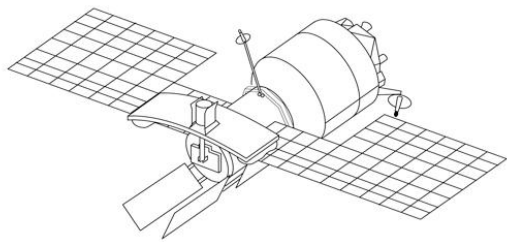


# BEYOND Ground Segment The Hellenic Mirror Site Initiative

**Haris Kontoes**, National Observatory of Athens

**Xenofon Tsilimparis**, Greek Research & Technology Network

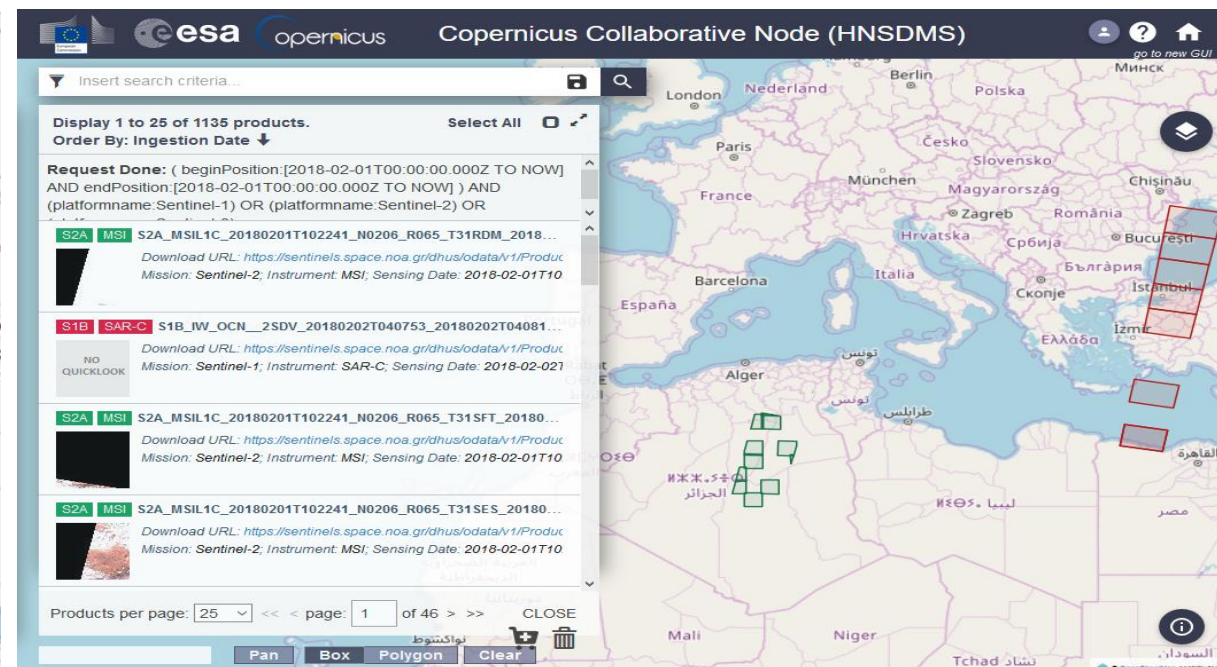
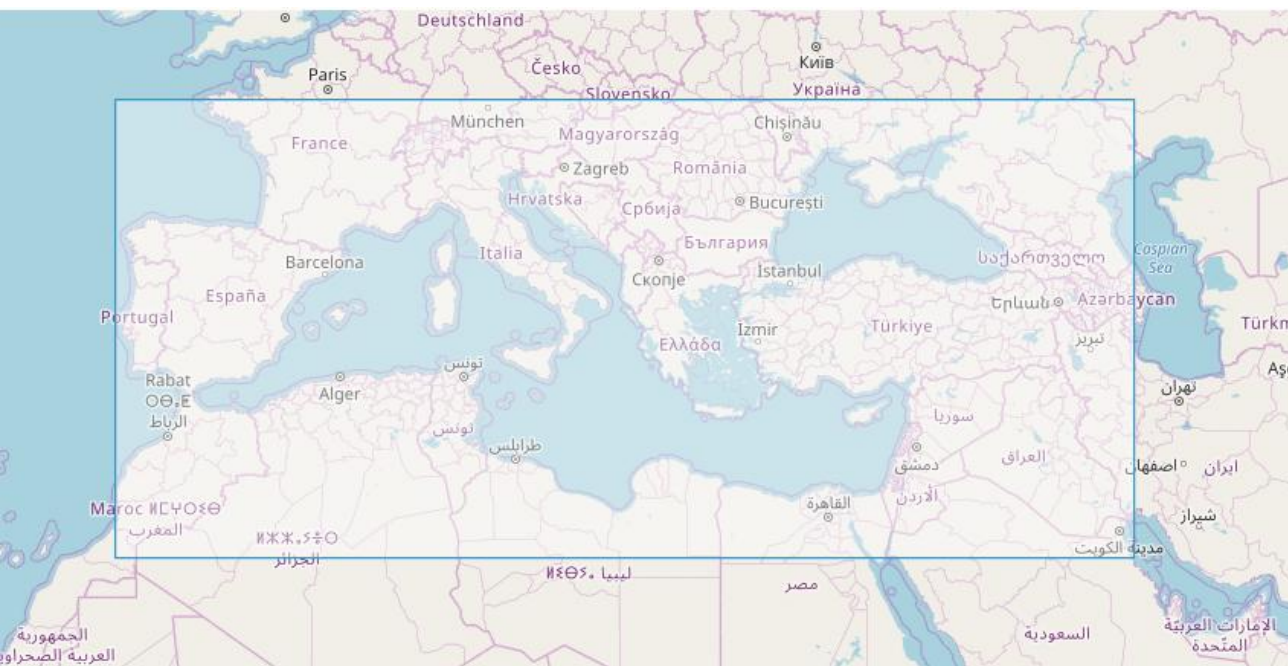


