EMODnet Thematic Lot n° 06 - Physics

11th Bi-monthly Report

Reporting Period: 01/05/2015 – 30/06/2015

Date: 05/07/2015

Contents

• Highlights in this reporting period

- *Official start of the Copernicus Monitoring Environment Monitoring Service (CMEMS)*
- *joint data management strategy agreement between EuroGOOS - EMODnet Physics, CMEMS.INSTAC, AtlantOS, Jerico-Next*
- *a series of meetings with JCOMMPS for completing missing metadata were planned*
- *specific action to include more glider data started*

• **Work package updates**

WP1 – Project Management

Objectives:
- To manage and to coordinate all project activities, ensuring timely delivery and high quality of results and products

1st May 2015 the Copernicus Monitoring Environment Monitoring Service (CMEMS) officially started and besides the others it includes the Copernicus Marine that took over the legacy of the MyOcean and MyOcean2 projects and results turning it into an operational service.

MyOcean was the implementation project of the GMES Marine Core Service, deploying the first concerted and integrated pan-European capacity for Ocean Monitoring and Forecasting. MyOcean 2 project was enhancing and strengthening the services developed in MyOcean both for forecasting and re-analysis activities. Within these projects, the in-situ TAC was designed to fulfil the needs of the GMES Marine Core Service, first, and the Copernicus Marine Service, later, as well as to empower the EuroGOOS regional systems (ROOS). The MyOcean in-situ TAC developed the operational tools to gather and carry out quality control in a homogeneous manner on oceanographic operational data.

Nowadays the in-situ TAC comprises a global in-situ centre and 6 regional in-situ centres. The focus of the in-situ TAC is on parameters that are presently necessary for GMES Monitoring and Forecasting Centres namely temperature, salinity, sea level, current, chlorophyll / fluorescence, oxygen and nutrients. Additional parameters such as wind and waves are added by some ROOSes to these regional in-situ portals to fulfil additional downstream applications needs.

The advent of the Copernicus Marine that turned the MyOcean activities from a project perspective to sustained service represents an important achievement that guarantees the regional data assembly and harmonization.

EMODnet Physics and Copernicus Marine always worked together to avoid duplication and empower the infrastructure and while Copernicus Marine is supporting the activity of gathering and carry out quality control in a homogeneous manner on data to support the Copernicus programme needs, EMODnet Physics in collaboration with EuroGOOS is attracting and unlocking new and better data and new data originators. The EMODnet Physics is also focused in making these data discoverable, accessible and downloadable and usable by new and more users and stakeholders.

The advent of the CMEMS also requested a new approach on the Single Sign On – unified log in to access to both near real time data and historical validated datasets hosted at the National Oceanographic Data Centres – SeaDataNet network level.

Each infrastructure proposes a license agreement and the two licenses are available on the web[1], the following table try and summarize some key elements:

	SeaDataNet	CMEMS - Service Level Agreement (SLA)
Written in	2007	2015
scope	aimed at striking a balance between the rights of investigators and the need to widespread access through a free and unrestricted of SDN data, metadata and products	aimed at outlining the range and level of services that the Copenicus Marine Service (CMEMS) supply to the user
Parties	The Licensor[2] grants to the Licensee a non-exclusive and non-transferable licence to retrieve and use data sets and products from the SeaDatanet service in accordance with this licence	This Licence Agreement is a legal agreement between the Licensee and MERCATOR OCEAN and sets out the terms for use of the Copernicus Marine Service Products which will apply to the Licensee. Use of the Copernicus Marine Service Products means that the Licensee agrees to abide by all of the terms and conditions in this Licence
Data policy	SeaDataNet makes data available freely and without restriction. "Freely" means at no more than the cost of reproduction and delivery, without charge for the data itself. "Without restriction" means without discrimination against, for example, individuals, research groups, or nationality	costs are fully covered by the CMEMS as provided for in the Copernicus Regulation until the end of the CMEMS (31/12/2020). CMEMS service and products are free of charge to the user until this date.
Confidentiality	Not declared	user enquiry is treated as commercially confidential by and not transmitted outside the CMEMS[3]
Service access validation	SDN defines roles, according the role the accessibility to data is different. The roles are attributed by the NODCs of the user's country (or user-desk by default) after on line registration. Name, email and professional references are mandatory	Personal data are linked to the generation of the login, password is encrypted and invisible by the service other information with the regards to the organization etc are for internal statistics purpose. User has a right to access and correct his/her personal data validated the CMEMS service desk
Data distribution	meta-data are freely accessible without any condition. As soon as the registration is filled the user receives a temporary license and role to access not restricted data As soon as the NODC assign the role, the user can access to assets according the assets access rights and the "role" of the user.	As soon as the SLA is validated by the service desk, the user receives a login and password to access products
Data delivery delay	SeaDataNet data delivery is managed by RSM in a delayed mode: e ach CDI record indicates the	data is downloadable as soon as login is done

