PEEX - Modelling Platform (MP) Session / Meeting & Discussions

3rd PEEX Science Conference & 7th PEEX Meeting

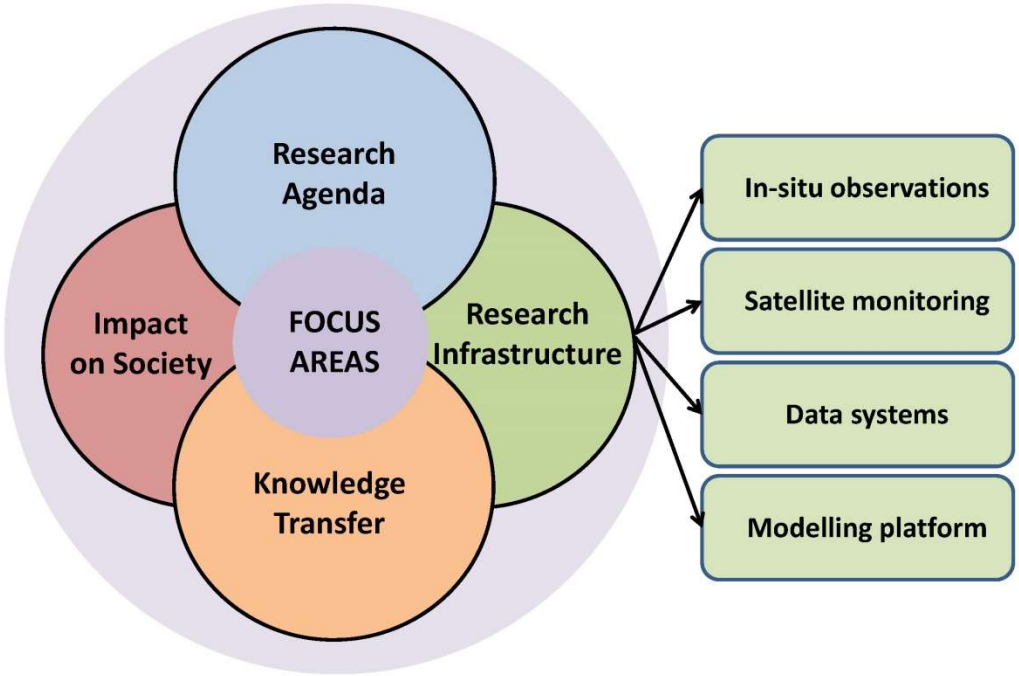
Moscow, Russia, 20 Sep 2017

PEEX-MP Session (20 Sep 2017)

11 presentations; 19 attended participants
& following discussions

• 15:00 - **PEEX-Modelling-Platform for seamless multi-dimensional environmental prediction**, *Alexander Baklanov, World Meteorological Organization, Switzerland*
• 15:10 - **Research vs. operational applications of Enviro-HIRLAM: regional and sub-regional scale modelling for PEEX**, *Alexander Mahura, University of Helsinki, Finland*
• 15:20 - **The role of different aerosol climatologies in uncertainties of shortwave radiation computations by NWP COSMO model and their temperature effect**s, *Aleksei Poliukhov, Moscow State University, Russia*
• 15:30 - **Experience with high resolution meteorological information for end users –opportunities, needs and challenges**, *Tobias Wolf–Grosse, Nansen Environmental and Remote Sensing Center, Norway*
• 15:40 - **From socio-economic data to pollutant and greenhouse gas emissions and concentrations**, *Pauli Paasonen, University of Helsinki, Finland*
• 15:50 - **The global SL-AV atmosphere model: application to seamless prediction**, *Mikhail Tolstykh, Institute of Numerical Mathematics RAS & HydroMetCentre, Russia*
• 16:00 - **PEEX modelling platform: numerical algorithms for global and regional environmental inverse modelling problems**, *Alexey Penenko, Institute of Computational Mathematics and Mathematic Geophysics SB RAS, Russia*
• 16:10 - **High-resolution modelling of the Arctic Ocean and its marginal seas**, *Roman Nuterman, University of Copenhagen, Denmark*
• 16:20 - **Regional scale online integrated modelling in North-West Russia: case studies on impact evaluation**, *Georgy Nerobelov, Russian State Hydrometeorological University (RSHU), Russia*
• 16:30 - **Earth System Modeling,** *Risto Makkonen, University of Helsinki, Finland*
• 16:40 - **Discussion** *& drafting short report for the PEEX Program*

