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 (Q1.2024)

Reporting Period: *01/01/2024 – 31/03/2024*

Contents

Disclaimer

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. The primary focus during this phase 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. n-situ data are harmonized and normalized in terms of metadata, and each new data source may contribute to one or more data collections. To better manage these data collections, the P33 controlled vocabulary, hosted in NVS-BODC services, dedicated for EMODnet Physics data, was developed and published (https://vocab.nerc.ac.uk/collection/P33/current/).

Data collections are organized according to the P33 terms, 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.

To date, five P33 collections are available on https://data-erddap.emodnet-physics.eu/erddap/index.html.

Regarding in-situ data provision, EMODnet Physics now provides access to: 18,125 ARGO profiles, 25,990 Drifting Buoys observations, 1,566 Glider missions, 2,360 Moorings datasets, 1,221 operational River Station data, 330 Underway Data Vessels records, 5,674 Tide Gauge readings, and more than 4,000,000 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 was released (to replace the regional climatologies). Furthermore, the in-situ wave stations layer is already operating on the EMODnet development geoviewer, ready to be published in the production system. During the next period more in situ layer products will be pushed to the staging system.

Annex reports the current situation.

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

Activities were focused on actions in support of Task 1 and in promoting the adoption of ERDDAP as the tool for implementing native machine-to-machine interoperability. The on-going action with new providers from Australia and New Zealand permitted to include some new Southern Ocean data sources (e.g. the MOANA project data, the BAS Antarctic cameras data, Australian Antarctic program data). Notably SOOS community (SOOS DMC) highlighted the importance to use the original cruise expedition Ids or community recognised systems, such as RAiD or Expocode, which can be generated for any vessel, to facilitate identification and interoperability of research cruise data.

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. Interaction with some products was improved (change of product template). The update occurs thanks to the continuous exchange of information with the Central Portal via Jira Tickets. According to the secretariat's

assessment on the previous quarterly report, some tickets assigned to EMODnet Physics helpdesk remain unsolved for a long time. The team would like to highlight that most of those need the intervention of the central portal team. Whenever possible the EMODnet Physics team is facilitating the CP team activity, as an example to avoid problems with the animation for some products (monthly temperature and salinity climatology) the template was changed, for some others (CORA) we made available files to be visualized that are different from files to be downloaded, etc. All these activities are reported on JIRA tickets.

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. Notably, during the period all the lots were involved in the "EMODnet for Horizon Europe and EU Mission: Restore our Ocean and Waters projects" webinar[1].

Task 6. Ensure the involvement of regional sea conventions

The European contract (CINEA/CD(2022)5010/PP/SI2.899121), titled "Catalogue of Underwater Sound Signatures from Shallow Seas," is developing an open-access digital repository of distinctive sound signatures from the underwater soundscapes of shallow seas. A sound signature is a unique acoustic pattern that can be used to identify and distinguish a particular sound source. The outcomes of this sound signature catalogue project align with the goals of EMODnet Physics regarding underwater noise data management. The two initiatives are already in discussions on how to make the SSC database available within the EMODnet (Physics) framework and how to incorporate more background information into the EMODnet (Physics) static areas on the Central Portal.

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. This dialogue also meets the requirements of a new stakeholder: the European project OBSSEA4CLIM (https://obssea4clim.eu/), which began this March. Regarding open data initiatives, the EMODnet Physics coordinator co-chairs the SOOS DMSC, and there is significant interaction with NOAA to synchronize and update the WOD DB with EMODnet contributions. EMODnet team members will actively participate in the Ocean Decade Conference in Barcelona (8-12 April), including satellite events.

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 via the geoviewer are at least three times more numerous than those interacting with the static content pages. Furthermore, direct feedback collected during events confirms interest and appreciation for the activities and topics covered, and suggests targeting more meteorological data at the sea surface and facilitating interaction with data to process and extract EOVs (Essential Ocean Variables). EMODnet Physics team also took part in the FMI hosted Baltic Sea Glider workshop (29/2/2024) that was an important event to engage Baltic Sea stakeholders.

