

# International Engagement

## Topic 1: CCUS landscape/ecosystem

Katherine Romanak



# International Presentations

Country	Host/Conference	Presentation	Presenter
Saudi Arabia	KAUST University	Sedimentary heterogeneity and fluid flow	Meckel
		Current status of CCS	Meckel
Edinburgh, Scotland	University of Edinburgh Hutton Club Seminar	<b>KEYNOTE:</b> Net carbon-negative oil (NCNO) and carbon emissions accounting for CO <sub>2</sub> -EOR	Nuñez-López
Trinidad and Tobago	University of Trinidad and Tobago	Monitoring, Safety and Stakeholder Engagement	Romanak
		UNFCCC funding mechanisms and opportunities for engagement in CCS	Romanak
		Creating a paradigm shift for CCS in the UN environment	Romanak
Seoul, South Korea	10th International CCS Environmental Forum	<b>KEYNOTE:</b> Potential impacts of unintended CO <sub>2</sub> release from a Gulf Coast CCUS site on groundwater chemistry; creating geochemical models to predict groundwater geochemical changes.	Mickler
Switzerland	Gordon Research Conference	Posters on the collaborative studies of the offshore Gulf of Mexico	Meckel
Venice, Italy	14th CO <sub>2</sub> GeoNet Open Forum	Optimizing Monitoring to Document Storage Permanence: Lessons Learned at SECARB 'Early' Test	Hovorka
Tokyo Japan	CCS Technical Workshop	<b>KEYNOTE</b> - Risk assessment on CO <sub>2</sub> leakage at CO <sub>2</sub> storage sites	Romanak
Trondheim Norway	TCCS-10	<b>KEYNOTE:</b> Revelations in monitoring: why environmental monitoring isn't just for leakage anymore	Romanak
		Perspectives of offshore CCS from the northern Gulf of Mexico, USA	Meckel

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Bangalore India (by web)	Shell Science Council	Optimizing monitoring methods: principles	Hovorka
		Monitoring in the Near-Surface for Public Assurance	Romanak
		Global and regional offshore potential	Meckel
Regina, Canada	IEAGHG Summer School	Environmental Impacts of Geologic CO <sub>2</sub> Storage	Romanak
		Shallow monitoring onshore and offshore	Romanak
		Portrait of an anomaly - an attribution game	Romanak
Trondheim Norway	Mission Innovation	Topic 4: Storage Monitoring	Meckel
London, England	Subsurface CO <sub>2</sub> Group/Imperial College	Monitoring injected carbon for geologic permanence using an Assessment of Low Probability Material Impact (ALPMI)	Nuñez-López
Valencia, Spain	World Conference on Oil and Gas	CO <sub>2</sub> -EOR Sustainability: a valid option for Low-Carbon transition	Gil-Egui
Calgary, Canada	IEAGHG Monitoring & Environmental Research Networks	Recent Developments and Challenges in Soil Gas Sensing	Romanak
		Characterisation for environmental monitoring at Glenhaven, Queensland	Romanak
Madrid Spain	UNFCCC COP 25 Side Event	Monitoring, Safety and Stakeholder Engagement	Romanak
	Japan Pavillion	International Collaborations in Advancing CCS	Romanak
	CCP Project Event	Monitoring to Demonstrate Secure Storage - A Technical Perspective	Romanak

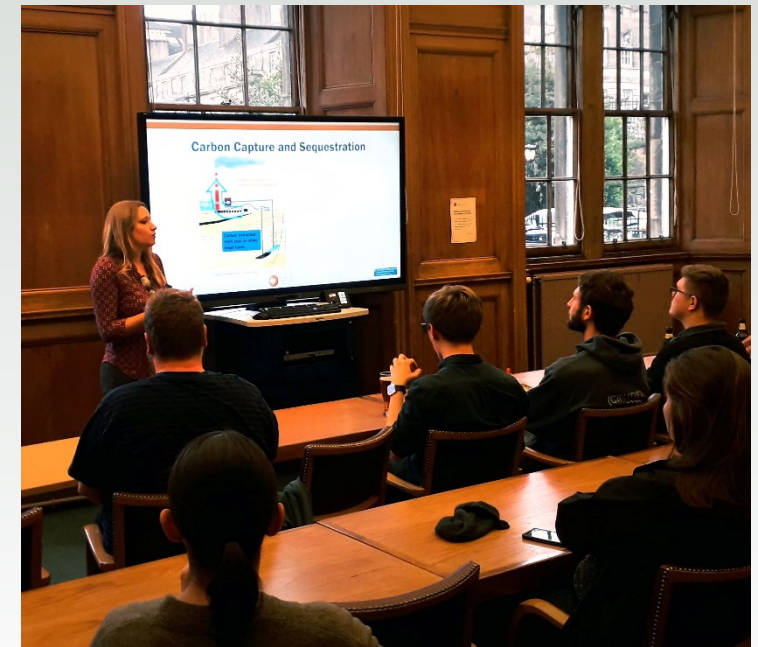
# International Advisory and Technical Review Boards