<http://beyond-eocenter.eu/>

<https://sentinels.space.noa.gr/>

Sentinel Collaborative Ground Segment Technical Workshop  
14-15 October 2019, ESRIN

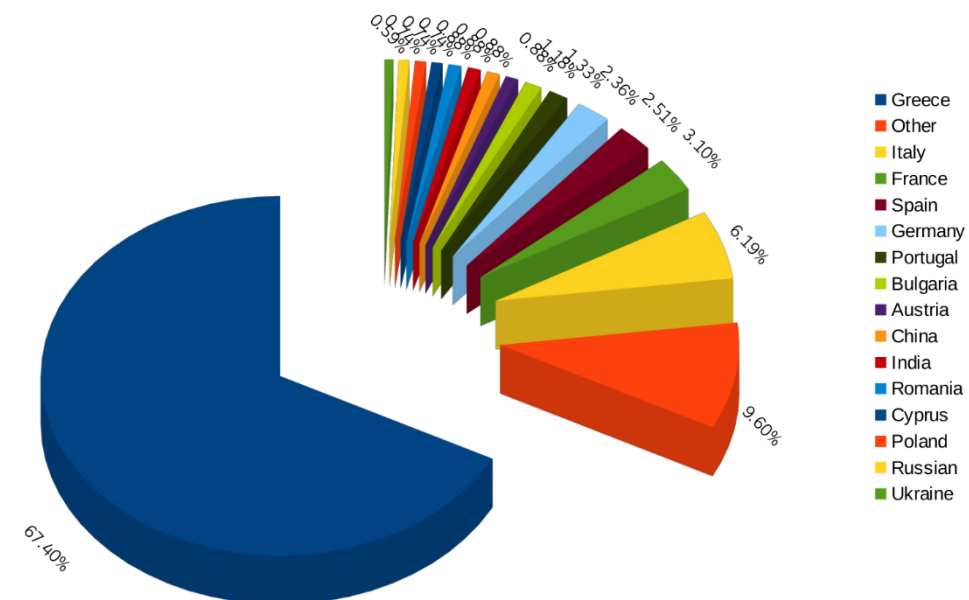
- Synchronizes products with remote copy from ColHub Node 3 for a specified Area of Interest (below)
- Rolling archive of 25 days using a 44TiB NAS storage



