



ACCESS
Arctic Climate Change
Economy and Society



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ACCESS

Arctic Climate Change, Economy and Society

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PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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2nd ACCESS summer school

The Arctic Climate Change, Economy and Society (ACCESS) and Arctic Resilience Report (ARR) Summer school 22.-26. September 2014

By Daniel Ospina and Anne-Sophie Crépin

Introduction

In the week of September 22 to 26 2014, the ACCESS project organized the ACCESS and ARR Summer School at the Royal Swedish Academy of Sciences and the Stockholm Resilience Centre in Stockholm, Sweden. The Summer school was hosted jointly by ACCESS partner the Beijer Institute of Ecological Economics, and the ARR partner Stockholm Resilience Centre. In addition to the support from the 7th framework program by the European Commission via the ACCESS project, the Summer school was generously supported by the Royal Swedish Academy of Sciences and the Stockholm Resilience Centre which provided the facilities and basic elements for the lectures and other activities.

Fifteen students from a diverse set of scientific disciplines were accepted for participation and attended the lectures. Thirteen of them fulfilled the course and received ETCS PhD level credits. The Summer school had no tuition fee, but the students covered their own costs for travel, accommodation and others associated with their time in Stockholm. The aim of the Summer school was to provide the students with an opportunity to learn about different aspects of Arctic resilience with focus on Arctic climate change and its impacts on the geophysical and ecological system, as well as on the economic sectors of shipping, fisheries, aquaculture, oil and gas exploitation. The students also learned about approaches and useful analysis tools: resilience assessment, ecosystem services and marine spatial planning.

The concept of the Summer school allowed for a balance between individual readings, lectures, discussions, and group work. The students received substantial instructions for developing an optional preparatory work, as well as selected reading material ahead of the week course, allowing them to engage in advance with key concepts and issues. This allowed us to grant a certificate for a two weeks course, according to standard university requirements, for those who completed the preparatory work in a satisfactory manner. The course week started out with a presentation and discussion of what was to become the students' work during the second half of the week. With the task in mind, students had two and half intense days of 'briefing' lectures, covering relevant fields of Arctic change from scientific, economic and societal perspectives, as well as some methodological approaches and tools. The schedule was designed to allow for substantial discussion during and after each lecture. This was followed by one and half days of break-out group work sessions, in which students focused on different 'cases studies' of Arctic social-ecological change. These case studies were selected as a result of the preparatory work some students submitted in advance, and then reviewed and assigned to groups by the course organizers. The selected case studies were:

- Group 1: Metal mining in Finland
- Group 2: Gas extraction in the Barents Sea

- Group 3: International shipping through the Bering strait
- ‘Specialist’ and cross-sectoral group: Their task was to collaborate with the other groups to close specific information gaps to better understand and map each case study. Then, with their resulting overview perspective, this group had the task of identifying relevant cross-sectoral links between the three case studies.

On Thursday morning, during the first coffee break, a ‘poster’ session was organized, for the students to present and get feedback from the ACCESS researchers about their initial understanding and interpretation of the case studies. This session was an important preparation for the final presentation on the last day, in which each student group presented their case in 15 minutes followed by 15 minutes of discussion with researchers from ACCESS and the Stockholm Resilience Centre. Based on the material they prepared and discussed, the students will be able to publish their findings in the final ACCESS newsletter coming out early on 2015. The students also had the opportunity to fill in case study templates to deliver to the ARR working team.

On the following pages the original announcement, schedule, background information on the lecturers, as well as the list of students can be found. All presentations, background and agenda can also be found on the project website

http://www.access-eu.org/en/publications/access_workshops/ACCESS_and_ARR_summerschool.html

Announcement



The Arctic Climate Change, Economy and Society (ACCESS) and Arctic Resilience Report (ARR) Summer school – September 22-26, 2014. Stockholm, Sweden

We cordially invite applications for the ACCESS and ARR summer school organized jointly by the Beijer Institute of Ecological Economics (ACCESS partner) and the Stockholm Resilience Centre (ARR partner), and hosted at the Royal Swedish Academy of Sciences.

