



# Research enabling services for EOSC in support of Open Science

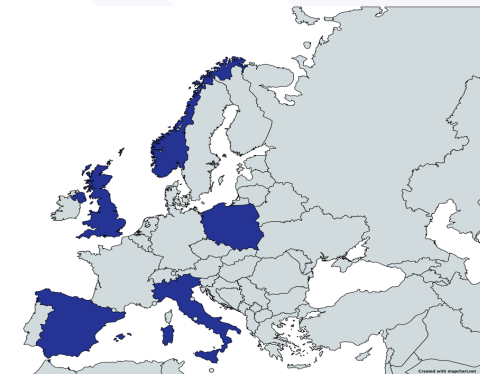
Head of Data Analytics and Semantics Department  
Poznan Supercomputing and Networking Center (PSNC)  
EOSC Festival – the National Tripartite Event Poland  
25th October 2022



This project has received funding from the European research infrastructures (including e-Infrastructures) *under the European Union's Horizon 2020 research and innovation programme* under grant agreement No 101017501

# Reliance at a Glance

- RELIANCE seeks to **extend the EOSC's capabilities** with an enhanced support for **research activities** via a set of **interconnected services**, in alignment with the **EOSC IF**.
- It will **enhance the discovery** of and access to research data/results (incl. **Copernicus**), improve the **extraction** of relevant information, **managing the research lifecycle** while promoting **FAIR and open science** principles.
- It will demonstrate its services' value via **3 Earth Science communities** and others via an **Open Call**, fostering the use of **Copernicus data**, enhancing EOSC support for **multidisciplinary** research and improving EU science as a whole



# What problems are we aiming to solve

- RELIANCE's vision is to allow scientists and related stakeholders
  - to continue doing their science as usual, but now being able to access larger datasets, including EO data from heterogeneous sources, share their results more easily and do OS by default
  - to make their research/campaigns more efficiently, to have all resources accessible via a single entry point, and to exchange information efficiently, addressing key challenges in the scientific area, e.g.,
    - researchers with different expertise require to work together efficiently
    - difficult to share data and other resources, code may not work out of the box
    - steep learning curve for new members joining a research project/group
    - reinvent the wheel because cannot find relevant source codes, data, etc.

# Reliance Service portfolio

## Research Lifecycle Management Ecosystem Pillars

- **Research Objects** as the overarching mechanism to manage scientific research activities and connect associated resources



- **Data Cubes** for efficient and scalable structured data access and discovery



- **Text mining** services to extract machine-readable metadata enabling researchers to discover scientific information at scale and to structure their own research.