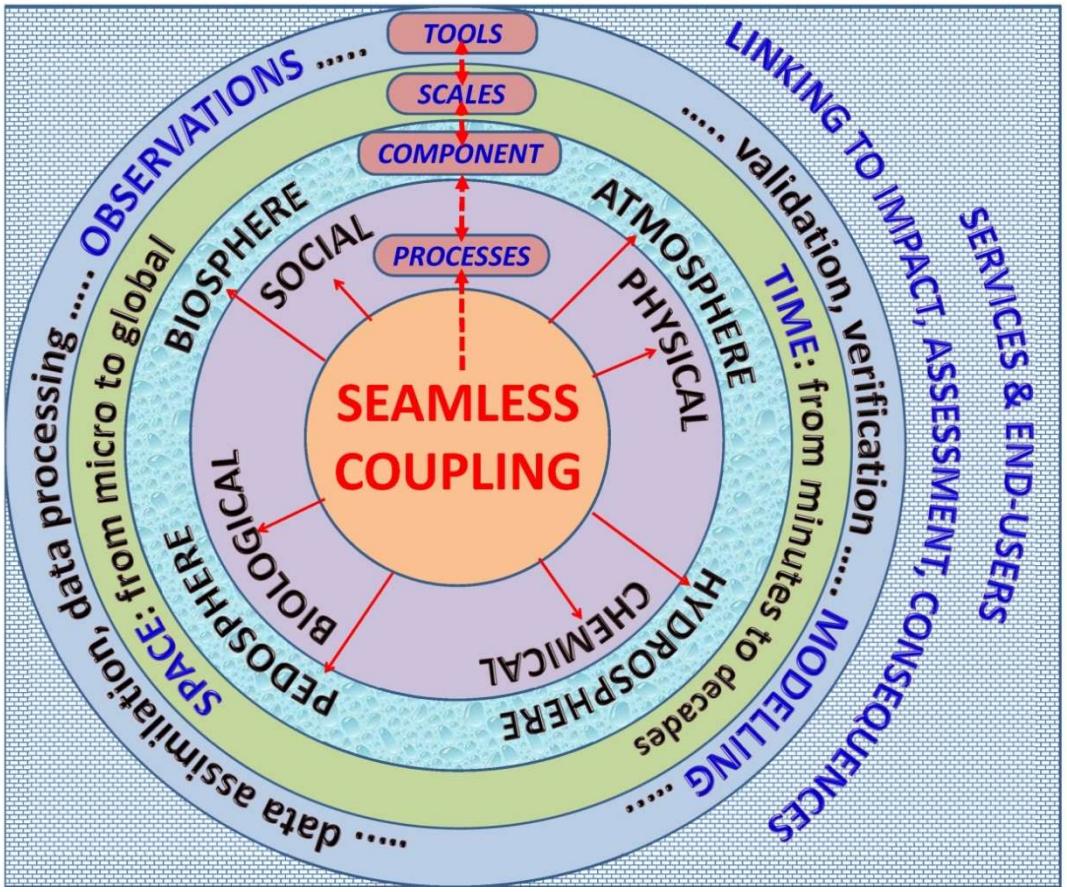
Aims of the PEEX Modeling Platform



PEEX purpose - for supporting the PEEX observational system and answering on the PEEX scientific questions, a **hierarchy/ framework of modern multi-scale models for different elements of the Earth system** integrated with the observation system is needed.

PEEX-MP aims - to simulate and predict the physical aspects of the Earth system & to improve understanding of the bio-geochemical cycles in the PEEX domain, and beyond.

The seamless approach considers several dimensions of the coupling:



=> New generation of seamless models integrated with observations

i) **Time scales** (from minutes and nowcasting till decades and climate time-scale);

ii) **Spatial scales** (from street till global scales with downscaling and upscaling methods);

iii) **Processes**: physical, chemical, biological, and social;

iv) **Earth system components**: atmosphere, hydrosphere, pedosphere, ecosystems/ biosphere;

v) Different types of **observations** and modelling tools: data processing and **data assimilation**, validation and verification of modelling results; and

vi) **User-oriented** integrated systems and **impact based forecasts and services**.

PEEX-MP Members & Web

peex-modelling@helsinki.fi

Almost 100 members from European, Russian, and Chinese institutions including international organizations (ECMWF, WMO) covering different multi-scales and types of models

& would you like to join?

https://www.atm.helsinki.fi/peex/index.php/modelling-platform

WEB

- **PEEX-Modelling-Platform (PEEX-MP) Overview**
- **Modelling Tools & Demonstration**
- **PEEX-MP Meetings & Sessions**

PEEX-MP Involvement

If you want to join the PEEX-Modelling-Platform please, send:

- *e-mails of persons to be involved in PEEX-MP*
- *other relevant existing projects to link with PEEX*
- *info on each model planned to be used (0.5p text – general model description, up to 3 refs, 1 figure – the most illustrative)*
- *your possible contribution with your modelling tool(s) to PEEX (0.25 page)*

send to alexander.mahura@helsinki.fi
& abaklanov@wmo.int
& s.arnold@leeds.ac.uk

Key Issues for Modelling in PEEX

- Anthropogenic emissions
- Permafrost effects
- CO_2 and CH_4
- Ecosystem carbon cycle
- Short lived pollutants and climate forcers
- BVOC emissions
- Forest fires and their effects
- Aerosol formation in Arctic and Siberia
- Aerosol radiative forcing
- Air pollution – ecosystem feedbacks
- Dynamics of ocean and sea-ice
- High impact events

2017 - Discussions

- Current status & further steps (where we are now - current status; on-going projects where teams/ models are involved;
- How to make communication in MP better and more efficient;
- New members to MP are welcome;
- What to have/ show at PEEX-MP webpages at the PEEX main website & MP newsline;
- Requirements/ wishes from MP to observations;
- New proposals (possible contributions from teams);
- Proposed/ planned MP activities;
- …

- Special issue contributions (overview paper on PEEX-MP research tools; individual contributions with results from modelling studies for PEEX region in focus, …);
- Arranging contacts with core groups for the PEEX observational, assessment, and educational "platforms":
- MP needs - input from observations for validation and verification of model results;
- MP provides - input for assessments/ risks/ consequences/ etc. studies;
- MP contributes - for sci.education with research trainings on models, schools for young researchers, adds to teaching courses, etc.)