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PEEX Modelling Platform for Seamless Environmental Prediction

Alexander Baklanov (1), Alexander Mahura (2), Stephen Arnold (3), Risto Makkonen (4), Tuukka Petäjä (4), Veli-Matti Kerminen (4), Hanna K. Lappalainen (4), Igor Ezau (5), Roman Nuterman (6), Wen Zhang (7), Alexey Penenko (8), Evgeny Gordov (9), Sergej Zilitinkevich (4), Markku Kulmala (4), and the PEEX Modelling Platform Team

(1) World Meteorological Organization (WMO), Research, Geneva, Switzerland (alb@dmi.dk), (2) Danish Meteorological Institute (DMI), Copenhagen, Denmark, (3) University of Leeds, Leeds, UK, (4) University of Helsinki, Helsinki, Finland, (5) Nansen Environmental and Remote Sensing Center, Bergen, Norway, (6) University of Copenhagen, Copenhagen, Denmark, (7) Institute of Atmospheric Physics (IAP), Chinese Academy of Sciences (CAS), China, (8) Institute of Computational Mathematics and Mathematical Geophysics, Siberian Branch of RAS, Novosibirsk, Russia, (9) Institute of Monitoring of Climatic and Ecological Systems, Siberian Branch of RAS, Tomsk, Russia

The Pan-Eurasian EXperiment (PEEX) is a multidisciplinary, multi-scale research programme stared in 2012 and aimed at resolving the major uncertainties in Earth System Science and global sustainability issues concerning the Arctic and boreal Northern Eurasian regions and in China. Such challenges include climate change, air quality, biodiversity loss, chemicalization, food supply, and the use of natural resources by mining, industry, energy production and transport. The research infrastructure introduces the current state of the art modeling platform and observation systems in the Pan-Eurasian region and presents the future baselines for the coherent and coordinated research infrastructures in the PEEX domain.
The PEEX modeling Platform is characterized by a complex seamless integrated Earth System Modeling (ESM) approach, in combination with specific models of different processes and elements of the system, acting on different temporal and spatial scales. The ensemble approach is taken to the integration of modeling results from different models, participants and countries. PEEX utilizes the full potential of a hierarchy of models: scenario analysis, inverse modeling, and modeling based on measurement needs and processes. The models are validated and constrained by available in-situ and remote sensing data of various spatial and temporal scales using data assimilation and top-down modeling. The analyses of the anticipated large volumes of data produced by available models and sensors will be supported by a dedicated virtual research environment developed for these purposes.