The summer school is open for about 20 participants from natural and social sciences including economics, and is intended for graduate level and above. Its aim is to provide the students with an opportunity to learn about different aspects of Arctic resilience with focus on Arctic climate change, as well as changes in the economic sectors of shipping, tourism, fisheries, oil and gas exploitation, and governance. Experts will give insights into recent developments and present their view on the opportunities and risks connected to the changes in the climate system and associated impacts in the economic sectors.

The course will consist of a series of lectures and group assignments focused on analyzing recent research developments regarding the direct and indirect impacts of climate change in the Arctic Ocean, and how to synthesize these results using different tools like marine spatial planning, resilience assessment, and integrated indicators. The students will have the opportunity to present their results to a group of experts and publish the results of their work in the ACCESS Newsletter.

There will be no fee for participation in the summer school. Costs for meals, accommodation and transport will have to be covered on the students. Additional information on the school as well as suggestions for accommodation and transport will be updated regularly and sent to the participants.

Please send your application to Daniel Ospina (course assistant, daniel.ospina@su.se), stating your name, current studies program, and a brief statement of motivation for participating in this course. Deadline for application is August 15, 2014 however we may close this deadline earlier if enough candidates apply.

Related websites:

www.access-eu.org
www.beijer.kva.se

www.arctic-council.org/arr/
www.stockholmresilience.org

Schedule

The Beijer Institute at the Royal Swedish Academy of Science | Lilla Frescativägen 4A, Stockholm
Stockholm Resilience Centre at the Stockholm University | Kräftriket 2B, Stockholm

Monday 22 room: KVA, Linné Hall

09:00 **Anne-Sophie Crépin: *Welcome and Introduction to Summer School***

09:30 **Miriam Huitric: *Defining a social-ecological system - Case studies and the ARR template***

10:45 team building activity and coffee break

11:30 **Sarah Cornell: *'Multiple Arctics' - the challenges of shaping Arctic change***

12:45 Lunch break

14:00 **Kathrin Riemann: *Climate change in the Arctic***

15:15 Coffee break

15:30 **Sebastian Petrick: *Energy Production in the Arctic Ocean - Status Quo and Prospects under Climate Change***

Tuesday 23 room: KVA, Linné Hall

09:30 **Group work sessions**

10:45 Coffee break

11:00 **Åsa Gren: *Ecosystem services in the Arctic***

12:30 Lunch break

14:00 **Garry Peterson: *Resilience assessment and regime shifts in the Arctic***

15:15 Coffee break

15:30 **Lawson Brigham: *Marine Transport and the New Maritime Arctic***

Wednesday 24 rooms: KVA, Styrelserummet (am) and Beijer meeting room (pm)

09:30 **John Isaksen: *Fisheries and aquaculture in the Arctic***

10:45 Coffee break

11:00 **Rosemary Edwards: *Marine Spatial Planning and its role in ACCESS***

12:30 Lunch break

14:00 **Group work sessions**

15:15 Coffee break

15:30 **Group work sessions**

Until around 17:00

19:00 Join dinner with ACCESS researchers at Källaren Movitz (Tyska brinken 34)

Thursday 25 room: KVA, Linné Hall

09:30 **Group work sessions**

10:30 'Poster' session on coffee break

11:00 **Group work sessions**

12:30 Lunch break

14:00 **Group work sessions**

15:15 Coffee break

15:30 **Group work sessions**

Until around 17:00

Friday 26 Stockholm Resilience Centre, room 237

JOINT SUMMER SCHOOL AND SYNTHESIS WORKSHOP HALF Day 09:30 **Student groups' presentations, open to researchers gathered for the ACCESS meetings and the Stockholm Resilience Centre staff**

Break at 12:00

Lecture abstracts and Lecturer information

For a more detailed description of the whole course including general overview, learning outcomes, and grading criteria see the Syllabus in Appendix 1.

Defining social-ecological systems - Case studies and the ARR template (Dr. Miriam Huitric)

Miriam is the Director of the Social-Ecological Resilience for Sustainable Development programme at the Stockholm Resilience Centre. She is part of the Arctic Resilience Report (ARR).

This lecture provided an introduction to social-ecological resilience, focusing on key concepts. This was the context for presenting the ARR case studies work, and particularly the template designed and applied for systematic characterization and future comparison. The students' work to be carried out during the second half of the week using this template was explained and discussed.

