

Implementing FAIR Principles: Insights from the European Eddy-Rich Earth System Models (EERIE) project

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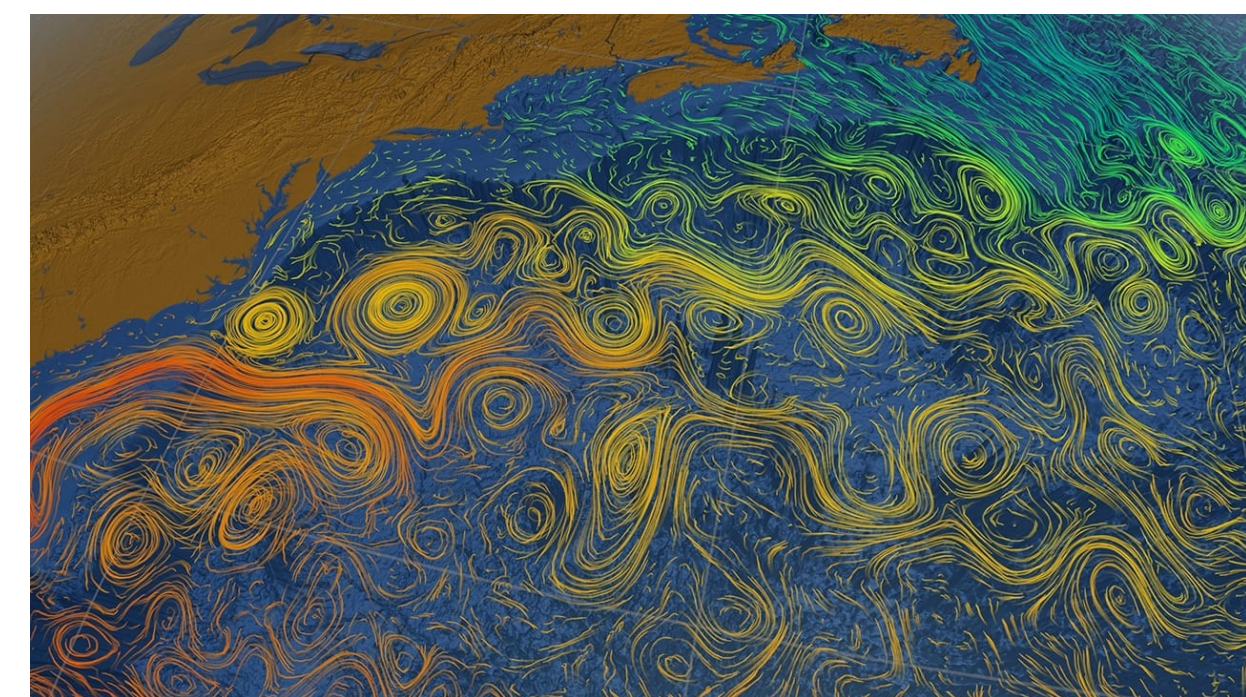
¹German Climate Computing Center (DKRZ)

EERIE Project Goals :

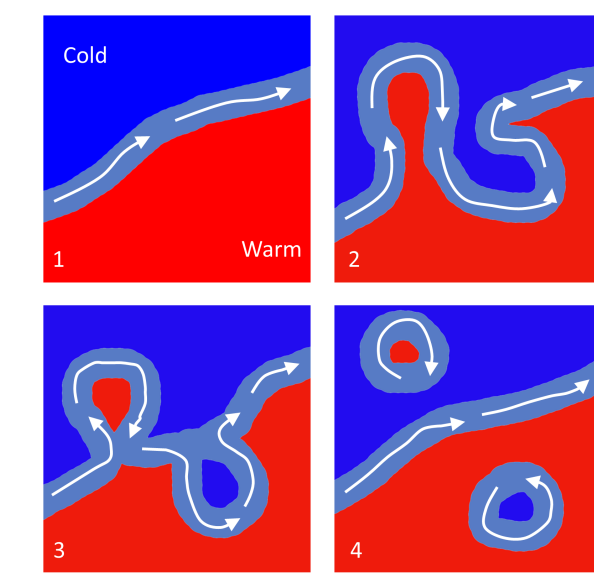
Ever wondered how mesoscale eddies affect our climate? So does the EERIE community. That is why they built better models to study their role in a warming climate. Current climate models are not capable of adequately resolving mesoscale eddies, which limits our understanding of their role in the climate system.

