



Offshore Low-trophic Aquaculture in Multi-Use Scenario Realisation

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Executive Summary
This document describes the Data System and Service Platform for the OLAMUR project. It includes a description of the data collected and the data products generated by the work packages (WPs) and other sources (Copernicus Marine Service, and EMODnet). These data are assembled in a timely manner and pre-processed according to interoperable international standards to form the OLAMUR data system and its backend infrastructure.



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The deliverable also provides updates regarding the integration of data into the OLAMUR data portal.

List of acronyms	
Acronym	Meaning
CC	Creative Commons
CF	Climate and Forecast
CMEMS	Copernicus Marine Environment Monitoring Service
DMP	Data Management Plan
DMI	Danish Meteorological Institute
DOI	Digital Object Identifier
DEB	Dynamic Energy Budget
EDMERP	European Directory Of Marine Environmental Research Projects
EDMO	European Directory of Marine Organisations
EMODnet	European Marine Observation and Data Network
ERDDAP™	Environmental Research Division's Data Access Program
ECV	Essential Climate Variable
EOV	Essential Ocean Variable
FPC	Farm Performance Control
FTP	File Transfer Protocol
GOOS	Global Ocean Observing System
IMO	International Maritime Organization
INSPIRE	Infrastructure for Spatial Information in the European Community
ISO	International Organization for Standardization
KPI	Key Performance Indicators
MU-LTA	Multi-Use Low-Trophic Aquaculture
NERC	Natural Environment Research Council
NetCDF	Network Common Data Form
O-ERD	OLAMUR ERDDAP™
O-DI	OLAMUR Data Infrastructure
O-DDB	OLAMUR Data Delivery Buffer
O-DP	OLAMUR Data Portal
O-DT	OLAMUR Data Tool



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O-GNW	OLAMUR GeoNetwork
O-GEO	OLAMUR GeoServer
O-ncWMS	OLAMUR ncWMS
ncWMS	NetCDF Web Map Service
OGC	Open Geospatial Consortium
OLAMUR	Offshore Low-trophic Aquaculture in Multi-Use Scenario Realisation
ORE	Open Research Europe
ORCID	Open Researcher and Contributor ID
ROR	Research Organization Registry
QC	Quality Control
SDGs	Sustainable Development Goals
URI	Uniform Resource Identifier)
URL	Uniform Resource Locator
URN	Uniform Resource Name
VM	Virtual Machine
WP	Work Package



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1 Introduction

OLAMUR aims to design and demonstrate sustainable approaches for commercial multi-use low-trophic aquaculture (MU-LTA) in environments ranging from low to high salinity, including eutrophic and high-energy offshore waters. The project will collect, model, and manage data to develop the “OLAMUR digital MU-LTA farm service”.

The project’s demonstration sites include: 1) German Exclusive Economic Zone, North Sea (north of Helgoland) - cultivation of seaweed and blue mussels within an offshore wind farm; 2) Danish Exclusive Economic Zone, Baltic Sea (Kriegers Flak) - implementation of comparable MU-LTA activities within another offshore wind farm; 3) Near the Port of Veere, Estonia - integration of seaweed and mussel production with existing trout farming operations.

This document describes the Datasystem and Service Platform for the OLAMUR project.

Based on the Deliverable 5.3, this document offers a practical guide to help and drive partners in preparing and aligning data and metadata with international standards, and in using the data tools that form the project’s data infrastructure (with practical reported in the “Annex I – Guideline on Data management Version 3.0” - developed and regularly updated throughout the project, here the third version).

It includes a description of the data collected, as well as the data products collected and made available by WP2, WP3, WP4, WP5, WP6, and WP7. It also provides an inventory of data and products from other public sources (e.g., CMEMS, EMODnet) that support project activities. These data and products are federated—using international interoperability standards—or assembled in a timely manner and made available within the OLAMUR backend infrastructure to support OLAMUR service.

All data are accompanied by comprehensive metadata based on European and international standards. OLAMUR data are made available under the Creative Commons license CC-BY 4.0, in line with EU Commission recommendation on Open Science and Open Knowledge Foundation.



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2 OLAMUR data infrastructure

As described in Deliverable 5.3, the OLAMUR Data Infrastructure (O-DI) is based on microservices: some handle backend processes such as data ingestion, storage, and processing, others focus on frontend data products presentation and interaction with users. These components are designed to be modular and scalable, and to adapt to the evolving needs of the project needs.

OLAMUR data and products are available in the OLAMUR Data Tool (O-DT) and discoverable by the frontend interface, referred to as OLAMUR Data Portal (O-DP).

The O-DP operates customised visualisations and interactive dashboards to support the experience of the user in their daily data exploration and decision-support activities.

2.1 Backend

The O-DI backend currently operates on a single virtual machine (VM) instance hosting multiple Docker containers, each of which run a specific O-DT:

- Data Delivery Buffer (O-DDB): Provided by the FTP server and managed directly by the VM, it provides project partners with an internal data-drop service for uploading data in a structured and consistent manner. The directory structure follows the project's organisation by Work Package (WP), variable, parameter, and product. Each WP has restricted access to its own area, ensuring proper data segregation and integrity;
- ERDDAP™ 2.18 (O-ERD)¹: An open-source data server that provide unified access to various scientific data servers, providing OLAMUR partners with a consistent method for retrieving both grid and tabular data. Supporting protocols such as OPeNDAP and WMS, enables data access, subsetting, visualisation, and download in common formats. ERDDAP™ standardises the data representation and serves both existing and newly produced datasets from project partners;
- ncWMS 2.5.2 (O-ncWMS)²: An open-source visualisation tool that is integrated with ERDDAP™ and is designed for environmental data. It allows the interactive display of variables varying in time or depth, supports custom colour palettes and time-series extraction, and serves datasets as WMS layers accessible through the OLAMUR web portal;
- GeoServer 2.22.1 (O-GEO)³: Publishes and distributes geospatial datasets using the Open Geospatial Consortium (OGC). It enables the generation of dynamic maps and supports the querying and manipulation of raster and vector data. Complementary to ERDDAP™, it provides interoperable, map-based visualisation and dissemination of spatial data;

¹ <https://erddap.s4olamur.eu/erddap/index.html>

² <https://ncwms.s4olamur.eu/ncWMS/>

³ <https://geoserver.s4olamur.eu/geoserver/web/?0>



- GeoNetwork 3.12.11.0 (O-GNW)⁴: An open-source metadata catalogue application that is used to manage and publish metadata for geospatial datasets and services. The OLAMUR instance hosts the official metadata catalogue, structured into thematic and resource-based categories. It improves data discoverability, interoperability, and compliance with international metadata standards, supporting transparency and reusability across the OLAMUR infrastructure.

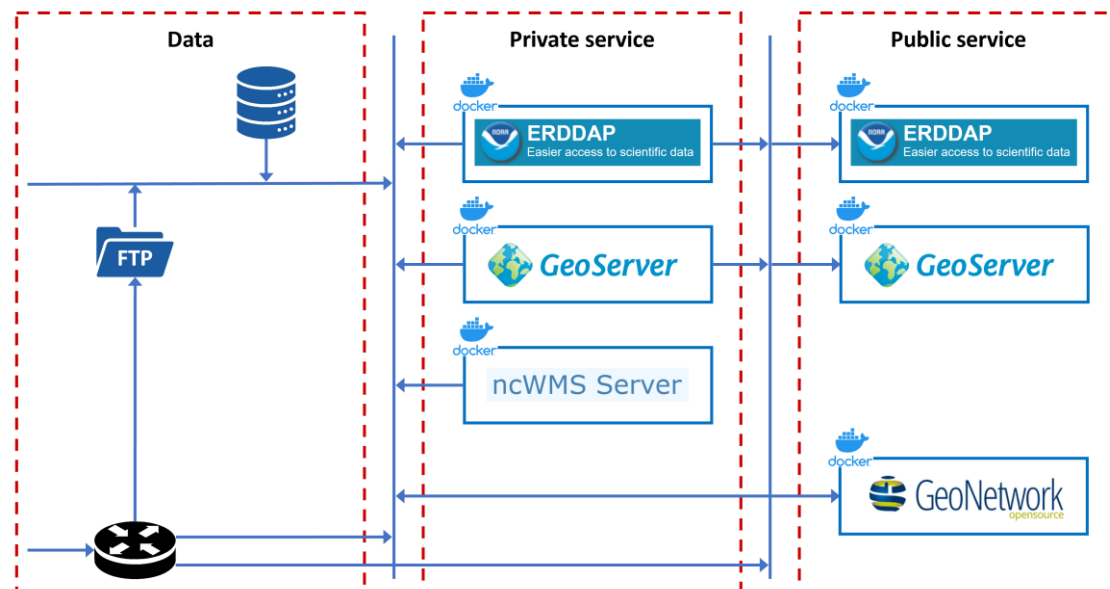


Figure 1. OLAMUR data management architecture

Overall, this backend architecture ensures efficiency, scalability, and interoperability. It aligns with open standards and supports the project’s data management, access, and visualisation requirements.

