EMODnet Thematic Lot n°3 – Physics

EASME/EMFF/2020/3.1.11/Lot4/SI2.838612

Start date of the project: 23/08/2023 (24+24 months)

Centralisation Phase

Quarterly Progress Report (Q3.2024)

Reporting Period: 01/07/2024 – 30/09/2024

The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.

Contents

1. Highlights in this quarter

Task 1: Maintain and improve a common method of access to data held in repositories

Now that the new central portal is operational, Task 1 is primarily focused on improving the data flow towards this new central portal interface. This consists of refining the back-end interfaces to serve the central portal requirements. Now, the focus is to keep updating the organization of metadata, data, data collections and products in the Physics backend.

As already reported, we are considering the following definitions: 1) data is a series of values sampled by an in-situ platform, 2) data collection is a grouping of similar in situ data, 3) product is the outcome of a reprocessing method. The outcome of a numerical model (that uses in situ data) is a product. The result of the QC/QF procedure is a qualified dataset or data collection. In-situ data are harmonized and normalized in terms of metadata, and each new data source may contribute to one or more data collections. Data collections are organized by a

Data collections are organized according to the dedicated controlled vocabulary, P33[1] (hosted in NVS-BODC service), and each P33 data collection includes two (e.g., one for time series, one for profiles) or more P01 collections.

For example, the Water Salinity and Conductivity theme (NVS::P33::WARERSALINITY) includes: sea water salinity (NVS::01::PSAL), sea water electrical conductivity (NVS::01::CNDC), sea water density (NVS::01::DENS), and sound velocity in sea water (NVS::01::SVEL). For each parameter, we may have time series or profiles.

Table 1. P33 and related P01 collection in EMODnet Physics

metadata_dataset_id (P33)	Description	metadata_dataset_id (P01)	title
ERD_EP_CARBONSYSTEM_INSITU_METADATA	EMODnet Physics - Collection of Carbon System (SDN:P33::CARBONSYSTEM) variables - MultiPointsObservation - METADATA		
ERD_EP_CURRENTS_INSITU_METADATA	EMODnet Physics - Collection of Currents (SDN:P33::CURRENTS) variables - MultiPointsObservation - METADATA		
ERD_EP_DISSOLVEDOXYGEN_INSITU_METADATA	EMODnet Physics - Collection of Dissolved Oxygen (SDN:P33::DISSOLVEDOXYGEN) variables - MultiPointsObservation - METADATA	ERD_EP_PR_DOXY_NRT	EMODnet Physics - Collection of dissolved oxygen (DOXY) Profiles - MultiPointProfilesObservation
		ERD_EP_TS_DOXY_NRT	EMODnet Physics - Collection of dissolved oxygen (DOXY) TimeSeries - MultiPointTimeSeriesObservation
		ERD_EP_TS_DOXY_NRT_METADATA	EMODnet Physics - Collection of dissolved oxygen (DOXY) TimeSeries - MultiPointTimeSeriesObservation - METADATA

[1] https://vocab.nerc.ac.uk/collection/P33/current/.

		ERD_EP_PR_TEMP_DOXY_NRT	EMODnet Physics - Collection of sea temperature from oxygen sensor (TEMP_DOXY) Profiles - MultiPointProfilesObservation
		ERD_EP_TS_TEMP_DOXY_NRT	EMODnet Physics - Collection of sea temperature from oxygen sensor (TEMP_DOXY) TimeSeries - MultiPointTimeSeriesObservation
		ERD_EP_TS_TEMP_DOXY_NRT_METADATA	EMODnet Physics - Collection of sea temperature from oxygen sensor (TEMP_DOXY) TimeSeries - MultiPointTimeSeriesObservation - METADATA
ERD_EP_METEOROLOGICAL_INSITU_METADATA	EMODnet Physics - Collection of Meteorological (SDN:P33::METEOROLOGICAL) variables - MultiPointsObservation - METADATA		
ERD_EP_OPTICAL_INSITU_METADATA	EMODnet Physics - Collection of Optical Properties (SDN:P33::OPTICAL) variables - MultiPointsObservation - METADATA	ERD_EP_PR_CHLT_NRT	EMODnet Physics - Collection of total chlorophyll (CHLT) Profiles - MultiPointProfilesObservation
		ERD_EP_TS_CHLT_NRT	EMODnet Physics - Collection of total chlorophyll (CHLT) TimeSeries - MultiPointTimeSeriesObservation
		ERD_EP_TS_CHLT_NRT_METADATA	EMODnet Physics - Collection of total chlorophyll (CHLT) TimeSeries - MultiPointTimeSeriesObservation - METADATA
ERD_EP_WATERSALINITY_INSITU_METADATA	EMODnet Physics - Collection of Water Salinity and conductivity (SDN:P33::WATERSALINITY) variables - MultiPointsObservation - METADATA	ERD_EP_PR_PSAL_NRT	EMODnet Physics - Collection of practical salinity (PSAL) Profiles - MultiPointProfilesObservation
		ERD_EP_PR_PSAL_NRT_METADATA	EMODnet Physics - Collection of practical salinity (PSAL) Profiles - MultiPointProfilesObservation - METADATA
		ERD_EP_TS_PSAL_NRT	EMODnet Physics - Collection of practical salinity (PSAL) TimeSeries - MultiPointTimeSeriesObservation
		ERD_EP_TS_PSAL_NRT_METADATA	EMODnet Physics - Collection of practical salinity (PSAL) TimeSeries - MultiPointTimeSeriesObservation - METADATA
		ERD_EP_PR_DENS_NRT	EMODnet Physics - Collection of sea density (sigma-theta) (DENS) Profiles - MultiPointProfilesObservation
		ERD_EP_TS_DENS_NRT	EMODnet Physics - Collection of sea density (sigma-theta) (DENS) TimeSeries - MultiPointTimeSeriesObservation

