

European Marine Observation and Data Network

EMODnet Thematic Lot n°3 - Physics

EASME/EMFF/2018/1.3.1.8/Lot3/SI2.810790

Start date of the project: 26/08/2019 - (24 months)

EMODnet Phase III – Quarterly Progress Report (5)

Reporting Period: 01/07/2020 - 30/09/2020





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1. Highlights in this quarter

Task 1. Develop a common method of access to data held in repositories

As introduced in the previous report, there are on-going actions in collaboration with several teams (EuroGOOS HFR, EuroGOOS Tide Gauge, EuroGOOS Glider/EGO/OceanGlider team, etc. see also Tanhua et al 2019¹) to facilitate data flow, common metadata adoption and interoperability. During this period a number of meetings took place and they provided a good opportunity to share progresses and design future developments to have common methods to access data held in (federated) repositories. To note that JCOMM Observations Coordination Group identified ERDDAP as the platform of choice for cross datacenter cooperation, proofing that the EMODnet Physics infrastructure development strategy is in line with (and anticipating) community needs.

During the period, we continued the activity on updating the EMODnet Physics ERDDAP as well as the user guide on the adopted EMODnet Physics Metadata Standards and conventions² (which was updated accordingly). Moreover GLODAP and SOCAT products are now linked and available under the EMODnet Physics ERDDAP catalogue. These products are provided by the GLODAP/SOCAT initiatives and integrated in the CMEMS INSTAC, as well as shared with EMODnet Physics.

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

During the period the Global Runoff (GRDC) product was updated to 31/12/2019. During the HFR Task Team annual meeting, it was initiated an action to make available wave data as collected by HFR. Moreover two new products were developed and are ready to be published:

- A Sea Level product presenting information about the completeness and time extension of the Revised Local Reference (RLR) monthly means sea level timeseries (as processed by PSMSL)³
- A Sea Level trend product integrating both re-processed altimetry data (from 1993 to 2018) and RLR PSMSL data⁴.

The two products are under test and will be made visible during next period. For next period we also plan to progress in the process of the re-organization of metadata access and presentation to facilitate the user to identify the data sources (particularly when data is available from several sources).

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

We keep working to make GeoServer layers INSPIRE compliancy, the latest report (07/07/2020) indicates that about 80 layers are missing metadata URL, all these layers are exposed under the "emodnet" workspace. As anticipated in the previous report we deployed a new workspace "emodnet_products", matching requirements, that is already exsposing new layers that have been linked int the ATLAS. Updating the old workspace to the new one is a top priority for coming months.

¹ https://doi.org/10.3389/fmars.2019.00440

² https://doi.org/10.5281/zenodo.4001637

³ https://www.emodnet-physics.eu/map/Products/psmslrlr/

⁴ https://www.emodnet-physics.eu/map/Products/paceslev/



Together with Physics and in collaboration with the Ligurian DLTM, we completed the test of the 52N SOS Services package. The activity that is now installed and running at the Ligurian DLTM HPC facility. This joint activity contributes to the Data Ingestion deliverables on SWE User Guide and the update of the Demonstrator of the RT data exchange. During the period we also updated the demonstrator endpoint – realtime.emodnet-physics.eu that is now offering more than 1550 sensors from several sources.

provider	NEXOS	IRCEL - CELINE	OBSEA	PIM	CNR + ARPA ER	HZG – FerryBox	SMHI	INOGS	MONALISA prj	52N FLUGGS server
Sensors	12	111	2	5	669	569	2825	15	31	83
Types	Mobile Platforms	Time series	Time series	Time series	Time series	Time series	Time series	Time Series	Time Series	Time Series
Datasets	14	598	17	15	4	327585	4591	64	353	212

It is worth mention that the activities on smart sensors from fishermen is keeping gaining momentum: real-time data is flowing from a variety of sources including ILVO and NOAA NEFSC into EMODnet Physics via Berring Data Collective along with their own data. There has been progress in getting these data streams into Copernicus Marine and WMO via conversations with IFREMER and JCOMMOPS. An ever-increasing number of regions are interested in starting pilot projects: Ghana, Portugal, Canada. and the Southern Ocean. In addition, the first operational assimilation of this data stream has been started with the Doppio model on the East Coast of the USA.

