EMODnet Thematic Lot n° 3 -Physics

EASME/EMFF/2016/1.3.1.2-3, SI2.749411

Start date of the project: 29/03/2017 - (24 months)

EMODnet Phase III – Quarterly Progress Report (5)

Reporting Period: 01/04/2018 – 30/06/2018

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Contents

Disclaimer

1 Highlights during the reporting period

Provide a short summary of the key achievements and/or events of interest to a wider audience within this reporting period you wish to highlight. ***Please make sure that progress in each of the tasks specified in Section 1.4.1 of the Tender Specifications is covered. For those tasks not experiencing significant progress, please state so.*** *You can also consider the indicators or any other of the reporting sections.*

- EMODnet Physics, EMODnet Data Ingestion and EuroGOOS joint Workshop in Poland

Attenders were informed on the latest updates on ongoing initiatives and data management flow (EMODnet, EMODnet Physics, SDC, …) to motivate and support those potential data providers to release their datasets for safekeeping and subsequent freely distribution by means of the EMODnet Data Ingestion service[1]. One specific focus of the workshop was to present the OGC SWE joint SDC, EMODnet Physics and Data Ingestion pilot. A couple of potential new providers were identified and they are going to be followed up by the Physics/Data Ingestion teams.

- EMODnet Day Trieste

The EMODnet Day Italy was organized in three main session, a first one to present EMODnet, its lots and the Data Ingestion facility, a second session to let some selected user to show how they are using the EMODnet lots services (three of the four case where based on EMODnet Physics services) and the last session was an interactive session to exchange views and experiences, with roundtables on "Environment and tourism", "Impacts and marine litter", "Synergies between data from public and business sources to support the blue economy".

- European Geophysical Union Annual Assembly

The ESSI 1.1 session registered 24 abstracts and about half of them were focusing on EMODnet, and on EMODnet Physics and data flow/data management. Presenters gave an exhaustive overview of the state of art of needs and progresses to manage data flow for river runoff, animal born instruments, glider data, HFR data, etc. The session was attended by more than 70 people that proactively contributed to the discussion on how to improve the data exchange at international level. https://meetingorganizer.copernicus.org/EGU2018/session/26506

- SEAFUTURE 2018

EMODnet was presented (stand and oral presentation) at SEAFUTURE exhibition. The event was targeting maritime and marine operators, with a focus on navy and sea security operators. It registered more than 2000 visitors. It was a good opportunity to discuss with some potential end-users and one key feedback message is the interest of the operators in accessing wind data and products (from land platforms close to the coast) as easy as the other EMODnet Physics data.

[1]https://www.emodnet-ingestion.eu/internal_html/colloquium-eu-seadatacloud-sensor-web-enablement--how-to-join-european-operational-oceanography/41

Task 1. *Develop a common method of access to data held in repositories*
We completed the design of the data flow for providing both operational SPLs (Sound Pressure Levels) data and (simulated and calibrated) soundmaps for sub-sea-regions. Concerning the in situ river outflow operational data, we are working to extend the coverage to the Mediterranean Sea and Baltic Sea. By means of the developed data management infrastructure, it is already possible to offer forecast for river runoff. This information is particularly interesting for MFC services. By integrating more than 400 European tide gauge stations, the 290 Global Sea Level Observing System (GLOSS) core network, and more than 1,300 Permanent Service for Mean Sea Level (PSMSL), EMODnet Physics is offering one of the widest in situ data collections for sea-level data.

Task 2.*Construct products from one or more data sources that provide users with information about the distribution of parameters in time and space*
We completed the development of the Total Suspended Matter product that is now covering the whole European Sea Basins, and it is providing data for the period 2002 – 2016. We reorganized and updated the EMODnet Physics catalog (now based on GeoNetwork).

Task 3.*Develop procedures for machine-to-machine connections to data and data products*
The system was updated in order to interact with the new CMEMS DU. Moreover, 130800 CTD datasets are now discoverable in EMODnet Physics[2]. Each CTD is considered as an independent measurement. Geographically close recordings (less than 10Km) are grouped to be presented into the same platform-page.

Task 4.*Develop a web portal allowing users to find, visualise and download data*
The work on the data portal is continuing, e.g. we added a filter to manage/select the depth of the measurement, one more time filter to select platforms with at least one datasets recorded during past 30 days, the GNSS stations (from SONEL), both Arctic and Antarctic projections. We also updated the visualization framework to make the portal more responsive.

Task 5.*Ensure the involvement of regional sea conventions*
The EMODnet Physics team participated to the TG NOISE meeting in Bucharest (Romania) where it was possible to keep discussing about the interactions and synergies with running projects. The discussion on the possibility of EMODnet Physics to follow up on the sound scape mapping tools developed during the BIAS project is still undergoing.

Task 6.*Facilitate interoperability with data distributed by non-EU organisations*
In collaboration with EMODnet Data Ingestion, we are setting up interfaces to facilitate the interoperability between Russian National Oceanographic Data Center and EMODnet Physics.

Task 7. *Install a process to monitor performance and deal with user feedback*
Task 8.*Operate a help-desk offering support to users*
The monitoring process and the HD are operational. More info under Section 3

[2] http://www.emodnet-physics.eu/maptest/DefaultMap.aspx?sessionid=636656061609910096

2 Challenges encountered during the reporting period

Provide an overview of the main challenges encountered during the reporting period and the measures taken to address them, including those related to technical and data provision issues.

Main challenge	Measures taken
Increase the level of communication to end users	Start publications in dedicated journals (e.g. Modern Approaches in Oceanography and Petrochemical Sciences) and stronger contacts with end users (see Users Feedback and Communication activities).
Collection of data for indicators 6, 7, 10	These indicators are monitored by Trust-IT/Secretariat and the lots have not direct access to analytics. Where possible, we reported the data we were able to collect by available tracking tools (matomo or internal tools). We do believe that some of the indicators should not be included in the quarterly lots report: 5.2.2, 6.3, 6.4, 6.5, 7.1, 7.2.2, 10.2

Table 1. Challenges

3 User Feedback

List any useful feedback you received on your portal, your activities or those of other EMODnet projects/activities. Also provide any suggestions you have received for EMODnet case studies and/or future products/activities/events.

