

ARCTIC FLUX & CRUCIAL Workshop

6-9.February.2017

Hyytiälä, Finland

AGENDA

Mon 6th Feb

Joint bus transfer from Helsinki railway station to Hyytiälä SMEAR-II via Kumpula campus and Helsinki-Vantaa airport

- 12:00 Helsinki railway station (the bus will be waiting at the Railway square (in Finnish "Rautatienatori") on the site with touristic buses (not local line buses!) opposite "Casino"
- 12:20 Kumpula campus (the bus will pick up participants from University of Helsinki, Physics Dept building, address: Gustaf Hällströmin katu 2a)
- 13:00 Helsinki – Vantaa airport (Terminal 2, Charter buses waiting place)
- 17:00 arrival to Hyytiälä
dinner at the lunch cafeteria
- 18:00 Welcome to Hyytiälä SMEAR – II station, Timo Vesala, Antti Lauri, Hanna Lappalainen
Introduction of Workshop participants
Introduction to the WS- Agenda and Goals, T.Vesala, S. Starkweather, H.Lappalainen
Hyytiälä Field Station history overview, Antti Lauri
- 20:00 sauna, evening snack

Tue 7th Feb

- 07.00-08.30 breakfast
Put up posters in the morning of the day. Poster session on the Tuesday evening at the Old Main Building

SESSION: CHALLENGES OF FLUX MEASUREMENTS IN THE ARCTIC – BOREAL ENVIRONMENTS

Session chairs: Zilitinkevich & Heimann

- 08.30 New knowledge of physical processes controlling the surface fluxes, Sergej S. Zilitinkevich, Finnish Meteorological Institute, Finland (*Plenary*)
- 08.50 Modelling stably stratified planetary boundary layer (PBL): why prior models face so many difficulties, Evgeny Kadantsev, University of Helsinki, Finland
- 09:10 Challenges and results in year-round flux measurements at sites in high-arctic Siberia (Tiksi) and subarctic Scandinavia (Kaamanen), Tuomas Laurila, Finnish Meteorological Institute, Finland

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- 09.30 Integrated studies of carbon fluxes in European Russian taiga, Andrey Varlagin, A.N. Severtsov Institute of Ecology and Evolution, Russia
- 09.45 Observationally Closing the Arctic Atmosphere-Surface Energy Budget, Taneil Uttal, NOAA, USA
- 10:00 break
- 10:20 Overview of flux measurement challenges, Mathias Goeckede, Max-Planck-Institute for Biogeochemistry, Jena, Germany (*Plenary*)
- 10.40 The quantification and monitoring of pan-Arctic greenhouse gas budgets, Martin Heimann, Max-Planck-Institute for Biogeochemistry, Jena, Germany / University of Helsinki, Finland (*Plenary*)

SESSION: SMEAR-II FLAGSHIPSTATION

Session chairs: Vesala & Bäck

- 11:00 Coherent, coordinated, comprehensive, long-term in situ measurements (SMEAR-II) and Grand Challenges, Markku Kulmala, University of Helsinki, Finland (*Plenary*)
- 11:15 BAEEC- A field campaign to elucidate the impact of Biogenic Aerosols on Clouds and Climate – First results, Tuukka Petäjä, University of Helsinki, Finland
- 11.30 LUNCH
- 12.15 SMEAR-II station site visit in groups
- 14:00 COFFEE
- 14:20 *GROUP PHOTO*

SESSION: PROCESS-BASED UNDERSTANDING

Session chairs: Goeckede & Bruhwiler

- 14:30 Carbonyl sulfide as a proxy for gross primary productivity”, Timo Vesala, University of Helsinki, Finland
- 14:45 Soil as a source or sink of greenhouse gases in boreal and sub-arctic areas, Jukka Pumpanen University of Eastern Finland, Finland
- 15:00 Seasonal and Latitudinal Variations of Surface Fluxes at Arctic Terrestrial Sites, Andrey Grachev, University of Colorado, CIRES/NOAA ESRL, Boulder, CO, USA
- 15:15 Land ecosystems and the processes involved in non-GHG, climate relevant gas fluxes, Jaana Bäck, University of Helsinki, Finland
- 15:30 Growing season GHG fluxes from wetlands and meadows of Tomsk Region, West Siberia, Mikhail Arshinov, Institute of Atmospheric Optics, Siberian Branch of Russian Academy of Sciences (IAO SB RAS), Russia
- 15:45 Arctic CH₄ Emissions over Recent Decades: What Have we Learned from Global Atmospheric Network Observations? Lori Bruhwiler, NOAA, USA

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- 16:00 Trace gas flux monitoring in Greenland and Svalbard, Frans-Jan Parmentier, Lund University, Sweden
- 16:15 Ecosystem Respiration Synthesis, Susan Natali, Woods Hole Research Center, USA
- 16:30 Long-term monitoring of permafrost at special key-sites in the West Siberia. Natural and technogenic risks in cryolithozone, Dmitry Drozdov, Tyumen State University / Earth Cryosphere Institute SB RAS, Russia
- 16:45 Land surface temperature for urban heat island studies in the Arctic, Victoria Miles, NERSC, Norway
- 17:00 dinner at the lunch cafeteria
- 18:00 POSTER SESSION (evening snacks)
- 20:00 sauna, evening snacks continue

