

# PEEX-Academic Challenge – FIRST+ Intensive Course



FINNISH NATIONAL  
AGENCY FOR EDUCATION

## “Multi-Scales and -Processes Modelling and Assessment for Environmental Applications”

Russian State Hydrometeorological University (RSHU, St.Petersburg, Russia)

<https://www.atm.helsinki.fi/peex/index.php/education/16-courses/184-april-2020-peex-ac-research-training-intensive-course>

### SPBU & UHEL virtual meeting on PEEX research collaboration

24 April 2020, Friday

#### Summary of Discussions

**(I) PEEX-Academic-Challenge proposal** - Joint UHEL+SPBU+RSHU proposal submitted (waiting for outcome of evaluation) on organization FIRST+ Intensive Course for April 2021 “*Atmosphere-Surface Interactions and Feedbacks: Approaches to Measurements & Analysis*”

**(II) Eugene M., SPBU – interest in joint measurements and instrumentations**, aerosols mass-spectrometer  
Tuukka P., UHEL - discussions are needed for location, purpose of measurements, funding options; UHEL has spectrometers (but occupied in several projects; in lab / field; incl long-term observations)  
It is difficult/ complex to promise instruments to make measurements in RU (challenge – RU customs; long process; about 1 year to get instruments to location; example: Fonovaya site (Tomsk, RU); when delivered – missed measurement period; project funding AoF; logistics; it is easier to organize lab/ field work in Finland, where RU partner can participate & Eugeny M., SPBU – FI produce own spectrometer, may be RU partner can buy & Tuukka P., UHEL - high-res mass-spectrometers (but products are not cheap, 300-400 KEu)

**(III) Eugene M., SPBU - SPBU initiated publication - SMEAR-II station measurements and analysis**; inter-comparison with other stations; background composition and concentrations; hygroscopicity; dominated chemical species; compare boreal vs Amazon forests; interest from UHEL side

#### **(IV) Joint efforts for Calls/ proposals:**

**(IVa) bi-lateral Calls AoF & RFBR/RSF** – need to look/search; now covid19 related Call was opened & there is environment related topic; aerosol measurements are important; money vs. time issue  
searching/looking for bi-lateral Academy of Finland (<http://www.aka.fi/en/funding>) & Russian Foundation for Basic Research (<http://www.rfbr.ru/rffi/eng>) joint Calls on proposals

**(IVb) South-East Finland – Russia CBC Programmes:** <https://www.sefrcbc.fi/projects>; last Call in Mar 2020 (St.Petersburg, NW Russia and Leningrad regions are involved)

**(IVc) EnvriPLUS Calls** --- possibilities for RU partners to visit Hyytiälä/ SMEAR-II (<https://www.envriplus.eu/calls> - possible individual proposals (Hyytiälä station, FI; <https://www.atm.helsinki.fi/SMEAR/index.php>)

**(IVd) ACTRIS** (<https://www.actris.eu>) trans-national programme: AtmoAccess proposal for research visits to observation sites (allowing to bring instruments and researchers from RU to Hyytiälä; travel and accommodation can be provided); if successful – SPBU will be informed & welcome also to SMEAR stations, once the covid19 will be lifted.

#### **(IV) Horizon-2020 proposals – inv of RU partners as collaborators/ partners;**

**(Va) iARCDEV** (coordinator Tuukka P., UHEL) – focus on developing services based on observations in Arctic regions; 2 stage proposal; if funded – starting in 2021; RU institutes/collaborators can be connected directly as the partners; RU partners are eligible to apply for national funding in this case; opportunity of working together; RU project acts as a sister/ daughter project with funding for EU partner from Horizon & RU partners from national funding (RFBR, RSF); RU opens the similar Call – RU partners write proposal to RU funding; RU partners write Letters of Support to EU project & EU project coordinator writes Letter for Support to RU proposal (which is applying for national funding); (to contact/ discuss in case the CRiceS will go into 2<sup>nd</sup> stage)

**(Vb) CRiceS** (coordinator Risto M., UHEL) - focus on polar research with modelling and observations; global + regional scale modelling; N. Gavrilov (SPBU) – team has global scale modelling capabilities (to contact/ discuss in case the CRiceS will go into 2<sup>nd</sup> stage)

**(Vc) SmartNature** (coord. Leena J., UHEL) – focus on services for carbon and air quality smart nature-based solutions from earth observations and modelling; RU urban areas - Moscow & Novosibirsk - are included; St.Petersburg is missing; SPBU can be considered as partner for urban -scales and -processes modelling (to contact/ discuss in case the SmartNature will go into 2<sup>nd</sup> stage)