Date	Organization	Type of user feedback (e.g. technical, case study etc.)	Response time
03/04/2018	Nacionalni inštitut za biologijo	Technical – HFR data flow – update of Slovenian links	1 day feedback – waiting for them to link their new service
04/04/2018	Marine and Freshwater Research Institute	Technical – support to find and download CDIs from EMODnet Physics portal	1 day
09/04/2018	University - not specified	Technical – support to download temperature and salinity	1 day
18/04/2018	Istituto Hidrografico	Technical – request to correct some HFR metadata	1 day
24/04/2018	IFREMER - EuroARGO	Technical - request to change some EuroARGO metadata	1 day the first feedback, 1 week to fix it
26/04/2018	HZG	Technical – request for extending the HZG datasets in Physics	1 day the first feedback, working on the new fetching services
03/05/2018	EMODnet secretariat	Technical – the link to user guide was not working	2 days
03/05/2018	COWI A/S	Technical – support to find and download metocean (wave, wind) data	1 day
14/05/2018	PLASMAR project	Technical – support to download Mediterranean T and S data	1 day
07/05/2018	AZTI	Technical – missing data in Donostia Buoy	1 day to give preliminary feedback, 1 month to fix the data flow
14/06/2018	ACTIMAR	Technical – Support to data from Foxtrott Lightship (WMO #62170) *	1 day
25/06/2018	INTECMAR	Technical – to correct Xunta Galicia HFR metadata	1 day

Table 2.User Feedback

*) the request helped to identify a problem (duplication) in one of the CMEMS INSTAC product

During the SEAFEATURE event, we collected some requests for having more wind data at sea level, and to create a dedicated product.

4 Meetings held/attended since last report

List here the internal and external meetings held/participated by the contractant (e.g. meeting, conference, training (workshop), etc.) since the last quarterly report. Please add a short description on the meeting as well as the nature and volume of the audience. At the bottom of the table, provide the total number of events organised and events participated.

Date	Location	Type[3]	A/O	Title	Short description and main results (# participants, agreements made, etc.)
3/4/2018	web	Technical Meeting	O	EMODnet UWN	Internal – technical meeting to design the data flow for generating and making available soundmaps in Physics
5/4/2018	web	Technical meeting	O	Technical meeting with PANGAEA	External – technical meeting for better integration and visibility of EMSO data in Physics (PANAGEA is one of the EMSO DBs)
9-10/04/2018	Vienna, Austria	Conference	A	EGU	External – European Geophysical Union Annual Assembly.
9-10/04/2018	Vienna, Austria	Conference	O	EGU	External – EGU ESSI 1.1 (*), the session hosted many presentation on how to implement data management and data flow to make data available on EMODnet Physics
16-17/04/2018	Barcelona, Spain	Meeting	A	EMODnet DIP	Internal – EMODnet Data Ingestion annual assembly. During the meeting we presented the river, underwater noise and HFR data management as designed within EMODnet Physics and EMODnet Data Ingestion
25-26/04/2018	Sopot, Poland	meeting	A	SDC TWG	External – SeaDataCloud Technical Working Group. SDC and EMODnet Physics are collaborating on action to reduce the gap between the operational data streams and its long term stewardship.
26/04/2018	Sopot, Poland	workshop	O	EMODnet – SDN – SWE Workshop	External - Sensor Web Enablement - how to join European operational oceanography – the colloquium was intended to present data flow and data management of the major European infrastructures and facilitate the Polish institutes to join the network
8/05/2018	Web	Technical meeting	O	SOOS	External – technical meeting to develop further the collaboration and optimize the services from EMODnet Physics to SOOSmap
9-10/5/2018	La Spezia, Italy	workshop	A	CMRE WS big data	External – Marine Big Data Workshop. After introducing the EMODnet program

[3] meeting, training (workshop), etc.

					and lots in general we gave a focus on EMODnet Human Activities and Physics
12-14/05/2018	La Valletta, Malta	meeting	O	European Research Vessel Operators	External – EMODnet Physics and its features were presented to ERVO group. During the meeting we also discussed about synergies and ERVO were informed/invited to the planned EMODnet Physics workshop on Ferrybox
22-25/05/2018	Brussels, Belgium	Annual assembly	A	EuroGOOS GA	Internal/External – EuroGOOS Annual Assembly. State of art about EMODnet Physics and its interaction with the EuroGOOS partners were presented and discussed.
28-31/05/2018	Liège, Belgium	conference	A	50th Liege Colloquium	External – EMODnet Physics was presented (poster) at the 50th Liege Colloquium. The event was focusing on long-term studies in oceanography and we presented how to find and use long term data in EMODnet Physics
31/05/2018	web	Technical meeting	O	Glider WS organization	Internal – glider workshop organization committee meeting
5-7/06/2018	Seville, Spain	Technical meeting	A	CMEMS DR	External – Copernicus Marine Environment Monitoring Service Design Review meeting. During the meeting we also discussed about the interaction between the new CMEMS DU and Physics.
5-6/06/2018	Bucarest, Romania	meeting	A	TG NOISE	External – TG NOISE meeting.
8/06/2018	Trieste, Italy	workshop	O	EMODnet Day Italy	External – the workshop gave an overview of the state of art of EMODnet, its lots, the Ingestion facility and how some users are using the EMODnet data and services.
8/06/2018	Trieste, Italy	workshop	A	MEDCIS workshop	External – during the workshop we discussed the EMODnet products and data vs data flow for MSFD
19-22/06/2018	La Spezia, Italy	exhibition	A	SEAFUTURE	External – exhibition for maritime and marine operators. The exhibition is mainly addressed to navy and sea security operators. It registered more than 2000 visitors. **
22/06/2018	La Spezia, Italy	workshop	A	Session on - Understanding our marine universe: economic, scientific implications	External – oral presentation of the EMODnet program, projects with examples on some portal features and some case histories.
22/06/2018	Vigo, Spain	conference	A	EOF	External - international symposium on physical oceanography
20-22/06/2018	Oostende, Belgium	training	A	SDC training	External – participation to the SeaDataCloud operator training session
25-28/06/2018	Oslo, Norway	Technical meeting	A	CMEMS TWG	External – Copernicus Marine Environmental Monitoring Service technical working group meeting.

26-27/06/2018	Rome, Italy	meeting	A	JericoNEXT SC	External – JericoNext Steering Committee. Synergies with EMODnet Physics were discussed
23/06/2018	Davos, Switzerland	conference	A	Polar 2018	External – EMODnet Physics was proposed to be the INTAROS webmap engine.
27/06/2018	Davos, Switzerland	meeting	O	SOOS	External – technical meeting to discuss and plan EMODnet Physics developments for the SOOS community and SOOSmap
SUM of O			9		(Total # of meetings organised)
SUM of A			16		(Total # of meetings attended)

Table 3. Meetings

*) https://meetingorganizer.copernicus.org/EGU2018/session/26506

**) one key feedback from seafuture is the interest of the operators in accessing wind data and products (from land platforms close to the coast) as easy as the other EMODnet Physics data.

5 Outreach and communication activities

Please list all the relevant communication/outreach activities or products you have developed/executed during this period (including presentations, lectures, trainings, demonstrations, workshops, etc., and development of communication materials such as brochures, videos, press releases, newsletters, etc.). At the bottom of the table, provide a total number for every type of communication activity you have developed/executed (e.g. total # of press releases, total # of presentations given, etc.).