		ERD_EP_TS_DENS_NRT_METADATA	EMODnet Physics - Collection of sea density (sigma-theta) (DENS) TimeSeries - MultiPointTimeSeriesObservation - METADATA
ERD_EP_RIVER_INSITU_METADATA	EMODnet Physics - Collection of River (SDN:P33::RIVER) variables - MultiPointsObservation - METADATA	ERD_EP_TS_RVFL_NRT	EMODnet Physics - Collection of river flow rate (RVFL) TimeSeries - MultiPointTimeSeriesObservation
		ERD_EP_TS_RVFL_NRT_METADATA	EMODnet Physics - Collection of river flow rate (RVFL) TimeSeries - MultiPointTimeSeriesObservation - METADATA
ERD_EP_SEALEVEL_INSITU_METADATA	EMODnet Physics - Collection of Sea Level (SDN:P33::SEALEVEL) variables - MultiPointsObservation - METADATA		
		ERD_EP_TS_SLEV_NRT_5m	EMODnet Physics, Collection of Water Surface Height Above a Specific Datum (SLEV) TimeSeries, MultiPointTimeSeriesObservation - 5 minutes frequency
		ERD_EP_TS_SLEV_NRT_60m	EMODnet Physics, Collection of Water Surface Height Above a Specific Datum (SLEV) TimeSeries, MultiPointTimeSeriesObservation - 60 minutes frequency
ERD_EP_WATERTEMPERATURE_INSITU_METADATA	EMODnet Physics - Collection of Water Temperature (SDN:P33::WATERTEMPERATURE) variables - MultiPointsObservation - METADATA	ERD_EP_PR_TEMP_NRT	EMODnet Physics - Collection of sea temperature (TEMP) Profiles - MultiPointProfilesObservation
		ERD_EP_PR_TEMP_NRT_METADATA	EMODnet Physics - Collection of sea temperature (TEMP) Profiles - MultiPointProfilesObservation - METADATA
		ERD_EP_TS_TEMP_NRT	EMODnet Physics - Collection of sea temperature (TEMP) TimeSeries - MultiPointTimeSeriesObservation
		ERD_EP_TS_TEMP_NRT_METADATA	EMODnet Physics - Collection of sea temperature (TEMP) TimeSeries - MultiPointTimeSeriesObservation - METADATA
ERD_EP_WAVES_INSITU_METADATA	EMODnet Physics - Collection of Waves (SDN:P33::WAVES) variables - MultiPointsObservation - METADATA	ERD_EP_TS_VDIR_NRT	EMODnet Physics - Collection of wave direction rel. true north (VDIR) TimeSeries - MultiPointTimeSeriesObservation
		ERD_EP_TS_VDIR_NRT_METADATA	EMODnet Physics - Collection of wave direction rel. true north (VDIR) TimeSeries - MultiPointTimeSeriesObservation - METADATA
		ERD_EP_TS_VGHS_NRT	EMODnet Physics - Collection of generic significant wave height (Hs) (VGHS) TimeSeries - MultiPointTimeSeriesObservation

		ERD_EP_TS_VGHS_NRT_METADATA	EMODnet Physics - Collection of generic significant wave height (Hs) (VGHS) TimeSeries - MultiPointTimeSeriesObservation - METADATA
ERD_EP_WINDS_INSITU_METADATA	EMODnet Physics - Collection of Winds (SDN:P33::WINDS) variables - MultiPointsObservation - METADATA		

Table 1 describes the published collections (P33 and linked P01) as well as delineated coming activities (activities focus on missing P01 collections).

Regarding in-situ data provision, EMODnet Physics now provides access to: 20813 ARGO profiles (including BioArgo), 27706 Drifting Buoys observations, about 2500 Glider missions, about 4000 Moorings datasets, about 2500 operational River Station data, 330 Underway Data Vessels records, more than 4300 Tide Gauge readings, and more than 5,000,000 data from CTD/XBT/bottles, etc.

Task 2: Construct products from one or more data sources that provide users with information about the distribution and quality of parameters in time and space

A new global climatology for salinity and temperature, in-situ wave stations and in situ sea level stations layers are now published in the production system. During the next period more in situ layer products will be pushed to the staging system. Annex reports the updated situation.

Task 3. Develop procedures for machine-to-machine connections to data and data products

Activities focused on integrating BioArgo data, fishing vessel data, and scuba diving (SSI) data (with SSI data requiring further processing before full inclusion in the data collections). Other efforts involved supporting projects working on adopting ERDDAP and other native machine-to-machine tools to facilitate data sharing with EMODnet. Examples from this reporting period include INGV and their new data center, as well as the HE POLARIN project and its Data Management Plan (DMP). The following figures provide the reader an overview of the location and type of data which will be processed further to complete the metadata harmonization and clearance.

