Aim
This YSS will introduce young generation of researchers to special topics in atmospheric and environmental sciences, Earth system modelling approaches and applications, especially considering transport and fate of small (micro) particles. During the school, participants will learn about the current progress and challenges in Earth system research; meteorological, hydrological and atmospheric composition modelling and observations (including ground-based and remote-sensing); and modern technologies for environmental studies and assessments (including health impacts). The programme will consist of theoretical lectures and practical exercises (to be accomplished by students as small-scale research projects ending with presentation of the project results).
YSS Programme

This School was originally planned in August 2020 (Moscow, Russia) as part of the Academy of Finland (AoF) “ClimEco” & Russian Science Foundation (RSF) “MegaPolis” projects, but postponed due to covid pandemic. Professor Sergej Zilitinkevich (1936-2021) was one the key organizers of the School, promoting for research community, and especially, for the younger generation, the importance of atmospheric and environmental sciences, approaches in the Earth system modelling and their applications. This School is organized in the Memory of Professor Sergej Zilitinkevich.

- **Block 1** – Current progress & challenges in Earth system research (atmosphere-hydrosphere- biosphere);
- **Block 2** – Modelling (Earth system, numerical weather prediction, atmospheric chemical transport, seamless online integrated, atmospheric boundary layer) and specific challenges;
- **Block 3** – Chemistry (gas, liquid) and aerosols (properties, dynamics, chemistry, micro-physics, interactions);
- **Block 4** – Emissions, data assimilation, models evaluation;
- **Block 5** – Ground-based and remote sensing observations; EU and Russian strategies for hydro-meteorological, ecosystems and atmospheric composition monitoring; SMEAR stations; measurements for atmospheric composition, ecosystems, meteorological, hydrological, urban scale;
- **Block 6** - GIS technologies in environmental sciences; Environmental (land, water, terrestrial ecosystems) and human health assessments.

**Practical Exercises as Small-Scale Research Projects (SSRP)** on selected research topics to be accomplished by groups of students led by teachers.

**Organizing Committee**

Markku Kulmala, Sergej Zilitinkevich, Jaana Bäck, Hanna Lappalainen, Alexander Mahura

*Institute for Atmospheric and Earth System Research, University of Helsinki, Finland*

Nikolay Kasimov, Sergey Chalov, Pavel Konstantinov, Natalia Frolova, Anatolii Tsyplenkov

*Faculty of Geography, Moscow State University, Russia*

Vladimir Melnikov, Andrei Tolstikov, Dmitrii Gabyshev

*University of Tyumen, Tyumen, Russia*

Alexander Baklanov

*World Meteorological Organization, Geneva, Switzerland*

**Organizers and Support**

Pan-Eurasian Experiment (PEEX); RSF MegaPolis; MEGAHAPI; AoF ACCC, ClimEco, ClimComp projects; Russian Geographical Society & Russian Hydrometeorological Society; World Meteorological Organization (WMO); Horizon-2020 iCUPE, INTAROS, RI-URBANS, CRiceS projects; Russian Science Foundation & Academy of Finland

**Target audience**

Young Researchers (Post Docs, PhDs, MSc, advanced BSc)

**Selection criteria**

Based on motivation letter, other skills (e.g. programming, etc.), CV & publication list

**Registration deadline** 1 November 2021

**Language** English

**Costs** no fee

Please, send your application package (i.e. motivation letter, CV & publication list): through web-page: [https://www.megapolis2021.ru/](https://www.megapolis2021.ru/)