Task 4. Maintain and further develop a thematic web portal allowing users to find, visualise and download data and promote the data and data products of the portal

As planned and anticipated under task 2, activities on Sea Level Trends continued and two new products are ready to be published. The landing page was aslo updated with links and news as required by Secretariat.

Task 5. Ensure the involvement of regional sea conventions

A series of (web) meetings with the Italian TG NOISE co-chair (F. Borsari) permitted to define a new product to be developed and published under EMODnet Physics. The product concept and request for missing metadata has been sent to TG NOISE officer (Ms Casier) and TG NOISE chairs. As soon as we collect the requested metadata it will be possible to initiate the development.

Task 6. Install a process to monitor 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. For



manual downloads from the Mapviewer (www.emodnet-physics.eu/map) authentication is requested for downloading data (older than 60 days) from coastal fixed stations and data products coming from CMEMS INSTAC.

Besides the automatic system monitoring, the EMODnet Physics team is , on a daily basis, supporting its users comminities to understand and assess the fit-for-scope of the system and during the reporting period there were interactions with WP4 and WP5 EMOD-PACE partners to identify and list in situ platforms to be used in the EMOD-PACE related assessment and products development.

Task 7. Operate a help desk offering support to users

EMODnet Physics is providing an on line help desk feature to deal with users. Any request gets an id to track and manage the feedback time. Table 4 lists the collected interactions.

It is worth to mention that the EuroGOOS DATAMEQ WG annual report highlights the importance of the collaborative actions between CMEMS INSTAC, SeaDataNet, EMODnet Physis (and lately Chemistry on the BGC data) to unlock resource, enhance interoperability and serve the community.

Moreover, the recently published 2019 SOOS annual report includes and describes the collaboration between the SOOS community and EMODnet Physics and how the team is supporting this interational end-user community.



2. Identified issues: status and actions taken

The following tables reports pending actions from the previous report and new identified priority issues.

A. Priority issue(s) identified and communicated by EASME/ DG MARE/									
Priority issue	Status (Pending/Resolved)	Action(s) taken / remaining actions planned	Date due	Date resolved					
INSPIRE Metadata issue – the Secretariat has been running some compliance checks and noted some remaining issues	Pending	There is a list of layers on the EMODnet Physics GEOSERVER under the "emodnet" workspace that are still failing INSPIRE checks. The new workspace "emodnet_products" that is offering the new layers for the ATLAS is ok	As soon as possible						
To publish all the EMODnet Physics quarterly reports since phase 3, and phase 3 interim and final reports ⁵	Resolved	To upload on the EMODnet Physics landing portal (reports page)		20/08/2020					
Third party service and privacy policy – request from the EU Secretariat General and DIGIT following the invalidation of the EU-US Privacy Shield framework	Resolved	We provided the Secretariat with needed information.	25/08/2020	25/08/2020					
Provide secretariat with at least 2 names for target assessment	Resolved	Provided		30/07/2020					
Online Survey banner for Portal display	Resolved	EMODnet Physics Landing page updated according instruction from Secretariat an		13/08/2020					
GeoServer down	Resolved	There were a series of concomitant problems: a first problem was at the serverfarm that was out of line for about one day, then there was a problem in the VM hosting Geoserver and GeoNetwork (it seemed a problem of mem sharing resource between the two catalogues). Eventually we deployed a cronjob to re-boot of Goserver daily and we switched off (18/9/2020) the automatic refresh of the GeoNetwork catalogue.		11/09/2020					