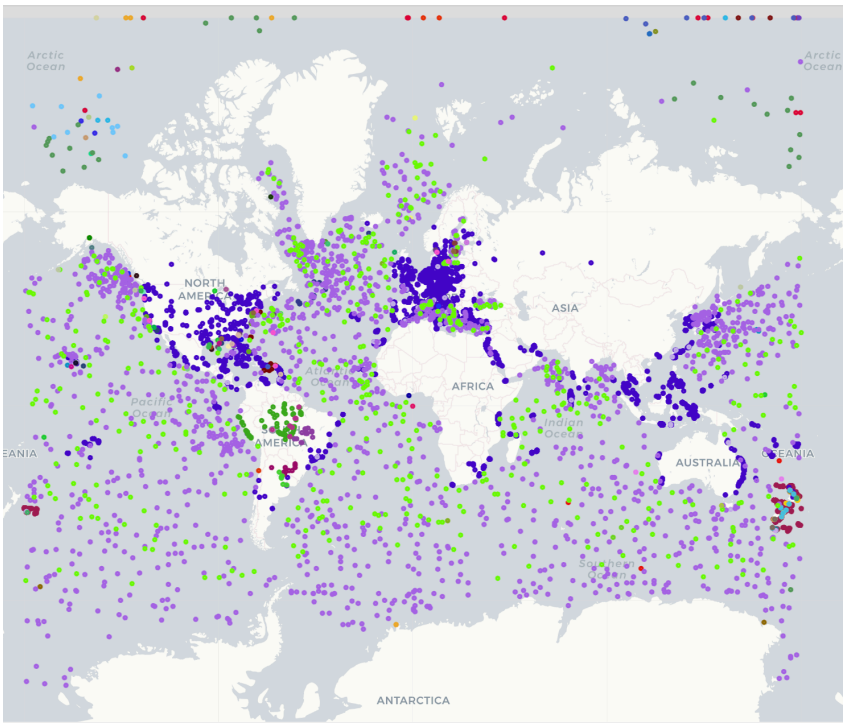

Figure 1. Stations under integration for the reporting period. BioArgo (violet), SSI (blue)

