



## **Spatial Distribution of Atmospheric Constituents over Northern EURASIA during the Warm Summer of 2018**

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Eurasia includes a vast area over land and water extending from the North Atlantic to the Pacific Ocean, and from the Arctic to the mid-latitudes. This very large area is sparsely populated. To obtain information on the state of the Eurasian environment, different types of data sources need to be combined, i.e. ground-based observations, satellite remote sensing and modeling. To coordinate the collection and use of atmospheric, land and ocean data over EURASIA, the Pan-Eurasian Experiment (PEEX) program was initiated in 2012 with the aim to resolve science, technology and sustainability questions in the Northern Eurasian region. (Lappalainen et al., 2016, 2018). In this contribution we discuss the use of satellite data over EURASIA to obtain information on atmospheric composition. Satellite data can in principle be used to fill gaps between ground-based observations, but the availability of satellite data is limited and satellite-retrieved information is less detailed than that from a multitude of ground-based instruments. However, an advantage is that space-based sensors provide data from the same instrument and with the same method over the whole region with a return time depending on swath width. Results will be presented on the spatial and temporal distributions of aerosols (AOD, AAI), NO<sub>2</sub>, CO<sub>2</sub>, as well as SIF and forest fires, obtained from different types of instruments. In particular we focus on the warm summer of 2018 to identify whether this led to anomalous behaviour of the concentrations over Eurasia and their spatial distribution.

### References:

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- Lappalainen, H.K., et al. (2018). The Silk Road agenda of the Pan-Eurasian Experiment (PEEX) program, *Big Earth Data*, DOI: 10.1080/20964471.2018.1437704