions and a calendar of events. The article is also available online at http://edition.pagesuite-professional.co.uk/Launch.aspx?EID=82bccec1-b05f-46f9-b085-701afc238b42 (pages 200-201). The foreword of the issue was written by José Manuel Barroso, President of the European Commission.

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CO_2 geological storage

A pan-European scientific body for facilitating CCS demonstration and implementation of the EU Directive…

The EU has already made significant progress in advancing CO_2 Capture and Storage (CCS) as a bridging technology for combating climate change. The situation now calls for acceleration and an even spread throughout the EU member states and associated countries.

CGS Europe, a coordination action funded by the European Commission's 7th Framework Programme (November 2010 to October 2013), has been created to complement existing CCS initiatives and, more specifically, to tackle the part of the CCS chain dealing with scientific research on CO_2 geological storage across the whole of Europe.

Building on the sound foundation of CO_2GeoNet, the European Network of Excellence on CO_2 Geological Storage, CGS Europe is creating a credible, independent and long-lasting pan-European scientific body of expertise to support widespread understanding of the technology and foster knowledge development and sharing. The aim is to facilitate the large-scale demonstration and deployment of CCS and support the implementation of the EU Directive on the geological storage of CO_2.

Returning carbon back to the ground

Our prolific burning of fossil fuels for power production, heating, industry and transportation is responsible for 80% of anthropogenic CO_2 emissions into the atmosphere, of which 60% comes from large fixed plants where CCS can be applied.

CCS is a promising mitigation pathway that could contribute 20% of the CO_2 reduction needed by 2050. It involves capturing CO_2 at coal or gas-fired powers stations and industrial plants, transporting it by pipeline or ship to a storage location, and injecting it via a well into a suitable deep geological formation for permanent storage.

In doing so, the carbon extracted from the ground originally in the form of coal, oil or gas is returned back again in the form of CO_2 rather than disturbing the atmosphere. The existence of many natural CO_2 fields in the subsurface throughout the world proves that geological formations are able to store CO_2 efficiently and safely for extremely long periods of time.

The scientific challenges of CO_2 storage

The storage component of CCS requires particular attention because it is site-specific due to local geology, the regulations are still being developed, and its large-scale feasibility in terms of capacity, efficiency and safety remains to be fully proven.

The scientific challenges are numerous: site selection and characterisation, modelling and monitoring of CO_2 fate and site behaviour, risk assessment – including possible local impacts on humans and ecosystems – and safety protocols. CO_2 storage is a complex field of research in which many different disciplines interact: geology, geophysics, geochemistry, geomechanics, hydrogeology, microbiology, ecology, reservoir engineering, oceanography, etc.

Various components of a storage site have to be considered: reservoir, cap rock, overburden, groundwater, soils, surface, vegetation, wells. Similarly with the different phases: planning period (~5 years), injection period (~40 years), closure period (~5 years) and post-closure period (~1,000 years).

Much knowledge has already been acquired through major research programmes conducted since the 1990s in Europe, the USA, Canada, Australia and Japan, and through the world's pioneering industrial-scale projects, such as Sleipner in Norway where 1Mt/year of CO_2 has been injected since 1996.

Robust technical expertise already exists and the world is now moving into a large-scale demonstration phase to allow commercial deployment from 2020 onward. In Europe, the goal is now to have some 12 large-scale demonstration projects up and running by 2015 to harness knowledge and experience from a number of different geological, geographical and industrial contexts.

CGS Europe, a coordination action across 28 countries

At this critical point in the implementation of CCS worldwide, and in order to support Europe's strategy in terms of CCS demonstration and deployment as expressed in the Climate and Energy Package adopted in December 2008, transnational cooperation and networking on CO_2 geological storage should be reinforced and enlarged to all relevant EU member states and associated countries.

This is the aim of CGS Europe, which is based on networking between 34 research institutes, and offering wide European coverage across 24 EU member states and four associated countries. The CGS Europe Consortium has grown from the initial nucleus and experience of the CO_2GeoNet Network of Excellence, initially an EC-funded project (2004-2009) and now an independent association involving the founding 13 institutes from seven countries.

CGS Europe has already set about:

- Networking research capacity on geological storage of CO_2 in 28 countries;
- Liaising with other CCS initiatives in order to help coordinate R&D;

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Recent and upcoming events

April 13th-14th 2011: 1st CGS Europe Regional CCS-awareness-raising workshop, Vilnius, Lithuania, 'CO_2 capture and storage – response to climate change'. Reaching out to stakeholders in the Baltic Sea Region and Central and Eastern Europe.

May 9th-11th 2011: San Servolo Island, Venice, Italy

- **6th CO_2GeoNet Open Forum** dedicated to CO_2 storage developments in the whole of Europe: a status on the large-scale CO_2 storage demos in Europe, the associated regulatory framework and the current state of research;
- **1st CGS Europe knowledge-sharing workshop** on 'Legal and regulatory issues – implementation of the EU Directive on the geological storage of CO_2'.

September 22nd-23rd 2011: Internal communication workshop, Brussels, Belgium, designed for press officers and researchers to share experiences in and knowledge of communication on CO_2 geological storage research.

October 17th-19th 2011: 2nd CGS Europe knowledge-sharing workshop on natural analogues, Maria Laach, Germany. By studying natural CO_2 occurrences, researchers will improve their understanding of the long-term processes that could occur in a CO_2 storage reservoir and the vicinity.

November 24th 2011: SciTechEUROPE, Brussels, Belgium. Masterclass and booth on CO_2 geological storage aimed at promoting exchange with industry stakeholders, funding agencies, academics and policymakers.

April 17th–19th 2012: San Servolo Island, Venice, Italy

- **7th CO_2GeoNet Open Forum;**
- **3rd CGS Europe knowledge-sharing workshop** on the latest developments by national research programmes.

Spring 2012: 1st edition of the CGS Europe Spring School, Belchatów, Poland. One week course for students with case studies and a field trip linked to the Polish CCS demonstration project.

- Building a centralised information source of the status of CO_2 storage R&D over the whole of Europe;
- Reducing the gap in knowledge/awareness and in the implementation of geological storage of CO_2 between 'forerunner' countries and other countries where actions are not yet happening;
- Contributing to large-scale demonstrations and industrial deployment of CCS by providing the necessary link between industrial developers and other vital players (national authorities, the public, etc);
- Supporting the implementation of the EU directive on the geological storage of CO_2 and other regulatory regimes through scientific advice, experience-sharing and dissemination of information.

CGS Europe will mature during the three year EC funding period and intends to continue beyond as a durable reference body in Europe for authorities, regulators, industry and the public on scientific matters related to the geological storage of CO_2.

The objective now is to develop relationships among the 34 institutes, possibly by all joining the CO_2GeoNet Association, and to foster scientifically informed decisions at all levels of the CO_2 storage chain in all the European countries.

Lighthouse actions and events

CGS Europe is dedicating a major effort to the management of scientific knowledge on CO_2 storage:

- The establishment of a 'Knowledge Repository' to collect, structure and summarise key existing knowledge in a form that will be easily accessible by interested parties;
- 'Knowledge Development' involving the coordination of research activities, internal knowledge sharing workshops and exchange of personnel;
- 'Knowledge Dissemination' including annual forums, awareness-raising workshops in regions of low level of CCS awareness, CO_2 storage knowledge dissemination workshops in countries where CCS demonstration projects are under preparation, 'spring schools', presentations and publications, and interaction with media.

The CO_2GeoNet brochure *'What does CO_2 geological storage really mean?'* is already published in 11 languages (www.co2geonet.com/brochure) and is being translated into many more under CGS Europe.

Participating countries and institutes include:

Austria (GBA); Belgium (RBINS-GSB); Bulgaria (SI); Croatia (UNGS-RGNF); Czech Republic (CGS); Denmark (GEUS*); Estonia (TTU-GI); Finland (GTK); France (BRGM*, IFPEN*); Germany (BGR*); Greece (IG-NMR); Hungary (ELGI); Ireland (GSI); Italy (OGS*, URS*); Latvia (LEGMC); Lithuania (CTC); the Netherlands (TNO*); Norway (IRIS*, NGI*, SINTEF*); Poland (PGI-NRI); Portugal (LNEG); Romania (GEOECOMAR); Serbia (GI); Slovakia (SGUDS); Slovenia (GEO-IND); Spain (I-GME); Sweden (SGU); Turkey (MTA-PAL); UK (BGS*, HW)*, IMPERIAL*)

*CO_2GeoNet member

Isabelle Czernichowski-Lauriol
Coordinator of CGS Europe
President of CO2GeoNet
Head of BRGM's Deep Aquifer Unit

CGS Europe Project
BRGM
Water Division
3 Avenue Claude Guillemin
45060 Orléans Cedex 2
France