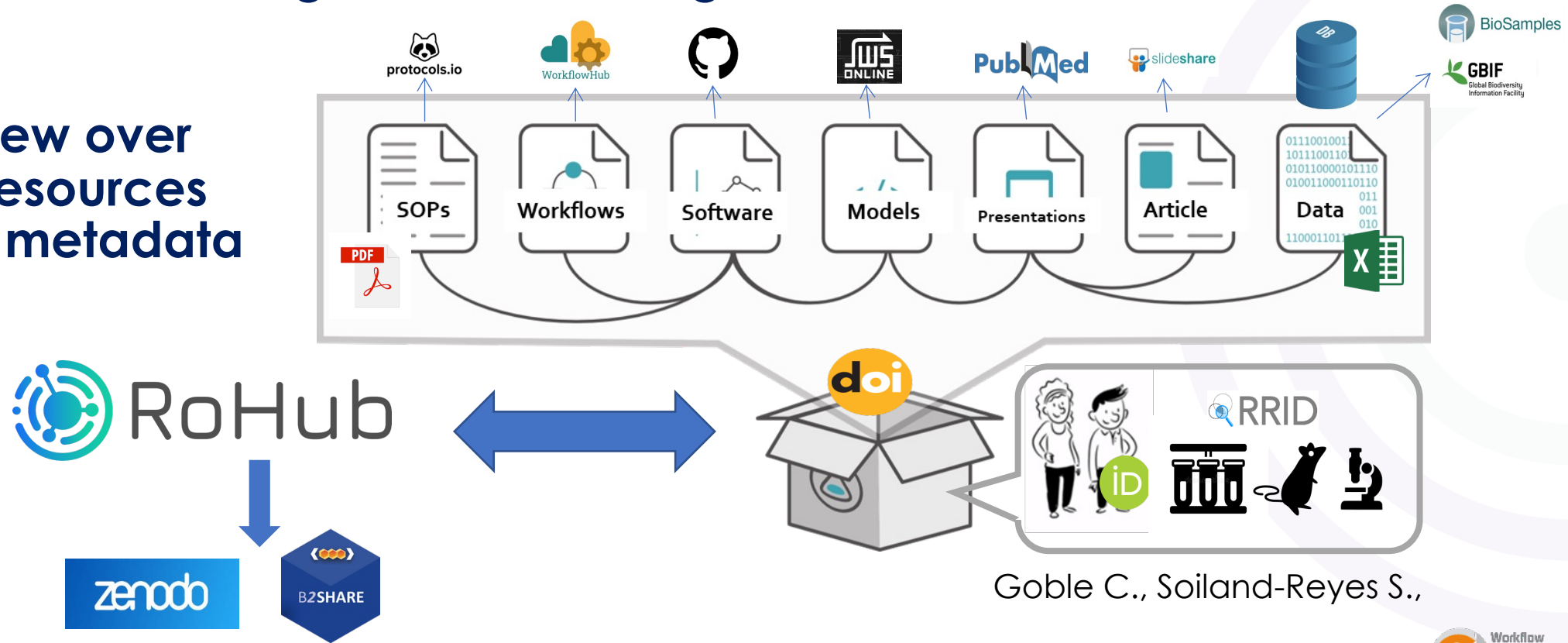


# Research Objects - overview



**Goal:** Account, describe and share *everything* about your research, including how those things are related

**integrated view over  
fragmented resources  
using PIDs and metadata**



The RO has its own metadata, can be managed and evolved in its own right, and it can be packaged, deposited, transferred, accessed, and reproduced if appropriate

<http://www.researchobject.org>



everest





# Reliance Service portfolio in EOSC

- RELIANCE services are onboarded in EOSC
- ROHub acts as main entry point
  - Connects and provides access to other RELIANCE services (ADAM, Text Mining, other added value RO services)
- ROHub interconnects and integrates several other EOSC services, e.g.,:
  - AAI (EGI check-in)
  - Zenodo and B2SHARE
  - EGI notebooks and Binder
  - B2DROP
  - OpenAire Research Graph
  - **Argos: for the management of DMPs (at national level)**

**ROHub**  
Manage and preserve your research work, make it available and discover new knowledge.  
Organisation: **PSNC**  
☆☆☆☆☆ (0.0 / 5) 0 reviews ☐ Add to comparison ☐ Add to favourites

→ Webpage → Helpdesk → Helpdesk e-mail → Manual  
→ Training information

Ask a question about this resource?

ABOUT DETAILS REVIEWS (0)

ROHub enables the management, challenge as a single information related stakeholders (e.g., compa quality research objects that can l evolution, to collaborate along th control and different collaboratio research objects including assignr to ensure that they will remain ac

**ADAM Platform**  
ADAM is a key technology to enable seamless access and view services to environmental data. ADAM removes the main barriers to realize the democratization data process.  
Organisation: **Meteorological and Environmental Earth Observation**  
☆☆☆☆☆ (0.0 / 5) 0 reviews ☐ Add to comparison ☐ Add to favourites

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Ask a question about this resource?

ABOUT DETAILS REVIEWS (0)

The Advanced geospatial Data Management platform (ADAM) is a tool to access a large variety and volume of global environmental data. User-friendly web viewer and Application Programming Interface (API) allow extracting global as well as local data, from the past, current time, to short term forecast and long-term projections. Most of the data are updated daily to allow

**Enrichment API**  
Enhance the metadata from your files or Research Objects with the Enrichment API  
Organisation: **expert.ai**  
☆☆☆☆☆ (0.0 / 5) 0 reviews ☐ Add to comparison ☐ Add to favourites

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Ask a question about this resource?

ABOUT DETAILS REVIEWS (0)

The semantic enrichment process is in charge of generating new metadata out of the text content of files or collections of resources as Research Objects. This metadata comprise the main concepts found in resources containing text, the main knowledge areas in which these concepts are most frequently used, the main expressions, known in computational linguistics as noun phrases, found in the text, and named entities that are further classified in people, organization and places. The core of the semantic enrichment process is expert.ai software. Expert.ai uses a proprietary semantic network, where words are grouped into concepts with other words sharing the same meaning, and the concepts are related between them by linguistic relations such as hypernyms or hyponyms among many others. Therefore, the semantics of the generated metadata is explicit since the concepts are grounded to the semantic network.

