



## **EMODnet Thematic Lot n°3 – Physics**

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

**Start date of the project: 23/08/2021 - (24 months)**

**Centralisation Phase**

### **Quarterly Progress Report (Q4.2022)**

**Reporting Period: 01/10/2022 – 31/12/2022**



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## Disclaimer

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# 1. Highlights in this quarter

## **Task 1. Maintain and improve a common method of access to data held in repositories**

During the reporting period, the focus was to finalize, bug fix, upgrade the services serving the CP. In collaboration with CP, Physics thematic portal products are ready for the new CP official release (January 2023).

## **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**

During the period the effort was focused on making the available products ready and compliant to the needs of the central portal and make it ready to its official lunch.

The following products were released/updated:

- EMODnet Registry of continuous noise monitoring sites:  
[https://products.emodnet-physics.eu/EP\\_MAP\\_CNR\\_001](https://products.emodnet-physics.eu/EP_MAP_CNR_001)
- Coriolis Ocean database for ReAnalysis – Temperature and Salinity in the Water Column, updated to end 2022

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

During the period the activities focused on cleaning and fine tuning data collections to support the CP.

The following collections were released/updated:

- IZOR tide gauge
- Sea Surface Currents fields from HFR EU NODE (EMODnet Physics is now connected to the new endpoint<sup>1</sup>)
- CTD from the Volvo Ocean Race (2017-2018)<sup>2</sup>

The team also published the new widget to link and consume the EMODnet Physics platform charts e.g. the following figure shows how to wrap sea level data from the Tide Gauge in Genova (IOC\_GE25).

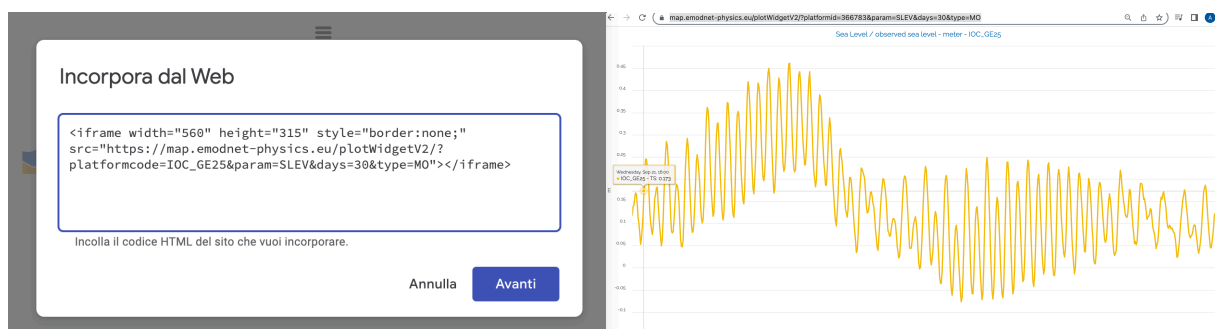


Figure 1. EMODnet Physics chart widget

VOTO<sup>3</sup> (SMHI) ERDDAP was officially published.

SusTunTech (AZTI) ERDDAP was officially presented (and presented @EuroGEO Workshop 2022)

<sup>1</sup> <https://thredds.hfrnode.eu:8443/thredds/catalog.html>

<sup>2</sup> [https://erddap.emodnet-physics.eu/erddap/info/Volvo\\_OceanRace\\_17\\_18/index.html](https://erddap.emodnet-physics.eu/erddap/info/Volvo_OceanRace_17_18/index.html)

<sup>3</sup> <https://erddap.observations.voiceoftheocean.org/erddap/info/index.html?page=1&itemsPerPage=1000>

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

In collaboration with the CP a complete review of metadata, links, was completed. The team kept working on the GetFeatureInfo and in particular the INFO\_FORMAT=text/html property. By means of this feature the EMODnet Physics GeoServer is exposing a html, hence it is customizable and it was possible to push some of the current EMODnet Physics portal features into the CP (e.g. the parameters charts and data download from the plot).

**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>

**Task 6. Ensure the involvement of regional sea conventions**

The main outcome is from the proactively participation to TG NOISE (mainly via ICES and CTN) which during 2022 led to the endorsement of DL2 and DL4 which set the assessment framework for impulsive and continuous noise for application in EU and its Member States.

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

The team proactively participated to a series of events and workshops (e.g. EuroGOOS FerryBox Annual Scientific Workshop, European HFR Annual Assembly, MONGOOS workshop and assembly, TG NOISE, EuroGOOS DATAMEQ, Copernicus Marine Service INSTAC Stakeholders meeting, etc.) on common standards and opendata.

We would like to highlight the following major taken actions:

We gave a Guest Lecture (16/11/2022) during the International Training program on ocean regional governance – University of Malta

We participated to the Sea Level Rise Conference (Venice, 17-18 October 2022): EMODnet was presented and endorsed as the European Hub for In Situ Data

No major updates from the dialogue with EUROPEAN MARINA NETWORK OF ENVIRONMENTAL DATA STATIONS (EMANEDS), the team is looking for funds for a small pilot action to proof of concept and show the implementation of the data flow.

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

The subtask “deal with user feedback” goes together with task 7. Concerning the process to monitor performances, EMODnet Physics is implementing matomo for collecting views on the landing and map page. It uses logs to extract the traffic/requests/manual downloads/interaction with services.