Date	Communication action/material	Short description (of the material, title, …) and/or link to the activity	Main results (# participants, # views, # press clippings, etc.)
9-10/04/2018	Oral presentation	EGU – ESSI 1.1 - EMODnet Physics: tackling new challenges. During the Q/A session EMODnet Physics was mentioned to be a very good example of a project that is asking data for re-distributing/re-sharing with added value services and products.	About 70 participants.
16-17/04/2018	Oral presentation	Data Ingestion annual – presentation of the EMODnet Physics with a focus on river, under water noise data flow	About 70 participants
26/04/2018	Oral presentation	Sensor Web Enablement - how to join European operational oceanography (*)	About 30 participants
9-10/5/2018	Oral presentation	Marine Big Data Workshop. After introducing the EMODnet program and lots in general we gave a focus on EMODnet Human Activities and Physics	About 30 participants
22-25/05/2018	Oral presentation	EuroGOOS Annual Assembly. State of art about EMODnet Physics	About 40 participants
28-31/05/2018	Poster presentation	50th Liege Colloquium (**)	More than 100 participants
08/06/2018	Oral presentation	EMODnet Day Italy (***)	About 60 participants
22/6/2018	Oral presentation	SEAFUTURE - Understanding our marine universe: economic, scientific implications	About 20 participants
22/05/2018	Oral presentation	Encuentro de la Oceanografía Física 2018. EMODnet Physics: the European Marine Observation and Data network for global oceanographic data aggregation (****)	About 50 participants

Table 4. Outreach

(*) https://www.emodnet-ingestion.eu/internal_html/colloquium-eu-seadatacloud-sensor-web-enablement--how-to-join-european-operational-oceanography/41
(**) http://labos.ulg.ac.be/gher/wp-content/uploads/sites/36/2018/05/Program2018real.pdf
(***) http://www.emodnet.eu/sites/emodnet.eu/files/public/News%20Items/emodnet%20programma_29maggio.pdf
(****) http://isms.gal/wp-content/uploads/2018/06/eof-orales.pdf

Relevant scientific and/or popular publications (scientific papers, book chapters, conference papers, …) you published or of which you know they have been published using/referring to EMODnet data or data products during this reporting period must also be reported here.

Date	type	Name of journal, conference, …	Publication title	Authors	Other info
2013	Conference	Bollettino di Geofisica teorica ed applicata, Vol. 54 Supplement, 2013	The HNODC Data & Information Management Services: Description & Recent Upgrades	Sissy Iona, Stavroula Balopoulou, Pelopidas Karagevrekis, Angelo Lykiardopoulos	IMDIS 2013, International Conference on Marine Data and Information Systems, 23-25 September, 2013 - Lucca (Italy)
2013	Conference	Book of Abstract: The Future of Operational Oceanography 2013	FerryBox Systems: State-of-the-art and Incorporation in European Observation Networks	Wilhelm Petersen	
2013	Conference	Bollettino di Geofisica teorica ed applicata, Vol. 54 Supplement, 2013	EMODNet Physical Parameters	A. Novellino, G. Manzella, D. Schaap, P. Gorringe, L. Rickards, S. Pouliquen	IMDIS 2013, International Conference on Marine Data and Information Systems, 23-25 September, 2013 - Lucca (Italy)
2013	Conference	EGU General Assembly 2013, held 7-12 April, 2013 in Vienna, Austria, id. EGU2013-3126	European Marine Observation and DataNetwork (EMODNET)-physical parameters: A support to marine science and operational oceanography	Dahlin, Hans; Gies, Tobias; Giordano, Marco; Gorringe, Patrick; Manzella, Giuseppe; Maudire, Gilbert; Novellino, Antonio; Pagnani, Maureen; Petersson, Sian; Pouliquen, Sylvie; Rickards, Lesley; Schaap, Dick; Tijsse, Peter; van der Horste, Serge	EGU 2013
2013	Conference	Book of Abstract: The Future of Operational Oceanography 2013	EMODNet – Physical Parameters	Patrick Gorringe, Antonio Novellino, Giuseppe Manzella, Dick Schaap, Lelsy Richards, Sylvie Pouliquen	IMDIS 2013, International Conference on Marine Data and Information Systems, 23-25 September, 2013 - Lucca (Italy)
2013	Report	RITMARE project Report, 2013	Rapporto tecnico-scientifico sullo stato dell'arte dei sistemi oceanografici operativi in Mare Mediterraneo e nei mari italiani con particolare riguardo ai sistemi osservativi	Ribotti, Alberto and Ciuffardi, Tiziana and Pes, Aandrea and Manzella, Giuseppe M.R. and Sparnocchia, Stefania	
2014	Conference	HF Radar Supporting Blue Growth in NW Europe: The Brahan Project, Lisbon, 28-30 October 2014	HF Radar Supporting Blue Growth in NW Europe: The Brahan Project	W.R. Turrell, B. Berx, A. Gallego, S. Hughes, R. O'Hara-Murray, J. Sanchez , B. Pereira , A. Alonso-Martirena	
2014	Conference	EGU General Assembly 2014, held 27 April - 2 May, 2014 in Vienna, Austria, id.5765	Knowledge base for growth and innovation in ocean economy: assembly and dissemination of marine data for seabed mapping - European Marine Observation Data Network - EMODnet Physics	Novellino, Antonio; Gorringe, Patrick; Schaap, Dick; Pouliquen, Sylvie; Rickards, Lesley; Manzella, Giuseppe	EGU 2014

