EGU General Assembly 2022

Vienna, Austria & Online | 23–27 May 2022

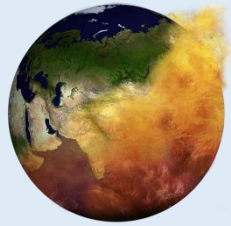
AS4.4

Pan-Eurasian EXperiment (PEEX) – Observation, Modelling and Assessment in the Arctic-Boreal Domain

Co-organized by BG1/CL2/GI4

Convener: **Hanna Lappalainen** | Co-conveners: Markku Kulmala, **Alexander Baklanov**, Alexander Mahura

Presentations | Wed, 25 May, 15:55–18:30 (CEST) Room F1



Pan-Eurasian Experiment PEEX

Session "Pan-Eurasian EXperiment (PEEX) – Observation, Modelling and Assessment in the Arctic-Boreal Domain" is linked to PEEX Program - a multi-disciplinary, -scale and -component climate change, air quality, environment research and research infrastructure (RI) and capacity building programme (www.atm.helsinki.fi/peex) .

- ❑ aimed at resolving major uncertainties in Earth system science and global sustainability issues concerning the Arctic, Northern Eurasia and China regions
- ❑ session is co-organized with the Digital Belt and Road Program (DBAR)

This session aims to bring together researchers interested in

- ➢ understanding environmental changes effecting in pristine and industrialized Arctic-boreal environments (system)
- ➢ determining relevant environmental, climatic, and other processes in Arctic-boreal regions (processes)
- ➢ development of the long-term, continuous and comprehensive ground-based, air/seaborne research infrastructures together with satellite data (observations)
- ➢ to develop new datasets and archives of the continuous, comprehensive data flows in a joint manner (data)
- ➢ to implement validated and harmonized data products in models of appropriate spatio-temporal scales (modeling)
- ➢ to evaluate impact on society though assessment, scenarios, services, innovations and new technologies (society).

Arena for the gap analysis of the existing Arctic Science Co-Operations (AASCO)

Hanna Lappalainen1, Tuukka Petäjä1, Timo Vihma2, Alexander Baklanov3, Sergey Chalov4, Yubao Qiu5, Huadong Guo5, Nikolay Kasimov4, Paul Berkman6, Heikki Lihavainen7, and Markku Kulmala1

1) Institute for Atmospherivc and Earth System Research (INAR), University of Helsinki, FI
2) Finnish Meteorological Institute, FI
3) World Meteorological Organization (WMO)
4) Moscow State University, RU
5) Aerospace Information Research Institute, Chinese Academy of Sciences (AirCAS), CN
6) Harvard Law School, Cambridge, USA, Science Diplomacy Center, Falmouth, USA
7) Svalbard Integrated Arctic Earth Observing System, NO

EGU 22 Wed, 25 May, 15:55–18:30 (CEST) Room F1. Welcome on-site / on-line
“Pan-Eurasian EXperiment (PEEX) – Observation, Modelling and Assessment in the Arctic-Boreal Domain”
Co-organized by BG1/CL2/GI4.

INAR
INSTITUTE FOR ATMOSPHERIC AND EARTH SYSTEM RESEARCH

HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

AASCO
Arena for the Gap Analysis of the Arctic Science Co-Operation

"Arena gap analysis of the existing Arctic science co-operations" AASCO

- ❑ 2 year project in 2020 – 2022 funded by Prince Albert Foundation
- ❑ Coordinated by INAR at the University of Finland together with 6 main partners

Partners | SAON | DBAR Digital Belt and Road | SIOS | World Meteorological Organization | PRINCE ALBERT II OF MONACO FOUNDATION | The Fletcher School | UArctic