platform_type_longname data_owner_longname	Argo BGC	Argo/Profiler	Diving Logger	Drifting Buoys	Fishing Vessels	Gliders	Mooring	River Station	Tide Gauge
+ATLANTIC COLAB, PORTUGAL	0	0	0	0	0	0	0	17	0
ALFRED WEGENER INSTITUTE HELMHOLTZ CENTRE FOR POLAR AND MARINE RESEARCH	0	16	0	3	0	0	0	0	0
ATLANTIC OCEANOGRAPHIC AND METEOROLOGICAL LABORATORY , NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	1	3	0	6	0	0	0	0	0
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION	12	88	0	0	0	0	0	0	0
CORIOLIS	0	9	0	0	0	0	0	0	0
CUBIC-I LTD.	0	5	0	0	0	0	0	0	0
DALHOUSIE UNIVERSITY, DEPARTMENT OF OCEANOGRAPHY	4	1	0	0	0	0	0	0	0
DANMARKS TEKNISKE UNIVERSITETET	2	2	0	0	0	0	0	0	0
ERIC EURO-ARGO	18	43	0	0	0	0	0	0	0
EURO-MEDITERRANEAN CENTRE ON CLIMATE CHANGE (CMCC FOUNDATION)	0	0	0	0	0	0	0	0	1
FEDERAL MARITIME AND HYDROGRAPHIC AGENCY	16	37	0	0	0	0	0	0	0
FINNISH METEOROLOGICAL INSTITUTE	5	21	0	0	0	0	1	0	0
FIRST INSTITUTE OF OCEANOGRAPHY, MINISTRY OF NATURAL RESOURCES	14	10	0	0	0	0	0	0	0
FISHERIES AND OCEANS CANADA	18	186	0	0	0	0	0	0	0
HELLENIC CENTRE FOR MARINE RESEARCH, INSTITUTE OF OCEANOGRAPHY, PHYSICAL OCEANOGRAPHIC DEPARTMENT	0	6	0	0	0	0	0	0	0
HELMHOLTZ CENTRE FOR OCEAN RESEARCH KIEL	0	34	0	0	0	0	0	0	0
HYDROGRAPHIC AND OCEANOGRAPHIC SERVICE	0	0	0	0	0	0	0	0	1
IEO-CSIC, SPANISH OCEANOGRAPHIC INSTITUTE	1	4	0	0	0	0	0	0	0
IFREMER HEAD OFFICE	49	237	0	0	0	0	0	0	0
INDIAN NATIONAL CENTRE FOR OCEAN INFORMATION SERVICES	9	59	0	0	0	0	0	0	0
INSTITUTE OF MARINE RESEARCH	17	42	0	0	0	0	0	0	0
INSTITUTE OF MARINE SCIENCES, MIDDLE EAST TECHNICAL UNIVERSITY	0	6	0	0	0	0	0	0	0
INSTITUTE OF OCEANOLOGY, BULGARIAN ACADEMY OF SCIENCES	8	3	0	0	0	0	0	0	0
INSTITUTE OF OCEANOLOGY, POLISH ACADEMY OF SCIENCES	9	8	0	0	0	0	0	0	0
INSTITUTO NACIONAL DEL AGUA (INA)	0	0	0	0	0	0	0	19	0
INTERNATIONAL ARCTIC BUOY PROGRAM	0	0	0	10	0	0	0	0	0
JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY	3	83	0	0	0	0	0	0	0
JAPAN METEOROLOGICAL AGENCY	0	1	0	0	0	0	0	0	0
KING ABDULAZIZ UNIVERSITY	0	1	0	0	0	0	0	0	0
LABORATORY OF OCEANOGRAPHY OF VILLEFRANCHE	33	45	0	0	0	0	0	0	0
LABORATORY OF PHYSICAL OCEANOGRAPHY, UNIVERSITE DE BRETAGNE OCCIDENTALE (UBO)	0	39	0	0	0	0	0	0	0
MARINE INSTITUTE	1	1	0	0	0	0	0	0	0
METEOROLOGICAL RESEARCH INSTITUTE, KOREA METEOROLOGICAL ADMINISTRATION	0	2	0	0	0	0	0	0	0
METEOROLOGICAL SERVICE OF NEW ZEALAND LTD	0	0	0	0	2499	0	0	0	0
NATIONAL INSTITUTE OF OCEANOGRAPHY AND APPLIED GEOPHYSICS - OGS, DIVISION OF OCEANOGRAPHY	25	46	0	0	0	0	0	0	0
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, NATIONAL DATA BUOY CENTER (NOAA NDBC)	0	0	0	0	0	0	6	0	0
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, PACIFIC MARINE ENVIRONMENTAL LABORATORY	4	2	0	0	0	0	0	0	0
NATIONAL WATER AGENCY OF BRAZIL	0	0	0	0	0	0	0	82	0
OCEAN NETWORKS CANADA	0	11	0	0	0	0	0	0	0
PLYMOUTH MARINE LABORATORY	10	17	0	0	0	0	0	0	0
SCRIPPS INSTITUTION OF OCEANOGRAPHY	12	1	0	0	0	0	0	0	0
SECOND INSTITUTE OF OCEANOGRAPHY, MINISTRY OF NATURAL RESOURCES	5	37	0	0	0	0	0	0	0
SSI	0	0	7874	0	0	0	0	0	0
SURVEY OF GHANA (GHANA)	0	0	0	0	0	0	0	0	1
TOHOKU NATIONAL FISHERIES RESEARCH INSTITUTE	0	14	0	0	0	0	0	0	0
U.S. INTEGRATED OCEAN OBSERVING SYSTEM	0	0	0	0	0	81	0	0	0
UNIVERSIDAD DE CONCEPCION, CONCEPTION UNIVERSITY	0	10	0	0	0	0	0	0	0
UNIVERSITY OF HAMBURG, INSTITUTE OF OCEANOGRAPHY	0	13	0	0	0	0	0	0	0
UNIVERSITY OF HAWAII	0	0	0	0	0	0	0	0	2
UNIVERSITY OF WASHINGTON	189	540	0	0	0	0	0	0	0
UNKNOWN	1	39	0	80	0	0	0	0	0
VOICE OF THE OCEAN FOUNDATION	0	0	0	0	0	19	0	0	0
WOODS HOLE OCEANOGRAPHIC INSTITUTION	44	41	0	0	0	0	0	0	0

Figure 2. Details about source and type of platform

Task 4. Contribute data, data products and content to a central portal that allows users to find, view and download data and data products

Task 4 continued improving the user experience when downloading in situ data from EMODnet Physics layers. Obsolete products were removed. All these activities are reported on JIRA tickets. (see section 2)

Task 5. Contributing content to dedicated spaces in Central Portal

Static contents on EMODnet Physics consolidated and published: https://emodnet.ec.europa.eu/en/physics

Other means of supporting the central space include contributing news, posting on social media, organizing events, and providing materials (documents, presentations, feedback) when necessary.

Task 6. Ensure the involvement of regional sea conventions

We continued the dialogue with the "Catalogue of Underwater Sound Signatures from Shallow Seas" (CINEA/2022/OP/0019 – ECoSS) project to review the metadata and datasets organization for an easy and straightforward integration under the EMODnet Physics area under the central portal.

The signatures metadata model includes information on where, how, and who is involved, making the catalog easily integrable into the Central Portal Geoviewer EMODnet Physics section. The plan is to consider each signature as a platform and leverage the already implemented data workflow between EMODnet Physics and the Central Portal. The product will be integrated by the end of November to enable ECoSS to present this outcome at the ECoSS stakeholder workshop in early December.

Task 7. Contribute to the implementation of EU legislation and broader initiatives for open data

We continued the dialogue with the Ocean Best Practice System (OBPS) [2] to facilitate clearer connections between the data and products (accessible under the Physics section) and the application of OBP for data collection.

Raising interest for river outflow – important data source for both the modelling community and for environmental agencies that have to fulfil WFD and MSFD monitoring and assessment.