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[1] https://emodnet.ec.europa.eu/en/emodnet-mission-ocean-and-horizon-europe

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

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			
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 (Q4.2024)	WP1	31/12/2024			
D1.07: EMODnet TWG (Q4.2024)	WP1	31/12/2024			
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	
D1.12: Quarterly report Q1.2024	WP1	15/04/2024	Delivered	15/04/2024	This report
D1.13: Quarterly report Q2.2024	WP1	15/07/2024			
D1.14: Quarterly report Q3.2024	WP1	15/10/2024			
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			

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**
D1.18: Annual progress report	WP1	23/08/2024			
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			
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			
D2.02: Data sources gap analysis v.2025	WP2	22/08/2025			
D2.03: EMODnet Physics data management including metadata and metadata governance v.2024	WP2	22/08/2024			
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			
D2.06: EMODnet Physics List of products 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
D3.01: Tools and methods to implement interoperability v.2024	WP3	22/08/2024			
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
EMODNET-1623 EMODnet analytics - PLOCAN	Work in progress	Connect analytics to new emails		
EM-829 Map physics layers used in the Atlas from old physics geoserver to new physics geoserver	Done	Provided ERDDAP layers and filters in view of the shutdown of the GeoServer Physics		11/01/2024 19:20
EM-842 Arrange dimensions for TSM layers	In Progress	Rearrange dimension of Baltic TSM, Mediterranean TSM		
EM-873 Physics to provide metadata records relevant to Ocean Hackathon 2023	Done	Integrate relevant metadata for Ocean Hackathon participants		15/01/2024 10:42
EM-890 Physics and MapViewer v3.2.7	Done	ncWMS transferred to a new, higher performing machine		30/01/2024 16:55
EM-907 User feedback regarding EMODnet Physics map viewer and catalogue	Done	Fixed bug		11/01/2024 19:28
EMODNET-1754 Wave Data unavailable	Done	Provided updated and correct links to ERDDAP		08/02/2024 09:47
EMODNET-1756 FW: techincal problem moorings not present in EMODnet	Done	Links provided for two mooring buoys		17/01/2024 11:20
EMODNET-1767 Access Wave Data	Done	Support for locating wave data buoys and how to download the data		05/03/2024 09:28
EMODNET-1772 Question for time-series of Discharge Data	Collect	ERDAPP connection planned for the beginning of April		
EMODNET-1774 Re: EMODnet webinar for EU Mission: Restore our Ocean and Waters and Horizon Europe	Done	Support about data federated via HCMR		08/03/2024 14:55
EM-940 Data temporarily not available on CTD data in in-sity layer	Done	Fixed platforms and download functionality		11/03/2024 10:37

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**
EMODNET-1782 Data unavailable	Done	Data under review put back online, logo and owner's name corrected		19/03/2024 17:32

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-724 EMODnet Physics - Platforms filters improvement	Done	Modification of the Filters.json to better implement the filters		12/03/2024 17:43
EM-863 CORA Climatology Data Download error	In Review	Update of download link for CORA dataset		
EM-896 TSM - Mediterranean Sea - visualization improvement	Done	Removal of sparse data to improve product representation		29/03/2024 11:26
EM-908 EMODnet Physics - New layer - Sea Level Platforms	To Do	Shared information about new layer, creation of new layer		
EM-909 EMODnet Physics - New layer - Waves Platforms	In Review	Shared information about new layer, creation of new layer		
EM-914 Platform Layer Legend Error	Done	Fix of layers in Legend Platform, by fixing the data owner tab (removal of duplications and typos)		17/01/2024 12:50
EM-920 PSMSL - In Situ Relative Sea Level Trends to be remuved	Done	Removal of layer PSMSL - In Situ Relative Sea Level Trends		28/02/2024 13:07
EM-921 Alkalinity name changing	Done	Updated name from Alkalinity to Carbon Cycle		28/02/2024 12:58
EM-937 Sea mammals platforms proxy problem	Done	Check on proxy (sea mammal platform), platforms with filters not always visible		04/03/2024 16:00

![EMODnet - European Marine Observation and Data Network]

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-946 Layer animation: requests made after removing and adding a layer	To Do	Control of layer animation, after noticing strange behavior		
EM-892 EMODnet Physics - New platform filter endpoint	Done	Establishment of new endpoint for the platform filter, change of the URL and Json file name		12/03/2024 17:43

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

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 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. Some of the platforms that were originally categorized under 'Other Seas' are now classified under the Caribbean Sea. We continued cleaning duplicates. This process is not yet completed. Importantly, as reported, we are moving to the new controlled NVS::P33 vocabulary for sub-theme management that implies a some re-mapping of the datasources. As an example: Atmospheric parameters will be meteorlogical, water conductivity will be grouped with salinity and density, etc. Although this affects the stats of trends in some themes, it is a very important updated to better match both Central Portal and stakeholders needs.
What is your opinion on the data coverage within EMODnet for your thematic?		The available coastal data is still very limited and new data sources (e.g. Citizen Science projects) have to be approached. Metadata on Wind data should be improved. In situ underwater noise is still very limited. Data on Ice should include new data types (e.g. cameras). We need some focus actions to link in some other integrators (e.g. SIOS). During this period, the service that connects EMODnet Physics to PANGAEA and ARICE was updated and it linked in a large amount of new CTDs. During the last MIC meeting