Information retrieval processes, including search engines and recommender systems, can benefit of working with concepts instead of character strings representing words, mainly to provide a more complete and accurate set of results, and enabling the exploration of file collections by means of facets where the semantic metadata is available.

#### SCIENTIFIC CATEGORISATION



- Generic
- Generic

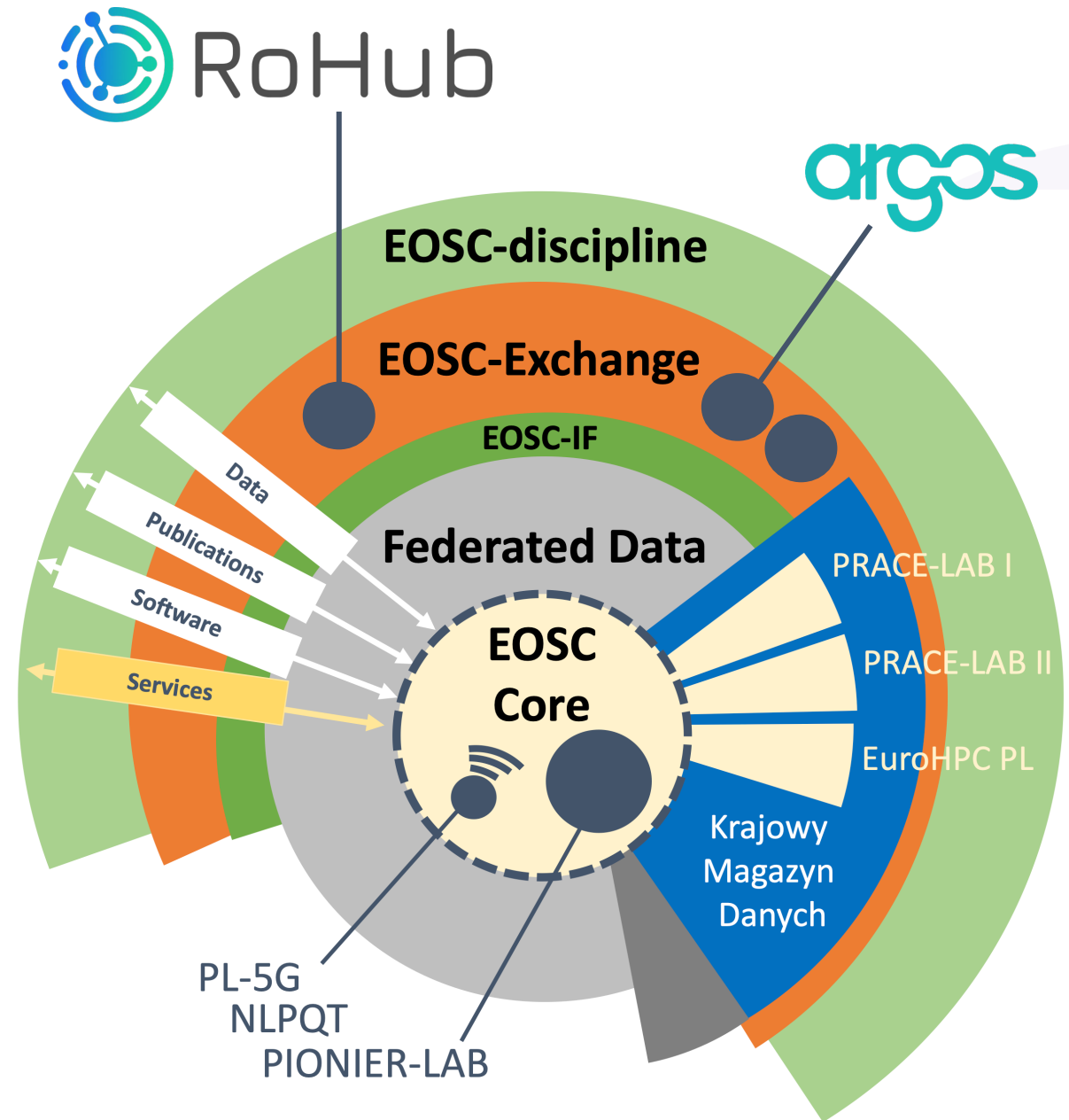
#### CATEGORISATION

- Data Analysis
- Artificial Intelligence



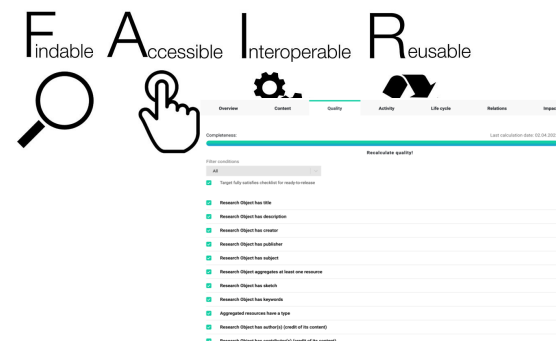
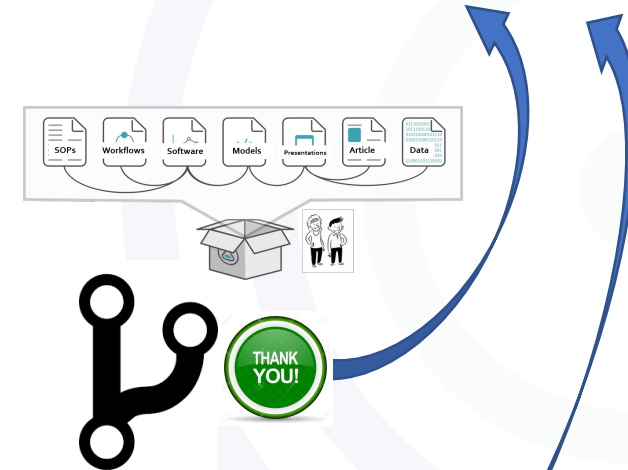
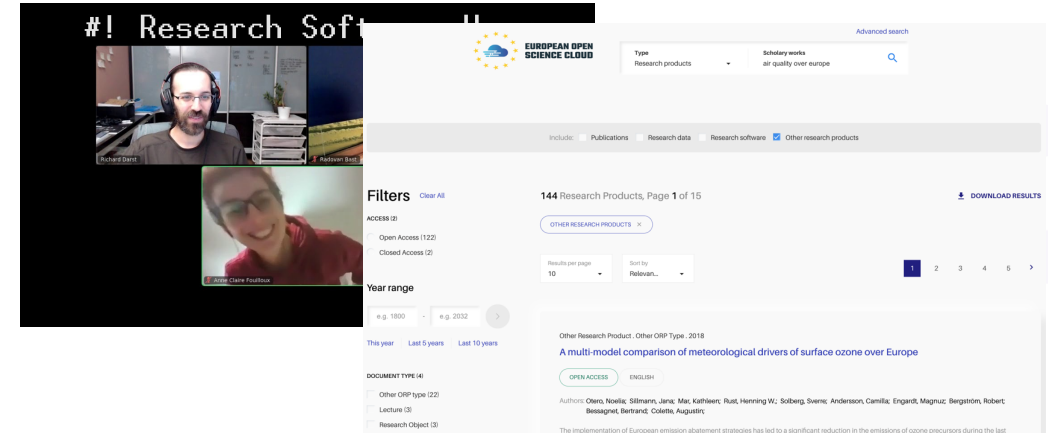
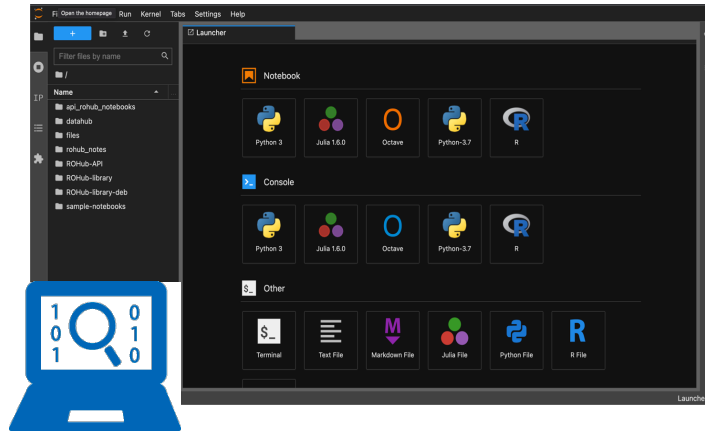
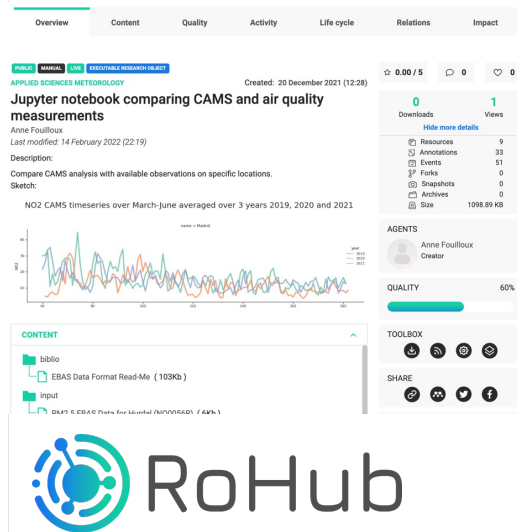
# Reliance in Poland

