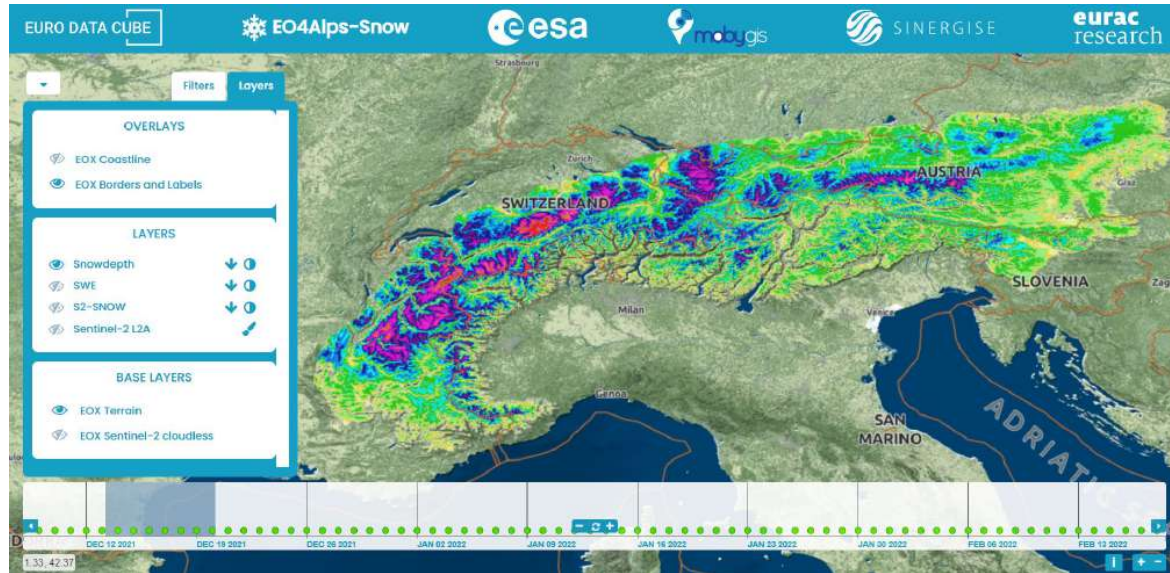
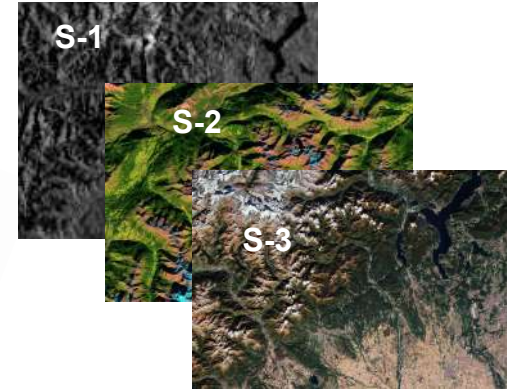
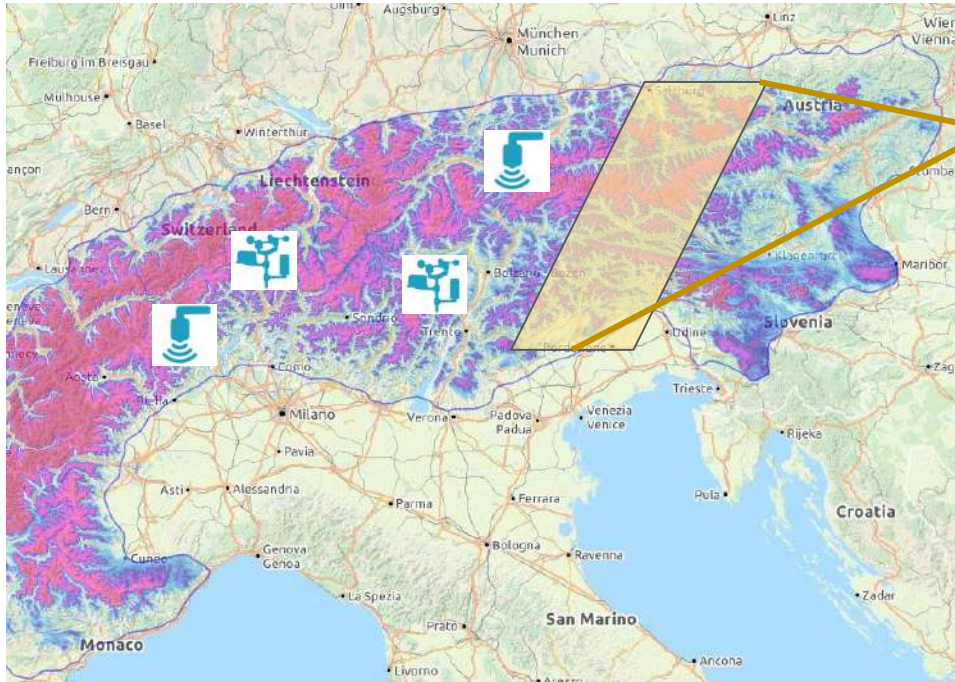