Comments on the progress indicators in the indicators spreadsheet		
Progress indicator	**Means of collecting figures**	**Comment**
		it was identified that INSTAC can provide Physics with about 7M more CTDs (action is started).
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 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*	The EMODnet Physics backend has been reorganized to better serve the central portal with products and data collections. Table 2A now lists the products available at prod-erddap.emodnet-physics.eu, which are linked through the central portal (plus the underwaternoise products that are availble on prod-geoserver)
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 prod-env (prod-erddap.emodnet-physics.eu). As planned, we have begun updating the data-env by removing obsolete products. We have also introduced a new controlled vocabulary (NVS:P33) to better organize data collections. The system now offers five collections under this new arrangement (https://data-erddap.emodnet-physics.eu/erddap/search/index.html?page=1&itemsPerPage=1000&searchFor=P33).
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). During the period continued the action started during the previous phase and included into the Physics collactions data from Southern Ocean initiatives such as the MOANA project (New Zeland), BAS (UK), Australian Antarctic Data Center (Australia) etc. Data are on temperature, salinity and ice/snow (including data from smart cameras)
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

EMODnet
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Comments on the progress indicators in the indicators spreadsheet		
Progress indicator	**Means of collecting figures**	**Comment**
		line with previous period. Looking at the matomo stats (internal monitoring) on the html populating the geoviewer contents we record three times more traffic on Physics layers. The current version of Europe Analytics report is monitoring the geoviewer, which is the most visited page, but it does not give details on specific themes. Physics stays among the top visited themes.
5.2 Quarterly total number of visitors, page views, unique page views and percentage of returning visitors	Europa Analytics	We recorded interactions similar to (slightly higher than) the previous period. It would be more interesting to observe user interaction with the GeoViewer, 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. 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.	Ready to be published in production.
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. CP to use the specific filters specification json.
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	To be added to the CP staging system. CP to use the specific filters specification json.

		platform page (presenting station metadata and latest data) is popped up. The product layer offers filtering options.	
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.	Ready to be published in production.
Salinity and Conductivity	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.
Salinity and Conductivity	Mediterranean Sea Salinity Climatology (PSU)	Out of date: SDN.V1	To be removed.
Salinity and Conductivity	North Atlantic Ocean Salinity Climatology (PSU)	Out of date: SDN.V1	To be removed.
Salinity and Conductivity	North Sea Salinity Climatology (PSU)	Out of date: SDN.V1	To be removed.
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. CP to use the specific filters specification json.
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.	Ready to be published in production.
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	Black Sea Temperature Climatology (°C)	Out of date: SDN.V1	To be removed.
Temperature	Mediterranean Sea Temperature Climatology (°C)	Out of date: SDN.V1	To be removed.
Temperature	North Atlantic Ocean Temperature Climatology (°C)	Out of date: SDN.V1.	To be removed.
Temperature	North Sea Temperature Climatology (°C)	Out of date: SDN.V1.	To be removed.
Temperature	Sea Temperature Anomaly 30 Years (ºC)		None.
Temperature	Seawater Temperature from GLODAPv2_2016b (ºC)		None.
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.	Ready to be published in production.
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)	To be added to the CP staging system. CP to use the specific filters specification json.

EMODnet Physics NVS::P33

P33 label	P33 code	VARIABLE NAME	P01	P02	P06	P07	P09	STANDARD_NAME	LONG NAME
Biogeochemical	BIOGEOCHEMICAL	AMON	AMONZZXX	AMON	UPOX	CFSN0802	AMON	mole_concentration_of_ammonium_in_sea_water	
Biogeochemical	BIOGEOCHEMICAL	BCCW	TBCCXXXX	BNTX	UCML		BCCW		number of bacteria cells in sea water
Biogeochemical	BIOGEOCHEMICAL	CHLT	CHLTVOLU	CPWC	UMMC	CF12S21	CHLT	mass_concentration_of_chlorophyll_in_sea_water	total chlorophyll
Biogeochemical	BIOGEOCHEMICAL	CPHL	CPHLZZXX	CPWC	UMMC	CF12S21	CPH1;CPHL	mass_concentration_of_chlorophyll_a_in_sea_water	total chlorophyll-a
Biogeochemical	BIOGEOCHEMICAL	FLU2	CPHLPM01	CPWC	UMMC		FLU2	mass_concentration_of_chlorophyll_a_fluorescence_in_sea_water	
Biogeochemical	BIOGEOCHEMICAL	FLU3	FLUOZZZZ	FVLT	UUUU		FLU3		
Biogeochemical	BIOGEOCHEMICAL	FLUO	FLUOZZZZ	FVLT	UUUU		FLUO		
Biogeochemical	BIOGEOCHEMICAL	NGDW	DINXZZZZ	TDIN	UPOX		TINW		Dissolved nitrogen
Biogeochemical	BIOGEOCHEMICAL	NODW	MDMAP008	TDNT	KGUM		NODW		Dissolved organic nitrogen
Biogeochemical	BIOGEOCHEMICAL	NTAW	MDMAP005	NTRA	KGUM	CFSN0515	NTAW	moles_of_nitrate_per_unit_mass_in_sea_water	