- ROHub is one of the services offered and supported by the PIONIER network, a key component of the IT infrastructure of science in Poland, which is part of the European Research Area (ERA).
- ROHub is connected with Argos, providing at the national level possibility to create DMPs easily, and to manage the actual data via ROs.
  - Demo Wednesday, session 12:45-15:00  
Tools and services (best practices)



# Example scenario (EOSC)

Find research work, access and reproduce it, reuse it in new research, collaborate, assess quality and publish it leveraging different EOSC services



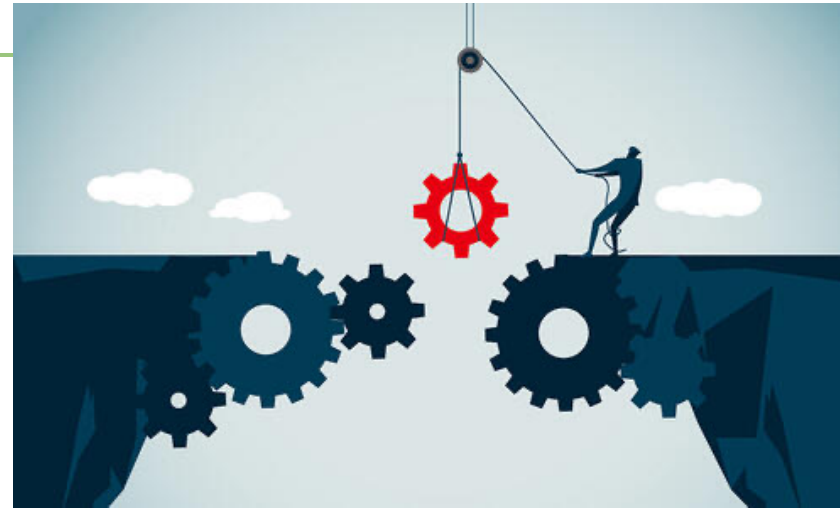


# Impact & complementarity role in EOSC (and other services)

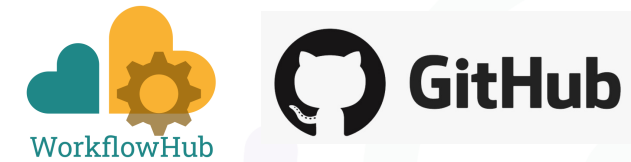
Data used/produced by researchers



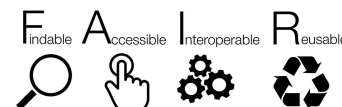
RI where those methods and data run or are hosted