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[1] CMEMS - http://marine.copernicus.eu/web/27-service-commitments-and-licence.php;
SeaDataNet - http://www.seadatanet.org/content/download/3899/29604/file/SeaDataNet%20Data%20Policy%20.pdf
[2] the licensee is very well described by the "roles", the licensor is less clear
[3] in application of the Dir 95/46/EC of EP and Dir 2002/58/EC on data protection.

	condition of access of the associated dataset as set by the data set provider. Combined with user registered role as user this will determine whether user will get direct access, whether access will be denied to user, or whether user will have to await further consideration of your request by the data set provider. This can be observed in the RSM. Note that user request might concern several data set providers Once the user has right to access data he has to manually download data from each NODC within 30 days since the data request (then data is not available any longer unless the user post a new data request)	download scripts –shortcuts are allowed as well as machine-to-machine data fetching robots
Dataset updates	SeaDataNet data remains dependent on data contributions	Service is operational and new data is delivered on daily base or delayed mode (according data type)
Permissions and liability	non-exclusive and non-transferable licence Retrieval, by electronic download, and the use of Data Sets is free of charge, unless otherwise stipulated. SeaDataNet and the data source do not accept any liability for the correctness and/or appropriate interpretation of the data.	This Licence is granted free of charge. non exclusive, royalty free, perpetual licence
Citation	Users must acknowledge data sources (in particular for scientific publications) Data Users should not give to third parties any SeaDataNet data or product without prior consent from the source Data Centre.	The Licensee will communicate to the public the source of the products and services by crediting the CMEMS[4] Copernicus Monitoring Environment Monitoring Service Credits shall be clearly visible on the home page of the Licensee's website or at least on the page allowing to access to the products.
Distribution	Data Users should not give to third parties any SeaDataNet data or product without prior consent from the source Data Centre	User can make and use such reasonable copies of Copernicus Marine Service Products for internal use and back up purposes; modify, adapt, develop, create and distribute Value Added Products or Derivative Work from Copernicus Marine Service Products for any purpose; redistribute, disseminate any Copernicus Marine Service Product in their original form via any media.

[4] In application of the Regulation (EU) n° 1159/2013 of the 12 July 2013 supplementing Regulation (EU) n°911/2010 of the European Parliament and of the Council on the European Earth monitoring programme,

WP2 – Data Collection, Metadata Compilation and QA/QC

Objectives:
- To implement access to data and metadata from the data sources identified in EMODnet Physics
- To identify specific additional data sources that contribute to the EMODnet physical parameters portfolio (Argo profiling floats (Euro-Argo), gliders, radar, etc)
- To arrange that identified data sources become available *via* the underlying EuroGOOS ROOSes, MyOcean, and SeaDataNet infrastructures with common metadata and data formats. Arrange the data availability from other international programmes (Euro-Argo) through MyOcean *in situ* global component
- To validate the coverage and to complete the EDIOS metadata directory and standardised station index
- To establish and give guidance on common data and metadata models for complimentary data suppliers

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Table 2[5] shows the operational platforms that provided at least one dataset for the past 60 days (for further details see Annex 1). Operational platforms provide data time series as soon as data is ready – e.g. a fixed platform is delivering data daily, an ARGO is delivering almost weekly -