Biogeochemical	BIOGEOCHEMICAL	NTIW	MDMAP007	NTRI	KGUM	CFSN0516	NTIW	moles_of_nitrite_per_unit_mass_in_sea_water	
Biogeochemical	BIOGEOCHEMICAL	NTRA	NTRAZZXX	NTRA	UPOX	CFSN0806	NTRA	mole_concentration_of_nitrate_in_sea_water	
Biogeochemical	BIOGEOCHEMICAL	NTRI	NTRIZZXX	NTRI	UPOX	DDAEDBBI	NTRI	mole_concentration_of_nitrite_in_sea_water	
Biogeochemical	BIOGEOCHEMICAL	NTRZ	NTRZZZXX	NTRA	UPOX	DABDADJB	NTRZ	mole_concentration_of_nitrate_and_nitrite_in_sea_water	
Biogeochemical	BIOGEOCHEMICAL	PH25	PHTLSX25	ALKY	UUPH				
Biogeochemical	BIOGEOCHEMICAL	PHOS	PHOSZZXX	PHOS	UPOX	CF12N502	PHOS	mole_concentration_of_phosphate_in_sea_water	
Biogeochemical	BIOGEOCHEMICAL	PHOW	MDMAP007	NTRI	KGUM	CFSN0518	NTIW	moles_of_phosphate_per_unit_mass_in_sea_water	
Biogeochemical	BIOGEOCHEMICAL	PHYC	PHYCSPP4	PHYC	UNGL				
Biogeochemical	BIOGEOCHEMICAL	SLCA	SLCAZZXX	SLCA	UPOX	CFSN0810	SLCA	mole_concentration_of_silicate_in_sea_water	
Biogeochemical	BIOGEOCHEMICAL	SLCW	MDMAP012	SLCA	KGUM	CFSN0519	SLCW	moles_of_silicate_per_unit_mass_in_sea_water	
Carbon System	CARBONSYSTEM	ALKW	MDMAP014	ALKY	KGUM		ALKW	sea_water_alkalinity_per_unit_mass	Total alkalinity

Carbon System	CARBONSYSTEM	ALKY	ALKYZZXX	ALKY	UEQL	TZPEWAT3	ALKY	sea_water_alkalinity _expressed_as_mol e_equivalent	Total alkalinity
Carbon System	CARBONSYSTEM	FCO2	FCO2XXXX	PCO2	UATM	S5KQHZRB	FCO2	fugacity_of_carbon_ dioxide_in_sea_wat er	
Carbon System	CARBONSYSTEM	PCO2	PCO2XXXX	PCO2	UATM	CFSN0244	PCO2	surface_partial_pres sure_of_carbon_dio xide_in_sea_water	
Carbon System	CARBONSYSTEM	PHPH	PHXXZZXX	ALKY	UUPH	CF14N56	PHPH	sea_water_ph_repo rted_on_total_scale	
Carbon System	CARBONSYSTEM	CORW						Dissolved organic carbon	
Carbon System	CARBONSYSTEM	TICW						Dissolved inorganic carbon	
Currents	CURRENTS	DRVA	LCDAWVRD	RFVL	UABB	CFV13N5	DRVA	direction_of_radial_ vector_away_from_i nstrument	
Currents	CURRENTS	EWCT	LCEWZZ01	RFVL	UVBB	CFSN0650	EWCT	eastward_sea_wate r_velocity	
Currents	CURRENTS	HCDT	LCDAZZ01	RFVL	UABB	CFSN0727	HCDT	direction_of_sea_w ater_velocity	
Currents	CURRENTS	HCSP	LCSAZZ01	RFVL	UVBB	CFSN0334	HCSP	sea_water_speed	
Currents	CURRENTS	LRZA	LRZAZZZZ	LRZA	UVBB	CFSN0080	UVCT;VCSP	upward_sea_water_ velocity	
Currents	CURRENTS	NSCT	LCNSZZ01	RFVL	UVBB	CFSN0494	NSCT	northward_sea_wat er_velocity	