Table 2. Priority issues identified by EASME/ DG MARE/ Secretariat

⁵ <u>https://www.emodnet-physics.eu/portal/reports</u>



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				
Update the method that is processing the monthly averages from operational data	Pending		Autumn 2020					
We use the WMO as platform id. Lately some of the platforms with old 5- digit WMO codes are also delivered with the new 7- digit code. This impacts the name of the NetCDF files that are distributed and the user may find duplicates in the system	Pending	Cross check and cleaning/declaring of duplicates. More specifically we are updating the system to be able and present when data is avaialble from more EMODnet Physics sources.	We cannot set a deadline because the update of the WMO is not depending on EMODnet Physics. We can only check and correct when an issue is identified.					
Identify and fix why matomo is not tracking views for the EMODnet Physics map page	Resolved	Identified and fixed the specific code that was not working		July 2020				
Updates to the Norwegian tide gauge network	pending	In 2019 the Norwegian Hydrographic Service corrected a set of known errors in the tide gauge records. These updated refer to data back to 2007. New data have to be overwritten on previous ones.	As soon as possible. This task also involves the support/collaboration of CMEMS INSTAC					
Antarctic Circumnavigation Expedition (ACE) platforms – we are collaborating to ingest and make available ACE data	Resolved	A specific connector to link data from Zenodo was developed		August 2020				
Problems to access JIRA	Pending	We are still recording problems to access the common space on JIRA. For the time being we directly interact with central administrators to keep track of the progress on actions.						
PANGAEA CTD synch	Pending	Thanks to the collaboration with SOOS International Project Office it was possible to identify a problem with the synch procedure of the	We had a techincal (call) meeting on 05/10/2020 to discuss about the new metadata format to be able and develop the fix	Nov 2020				



PANGAEA CTD data due to an update to the PANGAEA	for re-connecting the two systems.	
metauata format.		

Table 3. Priority issues identified by Physics group



3. User feedback (Contact Us form, online chat & other communication means)

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			
02/07/2020	Private	Technical – support to download all the TG data from ERDDAP	HD	1 day	Resolved	Mail with instructions				
04/07/2020	Sea Science (Algeria)	Technical – support to download Wave height (Algeria area) in csv	HD	1 day	Resolved	Mail with instructions				
20/07/2020	EMODnet Secretariat	Technical – Mapproxy server unavailable	e-mail	1 day	Resolved	Updated the autostart list of services (added Maproxy)				
22/07/2020	DHI	Technical – download tide gauge data at the station Toamasina (Madagascar) from 2018- 2020	HD	1 day	Resolved	Mail with instructions				
28/07/2020	Marine Biology Research Group, Ghent University	Technical – support to find data of locations where cooling waters	Forward from EMODnet Secretariat	1 day	Resolved	Mail with information and instructions				



29/07/2020	AZTI	Technical – support to download the list of the stations (with metadata)	HD	1 day	Resolved	Mail with instructions	
05/08/2020	EuroGOOS	Technical – support to extract metadata from EMODnet Physics for GOOS related asset mapping	e-mail	1 day feedback	Resolved	With the feedback we collected a better description of the needed metadata and agreed to close the activity before the end of the month. 20/8 we provided the user with an excel but it was noticed there were some wrong metadata. We fixed the issue and 28/8 we delivered the correct package.	
13/08/2020	Oceanalysis Ltd	Technical – support to collect information about the elevation of the meteorological sensors	HD	1day feedback	Resolved	This information is not usually provided with data and to provide the user with the required data we activated the full network of partners (EuroGOOS, Deltares, RWS, UKMetOffice,) we were able in about one month to put the user in contact with the right person and have the needed information.	
17/08/2020	AZTI	Technical – support to understand the	HD	1 day	Resolved	Mail with instructions	



		difference between the difference typology of TGs					
5/09/2020	University of Auckland	Technical – problem with the mapviewer to select and download a given set of buoys	HD	1 day feedback	Resolved	Mail with instruction to bypass the mapviewer problem, 1 week to fix the problem	
7/09/2020	EMODnet Secretariat	Technical – Physics Geoserver down	e-mail	1 day for a quick fix then about 2 weeks to close it	Resolved	There were a series of concomitant problems: a first problem was at the serverfarm that was out of line for about one day, then there was a problem in the VM hosting Geoserver and GeoNetwork (it seemed a problem of mem sharing resource between the two catalogues). Eventually we deployed a cronjob to re-boot of Goserver daily and we switched off the automatic refresh of the GeoNetwork catalogue.	Move GeoNetwork on a different docker/VM
14/09/2020	Mercator Ocean	Technical – download files from German HFR were empty	HD	1day feedback	Resolved	The provider changed the file format therefore it was necessary to re- map the adaptor to the new format and re-synch the product	