Our goal in Data Management is to ensure EERIE data is **FAIR** and it can be accessed and used by everyone, not just experts.

To those who wonder, what are Eddies?



(Image courtesy of NASA)







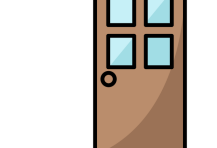


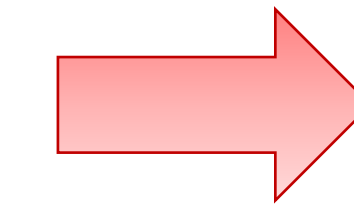
(Image courtesy of Roger Williams University)

Large scale patterns of water flow are known as currents. Sometimes these currents can loop and separate into a swirling flows known as eddies. Eddies play a key role in transporting heat and salt in the ocean.



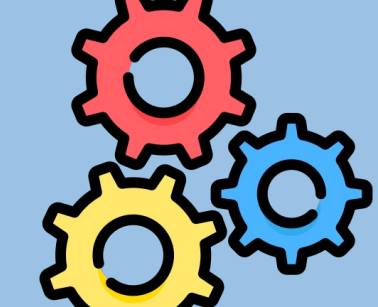
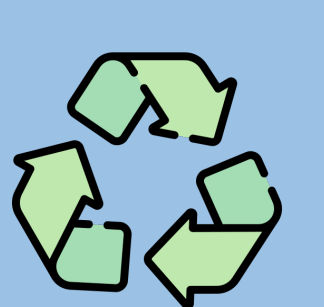

Challenges

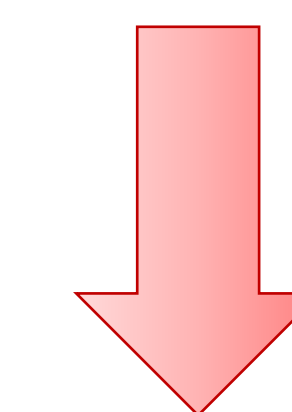
Why do we need data to be FAIR?

-  Different file formats
-  Non-standardized metadata
-  Incompatibility between different software systems, tools, and formats
-  Inadequate documentation
-  Limited Infrastructure and resources
-  Difficult in accessing data
-  Vast amount of data



Making EERIE data FAIR for a better impact

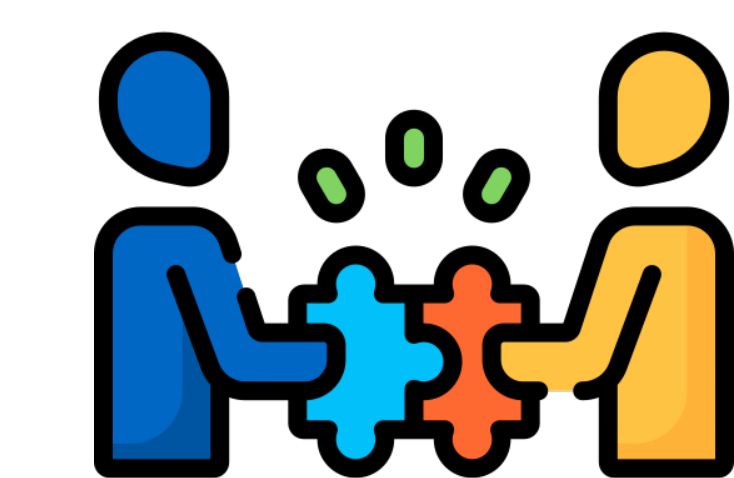
 Findable	 Accessible	 Interoperable	 Reusable
✓ Metadata standards: CF, CMIP	✓ Open access repositories: EERIE cloud, ESGF, WDCC	✓ Controlled vocabularies	✓ Documentation: easy.gems 
✓ Persistent identifiers: WDCC, DOKU, Zenodo	✓ Standardized formats: NetCDF, Zarr	✓ Linked data across different systems: Freva	✓ Versioning e.g., v20240304
✓ Indexed in catalogues: EERIE, NextGEM catalogs	✓ API access: Zarr-over-HTTP ensures software-independent data access	✓ Cross-platform compatibility	✓ Archival and data replication: JupyterHub, rsync, and Globus improve retrieval options



What does it take?

