



Invitation to attend the session 3307: Negative emissions for climate change stabilization & the role of CO₂ geological storage

Thursday 9 July 2015 **17:30-19:00** at Université Pierre et Marie Curie (UPMC) Amphi 34

4 place Jussieu - 75005 Paris - Metro station: Jussieu (lines 7 and 10) - Bus line: 89 (Jussieu station)

The discussion will continue after the session, moving to our posters in block 24 (UPMC Jussieu)

OUR UNDER
COMMON CLIMATE
FUTURE CHANGE

Lead Conveners:

Sabine Fuss, Mercator Research Institute on Global Commons and Climate Change (MCC), Berlin - Germany

Isabelle Czernichowski-Lauriol, CO₂GeoNet European Network of Excellence on CO₂ geological storage - BRGM, French geological survey, Orléans - France

Co-Convenors: Florian Kraxner (International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria), Pep Canadell (Global Carbon Project and CSIRO Marine and Atmospheric Research, Canberra, Australia), Naki Nakicenovic (IIASA, Global Carbon Project), Ceri Vincent (CO₂GeoNet - BGS (British Geological Survey), Nottingham, United Kingdom), Samuela Vercelli (CO₂GeoNet - URS (University of Rome), Rome, Italy), Dominique Durand (CO₂GeoNet - IRIS (International Research Institute of Stavanger), Stavanger, Norway)

Proposed portfolios of GHG mitigation activities require annual mitigation rates of 2-10% for pathways leading to lower levels of climate change by 2100. One set of mitigation activities, currently extensively discussed, is the removal of CO₂ from the atmosphere by human intervention – here called negative emissions. Particularly the production of sustainable bioenergy with carbon capture and storage (BECCS) features strongly in climate stabilization scenarios aiming at keeping warming below 2°C in the IPCC's AR5. BECCS combines assumed carbon-neutral bioenergy (i.e. the same amount of CO₂ is stored by biomass feedstock growth as is released during combustion) with capture of the CO₂ produced by biomass combustion and its subsequent storage in geological repositories. Other negative emission options include afforestation, direct air capture and increases in soil carbon storage. However, many environmental, technological, socio-economic and governance issues remain unresolved to date. This session addresses the negative emissions challenge and the role of geological storage and presents new work on both limits and opportunities:

"The need for and limits to negative emissions"

Dr. Sabine Fuss, MCC, Germany & Prof. Pete Smith, University of Aberdeen, UK (15 min)

"Latest developments, opportunities and challenges for CO₂ storage"

Dr. Ton Wildenborg, CO₂GeoNet-TNO, Netherlands (15 min)

"Two Alternative Negative Emissions Technologies to BECCS: Direct Air Capture and Enhanced Weathering"

Christoph Bertram on behalf of Jessica Strefler, Potsdam Institute for Climate Impact Research, Germany & Prof. Jon Gibbins, University of Edinburgh, UK (15 min)

"The use of carbon capture and storage in mitigation scenarios – an integrated assessment modelling perspective"

Dr. Detlef van Vuuren, PBL Netherlands Environment Agency, Netherlands (15 min)

"Assured capacity for geological storage of carbon dioxide"

Dr. Ceri Vincent, CO₂GeoNet-BGS, UK (15 min)

Open discussion, chaired by Florian Kraxner (IIASA) and Samuela Vercelli (CO₂GeoNet-URS) (15 min)

Posters (will be at display between 15:00 and 20:30, block 24, UPMC Jussieu):

Framing

- N. Vaughan (Univ. of East Anglia, UK), C. Gough (Univ. of Manchester, UK): **From scenarios to reality – key issues with upscaling BECCS**
- S. Van Der Gijp (TNO, Netherlands): **Developments, opportunities and challenges for Bio-CCS in order to achieve negative emissions.**

Earth system modeling

- K. Tanaka, Y. Yamagata, T. Yokohata (National Institute for Environmental Studies (NIES), Japan): **Can we bet on negative emissions to achieve the 2°C stabilization target even under strong carbon cycle feedbacks?**
- T. Gasser (CIRED, France), C. Guivarch (CIRED, France), K. Tachiiri (Japan Agency for Marine-Earth Science and Technology), C. Jones (Met Office Hadley Centre, UK), P. Ciais (LSCE, France): **How much negative emission is physically needed to keep global warming below 2°C?**

Interactions: other mitigation options and sustainability goals

- F. Kraxner (IIASA), S. Fuss (MCC), P. Havlik (IIASA), A. Mosnier, (IIASA), S. Leduc, (IIASA), P. Yowargana, (IIASA): **Negative emissions - interactions with other mitigation options**
- Laude-Depeyay (Univ. de Reims Champagne-Ardenne, France), X. Galiègue (Univ. d'Orléans, France): **Negative emissions in sustainable transition: Which role for bioenergies and CCS?**