- Total (Paris, France) – **Hovorka**
- CarbonNet Project (Victoria, Australia), offshore storage site characterization report – **Hovorka**
- STEMM-CCS Project (European Union) Strategies for Environmental Monitoring of Marine Carbon Capture and Storage – **Romanak**
- SECURE (European Union) - Subsurface Evaluation of CCS and Unconventional Risks Project - **Romanak**
- Norwegian CCS Research Center (Norway)
  - Special Advisory Group - **Romanak**,
  - Scientific Advisory Committee - **Meckel**



# Other Activities

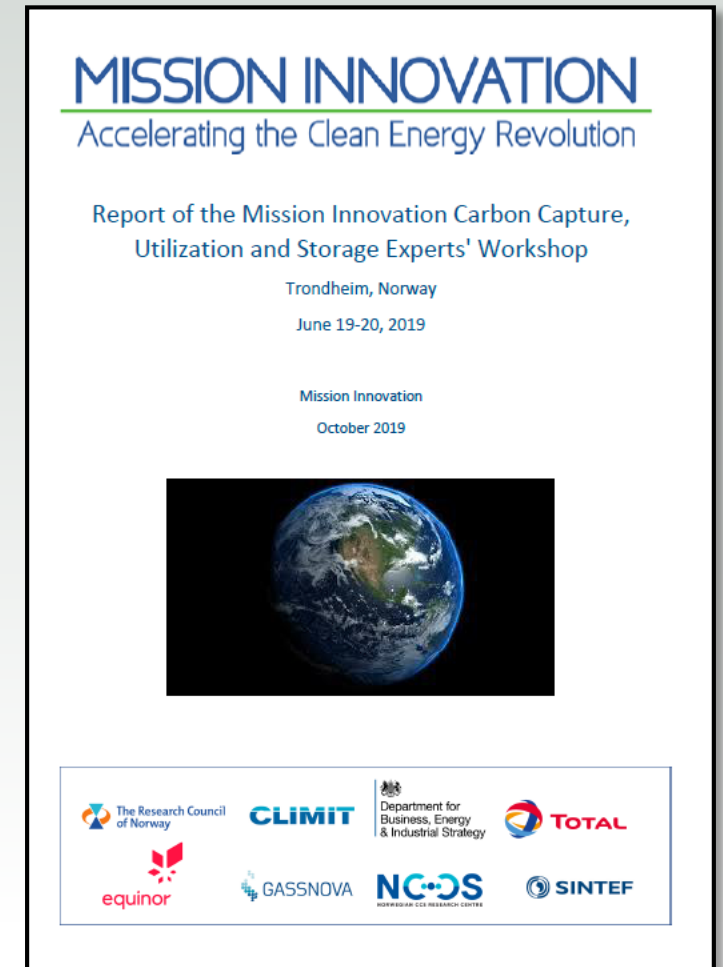
- IEAGHG Monitoring Network, Calgary Canada- Technical committee and participant– **Hovorka** and **Romanak**
- Global Mapping of Negative Emissions Technologies study group- Edinburgh, Scotland. **Hovorka**
- Imperial College, London UK – Visiting scholar **Nunez-Lopez**, Fall 2019
- Hosted Japan Oil, Gas and Metals National Corporation (JOGMEC)
- Kristian Gundersen, a PhD student from Norway, is a GCCC visiting scholar for the month of October, working with **Hosseini**.
- 2019 Carbon Sequestration Leadership Forum (CSLF) – 2019 Technical Group Annual Meeting, Chatou, France, **Ramon Gil** attended.





