



Pan-Eurasian Experiment

PEEX

The 1<sup>st</sup> Pan-Eurasian Experiment (PEEX) Science Conference & The 5<sup>th</sup> PEEEX Meeting  
Helsinki, Finland 10-13 February 2015

AGENDA

Plenaries 30+10 min; Scientific presentations 15+5 min / 15 min

TUESDAY 10 February 2015

10:00 Registration opens

**LUNCH**

13:00 Opening Words – Rector Jukka Kola, University of Helsinki

13:10 Aims of the Conference and the meeting

Introduction to PEEEX Science Plan, Markku Kulmala, University of Helsinki

13:40-15:00 **SESSION: ATMOSPHERIC – ANTHROPOGENIC SYSTEM** chair: Aijun Ding

13:40 Proactive and integrative adaptation to climate change in future earth, Congbin Fu, Institute for Climate and Global Research, Nanjing University, China (**Plenary**)

14:20 The role of anthropogenic activities in CO<sub>2</sub> and CH<sub>4</sub> emission from soil to atmosphere in polar regions of East Europe, Sergey Goryachkin, Institute of Geography RAS, Russia

**14:35-14:45 Short Break**

14:45 Evaluating model-simulated short-lived climate pollutants in the high latitude Pan-Eurasian region, Dominick Spracklen, Univ. Leeds, UK

15:00-17:30 **SESSION: ATMOSPHERIC AEROSOLS** chair: Veli-Matti Kerminen

15:00 Atmospheric mass spectrometry; overview and recent results, Mikael Ehn, University of Helsinki, Finland

15:15 Hygroscopic properties of background aerosols in Siberian boreal forests: ZOTTO summer campaign 2013, Eugene Mikhailov, St-Petersburg State University, Russia

**15:30-16:00 Coffee break**

16:00 New insights on the new particle formation events observed in the boreal zone of West Siberia derived from recent four-year continuous observations, Mikhail Arshinov, V.E. Zuev Institute of Atmospheric Optics RAS, Russia

16:15 Observation of ultrafine particles size distribution at two different heights in an Arctic site, Angelo Lupi ISAC-CNR, Italy

16:30 Aging of biomass burning aerosol after long-range transport from large scale wildfires in the PEEEX region, Konstantinos Eleftheriadis, N.C.S.R. Demokritos, Greece

16:45 Vertical mixing of aerosol in the planetary boundary layer AT NY-ÅLESU,ND, Svalbard, Oxana Drofa CNR-ISAC, Italy



17:00 Aerosol emission reductions over the 20th and 21st century and their impact on polar climate, Hans-Christen Hansson, Stockholm University, Sweden

17:15 Lightning activity in the changing climate: aerosol significance, Evgeny Mareev, Lomonosov Moscow State University, Russia

**17:30-21:00 POSTER SESSION & Ice Breaker Party**

Short oral presentations of the posters

**WEDNESDAY 11 February 2015**

**09:00-9:40 SESSION: CLIMATE CHANGE AND ASSOCIATED RISKS IN THE PEEC DOMAIN**

chair: Alexander Baklanov

09:00 Meeting the Challenges and Risks of Climate Change in the Arctic, Klaus Peter Koltermann, Moscow State University, Russia (**Plenary**)

**09:40-11:00 SESSION: ATMOSPHERE - METEOROLOGICAL SCALE**

chair: Alexander Baklanov

09:40 Stably stratified planetary boundary layers: nature, theory and role in atmosphere-land systems, Sergej Zilitinkevich, Finnish Meteorological Institute, Finland

10:00 Atmosphere-Land coupling at high latitudes: impact on near surface temperature and CO<sub>2</sub>, Anton Beljaars, The European Centre for Medium-Range Weather Forecasts, UK

**10:20-10:30 Short break**

10:30 Large-scale circulation during air quality hazards in Bergen, Norway, Tobias Wolf, NERSC, Norway

10:45 Climatic role of shallow stably stratified atmospheric boundary layers, Igor Esau, NERSC, Norway

