ESA-LPS22

Antonie Haas (1), Birgit Heim (1), Annett Bartsch (2), Isabel Herrarte (1), Andreas Walter (1), Sina Muster (1), Guido Grosse (1,3), (1) Christian Schaefer-Neth (1), Frank Martin Seifert (4)
1- AWI Alfred Wegener Institute, Bremerhaven & Potsdam (Germany),
2- b.geos, Austria
3- Earth and Environmental Science Institute, University of Potsdam, Germany,
4- European Space Agency (ESA)

ALFRED-WEGENER-INSTITUT
HELMHOLTZ-ZENTRUM FÜR POLAR- UND MEERESFORSCHUNG

ESA GlobPermafrost – Remote Sensing Time Series Data Visualization

Motivation - The **ESA** DUE **GlobPermafrost** and **ESA CCI+** focused on the processing of ready-to-use data products derived from remote sensing data that support permafrost-related research. Within **GlobPermafrost** we established **PerSyS,** a Permafrost Information System designed as an open access geospatial data dissemination and visualisation portal. **PerSyS** allows visualisation of a wide range of **GlobPermafrost** raster and vector products: land cover classifications, Landsat-derived trend datasets, lake and wetland extents, InSAR-based land surface deformation maps, rock glacier velocity fields, spatially distributed permafrost model outputs, and land surface temperature datasets. Within **ESA CCI+** an very important variable was added to some of the already existing products: **time**. A time-series webGIS comprising of permafrost circum-artic model output for Mean Annual Ground Temperature (MAGT), Permafrost Extent and Probability (PEX), and Active Layer Thickness (ALT) for a more than twenty years period of time.

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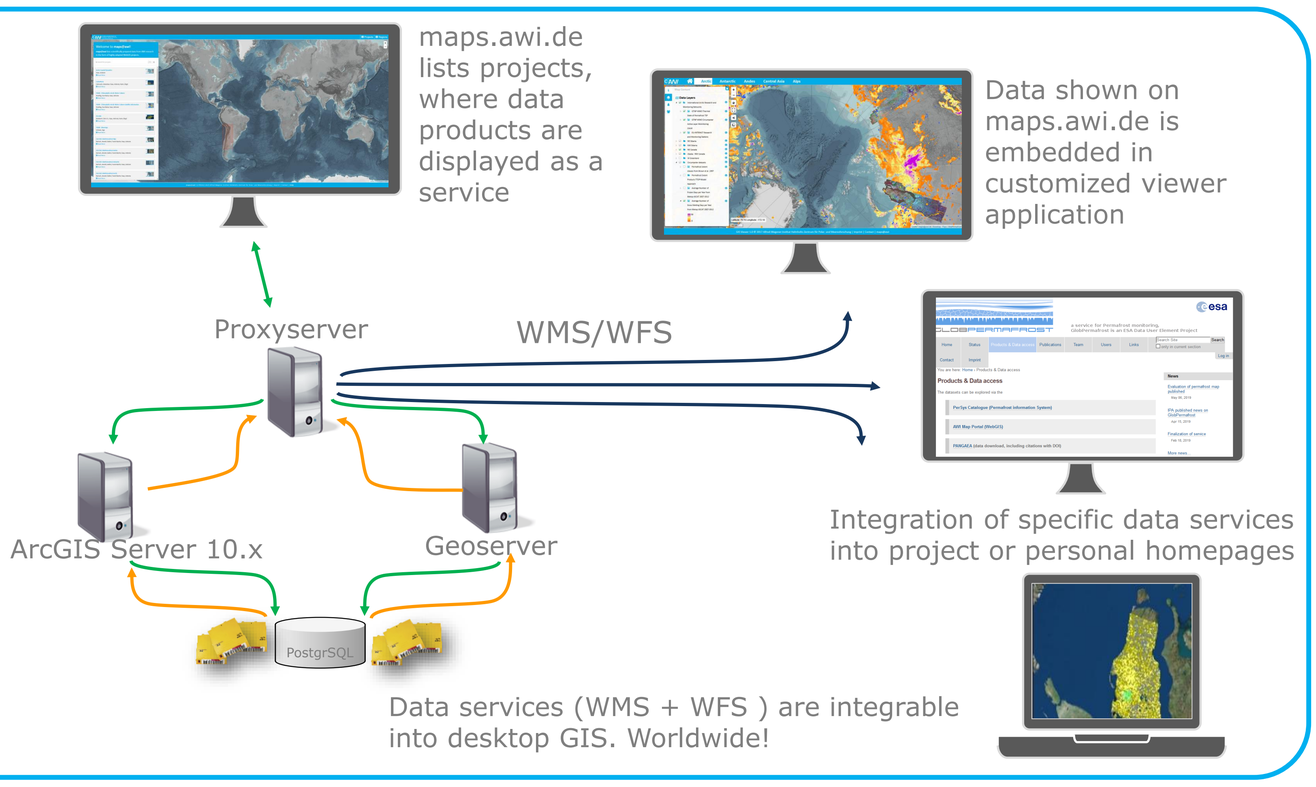
PerSys is hosted at AWI and technically realised upon **GIS (Geographical Information Systems)-based Geodata Infrastructure (GIS-GDI@AWI)**. GIS server technology enables the digital publication and therefore visualization of multidisciplinary project data in the World Wide Web. **GlobPermafrost and CCI+** datasets have been published as WebGIS services relying on OGC-standardized Web Mapping Services (WMS) and Web Feature Services (WFS). Due to this, all services are interoperable and can be integrated into various desktop GIS applications. All GlobPermafrost/CCI+ WMS are embedded in a JavaScript GIS viewer application based on a leaflet library.