## In the last 12 months of operations

- New user registrations: **91**
- Total registered users: **678**

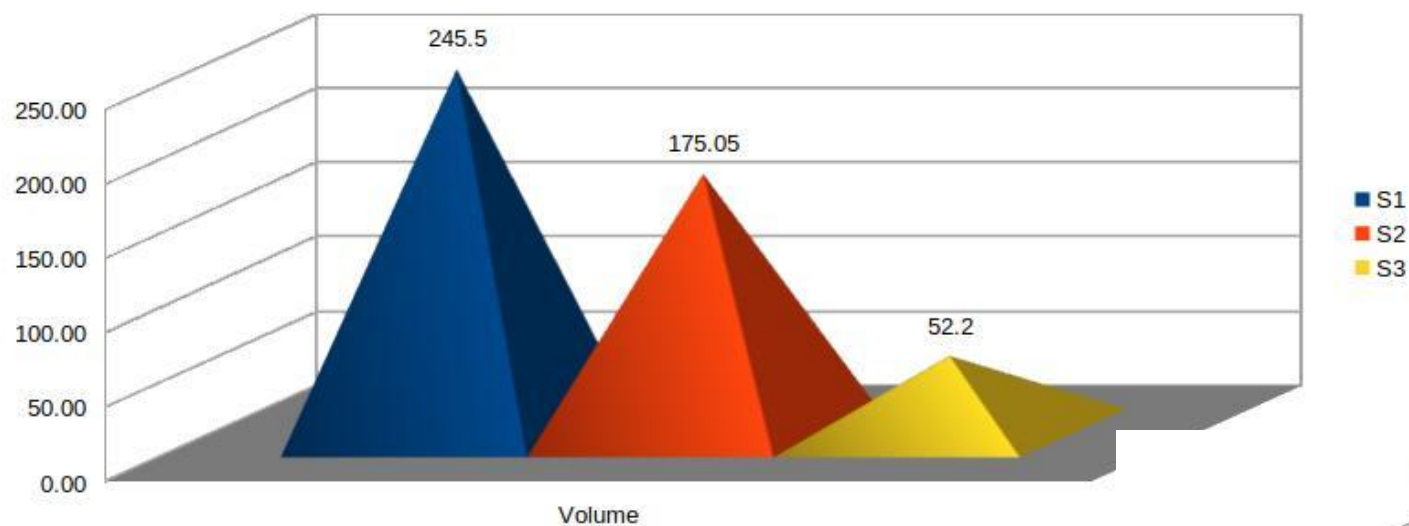
Distribution of users per country (top 15 plus "other")



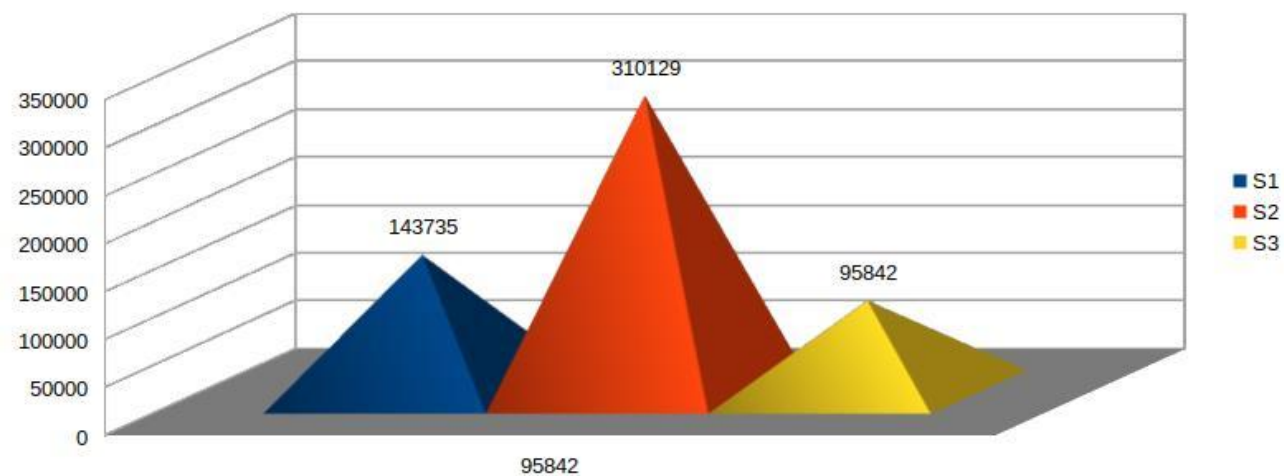
- Most registered users are from Greece but also a number of mostly European countries such as Italy, France, Germany, Spain etc.

## Mission interest over time for the past 12 months

Total Volume of Sentinel Products Published last 12 months (TB)