						with missing data. This took 2 weeks.	
15/09/2020	AZTI	Technical – Support to perform asset mapping for EMOD-PACE WP4 activities	e-mail	1 day	Resolved	Mail with instructions and file with needed metadata	
23/09/2020	VLIZ	Technical – support to download Belgian TG data	HD	1 day	Resolved	Mail with instructions	
24/09/2020	VLIZ	Technical – support to download wind data	HD	1 day	Resolved	Mail with instructions	
15/09/2020	AZTI	Technical – support to use mapviewer vs ERDDAP	e-mail	1 day	Resolved	Mail with instructions	
30/09/2020	Outdoor Portofino	Technical – Support to download data in the Portofino area	e-mail	1 day feedback	Resolved	2 days to extract and pack requested data.	

Table 4. User feedback



4. Meetings/events held/attended & planned

	A. Meetings/events organised 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.)					
01-02/07/2020	web	EuroGOOS Tide Gauge Task Team meeting	Yes – Background on EMODnet Physics and Ingestion, how TG data is flowing from sources (INSTAC, SDN, PSMSL, SONEL, GLOSS, etc) and which products are available. Brainstorming on common standards, metadata and joint actions.	A	About 30 attenders – being remote it allowed the participation of more experts than those of the task team core group, e.g., University of Hawaii Sea Level Center, CMEMS In Situ TAC, GESLA -NOC, EMODnet Physics. This has been crucial for the discussion on data portals and metadata.					
07/07/2020	web	EuroGOOS HF Radar Task Team meeting	No	А	Annual meeting of the HFR TT (30 attenders) to review the achieved progresses and plan future actions.					
22/07/2020	Lisbon	Presentation of summer school	Yes - Background on EMODnet Physics and Ingestion, with a focus on River data management	А	EMODnet Physics and in particular the activity on rivers were used to present a context outcome from summer school training http://curso2020.maretec.org/					
27-29/07/2020	Web	SOOS Annual General Assembly	Yes - Background on EMODnet Physics and Ingestion, how data is flowing from sources (INSTAC, SDN, PANGAEA) into Physics hence SOOSmap. Brainstorming on common standards,	A	Annual meeting of the SOOS community to discuss about progress and define new actions. EMODnet Data Ingestion and EMODnet Physics are involved in the service development design and provision.					



			metadata, infrastructure evolution and joint actions.		
21-25/09/2020	web	10 years of EMODnet progress and achievement Webinars	Yes – material for the joint presentation	A	The goal of the webinars is to bridge towards the main event (EMODnet Open Conference) and to celebrate and showcase 10 years of EMODnet progress and achievement
24/09/2020	web	Meeting with JCOMMOPS to have a WMO code for the smart sensors to be used by the fishermen	Yes- Background on EMODnet Physics and Ingestion, with a focus on data from fishing vessels	A	JCOMMOPS is willing to manage WMO codes (i.e. unique id) for the fishermen sensors, as soon as they will put the registry in place it will be easier to ingest more of these data and avoid duplicates.
29/09/2020	web	ICES WGOOFE	Yes - Background on EMODnet Physics with a focus on data from fishing vessels	А	Seek links with the fishing for data activities in EMODnet Physics and ICES WGOOFE
30/09- 1/10/2020	web	EMODnet Data Ingestion AM	Yes – presentation on EMODnet Physics tasks	А	Annual meeting of Data Ingestion
30/09/2020	web	Nord Stream 2	No	Ο	Follow up discussion with Nord Stream 2 on data sharing and details on the received data files
SUM				0	Total # of meetings organised = 1
SUM				Α	Total # of meetings attended = 8