Tel: +33 2 38 64 46 55
Fax: +33 2 38 64 37 19

i.czernichowski@brgm.fr
info@cgseurope.eu
info@co2geonet.com

www.cgseurope.net
www.co2geonet.eu

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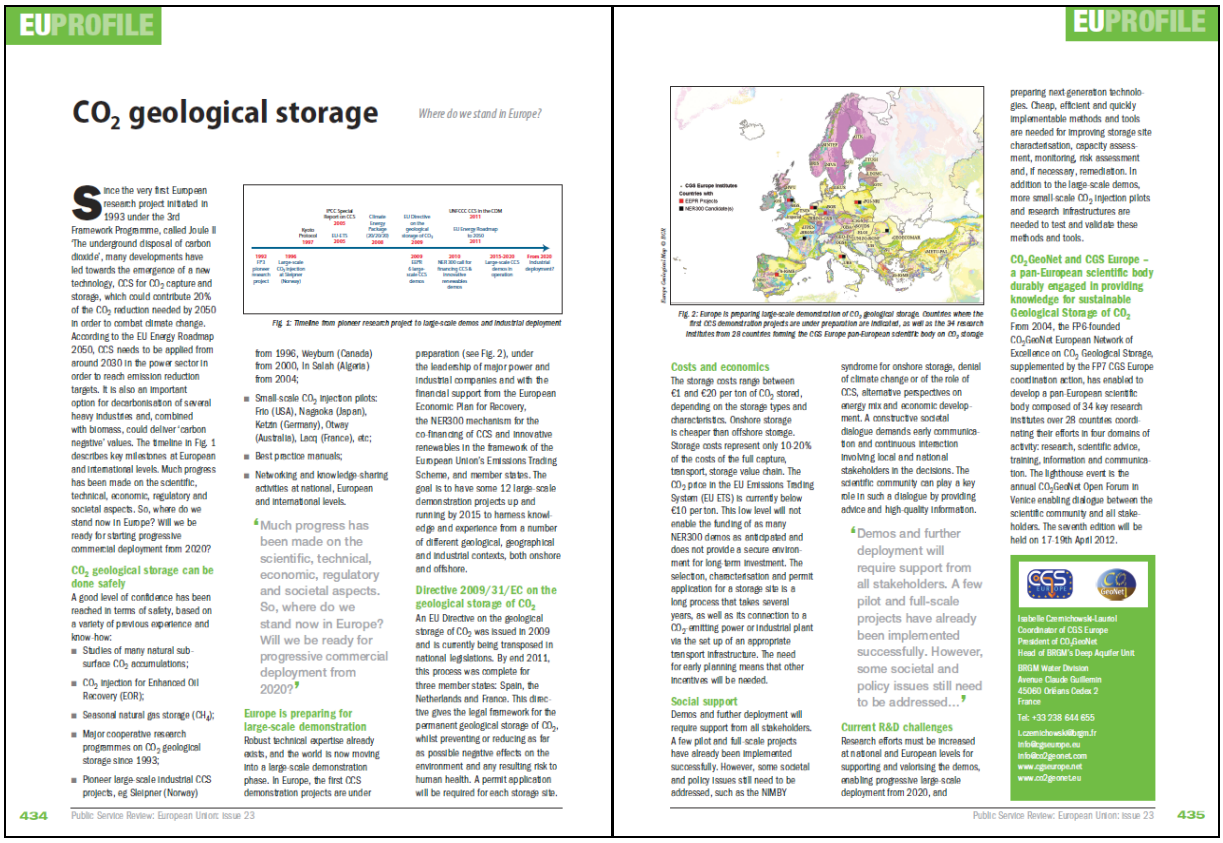
Article in Public Service Review - European Union, issue 22 (September 2011)

- *Public Service Review - European Union, issue 23, February 2012: 'CO₂ Geological Storage: where do we stand in Europe?'*

The article follows on from the first, but in more depth, on the CO2 Geological Storage technology. It considers the current European setting that is heading for large-scale demonstration (confidence raised by research results, the EU Directive 2009/31/EC) and also current challenges (costs and economics, social support, continued R&D). The article is also available online at http://edition.pagesuite-professional.co.uk/launch.aspx?referral=other&pnum=&refresh=p19A3Q0a14zB&EID=364cc048-29d3-4b45-8e7c-b4c8f7c9cab0&skip= (pages 434-435). The foreword of the issue was written by Štefan Füle, European Commissioner for Enlargement and European Neighbourhood Policy.



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CO_2 geological storage

Where do we stand in Europe?

Since the very first European research project initiated in 1993 under the 3rd Framework Programme, called Joule II 'The underground disposal of carbon dioxide', many developments have led towards the emergence of a new technology, CCS for CO_2 capture and storage, which could contribute 20% of the CO_2 reduction needed by 2050 in order to combat climate change. According to the EU Energy Roadmap 2050, CCS needs to be applied from around 2030 in the power sector in order to reach emission reduction targets. It is also an important option for decarbonisation of several heavy industries and, combined with biomass, could deliver 'carbon negative' values. The timeline in Fig. 1 describes key milestones at European and international levels. Much progress has been made on the scientific, technical, economic, regulatory and societal aspects. So, where do we stand now in Europe? Will we be ready for starting progressive commercial deployment from 2020?

Fig. 1: Timeline from pioneer research project to large-scale demos and industrial deployment

CO_2 geological storage can be done safely

A good level of confidence has been reached in terms of safety, based on a variety of previous experience and know-how:

- Studies of many natural sub-surface CO_2 accumulations;
- CO_2 injection for Enhanced Oil Recovery (EOR);
- Seasonal natural gas storage (CH_4);
- Major cooperative research programmes on CO_2 geological storage since 1993;
- Pioneer large-scale industrial CCS projects, eg Sleipner (Norway) from 1996, Weyburn (Canada) from 2000, In Salah (Algeria) from 2004;
- Small-scale CO_2 injection pilots: Frio (USA), Nagaoka (Japan), Ketzin (Germany), Otway (Australia), Lacq (France), etc;
- Best practice manuals;
- Networking and knowledge-sharing activities at national, European and international levels.

> "Much progress has been made on the scientific, technical, economic, regulatory and societal aspects. So, where do we stand now in Europe? Will we be ready for progressive commercial deployment from 2020?"

Europe is preparing for large-scale demonstration

Robust technical expertise already exists, and the world is now moving into a large-scale demonstration phase. In Europe, the first CCS demonstration projects are under preparation (see Fig. 2), under the leadership of major power and industrial companies and with the financial support from the European Economic Plan for Recovery, the NER300 mechanism for the co-financing of CCS and innovative renewables in the framework of the European Union's Emissions Trading Scheme, and member states. The goal is to have some 12 large-scale demonstration projects up and running by 2015 to harness knowledge and experience from a number of different geological, geographical and industrial contexts, both onshore and offshore.

Directive 2009/31/EC on the geological storage of CO_2

An EU Directive on the geological storage of CO_2 was issued in 2009 and is currently being transposed in national legislations. By end 2011, this process was complete for three member states: Spain, the Netherlands and France. This directive gives the legal framework for the permanent geological storage of CO_2, whilst preventing or reducing as far as possible negative effects on the environment and any resulting risk to human health. A permit application will be required for each storage site.

EUPROFILE

Fig. 2: Europe is preparing large-scale demonstration of CO_2 geological storage. Countries where the first CCS demonstration projects are under preparation are indicated, as well as the 34 research institutes from 28 countries forming the CGS Europe pan-European scientific body on CO_2 storage

Costs and economics

The storage costs range between €1 and €20 per ton of CO_2 stored, depending on the storage types and characteristics. Onshore storage is cheaper than offshore storage. Storage costs represent only 10-20% of the costs of the full capture, transport, storage value chain. The CO_2 price in the EU Emissions Trading System (EU ETS) is currently below €10 per ton. This low level will not enable the funding of as many NER300 demos as anticipated and does not provide a secure environment for long-term investment. The selection, characterisation and permit application for a storage site is a long process that takes several years, as well as its connection to a CO_2-emitting power or industrial plant via the set up of an appropriate transport infrastructure. The need for early planning means that other incentives will be needed.

Social support

Demos and further deployment will require support from all stakeholders. A few pilot and full-scale projects have already been implemented successfully. However, some societal and policy issues still need to be addressed, such as the NIMBY syndrome for onshore storage, denial of climate change or of the role of CCS, alternative perspectives on energy mix and economic development. A constructive societal dialogue demands early communication and continuous interaction involving local and national stakeholders in the decisions. The scientific community can play a key role in such a dialogue by providing advice and high-quality information.

> "Demos and further deployment will require support from all stakeholders. A few pilot and full-scale projects have already been implemented successfully. However, some societal and policy issues still need to be addressed..."

Current R&D challenges

Research efforts must be increased at national and European levels for supporting and valorising the demos, enabling progressive large-scale deployment from 2020, and preparing next-generation technologies. Cheap, efficient and quickly implementable methods and tools are needed for improving storage site characterisation, capacity assessment, monitoring, risk assessment and, if necessary, remediation. In addition to the large-scale demos, more small-scale CO_2 injection pilots and research infrastructures are needed to test and validate these methods and tools.

CO_2GeoNet and CGS Europe – a pan-European scientific body durably engaged in providing knowledge for sustainable Geological Storage of CO_2

From 2004, the FP6-founded CO_2GeoNet European Network of Excellence on CO_2 Geological Storage, supplemented by the FP7 CGS Europe coordination action, has enabled to develop a pan-European scientific body composed of 34 key research institutes over 28 countries coordinating their efforts in four domains of activity: research, scientific advice, training, information and communication. The lighthouse event is the annual CO_2GeoNet Open Forum in Venice enabling dialogue between the scientific community and all stakeholders. The seventh edition will be held on 17-19th April 2012.