'Multiple Arctics' - the challenges of shaping Arctic change (Dr. Sarah Cornell)

Sarah is the Coordinator of the Planetary Boundaries initiative at the Stockholm Resilience Centre. She is part of the ARR.

The lecturer introduced participants to the work done for the ARR, highlighting the multitude of actors, views and voices on the debates about Arctic change, as well as the variety of ways used to frame the research and policy discussions. The resilience and ecosystem service approach of the ARR was put in this context, reflecting on the important challenge of 'integrating' different types of knowledge.

Climate change in the Arctic (Dr. Kathrin Riemann-Campe)

Kathrin is a Postdoc at the Alfred Wegener Institute at Bremerhaven, Germany. She is part of WP1 in the ACCESS project.

The lecture provided an overview about the climate change in the Arctic during the past, present and its possible range of change in the future. The focus was on the changes in sea-ice, air and ocean temperature, and atmospheric components, which have been measured during the last decades. Furthermore, models used to simulate future climate change in the Arctic were discussed, including the kind of models used, future green-house gas emissions estimations, and range of possible future changes, among others.

Energy Production in the Arctic Ocean - Status Quo and Prospects under Climate Change (Sebastian Petrick)

Sebastian is the chair of environmental and resource economics, and participant in the doctoral programme Quantitative economics, at Christian Albrechts Universität Kiel. He is part of ACCESS WP4.

The lecture briefly recalled key changes in the Arctic, and presented recent developments in global energy markets, serving as a context for the status quo and prospects for energy production in the Arctic Ocean. The latter included an overview of existing projects, incentives for companies and states, potential exploitation of gas and oil, technical and economic challenges, and macroeconomic impacts.

Ecosystem services in the Arctic (Dr. Åsa Gren)

Åsa is a researcher at the Beijer Institute of ecological economics at the Royal Swedish Academy of Sciences. She is part of ACCESS WP5.

This lecture presented usefulness of an ecosystem services approach to navigate the inherent social-ecological complexity of Arctic change, offering a way of operationalizing the existing information in a way that links biophysical change to human well-being in a systems perspective. Within ACCESS, direct and indirect impacts of climate change were presented as ecosystem services and disservices.

Resilience assessment and regime shifts in the Arctic (Prof. Garry Peterson)

Garry is the leader of Regime shifts and implications in social-ecological systems research theme, and head of subject in Sustainability Science, at SRC. He is part of the ARR.

This lecture deepened on the goals of the ARR, highlighting the focus on identifying shocks and large shifts affecting ecosystem services and human well-being, and analyzing interactions between multiple drivers and their effect on resilience, as well as evaluating strategies for adaptation and transformation; the resilience assessment was presented in this context. Based on a presentation prepared by Juan Carlos Rocha (PhD candidate at SRC-SU), this lecture also provided a short overview of regime shifts theory, illustrated with examples of regime shifts in the Arctic, as well a preliminary analysis of regime shifts for the ARR, highlighting main drivers and ecosystem services impacted.

Marine Transport and the New Maritime Arctic (Prof. Lawson Brigham)

Lawson is Distinguished Professor of Geography & Arctic Policy at the University of Alaska Fairbanks. He is also a visiting researcher at the Department of Applied Mathematics & Theoretical Physics (DAMTP), and was previously the Deputy Director of the U.S. Arctic Research Commission. Lawson is a co-leader of WP2 in ACCESS.

The lecture presented the ongoing changes on Arctic Marine access and current uses, providing an overview of the importance of the Arctic globally for different economic sectors and highlighting potentially conflicting uses. It also introduced the Arctic Marine Shipping Assessment (AMSA) highlighting scenarios and recommendations, together with other key governance developments, and discussed selected ACCESS findings and applications.

Fisheries and aquaculture in the Arctic (Dr. John Isaksen)

John is a researcher in NOFIMA, and co-leader of WP3 for ACCESS.

This lecture was prepared in collaboration with Øystein Hermansen and Arne Eide (NOFIMA) and Max Troell (Beijer Institute). It covered key findings from ACCESS work, including: 1) Results from spatial modelling of cod and the cod fishery in the Barents sea redistribution under the impact of climate change; 2) climate change impacts on Arctic aquaculture; 3) preliminary findings on climate change impacts on fisheries through factor and product markets, might alter fishermen's behavior at sea; 4) other products from ACCESS WP3 including behavioural responses of user groups and stakeholders, marine mammals, and development of indicators for a sustainable fisheries in the Arctic.

