

Welcome to DARES 2025

*Workshop on AI-driven Data Engineering and Reusability for
Earth and Space Sciences*

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(Organisers)



University
of Glasgow



NATIONAL CENTRE FOR
SCIENTIFIC RESEARCH "DEMOKRITOS"



HELLENIC REPUBLIC
National and Kapodistrian
University of Athens

Earth, Space & Environmental Data

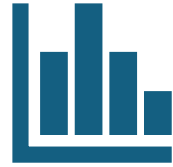
- **Copernicus** EO Data
- **ERA5** Reanalysis
- **CMIP6** Climate Projections
- **Text** – natural-language
- **In-situ**, networks, etc.
- **Application** or domain-specific
 - Biodiversity
 - Social
- Many more!



Earth, Space & Environmental Data



High data
volume



High
heterogeneity



High-impact
applications



Research *and*
innovation



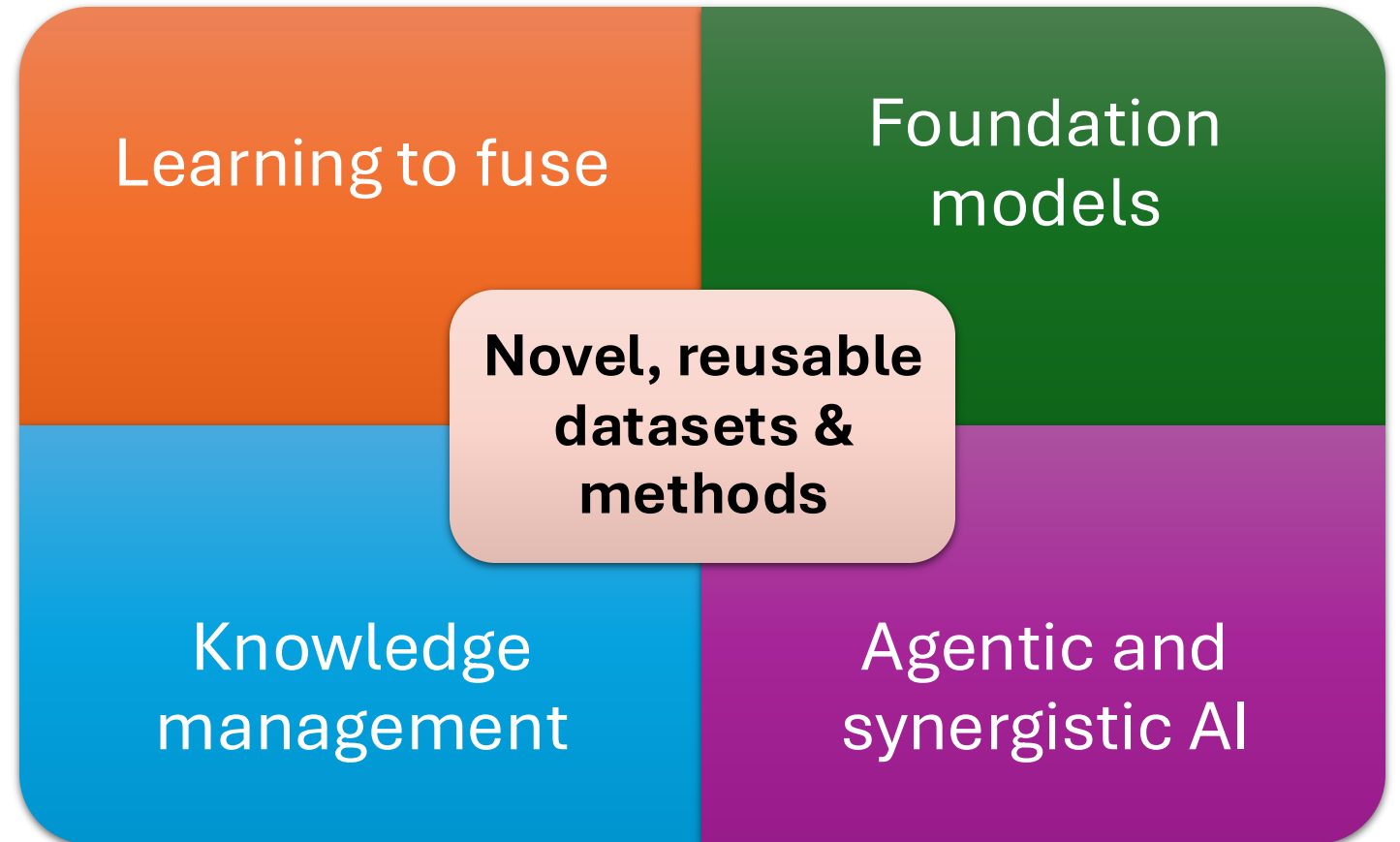
Generally,
publicly funded

- Leverage **AI** to **facilitate reusability & openness**
- Accelerate **synthesis & adoption**
- Enable **scientific breakthroughs**
- Enable **novel downstream applications**

Intelligent Data Engineering for EO & Space

(Horizontals)

- **Confidence** in results
- **Trustworthiness**
- AI-aware **data provenance**
- **Open Science** best practices
 - **FAIR**



DARES Workshop



**EO & Space
closer to the
European core
AI community**

Original workshop at
IGARSS 2024



14 submissions

Each reviewed by at
least 2 reviewers



**11 papers
accepted for
presentation**



**2 keynote
presentations**

Yanni, Saso, **thank
you!**

DARES'25 AI & Data Engineering Areas

AI Models & Learning

- Foundation Models (Self-Supervision) , Trustworthy AI , Deep Learning (GRU, Downscaling) , Explainable AI (XAI) , Domain Adaptation , Semi-Supervised & Multi-label Classification.

Knowledge Systems

- Knowledge Graphs (KGs) (LLM-Driven Construction) , Semantic Retrieval (KG-Enhanced RAG) , Agentic Systems (Digital Twins of the Earth).

Data Preparation & Analysis

- Time-Series Analysis (Clustering/Forecasting) , Data Fusion (Integration/Downscaling) , Synthetic Data Quality Assessment , Robust Preprocessing.

Next Steps

- Submit **DARES proceedings to CEUR**
- **Communication with Journals – Special Issue**
 - Environmental Modelling and Software (ELSEVIER)
 - Computers & Geosciences (ELSEVIER)
 - Earth Science Informatics (Springer Nature)
- All presentations and papers will also be **made available on the DARES webpage:**
 - <http://dares25.github.io/>

Thank you!