Eurofleets+

An alliance of European marine research infrastructure to meet the evolving needs of the research and industrial communities

THE EUROFLEETS+ PROJECT FACILITATES OPEN ACCESS TO AN INTEGRATED AND ADVANCED RESEARCH VESSEL FLEET, DESIGNED TO MEET THE EVOLVING AND CHALLENGING NEEDS OF THE MARINE SCIENCE COMMUNITY

27 RESEARCH VESSELS

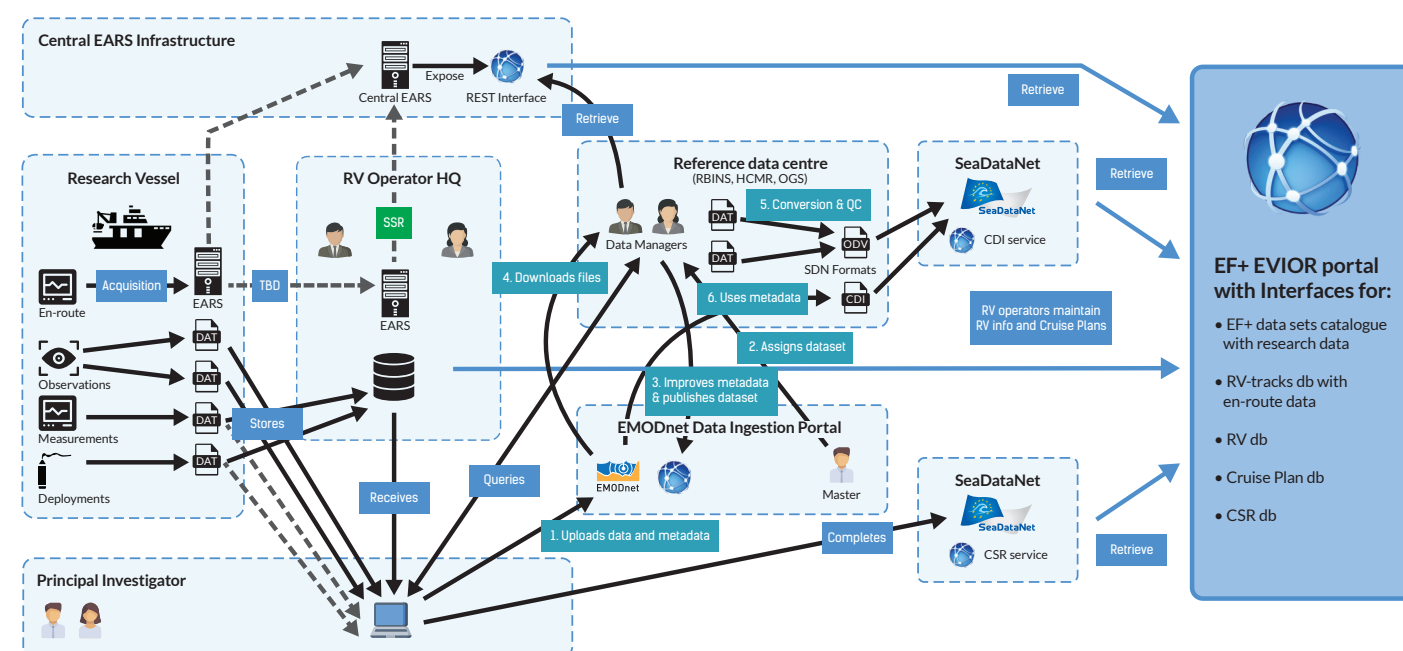**TELEPRESENCE UNIT**

R/V Atlantic Explorer

7 ROV'S & 5 AUV'S

EUROFLEETS+ DATA MANAGEMENT APPROACH

Eurofleets+ Data Policy aims at making all TA cruise data sets Findable, Accessible, Interoperable, and Reusable (FAIR). Data management (DM) is deployed in synergy with SeaDataNet, European network of NODCs. Scientific cruise teams formulate cruise DM plans for review by SDN NODCs (HCMR, OGS, and RBINS), who will coach each scientific team before, during, and after TA cruises. This will arrange later validation and archival of cruise data sets by NODCs for long term steward-ship, and wider distribution through population in the SeaDataNet CDI Data Discovery & Access service. Cruise teams can make use of EMODnet Ingestion for transfer of processed cruise data sets to the NODCs.

