

PROGRAM and PRACTICALITIES

Arctic Partner Forum

Cryosphere-Carbon-Climate Interactions in the Siberian Arctic Ocean:

Current State of our Research Collaboration and Future Directions

14-16 May 2018

Stockholm, Sweden



THE MINISTRY OF EDUCATION AND SCIENCE
OF THE RUSSIAN FEDERATION

Conference Program

The intent of the program structure is to both provide a robust orientation of developments and plans in the different research tracks and partner groups, to give ample time for interactions on specific ongoing collaborative work and to provide a platform for us to jointly develop plans for the future.

Formats will be a mixture of shorter oral presentations, interactive poster sessions, and ample time for workshop-style meetings and interactions. We will also have one session at the Royal Swedish Academy of Sciences. We have arranged strategic consultation meetings for the visiting members of the RAS Presidium and the leadership of TPU with counterparts at RSAS and SU. Finally, we will have two evening dinners, which will also provide plenty of opportunities for interactions.

Technical notes

Oral presentation: 15 min (incl turnaround). Please bring your ppt/pdf file to meeting room ahead of session start.

Poster presentation: format of our poster boards are 150 x 70 cm (portrait).

Monday 14 May

Arrival to Stockholm before lunch (or on the preceding weekend)

11:00 – 12:30 **Registration and light lunch** (SU Geoscience Building – Högbomsalen)

12:30 – 13:00 **Welcome, brief background on the Partnership and practical information** (Högbomsalen)

13:00 – 14:15 **Oral session 1: Ongoing research programs and upcoming opportunities**

- **Igor Semiletov:** Russian Megagrant scope and 2018+2019 ship expeditions
- **Martin Jakobsson:** The Nippon Foundation-GEBCO Seabed 2030 project: Arctic Ocean Data Coordination and Assembly Center at Stockholm University
- **Petr Chubik / Alexey Mazurov / Liliya Kiryanova:** International Arctic-Siberian Scientific Center in TPU: current state and prospects for development
- **Leif Anderson:** Synoptic Arctic Surveys (SAS) – an international initiative to coordinate observations of the Arctic Ocean eco- and carbon-systems. A focus on potential contributions by Sweden and Russia

14:00 – 14:30 **Coffee break**

14:45 – 15:30 **Oral session 1 cont'd - Ongoing research programs and upcoming opportunities**

- **Valery Bondur:** On RAS activities
- **Valery Bondur:** Satellite monitoring of natural and anthropogenic emissions of trace gases and aerosols into the atmosphere of Northern Eurasia
- **Aleksandr Makshtas:** Ice Base “Cape Baranova” – New international facility for monitoring of polar environment

- **Paul Overduin:** Nunataryuk: a Horizon 2020 project on permafrost thaw and changing coast
- **Örjan Gustafsson:** CC-TOP: Long-term collaborative studies of Cryosphere-Carbon on Top of the Earth, with a focus on the East Siberian coastal and subsea systems

15:30 – 16:30 **Poster session 1** outside Högbomsalen

16:30 – 17:45 **Oral session 2: Subsea permafrost and methane on the ESAS**

- **Natalia Shakhova:** Subsea permafrost degradation and methane release in the East Siberian Arctic Shelf
- **Birgit Wild:** Organic matter quality across thaw horizons of subsea permafrost in the Buor Khaya Bay
- **Laura Sánchez García:** GeoMARS, the application of molecular (geolipids) and isotopic forensics in the search for molecular evidences of life in extreme environments
- **Anatoly Salyuk:** On underestimation of CH₄ efflux from the East Siberian Arctic Seas to the atmosphere
- **Henry Holmstrand / Örjan Gustafsson:** Status and outlook on using triple isotopes to source apportion methane escaping from the seafloor of the East Siberian Arctic Shelf

18:00 **Dinner at Stockholm University Faculty Club**

Tuesday 15 May

09:00–10:15 **Oral session 3: Contemporary biogeochemical cycles on the ESAS**
(Högbomsalen)

