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**CONTROL ID:** 1186067**TITLE:** Remote sensing for monitoring of land surface hydrology at high latitudes within the framework of the ESA DUE Permafrost and STSE ALANIS-Methane projects**PRESENTATION TYPE:** Assigned by Committee (Oral or Poster)**CURRENT SECTION/FOCUS GROUP:** Global Environmental Change (GC)**CURRENT SESSION:** GC16. Regional Climate Impacts 7. Environmental, Socio-economic and Climatic Changes in Northern Eurasia and their Feedbacks to the Global Earth System: The Role of Remote Sensing and Integrative Studies**AUTHORS (FIRST NAME, LAST NAME):** Annett Bartsch<sup>1</sup>, Birgit Heim<sup>2</sup>, Kirsten K Elger<sup>2</sup>, Garry D Hayman<sup>3</sup>, Anna Maria Trofaier<sup>4</sup>**INSTITUTIONS (ALL):** 1. Institute of Photogrammetry and Remote Sensing, Vienna University of Technology, Vienna, Austria.

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**SPONSOR NAME:** Annett Bartsch**ABSTRACT BODY:** Time series of a wide range of biogeophysical parameters from satellite data are available to date on a global scale. A few initiatives focus on their improvement and validation in high latitudes. For example the DUE Permafrost and STSE ALANIS-Methane, which are activities funded by the European Space Agency, focus on this issue.ALANIS Methane is a research project to produce and use a suite of relevant earth observation (EO) derived information to validate and improve one of the next generation land-surface models and thus reduce current uncertainties in wetland-related CH<sub>4</sub> emissions. The task of the ESA DUE Permafrost project is to build up an Earth observation service for high-latitude permafrost applications. Results which are shown in this paper contribute to both.

Microwave sensors are of special interest in this context due to their independence on cloud conditions and illumination of the Earth Surface. They can be used for derivation of land surface temperature, snow properties and land surface hydrology. The latter includes near surface soil moisture and inundation. Such parameters are of importance for studies on e.g. permafrost and land-atmosphere exchange.

Datasets derived from active microwave instruments operating in C-band have been analysed with respect to their usability at high latitudes. Several examples from western Siberia are discussed.

[www.ipf.tuwien.ac.at/permafrost](http://www.ipf.tuwien.ac.at/permafrost)[www.alanis-methane.info](http://www.alanis-methane.info)

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**INDEX TERMS:** [0480] BIOGEOSCIENCES / Remote sensing, [1855] HYDROLOGY / Remote sensing.