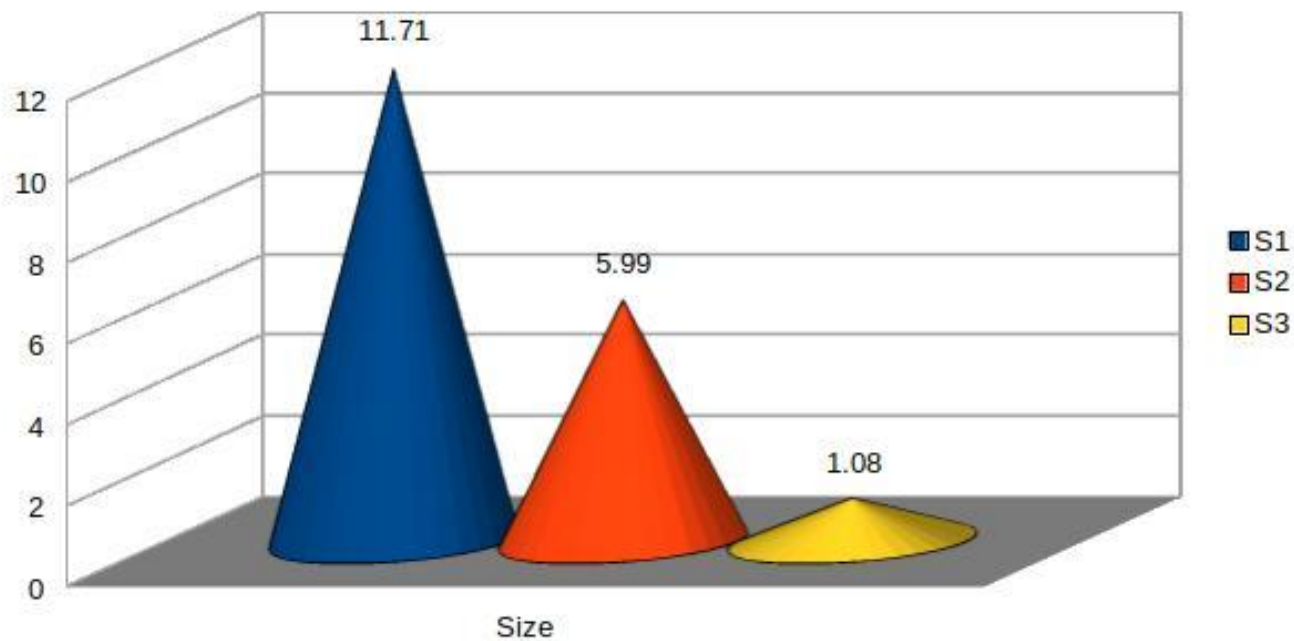


Total Count of Sentinel Products Published last 12 months

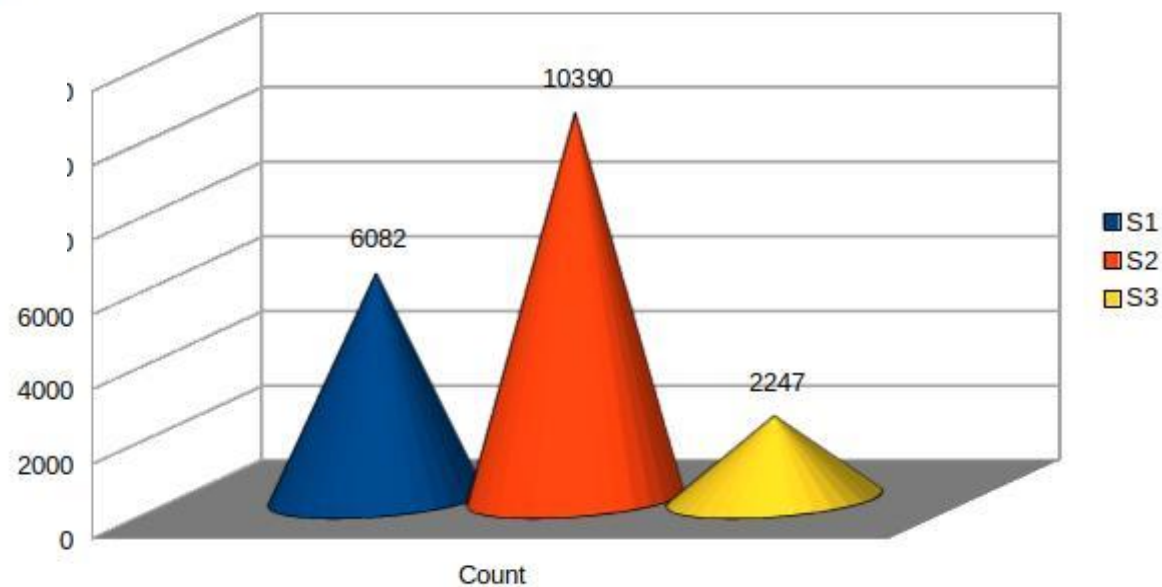


### Mission interest over time