Isabelle Czernichowski-Lauriol
Coordinator of CGS Europe
President of CO_2GeoNet
Head of BRGM's Deep Aquifer Unit
BRGM Water Division
Avenue Claude Guillemin
45060 Orléans Cedex 2
France
Tel: +33 238 644 655
i.czernichowski@brgm.fr
info@cgseurope.eu
info@co2geonet.com
www.cgseurope.net
www.co2geonet.eu

Article in Public Service Review - European Union, issue 23 (February 2012)

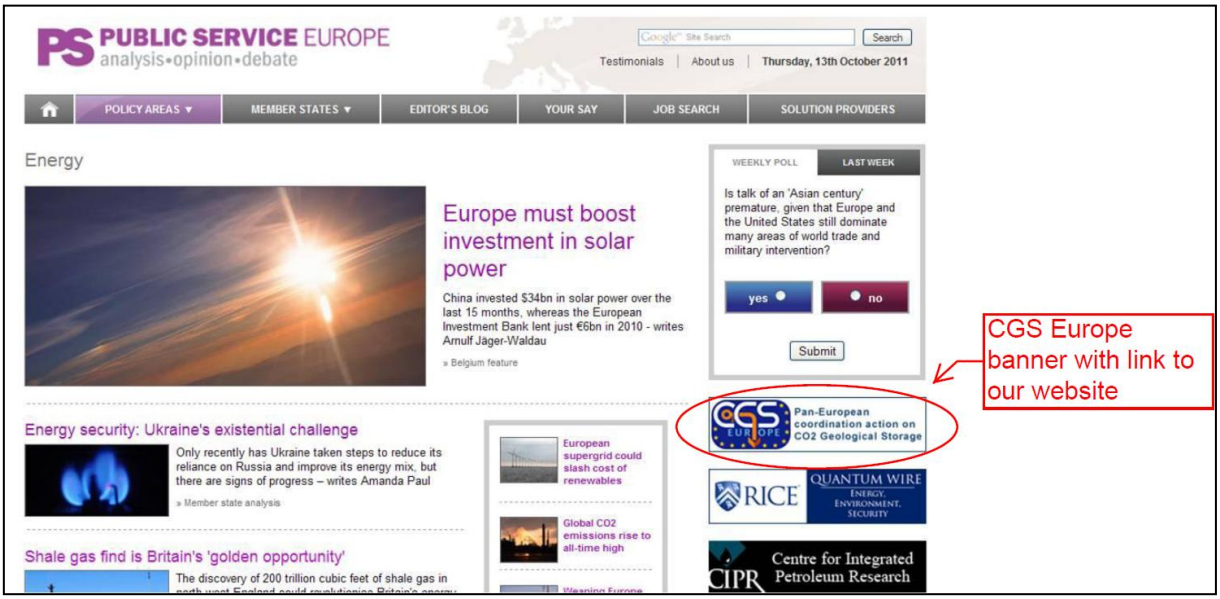
- *Public Service Review - European Science and Technology, issue 13, December 2011: 'Set in Store'*

A one-page article explaining the relevance of CO_2 geological storage for combating climate change. The article is also available online at http://edition.pagesuite-professional.co.uk/launch.aspx?referral=other&pnum=&refresh=a13P4yS0D50q&EID=b617f8a8-9d34-4a6c-a2bc-c3cd4e095d8f&skip (page 158).

- *Banner – Public Service Europe Website*

CGS Europe has a banner displayed on the Public Service Europe website (in the 'Energy' Policy Area) for one year (October 2011 to September 2012), with a link to the CGS Europe website.

Article in Public Service Review - European Science and Technology, issue 13 (December 2011)



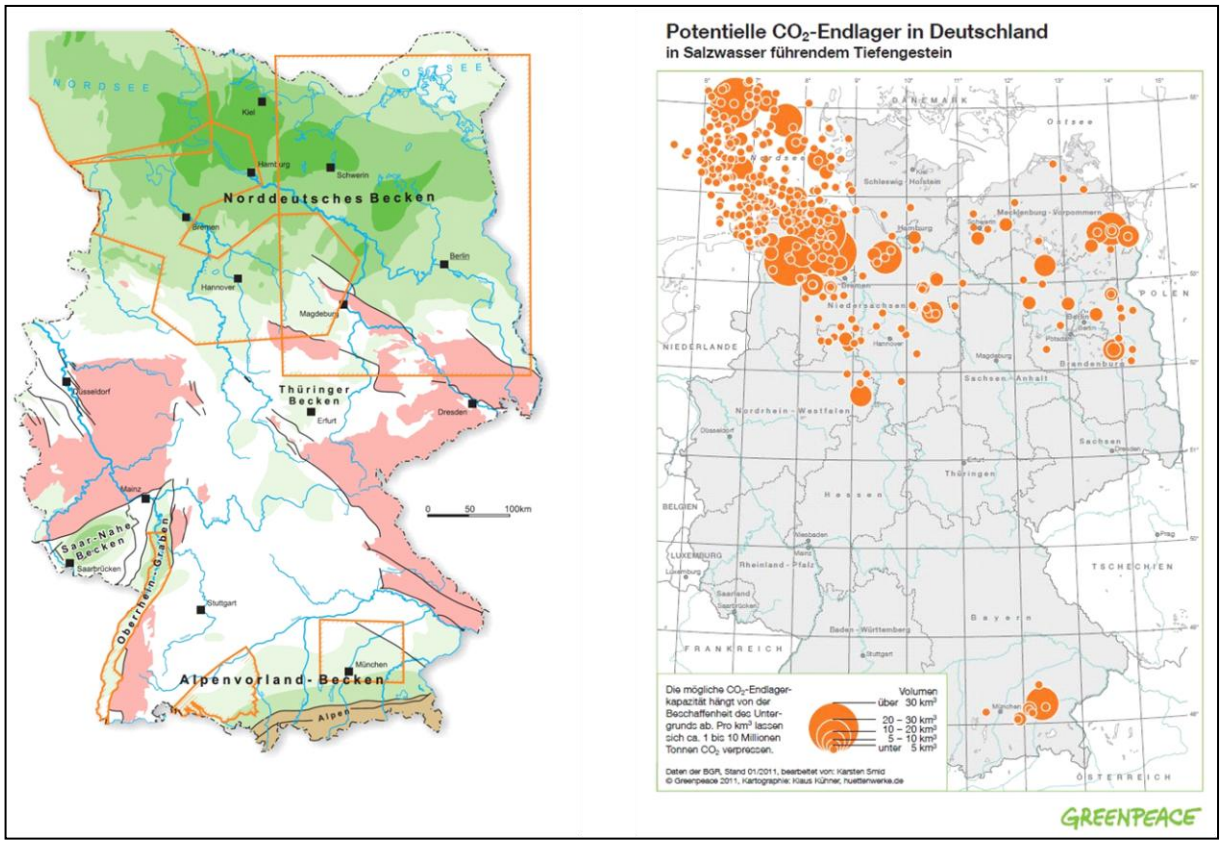
The Public Service Europe website with the CGS Europe banner at
http://www.publicserviceeurope.com/eu-policy-area/energy

The PublicServiceEurope.com website aims to be the online knowledge hub for those wanting the inside track on European politics, public administration, management issues and key developments in the business world. From high-profile interviews with the key politicians and officials across the European Union to reports from the major summits and events, and in-depth coverage of supranational institutions - PublicServiceEurope.com provides a key resource for Brussels and beyond.

5. Examples of activities on national level

Response to a media campaign by Greenpeace – Germany

In April 2010, BGR published an update on its CO_2 storage capacity estimate for Germany in the journal "Energiewirtschaftliche Tagesfragen" (Knopf et al., 2010). Base of this publication were statistical approaches to estimate the potential total storage capacity of the various study areas indicated in the map on the left-hand side in the figure below. Estimates of pore volumes from potential sites were used as input parameters for the calculations. Site-specific assessments were not within the scope of this study.



BGR's map showing the areas investigated for the storage capacity estimate for Germany published in April 2010 (left). Greenpeace requested site-coordinates from BGR and published an own map with locations and potential storage capacities (right) which resulted in strong concerns in public and politics and an intensive media coverage peak in early 2011.

The legislation process in Germany for implementing the European Directive 2009/31/EC on the geological storage of carbon dioxide was restarted by the new Federal Government in fall 2010,

accompanied by a strong and controversial debate on the topic CCS involving politics, industry, NGOs and the public.

BGR Bundesanstalt für Geowissenschaften und Rohstoffe

Pressemitteilung

Hannover, den 14.02.2011
Zeichen (inkl. Leerzeichen):
2.245

Keine Vorfestlegung auf Standorte zur dauerhaften Speicherung von CO_2 durch die BGR

Zu den aktuell in der Öffentlichkeit diskutierten möglichen Standorten zur dauerhaften CO_2-Speicherung in Deutschland teilt die Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) mit:

Die BGR erarbeitet geowissenschaftliche Grundlagen für verschiedene Nutzungsoptionen des tieferen Untergrundes in Deutschland (z.B. tiefe Geothermie & Energiespeicherung). Dazu gehört seit mehr als 10 Jahren auch die Erfassung möglicher Strukturen für die dauerhafte geologische Speicherung von CO_2. Diese wurden in den Jahren 2003, 2005 und zuletzt mit einem Artikel in der Zeitschrift Energiewirtschaftliche Tagesfragen (et, Heft 4/2010) zusammengefasst und veröffentlicht. Die Ausweisung von konkreten Standorten zur dauerhaften Speicherung von CO_2 in Deutschland ist jedoch nicht Aufgabe der BGR.