2014	Conference	European HFR meeting Monday 27th October 2014, Lisbon	Introducing the EuroGOOS HFR Task Team and EMODnet	Patrick Gorringe	EuroGOOS meeting
2015	Conference	IEEE Conference Publications, 2015	European marine observation data network — EMODnet physics	Antonio Novellino; Paolo D'Angelo; Giacomo Benedetti; Giuseppe Manzella; Patrick Gorringe; Dick Schaap; Sylvie Pouliquen; Lesley Rickards	OCEANS 2015 - Genova
2015	Conference	EGU General Assembly 2015, held 12-17 April, 2015 in Vienna, Austria. id.8417	European Marine Observation Data Network - EMODnet Physics	Manzella, Giuseppe M. R .; Novellino, Antonio; D'Angelo, Paolo; Gorringe, Patrick; Schaap, Dick; Pouliquen, Sylvie; Loubrieu, Thomas; Rickards, Lesley	EGU 2015
2015	Conference	EGU General Assembly 2015, held 12-17 April, 2015 in Vienna, Austria. id.14714	European coordination for coastal HF radar data in EMODnet Physics	Mader, Julien; Novellino, Antonio; Gorringe, Patrick; Griffa, Annalisa; Schulz-Stellenfleth, Johannes; Montero, Pedro; Montovani, Carlo; Ayensa, Garbi; Vila, Begoña; Rubio, Anna; Sagarminaga, Yolanda	EGU 2015
2015	Journal	Data Science Journal, Volume 13, 27 January 2015	IBAMAR DATABASE: FOUR DECADES OF SAMPLING ON THE WESTERN MEDITERRANEAN SEA	A Aparicio-González, J L López-Jurado, R Balbín, J C Alonso, B Amengual, J Jansá, M C García, F Moyá, R Santiago, M Serra, M Vargas-Yáñez	
2015	Journal	Journal Geophysical Research, Volume 120, Issue 11	Anatomizing one of the largest saltwater inflows into the Baltic Sea in December 2014	U Gräwe, M Naumann, V Mohrholz, H. Burchard	
2016	Conference	Journal of Operational Oceanography . Volume 9, 2016 - Issue sup1: Operational Oceanography, Innovative Technologies and Applications. Pages s193-s201	An interlinked coastal observatory network for Europe	Stefania Sparnocchia, Michela Martinelli, Srdjan Dobricic, Rajesh Nair, Alessandro Crise, Patrick Farcy, Glenn Nolan, Joaquin Tintorè	Third Meeting of the Italian National Group for Operational Oceanography
2016	Conference	instrumentation viewpOint- 19 - MARTECH 16	SEVEN YEARS OF MARINE ENVIRONMENTAL CHANGES MONITORING AT COASTAL OOCS STATIONS (CATALAN SEA, NW MEDITERRANEAN)	Bahamon, N., Ahumada-Sempoal, M.A., Bernardello, R., Aguzzi, J., Gordoa, A., Carreras, G., Velasquez, Z., Cruzado, A.	MARTECH 2016
2016	Conference	4as Jornadas de Engenharia Hidrográfica, Lisboa, 21 a 23 de junho de 2016	Plataforma integrada WebSIG para apoio à gestão da emergência em eventos de inundação em estuários	A. Oliveira, J. Rogeiro, J.L. Gomes, P. Pinto, A. B. Fortunato, P. Freire, R. T., Costa, L. Sá, R. Pablo, A. Mendes	
2016	Conference	EGU General Assembly 2016, held 17-22 April,	EMODnet Physics: One-stop Portal to access	Novellino, Antonio; Benedetti, Giacomo;	EGU 2016

		2016 in Vienna Austria, p.3831	Multiplatform Observing Systems	D'Angelo, Paolo; Gorringe, Patrick; Thjisse, Peter; Schaap, Dick; Pouliquen, Sylvie; Manzella, Giuseppe	
2016	Conference	Ed. D. Farace and J. Frantzen, 104 – 111, 2016;	A semantic engine for grey literature retrieval in the oceanography domain.	S. Goggi, G. Pardelli, R. Bartolini, F. Frontini, M. Monachini, G. Manzella, M. De Mattei and F. Bustaffa:	Seventeenth International Conference on Grey Literature - A New Wave of Textual and Non-Textual Grey Literature. December 1st - 2nd 2015 at the Royal Netherlands Academy of Arts and Sciences in Amsterdam.
2016	Journal	Ocean Sci., 12, 909–923, 2016	Accessing diverse data comprehensively – CODM, the COSYNA data portal	Gisbert Breitbach, Hajo Krasemann, Daniel Behr, Steffen Beringer, Uwe Lange, Nhan Vo, and Friedhelm Schroeder	
2016	Journal	Harmful Algae, Volume 53, March 2016, Pages 40–52	Modelling the hydrodynamic conditions associated with *Dinophysis* blooms in Galicia (NW Spain)	Manuel Ruiz-Villarreal, Luz M. García-García, Marcos Cobas, Patricio A. Díaz, Beatriz Reguera	
2016	Journal	Ocean Engineering & Oceanography, Vol. 6, pp 31-46, 2016	The European Marine Data and Observation Network (EMODnet): Your Gateway to European Marine and Coastal Data	Jan-Bart Calewaert, Phil Weaver, Vikki Gunn, Patrick Gorringe, , Antonio Novellino	
2016	Newsletter	MERCATOR OCEAN JOURNAL 54, 2016	MAIN ACHIEVEMENTS FOR MYOCEAN IN SITU THEMATIC ASSEMBLY CENTER	S. POULIQUEN, et al	
2016	Report	CMEMS-INS-SRD	System Requirements Document	Carval Thierry, Chalkiopoulos Antonis, Perivoliotis Leonidas, De Alfonso Alonso-Muñoyerro Marta, Manzano Munoz Fernando, Jandt Simon, Ringheim Lid Sjur, Hammarklint Thomas, Marinova Veselka	
2016	Report	IFREMER IMN/IDM/ISI/TC/16-031, 30th May 2016	Catalogue of data and platforms at Network GDAC level, including the example of Copernicus In Situ TAC	Ifremer	
2016	Report	AtlantOS – 633211, D7.4, 2016	Data Management Handbook	V. Harscoat, S. Pouliquen	EU Atlantos project
2016	Report	IMARES Report C072/16	Collecting literature for identifying data sets and data sources	Pepijn de Vries, Jacqueline Tamis, Martine van den Heuvel-Greve, Peter Thijsse & Belinda Kater	IMARES Wageningen UR, Den Helder, 14 July 2016
2017	Book chapter	Oceanographic and Marine Cross-Domain Data Management for Sustainable edited by P.	Semantic Search Engine for Data Management and Sustainable Development: Marine Planning Service Platform.	G. Manzella, R. Bartolini, F.Bustaffa, P. D'Angelo, M. De Mattei, F. Frontini, M. Maltese, D. Medone, M. Monachini,	