2.2 Frontend

The O-DP⁵, developed with Angular, is an interactive web platform for visualising and exploring datasets, models, and products. It serves as the main user access point, providing tools to support decision-making through intuitive interaction with backend data.

The portal is structured into functional modules that align with the needs of stakeholder, and each module is linked to specific user profiles and services. Some modules are cross-cutting, serving multiple user categories. This modular design facilitates the gathering of both requirements and the practical implementation of stakeholder needs within the platform. The O-DP provides users with four main functional Data Service Modules: 1) Aquaculture Farm Design and Planning; 2) Decisional Support System for the Deployment, Operation and

⁴ <https://catalog.s4olamur.eu/geonetwork/>

⁵ <https://s4olamur.eu/mapviewer/olamurV1/>



Monitoring; 3) Product, Marketing and Capacity Building; 4) Large Scale Multi-Use Marine Spatial Planning and Impact Assessment.

The O-DP unifies datasets, products, and service modules within a single interface to provide a seamless user experience. Given the variety of data types and sources, it supports multiple interaction levels tailored to different user needs:

- Level 1 - Ground Base: common data and results across all case studies;
- Level 2 - Site-Specific: customised interfaces and tools for each case study;
- Level 3 - Data Service: specialised dashboards from Task 5.2;
- Level 4 - Custom Views (planned): tailored visualisations for specific WP needs, such as socio-economic results (WP6/WP7).

A beta version of the O-DP has been available for testing since September 2024, alongside defined Key Performance Indicators (KPIs) to objectively assess usability and effectiveness. A feedback survey was distributed among project partners and aquaculture operators to collect user evaluations.

2.3 Data workflow

Figure 2 illustrates how data is made available and discoverable in the O-DI and O-DP.

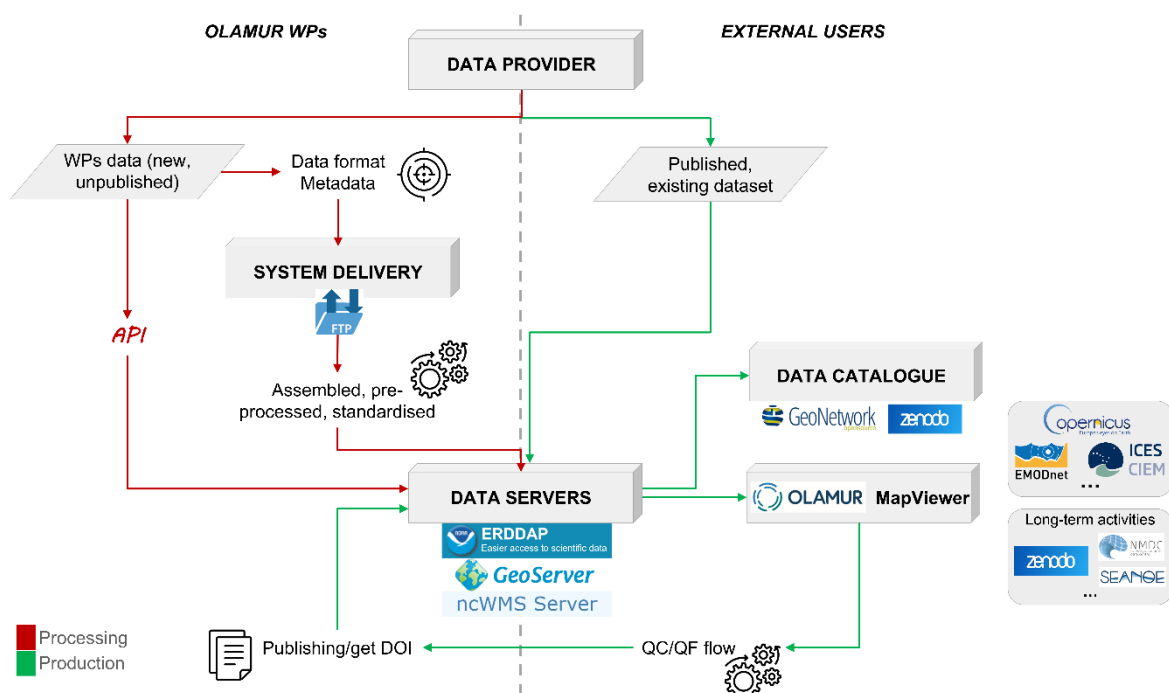


Figure 2. OLAMUR data flowchart



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3 OLAMUR Data

All the OLAMUR WPs are producing and consuming data. The following sections provide the reader a guide to understand the adopted conventions (metadata) and the full list of the available and consumable data and data products.

OLAMUR's data processing extends beyond physical data to encompass social and governance dimensions. Specifically, WP7 conducts textual data analysis, interviews, and actively participates in high-level meetings. This enriches the scientific discourse with diverse perspectives and generates insights through stakeholder workshops that underscore the relevance of the Sustainable Development Goals (SDGs) for specific test sites. These data are directly managed under WP7, and the OLAMUR data infrastructure only receives the final outcome/product.

3.1 Data inventory

The OLAMUR project generates and compiles data from various sources, both internal and external. The dynamic nature of the project requires periodic snapshots to ensure accurate and updated an inventory to map OLAMUR data and models, as outlined in the Data Management Plan (DMP) ("D9.2 Data Management Plan 1"). The data inventory is available on the OLAMUR SharePoint - WP5 folders (path: WP5 > T5.1_Data_management > DMP): [Dataset information form.xlsx](#).

Beyond documentation, the data inventory plays a critical role in tracking whether newly generated data or data already in use are included in, or need to be submitted to, EMODnet. This systematic overview ensures consistency with European standards, supports long-term data stewardship, and helps identify any gaps in data publication workflows.

In addition, the status of the resources within the OLAMUR infrastructure is marked. This periodic survey is also supporting the update of the DMP contents.

3.2 Metadata, standards and convention

OLAMUR data management makes use of a standard convention naming data to quickly identify, categorise and match records, reducing the risk of errors and increasing the speed of operations. In addition, standardised names support collaboration across teams by enabling everyone to quickly understand the content and purpose of records, fostering a cohesive and productive data-driven environment.

More in-depth details can be found in the "Annex I – Guideline on Data management Version 3.0".

Metadata is data that provides information about other data. It describes various attributes of data, such as its format, structure, source, and context, enabling efficient organization, retrieval, and understanding of the data. For each dataset or product, OLAMUR provides several metadata. Some are mandatory, some others are warmly recommended. The use of



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controlled vocabularies ensures that terms are applied consistently, making metadata universally understandable and easier to integrate between different systems.

Dataset id (*dataset_id*), Dataset title (*title*), Variable name, Providers are the key metadata to identify the OLAMUR data-products and for each of them, some finer and more advanced metadata are used.

“Annex II – Metadata” reports all OLAMUR metadata.

3.3 Open Data access beyond the life of the project

OLAMUR has adopted Zenodo, an open-access repository developed by CERN and the European Commission, as the central platform for managing and cataloguing the project’s outputs. A dedicated community⁶ has been established to provide stakeholders with an organised and searchable catalogue, ensuring consistent metadata standards and clear links between outputs, contributors (researchers, institutions, and funding agencies), and associated best practices.

All digital products are published within the OLAMUR Zenodo community, and each record includes a direct link to the corresponding dataset, product, or service. The community functions as a thematic repository, enhancing the organisation and visibility of OLAMUR’s research materials and supporting broad dissemination. In addition to peer-reviewed publications hosted on Open Research Europe (ORE), Zenodo allows the project to share presentations, posters, meeting proceedings, and public deliverables (after approval by the European Commission reviewers).

Every document uploaded to Zenodo is assigned a persistent DOI, unless it already has one, in which case the existing DOI can be retained. This ensures that all materials, including reports and presentations, remain discoverable and citable over time. Zenodo also issues two types of DOIs: one that always points to the latest version of a record and one that refers to the specific version being cited. Using the appropriate metadata, such as the project contract number and authors’ ORCID identifiers, further strengthens the project’s long-term legacy and facilitates reporting to the European Commission.

Practical guidance on uploading items to Zenodo is provided in the “Annex I – Guideline on Data management Version 3.0”.

3.4 Data ingested

All data produced and finalised within the OLAMUR project have been successfully integrated into the project’s O-DT and O-DI (see detail in “Annex III – Data ingested”).