Wed 8th Feb

07:00-8:30 breakfast

SESSION: CONNECTING CRYOSPHERE - ATMOSPHERE CHANGES TO THE ECONOMY-ENERGY-ENVIRONMENT ANALYSIS

Session chairs: Sørensen & Riipinen

- 08:30 Earth System modeling frameworks for high latitudes, Risto Makkonen, University of Helsinki, Finland
- 08:45 GAINS model, mitigation of air pollution & GHGs, Pauli Paasonen, University of Helsinki, Finland
- 09:00 A sharp increase in CO₂ concentration in West Siberia: anthropogenic impact or response of Siberian ecosystems to a changing climate?, Boris Belan, Institute of Atmospheric Optics, Siberian Branch of Russian Academy of Sciences (IAO SB RAS), Russia
- 09:15 The Year of the Environment (2017) in Russia: objectives and interests, Veli-Pekka Tynkkynen, Aleksanteri Institute, Finland
- 09:30 Environmental risk assessment & mitigation strategy basing on forward /inverse modelling, Aleksander Mahura, Danish Meteorological Institute, Denmark
- 09:45 SLCF emissions in high-latitude Eurasia: Constraints from observations in the Arctic and Russia, Nikos Evangeliou, Norwegian Institute for Air Research, Norway
- 10:00 short break

COASTAL PERMAFROST REGIONS & THE ARCTIC OCEAN

Session chairs: Laurila & Esau

- 10:15 Activities at Stockholm University relevant for CRUCIAL, Ilona Riipinen, University of Stockholm, Sweden
- 10:30 Air-surface fluxes over ice covered waters, Lise-Lotte Sørensen, Aarhus University, Arctic Research Centre, Denmark
- 10:45 Scientific station "Ice Base "Cape Baranova" - polar environment complex studies, Aleksander Makshtas, Arctic and Antarctic Research Institute, Russia
- 11:00 Linkages between the changing Arctic Ocean and large-scale atmospheric dynamic, Timo Vihma, Finnish Meteorological Institute, Finland
- 11:15 Satellite monitoring and modelling of the Barents - Kara Sea region, Jari Haapala, Finnish Meteorological Institute, Finland
- 11.30 LUNCH
- 12:15 Metadata for a graphical representation of cryological research, Viktor Gennadinik, Tyumen State University, Russia
- 12:30 Urban climate studies in Arctic: experimental microclimate research in polar cities, Pavel Konstantinov, Mikhail Varentsov and Alexander Baklanov, Moscow State University, Russia
- 12:45 A long-term observations of the permafrost temperature in the Arctic coastal zone (on example of Pechora and Kara Seas), Osip Kokin, Moscow State University, Russia
- 13:00 Bjerknes Compensation Mechanism Prospects for multi-decadal climate prediction in northern high latitudes, Igor Esau, NERSC, Norway
- 13:15 Three years of meteorological and surface heat balance observations at "Ice Base Cape Baranova", Vasilii Kustov, Arctic and Antarctic Research Institute, Russia
- 13:30 Break-out sessions on
- (1) Challenges of Flux Measurements in the Arctic, Chair: Starkweather
place: auditorium, Institute building
 - (2) Process-Based Understanding & modelling frameworks, Chairs: Makkonen & Paasonen
place: seminar room, A-building
 - (3) Arctic Ocean, coastal regions, observation systems, Chair: Vihma
place: computer room, Institute building
- 14:00 Coffee break
- 14:30 Break-out sessions continue

15:30 Arctic Flux / CRUCIAL - Parallel sessions

<p>Arctic Flux: chair Starkweather Breakout session on Top-down vs. Bottom up approaches and other walk-in topics,</p>	<p>CRUCIAL: chair Kulmala</p> <ul style="list-style-type: none"> • roadmap discussion; to identify methods on how to connect the cryosphere-atmosphere changes to the economy-energy-environment analysis (e.g. forest management) and the feedbacks between them • Mobility Plan, discussion on student exchange and short term visits between CRUCIAL partners, chair A.Lauri
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18:00 DINNER at the Old Main Building / Boreal dinner in the forest

Thu 9th Feb

7:00-8:30 Breakfast

Session chairs: Kulmala & Makshtas

08.30 Summary of Break-out sessions and Parallel sessions

09:30 Joint Discussion - Concluding remarks

- U.S Sustainable Arctic Observation Network (SAON) Office, Sandy Starkweather, NOAA, USA
- Pan-Eurasian Experiment, CRUCIAL, U-Arctic, Arctic-Boreal HUB, Hanna Lappalainen, Univ.Helsinki, Finland
- Closing of the WS

10:45 lunch

11.30 Bus transfer from Hyytiälä to Helsinki

Estimated arriving time to Helsinki airport - 15:00 and to Central Railway station - 15:45