- ➢ AASCO aims to provide an outlook and benefits of the bridges between other international approaches
  - ➢ Pan-Eurasian Experiment (PEEX) Program
  - ➢ University of Arctic network (U-Arctic)
  - ➢ The Global Atmosphere Watch (GAW) Programme of WMO
  - ➢ Sustainable Arctic Observation Network (SAON) & strategy process called "ROADS"
  - ➢ the Digital Belt and Road (DBAR) program
- ➢ Organized 2 on-line events (due to COVID19) : 1st event in Dec 2020, 2nd event in Dec 2021

https://www.acccflagship.fi/index.php/accc-impact-week-highlights/

See also Jeff Welker's AASCO talk in our ACCC YouTube channel:

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AASCO
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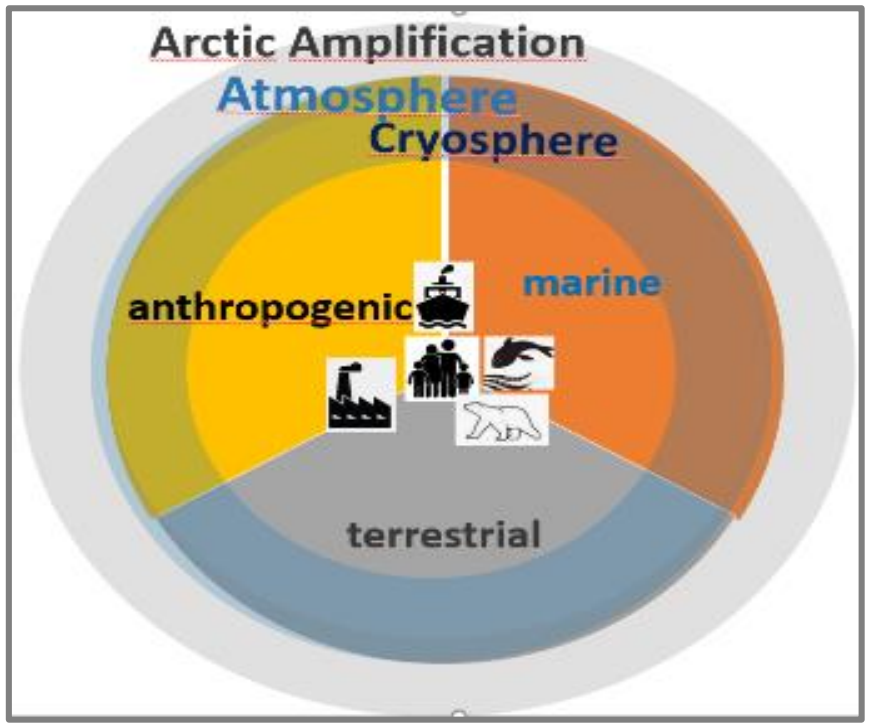
Lappalainen et al. "ARCTIC SCIENCE COLLABORATIONS" - AASCO-project calls for a holistic system understanding of land – atmosphere interactions and feedbacks for well-targeted policy actions, *manuscript*



AASCO community synthesized and identified altogether 15 key areas (#) of research relevant to feedback research in six Arctic main domains