Currently the O-DI hosts a total of 138 datasets: 87 datasets on O-ERD (WMS also on O-ncWMS) and 42 datasets on O-GEO. The inclusion of this data in the O-GNW project catalogue is currently underway.

⁶ <https://zenodo.org/communities/olamur-he/>



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After being ingested into the O-DI, OLAMUR datasets are submitted to the OLAMUR Zenodo community for wider distribution, long-term preservation, and DOI assignment. The datasets indexed at the time of deliverable are only the one present in O-ERD. WP5 will proceed with the inclusion of data not yet submitted and future data that will be produced.



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4 OLAMUR Data Portal

The project data portal is described in detail in Deliverable 5.3.

Further developments are reported below.

4.1 Data Service (Level 3)

Data services provide tools tailored to the specific operational requirements of end users, along with capabilities that support well-informed decision-making. The implementation of four services within O-DI was finalised in this Deliverable 5.2, which presents all relevant details. The completion of the FPC data service is discussed in the following section.

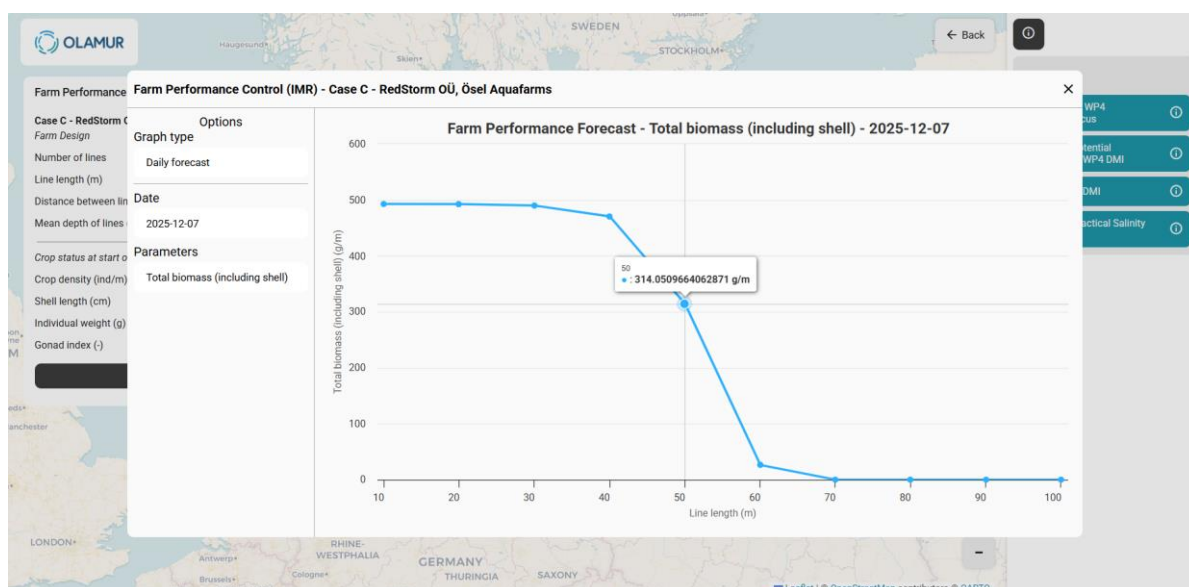
4.1.1 Farm Performance Control (FPC)

The Farm Performance Control (FPC) module simulates crop growth, health, and reproductive status in offshore aquaculture, allowing stakeholders to remotely monitor stock performance and optimise farm layout and harvesting. Based on Dynamic Energy Budget (DEB) population models and on ocean models developed and operated by DMI, it predicts biological responses to environmental conditions while incorporating farm-specific factors such as longline configuration and initial seeding. In particular, the FPC uses:

- Biological model: DEB population models developed by WP3;
- Temperature, salinity and current: DMI hourly forecast with HBM model for North Sea - Baltic Sea (see Annex II of Deliverable 5.3 for details);
- Chlorophyll-a concentration: CMEMS daily Baltic Sea biogeochemistry analysis and forecast.

The FPC data service landing page (Figure 3) is available at:

<https://s4olamur.eu/mapviewer/olamurV1/service-fpc/>



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Figure 3. Dashboard on O-DP for Farm Performance Control (FPC) data service

Sites are highlighted by blue circles. The user is asked to select a site on the map and, then, to define the farm parameters regarding the farm design (number of lines, line length, distance between lines, mean depth of lines) and crop status at start of simulation (crop density, shell length, individual weight, gonad index) and, on execution, the service shows the simulation.

The outputs are charts that represents spatially explicit assessment of the crop population (shell length, individual weight, gonad index and biomass along the farm lines) at different times and environmental conditions of the farm (temperature, salinity, current, chlorophyll-a).

4.2 Custom Views (Level 4)

Tailored and highly specific visualisation options designed to meet the needs of individual WPs will be provided. These views will enable the presentation of detailed outputs that go beyond standard dashboard displays, such as the reporting of socio-economic analysis results produced by WP6 and WP7. By offering flexible and customisable layouts, Level 4 visualisations will ensure that each WP can communicate its findings in the most effective and meaningful way for its stakeholders.

4.2.1 SDGs dashboard

WP5 is working closely with WP7 to develop a dedicated dashboard for visualising project results related to the Sustainable Development Goals (SDGs) analysed by WP7.

We are developing a methodology to analyse the OLAMUR case studies using SDG Target Relevance Tracing results (WP7). The aim is to cluster the relevant SDG targets into thematic and data-driven groups that can support predictive modelling and scenario development. This work goes beyond the activities specified in the OLAMUR Grant Agreement and represents a novel approach to integrating real-time data within the framework of the SDGs.

The main step of the methodology will be:

1. Review the relevance tracing results to identify which SDG targets apply to the OLAMUR demonstration sites in Denmark, Germany, and Estonia;
2. Organise the relevant SDG targets into thematic clusters;
3. Link available environmental and operational data to each cluster, enabling time-series analysis to assess threshold dynamics and SDG performance;
4. Use the aggregated results to identify optimal sustainability scenarios.

The expected outcomes of this approach include a clearer understanding of how environmental and social factors influence SDG performance, along with evidence-based recommendations to guide strategic priorities in aquaculture and renewable energy operations. In addition, the results will establish a solid foundation for cross-case comparison and future predictive modelling, forming a key part of the OLAMUR legacy.



Annex I – Guideline on Data management Version 3.0

Practical user manual of the backend infrastructure of data management for partners.

Link to OLAMUR SharePoint:

[OLAMUR D5.1 AnnexI Data management Guideline v.3.pdf](#)



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Annex II – Metadata

OLAMUR metadata are reported in the following tables. For each one type, mandatory nature, fixed value, description, associated vocabulary, an example and eventually notes are reported.

Specifically, Table 1 presents global metadata, Table 2 variable metadata and Table 3 quality check (QC) variable metadata.

Attribute name	Type	Mandatory	Fixed	Description	Vocabulary
project_name	string	yes	yes	Project name	CORDIS for European Project
project_code	string	yes	yes	Project code/acronym	CORDIS for European Project
Project_DOI	string	yes	yes	Project DOI	CORDIS for European Project
project_edmerp	string	yes	yes	Project EDMERP code	EDMERP SeaDataNet
project_edmerp_uri	string	yes	yes	Project EDMERP uri	EDMERP SeaDataNet
project_id	double	yes	yes	Project Grant agreement number	CORDIS for European Project
project_statement	string	yes	yes	Project Grant agreement statement	CORDIS for European Project
naming_authority	string	yes	yes	Name of who defines the data set and the standards to be applied	
institution	string	yes		The name of the institution principally responsible for originating this data (owner or provider). This attribute is recommended by the CF convention	
institution_country	string			Country of the institution principally responsible for this data (owner or provider) expressed according to ISO 3166	ISO 3166
institution_edmo_code	string	yes		EDMO code of the institution principally responsible for this data (owner or provider)	EDMO SeaDataNet
institution_edmo_uri	string	yes		EDMO URI of the institution principally responsible for this data (owner or provider)	EDMO SeaDataNet
institution_ror_code	string	yes		ROR code of the institution principally responsible for this data (owner or provider)	ROR
institution_ror_uri	string	yes		ROR URI of the institution principally responsible for this data (owner or provider)	ROR
creator_name	string	yes		The name of the person (or other creator type specified by the creator_type attribute) principally responsible for creating this data	
creator_email	string			The email of the person (or other creator type specified by the creator_type attribute) principally responsible for creating this data	
creator_orcid	string			ORCID of the person principally responsible for creating this data (do not indicate for other creator type specified by the creator_type attribute)	ORCID
creator_type	string	yes		Specifies type of creator with one of the following: 'person', 'group', 'institution', or 'position'. If this attribute is not specified, the creator is assumed to be a person	