**11:00-13:40 SESSION: BIOGEOCHEMICAL CYCLES**

chair: Jaana Bäck

11:00 Regional greenhouse gas budgets of northern Eurasia as inferred from in-situ observations and from space, Martin Heimann, Max-Planck-Institute for Biogeochemistry, Germany

11:20 Impact of biogeophysical and biogeochemical processes and their interactions on permafrost soil carbon stocks, Atul Jain, University of Illinois, USA

11:40 Response of carbon cycle to enhancement of climate aridity in various ecosystems of Central Russia, Irina Kurganova, Institute of Physicochemical and Biological Problems in Soil Science, RAS, Russia

**12:00-13:00 Lunch**

13:00 Impacts of northern Eurasian forests on the global carbon cycle: a system approach, Anatoly Shvidenko, IIASA, Austria

13:20 Soil HONO emission and its potential impact on the atmospheric chemistry and nitrogen cycle, Hang Su, Max Planck Institute for Chemistry, Germany

**13:40-15:30 SESSION: LAND-ATMOSPHERE INTERACTIONS & LAND ECOSYSTEMS**

chair: Anatoly Shvidenko

13:40 Does Northern hemisphere terrestrial snow cover varies intra seasonally? Bradford Barrett, US Naval Academy, USA



14:00 Snow mapping over Tibetan Plateau using Earth Observations Data, Yubao Qiu, RADI, CAS, China
14:20 China environmental and contamination histories: insights from atmospheric trace elements in the Puruogangri ice core (Tibetan Plateau), Emilie Beaudon, Ohio State University, USA
14:40 Temporal - spatial variability of the thermal regime of the near-surface permafrost at Tiksi Observatory, P.V. Bogorodskii, AARI, Russia
15:00 Precipitation and net ecosystem exchange are the most significant factors explaining runoff DOC concentrations and fluxes in upland boreal catchments, Jukka Pumpanen, University of Helsinki, Finland

### 15:30-16:00 Coffee break

16:00-17:20 **SESSION: THE ARCTIC OCEAN & THE BALTIC SEA** chair: Sergey Dobrolyubov

<presentations 15 min+5min>

16:00 Effects of the arctic sea ice decline on Eurasian climate, Timo Vihma, FMI, Finland
16:20 Arctic sea ice and East Asian Monsoons Yongqi Gao, NERSC, Norway
16:40 A role of the Arctic sea ice loss in the increased frequency of anomalously cold winters over the Northern Eurasia, Vladimir Semenov, Inst. of Geography, RAS, Russia
17:00 ATLAS "Russian Arctic in the XXI century: nature conditions and risks in the development", Sergey Dobrolyubov, Moscow State University, Russia
17:20 Small-scale atmosphere-ocean coupling in gale-force winds: models, experiments, remote sensing, Yuliya Troitskaya, Nizhny Novgorod State University, Russia

17:20-18:20 **SESSION: LAKE AND RIVER SYSTEMS** chair: Sergey Dobrolyubov

<presentations 15 min>

17:35 Geochemical Patterns in a Large River Network due to Hydroclimatic Development and Anthropogenic Impacts: Selenga-Baikal catchment, Sergey Chalov, Moscow State University, Russia
17:50 Sensitivity of carbon fluxes in land-atmosphere-hydrosphere system of Yenisei river catchment to climate variability: development of Krasflux network for the long-term analysis, Anatoly Prokushkin, V.N. Sukachev Institute of Forest SB RAS, Russia
18:05 Methane under ice in boreal lakes, Terhi Rasilo, L'Université du Québec à Montréal, Canada
18:20 Methane emission from tundra lakes in Western Siberia, Vladimir Kazantsev, A.M.Obukhov Institute of Atmospheric Physics RAS, Russia

19:00 **FESTIVE DINNER, INCLUDING PROGRAM AND CEREMONY**

## THURSDAY 12 February 2015

09:00-11:00 **SESSION: FUTURE SOCIETIES AND NATURAL HAZARDS** chair: Martin Heimann