Table 5. Meetings/events held/attended



B. 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	
1/10/2020	web	Meeting with the ENI Chief Financial Officer	О	Present activities under EMODnet Physics and Data Ingestion and try and involve ENI to share data	
				To present Background on EMODnet, EMODnet Physics and data Ingestion together with describing the European data flows.	
2/10/2020	web	VOTO, Voice of the Ocean	0	VOTO are launching a number of smart autonomous platforms into the Baltic Sea. This was the first meeting with this new Baltic initiative to initiate discussion on data sharing with EMODnet	
5/10/2020	web	Tech meeting with PANGAEA	Ο	To identify and fix the synch problem between EMODnet Physics – SOOSmap and PANGAEA	
6-7/10/2020	Web	TG NOISE	Α	Periodic TG NOISE meeting	
12/10/2020	web	IODE International data sharing workshop	A	Workshop for non-UN IGOs, Global and Regional organisations and projects, NGOs and private sector	
15/10/2020	web	European Polar Board Plenary	A	Present on Polar activities within EMODnet Physics	
20- 21/10/2020	web	Marine data to support aquaculture in the North Atlantic Workshop	A	The event is jointly organized by EATiP, DG MARE, DG DEFIS, Copernicus Marine and EMODnet with the goal to discuss and link new marine data in support to aquaculture activities	



21- 22/10/2020	web	NAUTILOS Project KO	А	EMODnet Physics is partner in the project with role related to data interoperability and ingestion of project data
27- 30/10/2020	web	SeaDataCloud Annual (final) meeting	А	Brainstorming on joint activities to link and make available more data.
3-5/11/2020	web	SO-CHIC Annual meeting	А	Discuss about interoperability between the project and EMODnet Physics and Data Ingestion
9-10/11/2020	web	EMODnet SC	А	Periodic meeting. Brainstorming, common standards, joint activities, etc.
4-6/11/2020	web	BOOS AM	A	Annual meeting. Presenting on EMODnet, EMODnet Physics progress, data ingestion, initiate a BOOS river task, new possible data sources
11- 12/11/2020	web	EMODnet TWG	А	Periodic meeting. Brainstorming, common standards, joint activities, etc.
16- 19/11/2020	web	WMO Data Conference	A	The Conference aims to develop a common understanding from all sectors of the roles, requirements and arrangements for international exchange of observations and other data for monitoring and prediction of the Earth System environment, including weather, climate and water.
18-19/2020	web	AniBOS meeting	А	Brainstorming on joint activities to link and make available more data.
20/11/2020	Web	Arctic Data Portal KO	A/O	Following the SOOS experience, EMODnet Physics will host a dedicated data portal for the Arctic community. The goal of the workshop is to define actions (EMODnet Physics, Ingestion, CMEMS INSTAC, SeaDataNet, etc) to unlock and link new and more arctic data.



26- 27/11/2020	Web	MOONGOOS Annual Meeting	А	Progress on Med data management and user needs
27/11/2020	Web	Arctic Data Webinar	A/O	Webinar to enhance the data sharing in the Arctic. Inviting the full Arctic community. Lessons and success stories from SOOS experience to be presented.
3-7/03/2021	Oostende, Belgium	EMODnet Open Conference and Jamboree 2nd Edition initially programmed from 21st to 25th of September 2020 will be postponed to Spring 2021.	A/O	Due COVID-19 situation the organizing committee decided to postpone the event to 2021
23- 25/03/2021	Gothenburg, Sweden,	Ferrybox Workshop	A/O	Due COVID-19 situation the organizing committee decided to postpone the event to 2021
23- 25/03/2021	Gothenburg, Sweden,	HFR Workshop	A/O	Due COVID-19 situation the organizing committee decided to postpone the event to 2021
12- 14/04/2021	Amsterdam, Netherlands	IMDIS Conference	А	Due COVID-19 situation the organizing committee decided to postpone IMDIS 2020 conference to 2021
May 2021(TBC)	Genoa, Italy	Fishing for Data 2 workshop	Ο	The goal is to have the planned physical workshop that was postponed due the COVID-19 situation.
May-June 2021	Brest, France	EuroGOOS International conference	A	The conference provides a forum for a broad range of implementers and users of operational oceanography services, including marine scientists and technologists, private companies, and policymakers. The conference reviews the present ocean monitoring and forecasting capacities and oceanographic services, and identifies new science and technology priorities. It facilitates dialogue, experience sharing and future planning with both European and international partners and stakeholders, towards a more coordinated



				response to global challenges and societal needs related to seas and oceans https://eurogoos.ifremer.fr/
16- 18/06/2021	Vigo, Spain	MARETECH Workshop	A/O	Due COVID-19 situation the has decided to postpone the IX International Workshop on MARine TECHnology