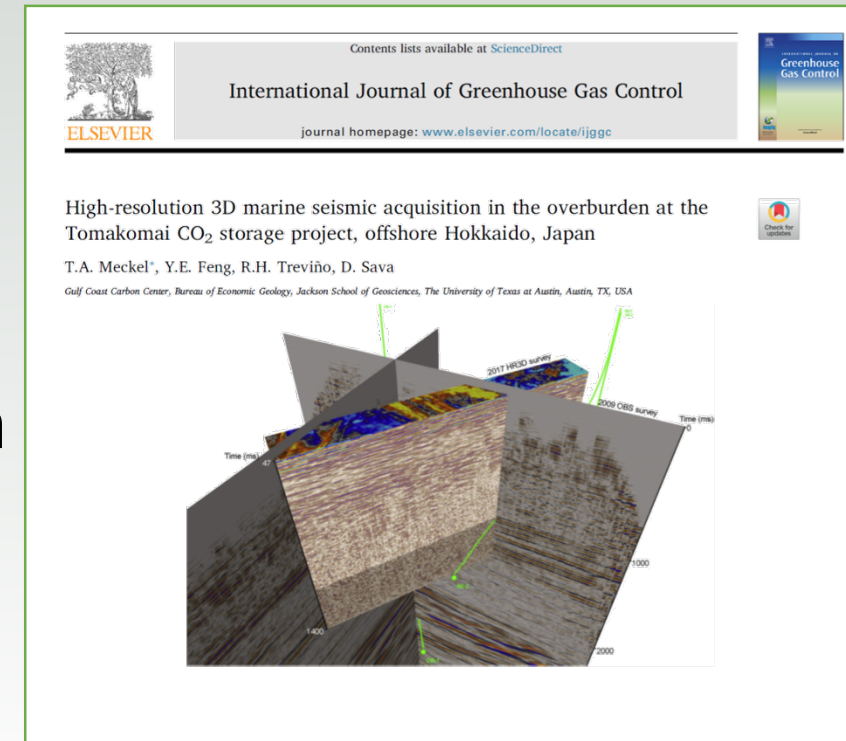
# Mission Innovation

- A global initiative of 24 countries working to accelerate clean energy innovation.
- **First CCUS Meeting - September 2017, Houston, Texas, 260 CCUS experts**
  - Set Priority Research Directions (PRDs)
  - Aimed at low TRL - early stage research
  - **Hovorka, Meckel, Romanak** contributed
  - Report, titled *Accelerating Breakthrough Innovation in Carbon Capture, Utilization, and Storage*
- **Second CCUS Meeting - June 2019, Trondheim, Norway, 135 experts**
  - continue progress towards scale-up and commercialization of CCUS
  - strengthen collaboration among industry, research, public and private sectors,
  - Aimed at higher TRL
  - **Meckel** (storage introduction talk) and **Romanak** (Chair of CO<sub>2</sub> storage monitoring group)



# International Projects

- Hokkaido Japan, Tomakomai Offshore Monitoring, **Meckel** and **Trevino**, Funded by US DOE
- Queensland Australia, Optimizing a process-based approach for near-surface leakage assessment – **Romanak**, Funded by ANLEC R&D
- Queensland Australia, Isotopic characterization of source CO<sub>2</sub> and naturally occurring CO<sub>2</sub>, Glenhaven – **Romanak** and **Nicot**, Funded by ANLEC R&D
- Queensland Australia, Headspace Gas Monitoring to Infer Dissolved Gas Concentrations -**Romanak** and **Nicot**, Funded by ANLEC R&D



# New International Projects Awarded

## ACT – Accelerating Carbon Technologies

- **FRISK** – Quantification of fault-related leakage risk - **Meckel**
- **SENSE** – Assuring integrity of CO<sub>2</sub> storage sites through ground surface monitoring - **Meckel**
- **ACTOM** – Act on Offshore Monitoring - **Romanak**