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Attribute name	Type	Mandatory	Fixed	Description	Vocabulary
creator_url	string	yes		The URL of the person (or other creator type specified by the <i>creator_type</i> attribute) principally responsible for creating this data	
contributors_name	string			The name of any individuals, projects, or institutions that contributed to the creation of this data. May be presented as free text, or in a structured format compatible with conversion to ncML (e.g., insensitive to changes in whitespace, including end-of-line characters). For persons, each contributor should be indicated as surname and name separated by comma. Contributors should be separated by semicolon (standard: <i>Surname, Name; Surname, Name; ...</i>)	
contributors_email	string			Email of any individuals or institutions that contributed to the collection of this data. Emails should be presented in the same order and number as the names in <i>contributor_names</i> (separated by semicolon)	
contributors_orcid	string			ORCID of any individuals or institutions that contributed to the collection of this data. ORCIDs should be presented in the same order and number as the names in <i>contributor_names</i> (separated by semicolon)	ORCID
contributors_role	string			The role of any individuals, projects, or institutions that contributed to the creation of this data. May be presented as free text, or in a structured format compatible with conversion to ncML (e.g., insensitive to changes in whitespace, including end-of-line characters). Multiple roles for the same contributor are accepted (separated by comma). Roles should be presented in the same order and number as the names in <i>contributor_names</i> (separated by semicolon) (standard: <i>PI, researcher, data curator; data collector; ...</i>)	
distributor_name	string	yes	yes	Name of the entity from which we are federating information	
distributor_url	string	yes	yes	URL of the entity from which we are federating information	
publisher_name	string	yes	yes	The name of the person (or other entity specified by the <i>publisher_type</i> attribute) responsible for publishing the data file or product to users, with its current metadata and format.	
publisher_type	string	yes	yes	Specifies type of publisher with one of the following: 'person', 'group', 'institution', or 'position'. If this attribute is not specified, the publisher is assumed to be a person.	
publisher_url	string	yes	yes	The URL of the person (or other entity specified by the <i>publisher_type</i> attribute) responsible for publishing the data file or product to users, with its current metadata and format.	
area	string	yes		Area of study (possible values: Baltic Sea, North Sea, Global Ocean, Case study A, Case study B, Case study C)	



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Attribute name	Type	Mandatory	Fixed	Description	Vocabulary
geospatial_lat_max *	double	yes, if spatial data		Max latitude expressed in WGS84 (the highest possible precision)	WGS84
geospatial_lat_min *	double	yes, if spatial data		Min latitude expressed in WGS84 (the highest possible precision)	WGS84
geospatial_lat_resolution *	double	yes, if spatial grid data		Latitude resolution expressed in WGS84 (for grid data)	WGS84
geospatial_lat_units	string	yes, if spatial data	yes	Degrees north	
geospatial_lon_max *	double	yes, if spatial data		Max longitude expressed in WGS84 (the highest possible precision)	WGS84
geospatial_lon_min *	double	yes, if spatial data		Min longitude expressed in WGS84 (the highest possible precision)	WGS84
geospatial_lon_resolution *	double	yes, if spatial grid data		Longitude resolution expressed in WGS84 (for grid data)	WGS84
geospatial_lon_units	string	yes, if spatial data	yes	Degrees east	
geospatial_vertical_max *	double	yes, if spatial data		Max vertical extension (in case of vertical profile) (the highest possible precision)	
geospatial_vertical_min *	double	yes, if spatial data		Min vertical extension (in case of vertical profile) (the highest possible precision)	
geospatial_vertical_positive	string	yes, if spatial data		Positive direction of vertical extension ("up" means that z increases up - height, "down" means that z increases downward - pressure or depth)	
geospatial_vertical_units	string	yes, if spatial data		Units used for the vertical extension	
time_coverage_duration	string	yes		Time coverage duration using ISO 8601 (in alternative to time_coverage_start/time_coverage_end)	ISO 8601
time_coverage_end *	string	yes		Time coverage end using ISO 8601	ISO 8601
time_coverage_resolution	string	yes, if applicable		Time coverage resolution using ISO 8601 (if applicable)	ISO 8601
time_coverage_start *	string	yes		Time coverage start using ISO 8601	ISO 8601
cdm_data_type	string	yes		Data type according to Common Data Model (possible values: Grid, MovingGrid, Other, Point, Profile, RadialSweep, TimeSeries, TimeSeriesProfile, Swath, Trajectory, TrajectoryProfile)	NCEI NetCDF Templates v2.0
data_format_original	string	yes		Original format of the dataset (e.g., NetCDF, csv, txt, geotiff)	
data_creation	string	yes		Date of dataset creation	ISO 8601
data_update	string	yes		Date of dataset update	ISO 8601
data_update_frequency	string	yes		Frequency of dataset update (e.g. never, daily, weekly, monthly, yearly)	
data_version	string	yes		Dataset update version	
data_doi	string	yes, if existing		Data DOI	DOI
data_best_practices_doi	string	yes, if existing		Data best practices DOI	DOI
sensor_manufacturer_sd_n_name **	string	yes, if applicable		Name of the sensor manufacturer or developer according to SeaDataNet vocabulary	NERC Vocabulary L35
sensor_manufacturer_sd_n_uri **	string	yes, if applicable		URI of the sensor manufacturer or developer according to SeaDataNet vocabulary	NERC Vocabulary L35
sensor_manufacturer_sd_n_urn **	string	yes, if applicable		URN of the sensor manufacturer or developer according to SeaDataNet vocabulary	NERC Vocabulary L35



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Attribute name	Type	Mandatory	Fixed	Description	Vocabulary
sensor_sdn_name **	string	yes, if applicable		Name of the sensor according to SeaDataNet vocabulary	NERC Vocabulary L22
sensor_sdn_uri **	string	yes, if applicable		URI of the sensor according to SeaDataNet vocabulary	NERC Vocabulary L22
sensor_sdn_urn **	string	yes, if applicable		URN of the sensor according to SeaDataNet vocabulary	NERC Vocabulary L22
sensor_accuracy	string	yes, if applicable		Accuracy of the sensor	
sensor_last_calibration	string	yes, if applicable		Date of the last calibration of the sensor	ISO 8601
sensor_uncertainty	string	yes, if applicable		Value of uncertainty of the sensor	
sensor_uncertainty_url	string	yes, if applicable		External link to the methodology used to calculate the value of uncertainty of the sensor (e.g., DOI, URL)	
keywords	string	yes		List of keywords and phrases (separated by comma - in case of multiple vocabularies, insert keywords following the same order listed in "keywords_vocabulary")	Global Change Master Directory (GCMD)
keywords_vocabulary	string	yes	yes	Identifies the controlled list of keywords from which the values in the "keywords" attribute are taken (in case of multiple vocabularies, separated by comma)	Global Change Master Directory (GCMD)
inspire	string	yes, if spatial data		INSPIRE spatial data or SeaDataNet vocabulary	INSPIRE Spatial Data Themes (GEMET)
platform_id_orig	string			Pre-existing platform id, if applicable	
platform_type_sdn_name	string			Name of the platform type according to SeaDataNet vocabulary	NERC Vocabulary L06
platform_type_sdn_uri	string			URI of the platform type according to SeaDataNet vocabulary	NERC Vocabulary L06
platform_type_sdn_urn	string			URN of the platform type according to SeaDataNet vocabulary	NERC Vocabulary L06
platform_wmo	double			Platform identification numbers according to World Meteorological Organization	Buoy WMO Identification numbers
oceanographic_campaign	string			Name of the oceanographic campaign during which the data were collected	
ship_call_sign	string			Maritime call sign assigned as unique alphanumeric identifier to the ship	
ship_imo	double			IMO ship identification number (unique ship identifier) - report only the seven-digit number	Marine Traffic Research
ship_name	string			Name of the ship	
dataset_id	string	yes		Dataset id. Defined by ETT according to OLAMUR standard	
title	string	yes		A short phrase or sentence describing the dataset. In many discovery systems, the title will be displayed in the results list from a search, and therefore should be human readable and reasonable to display in a list of such names. Defined by partner and ETT according to OLAMUR standard	
summary	string	yes		A paragraph describing the dataset, analogous to an abstract for a paper	



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Attribute name	Type	Mandatory	Fixed	Description	Vocabulary
source	string	yes		The method of collection and production of the dataset (e.g., types of instrument, model, collection). If it was model-generated, source should name the model and its version. If it is observational, source should characterize it. This attribute is defined in the CF Conventions	
references	string	yes		Description of how the dataset was created: published or web-based references that describe the data or methods used to produce it. Recommend URIs (such as a URL or DOI) for papers or other references. This attribute is defined in the CF conventions.	
acknowledgement	string			A place to acknowledge various types of support for the project that produced this data	
citation	string			Citation	
comment	string			Eventually comments	
infoUrl	string	yes		URL of data information background (es. GeoNetwork, project web page, dataset page, ...)	
metadata_source	string			URL to the original (external) metadata source of the dataset that has been federated (not for direct federation from ERDDAP to ERDDAP)	
variables	string			List of variables id (separated by comma)	
Conventions	string	yes	yes	Conventions used to define dataset metadata	
standard_name_vocabulary	string	yes	yes	Name and version of standard vocabulary (e.g., CF Standard Name Table v70)	
license	string	yes	yes	Licence that describes the restrictions to data access and distribution (CC-BY)	Creative commons
license_url	string	yes	yes	Link to license url	Creative commons

Table 1. OLAMUR global metadata.

