



OSCARS

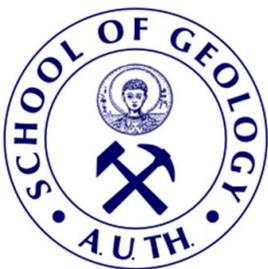
Open Science Clusters' Action
for Research & Society

Funded Project

HOMEROS - Harmonising Observations from Multi-hazard Environments in Research for Open Science

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Implemented by



LUND
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Funded by
the European Union

Project phase: Currently in Phase 2 of the proposed work plan

- FAIR Data Management practices introduced in Phase 1 are being integrated into daily research processes
- Scientific workflows with seismic, GNSS, InSAR and GIS data are being further developed and cross-domain workflows are explored and tested
- Existing infrastructure services are being integrated into research workflows, e.g. Jupyter Notebooks from EU Node, DMP tool and storage from Heal-link, Community repository from Zenodo

Core challenge:

Moving from fragmented, discipline-specific data practices to Open, FAIR, EOSC-ready workflows in multi-hazard research in Geosciences

Problems encountered & how we resolved them

Heterogeneous data formats & workflows across disciplines

Seismology, GNSS, InSAR and GIS use different standards and tools

Solutions

- Map of community standards and needs per domain
- Adoption of common documentation practices via Heal-link/Argos DMP tool



- Curation of metadata descriptions of datasets and workflows in Zenodo

Adoption of FAIR & Open Science practices in Academic Research

FAIR principles were not systematically embedded in daily workflows

Solutions

- Targeted support and training of research teams
- Introduction of structured Data Management practices at project level
- Use of Community repositories (Zenodo, Hardmin) for documented and reusable research outputs

Integration of digital infrastructure services into research workflows

Existing workflows not designed for EOSC-compatible services

Solutions

- Gradual integration of available solutions (e.g. EU Node) into daily research activities
- Adaptation of workflows to enable the use of VREs and shared storage
- Testing of cross-domain workflows

Key Scientific & Technical Achievements

New GNSS stations collocated with seismic stations

Implementation of operational data pipelines

Processing and publication of flood and landslide geospatial datasets and hazard maps

Preparation of benchmark seismic datasets using FAIR-aligned formats

Production of Sentinel-1 PSI-derived ground deformation datasets supporting geohazard monitoring

Findable



Accessible



Interoperable



Reusable



Key Scientific & Technical Achievements

Introduction of standardised documentation practices at project level

Establishment of HOMEROS Community Repository in Zenodo with curated and rich metadata description of datasets, workflows, new station documentation and research outputs



Findable



Accessible



Interoperable



Reusable



Next Steps (HOMEROS Roadmap)

FAIRification of additional seismic, GNSS, InSAR, flood and landslide datasets

Publication of research outputs highlighting FAIR and Open Science practices and integrated infrastructure services

Development of an HOMEROS Research Data Management Checklist for metadata standardisation, documentation, repository deposition readiness

Integration with EOSC EU Node services into routine research workflows demonstrating the EOSC added value



Development of Open Access training module for University students

Testing of Jupyter Notebooks on the ENVRI-supported service NaaVRE (Notebook as a Virtual Research Environment) for reproducibility and interoperability



Provision of high-quality input to the ENVRI Knowledge Base and AI Environmental Expert



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