Following the instruction from the SC, at the moment the form to collect user information (type of organization and filed of work) was disabled, hence for the past 3 months we were not able to collect new data and information about users interacting with the portal. A new form (to be filled on voluntary basis) is ready to be published (JIRA EM-697).

**Task 9. Maintain the existing thematic web portal for a maximum of six months from the start of the projects**

Web portal maintenance will be provided until as long as the contracting authority requires the service.

**Table 1. Milestones and Deliverables - EASME/EMFF/2020/3.1.11/Lot4/SI2.83861**

Status of the Milestones and Deliverables listed in the workplan			
Milestone/Deliverable	Date due	Status (Delivered/Delayed)	If Delayed: reason for delay and expected delivery date
D1.1 Kick off Meeting	30/11/2021	8 November 2021	
D1.2 Annual assembly	30/11/2022		Postponed to early 2023
D1.3 EMODnet SC	30/11/2021	8-10 September 2021	
D1.4 EMODnet TWG	30/11/2021	8-10 September 2021	
D1.5 EMODnet SC	31/05/2022	27-28 April 2022	
D1.6 EMODnet TWG	31/05/2022	26 April 2022	
D1.7 EMODnet SC	31/08/2022	18 July 2022	
D1.8 EMODnet TWG	31/08/2022	18 July 2022	
D1.9 EMODnet SC	30/11/2022	7-8 November 2022	
D1.10 EMODnet TWG	30/11/2022	21-22 September	
D1.11 EMODnet plenary event	31/12/2021	8-9 November 2021	The EMODnet Physics KOM was organized in two session, the first one was closed to core partner (D1.1) the second was a plenary with invited speech about previous and recent developments of the EMODnet Physics networks and collaborators
D1.12 EMODnet plenary event	30/06/2022	12-13 April 2022	INS data ingestion WS. The event is involving EMODnet (Physics, Chemistry and Ingestion), CMEMS INSTAC and EurGOOS to discuss about joint actions for facilitating nrt operational data ingestion
D1.13 EMODnet plenary event	31/12/2022	4 October 2022. EMODnet Physics organized a special session during the MetroSEA2022 IEEE conference 21-24 November 2022. EMODnet Physics supported the organization of both the European HFR task team assembly and the MONGOOS annual workshop and assembly.	
D1.14 EMODnet plenary event	30/06/2023		
D1.15 Quarterly report Q3.2021	15/10/2021	Delivered 15/10/2021	
D1.16 Quarterly report Q4.2021	15/01/2022	Delivered 15/01/2022	
D1.17 Quarterly report Q1.2022	15/04/2022	Delivered	

		15/04/2022	
D1.18 Quarterly report Q2.2022	15/07/2022	Delivered 15/07/2022	
D1.19 Quarterly report Q3.2022	15/10/2022	Delivered 15/09/2022	
D1.20 Quarterly report Q4.2022	15/01/2023	Delivered 15/1/2023	This Report
D1.21 Quarterly report Q1.2023	15/04/2023		
D1.22 Quarterly report Q2.2023	15/07/2023		
D1.23 Annual progress report	23/08/2022		
D1.24 Final progress report	23/08/2023		
D1.25 Handover note	23/08/2023		
D1.26 EMODnet Physics note for Annual Report 2021	31/01/2022	Delivered (January 2022)	
D1.27 EMODnet Physics note for Annual Report 2022	31/01/2023		
D1.28 EMODnet Ingestion general assembly 2021	30/11/2021	21-22 September 2021	
D1.29 EMODnet Ingestion general assembly 2022	30/11/2022	16-17 April 2022	
D1.30 Guideline on data ingestion procedures for new real time and near real time streams v.2022	31/08/2022	Delivered (August 2022)	
D1.31 Guideline on data ingestion procedures for new real time and near real time streams v.2023	23/08/2023		
D1.32 Use cases 2021	31/12/2021	CMCC delivered (Dec 2021) OGS delivered (Feb 2022)	
D1.33 Use cases 2022	31/12/2022	CSCS delivered (Feb 2022) OceanGlider delivered (Feb2022)	
D1.34 Use cases 2023	23/08/2023		
D1.35 Contribution to central space with background information and EMODnet Physics content	28/02/2022	In progress – tracked with JIRA	
D1.36 TGs - RSCs event attendance	31/12/2021	TG NOISE WS “towards EU thresholds for underwater noise”, 13-14 Sept 2021	