Die in zahlreichen Medienberichten angesprochenen 408 möglichen CO_2 Speicherstrukturen sind das Ergebnis einer rein geowissenschaftlichen Bewertung des Untergrundes in drei großen Sedimentbecken Deutschlands (Norddeutsches Becken, Molassebecken, Oberrheingraben). In den bisherigen Untersuchungen der BGR konnten noch nicht alle Regionen mit Speicherpotenzial in Deutschland betrachtet werden. Zudem waren die Suchkriterien in den verschiedenen Regionalstudien aufgrund unterschiedlicher Zielsetzungen nicht einheitlich. Damit haben die bisherigen Befunde einen vorläufigen Charakter.

Die Datengrundlage, die den bisherigen BGR-Untersuchungen zugrunde liegt, ist für eine endgültige Bewertung einzelner Standorte nicht ausreichend und muss im Rahmen von künftigen Standorterkundungen umfangreich erweitert werden. Erst dann kann eine umfassende Karte erstellt werden.

2

Die in der Öffentlichkeit diskutierten 408 möglichen Speicher (siehe Anlage) sind nicht Bestandteil des Projektes „Speicher-Kataster Deutschland“, wie in einigen Medienberichten missverständlich dargestellt. Das Projekt „Speicher-Kataster Deutschland“ wird noch in diesem Jahr der Öffentlichkeit präsentiert. Es handelt sich um ein bundesweit standardisiertes Informationssystem über untersuchungswürdige Speicher- und Barrieregesteine und enthält zudem Informationen über Tiefbohrungen und seismische Daten.

Weitere Informationen:

Hinweis zur Anlage: Die in der Anlage befindliche Tabelle enthält die von der BGR an Greenpeace übergebenen Arbeitsergebnisse zur Bewertung von möglichen CO2-Speichern in Deutschland.

Fachinformationen zur CO_2-Speicherung:
http://www.bgr.bund.de/cln_116/nn_322882/DE/Themen/Geotechnik/CO2-Speicherung/co2-speicherung__node.html?__nnn=true

Ansprechpartner:

Dr. Peter Gerling, Tel.: 0160 90 58 99 39,
E-Mail: JohannesPeter.Gerling@bgr.de

BGR LBEG LIAG
GEOZENTRUM HANNOVER

Pressesprecher: Andreas Beuge, Tel.: 0511 643 2679, Mobil: 0170 8569662,
E-Mail: andreas.beuge@bgr.de, Internet: http://www.geozentrum-hannover.de

Press release by BGR in response to Greenpeace “map of storage capacities in Germany”

In June 2010 Greenpeace requested the site-specific data (including coordinates) used within the above mentioned study from BGR. In several written correspondences, BGR explained that site-specific assessments have not been performed within this study and that storage capacity estimates were not linked to individual sites. In January 2011 BGR handed over the input data of the study including coordinates of sites as requested by Greenpeace. Following on this, Greenpeace linked the coordinates to nearby communities, calculated potential storage capacities from the input data and published a map view of these data in the media in February 2011 (see figure above).

Strong public and political concerns have been triggered by the Greenpeace map. On 14 February 2011, BGR published a press release (see above) clarifying that neither decisions on sites nor site-specific evaluations have been made within the study. In addition, BGR had and still has to respond to numerous information requests from journalists, politicians and citizens from the communities named in the Greenpeace map. This has been taken as an opportunity to inform various stakeholder groups not only about the published study, but also about geological CO_2 storage in general.

Radio interview - Romania

Constantin Stefan Sava of GeoEcoMar had two radio interviews on Radio Romania Cultural in March 2011. He explained the principles and role of CCS within the programmes "Science in appropriate words" on 9 March 2011 and "Science at home" on 15 March 2011.

Radio interview - Estonia

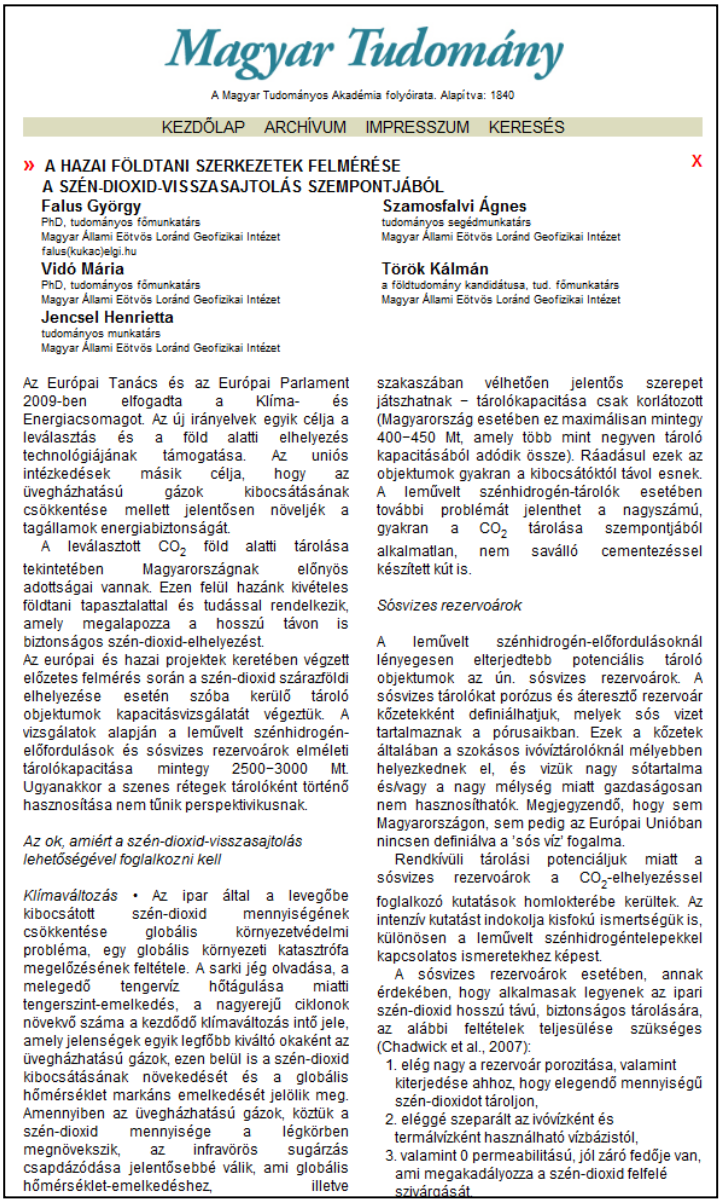
On 31 March 2011, Alla Shogenova and Jüri Ivask of the Institute of Geology at Tallinn University of Technology (TTUGI) were interviewed by the Estonian Public Broadcasting editor Janek Salme. This activity was a reflection of the presentation "Is it possible to reduce CO_2 emissions produced during combustion of Estonian oil shales: regional prospects and possible scenarios" by Alla Shogenova, Kazbulat Shogenov, Jüri Ivask, Rein Vaher (TTUGI) and Filip Neele, (CO_2GeoNet-TNO) presented at the GSE XIX April Conference (About studies and intelligent exploitation of Estonian on- and offshore Earth crust) and published in the abstract book at the website of Geological Survey of Estonia (GSE) on 29 March 2011. The interview was broadcasted by the Estonian Public Broadcasting on 1 April 2011 at the 9:00 newscast: http://teadus.err.ee/artikkel?id=4087&cat=6 &pg=1.

A scenario to capture carbon dioxide emitted by Estonian Narva power plants (Eesti and Balti) and transport it to suitable geological storage sites in Latvia was introduced in the newscast by Jüri Ivask, research scientist of TTUGI. Additional comments were provided by Meelis Münt (Head of the Climate and Radiation Department, Ministry of Environment of Estonia), who affirmed this scenario as one possibility in the future, and Tõnis Meriste (Eesti Energia, Environmental Manager), who called this possibility „only theoretical until there are no approved solutions for carbon dioxide geological storage".

Website of the Estonian Public Broadcasting ERR with the record of the interview with TTUGI scientists

Journal article - Hungary

On 12 April 2011, György Falus, Ágnes Szamosfalvi, Mária Vidó, Kálmán Török and Henrietta Jencsel of ELGI published an article in the Hungarian popular-scientific journal Magyar Tudomány. The topic was CCS in Hungary, with main focus on options of geological storage. The importance of cooperation and information of stakeholder groups and the public was discussed as well. The journal is published both on paper and on internet; the online version of the article is available at http://www.matud.iif.hu/2011/04/12.htm.