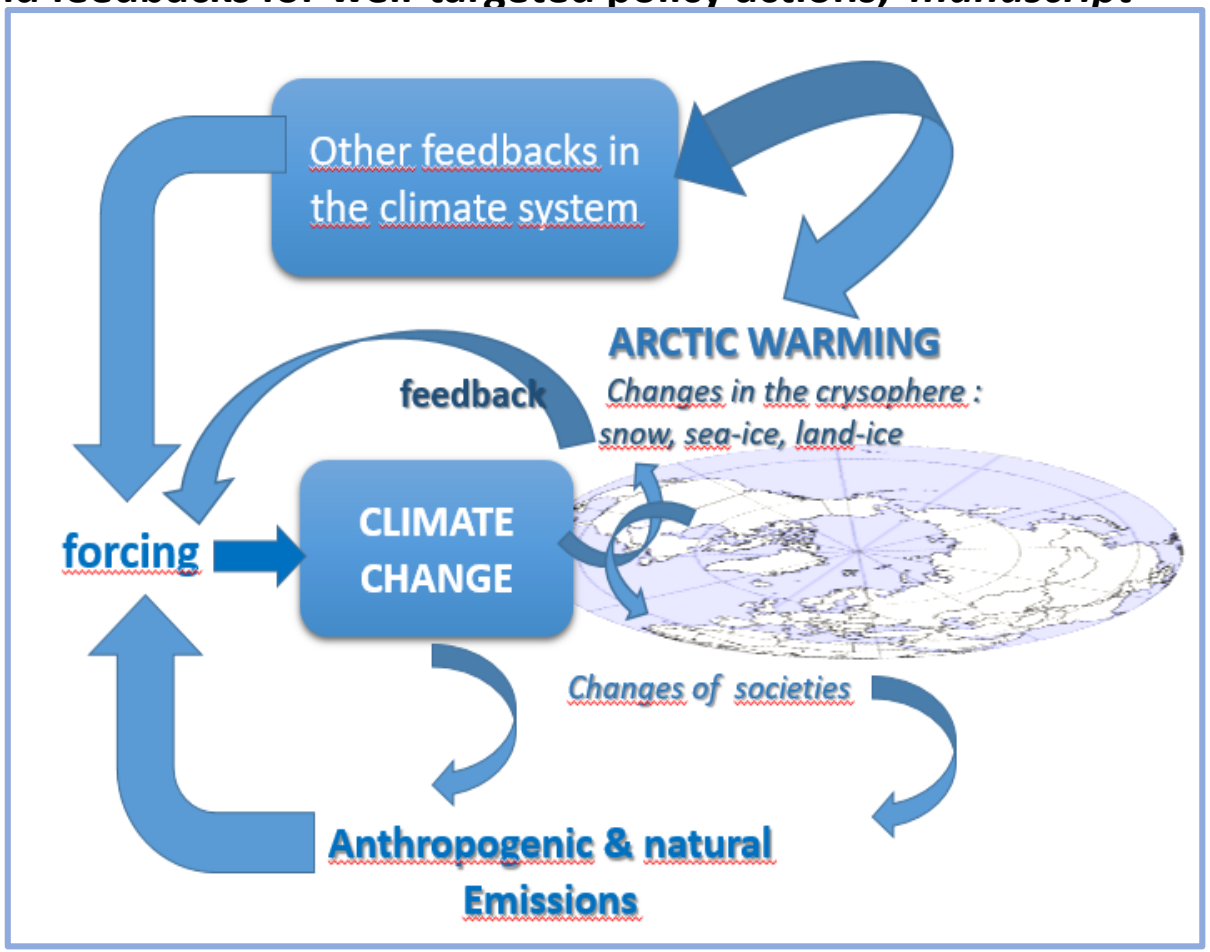


Figure. The CRAICC - Nordic Center of Excellence focused on the changes of the cryosphere and the related feedbacks and interactions in the Arctic. AASCO underlines the framework for all known and unknown feedbacks and inter actions affecting in and outside the Arctic. (Figure modified from CRAICC).

Lappalainen et al. "ARCTIC SCIENCE COLLABORATIONS" - AASCO-PROJECT CALLS FOR A HOLISTIC SYSTEM UNDERSTANDING OF LAND – ATMOSPHERE INTERACTIONS AND FEEDBACKS FOR WELL-TARGETED POLICY ACTIONS, manuscript

AASCO Scientific key messages

- Due to rapid Arctic environmental change we need both topic-specific scientific advances e.g. in ecology and in atmospheric and cryospheric sciences, and a progress towards head for a more in-depth integration between the results from these fields.
- Therefore, the AASCO - Arctic Science Collaboration project calls for a new multidisciplinary program to study the Arctic land – atmosphere – ocean feedbacks and interactions in more detail with 15 specified key areas of research.
- The Arctic research resources and funding should be in line with the critical role of the Arctic in the global climate system.

Interested in AASCO collaboration, please contact:
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https://www.atm.helsinki.fi/peex/index.php/aasco/

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