for the past 12 months

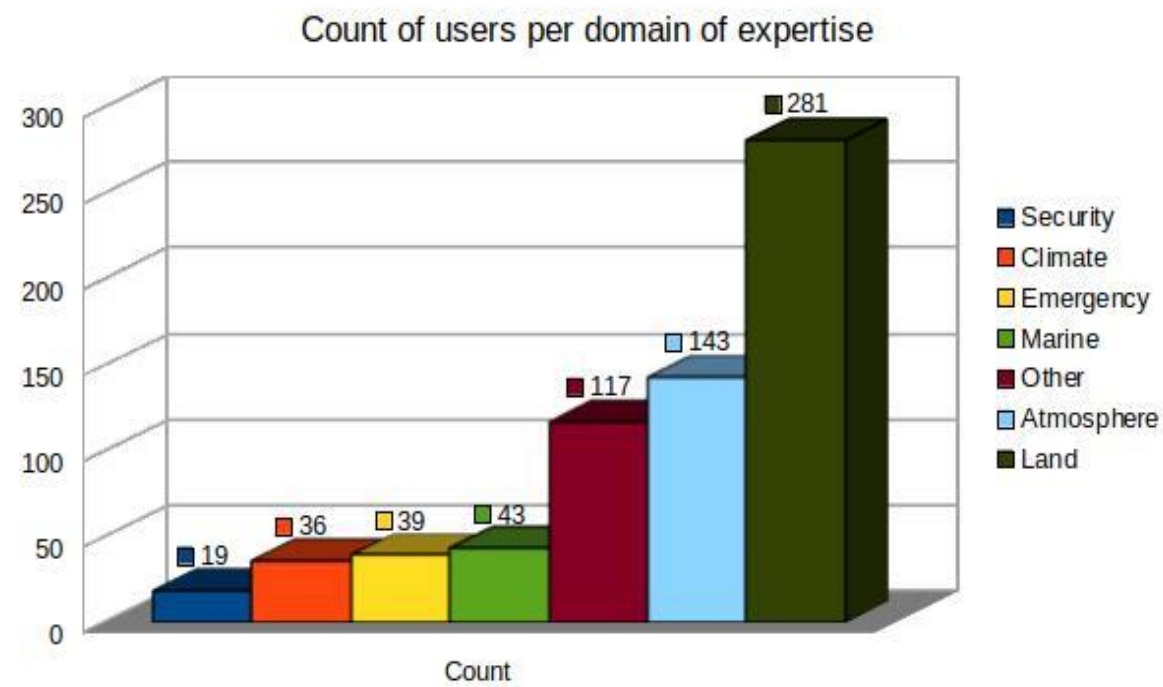
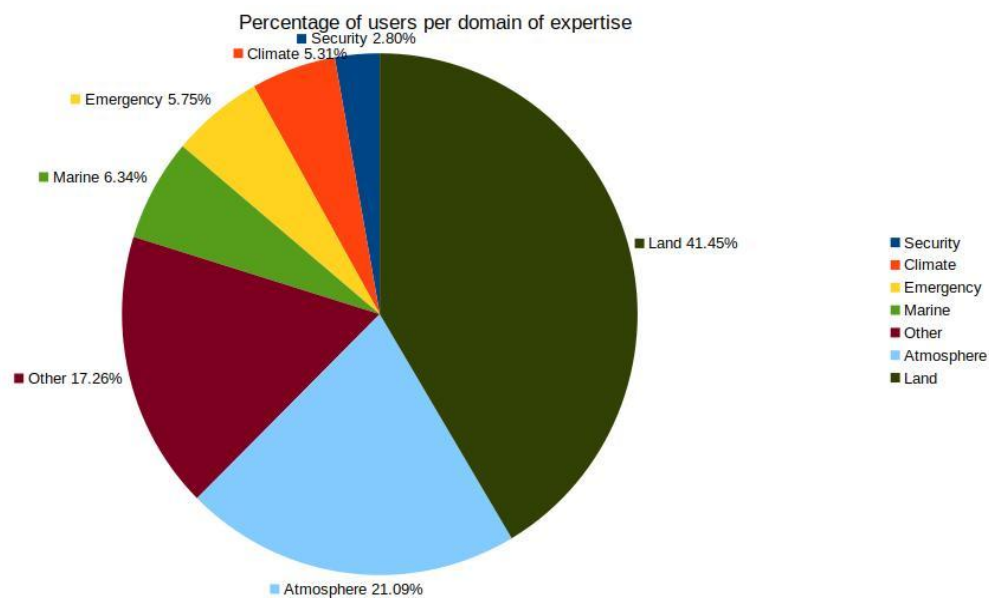
Total Volume of Sentinel products downloaded last 12 months (TB)