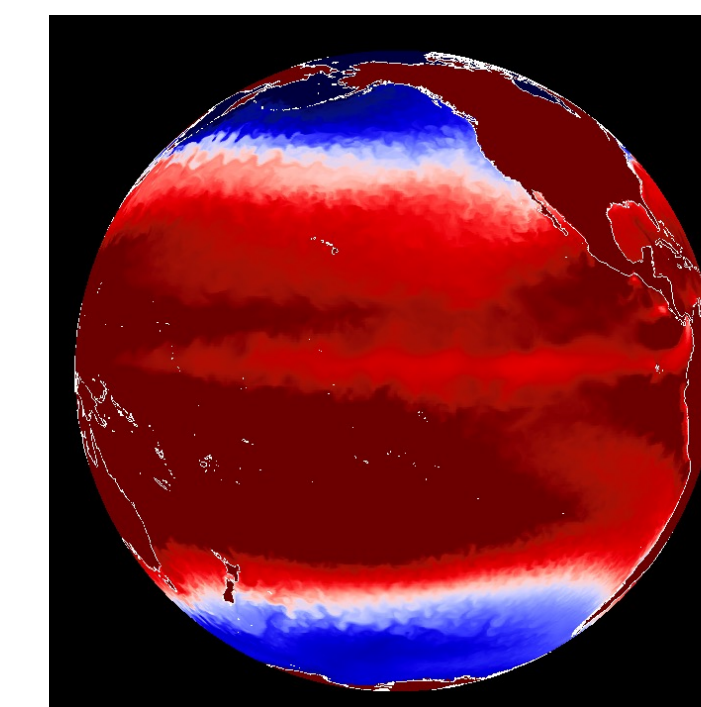


Effective collaboration

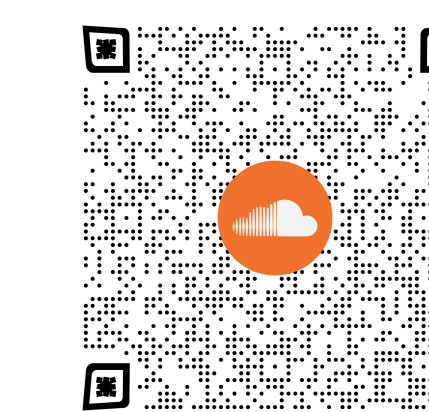


- Modelers
- Data users
- Data managers

eg: Gridlook on EERIE cloud



Get a feel for the data without diving too deep; GridLook tool on the EERIE cloud gives users a quick and easy preview.

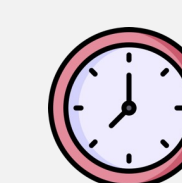


Want to know more?



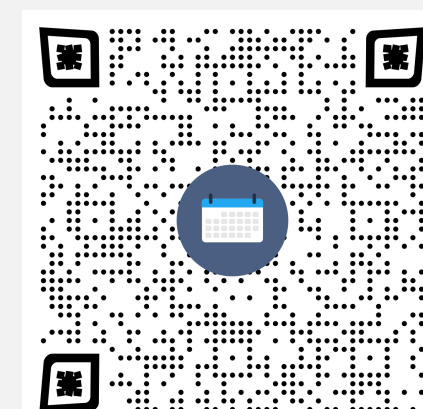
Join the talk:

'Apps and Catalogs for Cloudified Earth System Model Output'



Friday @ 4:35 PM
Room -2.32

Scan for the abstract



Contact: wickramage@dkrz.de

Grant Agreement
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