		Diviacco, A. Leadbetter, H. Glaves, IGI Global,		A. Novellino and A. Spada:	
2017	Journal	Renewable Energy, Volume 101, February 2017, Pages 244–264	Assessing the European offshore wind and wave energy resource for combined exploitation	Christina Kalogeri, George Galanis, Christos Spyrou, Dimitris Diamantis, Foteini Baladima, Marika Koukoula, George Kallos	
2017	Journal	Marine Sciemce, 20 January 2017	HF Radar Activity in European Coastal Seas: Next Steps toward a Pan-European HF Radar Network	Anna Rubio, et al.	
2017	Conference	EGU General Assembly 2017, held 23-28 April, 2017 in Vienna, Austria. id.7113	EMODnet Physics in the EMODnet program phase 3	Novellino, Antonio; Gorringe, Patrick; Schaap, Dick; Pouliquen, Sylvie; Rickards, Lesley; Thijsse, Peter; Manzella, Giuseppe	
2017	Book chapter	Submerged Landscapes of the European Continental Shelf. Edited by Nicholas C. Flemming,Jan Harff,Delminda Moura,Anthony Burgess,Geoffrey N. Bailey	Chapter 6: The Northwest Shelf.	Keiran Westley	
2017	Conference	EGU General Assembly 2017, held 23-28 April, 2017 in Vienna, Austria. id.194371S	EMODnet High Resolution Seabed Mapping - further developing a high resolution digital bathymetry for European seas	Schaap, Dick M. A.; Schmitt, Thierry	
2017	Journal	neurocomputing	Ocean wave height prediction using ensemble of Extreme Learning Machine	Kumar et al	http://dx.doi.org/10.1016/j.neucom.2017.03.092
2017	Report	AtlantOS Deliverable, D9.2 . AtlantOS, 73 pp.	Web-based monitoring tool of the Atlantic Ocean observing system (Europe). .	Novellino, A., Fernandez, V. and Buch, E. and WP9 partners	DOI 10.3289/AtlantOS_D9.2.
2017	Report	CMEMS-INS-SRD	System Requirements Document (updated version of the 2016 report)	Carval Thierry, Chalkiopoulos Antonis, Perivoliotis Leonidas, De Alfonso Alonso-Muñoyerro Marta, Manzano Munoz Fernando, Jandt Simon, Ringheim Lid Sjur, Hammarklint Thomas, Marinova Veselka	DOI:10.13155/40846
2017	Report	AtlantOs meeting report 2017	Data flow and Data Integration - WP7	Harscoat Valerie, Pouliquen Sylvie	DOI: 10.13155/51745
2017	Report	JERICO NEXT D5.9	Report on data management best practice and Generic Data and Metadata models. V. 2.1 [Deliverable 5.9]	G Manzella, A Griffa, LP de la Villéon	https://www.oceanbestpractices.net/handle/11329/354

2017	Journal	GEOMEDIA - Open Journal System, V. 21, N. 5	European Marine Observations and Data Network EMODnet Physics	A. Novellino, P. D'Angelo	http://mediageo.it/ojs/index.php/GEOmedia/article/view/889
2017	Workshop	HELCOM report - - Sopot, Poland, 23-27 October 2017	HELCOM Working Group on the State of the Environment and Nature Conservation (STATE & CONSERVATION 7-2017)	A. Novellino	https://portal.helcom.fi/meetings/STATE%2520-%2520CONSERVATION%25207-2017-470/Documents/Presentation%252018%2520EMODNet%2520Physics.pdf
2017	Conference	OCEANS – Anchorage, 2017	Oceanobs a python package to analyze data from marine observatories	R. Bardaji, J. Piera, R. Bartolomé, J. Dañobeitia, O. Garcia	http://ieeexplore.ieee.org/document/8232303/
2017	Book chapter	Submerged Landscapes of the European Continental Shelf - John Wiley & Sons, 26 apr 2017 - 552 pages	Ch. 6 The North Western Shelf	K Westley	
2018	Workshop	EUROGOOS Meeting Feb 2018	EuroGOOS and EMODNet Physics Data Workshop	A. Leadbetter, P. Gorringe, A. Novellino	http://eurogoos.eu/events/4595/
2018	Journal	Neurocomputing Volume 277, 14 February 2018, Pages 12-20	Ocean wave height prediction using ensemble of Extreme Learning Machine	N. KrishnaKumar, R.Savitha, AbdullahAl Mamun	https://doi.org/10.1016/j.neucom.2017.03.092
2018	Newsletter	Challenger Society for Marine Science	Challenger Wave		https://www.challenger-society.org.uk/files/pagefiles/Documents/C%20wave/CWave_201805.pdf
2018	Conference	EGU 2018 ESSI1.1	EMODnet Physics: tackling new challenges	Patrick Gorringe and Antonio Novellino	https://meetingorganizer.copernicus.org/EGU2018/EGU2018-7770.pdf
2018	Conference	EGU 2018 ESSI1.1	Best practices in QA/QC	Catia Chiappini and Giuseppe M.R. Manzella	EGU2018-6821
2018	Conference	EGU 2018 ESSI1.1	Effortless Integration of Underwater Noise Measurements into EMODnet data portal through SensorWeb Standards	E. Martinez et al.	EGU2018-13103
2018	Conference	EGU 2018 ESSI1.1	The European common data and metadata model for real-time High Frequency Radar surface current data	L. Corgnati et al.	EGU2018-13317
2018	Conference	EGU 2018 ESSI1.1	Animal-borne instruments in EuroGOOS – EMODnet Physics	L. Boehme et al.	EGU2018-14307
2018	Conference	EGU 2018 ESSI1.1	SOOSmap brings circumpolar Southern Ocean data to a computer near you	P. Bricher et al.	EGU2018-15262
2018	Conference	EGU 2018 ESSI1.1	Multi-Platform Data Distribution Challenges from Observing Systems to Data Distribution	M.V. Charcos-Lloréns et al.	EGU2018-16380-1
2018	Conference	EGU 2018 ESSI1.1	An European initiative to provide operational river observations and forecasts	F. Campustano et al.	EGU2018-19688

2018	Journal	Modern Approaches in Oceanography and Petrochemical Sciences. 1(5)-2018. MAOPS.MS.ID.000124. Lupine Publisher	Emodnet Physics: Benefits from Marine Data Sharing	G.M.R. Manzella, A. Novellino, P. D'Angelo	http://www.lupinepublishers.com/maops/pdf/MAOPS.MS.ID.000124.pdf

Table 5. List of known publication using EMODnet data or products

6 Annex: Other documentation attached

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

6.1 WP1 – Project Management

The general objectives of WP1 are the project management and the coordination of all project activities ensuring timely delivery and high quality of documentation, tools, results and products. Project management includes the collaboration with the other EMODnet activities and involvement of regional sea conventions. This work package is including Task 5. Ensure the involvement of regional sea conventions.

Description:

- **SeaDataCloud, EMODnet Physics and EMODnet Data Ingestion joint Workshop in Sopot**

Attenders were informed on the latest updates on ongoing initiatives and data management flow (EMODnet, EMODnet Physics, SDC, …) to motivate and support those potential data providers to release their datasets for safekeeping and subsequent freely distribution by means of the EMODnet Data Ingestion service[4]. One specific focus of the workshop was to present the OGC SWE joint SDC, EMODnet Physics and Data Ingestion pilot. A couple of potential new providers were identified and they are going to be followed up by the Physics/Data Ingestion teams.