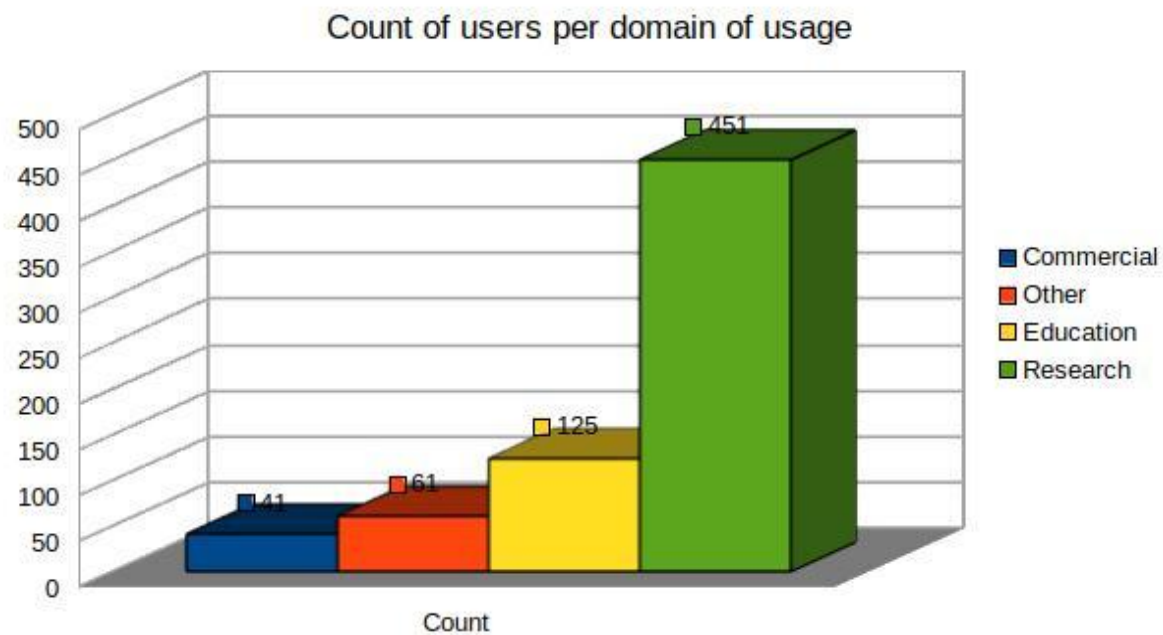
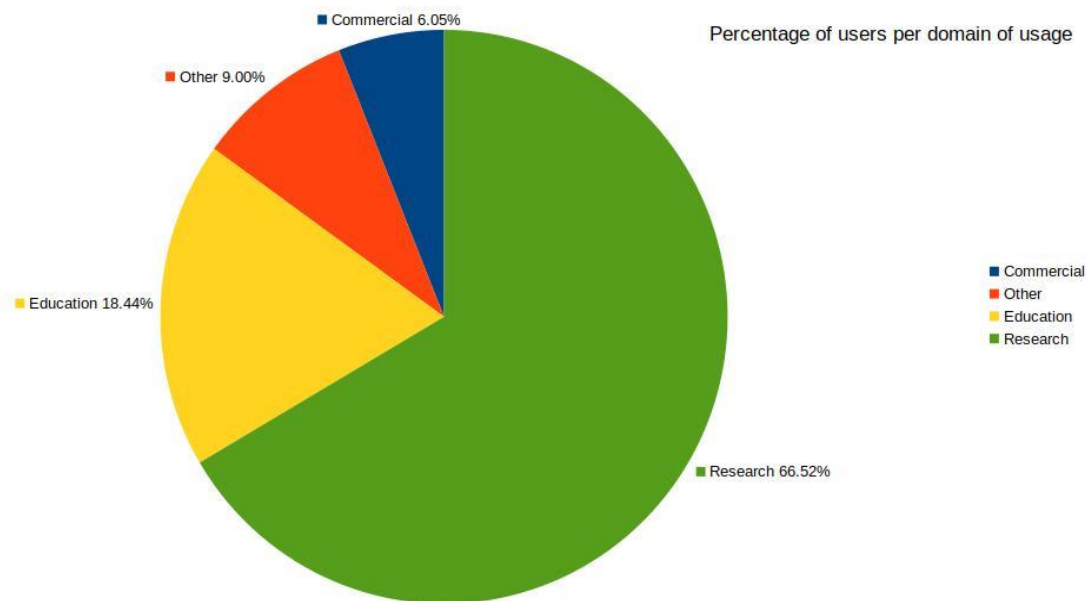
Total Count of Sentinel Products Downloaded last 12 months



- **Atmosphere and Land application domains** are ranked between the main fields of Sentinel data use



- The Hellenic Sentinel Data Hub is **popular** amongst the members of the **scientific community**





- Using “**Splunk**” for the daily monitoring of HNSDMS.
- “**Splunk**” collects, indexes, and correlates real-time data from which it can generate graphs, reports, alerts, dashboards, and visualizations.