*) Geospatial and time information can be automatically calculated if latitude, longitude and time are variable.

**) If the sensor or the sensor manufacturer is not included in the NERC vocabularies, ETT can request them addition.

Attribute name	Type	Mandatory	Description	Vocabulary
ecv	string	yes, if applicable	Essential Climate Variable (ECV): physical, chemical or biological variable or a group of linked variables that critically contributes to the characterization of Earth's climate	GOOS Essential Climate Variables
			Essential Ocean Variable (EOV): physical, biochemical or biological variable or a group of linked variables that help to deliver ocean forecasts and early warnings, climate projections and assessments and protect ocean health and its benefits	GOOS Essential Ocean Variables
ecv_uri	string	yes, if applicable	URI to the Essential Climate Variable (ECV)	GOOS Essential Climate Variables
			URI to the Essential Ocean Variable (EOV)	GOOS Essential Ocean Variables
long_name	string	yes	Long name of the variable	



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Attribute name	Type	Mandatory	Description	Vocabulary
parameter_sdn_name	string	yes	Name of the parameter according to SeaDataNet vocabulary	NERC Vocabulary P01
parameter_sdn_uri	string	yes	URI of the parameter according to SeaDataNet vocabulary	NERC Vocabulary P01
parameter_sdn_urn	string	yes	URN of the parameter according to SeaDataNet vocabulary	NERC Vocabulary P01
standard_name	string	yes	A long descriptive name for the variable taken from a controlled vocabulary of variable names. We recommend using the CF convention and the variable names from the CF standard name table. This attribute is recommended by the CF convention.	CF Standard Name Table v70
unit_sdn_name	string	yes	Name of the unit of measurement according to SeaDataNet vocabulary	NERC Vocabulary P06
unit_sdn_uri	string	yes	URI of the unit of measurement according to SeaDataNet vocabulary	NERC Vocabulary P06
unit_sdn_urn	string	yes	URN of the unit of measurement according to SeaDataNet vocabulary	NERC Vocabulary P06
units	string	yes	Unit of measurement of the variable needed by ERDDAP	UDUNITS library of UniData (see chapter "6 The Units Database")
units_url	string	yes	URL to the vocabulary used to define the unit of measurement of the variable in "units"	UDUNITS library of UniData (see chapter "6 The Units Database")
variable_best_practices_doi	string	yes, if existing	Variable best practices DOI (if the same of the data insert the same value of "data_best_practice_doi")	DOI

Table 2. OLAMUR variable metadata.

Attribute name	Type	Mandatory	Description	Vocabulary
standard_name	string	yes	Fixed standard name for quality check "quality_flag"	CF Standard Name Table v70
long_name	string	yes	Long name of the variable	
flag_meanings	string	yes	One or more values separated by comma that indicate the meaning of the QC flags of the variable (possible values: no_qc_performed, good_data, probably_good_data, bad_data_that_are_potentially_correctable, bad_data, value_changed, not_used, nominal_value, interpolated_value, missing_value)	
flag_values	string	yes	One or more values separated by comma that indicate the QC flags of the variable (possible values: 0,1,2,3,4,5,7,8,9)	OceanSITES Data Format Reference Manual (for ocean data)



Attribute name	Type	Mandatory	Description	Vocabulary
qc_manual	string	yes, if applicable	Quality Flag Scheme	OceanSITES Data Format Reference Manual (for ocean data)
qc_method	string	yes, if applicable	Quality Flag Method (DOI or other reference)	OceanSITES Data Format Reference Manual (for ocean data)

Table 3. OLAMUR QC variable metadata.



Annex III – Data ingested

Inventory of data ingested into O-DI (O-ERD, O-ncWMS, O-GEO, O-GNW, Zenodo), constantly updated throughout the lifespan of the project. Updated on 30/11/2025.

Title	ID	Description
CMEMS - CORA: Coriolis Ocean database for ReAnalysis	INSITU_GLO_PHY_TS_OA_MY_013_052_PSAI *	Federation of data <i>as-is</i>
CMEMS - CORA: Coriolis Ocean database for ReAnalysis	INSITU_GLO_PHY_TS_OA_MY_013_052_TEMP *	Federation of data <i>as-is</i>
Copernicus - Baltic Sea - Biogeochemistry Analysis and Forecast Daily: Chl, Phy, NO3, Kd, O2, pH, PO4, Zoo, NH4, Diss C, Si - CMEMS ERGOM daily integrated model fields (cmems mod bal bgc anfc P1D-m) [time][depth][lat][lon], 2021-present	cmems_mod_bal_bgc_anfc_P1D_m	Data subset extraction for OLAMUR purposes
Copernicus - Baltic Sea - Biogeochemistry Analysis and Forecast Daily: Net primary production - CMEMS ERGOM accumulated daily NPP (cmems mod bal bgc-pp anfc P1D-i), 2021-present	cmems_mod_bal_bgc_pp_anfc_P1D_i *	Data subset extraction for OLAMUR purposes
Copernicus - Baltic Sea - Physics Analysis And Forecast - CMEMS NEMO daily model fields	cmems_mod_bal_phy_anfc_P1D_m *	Data subset extraction for OLAMUR purposes
Copernicus - Baltic Sea - Physics Analysis And Forecast - CMEMS NEMO hourly model fields	cmems_mod_bal_phy_anfc_PT1H_i *	Data subset extraction for OLAMUR purposes
Copernicus - Baltic Sea - Wave Physics Analysis And Forecast - CMEMS WAM hourly model fields	cmems_mod_bal_wav_anfc_PT1H_i *	Data subset extraction for OLAMUR purposes
Copernicus - Case study A - Biogeochemical 3D daily mean fields for the North West Shelf (NWS) region	cmems_bal_chl-mod_olamur_casea *	Data subset extraction for OLAMUR purposes
Copernicus - Case study A - CMEMS ERGOM daily integrated model field (Hourly mean)	cmems_bal_chl-mod-daily_olamur_casea	Data subset extraction for OLAMUR purposes
Copernicus - Case study A - CMEMS HR-OC Baltic Sea transparency (spm, tur) and geophysical (chl) daily observations mosaic	cmems_bal_chl-sat_olamur_casea *	Data subset extraction for OLAMUR purposes
Copernicus - Case study B - CMEMS ERGOM daily integrated model field	cmems_bal_chl-mod_olamur_caseb *	Data subset extraction for OLAMUR purposes
Copernicus - Case study B - CMEMS ERGOM daily integrated model field (Hourly mean)	cmems_bal_chl-mod-daily_olamur_caseb	Data subset extraction for OLAMUR purposes
Copernicus - Case study B - CMEMS HR-OC Baltic Sea transparency (spm, tur) and geophysical (chl) daily observations mosaic	cmems_bal_chl-sat_olamur_caseb *	Data subset extraction for OLAMUR purposes
Copernicus - Case study C - CMEMS ERGOM daily integrated model field	cmems_bal_chl-mod_olamur_casec *	Data subset extraction for OLAMUR purposes
Copernicus - Case study C – CMEMS ERGOM daily integrated model field (Hourly mean)	cmems_bal_chl-mod-daily_olamur_casec	Data subset extraction for OLAMUR purposes
Copernicus - Case study C - CMEMS HR-OC Baltic Sea transparency (spm, tur) and geophysical (chl) daily observations mosaic	cmems_bal_chl-sat_olamur_casec *	Data subset extraction for OLAMUR purposes
Copernicus - North Sea - Biogeochemistry Analysis And Forecast - Biogeochemical 3D daily mean fields for the North West Shelf (NWS) region	cmems_mod_nws_bgc_anfc_0_02_7deg_3D_P1D_m *	Data subset extraction for OLAMUR purposes
Copernicus - North Sea - Physics Analysis And Forecast - Ocean 3D hourly mean fields for the North West Shelf (NWS) region	cmems_mod_nws_phy_anfc_0_02_7deg_3D_PT1H_m *	Data subset extraction for OLAMUR purposes
Copernicus - North Sea - Physics Analysis And Forecast - Ocean 3D daily mean fields for the North West Shelf (NWS) region	cmems_mod_nws_phy_anfc_0_02_7deg_3D_P1D_m *	Data subset extraction for OLAMUR purposes
Copernicus - North Sea - Wave Physics Analysis And Forecast - Wave hourly instantaneous fields for the North West Shelf (NWS) region	cmems_mod_nws_wav_anfc_0_02_7deg_PT1H_i *	Data subset extraction for OLAMUR purposes