- **ESSI 1.1 Session @ EGU 2018**

The ESSI 1.1 session registered 24 abstracts and about half of them were focusing on EMODnet, and on EMODnet Physics and data flow/data management. Presenters gave an exhaustive overview of the state of art of needs and progresses to manage data flow for river runoff, animal born instruments, glider data, HFR data, etc. The session was attended by more than 70 people that proactively contributed to the discussion on how to improve the data exchange at international level.
https://meetingorganizer.copernicus.org/EGU2018/session/26506

- **EMODnet Day Italy**.

The EMODnet Day Italy was organized in three main session, a first one to present EMODnet, its lots and the Data Ingestion facility, a second session to let some selected user to show how they are using the EMODnet lots services (three of the four case where based on EMODnet Physics services) and the last session was an interactive session to exchange views and experiences, with roundtables on "Environment and tourism", "Impacts and marine litter", "Synergies between data from public and business sources to support the blue economy".

- **Follow up on the engagement of the RSCs and under water noise**

The EMODnet Physics team participated to the TG NOISE meeting in Bucharest (Romania) where it was possible to keep discussing about the interactions and synergies with running projects. The discussion on the possibility of EMODnet Physics to follow up on the sound scape mapping tools developed during the BIAS[5] project is still undergoing.

- **Under Water Noise**

We completed the design of the data flow for providing both operational SPLs (Sound Pressure Levels) data and (simulated and calibrated) soundmaps for sub-sea-regions. The following scheme shows the data flow scheme and the area out of Barcelona was identified to test and validated the method.

[4]https://www.emodnet-ingestion.eu/internal_html/colloquium-eu-seadatacloud-sensor-web-enablement--how-to-join-european-operational-oceanography/41

[5] https://biasproject.wordpress.com/abouttheproject/

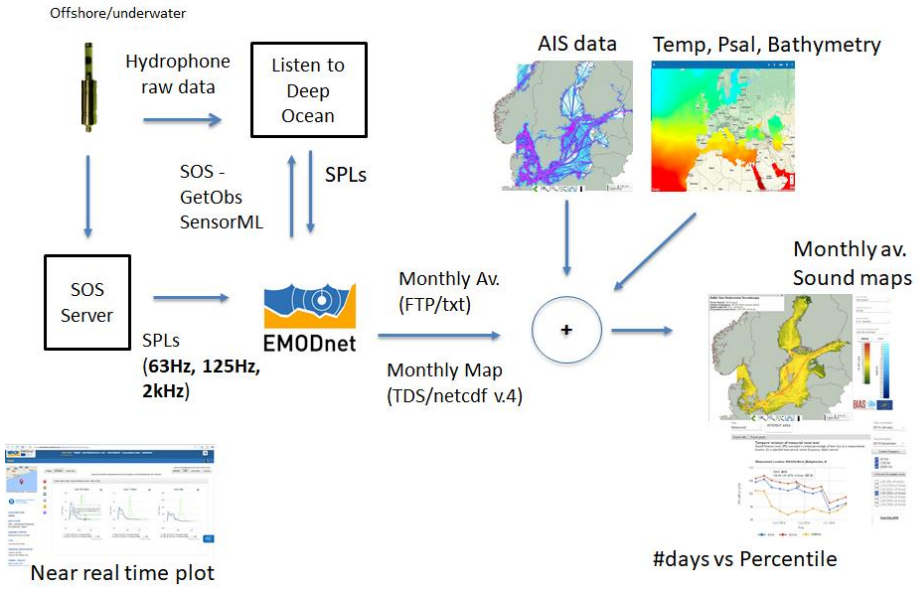

Figure 1. UWN data flow and scheme

- **River Data**

We completed the development of the Total Suspended Matter product that is now covering the whole European Sea Basins, and it is providing data for the period 2002 – 2016. This is closing the activity on the TSM product planned for this contract. The product can become operational (i.e. it can offer near real time data) once the developed method is updated to manage Sentinel 3 data. This activity can be planned and covered by the extension of the contract.

Concerning the in situ operational data, we are working to extend the coverage to the Mediterranean Sea and Baltic Sea. By means of the developed data management infrastructure, it is already possible to offer forecast for river runoff. This information is particularly interesting for MFC services. We planned to have a pilot for the Portuguese area and the extension of the service can be planned and covered by the extension of the contract/activities.

- **Sea Level**

By integrating more than 400 European tide gauge stations, the 290 Global Sea Level Observing System (GLOSS) core network, and more than 1,300 Permanent Service for Mean Sea Level (PSMSL), EMODnet Physics is offering one of the widest in situ data collections for sea-level data. Based on the PSMSL collection (updated @31/12/2017), EMODnet Physics is already making available maps of relative sea level trends, and during the period, the portal was updated with maps of absolute sea level based on the SONEL product. A layer with the GNSS stations (and links to see data from the SONEL system) is now integrated in the portal.

6.2 WP2 – Data Collection, Metadata Compilation, Data Access and Products

The objectives of WP2 are to identify specific additional data sources that contribute to the EMODnet physical parameters portfolio (Argo, profiling floats, gliders, radar, CTD from ships, river outflow, water noise, etc.), and reduce spatial and temporal gaps in cooperation and collaboration with the underlying EuroGOOS ROOSs, CMEMS INS TAC, and SeaDataNet NODCs infrastructures, as well as EMODnet Data Ingestion. Part of this activity is to develop EMODnet Physics services with user friendly interfaces for data and metadata uploading, data tracking and provide guidance and documents on preferred data, common data and metadata models. This WP is including Task 1. Develop a common method of access to data held in repositories, Task 2. Construct

products from one or more data sources that provide users with information about the distribution of parameters in time and space, and Task 6. Facilitate interoperability with data distributed by non-EU organizations.

Description:

EMODnet Physics is developing an **operational service where near real time and historical validated marine data are made interoperable and freely available.**

WP2.1 Expand the existing measurements from fixed and moving platforms

130800 CTDs (some are repeated CTDs so the actual number of dataset is much higher) are now discoverable in EMODnet Physics[6]. Each CTD is considered as an independent measurement. Geographically close recordings (less than 10Km) are grouped to be presented into the same platform-page. We started working on making available in Physics more historical datasets as validated by NODC (repeated measurement by means of moving platforms on the same positions). The integration of these datasets will start after the release of the new SDC CDI and data management interfaces (planned by January 2019)

WP2.2 closing the gap in data flow between operational repository and validated archives

- HFR radar data management

High Frequency Radar (HFR) have become a key tool for operational oceanography for monitoring the surface currents, waves and winds. An appropriate data description complying with accepted standards is crucial for ensuring discovery and access. EMODnet Physics and the other major European integrators and infrastructures (CMEMS, SeaDataNet) are supporting and promoting the outcome of the HFR Task Team activities.