D1.37 TGs - RSCs events attendance	30/06/2022	TG NOISE WS: Towards EU threshold values for underwater noise (17/02/2022)  20th TG-NOISE – 22/03/2022	TG NOISE doc library <sup>4</sup>
D1.38 TGs - RSCs events attendance	31/12/2022	21st TG-NOISE – 24/05/2022	This event was attended by partners ICES and CTN.
D1.39 TGs - RSCs events attendance	30/06/2023	22nd TG-NOISE – 11/10/2022	This event was attended by partners ICES and CTN.
D2.1. Data Inventory with gap analysis v.2021	31/12/2021	V.2021 attached to Q1.2022	EMODnet Physics_Inventory_v.2021.03
D2.2 Data Inventory with gap analysis v.2022	31/08/2022	V.2022 attached to Interim Report	
D2.3 Data Inventory with gap analysis v.2023	23/08/2023		
D2.4 EMODnet Physics Event/Workshop	31/12/2021	Delivered – (15/1/2022) - updates are described in the quarterly report Q4.2021 – Section 4	
D2.5 EMODnet Physics Event/Workshop	30/06/2022	Delivered – (15/4/2022) - updates are described in the quarterly report Q1.2022 – Section 4	This Report
D2.6 EMODnet Physics Event/Workshop	31/12/2022	EMODnet team organized the special session on Data System Networking and Interoperability Technology and Methodology at the IEEE MetroSea 2022 (3-5 October 2022)	
D2.7 EMODnet Physics Event/Workshop	30/04/2023		
D2.8 Report on the maintainance and update of the EMODnet Physics smart connectors v.2022	31/08/2022	Delivered 23/08/2022	Annex to Interim Report I.2022
D2.9 Report on th maintainance and update of the EMODnet Physics smart connectors v.2023	23/08/2023		
D2.10 EMODnet Physics Handbook on data management	31/08/2022	Delivered 23/08/2022	Annex to Interim Report I.2022
D2.11 Support to develop common strategy and guideline for adoption cloud technologies	23/08/2023		
D2.12 EMODnet Physics Metadata handbook and examples	31/08/2022	Delivered 23/08/2022	Annex to Interim Report I.2022
D2.13 Report on dissemination system interfaces update v.2022	31/08/2022	Delivered 23/08/2022	Annex to Interim Report I.2022

<sup>4</sup> <https://circabc.europa.eu/ui/group/326ae5ac-0419-4167-83ca-e3c210534a69/library/89b98517-6283-4d3a-abd0-3a716661b370?p=1>

D2.14 Report on dissemination system interfaces update v.2023	23/08/2023		
D2.15 Updated list of EMODnet Physics products v.2021	31/12/2021	Delivered 15/1/2022	
D2.16 Updated list of EMODnet Physics products v.2022	31/08/2022	Delivered 23/08/2022	Annex to Interim Report I.2022
D2.17 Updated list of EMODnet Physics products v.2023	23/08/2023		
D2.18 SSS v.2020	28/02/2022	Released <sup>5</sup>	
D2.19 SSS v.2021	28/02/2023		
D2.20 River Proxy V1.0	31/12/2021	Released <sup>6</sup>	
D2.21 River Proxy V2.0	31/08/2022	31/12/2022	Physics and Chemistry are working on a new river product (limited number of rivers) that includes both outflow, temperature and salinity. Release postponed to end of the year
D2.22 River Proxy V3.0	23/08/2023		
D2.23 INS RVFL DB v.1.0	31/08/2022	Released <sup>7</sup>	
D2.24 TSM v.2021	28/02/2023		
D2.25 SLEV INS DB	31/12/2021	Released <sup>8</sup>	
D2.26 SLEV REL TRENDS	31/08/2022	Released <sup>9</sup>	
D2.27 SLEV ABS TRENDS	31/08/2022	Released <sup>10</sup>	
D2.28 SLEV REL ANOM	31/08/2022	31/12/2022	SONEL, which is the provider for this product is developing a new workflow to facilitate harvesting from Physics. Only lately it was possible to start this action and should be possible to close and include the new product by end of the year

<sup>5</sup> <https://prod-erddap.emodnet-physics.eu/erddap/griddap/CISC-BEC-SSS.html>

<sup>6</sup> [https://products.emodnet-physics.eu/EP\\_MAP\\_RVFL\\_001/](https://products.emodnet-physics.eu/EP_MAP_RVFL_001/)  
[https://prod-erddap.emodnet-physics.eu/erddap/tabledap/ERD\\_EP\\_RVFL\\_NRT.html](https://prod-erddap.emodnet-physics.eu/erddap/tabledap/ERD_EP_RVFL_NRT.html)

<sup>7</sup> [https://prod-erddap.emodnet-physics.eu/erddap/tabledap/ERD\\_EP\\_RVFL\\_NRT.html](https://prod-erddap.emodnet-physics.eu/erddap/tabledap/ERD_EP_RVFL_NRT.html)

<sup>8</sup> [https://prod-erddap.emodnet-physics.eu/erddap/tabledap/ERD\\_EP\\_SLEV\\_NRT\\_60m.html](https://prod-erddap.emodnet-physics.eu/erddap/tabledap/ERD_EP_SLEV_NRT_60m.html)

<sup>9</sup> [http://prod-geoserver.emodnet-physics.eu/geoserver/EMODnet/wms?service=WMS&version=1.1.0&request=GetMap&layers=EMODnet%3AEP\\_PSM\\_SLEV\\_REL&bbox=-157.86700315733998%2C-36.843100736862%2C174.76900349538002%2C65.673401313468&width=768&height=330&srs=EPSG%3A4326&styles=&format=application/openlayers](http://prod-geoserver.emodnet-physics.eu/geoserver/EMODnet/wms?service=WMS&version=1.1.0&request=GetMap&layers=EMODnet%3AEP_PSM_SLEV_REL&bbox=-157.86700315733998%2C-36.843100736862%2C174.76900349538002%2C65.673401313468&width=768&height=330&srs=EPSG%3A4326&styles=&format=application/openlayers)