- **Tommaso Tesi:** Wrapping up over a decade of organic-geochemical carbon studies in the ESAS: current knowledge and beyond
- **Bart van Dongen:** Fate of terrestrial organic nitrogen on the Arctic Shelf
- **Tessa Sophia van der Voort:** Deconvolving the coastal carbon mosaic
- **Igor Semiletov:** Permafrost degradation and water – air carbon cycle imbalance in the Siberian Arctic land-shelf-atmosphere system with emphasis on the East Siberian Arctic Shelf
- **Leif Anderson:** Impact of biogeochemical processes in ESAS on Arctic Ocean CO₂ fluxes and ocean acidification

10:30 – 11:30 **Poster session 2 - with coffee** (outside Högbomsalen)

11:30 – 12:45 **Breakout sessions – w lunch sandwich** (Högbomsalen, classrooms U10 and U12)

- Subsea permafrost and methane
- Circum-Arctic Shelf Sediment Carbon Database (CASSCADE and any other)

Walk over to the Royal Swedish Academy of Sciences (RSAS)

13:00 – 13:30 **Reporting of breakout session** (RSAS Linnésalen)

13:30 – 14:30 **Oral session 4: Paleostudies** (RSAS Linnésalen)

- **Martin Jakobsson:** Marine Ice Sheets: East Siberia vs Northern Greenland
- **Amelie Lindgren:** Soil C in the LGM permafrost region
- **Matt O'Regan:** Persistent multi-decadal variability in Herald Canyon through flow during the late Holocene
- **Jannik Martens:** Deglacial remobilization of permafrost C to sediments along the ESAS

14:30 – 15:00 **Coffee break**

15:00 – 16:00 **Plenary session on results of the SWERUS-C3 program** (RSAS Linnésalen)

- **Örjan Gustafsson and Igor Semiletov:** Leg 1 - scope and results to date
- **Martin Jakobsson:** Leg 2 - scope and results to date

16:15 – 16:45 **Guided historical tour of the RSAS Session Hall. Conference photo.**

16:45-17:30 **Free time for strolling the RSAS-Bergianska Botanical Garden, informal meetings.**

16:45-17:30 **Consultation meeting of RSAS and RAS**

17:30 – 18:00 **Reception at the Academy Club Villa**

18:00 **Conference dinner at the Academy Club Villa**

Wednesday 16 May

09:30 – 10:30 **Poster session 3** (outside Högbomsalen)

09:30 – 10:30 Consultation meeting of SU – TPU in area of environmental and geosciences

10:30 – 11:30 **Breakout sessions w coffee** (Högbomsalen, classrooms U10 and U12)

- Sea-ice retreat
- Eurasian Arctic river studies

11:30 – 12:30 **Breakout sessions** (Högbomsalen, classrooms U10 and U12)

- ESAS field opportunities: Bolshevik Island Observatory, Akademik Keldysh expedition 2018
- Historical carbon cycling

12:30 – 13:00 **Light lunch** (outside Högbomsalen)

13:00 – 14:00 **Reporting and discussions of breakout sessions** (Högbomsalen)

14:00 – 14:30 **Coffee break**

14:30 – **Wrap-up of meeting: revisit/discussion of key actions and outlook** (Högbomsalen)

