

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



Research enabling services for EOSC in support of Open Science

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Reliance overview

- RELIANCE is contributing to the EOSC Exchange with a set of advanced research enabling services for
 - the open, efficient, and cross-disciplinary management of the research lifecycle in support of FAIR and Open Science
- RELIANCE services aim to
 - enhance the discovery of and access to research data, including large EO datasets (Copernicus)
 - extract relevant knowledge from scientific text
 - manage the research lifecycle as a first-class entity
- RELIANCE services are being demonstrated via multiple Earth Science communities

PSNC >

POLITÉCNICA







expert.ai

UiO: Universitetet i Oslo

MEEO[®]



INGV

Reliance Services

Research Object Management Platform





Advanced Geospatial Data Management Platform



Text Mining Services





Research Objects - overview



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



RoHub

BOUT ACTIVITY EXPLORE MY ROS PEOPLE

ROHub platform - overviev







2014-2019

2020 +

oHub

Holistic solution for RO management, enabling

- storage, lifecycle mgmt. & preservation of scientific outcomes
- share and makes these resources available to others.
- publish and release them through a DOI
- discover and reuse pre-existing scientific knowledge.
- Features include:
 - Connect fragmented resources (physically or by reference); Track RO impact, assess RO quality and FAIRness; Collaboration and monitor RO activity; Generate and publish RO snapshots/archives; Reuse and Fork ROs ; Énrich RO metadata; Execute/visualize notebooks and DCs in native apps

Reference RO platform

- implements natively the RO model and paradigm
- support different stakeholders, with the primary focus on scientists, researchers, students and enthusiasts
- provides the backbone to a wealth of RO-centric applications and interfaces across different scientific communities



ADAM Platform - overview

Web based GUI

(including third-party applications)

https://reliance.adamplatform.eu/

CLI / API / PLUGINS

data

Reliance



Presentation layer

Standardised data access interfaces allow connecting a wide range of user interfaces



Data(cube) layer The deployment of DAS in front of each data source enables effective access services

Data layer

Data remain at their own location (multiple data centers) with the original data format





Infrastructure layer Interoperability and federation between multiple centers



Jupyter Notebook

Jupyter

Text mining services - overview https://reliance.expertcustomers.ai/



Research Objects

search a Research Object

Factors determining the diffusion of

SIOS's Earth Observation (EO). Remote

More informatio

Ampli fied ozone pollution in citie

The effects of COVID-19 indi

Nitrogen dioxide reductions

Analysis of Air Quality dur

COVID-19 lockdown measurer

Scientists search a scientist/specialist.

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service-account-generation-service

Description: The COVID-19 pandemic has led to significant reductions in eco

activity, especially during lockdowns. Several studies has shown that the concentration of nitrogen dioxyde and particulate matter levels have reduced during lockdown events

quality using data from Copernicus Atmosphere Monitoring Service over Europe and at

Reductions in transportation sector emissions are most likely largely responsible for the NO2 anomalies. In this study, we analyze the impact of lockdown events on the air

Europe 🛃

Main topics: lockdown, March, data Areas of knowledge: ecology, medicine.

Impact of the Covid-19 Lockdown on Air quality over

The effects

Association

New experimental services



A huge amount of multibeam backscatter data has been acquired from the east to the west side of thein the southern Adriatic Sea in the last 15 years and covering by CNR ISMAR. from the continental shelf down to the basin floor, from the west to east side of the Adriatic Basin. These data have been used for geological, biological and habitat mapping purposes, but a single and consistent interpretation of all the acquired backscatter data has never been carried out. Here, we aimed at coherently interpreting the seafloor reflectivity datasets in order to produce a seabed and benthic habitat maps of the southern Adriatic Sea showing the spatial distribution of substrate and sediment type and grain size within the basin. The methodology here applied consists of a semi-

RELIANCE connections with EOSC Core and other Exchange services





Use cases and early adopters materials

- Refence multidisciplinary use case
 - De-Impacts on Coastal Environments during the lockdown
- Vertical use cases
 - Sea pollution
 - Loss of Biodiversity and Sustainability
 - Extreme weather events and climate
 - Reducing the consequences of large volcanic eruptions
- Eol for DIH Business Pilots
 - 2 pilots (in 2nd) and 2 pilots (3rd)
- Open call
 - Three clusters in Earth Science
- Horizon project as a early adopters
- Early adopters materials: training videos, user manuals, tutorials







Introduction to Reliance and EOSC

Introduction to Reliance Reliance Open Call

https://www.reliance-project.eu/adopters/

Services







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Thanks!

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