Methods applied to process/analyze the data



Publications to the scholarly community



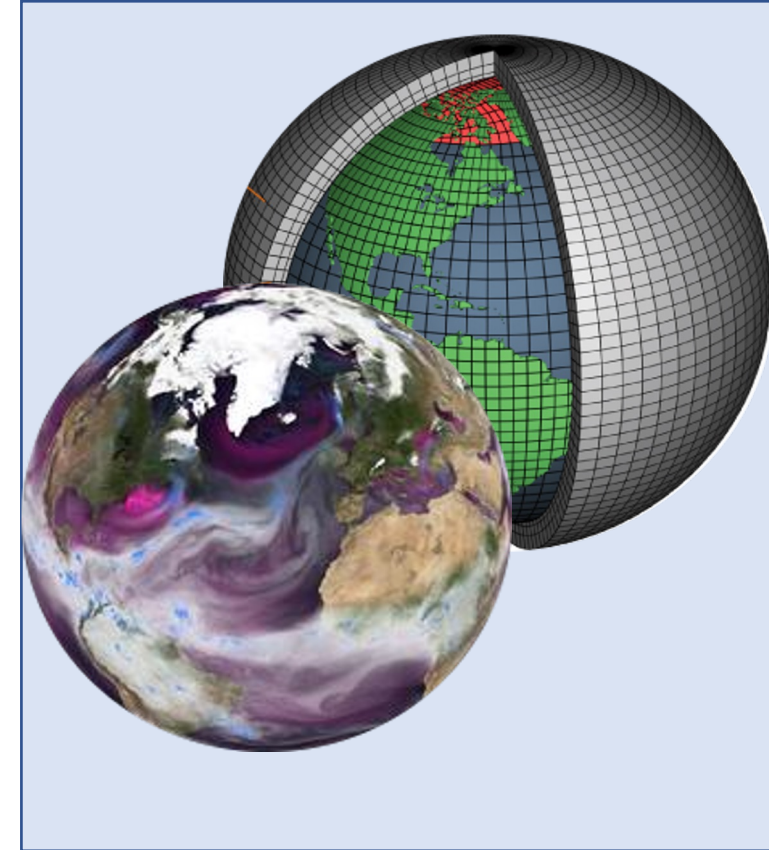
# Sea Monitoring



# Geohazard



# Atmospheric and climate modelling

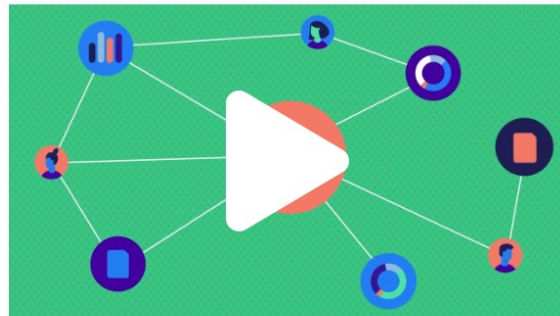
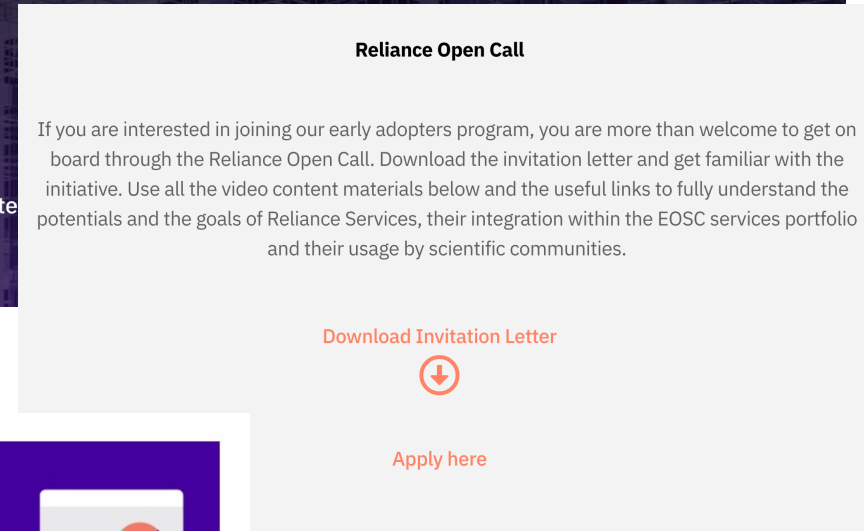
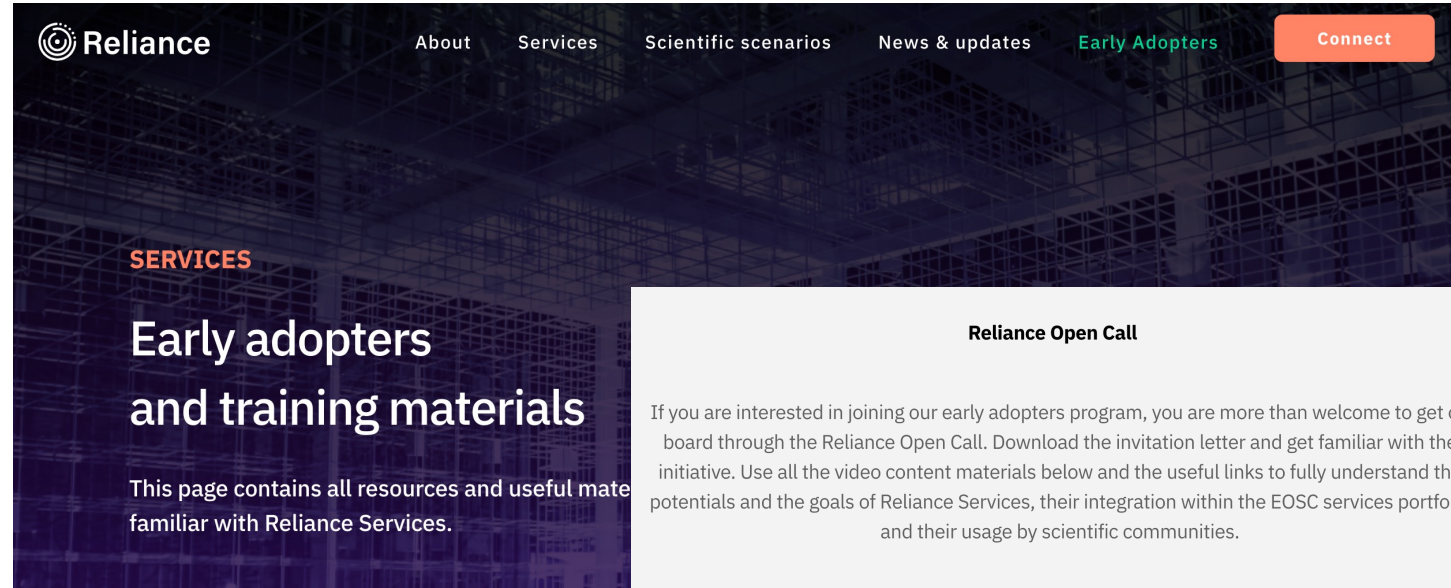