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Currents	CURRENTS	RDVA	LCSAWVRD	RFVL	UVBB	CFV13N15	RDVA	radial_sea_water_velocity_away_from_instrument	
Currents	CURRENTS	VCSP	LRZAZZZZ	LRZA	UVBB	CFSN0080	UVCT;VCSP	upward_sea_water_velocity	
Dissolved Oxygen	DISSOLVEDOXYGEN	DOX1	DOXYZZXX	DOXY	UPOX	CF12N801	DOXY;DOX1	volume_fraction_of_oxygen_in_sea_water	
Dissolved Oxygen	DISSOLVEDOXYGEN	DOX2	DOXMZZXX	DOXY	KGUM	CFSN0517	DOX2	moles_of_oxygen_per_unit_mass_in_sea_water	
Dissolved Oxygen	DISSOLVEDOXYGEN	DOXY	DOXYZZXX	DOXY	UPOX	CF14N29	DOXY;DOX1	mole_concentration_of_dissolved_molecular_oxygen_in_sea_water	
Dissolved Oxygen	DISSOLVEDOXYGEN	OSAT	OXYSZZ01	DOXY	UPCT	CFSN0623	OSAT	fractional_saturation_of_oxygen_in_sea_water	
Meteorological	METEOROLOGICAL	DEWT	CDEWZZ01	CHUM	UPAA	CFSN0723	DEWT	dew_point_temperature	
Meteorological	METEOROLOGICAL	ATMP	CAPHZZ01	CAPH	UPBB	CFSN0015	ATMP	air_pressure	atmospheric pressure at altitude
Meteorological	METEOROLOGICAL	ATMS	CAPAZZ01	CAPH	UPBB	Q9ZYSAOC	ATMS	air_pressure_at_sea_level	atmospheric pressure at sea level
Meteorological	METEOROLOGICAL	ATPT	APRESSTN	CAPH	HPAH	CFSN0201	ATPT	tendency_of_air_pressure	atmospheric pressure hourly tendency
Meteorological	METEOROLOGICAL	DRYT	CTMPZZ01	CDTA	UPAA	CFSN0023	DRYT	air_temperature	air temperature in dry bulb

Meteorological	METEOROLOGICAL	HOURLY_RAIN	CPRRRG01	CPRP	UMMM	CFSN0410	PRRT	rainfall_rate	
Meteorological	METEOROLOGICAL	NRAD	NTLRDZ01	LWRD	UFAA	CFSN0830	NRAD	surface_net_downward_radiative_flux	Net total incoming radiation
Meteorological	METEOROLOGICAL	PRRD	CPRRRG01	CPRP	UMMM	CFSN0559	PRRD;PRRT	lwe_precipitation_rate	Daily precipitation rate (liquid water equivalent)
Meteorological	METEOROLOGICAL	PRRT	CPRRRG01	CPRP	UMMM	CFSN0559	PRRD;PRRT	lwe_precipitation_rate	Hourly precipitation rate (liquid water equivalent)
Meteorological	METEOROLOGICAL	RELH	CRELZZ01	CHUM	UPCT	CFSN0413	RELH	relative_humidity	relative humidity
Meteorological	METEOROLOGICAL	SINC	CSLRZZXX	CSLR	UFAA	CFSN0275	SINC	surface_downwelling_shortwave_flux_in_air	Shortwave/solar incoming radiation
Meteorological	METEOROLOGICAL	WETT	CWETZZ01	CHUM	UPAA	CFSN0035	WETT	wet_bulb_temperature	Air temperature in wet bulb
Optical Properties	OPTICAL	CDOM	FLUOCDOM	HMSB	UUUU	6OP5LKSX	CDOM	concentration_of_colored_dissolved_organic_matter_in_sea_water_expressed_as_equivalent_mass_fraction_of_quinine_sulfate_dihydrate	
Optical Properties	OPTICAL	BACKSCATTERING							Light backscattering
Optical Properties	OPTICAL	BATH	MBANZZZZ	MBAN	ULAA	CFV13N17	BATH	sea_floor_depth_below_sea_surface	Bathymetric depth
Optical Properties	OPTICAL	LGH4	PARERXSD	VSRA	UMES	CFSN0284		surface_downwelling_photosynthetic_photon_flux_in_air	Surface incoming photosynthetic active radiation