Taking the opportunity of the EGU 2018, it was designed and published the European common data and metadata model Reference Card - all you need to know about HFR data harmonization at a glance. New providers and operators are welcomed to join the network and be supported to implement the European common data and metadata model for real-time High Frequency Radar surface current data: https://presentations.copernicus.org/EGU2018-13317_presentation.pdf

WP2.3. Include new parameters: inflow from rivers and sound

As already described in the previous section, the activity is processing in line with expectations and planning: we are working on 4 under water noise providers (from Spain) and we are extending the river outflow in situ operational station coverage (next area is Italian seas).

WP2.4. Collaboration with EMODnet Data Ingestion project

As planned, the Italian partners of the EMODnet lots (hence EMODnet Physics and Data Ingestion too) jointly organized the Italian EMODnet Day in Trieste. Other joint planned actions are:

- Glider Workshop Genoa (Italy) 18-21 September 2018: goal is to discuss and harmonize data management and facilitate interoperability
- FerryBox Workshop Genoa (Italy) 24-26 April 2019: goal is to discuss and harmonize data flow and facilitate interoperability

WP2.5: Metadata

Metadata are present and well linked in the portal. During the core meeting, we decided the portal to have more links with documentation (procedures, sensors, validation methods). The goal is to let the user to get in easy and fast way all the information about data source, data processing, applied QC/QF, etc. (data provenience). The new catalog is also providing links to the product documentation (or reference to scientific publications)

[6] http://www.emodnet-physics.eu/maptest/DefaultMap.aspx?sessionid=636656061609910096

WP2.6. Data access
To facilitate data discovery we reorganized both the EMODnet Physics Map menus and we reorganized and updated the EMODnet Physics catalog (that is now based on geonetwork).

WP2.7. Data Products
As discussed in previous sections, the activity was focused on the integration and development of the interfaces for the absolute sea level trends (SONEL) and total suspended matter (TSM). The relative sea level trends were updated to 31/12/2017 (synch with PSMSL). An operational wind at sea level product was developed and published.

6.3 WP3 – Portal technical Development and operation

The objectives of WP3 are to implement and extend the www.emodnet-physics.eu portal allowing users to find, visualize and download data and data products and their metadata. This includes the development of procedures for machine-to-machine connections to metadata, data and data products and services compatible with INSPIRE, EMODnet and OGS standards and requirements. The portal has also to develop monitoring tools of the website performance and usage. This WP is including Task 3. Develop procedures for machine-to-machine connections to data and data products, and Task 4. Develop a web portal allowing users to find, visualise and download data

Description:
We added a filter to manage/select the depth of the measurement, one more time filter to select platforms with at least one datasets recorded during past 30 days, the GNSS stations (from SONEL), both Arctic and Antarctic projections. We reorganized and updated the EMODnet Physics catalog (now based on GeoNetwork). We are planning to add more entries to the catalog and have it as a tool to easily find/shortcut to EMODnet Physics datasets and products. We updated some EMODnet Physics products to fit the EMODnet Central portal needs/specifications.

As planned, we developed and published the test interface and it is available @ http://www.emodnet-physics.eu/maptest/ where user can preview and comment some coming/under development features. During next period, we are going to add the FAQ page.

WP3.2 EMODnet Physics machine-to-machine (M2M) and interoperability features
The CMEMS INS TAC is developing a new dashboard/map portal and in order to avoid duplication of effort it is planning to make use of the EMODnet Physics interoperability services. To make it easier and fast, EMODnet Physics was asked to update the "widget" service. We are planning to release the new service in July to let CMEMS INS TAC to integrate it by the end of the summer.

WP3.3 interoperability with data distributed by non-EU organizations
The EGU session confirmed that EMODnet Physics is developing and making available services according the most recent standards and interoperability requirements. Users are particularly appreciating the fact that EMODnet Physics is asking and linking data from all over the globe for integrating and redistributing purpose and thus facilitating the daily work of the scientific community.

6.4 WP4 – Analysis Evaluation and Feedback

WP4 is aimed at reporting effectiveness of the system in meeting the needs of users and other EMODnet portals, assess the robustness of the developed information system and operate help desk to deal with user feedback and need for support. This WP is including Task 7. Install a process to monitor performance and deal with user feedback, Task 8. Operate a help desk offering support to users.

Description:

The system is collecting usage and traffic (number of hits, amount and type of data used, etc.) to fill and match the required Indicators.

Access and use of the Help desk facility: during this period, we registered 12 requests (Table 2); some of these were collected by direct mails (i.e. not by using the help desk service).

Information about users: Table 6 is presenting data as collected for the past three months (1/4/2018-30/6/2018) from/about authenticated users. To note that this is only a limited subset of the portal traffic.

Organisation type	**% users**	**tot users Organisation type**	**Main use cases and application areas**
Academia/Research	65,00%	39	Marine and Coastal - tot: **35**
			Climate, Seasonal and Weather Forecasting - tot: **20**
			Marine Resource - tot: **9**
			Maritime Safety - tot: **4**
Business and private Company	11,70%	7	Marine and Coastal - tot: **6**
			Maritime Safety - tot: **2**
			Climate, Seasonal and Weather Forecasting - tot: **2**
			Marine Resource - tot: **1**
Government/Public Administration	11,70%	7	Marine and Coastal - tot: **7**
			Climate, Seasonal and Weather Forecasting - tot: **3**
			Maritime Safety - tot: **2**
			Marine Resource - tot: **1**
Non profit	8,30%	5	Marine and Coastal - tot: **4**
			Marine Resource - tot: **2**
			Climate, Seasonal and Weather Forecasting - tot: **1**
Other	3,30%	2	Marine and Coastal - tot: **2**
		60	

Table 6. Users and their interest (05/07/2018)

7 New monitoring indicators

Please consult and fill in the designated excel template.

Indicator 1 – Volume and Coverage

Indicator 1.1 is presenting an incomplete figure of the volume and coverage of the data available in EMODnet Physics, in particular the figure for Temperature and Salinity are not counting yet about 130.000 (repeated) CTDs, Sea Level is not counting the PSMSL and SONEL stations yet. In other words, the total amount of available data is much higher.

Indicator 2 – Organisations supplying data and data products

For Physics is not possible to report according the proposed table, we are using the same table we were using for the past reports in which we list the Organization (provider) the country, the platform and the themes.

Concerning the products the main provider for EMODnet Physics are:

- Mercator Ocean/Copernicus Marine Environment Monitoring Service
- SeaDataCloud (the T&S climatology is a product developed during the project by the joint effort of several SDN partners)
- PSMSL, provided and maintained by NERC BODC (UK)
- SONEL, provided and maintained by the University of La Rochette (France)
- MEOP, provided and maintained by MEOP (the data management is coordinated by University of St. Andrew – Scotland and University of Stockholm)
- Global Runoff Data Center – hosted by the Federal Institute of Hydrology (BfG) Germany
- Impulsive Noise registry – hosted by ICES (Denmark) on behalf of OSPAR and HELCOM.

