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Title Achievements of the ESA DUE GlobPermafrost project and first results from ESA CCI+ Permafrost

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Theme -Theme 1: Design, Optimization and Implementation of the Observing System

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Poster title (brief) ESA DUE GlobPermafrost and ESA CCI+ Permafrost

Abstract - text box

A Permafrost Information System (PerSys) based on satellite data has been setup as part of the ESA DUE GlobPermafrost project (2016-2019, www.globpermafrost.info). This includes a data catalogue as well as a WebGIS, both linked to the Pangaea repository for easy data access. The thematic products available include InSAR-based land surface deformation maps, rock glacier velocity fields, spatially distributed permafrost model outputs, land surface properties and changes, and ground-fast lake ice. Extended permafrost modelling (time series) is implemented in the new ESA CCI+ Permafrost project (2018-2021,), which will provide the key for our understanding of the changes of surface features over time. Special emphasis in CCI+ Permafrost is on the evaluation and development of land surface models to gain better understanding of the impact of climate change on permafrost and land-atmosphere exchange. Additional focus will be on documentation of kinematics from rock glaciers in several mountain regions across the world. We will present the Permafrost Information System (PerSys) as well as time series (2003-2017) of the first version of ground temperatures and active layer thickness for the entire Arctic from the ESA CCI+ Permafrost project. Ground temperature is calculated for 0, 1m, 2m, 5m, and 10 m depth and has been assessed based on a range of borehole data. RMSE of this initial version is 1.87°C.