Optical Properties	OPTICAL	LGHT	PARERXUD	VSRW	UMES	CFSN0676	LGHT	downwelling_photo synthetic_photon_fl ux_in_sea_water	Immerged incoming photosynthetic active radiation
Optical Properties	OPTICAL	LINC	LWRDZZ01	LWRD	UFAA	CFSN0279	LINC	surface_downwellin g_longwave_flux_in _air	Longwave/atmosph eric incoming radiation
Optical Properties	OPTICAL	RDIN	TLRDZZ01	LWRD	UFAA	CFSN0274	RDIN	surface_downwellin g_radiative_flux_in_ sea_water	Total incoming radiation
Optical Properties	OPTICAL	SCATTERING							Light scattering
Optical Properties	OPTICAL	TSMP	TSEDZZZZ	TSED	UMGL	CF12S23	TSMP	mass_concentration _of_suspended_mat ter_in_sea_water	
Optical Properties	OPTICAL	TUR2	ATTNZZ01	ATTN	UPRM		TUR2		light attenuation coefficient
Optical Properties	OPTICAL	TUR3	POPTZZ01	ATTN	UPCT		TUR3		light transmission
Optical Properties	OPTICAL	TUR4	TURBXXXX	TSED	USTU	7B3X6L2J	TUR6;TUR4;TUR5	sea_water_turbidity	turbidity
Optical Properties	OPTICAL	TUR6	TURBXXXX	TSED	USTU	7B3X6L2J	TUR6;TUR4;TUR5	sea_water_turbidity	Turbidity of water in the water body
Optical Properties	OPTICAL	TURMGL		TSED				sea_water_turbidity	turbidity
River	RIVER	RVFL	RFDSCH01	RVDS	CMPS	CFV10S3	RVFL	water_volume_tran sport_into_sea_wat er_from_rivers	river flow rate
Water Salinity and conductivity	WATERSALINITY	CNDC	CNDCZZ01	CNDC	UECA	CFSN0394	CNDC	sea_water_electrica l_conductivity	

Water Salinity and conductivity	WATERSALINITY	DENS	SIGTEQ01	SIGT	UKMC	CFSN0333	DENS	sea_water_sigma_theta	
Water Salinity and conductivity	WATERSALINITY	PSAL	PSLTZZ01	PSAL	UUUU	CFSN0331	PSAL	sea_water_salinity	
Water Salinity and conductivity	WATERSALINITY	SVEL	SVELXXXX	SVEL	UVAA	CFSN0316	SVEL	speed_of_sound_in_sea_water	
Water Salinity and conductivity	WATERSALINITY	TEMP_DOXY	OXYTAAOP		UPAA	CFSN0199		temperature_of_sensor_for_oxygen_in_sea_water	
Water Salinity and conductivity	WATERSALINITY	ASAL		PSAL				sea_water_absolute_salinity	
Water Salinity and conductivity	WATERSALINITY	SIGMA_THETA	SIGTPR01					sea_water_sigma_theta	sea sigma-theta
Sea Ice	SEAICE								
Sea Level	SEALEVEL	ALTS	AHGTZZ01	AHGT	ULAA	8BFOBHU2	ALTS	height_above_mean_sea_level	Height above mean sea level
Sea Level	SEALEVEL	SLEV	ASLVZZ01	ASLV	ULAA	CF15N1	SLEV	water_surface_height_above_reference_datum	
Sea Level	SEALEVEL	SLVR	ASLVR101	ASLV	ULAA	CFV10N41	SLVR	sea_surface_height_correction_due_to_air_pressure_and_wind_at_high_frequency	residual sea level (observed - predicted)
Sea Level	SEALEVEL	WLEV	AHRVGRS1					instantaneous_water_level	Observed Instantaneous Water Level

Underwater Sound	UNDERWATERSOUND	SPL				CFSN0310		sound_pressure_level_in_water	Sound Pressure Level (20s integration time)
Underwater Sound	UNDERWATERSOUND	SPL125				CFSN0310		sound_pressure_level_in_water	Sound Pressure Level at 125Hz (20s integration time)
Underwater Sound	UNDERWATERSOUND	SPL2k				CFSN0310		sound_pressure_level_in_water	Sound Pressure Level at 2kHz (20s integration time)
Underwater Sound	UNDERWATERSOUND	SPL63				CFSN0310		sound_pressure_level_in_water	Sound Pressure Level at 63Hz (20s integration time)
Water Temperature	WATERTEMPERATURE	SSJT	TEMPSG01	TEMP	UPAA	CFSN0335	TEMP	sea_water_temperature	
Water Temperature	WATERTEMPERATURE	TEMP	TEMPPR01	TEMP	UPAA	CFSN0335	TEMP	sea_water_temperature	
Water Temperature	WATERTEMPERATURE	POTENTIAL_TEMP		TEMP				sea_water_potential_temperature	sea potential temperature
Waves	WAVES	GWDR	GWDRZZ01	GWDR	UABB	CFSN0384	VDIR	sea_surface_wave_from_direction	
Waves	WAVES	STHETA1				P9IY6NIQ		sea_surface_wave_directional_spread	
Waves	WAVES	STHETA2				P9IY6NIQ		sea_surface_wave_directional_spread	
Waves	WAVES	SWDR	GDSWZZ01	GWDR	UABB	CFSN0379	SWDR	sea_surface_swell_wave_to_direction	
Waves	WAVES	SWHT	GHSWZZ01	WVST	ULAA		SWHT		