Table 6. Meetings/events planned



5. Communication assets

[List all the relevant communication and dissemination products and assets you have developed since the start of the project phase (provide date) (e.g. brochures, videos, press releases, newsletters, blogs) and are planning to do. At the bottom of the table, provide a total number for every type of communication product you have developed (e.g. total # of press releases, etc.) or provide a summary from the actions on Twitter from (e.g. Twitter Analytics: number of Tweets and followers of Twitter account).]

		A. (Communica	tion 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)
01- 02/07/2020	Oral presentation	Background on EMODnet Physics and Ingestion, how TG data is flowing from sources (INSTAC, SDN, PSMSL, SONEL, GLOSS, etc) and which products are available.	Brainstorming on common standards, metadata and joint actions.	EuroGOOS Tide Gauge Task Team Workshop
26- 29/07/2020	Oral presentation	Background on EMODnet Physics and Ingestion, how data is flowing from sources (INSTAC, SDN, PANGAEA) into Physics hence SOOSmap.	We presented EMODnet, EMODnet Physics and EMODnet DIP to engage the community. Brainstorming on common standards, metadata, infrastructure evolution and joint actions.	SOOS DMSC
19/08/2020	Oral presentation	eMOLT webinar ⁶	EMODnet Physics was	eMOLT training webinar

⁶ <u>https://studentdrifters.org/JiM/emolt_on_emodnet.mp4</u>



		used to show eMOLT data to fishermen	

Table 7. Comminunication products



B. Planned communication products					
Date	Communicati on material	Short description (of the material, title,) and/or link to the asset	Main results expected		
20-21/10/2020	Oral presentation	Marine data to support aquaculture in the North Atlantic Workshop	We are going to present EMODnet, EMODnet Physics and EMODnet DIP to engage the community		
3-7/03/2021	Oral Presentation	EMODnet Open Conference and Jamboree 2nd Edition initially programmed from 21st to 25th of September 2020 will be postponed to Spring 2021.	We are going to present EMODnet, EMODnet Physics and EMODnet DIP to engage the community		
23-25/03/2021	Oral Presentation	Ferrybox Workshop	We are going to present EMODnet, EMODnet Physics and EMODnet DIP to engage the community		
23-25/03/2021	Oral Presentation	HFR Workshop	We are going to present EMODnet, EMODnet Physics and EMODnet DIP to engage the community		
12-14/04/2021	Oral presentation	IMDIS Conference	We are going to present EMODnet, EMODnet Physics and EMODnet DIP to engage the community		
May 2021(TBC)	Oral presentation	Fishing for Data 2 workshop	We are going to present EMODnet, EMODnet Physics and EMODnet DIP to engage the community		
16-18/06/2021	Oral presentation	MARETECH Workshop	We are going to present EMODnet, EMODnet Physics and EMODnet DIP to engage the community		

Table 8. Planned communication



[For the reporting period, please list all publications, e.g. peer-reviewed journals, book chapters, conference papers, etc.) of which you are aware, within the reporting period, including a reference to the EMODnet data or data products which is being discussed.]