Task 8. Monitor quality/performance and deal with user feedback

EMODnet Physics contents (accessible at https://emodnet.ec.europa.eu/en/physics) are of interest, but these static contents are not the most visited among EMODnet sections. Internal monitoring indicates that users interacting with EMODnet Physics data (every time a platform page is presented we record a request to ERDDAP, which is monitored by logs) are about 10 times more numerous than those interacting with the static content pages. Concerning the requests for support that are coming from the CP, these are tracked and managed with the JIRA system (see section 2 for details).

Although the meeting already falls in Q4 2024, during the MONGOOS event (Malaga, Spain, 1-3 October 2024), we gathered some valuable feedback for improving the system. Following the AMRIT project workshop—a key new stakeholder in Physics, with interactions already established—a clear request emerged to expand the EMODnet Physics metadata model to include information on sensor sensitivity and accuracy. This is essential to enable end-users to apply filtering options to consume datasets (from EMODnet Physics) that best-fit their downstream applications. This also highlights that harmonized data collections are among the most valuable and sought-after products for Physics. The community also emphasized the importance of demonstrating the system and showcasing the connections between marine data actors, particularly how interoperability is implemented. Another well-appreciated aspect is providing a clear understanding of the different data versions (a good example is the Uni. Hawaii Sea Level Center: operational, fast delivery and research quality). Last but not least, providers are keen to receive statistics on how much the data from their platforms are discovered/downloaded.

[2] https://www.oceanbestpractices.org/

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Status of the Milestones and Deliverables listed in the workplan					
Milestone/Deliverable in numerical order	**WP**	**Date due**	**Status (To do/ Delivered/ Delayed)**	**Date delivered**	**If Delayed: reason for delay and expected delivery date**
D1.01: Annual assembly (Q2.2024)	WP1	31/12/2024	Delivered	27/11/2023	27th Nov 2023, back-to-back the EMODnet Jamboree
D1.02: Annual assembly (Q2.2025)	WP1	31/12/2025	Postponed (new delivery date – spring 2025)		We agreed to prioritize events where EMODnet can engage with new providers and stakeholders. These events also offer opportunities for in-person cross-checks of ongoing activities
D1.03: EMODnet SC (Q4.2023)	WP1	31/12/2023	Delivered	01/12/2023	1st Dec 2023, back-to-back the EMODnet Jamboree
D1.04: Quarterly report Q3.2023	WP1	15/10/2023	Delivered	15/10/2023	
D1.05: EMODnet TWG (Q4.2023)	WP1	31/12/2023	Delivered	18/10/2023	18th Oct online
D1.06: EMODnet SC (Q1.2024)	WP1	31/12/2024	Delivered	29/04/2024	
D1.07: EMODnet TWG (Q1.2024)	WP1	31/12/2024	Delivered	13/03/2024	
D1.06.2: EMODnet SC (Q2.2024)	WP1	31/12/2024	Planned	07/10/2024	
D1.07.2: EMODnet TWG (Q2.2024)	WP1	31/12/2024	Planned	08/10/2024	
D1.08: EMODnet SC (Q2.2025)	WP1	31/07/2025			
D1.09: EMODnet TWG (Q2.2025)	WP1	31/07/2025			
D1.10: EMODnet event (Q4.2025)	WP1	31/07/2025			
D1.11: Quarterly report Q4.2023	WP1	15/01/2024	Delivered	15/01/2024	

Status of the Milestones and Deliverables listed in the workplan					
Milestone/Deliverable in numerical order	**WP**	**Date due**	**Status (To do/ Delivered/ Delayed)**	**Date delivered**	**If Delayed: reason for delay and expected delivery date**
D1.12: Quarterly report Q1.2024	WP1	15/04/2024	Delivered	15/04/2024	
D1.13: Quarterly report Q2.2024	WP1	15/07/2024	Delivered	15/07/2024	
D1.14: Quarterly report Q3.2024	WP1	15/10/2024	Delivered	15/10/2024	This report
D1.15: Quarterly report Q4.2024	WP1	15/01/2025			
D1.16: Quarterly report Q1.2025	WP1	15/04/2025			
D1.17: Quarterly report Q2.2025	WP1	15/07/2025			
D1.18: Annual progress report	WP1	23/08/2024	Delivered	13/08/2024	
D1.19: Final progress report	WP1	22/08/2025			
D1.20: Handover note	WP1	22/08/2025			
D1.21: Guideline on data ingestion procedures for new real time and near real time streams v.2024	WP1	23/08/2024	Delivered	13/08/2024	
D1.22: Guideline on data ingestion procedures for new real time and near real time streams v.2025	WP1	22/08/2025			
D1.23: Contribution to central space with background information and EMODnet Physics contents, Contribution to the EMODnet Annual report	WP1	22/08/2025			
D1.24: TGs - RSCs events attendance	WP2	22/08/2025			
D2.01: Data sources gap analysis v.2024	WP2	22/08/2024	Delivered	13/08/2024	
D2.02: Data sources gap analysis v.2025	WP2	22/08/2025			

Status of the Milestones and Deliverables listed in the workplan					
Milestone/Deliverable in numerical order	**WP**	**Date due**	**Status (To do/ Delivered/ Delayed)**	**Date delivered**	**If Delayed: reason for delay and expected delivery date**
D2.03: EMODnet Physics data management including metadata and metadata governance v.2024	WP2	22/08/2024	Delivered	13/08/2024	
D2.04: EMODnet Physics data management including metadata and metadata governance v.2025	WP2	22/08/2025			
D2.05: EMODnet Physics List of products v.2024	WP2	22/08/2024	Delivered	13/08/2024	
D2.06: EMODnet Physics List of products v.2025	WP2	22/08/2025			
D3.01: Tools and methods to implement interoperability v.2024	WP3	22/08/2024	Delivered	13/08/2024	
D3.02: Tools and methods to implement interoperability v.2025	WP3	22/08/2025			
D3.03: Maintenance and update of the back-end services and infrastructure	WP3	-			This activity is continuous and special actions or issues (if any) will be reported in the quarterly reports.