Waves	WAVES	SWPR	GSZZXXXX	WVST	UTBB		SWPR		
Waves	WAVES	THETA1						sea_surface_wave_from_direction	
Waves	WAVES	THETA2						sea_surface_wave_from_direction	
Waves	WAVES	VAVH	GAVHZZ01	WVST	ULAA	CFSN0385	VAVH	sea_surface_wave_significant_height	
Waves	WAVES	VAVT	GTZHZZ01	WVST	UTBB	HEKWBIH1	VAVT	sea_surface_wave_significant_period	
Waves	WAVES	VCMX	GCMXZZ01	WVST	ULAA	JNQS0CMX	VCMX	sea_surface_wave_maximum_height	
Waves	WAVES	VDIR	GWDRZZ01	GWDR	UABB	CFSN0384	VDIR	sea_surface_wave_from_direction	
Waves	WAVES	VEMH	GCMXVS01	HEAV	ULAA	JNQS0CMX	VEMH	sea_surface_wave_maximum_height	Estimated maximum wave height
Waves	WAVES	VEPK	GEPKZZ01	WVSP	UMHZ	5Q0EA19T	VEPK	sea_surface_wave_energy_at_variance_spectral_density_maximum	
Waves	WAVES	VGHS	GTDHZZ01	WVST	ULAA	CFSN0385	VGHS	sea_surface_wave_significant_height	
Waves	WAVES	VGTA	GTAMZZ01	WVST	UTBB	SUM7H3HM	VGTA	sea_surface_wave_mean_period	
Waves	WAVES	VH110	GTDTZZ01	WVST	ULAA	WVROIAKU		sea_surface_wave_mean_height_of_highest_tenth	

Waves	WAVES	VHM0	HMZEZZ01	WVST	ULAA	CFSN0385	VHM0	sea_surface_wave_significant_height	
Waves	WAVES	VHZA	HZAVZZ01	WVST	ULAA	IRPTM00V	VHZA	sea_surface_wave_mean_height	
Waves	WAVES	VMDR	GMWDZZ01	GWDR	UABB	CFSN0384	VMDR	sea_surface_wave_from_direction	
Waves	WAVES	VMNL	GMNLZZ01	WVST	ULAA	IWJNFWBF	VMNL	sea_surface_wave_maximum_trough_depth	
Waves	WAVES	VMXL	GMXLZZ01	WVST	ULAA	UFJCG1TB	VMXL	sea_surface_wave_maximum_crest_height	
Waves	WAVES	VPED	GPEDZZ01	GWDR	UABB	I8P5MQ0F	VPED	sea_surface_wave_from_direction_at_variance_spectral_density_maximum	
Waves	WAVES	VPSP	GSPRZZ01	GWDR	UAAA	X37RPE7M	VPSP	sea_surface_wave_directional_spread_at_variance_spectral_density_maximum	
Waves	WAVES	VSMC	GTZAMAZ2	WVST	UTBB		VSMC		
Waves	WAVES	VSPEC1D						sea_surface_wave_variance_spectral_density	
Waves	WAVES	VST1	WVSTZZ01	WVST	UUUU	RJVTH20O	VST1	sea_surface_wave_maximum_steepness	