Indicator 3 - Organisations that have been approached to supply data with no result

Nothing to report

Indicator 5 – Number and coverage of built data products

Indicator 5.2.1 - We redesigned the EMODnet Physics catalog and the preliminary version is going to be published in July. It will be updated continuously to list all the available products and datasets. The snapshot of the catalog is also included in the annex excel file.

Indicator 5.2.2 – we only report on EMODnet Physics data.

Indicator 6 – Portal & Social Media visibility

Besides the reporting the data as provided by Trust-IT (to note that if data is missing it means that we did not received it in time), the following stats were extracted by the Matomo analytics

Page views		Trend	Unique page views		Trend	Exit Rate
Last Report	Actual Report	%	Last Report	Actual Report	%	%
	19.647			12.192		37

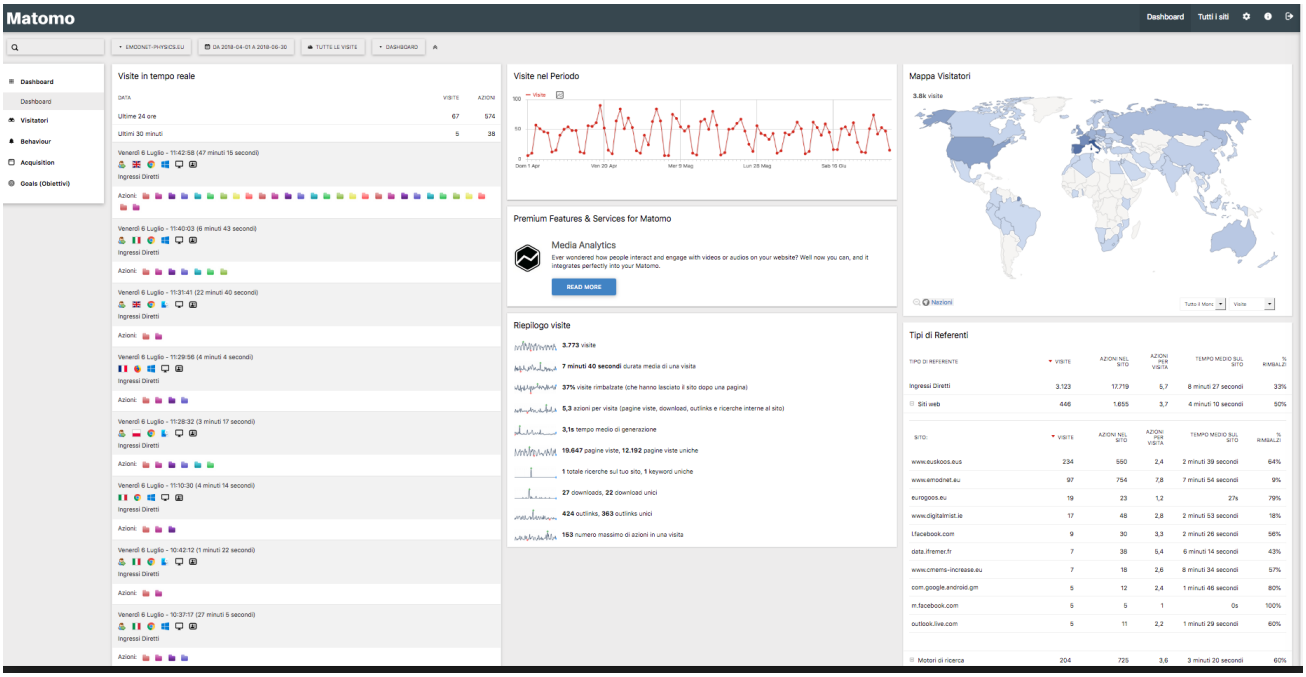

Figure 2. Matomo analytics for the period 01/04/2018 – 30/06/2018

Mamoto recorded 3773 visits while our internal tracking system counted 3444 visits (landing page). Given that we are filtering out our IPs from the stats the two figures are coherent.

The following tables report on our internal monitoring system for the period 01/04/2018 – 30/06/2018:

Page name	Last report	Actual report	trend
Landing Page	4051	3444	-15%
Map Page	1978	5511	+279%

Indicator 7 – Technical Monitoring and portal user-friendliness

Indicator 7.2.1 – the average duration of the visit (MATOMO) is 7 minutes and 40 seconds (period 01/04/2018-30/06/2018).

Indicator 7.2.2 – Visual harmonization score. The EMODnet lots do not monitor this data; the monitoring is performed by TRUST-IT. According the last analysis outcome (steering committee) EMODnet Physics was only missing the favicon that has been updated accordingly.

Indicator 8 - List of web-services made available and organisations connected through these

Service	Description	Examples
PermaURL	All platforms	http://www.emodnet-physics.eu/map/platinfo/piradar.aspx?platformid=10273 http://www.emodnet-physics.eu/map/platinfo/pidashboard.aspx?platformid=10273 Service description @ http://www.emodnet-physics.eu/map/spi.aspx
API REST/SOAP	Latest 60 days of data	www.emodnet-physics.eu/map/Service/WSEmodnet2.aspx www.emodnet-physics.eu/map/service/WSEmodnet2.asmx
OGS WMS, WFS, WCS	Postgresql + Geoserver	geoserver.emodnet-physics.eu/geoserver/web examples and service description @ www.emodnet-physics.eu/map/service/GeoServerDefaultWMS www.emodnet-physics.eu/map/service/GeoServerDefaultWFS
THREDDS (OpenDAP, WMS, WCS)	Latest 60 days + HFR data + Ice	thredds.emodnet-physics.eu/thredds/catalog.html
ERDDAP	Latest 60 days	erddap.emodnet-physics.eu
Widgets	All plots	www.emodnet-physics.eu/Map/Charts/PlotDataTimeSeries.aspx?paramcode=TEMP&platid=8427&timerange=7

Indicator 8.2.2 – Usage of data and data products per interface and per theme. For this reporting period, data products per themes are counted in continuity with the previous period. Starting from now we are going to use the new catalog items to count and report on themes and the use of the interfaces.

Indicator 8.2.3 – External Data Products – here we are considering only the external data products on which EMODnet Physics does not do any action (we make them available as they are without any further feature), e.g. the Impulsive Noise Registry (HELCOM and OSPAR) is managed and maintained by ICES and EMODnet Physics integrates and presents it as it is.

Indicator 10 - Published use cases and number of readings

Indicator 10 is managed by the Trust –IT/Secretariat, lots have not direct access on the statistics for this indicator.