2. Identified issues: status and actions taken

A. Priority issue(s) identified and communicated by CINEA/ DG MARE/ SECRETARIAT				
Priority issue	**Status (Pending/ Resolved)**	**Action(s) taken/ remaining actions planned**	**Date due**	**Date resolved**
EM-918 - Revision of the themes under the EMODnet Physics section in the CP mapviewer;	Pending	Revision planned in coming weeks		
EM-919: Removal of product layers	Pending	Action planned in coming weeks		
EM-957: EMODnet lots to check if filter values are displayed in the preferred order	Pending	Action planned in coming weeks		
EMODNET-1799 a question over in-situ wave data	Pending	Support for how download in-situ wave data		15/07/2024 9:36 AM
EM-1009 Physics to review the guidelines document on metadata harmonization	Pending	Review guidelines on metadata, in particular the Distribution Info and Resource Constraints section		
EMODNET-1845 Solicitud de datos oceanográficos de la boya de Nazaré	Resolved	Support for wave data in Portugal		13/08/2024 9:48 AM
EMODNET-1846 Web page typo	Resolved	Fixed typos in Geonetwork		29/07/2024 10:17 AM

B. Issues / challenges identified by the thematic assembly group itself				
Priority issue / challenge	**Status (Pending/ Resolved)**	**Action(s) taken / remaining actions planned**	**Date due**	**Date resolved**
EM-911 EMODnet INGESTION - New Ingestion layer - As is Platforms	Resolved	New layer added		19/07/2024 2:53 PM
EM-912 EMODnet INGESTION - New Ingestion layer - Validated Platforms	Resolved	New layer added		19/07/2024 3:02 PM
EM-946 Layer animation: requests made after removing and adding a layer	Pending	Control of layer animation, after noticing strange behaviour		01/10/2024
EM-952 EMODnet Physics: SMOS BEC global SSS product v2 L4 (Psu) Wrong Download	Resolved	The problem of multiple files download has been solved		01/07/2024 10:43 PM
EM-993 'Search by typing' filters in Physics platform layer do not provide recommendation based on input but only entire list.	Resolved	Fixed the problem of malfunctioning drop-down menu search		07/08/2024 11:11 AM
EM-627: Animation of Physics layers with many timesteps triggering DDOS protection	Resolved	The new version is limiting the number of query		01/10/2024

3. Communication assets

A. (Co-)Authored peer-reviewed publications in the quarter					
Date of publication	**Type of publication**	**Full reference**	**ISBN**	**DOI**	**Is it open access? Yes/No**
	e.g. paper; conference proceedings; book chapter; …				

B. Other/non-peer reviewed types of publications (co-)authored in the quarter					
Date of publication	**Type of publication**	**Full reference**	**ISBN**	**DOI**	**Is it open access? Yes/No**
	e.g. paper; conference proceedings; book chapter; …				

B. Other/non-peer reviewed types of publications (co-)authored in the quarter					
Date of publication	**Type of publication**	**Full reference**	**ISBN**	**DOI**	**Is it open access? Yes/No**

During IMDIS EMODnet activities and outcomes were largely discussed and presented. This activity is well reported in the IMDIS Proceedings book.

For a comprehensive overview of publications referring to/making use of EMODnet data and/or data products, please consult Google Scholar.

4. Monitoring indicators

Comments on the progress indicators in the indicators spreadsheet		
Progress indicator	**Means of collecting figures**	**Comment**
1. Current status and coverage of total available thematic data A) Volume and coverage of available data	*Number of platforms*	EMODnet Physics input data is sparse, and for this indicator, we consider the "platform" as the "unit" for monitoring assessment. A platform is a logical system that hosts data, where the data may consist of a single dataset (e.g., a profile in the case of CTD), a time series (e.g., a sea-level station), or a series of profiles (e.g., ARGO). For Indicator 1.A, we report the percentage variation in the number of platforms for the given basin. It's worth noting that some platforms may move from one basin to another. Since we report figures based on the latest position, the percentages are significantly influenced by this movement. EMODnet Physics integrates data from several sources, which can result in duplicates in the system. Cleaning duplicates is an ongoing activity and also affects the percentage of available platforms. When a duplicate is identified, the two sources are linked to the same dataset to show full provenance. This process is ongoing, continuous, and a major activity for the lot. During the quarter, some new stations have been added (and some were cleaned), making the figures always very "dynamic."
What is your opinion on the data coverage within EMODnet for your thematic?		The available coastal data is still very limited. We are continuing the identification and actions on new data sources (e.g. Citizen Science projects). Metadata on Wind data should be improved. In situ underwater noise is still very limited. Data on Ice should include new data type (e.g. cameras). We need some focus actions to link in some other integrators (e.g. SIOS). We are keeping working on the availble CTDs in INSTAC (already starting flowing see e.g. the number of the platform providing temperature and salinity in the water colum).
B) Usage of data in this quarter	*Server logs*	The Physics team can only report on the overall volume of downloaded data when it is mediated by the EMODnet Physics backend (as some products are cached centrally, EMODnet Physics cannot track this volume). Previously, the volume of data downloaded for each theme was calculated using an algorithm that considered the number of viewed map pages. However, since EMODnet Physics is no longer hosting the map viewer, this