# Umbrella application

## The challenge

- There are several Copernicus Hubs out there to access Sentinel data!
  - Core Hubs: Open Access Hub (formerly SciHub), 4 DIAS Hubs, ApiHub, Copernicus Hub
  - **23** National Collaborative Ground Segments. Indicatively: HNSDMS (Greece), CODE-DE (Germany), FinHub (Finland), PEPS (France)
- The hubs have different data offer
  - Availability of different missions and different products per sensor
  - Geographic coverage within which Sentinel products are available
  - Maximum concurrent downloads allowed
  - Data rolling policy
- The hubs experience different performances
  - Downloading speed, number of published products, response times, availability, product latency
- Even for the same hub there is intra-day, and intra-product variability in terms of KPIs

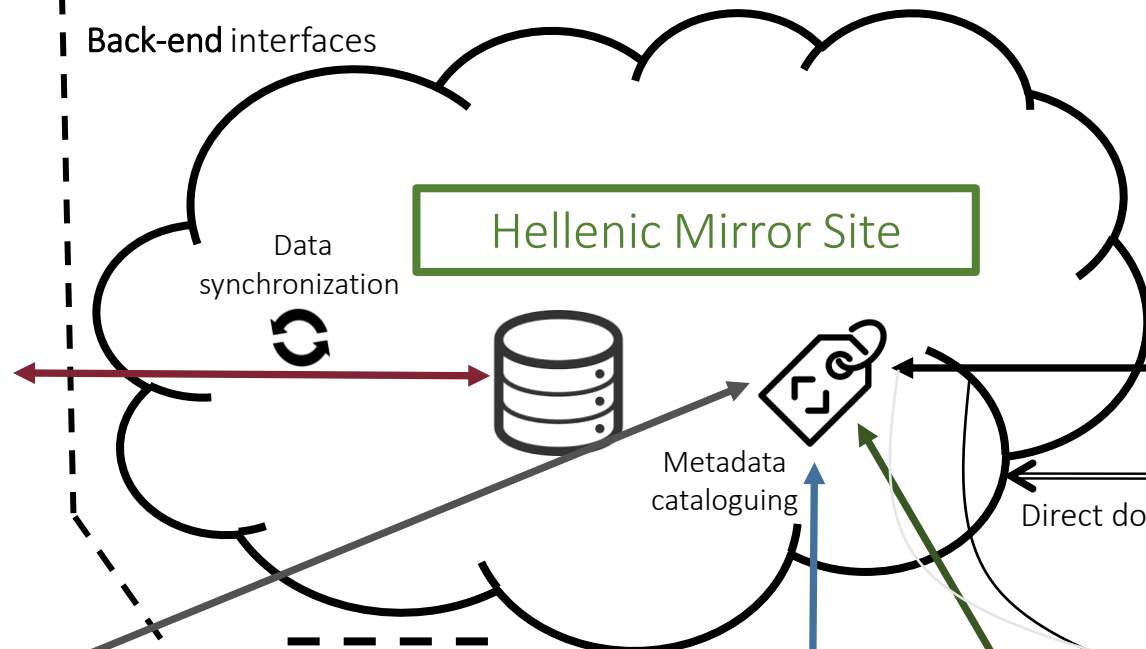
	Archive Policy	Deletion Policy	Missions	Performance	Geographic Coverage
<b>Copernicus Open Access Hub</b>	Products from January 2018 (online archive of at least the latest year of products)	Corrupted and duplicate products are deleted every 24 hours	Sentinel-1 Sentinel-2 Sentinel-3	Slow response and variant download speed	Global
<b>Hellenic National Sentinel Data Mirror Site.</b>	Products from last 50 days	No deletion list	Sentinel-1 Sentinel-2 Sentinel-3	Very fast response and high download speed	South & South-eastern Europe, Middle East & North Africa
<b>Finnish Mirror Site</b>	Products from February 2017	No deletion list	Sentinel-1 Sentinel-2 Sentinel-3	Fast response and high download speed	Sentinel-1,2: Scandinavia and Baltic areas, Shaksgam valley, Kyagar glacier lake, Kirgisia, Tazdikistan, Iceland strait, Bolshevik island, Tiksi Seninel-3: SLSTR Northern hemisphere
<b>Sentinel 5P Pre-Ops Hub</b>	Products from April 2018		Sentinel-5	Fast response and high download speed	