And free time for further meetings, lab visits and exploring Stockholm

Free evening

Posters

- **August Andersson:** Bayesian source apportionment of organic carbon in ESAS
- **Alexander Charkin:** Submarine groundwater discharge in the Siberian Arctic Seas
- **Denis Chernykh:** Bottom up evaluation of the methane bubbles release from the Laptev sea sediments into the water column – atmosphere from single seep (2008-2016)
- **Elena Gershelis:** Mineralogical surface sediment properties and their influence on TerrOC distribution across the East Siberian Arctic Shelf
- **Elena Gershelis:** The depth distribution of OC in Ivashkina lagoon (initial results of VD-13 core study)
- **Andrey Grinko:** Characteristics of molecular composition of the sediment organic matter in the areas of abnormal methane emissions in the Laptev Sea
- **Örjan Gustafsson:** Cryosphere-Carbon-Climate interconnected processes in the East Siberian Arctic region
- **Sofi Jonsson:** Mercury in the Arctic Environment
- **Denis Kosmach:** Dynamics of dissolved CH₄ concentrations in the surface water of the Great Siberian Rivers – Ob' and Lena
- **Jannik Martens:** Assessing organic matter inventories and characteristics using the first Circum-Arctic Shelf sediment carbon database (CASSCADE)
- **Paul Overduin:** A subsea permafrost map
- **Christof Pearce:** The radiocarbon reservoir age of the Chukchi Sea, Arctic Ocean
- **Irina Pipko:** Dynamics of the carbon species in the Ob' and Lena Rivers
- **Svetlana Pugach:** Dissolved organic matter and its optical characteristics on the ESAS
- **Maxim Rudmin:** Ferrimagnetic iron sulfide formation and methane venting across the Paleocene-Eocene Thermal Maximum in shallow marine sediments, ancient West Siberian Sea
- **Melissa Schwab:** Organic carbon export from the Mackenzie basin: Insights from observations spanning 30 years
- **Kseniia Shcherbakova:** Variability of ¹³C-CH₄ signature in the ESAS hot spots: 2014 vs 2016
- **Vladimir Tums koy:** Off-shore permafrost evolution in the Buor-Haya Bay, Laptev Sea: modeling vs observations
- **Vladimir Tums koy:** Pleistocene glaciation on the New Siberian Islands
- **Rickard Wennström:** Distribution and sources of terrestrial organic carbon in surface sediments on the East Siberian Arctic Shelf

Participants

Russian Academy of Sciences (RAS): Alexander M. Sergeev, Valery G. Bondur, Valentine I. Sergienko

Pacific Oceanological Institute (FEBRAS-POI), Russia: Igor Semiletov, Oleg Dudarev, Irina Pipko, Svetlana Pugach, Kseniia Shcherbakova, Alexander Charkin, Denis Chernykh, Anatoly Salyuk, Denis Kosmach

Tomsk Polytechnic University, Russia: Petr Chubik, Alexey Mazurov, Liliya Kiryanova, Olga Mazurina, Natalia Shakhova, Elena Gershelis, Andrey Grinko, Alexey Ruban, Maxim Rudmin

Lomonosow Moscow State University, Russia: Vladimir Tumskoy

Arctic and Antarctic Research Institute (AARI), Russia: Igor Ashik, Aleksandr Makshtas, Vasilii Kustov

ETH Zurich, Switzerland: Tessa Sophia van der Voort, Melissa Schwab

University of Manchester, UK: Bart van Dongen

University of Cambridge, UK: Francesco Muschitiello

Italian National Research Council, Institute of Marine Sciences (ISMAR-CNR): Tommaso Tesi

Spanish Research Council, Astrobiology Institute (CAB-INTA-CSIC): Laura Sánchez García

Alfred Wegener Institute for Polar Research (AWI), Potsdam, Germany: Paul Overduin

Aarhus University, Denmark: Christof Pearce

University of Gothenburg, Sweden: Leif Anderson

Stockholm University, Dept. of Geosciences, Sweden: Barbara Wohlfahrt, Martin Jakobsson, Rienk Smittenberg, Matt O'Regan

Stockholm University, Dept. of Physical Geography, Sweden: Peter Kuhry, Amelie Lindgren

Stockholm University, Dept. of Env. Sci. and Analytical Chem., Sweden: Örjan Gustafsson, Henry Holmstrand, August Andersson, Birgit Wild, Jannik Martens, Angelina Wenger, Rickard Wennström, Marcus Sundbom, Sofi Jonsson

All SU partners are also part of Stockholm University Bolin Centre for Climate Research

Royal Swedish Academy of Sciences: Christina Moberg, Göran K. Hansson