Comments on the progress indicators in the indicators spreadsheet		
Progress indicator	**Means of collecting figures**	**Comment**
		indicator can no longer be applied. EMODnet Physics reports on the number of available platforms (units - col C) and the overall volume of downloaded gigabytes (col D) from ERDDAP, which is hosting the in-situ data.
2. Current status and coverage of total number of data products A) Volume and coverage of available data products	*Number of platforms*	Table 2A lists the products available in the Central Portal Geoviewer. These products are made available by the backend infrastructure were gridded and externally produced datasets are organized under the prod-erddap.emodnet-physics.eu, and operational data collections are organized under the data-erddap.emodnet-physics.eu,
B) Usage of data products in this quarter		As reported previously, we are implementing the following concepts: data, data collections, and products. Indicator 2A reports on the products available in the Central Portal, where concepts are mapped using the controlled vocabulary (NVS::P33). As mentioned above, some products are organized under the EMODnet Physics ERDDAP, some under ERDDAP/ncWMS, and others under GeoServer. Indicator 2B captures the interaction with those services. Figures show some fluctuations, but overall indicate a positive increase in the use of the services.
3. Internal and external organisations supplying/approached to supply data and data products within this quarter	*Please specify*	There are a number of new sources integrated (some are old provders that inlcuded new sources in the package) this activity goes back to back with metadata normalization and data cleaning (duplicates removal).
5.1 Daily number of page views of EMODnet Thematic entry page	Europa Analytics	We monitor the typical working hours' usage of the portal. The system tracks the EMODnet Physics static page, which provides a general overview of the activity and is in line with the previous period. According to Matomo stats (internal monitoring) on the HTML populating the geoviewer contents, we record from 3 to 5 times more traffic on Physics. If we look at the interaction on the ERDDAP that populates the in situ Physics layers, we recorded about ten times more interactions. The current version of the Europe Analytics report monitors the geoviewer, which is the most visited page, but it does not give details on specific themes

Comments on the progress indicators in the indicators spreadsheet		
Progress indicator	**Means of collecting figures**	**Comment**
5.2 Quarterly total number of visitors, page views, unique page views and percentage of returning visitors	Europa Analytics	We recorded interactions similar to the previous period. It would be more interesting to observe user interaction with the GeoViewer (the Physics segment), where data are not as static as on the static Physics presentation page.

The monitoring numbers reported as part of the progress monitoring of EMODnet performance are collected through Europa Analytics, unless reported otherwise.

5. Annex: Other documentation attached

EMODnet Physics data and products (on CP geoviewer) status and planning:

Theme	Product name	status	Planned actions/next delivery
Carbon Cycle	Seawater alkalinity - GLODAPv2_2016b (micro-mol kg-1)	This product is presenting the Alkalinity. GLODAP Data is gridded by DIVA.	None.
River outflow	River outflow	This product layer groups all the platforms collecting river outflow. The layer shows the position of the recording station and on clicking the platform page (presenting station metadata and latest data) is popped up. The product layer offers filtering options.	
Sea level	In situ platform	This product layer groups all the platforms collecting sea level (frequency 5m). The layer shows the position of the recording station and on clicking the platform page (presenting station metadata and latest data) is popped up. The product layer offers filtering options.	None
Sea level	In situ platform	This product layer groups all the platforms collecting sea level (frequency 60m). The layer shows the position of the recording station and on clicking the platform page (presenting station metadata and latest data) is popped up. The product layer offers filtering options.	None
Sea level	Absolute Sea Level Trend (GLORYS12V) (m)		None.
Sea level	Absolute Sea Level Trend (DUACS) (mm/yr)		None.
Sea level	SONEL - In situ Absolute Sea Level Trends		None.
Sea level	Monthly maps of Absolute Sea Level data (DUACS) (m)		None.
Sea Optical Properties	In situ platform	This product layer groups all the platforms collecting sea optical properties. The layer shows the position of the recording station and on clicking the platform page (presenting station metadata and latest data) is popped up. The product layer offers filtering options.	To be added to the CP staging system.
Sea Optical Properties	TSM Baltic Sea (%)		None.
Sea Optical Properties	TSM Mediterranean Sea (%)		None.