	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)		
23/09/2020	Frontiers in Marine Science	Fishing gear as a data collection platform: Opportunities to fill spatial and temporal gaps in operational sub-surface observation networks doi: 10.3389/fmars.2020.485512	Cooper H. Van Vranken, Berthe M. Vastenhoud, James P. Manning, Kristian S. Plet-Hansen, Julie Jakoboski, Patrick Gorringe and Michela Martinelli	Other, Denmark, Berring Data Collective National Marine Fisheries Service (NOAA), United States Technical University of Denmark, Denmark MetOcean Solutions Ltd, New Zealand Swedish Meteorological and Hydrological Institute (SMHI), Sweden National Research Council (CNR), Italy		

Table 9. Publications

A simple search in google scholar shows more than hundreds 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=



6. Monitoring indicators

[Please refer to the standardised monitoring tool i.e., Matomo, to complete the monitoring and progress indicators excel template, and provide a short explanation in the table below on the numbers and trends for each indicator when possible/applicable. **Please indicate clearly if monitoring was carried out using tools other than Matomo.**]

Comments on the progress indicators in the excel template				
Progress indicator	Means of collecting figures	Comment		
 Current status and coverage of total available thematic data A) Volume and coverage of available data If you don't use the provided sea-basin figures, please indicate why you do not use them, as from when, and what do you use instead and why? 	Matomo/ other (Please state which monitoring tool was used to collate the information in each case)	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 a reduction of the % may indicate that plaforms are not delivering data (i.e. finished the mission, under maintenance, etc). While the number of operational platform may have fluctuations, the amount of data keeps increasing. For this indicator we are not using proposed figures (i.e. areas in Km^2 - line 45): are we are dealing with georeferred data and we need to use to bounding box shapes. For 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 donwloaded via TDS.		
B) Usage of data in this quarter		We are using matomo for monitoring the portal (landing and mapviewer) views, matomo does not track the download requests (for which we have server logs). During this quarter we recorded a reduced use of the platform page visualization and an increase of the manual data donwload, that can indicate the use of EMODnet Physics portal for studying a specific area (you need to identify the sources and then e.g. you download all the available data for a given period). it is important to remember that the number of WMS and WFS reported in 1B limited to https://www.emodnet-physics.eu/Map/Service/GeoServerDefaultWMS.aspx and https://www.emodnet-physics.eu/Map/Service/GeoServerDefaultWFS.aspx, while the use of WMS/WFS layers (GeoServer) is tracked and reported under 2B. The use of APIs is in line		



	with the previous period indicating that no major new "consumer" started using these interface.
2. Current status and coverage of total number of data products A) Volume and coverage of available data products If you don't use the provided sea-basin figures, please indicate why you do not use them, as from when, and what do you use instead and why?	EMODnet Physics organizes data and products according the disseminitation interface therefore the volume of data is not avaialble for each single item. Most of the EMODent Physics products have a global coverage. During the period we continued the re-organization of the products, the product naminig convention, the publication of products that are subset or super-sets of the already avaialble products (this is particularly evident under ERDDAP), hence we have 349 products in total while the previos report we counted 258 products. It is important to highligh that the number of new added products is one order less (about ten). This activity will continue during next months to find eventually the best organization to provide the user a series of products easilty identifiable at a level of granularity that let to report understandable figures in the indicators (e.g. from line 335 to line 398 may became a single item - mapviewer data, and have a sheet showing the interaction for each single platform page - which is a EMODnet Physics developed product)
	We are not using the sea-basin figures because for georeferred data we need a shape of the boundary area.
B) Usage of data products in this quarter	we are recording the use of all the tracked interfaces and endpoints. For some we are resolving per single item/product (Geoserver, ERDDAP and THREDDS) while products map visualization are collected all together and it is not possible to have fine details per item yet. As planned we started implementing the use of matomo for some pages (i.e. the ones that are listed in www.emodnet-physics.eu/map/products) and during the period we recorded 1325 (internal logs counted 1343 that are highly comparable) visits (1233 unique), wind page is by far the most viewd (1166 visits - 1099 unique), other products of interest are surface currents, wave and salinity (the new SMOS derived product). This results confirms that the way we are re-organizing the system and the tracking of the use of the system would provide interesting figures for indicators. Concenting the visualization of map products, line 335 to 398, we used the system logs and the figure includes duplicates (a platform that presents e.g. temperature and salinity is counted in both the products). Starting from next report we propose to report on "interface" use instead of providing figures for each single item. We do think that this aggregated figures is more interesting and clean for monitoring usage trends with the possibility to add comments about which are the most used products of the period.



