

PAN-EURASIAN EXPERIMENT (PEEX) – FIRST STEPS TOWARDS PAN-EURASIAN OBSERVATION NETWORKS

Hanna K. Lappalainen^{1,2}, Tuukka Petäjä¹, Veli-Matti Kerminen¹, Risto Makkonen¹, Aapo Malkamäki¹, Pavel Alekseychik¹, Nina Zaitseva³, Joni Kujansuu¹, Pavel Konstantinov⁴, Jaana Bäck⁵, Pertti Hari⁵, Sergej Zilitinkevich^{2,6}, Markku Kulmala¹ & The PEEX Preparatory Phase Committee

¹Dept. of Physics, University of Helsinki, Finland.

²Finnish Meteorological Institute, Helsinki, Finland

³ Dept. of Earth Sciences, Russian Academy of Sciences, Russia

⁴ Moscow State University, Russia

⁵ Dept. of Forest Ecology, University of Helsinki, Finland.

⁶ Dept. of Radiophysics, Nizhny Novgorod State University, Russia

Pan-Eurasian Experiment (PEEX) initiative (<https://www.atm.helsinki.fi/peex/>) is an international, multi disciplinary, multiscale bottom up initiative established in 2012 (Lappalainen et al. 2014). The main focus of the initiative is to solve interlinked global challenges influencing societies in the Northern Eurasian region (Kulmala et al. 2015). At the moment it is involving research communities from 20 different countries from Europe, Russian and China. The program is coordinated by the Univ.Helsinki and Finnish Meteorological Institute together with the strong support by the Moscow State University (MSU) and AEROCOSMOS from Russia and Institute of Remote Sensing and Digital Earth (RADI) and University of Nanjing from China.

The priority task of the PEEX research infrastructure development is to establish coordinated, coherent land based observation network (The PEEX Network) over Northern Pan-Eurasian region. The concept of the hierarchical PEEX in situ station network is based on know-how of the 20 year development of the SMEAR-II flagship station measurement theory and techniques (Hari et al. 2015). However the backbone of the station network is built on the existing biosphere (ecological) and atmospheric observation networks in collaboration with European, Russian, Chinese and global partners.

PEEX is opening in autumn 2015 a metadata enquiry in order to make an inventory of the state of the art of ongoing measurements in Russia and China. Similar approach will be carried out with the inventory of societal data in order to facilitate and strengthen the multidisciplinary approach in a frame of the PEEX research agenda. As a part of the Metadata enquiry a proof of existing data set is asked for the PEEXView online tool. The PEEXView is an online tool for visualizing and analyzing of simulation and observational data and a demo version has just been released in PEEX website (http://www.atm.helsinki.fi/aapon_demo_php/test15_demo.html). In the future, the PEEXView is envisioned to combine multidisciplinary datasets of varying temporal and spatial scales.

REFERENCES

Hari, P. et al. (2015). Conceptual design of a measurement network of the global change. *Atmos. Chem. Phys. Discuss.*, 15, 21063-21093.

Kulmala, M. et al. (2015). Introduction: The Pan-Eurasian Experiment (PEEX) – multi-disciplinary, multi-scale and multi-component research and capacity building initiative. *Atmos. Chem. Phys. Discuss.*, 15, 22567-22596.

Lappalainen et al. (2014): Pan-Eurasian Experiment (PEEX)- a research initiative meeting the grand challenges of the changing environment of the northern Pan-Eurasian arctic-boreal areas. *J. Geography, Environment, Sustainability* No 2(7) pp. 13-48.