## Our concept to tackle data fragmentation

Collaborative Data Hubs



Back-end interfaces



Front-end interfaces



DIAS providers



Core Copernicus Hubs



National Collaborative GS



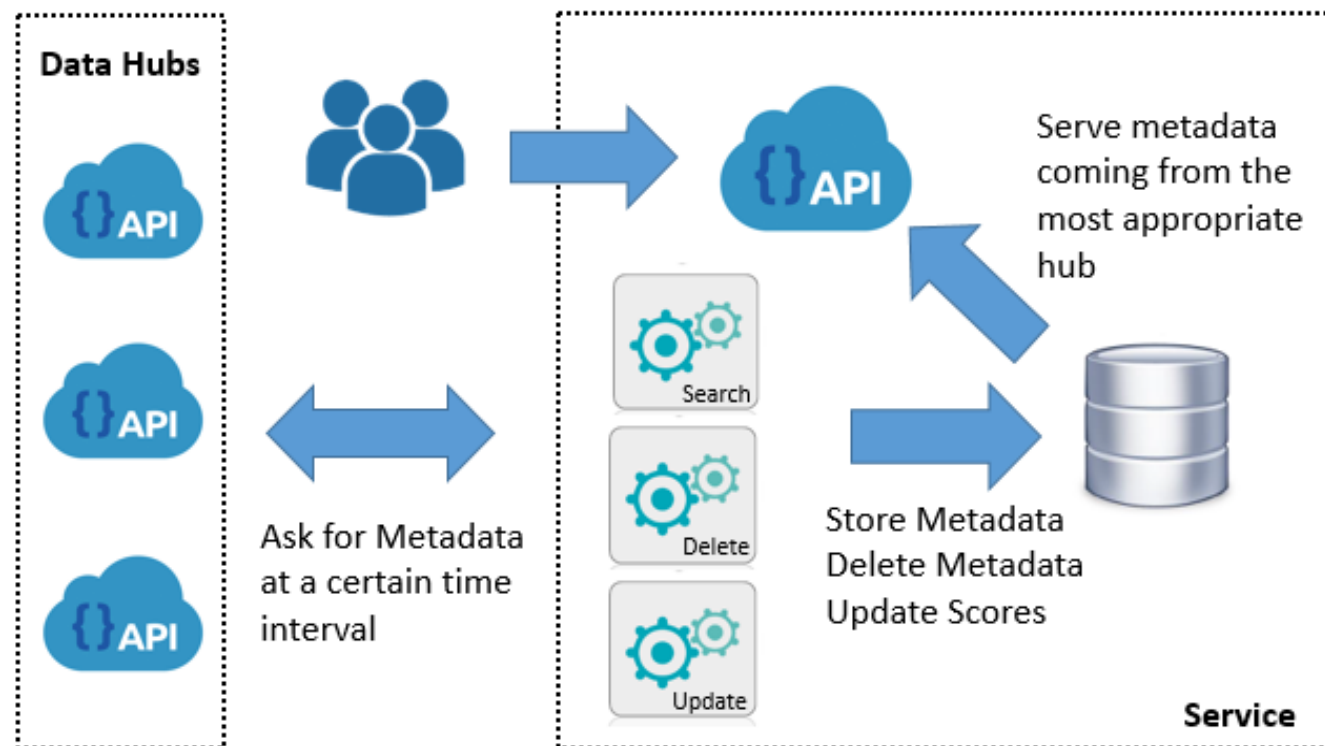
## Two similar solutions

- One is based on a modified DHuS version – Developed in the context of NextGEOSS H2020 project
- One custom development – developed in the context of EOPEN H2020 project



# NEXTGEOSS

European Data Hub and Platform



## Advantages

- Linking federated Copernicus Sentinels Hubs
- Access to a single hub instead of looking across several Sentinel Hubs to find the appropriate products for your application
- Access to all Sentinel mission data, no geographic restrictions
- Better timeliness and reduced lead times for accessing Sentinel products -----> more important for disaster management applications
- Less performance variability by exploiting Hub diversity

# EOSC-hub linked with the Greek Mirror site



# EOSC-hub

a European contact point to discover, access, use and reuse resources for advanced data-driven research

EOSC-hub mobilises providers from **20** major digital infrastructures, EGI, EUDAT CDI and INDIGO-DataCloud **jointly** offering **services, software and data** for advanced data-driven research and innovation



**Objective 1: Simplify access** to a broad portfolio of products, resources and services through an open and integrated service catalogue.

**Objective 2: Reduce fragmentation** of service access and provisioning through technical integration and adoption of standards for interoperability.

**Objective 3: Consolidate e-Infrastructures** by expanding capacity and capabilities and improving

**Objective 4: Widen the access** to services to all user groups including researchers, high-education, business organizations and expand the user base.

**Objective 5: Provide a knowledge hub.**

**Objective 6: Increase innovation capacity** of Research e-Infrastructures.

## EO pillar

- Data access and computing services: aiming to augment e-Infrastructures Compute and Storage services with EO data and computing resources with direct co-located access to EO data, which is a key requirement for users dealing directly with EO data and the other EO Pillar services.
- EO data exploitation services: aiming to augment e-Infrastructure thematic services portfolio with services tailored for EO scientists, to support their work and foster production of value-added EO products;
- EO general user services: aiming to augment e-Infrastructure thematic service portfolio with services coming from EO data and tailored for non-EO experts and general public, to foster exploitation of EO satellite data.

✓ <https://sentinel.eosc.grnet.gr/dhus/>

Thank you and  
**any questions?**