09:00 The value of systems science to study Pan-Eurasian futures, Pavel Kabat, International Institute for Applied Systems Analysis, Austria ( <b>Plenary</b> )
09:40 Transformation of Human Settlements in Arctic Regions of Russia and its Relation to Ethnicity and Use of Natural Resources, Tamara Litvinenko, Institute of Geography RAS, Russia (15 min)
9:55 Social systems, new infrastructure and climate effects: Yamal Peninsula, Alexey Shcherbinin, Univ. Helsinki, Finland (15 min)
10:10 The storminess and the wind wave climate in the Baltic Sea produced by the SWAN model, Stanislav Myslenkov, Moscow State University, Russia (15 min)
10:25 Modelling and evaluation of impact on population due to continuous emissions from Severonickel smelters (Kola Peninsula), Alexander Mahura, Danish Meteorological Institute, Denmark (15 min)
10:40 Introduction of air quality studies at Tsinghua University, Beijing, China, Jingkun Jiang, Tsinghua University, China (15 min)



**10:55-11:00 Short break**

**11:00-12:00 SESSION: CONCEPTS TOWARDS COHERENT, COORDINATED PAN-EURASIAN OBSERVATION NETWORK, DATA SYSTEMS AND MULTI-SCALE MODELLING PLATFORM** chair: Ari Laaksonen

11:00 Why should PEEEX rely on Environmental Research Infrastructures? Paolo Laj, Laboratoire de Glaciologie et Geophysique de l'Environnement, France & University of Helsinki, Finland ( <b>Plenary</b> )
11:40 Global network concept, Pertti Hari, University of Helsinki, Finland

**12:00-13:00 Lunch**

**13:00 SESSION: CONCEPTS TOWARDS COHERENT, COORDINATED PAN-EURASIAN OBSERVATION NETWORK, DATA SYSTEMS AND MULTI-SCALE MODELLING PLATFORMS** chair: Gerrit de Leeuw

13:00 Earth observation for environmental studies on the Silk road economic belt, Huadong Guo, Institute of Remote Sensing and Digital Earth, CAS, China ( <b>Plenary</b> )
13:40 GAW program and links with PEEEX / modelling platform, Alexander Baklanov, WMO, Switzerland
14:00 Arctic Ocean network concept, Timo Vihma, FMI, Finland
14:20 Current PEEEX-labeled activities at IEAS and AEROCOSMOS, Valery Bondur, AEROCOSMOS, Russia

**14:40 SESSION: PEEEX RESEARCH INFRASTRUCTURES** chair: Tuukka Petäjä

<RI presentations 15 min>

14:40 Short remarks on the PEEEX RI main aspect, Tuukka Petäjä, University of Helsinki, Finland
14:45 Overview and first results from SMEAR Estonia, Steffen Noe EULS, Estonia
15:00 Introduction to a flagship site SORPES in East China and an overview of main results obtained during 2011-2014, Aijun Ding, University of Nanjing, China
15:15 Observing cloud and precipitation processes in the PEEEX domain through a combination of satellite remote sensing and ground based observations, Venkatachalam Chandrasekar, FMI and University of Helsinki, Finland

**15:30-16:00 Coffee break**

**16:00-18:30 PARALLEL SESSIONS I-III, PEEEX IMPLEMENTATION**

**SESSION-I: PEEEX RESEARCH INFRASTRUCTURE** chair: Tuukka Petäjä

16:00 Building the metadatabase of PEEEX observational infrastructure – including demonstration of the PEEEX metadatabase, Pavel Alexeychik, University of Helsinki, Finland
16:15 On a possibility to improve our observational knowledge about mesoscale and sub-mesoscale processes in the PEEEX area, Nina Zaitseva, RAS, Russia
16:30 Introduction to SMEAR station data procedures – Open data in general, Ari Asmi, University of Helsinki, Finland
16:45 Discussion (Rapporteurs Hanna Lappalainen, Pavel Konstantinov)