Sea Optical Properties	TSM North Sea (%)		None.
Salinity and Conductivity	In situ platforms	This product layer groups all the platforms collecting sea surface salinity and salinity in the water column. The layer shows the position of the recording station and on clicking the platform page (presenting station metadata and latest data) is popped up. The product layer offers filtering options.	To be added to the CP staging system.
Salinity and Conductivity	Monthly climatology (SDN.V2)	Updated the product (now global instead of many regionals). Template changed: the user can select the specific month to be loaded.	None
Salinity and Conductivity	Climatology (CORA)	Made available in two versions, one to be visualized in the geoviewer and one to be offered for download.	
Salinity and Conductivity	Sea surface Salinity annual anomaly [base line 1990-2020] (PSU)		None.
Salinity and Conductivity	Seawater Practical Salinity from GLODAPv2_2016b (PSU)		None.
Salinity and Conductivity	SMOS BEC global SSS product v2 L4 (Psu)		None.
Temperature	In situ platforms	This product layer groups all the platforms collecting sea surface temperature and temperature in the water column. The layer shows the position of the recording station and on clicking the platform page (presenting station metadata and latest data) is popped up. The product layer offers filtering options.	To be added to the CP staging system.
Temperature	Monthly climatology (SDN.V2)	Updated the product (now global instead of many regionals). Template changed: the user can select the specific month to be loaded.	published
Temperature	Climatology (CORA)	Made available in two versions, one to be visualized in the geoviewer and one to be offered for download.	Download is not yet compliant with CP requirements as it points to an external page for managing the subsetting. The team is working on a method to provide the CP a list of files to overcome the subsetting page.
Temperature	Sea Temperature Anomaly 30 Years (ºC)		None.
Temperature	Seawater Temperature from		None.

	GLODAPv2_2016b (ºC)		
Underwater Noise	EMODnet Physics Continuous Noise fix platforms		None.
Underwater Noise	EMODnet Physics European Impulsive Noise Events Registry		None.
Waves	In situ platform	This product layer groups all the platforms collecting waves. The layer shows the position of the recording station and on clicking the platform page (presenting station metadata and latest data) is popped up. The product layer offers filtering options.	Published
Wind	In situ platform	This product layer groups all the platforms collecting waves. The layer shows the position of the recording station and on clicking the platform page (presenting station metadata and latest data) is popped up. The product layer offers filtering options. This product should replace the current available one (In situ wind speed and direction)	Published

Meeting and events organised and attended in the reference period and planned for next months

A. Meetings/events organised and attended							
From	To	Location	Type event (internal or external meeting, training/ workshop)	PPT given	A/O	Link ppt doi/ web	Short description and main results (# participants, agreements made, etc.)
07/07/2024		web	Hackathon		A		#OceanHackathonUE
04/09/2024	05/09/2024	Dublin, Ireland	External meeting		A		AquaBioSens project – the project is developing innovative biosensors. Data management and data flow also touched interoperability towards EMODnet, more specifically the project may benefit from some data (climatologies, historical data) that are available in the portal
09/09/2024	13/09/2024	Valencia, Spain	Workshop/Training	Y	A		Erasmus Maris Week - Erasmus Maris days is to trigger a strategic alliance in Europe between formal education, non-formal education, and scientific research sectors to engage upper secondary schools in co-creating new knowledge and co-designing solutions related to preserving the marine environment and inland waters while ensuring inclusivity and equitable participation. EMODnet was largely presented and Citizen Science data flows were discussed.
16/09/2024		Lecco, Italy					Presidio Laghi e Fiumi" ONTM – event to present on the relevance of river monitoring and EMODnet Physics presented on the river runoff products
23/09/2024	24/09/2024	Copenhagen, Denmark	External meeting	Y	A		EMODnet Chemistry – Annual assembly to discuss progresses and next actions. EMODnet Chemistry and Physics and Ingestion are jointly working to extend the overall availably of River data.
25/09/2024	27/09/2024	Copenhagen, Denmark	External meeting		A		OCEANI:ICE Annual Meeting of the project which is developing a FAIR data management to support open science on climate impact on polar regions. EMODnet is source and target for many OCEAN:ICE data products.
30/09/2024	04/10/2024		Workshop		A		GOOS Ocean Decade Workshop
01/10/2024	03/10/2024	Barcelona, Spain	Workshop	Y	A		MONGOOS - The workshop provided a forum for researchers and developers to present their work and discuss their ideas with MonGOOS experts, including technological

							innovations in operational oceanography such as Artificial Intelligence, Machine Learning methods, Digital Twins and Zero Pollution initiative
03/10/2024	04/10/2024	Venice, Italy	External meeting		A		LandSealot Steering Committee meeting. EMODnet is a key stakeholder for the project.

B. Meetings/events planned							
From	To	Location	Type event (internal or external meeting, training/ workshop)	PPT given	A/O	Link ppt doi/ web	Short description and main results (# participants, agreements made, etc.)
07/10/2023	09/10/2024	Brussels, Belgium					EMODnet SC and TWG
15/09/2024	17/09/2024	The Haag, Netherlands					FAIR-EOSC WS
28/09/2024	30/09/2024	Paris, France					SO-CHIC AM
05/11/2024	07/11/2024	Lisbon, Portugal					BlueCloud2026 AM + WS
08/11/2024		Lisbon, Portugal					Meeting with APA
13/11/2024		Bologna, Italy					EuroGOOS DATAMEQ
18/11/2024	22/11/2024	Paris, France					OceanPrediction Symposium
27/11/2024	29/11/2024	Lisbon, Portugal					AIVP Conference
02/12/2024		Brussels, Belgium					SoundSignature Catalogue WS