<sup>10</sup> [https://prod-erddap.emodnet-physics.eu/erddap/griddap/EMODNET\\_SEA\\_LEVEL\\_TREND.graph](https://prod-erddap.emodnet-physics.eu/erddap/griddap/EMODNET_SEA_LEVEL_TREND.graph)

D2.29 SLEV ATL ABS TREND	31/08/2022	Released <sup>11</sup>	
D2.30 RFVL v.1	28/02/2023		
D2.31 UWN ROI v.1.0	31/08/2022	Released <sup>12</sup>	
D2.32 WAVE INS DB+ NOWCAST v.2.0	28/02/2022	Delayed	The product is not covering whole Europe (hence it is not ready yet) – At the moment we are receiving data for Med Sea (UniGE – DICCA), Iberian Atlantic (CoLAB Atlantic), Irish Atlantic (Marine Institute), BlackSea (CMCC) and Baltic (DMI). The product is under final development.
D2.33 WIND INS DB+ NOWCAST v.2.0	28/02/2022	Released <sup>13</sup>	
D2.34 ICE SIC v.2.0	31/08/2022	Released <sup>14</sup>	
D2.35 TGs - RSCs event attendance	31/12/2021	19 <sup>th</sup> TG NOISE: 26 October 2021	
D2.36 TGs - RSCs events attendance	30/06/2022	20 <sup>th</sup> TG NOISE: 22 March 2022	
D2.37 TGs - RSCs events attendance	31/12/2022	21 <sup>st</sup> TG NOISE: 24 May 2022	A TG NOISE is planned 22 <sup>nd</sup> October 2022
D2.38 TGs - RSCs events attendance	30/06/2023	22 <sup>st</sup> TG NOISE: 10 October 2022	The frequency of TG NOISE was increased to complete the deliverables for continuous noise threshold assessment.
D3.1 Report on the SOS.SWE connected stations v.2021	30/11/2021	Delivered 15/01/2022	Annex to Q4.2021

<sup>11</sup>[https://prod-erddap.emodnet-physics.eu/erddap/griddap/EMODNET\\_SEA\\_LEVEL\\_MONTHLY\\_MEAN\\_DESEASONALIZED.graph](https://prod-erddap.emodnet-physics.eu/erddap/griddap/EMODNET_SEA_LEVEL_MONTHLY_MEAN_DESEASONALIZED.graph)

<sup>12</sup>[http://prod-geoserver.emodnet-physics.eu/geoserver/EMODnet/wms?service=WMS&version=1.1.0&request=GetMap&layers=EMODnet%3AEMODnet\\_Physics\\_-\\_Registry\\_of\\_continuous\\_noise\\_monitoring\\_sites&bbox=-3.536%2C36.93%2C30.6%2C68.91&width=768&height=719&srs=EPSG%3A4326&styles=&format=application/openlayers](http://prod-geoserver.emodnet-physics.eu/geoserver/EMODnet/wms?service=WMS&version=1.1.0&request=GetMap&layers=EMODnet%3AEMODnet_Physics_-_Registry_of_continuous_noise_monitoring_sites&bbox=-3.536%2C36.93%2C30.6%2C68.91&width=768&height=719&srs=EPSG%3A4326&styles=&format=application/openlayers)

<sup>13</sup>[http://prod-geoserver.emodnet-physics.eu/geoserver/EMODnet/wms?service=WMS&version=1.1.0&request=GetMap&layers=EMODnet%3ADAT\\_LatestDataParametersProduct&bbox=-180.0%2C-90.0%2C180.0%2C90.0&width=768&height=384&srs=EPSG%3A4326&styles=&format=application/openlayers](http://prod-geoserver.emodnet-physics.eu/geoserver/EMODnet/wms?service=WMS&version=1.1.0&request=GetMap&layers=EMODnet%3ADAT_LatestDataParametersProduct&bbox=-180.0%2C-90.0%2C180.0%2C90.0&width=768&height=384&srs=EPSG%3A4326&styles=&format=application/openlayers)

<sup>14</sup>Arctic Seas:

[http://prod-geoserver.emodnet-physics.eu/geoserver/EMODnet/wms?service=WMS&version=1.1.0&request=GetMap&layers=EMODnet%3Aice\\_edge\\_nh\\_annual&bbox=-4632266.5%2C-2364732.5%2C4185461.75%2C3981740.25&width=768&height=552&srs=EPSG%3A3995&styles=&format=application/openlayers](http://prod-geoserver.emodnet-physics.eu/geoserver/EMODnet/wms?service=WMS&version=1.1.0&request=GetMap&layers=EMODnet%3Aice_edge_nh_annual&bbox=-4632266.5%2C-2364732.5%2C4185461.75%2C3981740.25&width=768&height=552&srs=EPSG%3A3995&styles=&format=application/openlayers)

Antarctic Seas:

[http://prod-geoserver.emodnet-physics.eu/geoserver/EMODnet/wms?service=WMS&version=1.1.0&request=GetMap&layers=EMODnet%3Aice\\_edge\\_sh\\_annual&bbox=-2624331.25%2C-2947571.75%2C3415682.5%2C3649295.25&width=703&height=768&srs=EPSG%3A3031&styles=&format=application/openlayers](http://prod-geoserver.emodnet-physics.eu/geoserver/EMODnet/wms?service=WMS&version=1.1.0&request=GetMap&layers=EMODnet%3Aice_edge_sh_annual&bbox=-2624331.25%2C-2947571.75%2C3415682.5%2C3649295.25&width=703&height=768&srs=EPSG%3A3031&styles=&format=application/openlayers)