# UNFCCC Official Side-Event



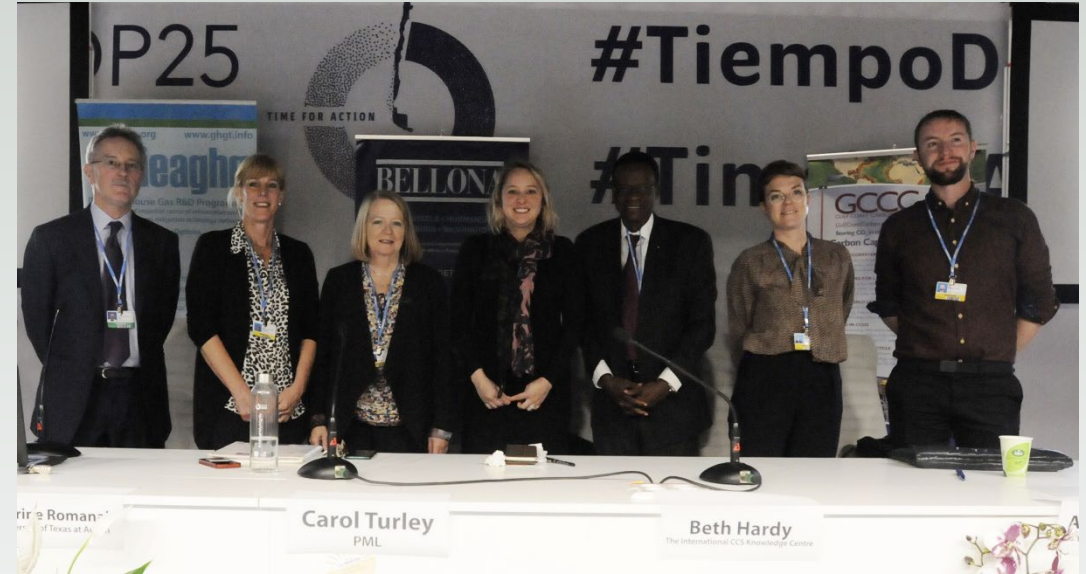
United Nations  
Framework Convention on  
Climate Change

## Carbon Removal and Return – Can CCS Decarbonise Industry in South America and help the oceans?

University of Texas, IEAGHG, International CCS Knowledge Centre, Bellona and CCSA.

COP-25, Madrid, 4th Dec, 16:45.

- Introduction and Context setting – Tim Dixon IEAGHG (Chair)
- IPCC SR on Oceans and the Cryosphere - Carol Turley, PML,
- Direct Air Capture - Jen Wilcox, Worcester Polytechnic,
- Monitoring, Safety and Technology Transfer - Katherine Romanak, The University of Texas,
- Developing a National CCS Programme in Trinidad and Tobago - Andrew Jupiter, University of the West Indies
- CCS to Decarbonize Cement – Beth Hardy, International CCS Knowledge Centre
- Sustainable Jobs from BECCS in South America - Piera Patrizio, IIASA
- CO2 Transport and Storage: A Flexible Low Carbon Infrastructure, Keith Whiriskey - Bellona
- Summing Up and Key messages - Tim Dixon IEAGHG



100 attendees and IISD coverage

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# Trinidad and Tobago CCS Initiative

## Developing a National CCS Programme in Trinidad and Tobago

Developing a National Carbon Capture and Storage Programme in Trinidad and Tobago- An International Knowledge-Sharing Symposium

UTT, Energy Campus, Brechin Castle, Couva

29th-30th October, 2019



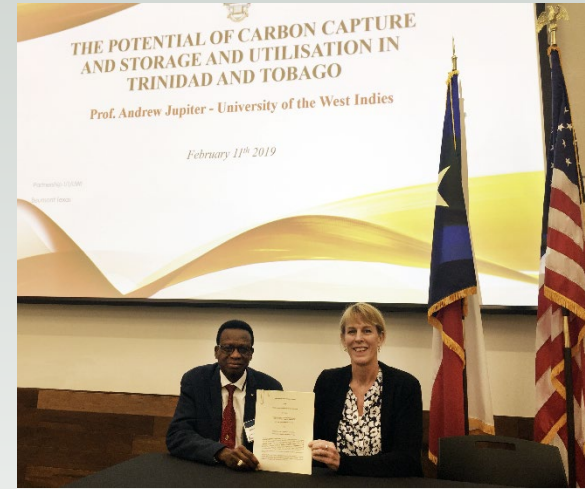
Sponsors:



### SCOPE:

Trinidad and Tobago has the potential to develop Carbon Capture and Storage (CCS) as a part of its national carbon emission reduction and climate change mitigation strategy. This symposium will review international experiences, outline the foundation that is already in place for CCS in Trinidad and Tobago and survey the potential for further development and technical support from international partners. It will also explore United Nations Framework Convention on Climate Change (UNFCCC) and other funding sources for national program development.

# Trinidad and Tobago CCS Initiative



# Questions?