eo4alps snow: operational snow monitoring at alpine scale



Objective of the project



Goal: Implementation of a high-resolution quasi real-time snow monitoring system to improve water resource management

Duration: 24 months from Jan 2021 - Jan 2023

Link: <https://waterjade.com/eo4alps-snow/>



Service portfolio

The eo4alps snow project aims to improve the management of available water resources at Alpine scale. The project focuses on the **snow resource** with the aim of providing high spatio-temporal resolution maps of: snow water equivalent (**SWE**), snow covered area (**SCA**) and snow depth (**HS**).



Fully scalable

Input

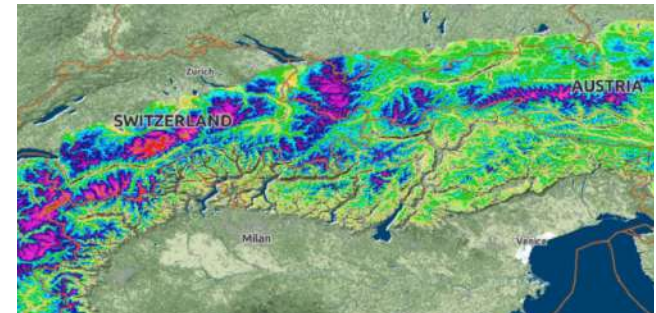
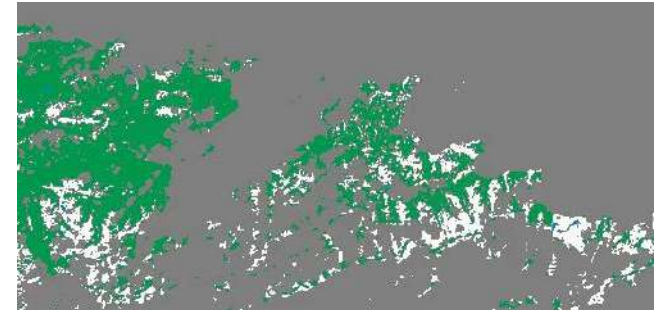
- EO data: Sentinel-1, Sentinel-2 and Sentinel-3 missions;