D3.2 Report on the SOS.SWE connected stations v.2022	31/08/2022	Delivered 23/08/2022	Annex to Interim Report I.2022
D3.3 Report on the SOS.SWE connected stations v.2023	23/08/2023		
D3.4 Handbook on procedure to set up SOS.SWE interoperability	23/08/2023		
D3.5 Report on new API v.2021	30/11/2021	Delivered 15/01/2022	Annex to Q4.2021
D3.6 new APIs v.2022	31/08/2022	Delivered 23/08/2022	Annex to Interim Report I.2022
D3.7 new APIs v.2023	23/08/2023		
D3.8 handbook to use EMODnet Physics APIs v.2021	30/11/2021	Delivered 15/1/2022	Annex to Q4.2021
D3.9 handbook to use EMODnet Physics APIs v.2022	31/08/2022	Delivered 23/08/2022	Annex to Interim Report I.2022
D3.10 handbook to use EMODnet Physics APIs v.2023	23/08/2023		
D3.11 Phasing out of EMODnet Physics Landing page	28/02/2022	In progress – the official switch to CP is now planned on the 23 <sup>rd</sup> Jan 2023	See also Section 1
D3.12 Phasing out of EMODnet Physics mapviewer	30/11/2021	In progress – the official switch to CP is now planned on the 23 <sup>rd</sup> Jan 2023	See also Section 1
D3.13 EMODnet Physics catalogue v.2021	30/11/2021	Delivered 15/1/2022	Annex to Q4.2021
D3.14 Maintenance and update of EMODnet Physics catalogue v.2022	31/08/2022	Delivered 23/08/2022	Annex to Interim Report I.2022
D3.15 Maintenance and update of EMODnet Physics catalogue v.2023	23/08/2023		
D3.16 Monitoring tools	28/02/2022	Given the centralization process the monitoring tools are going to be a combination of tools, some designed to let Physics and CP to interact and fix issues (e.g. JIRA), some to report on indicators (matomo) some to monitor M2M (the central team is updating the tools to monitor the new EMODnet Physics Environment). Whenever needed new tools will be discussed and deployed.	

## 2. Identified issues: status and actions taken

The following tables report pending actions from the previous report and newly-identified priority issues. Now all the tickets are assigned to the EMODnet Physics Helpdesk that is a distribution system to forward and manage the tickets as soon as possible.

**Table 2. Priority issues identified by CINEA/ DG MARE/ Secretariat**

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
<b>Centralisation Checklist for review</b>	Done			14/12/22 17:14
Physics - Web Services MetadataUrl and DataUrl fields	Done			21/11/22 16:55
Platforms Layer GetFeatureInfo HTML does not resize dynamically	In Progress	Working on fixing it		
Physics to review layer legends and add units where they are missing	Done			16/11/22 10:28
Control feature for time constraint on the platform layers	Done			18/10/22 15:57
Physics - EMODnet Catalogue Tags	In Progress	To finish the review		
GetLegendGraphic not supported for High Frequency Radar WMS	To Do			18/10/22 15:43
Physics to provide input to the Tools & Guidelines section	Done			13/10/22 16:28
Standardise the navigation menu on left hand side of page	Done			27/09/22 23:19
Physics River Gauge platforms in the European Atlas of the Seas	In Review	Fixed to be validated		
EMODnet Physics Catalogue Service to Harvest	Done			18/08/22 11:06
Layer EP_HFR_CFM_EUROPE not working in Physics WMS	In Progress	Working on new dataset to offer the HFR WMS		

**Table 3. Priority issues identified by Physics group**

<b>B. Issues / challenges identified by the thematic assembly group itself</b>					
	<b>Priority issue / challenge</b>	<b>Status (Pending/Resolved)</b>	<b>Action(s) taken / remaining actions planned</b>	<b>Date due</b>	<b>Date resolved</b>

### 3. User feedback

**Table 4. User feedback**

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
25/10/2022	x1wind	help on data integration	email	1 d	resolved	feedback by email	
27/10/2022	VLIZ	help for data download	email	0 d	resolved	feedback by email	
22/11/2022	University of hull	help for data download	email	0 d	pending		wrong email adress
6/12/2022	MORE	specific data access	email	1d	resolved	feedback by email	