**(VI) Eugene M., SPBU - Involvement SPBU MSc/ PhD students;** in spring 2020 UHEL submitted proposal for Global Students/Teachers Mobilities (RSHU, St.Petersburg was involved); UHEL will ask IES at UHEL to involve SPBU for the next Call / autumn 2020); UHEL has several educational proposals

For example, currently UHEL is involved into Erasmus+ MODEST project (<https://www.atm.helsinki.fi/peex/index.php/projects/174-modest-project>; for developing DTCs, Doctoral Training Centers for PhD students) – SPBU teachers/students are welcome to join trainings (materials from the latest are available at: <https://www.emodest.eu/index.php/meetings/7-training-on-curriculum-development-and-learning-outcomes>; Katja Lauri <katja.lauri@helsinki.fi> is best contact person

**(VII) Yuri T. (SPBU) – proposed the following suggestions as collabor activities & linkage to PEEX Science plan:**

in English - [https://www.atm.helsinki.fi/peex/images/PEEX\\_Science\\_Plan.pdf](https://www.atm.helsinki.fi/peex/images/PEEX_Science_Plan.pdf)

in Russian: [https://www.atm.helsinki.fi/peex/images/PEEX\\_Science\\_Plan\\_rus.pdf](https://www.atm.helsinki.fi/peex/images/PEEX_Science_Plan_rus.pdf)

ATMOSPHERIC SYSTEM:

*Q-4 What are the critical atmospheric physical and chemical processes with largescale climate implications in a northern context?*

Key topic: atmospheric composition and chemistry

Examples of research questions – GHGs

What are the main anthropogenic sources of CO<sub>2</sub>, aerosol particles and their precursors in Pan-Eurasia? How they are distributed over the territory, and how they are changing in time? What are the climatic parameters controlling the seasonal and inter-annual variability of regional CO<sub>2</sub> concentration in the atmosphere?

Atmospheric greenhouse gases and ozone

Atmospheric aerosols

*Q-5 What are the key feedbacks between air quality and climate at northern high latitudes and in China?*

Key topic: urban air quality, megacities and changing PBL,

Atmospheric transport of pollutants

*Q-6 How will atmospheric dynamics (synoptic scale weather, boundary layer) change in the Arctic-boreal regions?*

Key topic: weather and atmospheric circulation

**Proposed cooperation topics/ themes:**

1. Spatial and temporal variations of trace gases (experimental and modelled) in Northern Latitude and radiation forcing
2. Measuring, modelling and forecasting the ozone and UV anomalies
3. Anthropogenic greenhouse gas emissions from megacities
4. Remote sensing the greenhouse radiation forcing using satellite measurements
5. Ground-based IR sun radiation measurements of trace gas vertical profile
6. Laboratory and field aerosol investigations

**(IX) Nearest steps:**

- Place presentations/ materials of the zoom-meeting at the PEEX website (open access)
- SPBU colleagues are very welcome to contribute to the PEEX science overview paper (please, send/ discuss to/with Hanna K. Lappalainen <hanna.k.lappalainen@helsinki.fi>
- Jointly continue monitoring opening Calls (where both SPBU + RSHU can be involved)

**(X) Arrange next zoom-meeting (date to be decided) to discuss:**

- plans for realization of the FIRST+ PEEX-AC proposal for university science education (if approved for funding);
- current situation/ status with open bi-lateral & international Calls for research and educational proposals;
- further steps to develop joint projects and join research.

**(XI) Calls for research projects to monitor:**

- NW Russia + Nordic&Baltic countries, there is option with NordForsk funding: <https://www.nordforsk.org/en/funding>;
- South-East Finland – Russia CBC Programmes: <https://www.sefrcbc.fi/projects>;
- ERA.NET Plus with Russia (strengthening STI links between Russia and the European Research Area): <http://www.eranet-rus.eu>;
- Academy of Finland (<http://www.aka.fi/en/funding>) & Russian Foundation for Basic Research (<http://www.rfbr.ru/rffi/eng>) have also joint Calls on proposals;
- Belmont Forum: <https://www.belmontforum.org/opportunitie>;
- PECC NEFCO Call: <https://www.nefco.org/fund-mobilisation/funds-managed-by-nefco/pecc>;
- Horizon-2020 specific calls when RU partners are possible to include, etc.
- Finnish National Agency for Education Calls on students/teachers mobilities and intensive training courses (<http://www.cimo.fi/programmes/firstplus>);
- Individual proposals for visiting SMEAR-II station/ Hyytiala (Finland) (<https://www.envriplus.eu/calls>)