Title	ID	Description
DMI - CASE A - North Sea/Baltic Sea SST, L3S, (SST_BAL_SST_L3S_NRT_OBSERVATIONS_010_032)	cmems_bal_temp-ice_olamur_casea *	Data subset extraction for OLAMUR purposes
DMI - CASE B - North Sea/Baltic Sea SST, L3S, (SST_BAL_SST_L3S_NRT_OBSERVATIONS_010_032)	cmems_bal_temp-ice_olamur_caseb *	Data subset extraction for OLAMUR purposes
DMI - CASE C - North Sea/Baltic Sea SST, L3S, (SST_BAL_SST_L3S_NRT_OBSERVATIONS_010_032)	cmems_bal_temp-ice_olamur_casec *	Data subset extraction for OLAMUR purposes
EMODnet - Baltic Sea - Water body chlorophyll-a - DIVAnd 6-year seasonal analysis of Water body chlorophyll-a 1974/2021 v2023 [time][depth][lat][lon], 0.1°, 1976-2018	oceanbrowser_opendap_c588_1e0b_5f85 *	Federation of data <i>as-is</i>
EMODnet - Baltic Sea - Water body dissolved inorganic nitrogen - DIVAnd 6-year seasonal analysis of Water body dissolved inorganic nitrogen 1975/2021 v2023 [time][depth][lat][lon], 0.1°, 1977-2018	oceanbrowser_opendap_4d2b_1333_f680 *	Federation of data <i>as-is</i>
EMODnet - Baltic Sea - Water body dissolved oxygen - DIVAnd 6-year seasonal analysis of Water body dissolved oxygen concentration 1960/2021 v2023 [time][depth][lat][lon], 0.1°, 1962-2018	oceanbrowser_opendap_a1a1_d1b9_d9d3 *	Federation of data <i>as-is</i>
EMODnet - Baltic Sea - Water body phosphate - DIVAnd 6-year seasonal analysis of Water body phosphate 1975/2021 v2023 [time][depth][lat][lon], 0.1°, 1957-2018	oceanbrowser_opendap_53b3_6c36_e8be *	Federation of data <i>as-is</i>
EMODnet - Baltic Sea - Water body silicate - DIVAnd 6-year seasonal analysis of Water body silicate 1965/2021 v2023 [time][depth][lat][lon], 0.1°, 1967-2018	oceanbrowser_opendap_e311_c800_2d12 *	Federation of data <i>as-is</i>
EMODnet - North Sea - Water body dissolved inorganic nitrogen - DIVAnd 4D 6-year seasonal analysis of Water body dissolved inorganic nitrogen 1980/2021 v2023 [time][depth][lat][lon], 0.1°, 1982-2018	oceanbrowser_opendap_1daf_67b8_cf63 *	Federation of data <i>as-is</i>
EMODnet - North Sea - Water body dissolved oxygen - DIVAnd 4D 6-year seasonal analysis of Water body dissolved oxygen concentration 1980/2021 v2023 [time][depth][lat][lon], 0.1°, 1982-2018	oceanbrowser_opendap_cb01_2019_3815 *	Federation of data <i>as-is</i>
EMODnet - North Sea - Water body phosphate - DIVAnd 4D 6-year seasonal analysis of Water body phosphate 1980/2021 v2023 [time][depth][lat][lon], 0.1°, 1982-2018	oceanbrowser_opendap_6658_de7b_3ebe *	Federation of data <i>as-is</i>
EMODnet - North Sea - Water body silicate - DIVAnd 4D 6-year seasonal analysis of Water body silicate 1980/2021 v2023 [time][depth][lat][lon], 0.1°, 1982-2018	oceanbrowser_opendap_45c9_b29d_919f *	Federation of data <i>as-is</i>
EMODnet Digital Bathymetry (DTM 2020) - FULL - NetCDF	emodnet_bathy_2020_full	Federation of data <i>as-is</i>
EMODnet Digital Bathymetry (DTM 2020) - NetCDF	emodnet_bathy_2020_subset	Federation of data <i>as-is</i>
EMODnet Physics - Collection of sea temperature (TEMP) TimeSeries - MultiPointTimeSeriesObservation	TS_TEMP	Federation of data <i>as-is</i>
EMODnet Physics - Collection of wind direction, wind speed (WDIR_WSPD) TimeSeries - MultiPointTimeSeriesObservation	TS_WDIR_WSPD	Federation of data <i>as-is</i>
EMODnet Physics - Collection of (HCDT_HCSP) TimeSeries - MultiPointTimeSeriesObservation	TS_HCDT_HCSP	Federation of data <i>as-is</i>
EMODnet Physics - Total Suspended Matter - GridSeriesObservation - Concentration of total suspended matter - BALTIC SEA	TSM_BALTICSEA	Federation of data <i>as-is</i>
EMODnet Physics - Total Suspended Matter - GridSeriesObservation - Concentration of total suspended matter - NORTH SEA	TSM_NORTHSEA	Federation of data <i>as-is</i>
EMODnet Physics, Collection of sea temperature (TEMP) TimeSeries, MultiPointTimeSeriesObservation	TS_TEMP_subset	Data subset extraction for OLAMUR purposes
EMODnet Physics, Collection of wind direction, wind speed (WDIR_WSPD) TimeSeries, MultiPointTimeSeriesObservation	TS_WDIR_WSPD_subset	Data subset extraction for OLAMUR purpose
Global Ocean - Wind and Stress - Hourly - From Scatterometer and Model - CASE A	cmems_bal_wind_olamur_casea *	Data subset extraction for OLAMUR purposes
Global Ocean - Wind and Stress - Hourly - From Scatterometer and Model - CASE B	cmems_bal_wind_olamur_caseb *	Data subset extraction for OLAMUR purposes



Title	ID	Description
Global Ocean - Wind and Stress - Hourly - From Scatterometer and Model - CASE C	cmems_bal_wind_olamur_casec *	Data subset extraction for OLAMUR purposes
OLAMUR - Case study A - European Centre for Medium-Range Weather Forecasts (ECMWF) for winds for Case study A - WP5 DMI	olamur_wp5_casea_ecmwf-dmi *	OLAMUR outcome
OLAMUR - Case study A - European Centre for Medium-Range WeatherForecasts (ECMWF) for winds for Case study A (Hourly mean) - WP5 DMI	olamur_wp5_casea_ecmwf-hourly-dmi	OLAMUR outcome
OLAMUR - Case study A - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study A - WP5 DMI	olamur_wp5_casea_nea-dmi *	OLAMUR outcome
OLAMUR - Case study A - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study A (Hourly mean) - WP5 DMI	olamur_wp5_casea_nea-hourly-dmi	OLAMUR outcome
OLAMUR - Case study A - HBM model for current, salinity and temperature for Case study A - WP4 DMI	olamur_wp4_casea_hbm1-dmi *	OLAMUR outcome
OLAMUR - Case study A - HBM model for wind, wave and ice for Case study A - WP4 DMI	olamur_wp4_casea_hbm2-dmi *	OLAMUR outcome
OLAMUR - Case study A - HBM model for wind, wave and ice for Case study A (Hourly mean) -WP4 DMI	olamur_wp4_casea_hbm2-hourly-dmi	OLAMUR outcome
OLAMUR - Case Study A - Marker bouys - WP1	olamur_wp1_casea_marker-buoys-points	OLAMUR outcome
OLAMUR - Case study A - Operational forecast Wave Model (WAM) for Case study A - WP4 DMI	olamur_wp4_casea_wam-dmi *	OLAMUR outcome
OLAMUR - Case study A - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study A - WP5 DMI	olamur_wp5_casea_wam-dmi *	OLAMUR outcome
OLAMUR - Case study A - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study A (Hourly mean) - WP5 DMI	olamur_wp5_casea_wam-hourly-dmi	OLAMUR outcome
OLAMUR - Case study A - Result of the SDG Relevance Tracing workshop - SINTEF	olamur_wp7_casea_sdg-sintef	OLAMUR outcome
OLAMUR - Case Study A - Turbine Offshore Wind Farm Meerwind Süd/Ost (Germany) - WP1	olamur_wp1_casea_turbine	OLAMUR outcome
OLAMUR - Case study B - AUV data collected during the Offshore Low-trophic Aquaculture in Multi-Use Scenario Realisation (OLAMUR) project 2023 - WP4 VOTO	olamur_wp4_caseb_yuco-voto	OLAMUR outcome
OLAMUR - Case study B - Conductivity, Temperature, Depth (CTD) data collected during the Offshore Low-trophic Aquaculture in Multi-Use Scenario Realisation (OLAMUR) project 2023 - WP4 VOTO	olamur_wp4_caseb_ctd-voto	OLAMUR outcome
OLAMUR - Case study B - European Centre for Medium-Range Weather Forecasts (ECMWF) for winds for Case study B - WP5 DMI	olamur_wp5_caseb_ecmwf-dmi *	OLAMUR outcome
OLAMUR - Case study B - European Centre for Medium-Range WeatherForecasts (ECMWF) for winds for Case study B (Hourly mean) - WP5 DMI	olamur_wp5_caseb_ecmwf-hourly-dmi	OLAMUR outcome
OLAMUR - Case study B - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study B - WP5 DMI	olamur_wp5_caseb_nea-dmi *	OLAMUR outcome
OLAMUR - Case study B - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study B (Hourly mean) - WP5 DMI	olamur_wp5_caseb_nea-hourly-dmi	OLAMUR outcome
OLAMUR - Case study B - HBM model for current, salinity and temperature for Case study B - WP4 DMI	olamur_wp4_caseb_hbm1-dmi *	OLAMUR outcome
OLAMUR - Case study B - HBM model for wind, wave and ice for Case study B - WP4 DMI	olamur_wp4_caseb_hbm2-dmi *	OLAMUR outcome