## 4. Meetings/events held/attended & planned

Table 5. Meetings/events held/attended

A. Meetings/events Organized and attended					
Date	Location	Type event (internal or external meeting, training/workshop)	Indicate if a ppt was given (yes/no + short description)	Meeting attended (A) / organised (O)	Short description and main results (# participants, agreements made, etc.)
<b>SUM</b>				<b>O</b>	<b>Total # of meetings organised = 5</b>
<b>SUM</b>				<b>A</b>	<b>Total # of meetings attended = 16</b>
28-29/09/2022	web	11th Ferrybox Workshop	yes	A	Annual scientific workshop of the European FB community. the focus of EMODnet presentation was on FAIR, open data (CC-BY) and adoption of tools like ERDDAP.
04/10/2022	Milazzo	workshop-special session	yes	O	MetroSea 2022. International IEEE event on Marine technologies and services. Event was attended by about 100 people. EMODnet Physics organized the special session on data networking and interoperability. <a href="https://www.metrosea.org/special-session-1">https://www.metrosea.org/special-session-1</a> . <a href="https://www.metrosea.org/files/MetroSea2022_FinalProgram.pdf">https://www.metrosea.org/files/MetroSea2022_FinalProgram.pdf</a>
05/10/2022	Genova	workshop	yes	A	GENOA SEA SUSTAINABLE CITY - EMODnet (program and focus on Physics, Chemistry, Ingestion) was presented and discussed during the event. <a href="https://www.genovabluedistrict.com/eventi/genoa-sea-sustainable-city/">https://www.genovabluedistrict.com/eventi/genoa-sea-sustainable-city/</a> Event was hybrid (about 50 in presence)
11/11/2022	Taranto	workshop	yes	A	GREENBLUEDAYS - A innovative forum on sustainable development in Southern Italy - EMODnet (program and focus on Physics, Chemistry, Ingestion) was presented and discussed during the session "new economy of the sea: compatibility and sustainability" - <a href="https://greenbluedays.it/tavola-rotonda-la-nuova-economia-del-mare-a-taranto-compatibilita-e-sostenibilita/">https://greenbluedays.it/tavola-rotonda-la-nuova-economia-del-mare-a-taranto-compatibilita-e-sostenibilita/</a> more than 300 attenders in presence during the event
11/10/2022	web	workshop	no	A	22nd meeting of the Technical Group on Underwater noise (TG Noise 22). To discuss and define recommendations for EU threshold values for impulsive and continuous underwater noise. TG NOISE members.
14/10/2022	web	meeting	no	A	DATAMEQ - EuroGOOS Data Management, Exchange, and Quality Working Group (DATAMEQ WG) helps improving harmonization and integration of European marine data. EMODnet is one core stakeholder for the community
17-18/10/2022	Venice	workshop	no	A	Knowledge Hub - Sea Level Rise Conference 2022 - <a href="https://knowledgehubsealevelrise.org/">https://knowledgehubsealevelrise.org/</a> - International Conference on Sea Level Rise. EMODnet representatives actively participated to panels discussion. Hybrid event with about 100 attenders in presence
20-21/10/2022	web	workshop	no	A	EMODnet-for-business two-day workshop on Offshore energy sector. Mediterranean and Black Sea stakeholders. <a href="https://webgate.ec.europa.eu/maritimeforum/en/node/7383">https://webgate.ec.europa.eu/maritimeforum/en/node/7383</a>

*EASME/EMFF/2020/3.1.11/Lot4/SI2.838612 - EMODnet Thematic Lot– Physics  
Quarterly Progress Report (Q4.2022)*

26/10/2022	FARO	meeting	yes	A	NAUTILOS - The flagship H2020 project will develop a new generation of cost-effective sensors and samplers and integrate observation technologies and platforms into large-scale demonstrations across European seas making a significant contribution towards the democratisation of marine environment monitoring. EMODnet is one key stakeholder for new data that the project is going to generate.
28/10/2022	web	meeting	no	O	MIC - sea level data - GLOSS
07/11/2022	web	meeting	yes	A	OCEANICE - assess the impacts of key Antarctic Ice Sheet and Southern Ocean processes on Planet Earth, via their influence on sea level rise, deep water formation, ocean circulation and climate. EMODnet is one the key stakeholder. EMODnet program, Physics and Ingestion were presented
7-8/11/2022		meeting	yes	A	EMODnet SC periodic meeting of the EMODnet Steering Committee
08/11/2022	web	meeting	no	O	Internal meeting to check the bidirectional flow between SOOSmap data providers, EMODnet and SOOSmap
16/11/2022	web	summer school	yes	A	International ocean governance course - offered by the IOI and the University of Malta - about 30 students
21-22/11/2022	Florence	meeting	yes	O	HFR Task Team periodic meeting to review the general progress of the Task Team work plan, in order to progress in the joint roadmap. <a href="https://www.lamma.toscana.it/sites/default/files/doc/news/HFRadarTT_2022_annual%20meeting_agenda_draft.pdf">https://www.lamma.toscana.it/sites/default/files/doc/news/HFRadarTT_2022_annual%20meeting_agenda_draft.pdf</a>
22-23/11/2022	Florence	workshop	no	AO	MONGOOS workshop - <a href="http://www.lamma.rete.toscana.it/news/dal-21-al-24-firenze-sara-la-capitale-delloceanografia-europea">http://www.lamma.rete.toscana.it/news/dal-21-al-24-firenze-sara-la-capitale-delloceanografia-europea</a> <a href="https://eurogoos.eu/current/mongoos-annual-meeting-workshop-on-the-importance-of-scales-and-uncertainties-in-ocean-transport-and-the-general-assembly/">https://eurogoos.eu/current/mongoos-annual-meeting-workshop-on-the-importance-of-scales-and-uncertainties-in-ocean-transport-and-the-general-assembly/</a>
24/11/2022	Florence	general assembly	yes	A	MONGOOS General Assembly. During the meeting updates about EMODnet program and centralization process were presented and discussed. <a href="http://www.lamma.rete.toscana.it/sites/default/files/doc/news/MonGOOS_General%20Assembly_Agenda_Florence22.pdf">http://www.lamma.rete.toscana.it/sites/default/files/doc/news/MonGOOS_General%20Assembly_Agenda_Florence22.pdf</a>
24/11/2022	web	meeting	no	A	AIVP general assembly - AIVP is an NGO that has been bringing together urban and port stakeholders. Novellino joined as a partner and presented on EMODnet program and thematic
25/11/2022	web	meeting	no	A	EuroSEA - WP3 internal meeting to finalize deliverables on "network harmonization recommendations" where recommendations comes from internal and external stakeholders, hence EMODnet, SeaDataNet NODCs, and Copernicus Marine Service
14/12/2022	Rome	workshop	no	A	ONTM General Assembly, ONTM is National Observatory for the Protection of the Sea, during the General assembly (about 50 attenders), EMODnet was indicated as a primary stakeholder for the observatory