- Meteorological data;
- ERA5 reanalysis + Numerical Weather Predictions

Output

SCA satellite: snow covered at daily scale, 100 m resolution from 2017-2022

S.M.A.R.T.: SWE and snow depth, daily scale, 250 m resolution from 2017-2022

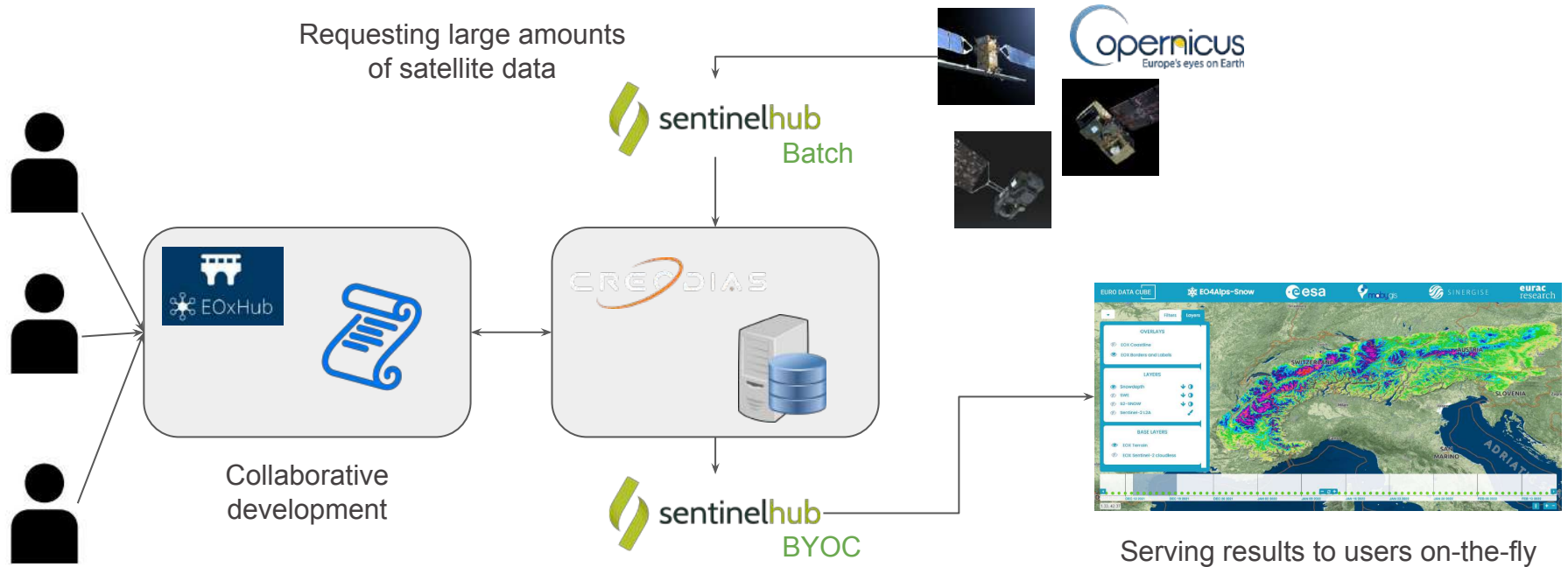


NoR sponsored tools

ID	Resources	Planned Usage
24155b	EOXHub Standard Multi User Plan	Development of processing scripts in the cloud. Collaborative coding in a centralised Jupyter Hub
24158f	CreoDIAS Object Storage 1TB	Storage of Batch requests of input satellite data. Storage of results in Cloud Optimised format for distribution through Sentinel Hub services.
2415ff	Sentinel Hub Yearly Enterprise Subscription	Cloud-based batch processing of input satellite imagery. Direct integration of results into the user-facing platform offering on-the-fly access to data.

NoR sponsored tools

NoR provided the project with interconnected services to deploy a fully operational service in the cloud, offering users a web-based analysis platform.



NoR sponsored tools: goals achieved



EOxHub

- EOxHub enabled MobyGIS and EURAC to collaborate on the development of scripts to include satellite data assimilation in the snow modelling processing chain.
- The pre-configured environment provided all the tools out-of-the-box to work with the Euro Data Cube libraries for the deployment of the demonstrator.
- The EOxHub platform allowed us to create the demonstration app for the project starting from a good base without too much effort.

NoR sponsored tools: goals achieved



CreoDIAS

- The entire architecture of the EO4ALPS project relied on Object Storage provided by CreoDIAS services.
- The satellite data assimilation service consumed satellite data at large scale (temporal and spatial) from multiple sensors. CreoDIAS enabled the mass delivery of data directly to the storage bucket, hugely reducing resources compared to traditional pre-processing methods.
- The outputs of the EO4ALPS service chains were delivered to a CreoDIAS storage bucket in a cloud-native format, enabling efficient on-the-fly queries of the data.

NoR sponsored tools: goals achieved



- Sentinel Hub [Processing API](#) supported quick development of the processing chains by enabling small targeted queries of satellite data for testing.
- Sentinel Hub [Batch Processing API](#) served large volumes of input satellite data to the processing chain in an efficient manner, reducing pre-processing times and allowing on-the-fly pre-computation of EO-derived input products.
- Sentinel Hub [BYOC API](#) allowed serving the platform with the outputs from the EO4ALPS service chain through OGC standard APIs in real-time to end-users.



**THANK YOU FOR YOUR
ATTENTION**

MobyGIS S.r.l.

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