The Research Vessels will be equipped with EARS (Eurofleets Automatic Reporting System) to gather and transfer metadata during cruise, underway data from fixed sensors on board, and data acquisition events info. Among others, this will facilitate production of the Cruise Summary Report (CSR).

EF+ EVIOR portal with Interfaces for:
- EF+ data sets catalogue with research data
- RV-tracks db with en-route data
- RV db
- Cruise Plan db
- CSR db

All metadata and data will become available in SeaDataNet services for exchange and wider dis-semination by several European and international portals, such as CMEMS, EMODnet, Blue-Cloud, GEOSS, and IOC-IODE portals. Moreover, the Eurofleets+ website features the EVIOR platform (European Virtual Infrastructure in Ocean Research) which will give access to information and data from the Research Vessels, cruise plans, cruises while sailing, Cruise Summary Reports, and finally the resulting data sets, included in the SeaDataNet CDI service.

European Virtual Infrastructure in Ocean Research (EVIOR)
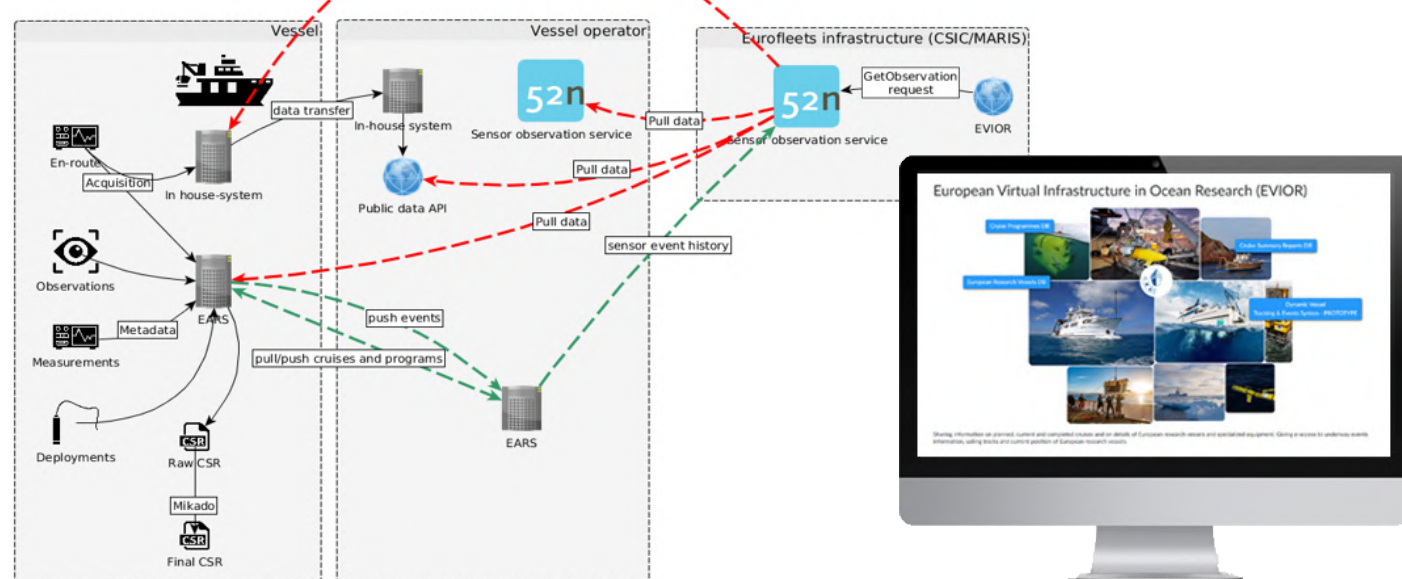
THE EUROFLEETS AUTOMATIC REPORTING SYSTEM (EARS)