**Table 6. Meetings/events planned**

A. Meetings/events planned in the future				
Date	Location	Type event (meeting, training (workshop), etc.)	Meeting to be attended (A) / organised (O)	Short description and main expected outcomes
		OCEAN RACE		
19/01/2021	Gothenburg, Sweden	VOTO Workshop on ERDDAP		VOTO presents on latest development based on the collaboration with EMODnet
20/01/2023	Gothenburg, Sweden	EMODnet Workshop @ SMHI		
20-21/03/2023	Paris, France	OCEAN DATA CONFERENCE		<a href="https://oceandataconference.org/">https://oceandataconference.org/</a>
27-28/03/2023		EMODnet Hackaton		
14-18/08/2023	Hobart, Australia	SOOS Symposium <sup>15</sup>		EMODnet Physics and Ingestion are key SOOS partners. The symposium will be a major event to discuss about ocean data management and interoperability

ETT was selected and awarded to join the Ocean Race Grand Finale<sup>16</sup> organization committee during the race events and present on its experience on ocean data, ocean monitoring, sustainability etc. The finish of the 14th edition of the around the world race, is scheduled for June 2023. But before the race arrives in Genova, the capital of the Liguria region will be travelling the world in its role as destination marketing partner of The Ocean Race. This gives us the opportunity to present on the EMODnet program and its components along the race-tour. We are also organizing a workshop on ocean data management during the Grand Finale week.

<sup>15</sup> <https://soos.aq/soos-symposium-2023>

<sup>16</sup> <https://theoceanracegenova.com/>

## 5. Communication assets

Table 7. Communication products

A. Communication products				
Date	Communication material	Short description (of the material, title, ...) of the asset	Main results	Name of event at which material was disseminated (if applicable)
23/9/2022	<a href="https://www.instagram.com/reel/CfzXppTIGzg/?utm_source=ig_web_copy_link">https://www.instagram.com/reel/CfzXppTIGzg/?utm_source=ig_web_copy_link</a>	How to use EMODnet Physics to see real data		
11/03/2022	<a href="https://www.instagram.com/reel/Ca9mritoTp3/?utm_source=ig_web_copy_link">https://www.instagram.com/reel/Ca9mritoTp3/?utm_source=ig_web_copy_link</a>	How to use EMODnet Physics to plan an outdoor activity		it was not reported in previous reports
29/07/2022	<a href="https://www.instagram.com/p/CgmUWBConem/?utm_source=ig_web_copy_link">https://www.instagram.com/p/CgmUWBConem/?utm_source=ig_web_copy_link</a>	Why it is important to collect in situ data		It was not reported in previous reports

Table 8. Planned communication

B. Planned communication products			
Date	Communication material	Short description (of the material, title, ...) and/or link to the asset	Main results expected

**Table 9. Publications**

List of known publications using EMODnet data or data products				
Date	Type and name of journal, conference, ...	Publication title including DOI (if known)	Author(s)	Organisation(s)
2022	Book Chapter	<a href="https://doi.org/10.1016/B978-0-12-823692-5.00001-7">https://doi.org/10.1016/B978-0-12-823692-5.00001-7</a>	Mourre et al.	
16/12/2022	Southern Ocean Observing System 5-Year Report (2016-2020)	<a href="https://zenodo.org/record/7444694#.Y6BUKzMJzQ">https://zenodo.org/record/7444694#.Y6BUKzMJzQ</a>	Newman et al.	
7/12/2022	EuroGEO Workshop	<a href="https://www.sustuntech.eu/sustuntech-presents-at-the-eurogeo-workshop-in-athens/">https://www.sustuntech.eu/sustuntech-presents-at-the-eurogeo-workshop-in-athens/</a>	Solabarrieta et al.,	

A simple search in google scholar shows more than hundreds of documents between papers and projects deliverables using/citing EMODnet Physics.