Magyar Tudomány

A Magyar Tudományos Akadémia folyóirata. Alapítva: 1840

KEZDŐLAP ARCHÍVUM IMPRESSZUM KERESÉS

» A HAZAI FÖLDTANI SZERKEZETEK FELMÉRÉSE A SZÉN-DIOXID-VISSZASAJTOLÁS SZEMPONTJÁBÓL

Falus György
PhD, tudományos főmunkatárs
Magyar Állami Eötvös Loránd Geofizikai Intézet
falus(kukac)elgi.hu

Vidó Mária
PhD, tudományos főmunkatárs
Magyar Állami Eötvös Loránd Geofizikai Intézet

Jencsel Henrietta
tudományos munkatárs
Magyar Állami Eötvös Loránd Geofizikai Intézet

Szamosfalvi Ágnes
tudományos segédmunkatárs
Magyar Állami Eötvös Loránd Geofizikai Intézet

Török Kálmán
a földtudomány kandidátusa, tud. főmunkatárs
Magyar Állami Eötvös Loránd Geofizikai Intézet

Az Európai Tanács és az Európai Parlament 2009-ben elfogadta a Klíma- és Energiacsomagot. Az új irányelvek egyik célja a leválasztás és a föld alatti elhelyezés technológiájának támogatása. Az uniós intézkedések másik célja, hogy az üvegházhatású gázok kibocsátásának csökkentése mellett jelentősen növeljék a tagállamok energiabiztonságát.

A leválasztott CO_2 föld alatti tárolása tekintetében Magyarországnak előnyös adottságai vannak. Ezen felül hazánk kivételes földtani tapasztalattal és tudással rendelkezik, amely megalapozza a hosszú távon is biztonságos szén-dioxid-elhelyezést.

Az európai és hazai projektek keretében végzett előzetes felmérés során a szén-dioxid szárazföldi elhelyezése esetén szóba kerülő tároló objektumok kapacitásvizsgálatát végeztük. A vizsgálatok alapján a leművelt szénhidrogén-előfordulások és sósvizes rezervoárok elméleti tárolókapacitása mintegy 2500–3000 Mt. Ugyanakkor a szenes rétegek tárolóként történő hasznosítása nem tűnik perspektivikusnak.

Az ok, amiért a szén-dioxid-visszasajtolás lehetőségével foglalkozni kell

Klímaváltozás • Az ipar által a levegőbe kibocsátott szén-dioxid mennyiségének csökkentése globális környezetvédelmi probléma, egy globális környezeti katasztrófa megelőzésének feltétele. A sarki jég olvadása, a melegedő tengervíz hőtágulása miatti tengerszint-emelkedés, a nagyerejű ciklonok növekvő száma a kezdődő klímaváltozás intő jele, amely jelenségek egyik legfőbb kiváltó okaként az üvegházhatású gázok, ezen belül is a szén-dioxid kibocsátásának növekedését és a globális hőmérséklet markáns emelkedését jelölik meg. Amennyiben az üvegházhatású gázok, köztük a szén-dioxid mennyisége a légkörben megnövekszik, az infravörös sugárzás csapdázódása jelentősebbé válik, ami globális hőmérséklet-emelkedéshez, illetve szakaszában vélhetően jelentős szerepet játszhatnak – tárolókapacitása csak korlátozott (Magyarország esetében ez maximálisan mintegy 400–450 Mt, amely több mint negyven tároló kapacitásából adódik össze). Ráadásul ezek az objektumok gyakran a kibocsátóktól távol esnek. A leművelt szénhidrogén-tárolók esetében további problémát jelenthet a nagyszámú, gyakran a CO_2 tárolása szempontjából alkalmatlan, nem saválló cementezéssel készített kút is.

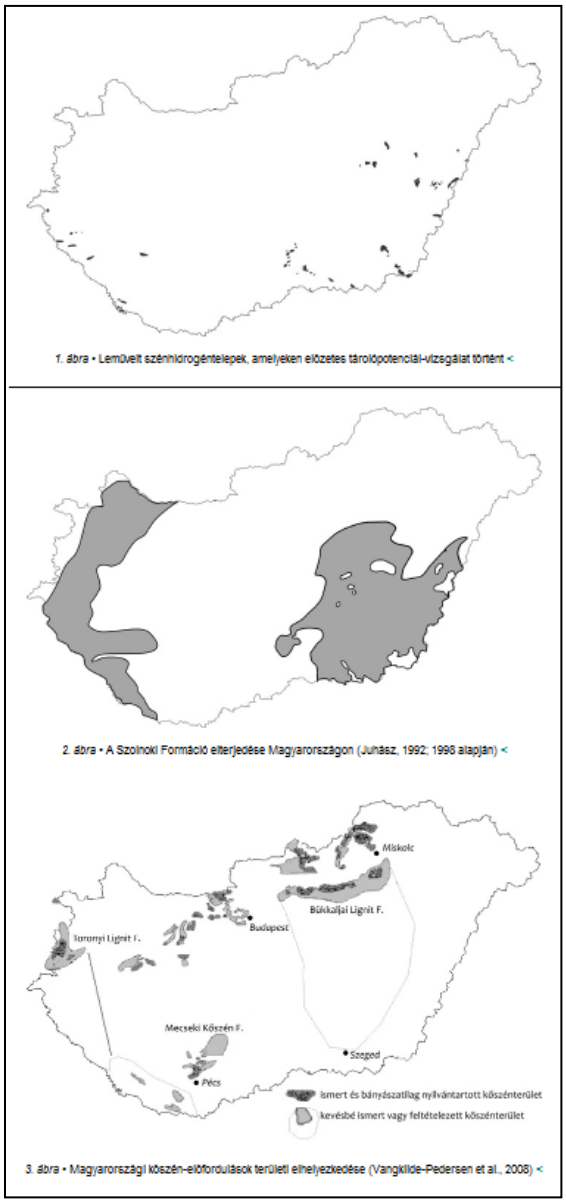
Sósvizes rezervoárok

A leművelt szénhidrogén-előfordulásoknál lényegesen elterjedtebb potenciális tároló objektumok az ún. sósvizes rezervoárok. A sósvizes tárolókat porózus és áteresztő rezervoár kőzetekként definiálhatjuk, melyek sós vizet tartalmaznak a pórusaikban. Ezek a kőzetek általában a szokásos ivóvíztárolóknál mélyebben helyezkednek el, és vizük nagy sótartalma és/vagy a nagy mélység miatt gazdaságosan nem hasznosíthatók. Megjegyzendő, hogy sem Magyarországon, sem pedig az Európai Unióban nincsen definiálva a 'sós víz' fogalma.

Rendkívüli tárolási potenciáljuk miatt a sósvizes rezervoárok a CO_2-elhelyezéssel foglalkozó kutatások homlokterébe kerültek. Az intenzív kutatást indokolja kisfokú ismertségük is, különösen a leművelt szénhidrogéntelepekkel kapcsolatos ismeretekhez képest.

A sósvizes rezervoárok esetében, annak érdekében, hogy alkalmasak legyenek az ipari szén-dioxid hosszú távú, biztonságos tárolására, az alábbi feltételek teljesülése szükséges (Chadwick et al., 2007):

1. elég nagy a rezervoár porozitása, valamint kiterjedése ahhoz, hogy elegendő mennyiségű szén-dioxidot tároljon,
2. eléggé szeparált az ivóvízként és termálvízként használható vízbázistól,
3. valamint 0 permeabilitású, jól záró fedője van, ami megakadályozza a szén-dioxid felfelé szivárgását.



Screenshots of the article in Magyar Tudomány

Journalists' study visit – the Netherlands

On 19-21 May 2011, some ten Dutch journalists, one Belgian journalist, some thirty young researchers and one excellent guide travelled through the German volcanic Eifel area to learn about natural CO_2 sources. The excursion was organised by the Dutch National Program on CCS CATO2, in which CGS Europe partner TNO plays a key role. Besides the interesting topic 'CO_2 from geological origin', exchanging knowledge about issues among researchers and with journalists was the main dish of this excursion.

Ronnie van Overmeeren (CO_2GeoNet-TNO, retired), who studied volcanism and turned it into hobby during his professional career at TNO, guided the excursion along many volcanic sites in a green and splendid Eifel. His stories and explanations about the geological history of the region made the small crowd in the crater-theatres listen in silence. The young researchers and trainees got to know each other and each other's work. Also for the visiting journalists, the excursion was an eye-opener, months after the hectic discussions about CO_2 storage in Barendrecht or North of the Netherlands. The trip resulted in articles in several leading Dutch newspapers like Trouw, Volkskrant, Parool and Cobouw, followed by specific magazine articles published later on.

However critical they still were on CCS in general, journalists especially liked the open communication with the research community, and it also worked the other way around: the researchers liked communicating with the journalists. The excursion definitely decreased the distance between research and journalists, which will hopefully lead to some more mutual trust in the future.

Media coverage of the Dutch journalists' study visit to Eifel

Journalists' study visit – Sweden

On May 25 to May 27, 2011, European Union of Science Journalists' Associations (EUSJA) and the Swedish Association for Science Journalism arranged a study visit to Uppsala for a group of 14 European (including Swedish) science journalists. Local hosts were the Geological Survey of Sweden, Uppsala University, the Swedish University of Agricultural Sciences and the municipality of Uppsala. The group was introduced to several front line research and development topics, spanning from studies on Alzheimer's disease to nano-tech accumulators, among them carbon dioxide capture and storage (CCS).

A lecture on CCS was given by state geologist Linda Wickström, PhD, of Geological Survey of Sweden (SGU). The group was introduced to the legal CCS framework in EU and its implications for Sweden, and to the geological possibilities of CO_2 storage on Swedish territory.

Additionally, the group visited the Swedish public radio´s science department, Vetenskapsradion, was guided in the science history of Uppsala including the history of Carl von Linné and was introduced to the geology of the Dome of Uppsala.