Title	ID	Description
OLAMUR - Case study B - HBM model for wind, wave and ice for Case study B (Hourly mean) - WP4 DMI	olamur_wp4_caseb_hbm2-hourly-dmi	OLAMUR outcome
OLAMUR - Case study B - Operational forecast Wave Model (WAM) for Case study B - WP4 DMI	olamur_wp4_caseb_wam-dmi *	OLAMUR outcome
OLAMUR - Case study B - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study B - WP5 DMI	olamur_wp5_caseb_wam-dmi *	OLAMUR outcome
OLAMUR - Case study B - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study B (Hourly mean) - WP5 DMI	olamur_wp5_caseb_wam-hourly-dmi	OLAMUR outcome
OLAMUR - Case study B, Result of the SDG Relevance Tracing workshop - SINTEF	olamur_wp7_caseb_sdg-sintef	OLAMUR outcome
OLAMUR - Case study C - DEB model prediction dataset: bioenergetic modeling of blue mussel production in Tagalaht Bay - WP3 University of Tartu	olamur_wp3_casec_mussel-ut *	OLAMUR outcome
OLAMUR - Case study C - DEB model prediction dataset: bioenergetic modeling of rainbow trout production in Tagalaht Bay - WP3 University of Tartu	olamur_wp3_casec_trout-ut *	OLAMUR outcome
OLAMUR - Case study C - European Centre for Medium-Range Weather Forecasts (ECMWF) for winds for Case study C - WP5 DMI	olamur_wp5_casec_ecmwf-dmi *	OLAMUR outcome
OLAMUR - Case study C - European Centre for Medium-Range WeatherForecasts (ECMWF) for winds for Case study C (Hourly mean) - WP5 DMI	olamur_wp5_casec_ecmwf-hourly-dmi	OLAMUR outcome
OLAMUR - Case study C - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study C - WP5 DMI	olamur_wp5_casec_nea-dmi *	OLAMUR outcome
OLAMUR - Case study C - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study C (Hourly mean) - WP5 DMI	olamur_wp5_casec_nea-hourly-dmi	OLAMUR outcome
OLAMUR - Case study C - Fucus model prediction dataset: bioenergetic modeling of fucus vesiculosus production in Tagalaht Bay - WP3 University of Tartu	olamur_wp3_casec_fucus-ut *	OLAMUR outcome
OLAMUR - Case study C - HBM model for current, salinity and temperature for Case study C - WP4 DMI	olamur_wp4_casec_hbm1-dmi *	OLAMUR outcome
OLAMUR - Case study C - HBM model for wind, wave and ice for Case study C - WP4 DMI	olamur_wp4_casec_hbm2-dmi *	OLAMUR outcome
OLAMUR - Case study C - HBM model for wind, wave and ice for Case study C (Hourly mean) - WP4 DMI	olamur_wp4_casec_hbm2-hourly-dmi	OLAMUR outcome
OLAMUR - Case study C - Operational forecast Wave Model (WAM) for Case study C - WP4 DMI	olamur_wp4_casec_wam-dmi *	OLAMUR outcome
OLAMUR - Case study C - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study C - WP5 DMI	olamur_wp5_casec_wam-dmi *	OLAMUR outcome
OLAMUR - Case study C - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study C (Hourly mean) - WP5 DMI	olamur_wp5_casec_wam-hourly-dmi	OLAMUR outcome
OLAMUR - Case study C - Result of the SDG Relevance Tracing workshop - SINTEF	olamur_wp7_casec_sdg-sintef	OLAMUR outcome
OLAMUR - Case study C - Ulva seaweed dry weights 2024, Estonia - WP1 Universty of Tartu	olamur_wp1_case-a_ulva-seaweed-dry-weights-2024-ut	OLAMUR outcome
OLAMUR - Case study A - Aquaculture productivity simulation P0 - WP3 Hereon	olamur_wp3_casea_mussel-P0model-he *	OLAMUR outcome
OLAMUR - Case study A - Aquaculture productivity simulation P1 - WP3 Hereon	olamur_wp3_casea_mussel-P1model-he *	OLAMUR outcome
OLAMUR - Case Study A - Wave, hydrodynamic and biochemical data from the Meerwind offshore wind farm, Germany - WP4 HEREON	olamur_wp4_casea_schism-wwm-hereon *	OLAMUR outcome

Table II.1: Data inventory – ERDDAP™; *) Data also in ncWMS



Title	ID	Description
Average MW Fishing hours 2015-2018: Beam trawls	olamur_wfs:fishingbeamtrawls	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Beam trawls	olamur_wms:fishingbeamtrawls	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Bottom otter trawls	olamur_wfs:fishingbottomottertrawls	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Bottom otter trawls	olamur_wms:fishingbottomottertrawls	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Bottom seines	olamur_wfs:fishingbottomseines	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Bottom seines	olamur_wms:fishingbottomseines	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Dredges	olamur_wfs:fishingdredges	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Dredges	olamur_wms:fishingdredges	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Pelagic trawls and seines	olamur_wfs:fishingpelagic	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Pelagic trawls and seines	olamur_wms:fishingpelagic	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Static gears	olamur_wfs:fishingstaticgears	Federation of data <i>as-is</i>
Average MW Fishing hours 2015-2018: Static gears	olamur_wms:fishingstaticgears	Federation of data <i>as-is</i>
OLAMUR - Case Study B - Archeological finds points - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_archeological-finds-points	OLAMUR base layer
OLAMUR - Case Study B - Archeological finds polygons - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_archeological-finds-polygons	OLAMUR base layer
OLAMUR - Case Study B - Bathymetry meter - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_bathymetry-meter	OLAMUR base layer
OLAMUR - Case Study B - Cable survey width - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_cable-survey-width	OLAMUR base layer
OLAMUR - Case Study B - Cables - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_cables	OLAMUR base layer
OLAMUR - Case Study B - Foundation - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_foundation	OLAMUR base layer
OLAMUR - Case Study B - Maritime boundary - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_maritime-boundary	OLAMUR base layer
OLAMUR - Case Study B - PFM - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_pfm	OLAMUR base layer
OLAMUR - Case Study B - Scour protection - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_scour-protection	OLAMUR base layer
OLAMUR - Case Study B - Seabed feature on cable - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_seabed-feature-on-cable	OLAMUR base layer
OLAMUR - Case Study B - Seabed objects found during construction buffer - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_seabed-objects-found-during-construction-buffer	OLAMUR base layer
OLAMUR - Case Study B - Sediment - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_sediment	OLAMUR base layer
OLAMUR - Case Study B - Slope degree - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_slope-degree	OLAMUR base layer
OLAMUR - Case Study B - Study area Kriegers Flak OWF (Denmark) - WP2	olamur_wms:olamur_wp2_caseb_wind-park-area_public	OLAMUR outcome
OLAMUR - Case Study B - Study area Kriegers Flak OWF (Denmark) - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_wind-park-area	OLAMUR outcome
OLAMUR - Case Study B - Suggested site - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_suggested-site	OLAMUR outcome
OLAMUR - Case Study B - Transformer station - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_transformer-station	OLAMUR base layer
OLAMUR - Case Study B - UXO limited to cable survey - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_uxo-limited-to-cable-survey	OLAMUR base layer