[https://scholar.google.com/scholar?hl=it&as\\_sdt=0%2C5&q=EMODnet+Physics&btnG=](https://scholar.google.com/scholar?hl=it&as_sdt=0%2C5&q=EMODnet+Physics&btnG=)

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

## 6. Monitoring indicators

Comments on the progress indicators in the indicators spreadsheet		
Progress indicator	Means of collecting figures	Comment
<p>1. Current status and coverage of total available thematic data</p> <p>A) Volume and coverage of available data</p>	Matomo and server logs	<p>EMODnet Physics input data is sparse and for this indicator we consider the "platform" as the "unit" of monitoring assessment. A platform is a logical entity that hosts data, where data maybe a single dataset (e.g. a profile in case of CTD), a timeseries (e.g. sea level station), a series of profiles (e.g. ARGO). For indicator 1.A we report on the % variation of the number of platforms for the given basin. To note that some platforms are moving from one basin to another, considering that we are reporting figures based on the latest position, the % are depply influenced by this. For this indicator we are using bounding box shapes. Most of them are already compliant to new indications - EEA shapefiles - (to note that Atlantic is covering EEA Atlantic and the South Atlantic is now included in Other Seas) - Caspian and Caribbean Seas have been not used yet and platforms in these regions are counted under Other Seaas. For indicator 1.B the unit of download is measured in platforms (in line with indicator 1.A) while the number of downloads are measured in "requests". A request may be for a single dataset (e.g. 1 CTD) as well as a full time series (e.g. daily data for past XX years). For ice data, EMODnet Physics is integrating a satellite derived product covering the whole Arctic and Antarctic areas. This product can be only downloaded via WMS.</p>
What is your opinion on the data coverage within EMODnet for your thematic?		<p>Indicator 1.B is reporting the amount of downloaded data from mapviewer (note that the amount in GB is an estimation based on the number of requests multiplied the average file size). As reported in 2B the overall amount of downloaded data from ERDDAP is about 65 GB. Downloads from the mapviewer are now consuming only ERDDAP seervice (this change was indeed due to have a smooth transition to the new central system). Concerning the use of the interfaces: ERDDAP is the most</p>

		used. The use of WMS/WFS layers (GeoServer) is tracked and (only) reported under 2B. Figures are in line with the planned action for the transition to CP.
B) Usage of data in this quarter	Matomo and server logs	
2. Current status and coverage of total number of data products A) Volume and coverage of available data products	Matomo and server logs	EMODnet Physics data products may be both datacollections (e.g. PSMSL RLR) and products (e.g. gridded climatology) and the full list is reported in the Products20221231 sheet. We also added the Prod-Prod (products on the production env) this is the selected list products that are discoverable from the Central Portal mapviewer. Apart from the European Under Water Noise Register and the TSM that only covering Europe (100% of the available information) the other products offer global coverage. This makes the "Volume unit" not homogeneous therefore here we report on a limited number of products.
B) Usage of data products in this quarter	Matomo and server logs	The mapviewer and the products pages accessible under the "Products" section are monitored in terms of visits (by matomo). ERDDAP is monitored both in terms of visit to the erddap landing page (matomo) and in terms of transactions (downloads - by logs). THREDDS and GeoSERVER are both monitored in terms of logs. We record a quite good use of the services, ERDDAP and THREDDS are the most used interfaces
3. Internal and external organisations supplying/approached to supply data and data products within this quarter		During the period we continued some running ingestion and cleaning activities.
4. Online 'Web' interfaces to access or view data		Web Services are organized per item-interface to facilitate the tracking of their use. ERDDAP, THREDDS, web APIs, Widgets, GeoServer are providing data and products without any authentication or restriction. Mapviewer presents an authentication/user interest collection form that is not compulsory but it is presented in order to collect indicator 5 stats. All linked datasets are unrestricted.
5. Statistics on information volunteered through download forms		During the period we collected data from only 3 new users. This is due to the fact that the webform asking for user interest has been disabled temporarily to let the new data download workflow to be operative from the platform pages (i.e. now the

		pages generates the erddap script to provide the users the dataset). this update was indeed necessary to have one single workflow to deliver data (the same data) to users from both current system (map.emodnet-physocs.eu) and the Central portal. Although we are still waiting for the "green light" to revamp a web form for collecting data, we think this indicator is already obsolete because in Jan we have the official switch to the new CP.
6. Published use cases		Use cases are providing examples of how EMODnet Physics data can be used for both private and public downstream applications. Status quo: the most viewed are the two from industry (DHI and fishing vessels) and the two on the collaboration between EMODnet and CMEMS. Use case on sea level products also is collecting wide interest. Looking at the use-cases parameters-wise we can see that users are very interested in Wave, Wind, River and Sea Level products. Hype is also on the technical collaboration between Copernicus Marine Service INSTAC and Physics and on the tools that Physics offers to facilitate interoperability (ERDDAP docker).
8.1. Technical monitoring		the monitoring service/graphana ( <a href="https://grafana-emodnet.trust-itservices.dev/d/KSP0WZjZz/emodnet-physics?orgId=1">https://grafana-emodnet.trust-itservices.dev/d/KSP0WZjZz/emodnet-physics?orgId=1</a> ) is not presenting figure for the period.
9. Visibility & Analytics for web pages		EMODnet Physics mapviewer is by far the most used interface with an steady trend. Catalogue is also quite well consumed. Charts are missing some data because, some endpoints were changed and the system was not able to distinct by (these) pages. Status quo.
10. Visibility & Analytics for web sections		Data indicate that users are landing in EMODnet Physics landing page less and less, likely (hopefully) they land to the CP.
11. Average visit duration for web pages		Same comments as for sect.9 and 10. Status quo

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

## 7. Annex: Other documentation attached

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*[List in Annex if you wish to provide any additional information.]*