**SESSION-II: PEEEX RESEARCH AGENDA & MODELLING PLATFORM**

chairs: Alexander Baklanov & Alexander Mahura

16:00 PEEEX-MP: Including New Tools/Models for Earth System Observations and Forecasting (Alexander Mahura, DMI, Denmark & Alexander Baklanov, WMO, Switzerland & PEEEX-MP team)
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Boundary layer issues in NWP and climate models (Anton Beljaars, ECMWF, UK)
16:10 Ecological modeling in the PEEC domain: recent results and needs (Anatoly Shvidenko, IIASA, Austria)
16:20 Estimates of CH4 emissions from natural wetlands in China: From 1950 to 2008 (Tingting Li et al., IAP-CAS, China)
16:30 Process based modelling of particle formation in boreal forest region (Zhou Luxi et al., UHel, Finland)
16:40 Current status of modelling activities of BVOC emissions and atmospheric reactivity in the boreal forest (Ditte Mogensen et al., UHel, Finland)
16:50 Discussion (Rapporteurs NN, NN)

**SESSION-III: PEEC IMPACT ON SOCIETY & KNOWLEDGE TRANSFER** Chairs: Joni Kujansuu

16:00 Introduction to IPCC procedure, Veli-Matti Kerminen, University of Helsinki, Finland
16:15 Air Quality and society in China - PEEC perspective, Joni Kujansuu, University of Helsinki, Finland
16:30 Demo of the visualization tool, Risto Makkonen, University of Helsinki, Finland
16:40 Discussion (Rapporteurs, Alexey Shcherbinin, Tamara Litvinenko)

**18:30 Joint Dinner**

**Friday 13 February 2015**

**09:00-10:30 SESSION: RESEARCH INFRASTRUCTURES** continues chair: Tuukka Petäjä

<RI presentations 15 min>

09:00 Observational infrastructure in eastern Siberia by Japanese collaborative study, Y. Iijima Research and Development Center for Global Change (RCGC), JAMSTEC, Japan
09:15 Model assessment for changing terrestrial processes over pan-Arctic regions, Park Hotaek Research and Development Center for Global Change (RCGC), JAMSTEC, Japan
09:30 A New peatland research station in the center of West Siberia: description of infrastructure and research activities, E.D. Lapshina INST, Russia
09:45 Remote sensing and field data applied to the regional validation of a snow climate model D. Versegny, Canada
10:00 WEB-GIS based virtual research environment for north Eurasia climatic studies E.P. Gordov, Russia
10:15 Generalizing flux tower measurements with lidar-assisted forest maps, Tuomo Kauranne, University of Technology, Lappeenranta, Finland

**10:30-11:00 SESSION: TRAINING AND EDUCATION** chair: Hanna Lappalainen

10:30 Seas, lakes and boundary watershed territories OF RUSSIA, FINLAND and ESTONIA – international training and education school-conference for young scientists, T.I. Regerand, NWPI KRC Karelia, Russia
10:45 How to make air quality education effective? Taina Ruuskanen, University of Helsinki, Finland

**11:00-12:00 Lunch**

**12:00-13:00 PEEC IMPLEMENTATION - WG Reporting and discussion** chair: Markku Kulmala

- WG- Infra (rapporteur Hanna Lappalainen, Pavel Konstantinov)
- WG- Modelling Platform (rapporteur NN, NN)
- WG- Impact on Society (rapporteurs Alexey Shcherbinin, Tamara Litvinenko)



13:00-13:45 **SESSION PEEF FUTURE PROSPECTS**

chair: Sergej Zilitinkevich

13:00 Foresight for Setting Priorities in Science and Technology, Alexander Sokolov, Higher School of Economics, Russia

13:15 Long-term foresight in Earth science and nature management for Russia, Nina Alekseeva, Lomonosov Moscow State University, Russia

13:30 PEEF Program: implementation plans and future prospects, Hanna Lappalainen, University of Helsinki, FMI, Finland

- 13:45 Concluding remarks  
M. Kulmala, S. Zilitinkevich, A Baklanov
- 14:00 End of Conference