



MOCA Science Workshop and Project Kick-Off Meeting

Methane Emissions from the Arctic Ocean to the Atmosphere

29 - 31 October 2013

Arranged at NILU, Kjeller & CIENS, Oslo Research Park

Organised by Cathrine Lund Myhre, Adam Durant and Ann Mari Fjæraa - NILU

Part 1, 29-30 October: Scientific workshop (WS) with presentations and discussion of the present status and knowledge of Arctic methane and processes at the seafloor, in the ocean/atmosphere, and the climate impacts of methane. The WS aims to give a broad introduction to the relevant topics for the MOCA project, to contribute to integration and interaction across relevant fields of research. Furthermore, tools and infrastructures available and relevant for the project will be introduced.

Part 2: 30-31. October: Project Kick-Off (KO) meeting for *MOCA - Methane Emissions from the Arctic Ocean to the Atmosphere: Present and Future Climate Effects*. The project kick-off (KO) meeting is arranged back-to-back with the MOCA science meeting. The KO meeting is open to all invited participants. External participation is also welcome, which would be particularly valuable on 29 - 30 October (31 October is mandatory for the Norwegian partners of MOCA and open to all interested).

Participant list	
Amund Søvde - Cicero	Adam Durant - NILU
Dave Lowry – Royal Holloway Univ. UK	Andreas Stohl – NILU
Euan Nisbet – Royal Holloway Univ. UK	Ann Mari Fjæraa - NILU
Gunnar Myhre - Cicero	Cathrine Lund Myhre - NILU
Inger Solheim - Univ. of Tromsø	Ignacio Pisso - NILU
Ira Leifer - Bubbleology Research International and University of California, USA	Norbert Schmidbauer - NILU
Ivar Isaksen - Cicero	Ove Hermansen - NILU
Jean-Daniel Paris – LSCE, France	
Jens Griener – GEOMAR, Germany	
Jürgen Mienert – Univ. of Tromsø	
Michelle Cain - Cambridge University, UK	
Stig B. Dalsøren - Cicero	
Øyvind Hodnebrog - Cicero	



Program

Tuesday 29. October, location NILU	
13.00	Welcome and introduction to the meeting (Cathrine Lund Myhre)
Session 1:	Methane and the climate system (Chair: Øyvind Hodnebrog - Cicero)
13.15-14.15	<p>Presentations, ca 20 min + 5 min disc.</p> <ul style="list-style-type: none"> - Methane in Paleoclimatic perspectives: on sudden large releases of methane in pre-historic times (<i>Euan Nisbet, Royal Holloway University</i>) - Methane in the atmosphere; direct and indirect climate effects (<i>Gunnar Myhre, Cicero</i>) - Large potential methane emission from permafrost in the Arctic (<i>Ivar Isaksen Cicero/UiO</i>)
Session 2:	Methane in the atmosphere: observations and understanding of sources last 30 years (Chair: Adam Durant – NILU)
14.15-16.00	<p>Presentations, ca 20 min + 5 min disc.</p> <ul style="list-style-type: none"> - Methane observations in Arctic region, trends, and last atmospheric development (<i>Cathrine Lund Myhre, NILU</i>) - Development of methane emissions and atmospheric composition since 1970 -> present (<i>Stig Dalsøren, Cicero</i>) - Measurement of isotopes of methane in the Arctic - from micro to macro scale (<i>Dave Lowry, Royal Holloway University</i>) <p>Ca 14.45: Coffee, refreshments & leg stretching</p>
Session 3	Reports from recent and ongoing campaigns, relevant tools and infrastructures (Chair: Ignacio Pisso – NILU)
16.00 – 18.00	<p>Presentations, ca 20 + 5 min each:</p> <ul style="list-style-type: none"> - Applications of inverse modelling for understanding of emissions and analysis of observations (<i>Andreas Stohl, NILU</i>) - Early analysis of CH₄ (and other) measurements from recent aircraft campaigns over Siberia" (<i>Jean-Daniel Paris, LSCE</i>) - MAAM: overview of project and introduction to first/prelim results (<i>Michelle Cain, Cambridge University</i>) - CAGE - Centre for Arctic Gas Hydrate, Environment and Climate: 2013 preliminary cruise results (<i>Jürgen Mienert, UiT The Arctic University of Norway, Tromsø</i>)



Session 4	Brief reports from relevant projects
18.00-18.30	(ca 10-15 minutes each) Brief introduction to CAGE by <i>Jürgen Mienert/Inger Solheim</i> Brief introduction to ICOS by <i>Cathrine Lund Myhre</i> (if proposal successful) Brief introduction to relevant NFR and NERC projects by <i>Adam Durant</i>
20.00	MOCA WS dinner, Oslo
Wednesday 30. October, location: CIENS, Oslo Research Park	
Session 5	Arctic Ocean, methane hydrates and emissions (Chair: Inger Solheim - UiT)
10.00-11.30	Presentations, ca 20 min + 5 min disc. <ul style="list-style-type: none"> - Methane hydrates and sea floor processes and emissions (<i>Jürgen Mienert, UiT</i>) - Hydroacoustic quantification of free-gas venting offshore Svalbard, Arctic: Changes in space and time (<i>Jens Greinert, GEOMAR</i>) - Bubble Importance to Arctic Ocean Measurements and Satellite Methane Observations (<i>Ira Leifer, Bubbleology Research International and University of California</i>)
11.30-12.15	Lunch
MOCA Kick off meeting All WS participants are invited	
12.15-12.45	MOCA – Introduction and overview (<i>Cathrine Lund Myhre</i>) Rapporteur: <i>Ann Mari Fjæraa</i>
12.45-16.00	Presentation of WP1: “ <i>Improved process understanding and description of the present state of the ocean and atmosphere around Svalbard</i> ” including the milestones and time line (<i>Adam Durant</i>) Discussion of <ul style="list-style-type: none"> - Logistics for campaigns and aim for completion of logistical plan for 2014 - Options for supporting measurements for the flight and ship campaigns - Discussions about the set up and needs for campaign forecasts - Access to observations, data management and distribution of data and results within project Rapporteur: <i>Ann Mari Fjæraa</i> Refreshments (fruit) + leg stretching when necessary
Ca 18.00	(Probably) Excursion and dinner at Frognerseteren and Holmenkollen Ski arena



Thursday 31. October, location NILU

09.00-10.00	<p>Presentation of WP2 “<i>Understanding of present and future methane release from ocean</i>” including the milestones and time line (<i>Jürgen Mienert</i>)</p> <p>Discussion of</p> <ul style="list-style-type: none"> - Specification of the needs for the model studies - Possible synergies and collaboration with other ongoing campaigns? - AOB <p>Rapporteur: <i>Ann Mari Fjæraa</i></p>
10.00-11.00	<p>Presentation of WP3 “<i>Present and future projections of climate effects</i>” including the milestones and time line (<i>Gunnar Myhre</i>)</p> <p>Discussion of</p> <ul style="list-style-type: none"> - Specification of the needs for the model studies - AOB <p>Rapporteur: <i>Ann Mari Fjæraa</i></p>
11.00-11.30	<p>Presentation of WP4: Management, Organization and outreach (<i>Cathrine Lund Myhre</i>)</p> <ul style="list-style-type: none"> - Administrative, contractual and financial issues - Scientific Steering Committee - Communication within project - Outreach and the web site - Next meeting <p>Rapporteur: <i>Ann Mari Fjæraa</i></p>
11.30	<p>Wrap up and summary (<i>Adam Durant/Ann Mari Fjæraa</i>)</p>
12.00	<p>End of meeting</p>
	<p>Lunch at NILU, Kjeller</p>