Waves	WAVES	VT110	GTZHTN01	WVST	UTBB	N532TGCF		sea_surface_wave_mean_period_of_highest_tenth	
Waves	WAVES	VTDH	HSTKDP01	WVST	ULAA	CFSN0385	VTDH	sea_surface_wave_significant_height	
Waves	WAVES	VTM02	GTZAM2ZZ	WVST	UTBB	CFV8N75		sea_surface_wave_mean_period_from_variance_spectral_density_second_frequency_moment	
Waves	WAVES	VTM10	GTZAMIZZ	WVST	UTBB	CFV8N74		sea_surface_wave_mean_period_from_variance_spectral_density_inverse_frequency_moment	
Waves	WAVES	VTMX	GTZMZZ01	WVST	UTBB	E41IV2XW	VTMX	sea_surface_wave_maximum_period	
Waves	WAVES	VTPK	GTPKZZ01	WVST	UTBB	CFV13N31	VTPK	sea_surface_wave_period_at_variance_spectral_density_maximum	
Waves	WAVES	VTZA	GTZAZZ01	WVST	UTBB	SUM7H3HM	VTZA	sea_surface_wave_mean_period	
Waves	WAVES	VTZM	GTHMXX01	WVST	UTBB	OCVYVB2M	VTZM	sea_surface_wave_period_of_highest_wave	
Waves	WAVES	VZMX	GZMXZZ01	WVST	ULAA	JNQS0CMX	VZMX	sea_surface_wave_maximum_height	Maximum zero crossing wave height (Hmax)
Winds	WINDS	GDIR	EGTDZZ01	EWSB	UABB	LIZMDSCX	GDIR	wind_gust_from_direction	

Winds	WINDS	GSPD	EGTSZZ01	EWSB	UVAA	CFSN0039	GSPD	wind_speed_of_gust	
Winds	WINDS	WBFO	WMOCWFBF	EWSB	UUUU	CFV7N45	WBFO	beaufort_wind_force	
Winds	WINDS	WDIR	EWDAZZ01	EWSB	UABB	CFSN0036	WDIR	wind_from_direction	
Winds	WINDS	WSPD	EWSBZZ01	EWSB	UVAA	CFSN0038	WSPD	wind_speed	
Winds	WINDS	WSPE	ESEWZZXX	EWSB	UVAA	CFSN0653	WSPE	eastward_wind	
Winds	WINDS	EWSB		EWSB				wind strength and direction	
Winds	WINDS	WTODIR		EWSB				wind_to_direction	wind to direction relative true north
Winds	WINDS	WSPN	ESNSZZXX	EWSB	UVAA	CFSN0461	WSPN	northward_wind	

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.)
08/01/2024	09/01/2024	Bergen, Norway	Meeting		A		OLAMUR project Annual Meeting – EMODnet is a key project's stakeholder. OLAMUR DMP is in line with EMODnet Ingestion/Physics recommendations
23/01/2024		web	Meeting		A		EMODnet Central Portal meeting with EMODnet Ingestion
18/02/2024	23/02/2024	New Orleans, US	Conference		A		OSM24, held in New Orleans, La., 18-23 February 2024, brought together almost 6,000 attendees to share science, meet collaborators, and enjoy time together. Ingestion and international collaboration were discussed during the event
21/02/2024		web	Meeting		A		MIC periodic meeting. Discussion on operational data flows, harmonised metadata etc. to support both EMODnet and Copernicus Marine Service
28/02/2024		web	Workshop	yes	A		EMODnet webinar for European Research and Innovation and Mission: Restore our Ocean and Waters projects
29/02/2024		web	Workshop		A		EMODnet stakeholder workshop explores harmonised data management in offshore licensing procedures
05/03/2024		Amsterdam, Netherlands	Meeting	yes	A		BlueCloud2026 – STC, discussion on data federation and harmonised data management
12/03/2024		web	Meeting	yes	A		EMODnet Technical working group meeting
12/03/2024	14/03/2024	London, UK	Conference		A		Oceanology International London. With over 8,000 attendees targeted for 2024, it is a must-attend event for those involved in exploring, monitoring, developing or protecting the world's oceans. Ingestion and international collaboration were discussed during the event
13/03/2026	14/03/2026	Copenhagen, Denmark	Meeting		A		OBSSEA4CLIM project kick off meeting. EMODnet is a key project's stakeholder. OLAMUR DMP is in line with EMODnet Ingestion/Physics recommendations

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.)
26/03/2024	28/03/2024	Delft, Netherlands	Meeting		A		LandSeaLot project kick off meeting. EMODnet is a key project's stakeholder. OLAMUR DMP is in line with EMODnet Ingestion/Physics recommendations

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.)
03/04/2024	05/04/2024	La Valletta, Malta	Internal meeting				EMODnet Ingestion Plenary meeting, in the presence of all project partners, dedicated to the presentation of the annual results and the presentation of the goals for the next period of action.
27/05/2024	29/05/2024	Bergen, Norway	Conference		A		IMDIS 2024 conference. A porter titled "EMODnet Ingestion and the operational data exchange examples and hot topics" will be presented