

eosc | Blue-Cloud2026

Third Federation Workshop

5-6 November 2025, Brussels [Belgium]



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Hands-on breakout session #2:
**Contribution of the EOSC
Node Digital Twin of the
Ocean to the EOSC Federation**

Introduction – Pasquale Pagano, Blue-
Cloud2026 Coordinator

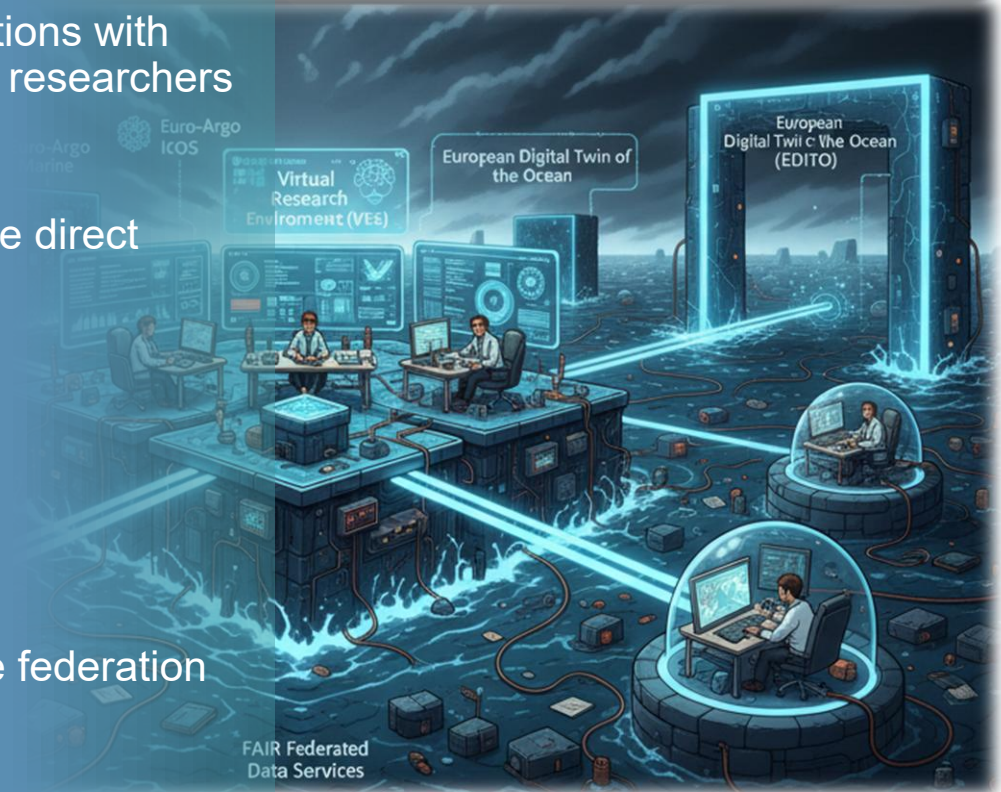
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A Thematic Node for Empowered Researchers: Blue-Cloud transforms marine research by providing an integrated environment built on EOSC principles

- 🌐 **FAIR Federated Data Services:** We provide harmonised data collections with advanced subsetting, semantic enrichment, and provenance tracking, so researchers get exactly the data they need with full trust.
- 🔬 **Integrated Virtual Research Environment (VRE):** Researchers have direct access to a suite of powerful tools within our Virtual Labs, including:
 - Interactive computing (Jupyter Notebooks, RStudio).
 - Reproducible workflows (Galaxy).
 - Containerization and application management pipelines.
- 🌍 **EOSC-Ready Capabilities:**
 - Federated AAI: Full integration and alignment with EOSC AAI.
 - Resource Catalogue: Our service catalogue is structured for immediate federation with the EOSC Exchange (EEN).
 - Operations: Professional, FitSM-aligned Helpdesk and Monitoring.



Researchers are empowered with trusted, interoperable tools and seamless access to data

The Ocean doesn't work in silos — Why should we?" — *Nicolas Segebarth, DG RTD*

The European Mandate: Unifying Digital Ecosystems

- **EOSC Federation:** The horizontal, trusted **System of Systems** for all European Research.
- **EU Mission: "Restore our Ocean and Waters"** – The clear, policy-driven societal objective.
- **European DTO / EDITO:** The official, operational infrastructure for marine science.

The Challenge

- Ensuring these powerful strategic pillars are technically and operationally connected to prevent new, larger silos between the DTO Core and the long-tail scientific community.

Our Position

- The **EOSC Node Digital Twin of the Ocean** is the strategic and operational bridge. It promotes dedicated mechanisms to federate marine research capacity into the EOSC ecosystem.

- 14:30 - 14:50
 - Blue-Cloud 2026 Core & Generic services, Massimiliano Assante (CNR-ISTI), Marco Lettere (Nubisware)
- 14:50 - 15:10
 - The Beacon data lake technology, Robin Kooyman (MARIS)
- 15:10 - 15:40
 - Cross-Node use case: Modelling the Ocean biological carbon sequestration, Jonathan Tedds (ELIXIR-EUROPE and EOSC United) and Stéphane Pésant (EMBL-EBI)
- 15:40 - 16:00
 - Cross-Node collaboration: the Polish EOSC Node, Marcin Wichorowski (Institute of Oceanology Polish Academy of Sciences)
- 16:00 - 16:20
 - Cross-Node collaboration: the Data Terra EOSC Node, Alessandro Rizzo (IRD), and Erwan Bodere, (Ifremer)
- 16:20 - 16:30
 - Q&A & discussion
- 16:30 - 17:00
 - Coffee break

This session will guide you through the technical layers of our Node. Our architecture is how we connect our core engine to the EOSC Federation.

Layer 3: Federation & Impact (The "Destination")

- **Cross-Node Use Cases** (e.g., Carbon Sequestration)
- **Cross-Node Collaborations** (e.g., Polish Node, Data Terra)

Layer 2: Data & Interoperability Services (The "Fuel")

- FAIR Data Services & Harmonisation
- **The Beacon Data Lake Technology**

Layer 1: Core & Generic Services (The "Engine")

- **Resource Catalogue, User Space (Gateway)**
- **Application Workflow Management, Order Management**
- **Interactive & Collaborative Platforms (VRE)**

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