Marine Spatial Planning and its role in ACCESS (Dr. Rosemary Edwards)

Rosemary is affiliated with the National Oceanography Centre in Southampton (UK) and the National Environmental Research Council. She is part of ACCESS WP5.

The lecture provided an introduction to marine spatial planning (MSP) tool, reflecting on several aspects including: why is MSP needed and what are its benefits, what makes an effective MSP, what are the outputs, the use of GIS, different published approaches to MSP, UNCLOS, involvement of stakeholders, and the relationship between MSP and regulation. Finally, the role of MSP in ACCESS was presented, with relevant examples.

Accepted Students

Name and email	Affiliation	Occupation
Enoil de Souza Júnior, souzajunior777@yahoo.com.br	Centro Polar e Climático, Instituto de Geociências Universidade Federal do Rio Grande do Sul – UFRGS (Brazil)	MSc student on Polar Geography
Marvin Duca, marvin.duca@gmail.com	Department of Earth Sciences, University of Ferrara (Italy)	MSc student on Geologic sciences, georesources and territor
Chris Cosgrove, chrislcosgrove@me.com	Uppsala University (Sweden)	MSc student in Physical Geography
Yasir Muhammad, myasir8@yahoo.com	KlimaCampus, Hamburg (Germany)	MSc student in Integrated Climate System Sciences
Elin Högstöm, elin.hoegstroem@geo.tuwien.ac.at	Research Group Remote Sensing, Department of Geodesy and Geoinformation at Vienna University of Technology (Austria)	PhD candidate
Shealagh Pope, Shealagh.Pope@aadnc-aandc.gc.ca	Arctic Science Policy Integration Directorate (Canada)	Acting Director
Adrian Braun, Adrian.Braun@ulapland.fi	Sustainable Development research group in the Arctic Centre in Rovaniemi (Finland)	PhD candidate
Clara Burgard, clara.burgard@gmail.com	University of Hamburg (Germany)	MSc student in Integrated Climate System Sciences
Katrin Lindbäck, katrin.lindback@geo.uu.se	Physical geography Uppsala University (Sweden)	Phd candidate
Alexander Winkler, alexander.winkler@mpimet.mpg.de	University of Hamburg (Germany)	MSc student in Integrated Climate System Sciences
Heather Jane Bell, heb13@aber.ac.uk	Recently graduated from BSc 1st class (hons) in Physical Geography from Aberystwyth University (UK)	
Melanie Flynn, flynn@student.unu.edu	United Nations University – Environment and Human Security and University of Bonn (Germany)	MSc student in Geography of Environmental Risks and Human Security
Alex Patonia, zerbstalex@gmail.com	University of Liverpool (UK)	MSc in International Management (Oil and Gas)
Dries Stevens, dries.stevens@hotmail.com	Stockholm University (Sweden)	MSc in Globalization, Environment, and Social Change
Vivi Mellegard, vivimellegard@hotmail.com	Stockholm University (Sweden)	MSc in Social-ecological resilience for sustainable development

Group work activity, cases distribution

Students were divided into different groups ahead of the course based on their interests and backgrounds. Students have been encouraged to contribute a brief report based on their case studies for the final ACCESS newsletter.

Group 1. Case study: Metal mining in Finland:

Adrian Braun; Melanie Flynn; Enoil de Souza Júnior; Vivi Mellegard*

Group 2. Case study: Gas extraction in the Barents Sea:

Alex Patonia; Chris Cosgrove; Dries Stevens; Marvin Duca*

Group 3. Case study: International shipping through the Bering Strait:

Elin Högström; Shealagh Pope; Katrin Lindbäck;

Group 4. 'Specialist' and cross-sectoral group:

Yasir Muhammad; Clara Burgard; Alexander Winkler; Heather Jane Bell

*These participants were not able to join the group work sessions, and hence did not contribute to the development of these case studies.

Group photo



2nd ACCESS Summer School participants and course organizers