EARS consists of web services with data acquisition module, en-route Ship Summary Report (SSR) module, and event logger client. The web server (java) acquires data in a specific, simple datagram format ($EFPOS) from fixed sensors on board and also stores metadata on data acquisition events, as manually entered by the PI. Once installed at a Research Vessel, EARS is instrumental for gathering and transferring the full set of cruise data that is acquired during the operations of an Eurofleets+ TA cruise, namely metadata and data from:

- en-route (underway) data from fixed sensors, such as navigation, meteo sensors, and salinometer;
- observation events, such as launching CTDs, gathering long-term timeseries by sensors deployed on frames, ROVs, AUVs or floats, and collecting samples (water, sediment, and biota) which might be partly processed onboard and partly later at shore.

SHIP TO SHORE COMMUNICATION AND FURTHER DISSEMINATION BY SWE AND IOT

The SeaDataNet SWE (Sensor Web Enablement) toolkit (as developed by 52North) has been adopt-ed and upgraded for transfer of the EARS information from RVs to shore for storage in a Data Hub at CSIC, and further distribution by means of SOS (Sensor Observation Service) for visualization in a dashboard on the EVIOR platform. In a later stage, data hubs might be deployed at individual RV operators. Solutions are dependent on specific operator circumstances (red dashed arrows in left graph). Specific modalities are discussed with operators during webinars and ad hoc trainings.
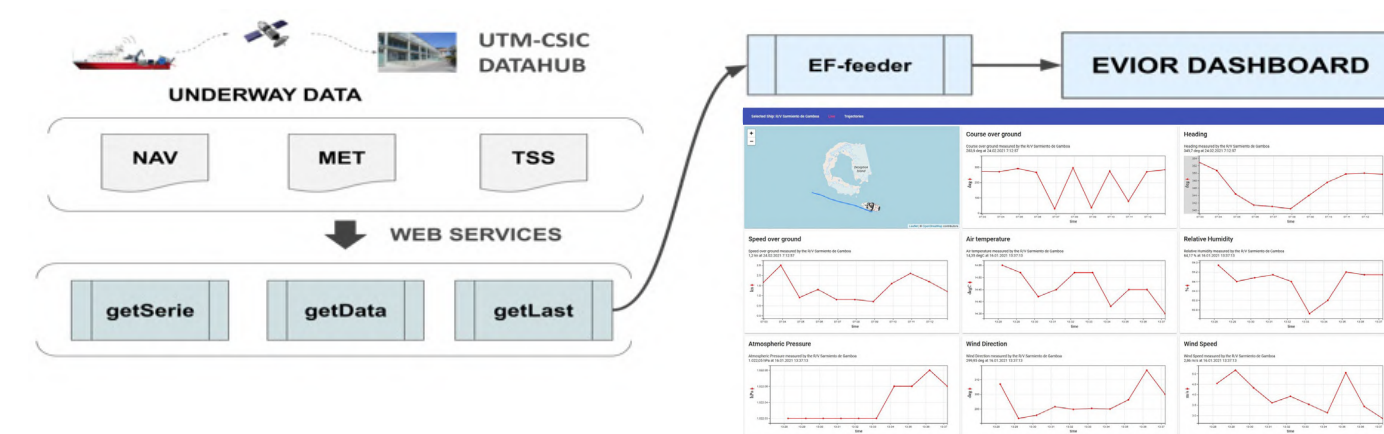
DEPLOYMENT, GUIDANCE AND TRAININGS

For easier deployment of the EARS package on board of Research Vessels, use can be made of Dock-er containers and a Virtual Machine (VM) with running Docker engine. Moreover, guidance docu-ments and trainings are provided to technicians of RV operators, while scientific cruise teams receive coaching from the NODCs, manuals and training on the use.

DEVELOPMENT TEAM

The Eurofleets+ WP3.1 development is undertaken by a team of RBINS, CSIC, IFREMER, HCMR, OGS, 52North, MI, VIP, and EurOcean, and coordinated by MARIS.

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