3. Organisations supplying/approached to supply data and data products within this quarter	During the period the approached groups joined network and started making available data/products. EMODnet Physics data policy is very simple and well agreed by contributors. Data is open and free. For a limited set of data, EMODnet Physics is asking for authentication, before delivering downloads to users (who did the data request selection on the mapviewer). M2M and dissemination interfaces (ERDDAP, THREDDS, Geoserver) are not requiring any authentication and are delivering all the available data wothouth any restrictions.
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. Some of the data that are presented on the mapviewer require authentication (e.g. coastal data from European istitution - data older than 60 days). All linked datasets are unrestricted.
5. Statistics on information volunteered through download forms	During the period we added 70 new users giving information that is a very high value considering it is during the summer break. It is important to remember that the number of users here reported is only a limited number of the EMODnet Physics users and the form is asked to be filled only to users accessing for the first time to data that requires authentication (i.e. coastal data older than 60 days). The majority of EMODnet Physics data are downloadable without any authentication. We need also to correct the total number of users: an error in the extraction query filtered out 205 users - i.e. the total number for the previous period was 910, that now reached 980. Academia represents the majority about 50% in the period, about 58% overall, notably the users from business/private are keeping increasing (around 20%). Concerning the list of the users per country would be good to have the possibility to avoid to group per continents: the tracking tools resolve the ips vs country that would be the best level of information granularity to be reported.
6. Published use cases	Use cases are providing examples of how EMODnet Physics data can be used for both private and public downstream applications. The one about Wave Model (DHI) is by far the most read (617 total read, since it was published). It looks like that the EMODnet use case are helping advertising of such application and compnies, while promoting their services, are linking their users to the EMODnet cases. The team has recently provided the Secretariat with a three new user cases and we do encourage the publishing on the central portal (note: according Physics internal policy on use cases and in line with the evolition of the system



	towards a central system, we decided not to have use case on the thematic landing page) to let the users to use it to promote themsleves and, hence, EMODnet.
8.1. Technical monitoring	The TRUST-IT technical monitoring shows that the web portal is performing well and is responsive. We anyhow recorded and reported some days of problems on the GeoServer and GeoNetwork interfaces. As described under the "issues" section, we took mitigation measures and eventually fixed the issues.
8.2. Portal user-friendliness (Visual harmonization score)	The portal is processing towards the common visual harmonization recommendations as required and agreed during EMODnet SC and TWG, as well as it is including and removing any element (e.g. survey banner) as required by Secretariat.
9. Visibility & Analytics for web pages	EMODnet Physics mapviewer is by far the most used interface with an growing trend.
10. Visibility & Analytics for web sections	While the landing page number of unique visits per day is stable, we recorded an increase of interactions on the mapviewer. The average number of unique views is back to an average of about 5K unique visits per months that is a good indicator, although there is the potential to get back twice the number (see e.g. the peak it was recorded in early 2018). To this aim we are keeping investing effort in expanding the number of available datasets and keeping easining the access and download to these data.
11. Average visit duration for web pages	The metrics are in line with the users use of the EMODnet Physics sections: while they spend a limited time on the landing (background, news) they interact with the mapviewer and platform pages - these are the key emodnet Physics products confirming the importance of the EMODnet Physics team in keeping developing and updating them. We also note a peak in the access to the video page - this is likely due to the fact that we published the recordings of the Fishing for Data Workshop. We suggest to start centralizing the access to this kind of materials from the central portal (as for as the use cases) and have on the thematic landing pages just a list of news/links that redirect to the central system. This may represent (from the user point of view) a smooth step towards the centralization of the access to the systems.



The monitoring numbers reported as part of the progress monitoring of EMODnet performance are collected through Matomo. In some cases, numbers from other monitoring systems may also be reported (e.g. Awstats, Google Analytics), and if so, must be reported in the table above. Each system uses different technical approaches and therefore has its strengths and shortcomings. Therefore, results are indicative and care should be taken when interpreting absolute numbers or comparing results from different tools. It is often more sensible to consider trends over time collected by the same monitoring tool.



7. Annex: Other documentation attached

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