Linda Wickström (SGU) presenting CO_2 storage possibilities of Sweden to the journalists during the EUSJA study visit. Photo Kaarina Ringstad (SGU).

Internet journal publication – Slovenia

One of the most authoritative national internet journals, specialized in energy issues - Energetika.net - published an accessible article titled "Permanent carbon storage – reality or illusion?". In ten years of its activities, Energetika.net has become the most influential web portal in Slovenia and SE European region, publishing news on energy, ecology, and some related political and economical events. Its audience goes beyond the country borders, since from 2009 it is also published in English. Energetika.net brings expert information, comments, interviews etc. but it is also a central information contact point for electricity markets and energy industry.

Energetika.NET časnik o energetiki

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Domov > Novice > Clanki > Trajno Shranjevanje Ogljika Realnost Ali Iluzija

Trajno shranjevanje ogljika – realnost ali iluzija?

Datum: 28. junij 2011 Avtor: Alenka Žumbar Kategorija: Članki
Tema: Premog , Emisije CO2 , Nove tehnologije

Naftna in plinska podjetja imajo za seboj že več desetletne izkušnje na področju shranjevanja plina globoko pod zemljo in uporabe ogljikovega dioksida na naftnih nahajališčih za potiskanje nafte na površje. Prav na osnovi teh izkušenj je industrija prepričana, da lahko v zemeljske globine varno shrani tudi odvečne količine ogljika. Uporaba CCS tehnologij (CCS - Carbon Capture and Storage – zajem in skladiščenje ogljika) za zmanjšanje ogljika v ozračju zahteva uporabo tehnologij, ki jih industrija že pozna in so tudi že široko uporabljane, je bil zaključek pozno pomladanske konference o CCS tehnologijah v Benetkah, nam je zaupala Marjeta Car z Geoinženiringa. Kakšne so možnosti za skladiščenje ogljika v Sloveniji oziroma kaj se na tem mestu sploh dogaja, pa smo preverili tudi pri najaktivnejšem na danem področju – Holdingu Slovenske elektrarne.

SORODNE VSEBINE
08.07.2009 »Premoga je v Sloveniji premalo, da bi vanj shranjevali CO2«
13.05.2011 HTZ Velenje načrtuje do konca leta izdelati šest drobilnikov
01.07.2011 Predstavili novo vrtalno garnituro
14.01.2011 Zagnali novo dizelsko lokomotivo Scharf
20.07.2010 Nov drobilnik premoga v Velenju

FOTO: Alenka Žumbar

Da je priložnost za razvoj CCS tehnologij tudi v Sloveniji, potrjuje dejstvo, da bo z novim termoenergetskim blokom v Šoštanju premog še nekaj časa neizogiben energetski vir. Možnosti uvedbe sistema zajema in skladiščenja ogljikovega dioksida tako preučuje tudi Premogovnik Velenje. V okviru projekta "Čiste premogovne tehnologije" je premogovnik bolj dejaven od leta 2004, od spomladi leta 2008 pa je vključen tudi v projektni svet pri projektu ZETe-PO (Zmanjševanje emisij toplogrednih plinov v slovenski energetiki v postkjotskem obdobju), ki ga koordinira Holding Slovenske elektrarne (HSE). Poleg velenjskega premogovnika pri projektu ZETe-PO sodelujejo še Termoelektrarna Toplarna Ljubljana (TE-TOL), Termoelektrarna Šoštanj (TEŠ) in Termoelektrarna Trbovlje (TET) ter ministrstvi za okolje in gospodarstvo.

Ob dveh že zaključenih projektnih nalogah – "Razvoj tehnologij zajema CO_2" ter "Implementacija ETS in CCS zakonodaje v slovenski pravni red" – je v okviru projekta ZETe-PO v teku še zadnja projektna naloga z naslovom "Možnosti geološkega skladiščenja CO_2 v Sloveniji in izven Slovenije". V njej sodelujejo HSE, TEŠ, TET in Premogovnik Velenje, izvaja pa jo konzorcij s člani z ljubljanske Naravoslovnotehniške fakultete, Geološkega zavoda Slovenije, podjetij Nafta-Geoterm, Erico in HGEM. Kot je za Energetiko.NET povedal Vane Gošnik, ki je v HSE zadolžen za okoljsko področje, je v sklopu omenjene naloge nastala prva knjiga, ki so jo izdali v okviru konzorcija in ki že nakazuje možnost skladiščenja ogljika v Sloveniji, septembra letos pa izide tudi druga, ki pa bo podala nedvoumne odgovore na vprašanje, ali so v Sloveniji potencialne lokacije za skladiščenje tega toplogrednega plina in kje. Kot je sicer razvidno iz objave rezultatov projekta EU GeoCapacity, v okviru katerega so se ocenjevale skladiščne kapacitete za večino evropskih držav, ki so ga pripravili geologi iz Španije, Italije, Hrvaške in Slovenije – slovenska avtorica je Marjeta Car iz Geoinženiringa -, so lokacije v Sloveniji, ki jih velja preučiti za ta namen, v osrednjeslovenski in gorenjski regiji, na območju jugozahodne Slovenije ter v šaleško–savinjski regiji, Podravju in Pomurju.

Natisni | Pošlji prijatelju | Posreduj

TEME
Ekologija
Ekonomija
Električna energija
Emisije CO2
Energetska politika
Nafta in naftni derivati
Nove tehnologije
Ogrevanje
OVE in URE
Premog
Promet
Zemeljski plin

Pregled medijev arhiv

Slovenija (12. 7. 2011)
12.07.2011 11 objav
11.07.2011 16 objav
08.07.2011 17 objav
07.07.2011 13 objav
06.07.2011 10 objav
brezplačna registracija

Tujina
12.07.2011 17 objav
11.07.2011 24 objav
08.07.2011 16 objav
07.07.2011 15 objav
06.07.2011 20 objav
brezplačna registracija

SPONZORIRANE POVEZAVE
En.občina 011
Daljinski nadzor energetskih objektov
Študijski programi Energetika - I. in II. stopnja

Permanent carbon storage – reality or illusion?- title page of the article in the Energetika.net Slovenian internet journal

The article appeared on 28 June 2011. It explains the role of CCS in emission reductions and the geological aspects of underground storage with reference to Slovenia and its potentials. The results of the national project on assessing capacities for geological storage of CO_2 as well as the results of EU GeoCapacity project are presented. European experience in this field is shown together with the

introduction of demonstration projects. The urgency for the transposition of the CCS Directive and the Industrial Emissions Directive in national law is explained. Apart from some expert statements and explanations, the views of HSE, the largest producer and trader with electricity on the wholesale market in Slovenia is published. Moreover, the statements of the Minister of Economics (covering energy sector) and the Greenpeace representative in Slovenia is proclaimed.

Geoinženiring's engagement was to give detailed information on geological storage and its potential for Slovenia. Some basic facts on CCS were also delivered. Particular focus was given to the outcomes of the Open Forum 2011 in Venice and to the implementation of the relevant EU regulations. GEO-INZ was also involved in proofreading of the article. In general, the current status of CCS with particular reference to Slovenia is shown. However, the NGOs' view is principally negative. Electricity producers recognize the necessity to apply particular measures in the post-Kyoto period. The article can be found at http://www.energetika.net/novice/premog/trajno-shranjevanje-ogljika--realnost-ali-iluzija.

Internet journal publication – Czech Republic

A popular scientific article titled "What to do with CO_2 emissions? Bury underground?" was published in the renowned Czech internet journal "Ekolist" on 25 August 2011. The journal focuses on environment, nature, climate, biodiversity, energy, landscape and transport, and attracts ca. 35-40 thousand visitors per month. The article was prepared in 4-8/2011 with significant help of Czech Geological Survey, which embraced:

- Phone interview with Vit Hladik, head of CCS activities at CzGS;
- Delivery of information materials about CCS, incl. CO_2GeoNet, CO_2NET and ZEP brochures, links to relevant websites, etc.;
- Detailed answers to questions posed by the author of the article;
- Provision of photographs from Ketzin and Weyburn storage sites as well as of links to public image databases with relevant photos, videos and pictures available for use (e.g. Statoil, Vattenfall, ZEP);
- Formulation of factually correct picture captions;
- Proofreading of the text before publication focused on its factual rightness.

As a result, the first well balanced and factually correct journal article about CCS in Czech language was published. It triggered an exceptionally lively discussion with 56 contributions, mostly focused on comparisons of CCS with nuclear and renewable energy. The article can be found at http://ekolist.cz/cz/zpravodajstvi/zpravy/co-s-emisemi-co2-zakopat-pod-zem?apc=/cz/zpravodajstvi/zpravy/co-s-emisemi-co2-zakopat-pod-zem

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What to do with CO_2 emissions? Bury underground? – title page of the article in the ekolist.cz Czech internet magazine

Debate with journalists - France

CO_2GeoNet-IFPEN and BRGM co-organised (through the French Club CO_2) a BIP-Enerpresse debate titled "CO_2 Capture and Storage: Status on the French approach" in Paris on 20 September 2011. BIP Enerpresse debates are monthly gatherings of influential stakeholders from the energy sector (industry, banks, administration and politics), with representative media attendance, on "hot topics" in the energy sector.