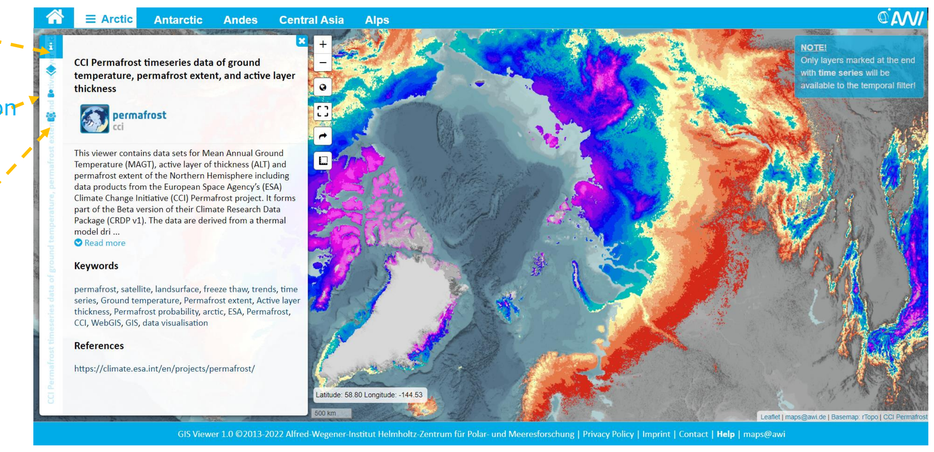


CCI+ time-series data products visualization for the Arctic

Project information

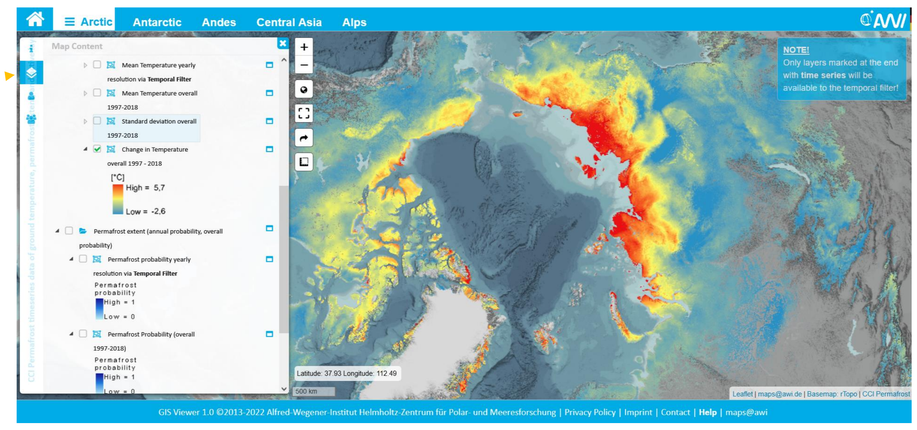
Project coordination

Project partners



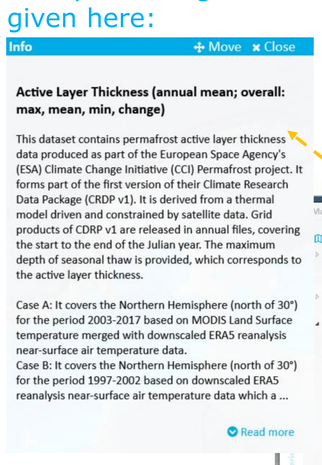
Mean Annual Ground Temperature (MAGT) data were modelled for several depth levels in a yearly resolution (1997-2018), selectable by filter. Additionally, for every depth level further data products are visualized: mean overall temperature, mean standard deviation and overall change in temperature.

Data Layer List
By selecting a specific layer a related legend will be visible.

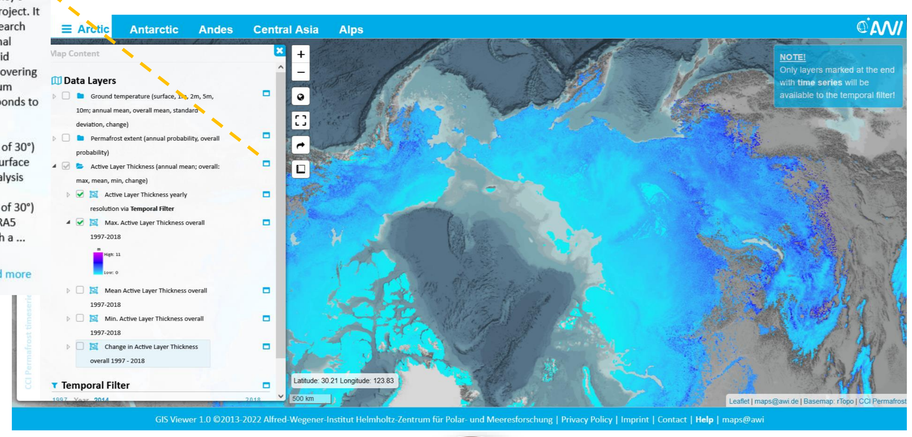


Permafrost Probability and Extend (PEX) is visalized in a yearly resolution as well as an overall product.

Information about data processing is given here:



Active Layer Thickness (ALT) data is available in yearly resolution, overall: max, mean, min and change (1997-2018



Information regarding a specific location is accessible via mouse click: A pop-up window lists beside pixel value and time additionally important data like layer name, data download options, and details about the PI

The ESA DUE Permafrost final product data set is already published under doi:10.1594/PANGAEA.780111

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