Title	ID	Description
OLAMUR - Case Study B - UXOExclZone - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_uxoexclzone	OLAMUR base layer
OLAMUR - Case Study B - Windmill - WP2	olamur_wp2_wms_private:olamur_wp2_caseb_windmill	OLAMUR base layer
OLAMUR - Case Study C - Depth isobaths - WP1	olamur_wp1_wms_private:olamur_wp1_casec_depth-isobaths	OLAMUR base layer
OLAMUR - Case study C - Study area RedStorm OÜ Ösel Aquafarms (Estonia) - WP1	olamur_wms:olamur_wp1_casec_polygon_public	OLAMUR outcome
OLAMUR - Case study C - Study area RedStorm OÜ Ösel Aquafarms (Estonia) - WP1	olamur_wp1_wms_private:olamur_wp1_casec_polygon	OLAMUR outcome
Route Density (EMSA) Annual Totals - Fishing	olamur_wms:routedensity_02avg	Federation of data <i>as-is</i>
Route Density (EMSA) Monthly Totals - Fishing	olamur_wms:routedensity_02	Federation of data <i>as-is</i>
Route Density (EMSA) Seasonal Totals - Fishing	olamur_wms:routedensity_02seasonal	Federation of data <i>as-is</i>
Vessel Density Annual Averages - All types	olamur_wms:vesseldensity_allavg	Federation of data <i>as-is</i>
Vessel Density Annual Averages - Fishing	olamur_wms:vesseldensity_01avg	Federation of data <i>as-is</i>
Vessel Density Monthly totals - All types	olamur_wms:vesseldensity_all	Federation of data <i>as-is</i>
Vessel Density Monthly totals - Fishing	olamur_wms:vesseldensity_01	Federation of data <i>as-is</i>

Table II.2: Data inventory - GeoServer

Title
OLAMUR - Case study B - Conductivity, Temperature, Depth (CTD) data collected during the Offshore Low-trophic Aquaculture in Multi-Use Scenario Realisation (OLAMUR) project 2023 - WP4 VOTO
OLAMUR - Case Study B - Study area Kriegers Flak OWF (Denmark) - WP2
OLAMUR - Case study C - Study area RedStorm OÜ Ösel Aquafarms (Estonia) - WP1
OLAMUR - Case study B - AUV data collected during the Offshore Low-trophic Aquaculture in Multi- Use Scenario Realisation (OLAMUR) project 2023 - WP4 VOTO

Table II.3: Data inventory - GeoNetwork

Title	DOI
OLAMUR - Case study A - Aquaculture productivity simulation P0 - WP3 Hereon	10.5281/zenodo.17708608
OLAMUR - Case study A - Aquaculture productivity simulation P1 - WP3 Hereon	10.5281/zenodo.17708610
OLAMUR - Case study A - European Centre for Medium-Range Weather Forecasts (ECMWF) for winds for Case study A - WP5 DMI	10.5281/zenodo.17711538
OLAMUR - Case study A - European Centre for Medium-Range WeatherForecasts (ECMWF) for winds for Case study A (Hourly mean) - WP5 DMI	10.5281/zenodo.17714840
OLAMUR - Case study A - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study A - WP5 DMI	10.5281/zenodo.17709316
OLAMUR - Case study A - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study A (Hourly mean) - WP5 DMI	10.5281/zenodo.17714823
OLAMUR - Case study A - HBM model for current, salinity and temperature for Case study A - WP4 DMI	10.5281/zenodo.17709173
OLAMUR - Case study A - HBM model for wind, wave and ice for Case study A - WP4 DMI	10.5281/zenodo.17709202
OLAMUR - Case study A - HBM model for wind, wave and ice for Case study A (Hourly mean) - WP4 DMI	10.5281/zenodo.17714893
OLAMUR - Case Study A - Marker bouys - WP1	10.5281/zenodo.17708491
OLAMUR - Case study A - Operational forecast Wave Model (WAM) for Case study A - WP4 DMI	10.5281/zenodo.17709236
OLAMUR - Case study A - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study A - WP5 DMI	10.5281/zenodo.17711540



Title	DOI
OLAMUR - Case study A - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study A (Hourly mean) - WP5 DMI	10.5281/zenodo.17714801
OLAMUR - Case Study A - Wave, hydrodynamic and biochemical data from the Meerwind offshore wind farm, Germany - WP4 HEREON	10.5281/zenodo.17709128
OLAMUR - Case Study A - Turbine Offshore Wind Farm Meerwind Süd/Ost (Germany) - WP1	10.5281/zenodo.17708494
OLAMUR - Case study B - AUV data collected during the Offshore Low-trophic Aquaculture in Multi-Use Scenario Realisation (OLAMUR) project 2023 - WP4 VOTO	10.5281/zenodo.17709132
OLAMUR - Case study B - Conductivity, Temperature, Depth (CTD) data collected during the Offshore Low-trophic Aquaculture in Multi-Use Scenario Realisation (OLAMUR) project 2023 - WP4 VOTO	10.5281/zenodo.17709130
OLAMUR - Case study B - European Centre for Medium-Range Weather Forecasts (ECMWF) for winds for Case study B - WP5 DMI	10.5281/zenodo.17709383
OLAMUR - Case study B - European Centre for Medium-Range WeatherForecasts (ECMWF) for winds for Case study B (Hourly mean) - WP5 DMI	10.5281/zenodo.17714842
OLAMUR - Case study B - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study B - WP5 DMI	10.5281/zenodo.17709318
OLAMUR - Case study B - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study B (Hourly mean) - WP5 DMI	10.5281/zenodo.17714825
OLAMUR - Case study B - HBM model for current, salinity and temperature for Case study B - WP4 DMI	10.5281/zenodo.17709175
OLAMUR - Case study B - HBM model for wind, wave and ice for Case study B - WP4 DMI	10.5281/zenodo.17709207
OLAMUR - Case study B - HBM model for wind, wave and ice for Case study B (Hourly mean) - WP4 DMI	10.5281/zenodo.17714895
OLAMUR - Case study B - Operational forecast Wave Model (WAM) for Case study B - WP4 DMI	10.5281/zenodo.17709238
OLAMUR - Case study B - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study B - WP5 DMI	10.5281/zenodo.17709267
OLAMUR - Case study B - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study B (Hourly mean) - WP5 DMI	10.5281/zenodo.17714810
OLAMUR - Case study C - DEB model prediction dataset: bioenergetic modeling of blue mussel production in Tagalaht Bay - WP3 University of Tartu	10.5281/zenodo.17708616
OLAMUR - Case study C - DEB model prediction dataset: bioenergetic modeling of rainbow trout production in Tagalaht Bay - WP3 University of Tartu	10.5281/zenodo.17708618
OLAMUR - Case study C - European Centre for Medium-Range Weather Forecasts (ECMWF) for winds for Case study C - WP5 DMI	10.5281/zenodo.17709392
OLAMUR - Case study C - European Centre for Medium-Range WeatherForecasts (ECMWF) for winds for Case study C (Hourly mean) - WP5 DMI	10.5281/zenodo.17714844
OLAMUR - Case study C - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study C - WP5 DMI	10.5281/zenodo.17709325
OLAMUR - Case study C - Forecast Weather Model (HARMONIE) that covers the geographical area Northwestern Europe (NEA) for wind with an hourly resolution for Case study C (Hourly mean) - WP5 DMI	10.5281/zenodo.17714827
OLAMUR - Case study C - Fucus model prediction dataset: bioenergetic modeling of fucus vesiculosus production in Tagalaht Bay - WP3 University of Tartu	10.5281/zenodo.17708612
OLAMUR - Case study C - HBM model for current, salinity and temperature for Case study C - WP4 DMI	10.5281/zenodo.17709177
OLAMUR - Case study C - HBM model for wind, wave and ice for Case study C - WP4 DMI	10.5281/zenodo.17709211
OLAMUR - Case study C - HBM model for wind, wave and ice for Case study C (Hourly mean) - WP4 DMI	10.5281/zenodo.17714897
OLAMUR - Case study C - Operational forecast Wave Model (WAM) for Case study C - WP4 DMI	10.5281/zenodo.17709240
OLAMUR - Case study C - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study C - WP5 DMI	10.5281/zenodo.17709271
OLAMUR - Case study C - Operational forecast Wave Model (WAM) for wave height, direction and period with an hourly resolution for Case study C (Hourly mean) - WP5 DMI	10.5281/zenodo.17714812
OLAMUR - Case study C - Ulva seaweed dry weights 2024, Estonia - WP1 Universty of Tartu	10.5281/zenodo.17708411

Table II.4: Data inventory - Zenodo



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