The purpose of the event on 20 September, devoted to CCS status in France and attended by some one hundred people, was to discuss the progress of current R&D and industrial projects in France, sharing information and perspective with Club CO_2 members. The Club CO_2 was created in 2002 under initiative from ADEME and with the support of CO_2GeoNet-IFPEN and BRGM. The Club encourages cooperation at national level between the public and private sectors, and several research projects have been started under its initiative.

Event speakers included Jean-Pierre Birat (ArcelorMittal, Export, European Coordinator of the ULCOS project), François Giger (EDF, Strategy, Coordination CCS), François Moisan (ADEME Executive

Director, president of Club CO_2), Gérard Moutet (Total, Director Climate-Energy) and Hervé Quinquis (CO_2GeoNet-IFPEN, CO_2 Storage Programme Manager, Resources Business Unit). The debate moderated by Elisabeth Salles (Groupe Moniteur, editorial Director for Energy).
Ca. 8 journalists representing leading French media were present at the event, and, as a result, several articles in widely distributed newspapers were published, incl. a news released by AFP, the leading French press agency.

Date : 20/09/2011
Pays : FRANCE
Edition : Fil Eco

Mots : 364

Captage/stockage de CO2: il faudra aussi convaincre les populations

PARIS, 20 sept. 2011 (AFP) -

Convaincre les populations d'accepter que le CO2 soit stocké sous leur pieds pour éviter qu'il ne réchauffe l'atmosphère: c'est l'un des enjeux identifiés mardi par des industriels français qui développent des prototypes de cette technique encore expérimentale.
"L'acceptabilité est un sujet important, très fort en Europe, et un sujet-clé, car la filière ne se fera pas si on ne résout pas cette question", a reconnu Gérard Moutet, directeur climat-énergie de Total, qui expérimente un tel procédé depuis janvier 2010 sur son site de Lacq (Pyrénées-Atlantiques).
"Il faut que le débat ait lieu, et, pour que ce débat ait lieu sur des bases concrètes, il faut faire des démonstrateurs", a-t-il insisté en marge d'une table ronde organisée à Paris par Enerpresse.
Dans le cadre de son projet "France-Nord", Total est en quête d'un site, dans le bassin géologique parisien, qui permettrait de stocker, d'ici 5 ans environ, des grandes quantités de CO2 dans des sous-sol très profonds et étanches.
Pour lutter contre le changement climatique, "le CCS (captage et stockage de CO2) n'est pas l'outil le moins bien placé", a souligné Jean-Pierre Birat, expert d'Arcelor Mittal, qui a présenté les projets du groupe sidérurgiste à Florange (Moselle) où un démonstrateur devrait être opérationnel en 2016.
En matière de recherche, les Etats-Unis, le Japon et l'Europe "sont en pointe", selon Hervé Quinquis, responsable du sujet à l'Institut français du pétrole/Energies nouvelles (IFPEN). Une vingtaine de projets de taille industrielle sont recensées en Europe, a-t-il précisé.
La filière "est à un stade de démonstration", a rappelé François Moisan, directeur exécutif de l'Ademe (Agence de l'Environnement et de la Maîtrise de l'Energie), soulignant que cette technique n'est actuellement pas économiquement viable.
Selon le Global CCS Institute, un organisme qui promeut cette technique, plus de 230 projets d'expérimention de captage et/ou stockage du CO2 (CCS) étaient en cours ou en prévision à la fin 2010.
Jugée incontournable par certains dans le cadre de la lutte contre le réchauffement, cette technique est décriée par certaines ONG qui jugent qu'elle retarderait la transition vers des énergies propres.
alu/pjl/jpr

Afp le 20 sept. 11 à 13 51.

AFP press news based on the BIP-Enerpresse debate on 20 Sept. 2011

Information support of radio broadcasts – Sweden

In February 2012, Linda Wickström of Geological Survey of Sweden (SGU) was cited on Swedish public radio regarding CCS related issues by the TT (Tidningarnas Telegrambyrå) news agency. Upon request of the responsible journalist, she provided information about the Vattenfall's German CCS projects, considering the German legislation issues. The TT news agency is the heartbeat of the TT Group - Sweden's largest media content provider. The TT Group is Sweden's largest supplier of media content - text, photo, audio, video, graphics - and has all the important media and the largest companies and organisations as clients.

In February 2012 Linda Wickström also has been answering CCS-related queries by the Swedish public radio's science department.

Magazine interview - Belgium

The magazine 'Forward' of the Belgian Association of Enterprises featured in its March 2012 number a 6-page main article on CCS, for an important part based on an interview with Kris Piessens (Geological Survey of Belgium). The article presents a proper overview of the different steps of CCS, with specific reference to issues that are of interest to investors such as economic and geological uncertainties.


44 policy
Carbon Capture & Storage

In de lucht of in de grond

CO_2 capteren om voor altijd op te slaan

Als tussenoplossing in het proces naar een koolstofvrije samenleving is de technologie voor het afvangen en opslaan van CO_2 (CCS) één van de opties om tussen nu en 2100 de hoeveelheid in de lucht uitgestoten CO_2 aanzienlijk terug te dringen. Midden februari was ze nog voorwerp van discussie op een conferentie in Brussel waar politici en experts de energiestrategie van de EU evalueerden in het kader van de economische crisis. Waar staat CCS precies voor? Wanneer wordt het gecommercialiseerd? Hypothekeert de lage prijs van carbon de ontwikkeling ervan? Welk potentieel heeft CCS voor de industrie? Wat zijn de risico's? Vragen waarop dit dossier een antwoord geeft.

TEKST FLORENCE DELHOVE
FOTO IEA, ZEP


46 forward maart 2012 policy

klimaatpanel van de VN, het IPCC, in 2005 een speciaal rapport aan CCS. In 2009 boog het International Energie Agentschap (IEA) zich in detail over het onderwerp. Nog in 2009 werd de Europese CCS-Richtlijn gepubliceerd. Ondertussen is de technologie het stadium van de pilots voorbij en werdt volop gewerkt aan demonstratieprojecten, de stap net vóór de commercialisatie. Vooral in de VS, Canada, Australië, Europa en China werdt nu veel onderzoek gedaan. Volgens het IEA moeten er tussen nu en 2050 wereldwijd ruim 3.000 CCS-projecten worden uitgerold. Deze moeten het mogelijk maken om tegen dan de CO_2-uitstoot met 20% terug te dringen. Volgens het IPCC kunnen we dankzij

Bron: ZEP-European Technology Platform for Zero Emission Fossil Fuel Power Plants

"De opslag is bepalend voor de hele keten"
Philippe Mathieu (ULg / GIEC)

CCS de CO_2-uitstoot tussen 2000 en 2100 gecumuleerd met 1.000 miljard ton terugdringen. De grootste inspanning zal daarbij worden geleverd na 2030, omdat vanaf die datum de technologie op grote schaal zal kunnen worden ingezet.

De technologieën waarop de drie fasen van CCS een beroep doen – het capteren, transporteren en opslaan van een gas – hebben voor de industrie geen geheimen meer. De uitgestoten hoeveelheden zijn echter zo immens dat hun toepassing voor CCS bijkomend en doorgedreven onderzoek vergt om de veiligheid en de economische leefbaarheid ervan te verzekeren.

Capteren kost het meest

Voor het afvangen van CO_2 in de industrie beschikt men over drie technologieën. Postcombustion (CO_2 wordt afgevangen in de rookgassen die door de industriële installatie worden uitgestoten), oxycombustion (het gebruik van zuivere zuurstof voor een verbranding waarbij in de verbrandingsproducten CO_2 door condensatie van het water wordt gescheiden van het water) en precombustion (het vooraf afscheiden van CO_2 in de brandstof waardoor er een gas ontstaat met vrijwel zuiver waterstof). "Geen van de drie opties is de enig zaligmakende technologie", verduidelijkt **Rose-de Lauzac**, CCS Corporate Program Manager bij de afdeling Recherche & Innovation bij GDF SUEZ. "De keuze voor het ene of het andere moet gebeuren in functie van de specifieke kenmerken van elk project." Voor de afvang van CO_2 in het kader van CCS-installaties werdt men echter voor twee technische uitdagingen geplaatst. Ten eerste moet men alles kunnen opschalen. Deze drie technologieën bestaan immers al binnen andere domeinen, maar op een veel kleinere schaal dan nodig voor het afvangen van het CO_2 van een elektriciteitscentrale. De tweede betreft in het verlagen van het energieverlies door de CCS-installatie binnen een industriële eenheid. **Philippe Mathieu**, professor energieproductie aan de ULg en medeauteur van het rapport van het IPCC in 2004-2005: "De CO_2-concentratie in de rookgassen van elektriciteitscentrales ligt, bij een hoog debiet, veeleer laag, waardoor het afvangproces erg veel energie vergt. Het rendement van de centrales daalt hierdoor met 15 tot 25%. CCS is dus enkel zinvol voor installaties met een hoog basisrendement, met andere woorden, de centrales van de allerlaatste generatie en de nog te bouwen eenheden." De professor preciseert echter dat we dankzij "de technologische evolutie mogen verwachten dat die energieverliezen de volgende tien jaar zullen worden gehalveerd". In de huidige stand van zaken en met de nieuwste technische kennis vertegenwoordigt het capteren ruim 70% van de totale kosten van CCS. Kosten die volledig ten laste zijn van het bedrijf dat beslist in deze technologie te stappen. "Op dit moment liggen de kosten nog te hoog ten opzichte van andere technologieën, maar het staat vast dat ze zullen dalen naarmate de technologie verder wordt ontwikkeld en op steeds meer plaatsen wordt geïnstalleerd", vervolgt Philippe Mathieu. "Ondernemingen die nieuwe steenkoolcentrales bouwen, doen dit nog zonder CCS omdat de spelregels nog onvoldoende duidelijk zijn, en vooral ook omdat de prijs van een ton koolstof nog te laag is. Toch is het technisch mogelijk om ervoor te zorgen dat deze centrales al 'capture ready' zijn." Dit wordt door de CCS-Richtlijn trouwens al opgelegd voor nieuwe, grotere centrales op fossiele brandstoffen.