- These communities are leading one multidisciplinary use case, studying the De-Impacts on Coastal Environments during the 2020 lockdown, and five thematic use cases.
- The UCs showcase how RELIANCE services can support researchers & promote cooperation among scientists in ES, though the services may be adopted in other domains/sectors

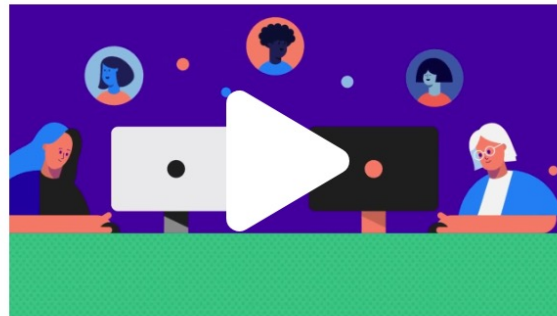


# Using Reliance services

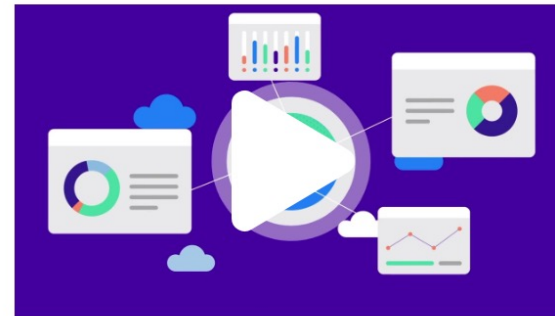
- Early adopters materials
- Reliance open call
- DIH Pilots



**Introduction to Reliance and EOSC**



**Introduction to Reliance Services**



**Reliance Open Call**



*Research Lifecycle Management technologies for  
Earth Science Communities and Copernicus users in EOSC*

# Thanks!

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This project has received funding from the European research infrastructures (including e-Infrastructures) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017501