Transport via pijpleiding

Ook voor het transport bevinden we ons zeker niet op onbekend terrein. Op tal van plaatsen in de wereld, hoofdzakelijk in de

Article on CCS in the Belgian 'Forward' magazine (Dutch version, selected pages)

22,000 printed copies of this magazine are distributed in the two national languages of Belgium (Dutch and French), being also available for download as pdf. The target audience includes company executives and investors that may potentially be interested to invest in novel technologies such as CCS.

Radio interview – Estonia

Presentation 'Geological storage and mineral carbonation of Estonian industrial CO_2 emissions: competitive or supporting technologies?', prepared by Alla Shogenova, Jüri Ivask and Kazbulat Shogenov of TTUGI and presented at the Estonian Geological Survey' XX April Conference by Jüri Ivask was reflected on the Estonian Public Broadcasting programme Vikerraadio in its science broadcast 'Labor' (Laboratory) on 1 April 2012 at 17:00. Carbon dioxide capture and geological storage as, at the moment, probably the best technology for mitigation of climate changes due to burning of fossil fuels was discussed by Vikerraadio's science journalist Priit Ennet and TTUGI's research scientist Jüri Ivask. The broadcast (in Estonian) is available at http://vikerraadio.err.ee/helid?main_id=1773761.

6. Planning for the 2nd project period

In the 2nd project period, the attention paid to interactions with media will increase. Following the outcomes of the spokespersons' workshop, press officers, spokespersons and communication officers of partner institutions will be more involved in this dissemination activity. They will be engaged in preparation and distribution of press releases as well as in seeking for further opportunities of interaction with journalists and media.

The first example of the improved cooperation with the partners' press and communication officers / departments is the prepared visit of French and Italian scientific journalists at the CO_2GeoNet Open Forum in Venice in April 2012, which is being prepared by the BRGM Press Service.

The activity of issuing press releases by the project will continue; press releases are planned in connection with main project events like the CO_2GeoNet Open Forums 2012 and 2013 but also in relation to important project achievements like publication of the educational brochure 'What does CO_2 geological storage really mean?' in all consortium languages or finalisation of key project reports of WP3 that will bring overview of current status of knowledge in selected areas of CGS, specifically in 'Monitoring methods', 'Storage site selection' and 'Storage-related policy and regulatory regimes'. To distribute the press releases, more stress will be put on utilisation of established communication channels of project partners and on involvement of press and communication officers. CORDIS Wire will be used as a relevant communication vehicle for press releases and event announcements on European level.

In addition to the above, further opportunities will be permanently sought to present CO_2 geological storage, as an integrated part of the CCS technology, in the media, e.g. through interviews with journalists, articles in popular journals or newspapers, participation in TV and radio broadcasts, internet debates, etc. This is particularly relevant for the CCS 'follower' countries but 'forerunner' countries are not excluded from this activity either. These activities have already started in the 1st project period, and efforts to include more project partners in more countries will be undertaken.

An important topic in the 2nd period will be cooperation with EUSJA – the European Union of Science Journalists' Associations. The link established by CO_2GeoNet in the past is now being revived, and a joint CGS Europe – EUSJA workshop is under negotiation for 2013.

Annex I

Communication workshop preparation – Questionnaire 1 (press officers)

The CGS Europe project brings together 34 research institutes in Europe working on CO_2 Geological Storage. It aims at improving networking, knowledge sharing and knowledge dissemination on the geological storage of CO_2 in Europe.

We are now preparing a workshop, as part of WP 5.6, for sharing knowledge and experience between researchers and their institutions' press officers, who can play a fundamental role for disseminating the project's activities and events.

Please help us identifying the most interesting topics for you to be covered:
(CGS stands for CO_2 geological storage)

1) Are you informed about CGS Europe project, its structure and objectives?

2) How would you rate your knowledge on CO_2 geological storage: good, sufficient, insufficient

3) Are there specific aspects of CO_2 geological storage on which you would like to know more?

4) Do you have already some experience communicating CGS?

5) Is any of your experience (positive or negative) communicating CGS a possible lesson for others to learn from? If yes, would you be willing to propose your case during the workshop?

6) Please indicate which CGS areas you consider more difficult to communicate about:
    - Site selection
    - Monitoring
    - Safety
    - Other:

7) Please indicate if you would like to learn more about:
    - Site selection
    - Monitoring
    - Safety
    - Other:

8) Please indicate any other topic or issue that you consider relevant for the workshop:

9) Please indicate your name, institute and role: press officer, spokesperson, researcher also in charge of communication, etc. and your availability in the week 19-23 September 2011.

Thank you for your collaboration.

Annex II

Communication workshop preparation – Questionnaire 2 (researchers)

The CGS Europe project brings together 34 research institutes in Europe working on CO_2 Geological Storage. It aims at improving networking, knowledge sharing and knowledge dissemination on the geological storage of CO_2 in Europe.

We are now preparing a workshop, as part of WP 5.6, for sharing knowledge and experience between researchers and their institutions' press officers, who can play a fundamental role for disseminating the projects activities and events.

Your help is needed to provide press officers with the necessary information on CO_2 geological storage and on the CGS Europe project. Please answer the following questions to help us preparing the workshop and identifying the topics to be covered:
(CGS stands for CO_2 geological storage)

1) Do you have any experience communicating CGS outside academic circles?

2) If yes, to what type of audience or media?

3) If yes, have you encountered difficulties in communicating CGS? If yes, are you willing to propose your case for common discussion during the workshop?

4) Do you have any specific questions for press officers or for media experts, journalists etc. on how to communicate CGS?

5) Do you have any specific advice you would like to share at the workshop for press officers or for media experts, journalists etc. on how to communicate CGS?

6) Are you willing to be part of a team to provide information during the workshop on specific scientific aspects of CGS relevant for communication to the media?

7) Do you think there are any CGS topics particularly sensitive from this point of view?

8) Could you contribute to preparing information slides for the workshop on:
    a. site selection
    b. monitoring
    c. safety

9) Please indicate any other topic or issue that you consider relevant for the workshop:

10) Please indicate your name and institute and your availability in the week 19-23 September 2011.

Thank you for your collaboration.

Annex III

WP5 Knowledge Dissemination
Task 5.6 Interaction with media

CGS Europe Communication Workshop

For researchers, press officers, spokespersons or other communication representatives of CGS Europe partners

Brussels, 22-23 September 2011

Agenda

Day one

09.15 – 09.30 Registration

09.30 – 09.35 Welcome

09.35 – 09.55 Introduction, questionnaires' input, directions for the day (Samuela Vercelli)

09.55 – 10.00 Warm up exercise

10.00 – 11.15 The CGS Europe project: what is it all about? Interview with the coordinator Isabelle Czernichowski; identification relevant communication aspects

11.15 – 11.30 Break

11.30 – 12.30 CGS Europe communication strategy: discussion, decisions

12.30 – 13.30 Lunch

13.30 – 14.00 Communication styles: short introduction, exercise

14.00 – 15.30 Joint work on areas of interest (first of all safety/impact, then site selection and monitoring) and difficult questions. Identification of key concepts to be communicated

15.30 – 16.00 Break

16.00 – 17.00 (continuation) Joint work on areas of interest (first of all safety/impact, then site selection and monitoring) and difficult questions. Identification of key concepts to be communicated

17.00 – 17.45 Conflicts of interest? Sharing on the different institutes' situations and related choices

17.45 – 18.00 Summary key concepts for communication and decisions; close of the day

Day two

08.30 – 09.00 Introduction: the role of spokespersons in the interface between scientists and other stakeholders (Enda Gallagher)

09.00 – 10.15 Sharing on press officers/spokespersons/communication representatives needs and requests to the researchers and vice versa; general coordination issues, specific content related issues, possible ways for improving internal communication to support external communication

10.15 – 10.45 Break

10.45 – 11.45 How to get the message across: Focus on different audiences and how to handle communication in critical situations (local authorities, public, media, etc.), presentation and sharing experiences/discussion (Enda Gallagher)

11.45 – 12.00 How to get the message across: Tool kits presentation, advantages and disadvantages (Samuela Vercelli)

12.00 – 13.00 Lunch

13.00 – 14.00 How to get the message across: Case stories, good examples vs. difficult situations (Ketzin, Barendrecht, Vedsted etc.) presentation and sharing experience/discussion (Samuela Vercelli)

14.00 – 14.30 Space for posing still unanswered questions

14.30 – 15.15 Agreement on messages definition and decision on possible joint plans and actions for the future

15.15 – 15.30 Conclusions, close of the workshop