Table 1	drifting buoys (DB)	ferrybox (FB)	gliders (GL)	fixed buoys or mooring time series (MO)	profiling floats vertical profiles (PF)	Argo Floats (AR)	Radar (HR)	Total
Jul-Aug 2014	54	8	10	670	28	651		1421
Sep-Oct 2014	60	10	12	723 (*)	35	651		1491
Nov-Dec 2014	35	6	1	666	26	490		1220
Jan – Feb 2015	68	16	13	725	57	679		1628
Mar – Apr 2015	36	13	0	671	77	414	7 (**)	1218
May – Jun 2015	1420	21	2	656	172	752	7	3030

(*) some duplicates were discovered and fixed
(**) covering 3 macro-areas

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[5] http://www.emodnet-physics.eu/map/dashboard/Section3.aspx minus http://www.emodnet-physics.eu/map/dashboard/Section17.aspx

Table 3 shows further operational platforms already in the system but with incomplete metadata (e.g. data provider)

Table 2	drifting buoys (DB)	ferrybox (FB)	gliders (GL)	fixed buoys or mooring time series (MO)	profiling floats vertical profiles (PF)	Argo Floats (AR)	Radar (HR)	Total
	1374			24	70	339		

Some historical datasets (validated under the SeaDataNet network of NODCs) are available under EMODnet Physics[6].

The following table reports the available platforms per Sea Region:

Table 4[7]	Wave & Winds	Temp.	Salinity	Currents	Light Attenuation	Sea Level	Atmospheric	Others	Chemical	
Artic, Barents, Greenland, Norwegian Sea	9	266	47	5	3	38	235	75	83	761
Atlantic, Bay of Biscay, Celtic Sea	119	1447	560	148	17	183	523	601	107	3705
Baltic Sea	26	52	30	20	5	98	17	22	16	286
Black Sea	1	28	21	0	0	13	5	27	5	100
Global Ocean	52	1770	431	11	0	5	708	531	71	3579
Mediterranean Sea	118	353	167	198	29	147	61	201	70	1344
North Sea	166	97	44	56	6	271	42	46	22	750
Other (e.g. Land platforms)	0	6	2	1	0	28	4	22	2	65
TOTAL	**491**	**4019**	**1302**	**439**	**60**	**783**	**1595**	**1525**	**376**	**10590**

Note: table 4 is reporting the full data set (table 2 + table 3) and historical data.

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[6] http://www.emodnet-physics.eu/map/dashboard/Section17.aspx
[7] http://www.emodnet-physics.eu/map/dashboard/Section2SeaRegion.aspx (report WP2.3)

WP 3 Metadata aggregation, Data access and Data products

Objectives:

- To compile aggregated metadata with common format and quality for the EMODnet Physics portal
- To implement/create access to data sets and to compile aggregated data sets with common format and quality for the EMODnet Physics data products
- To generate products from the metadata and aggregated data sets

The activity of integrating datasets with incomplete metadata (table 3) is continuing in collaboration with JCOMMOPS (JCOMM in situ Observing Platform Support Centre).

JCOMMOPS maintains information on relevant data requirements for observations in support of GOOS, GCOS and the World Weather Watch of WMO as defined by the appropriate international scientific panels and JCOMM Expert Teams and Groups and routinely provides information on the functional status of the observing system. It also encourages platform operators to share data and distribute it in real-time and gives technical assistance with satellite data acquisition, automatic data processing and Global Telecommunication System (GTS) distribution of the data.

JCOMMPS is representing the focal point to keep track of the open ocean platforms and so it is hosting and managing the international registry for ARGOs, gliders, research ships, DBCP (data buoy cooperation panel) , GLOSS (global sea level stations), etc.

During next periods new meetings are planned to complete the activity.

A specific action to include more glider data also started. At the moment only a very little amount of the glider data information is available and accessible because the community (well represented by the finished GROOM project) has a problem with data formatting and manpower: they defined the new EGOnc format (i.e netcdf file for European Gliders), but they are missing software tools to produce it from manufacturer's files. On top of this they are still working on reliable QC algorithms.

We also started studying available sea level data to try and discuss sea level trends.

WP 4 Portal technical development and operation

Objectives:

- To implement the existing EMODnet Physics website with new services
- To keep the website and portal services operational, including monitoring

During the period the development of some new data portal data access and data discovery features started. The following picture show a preliminary version of the new features (filters and time range selection). The activity will continue during next period.
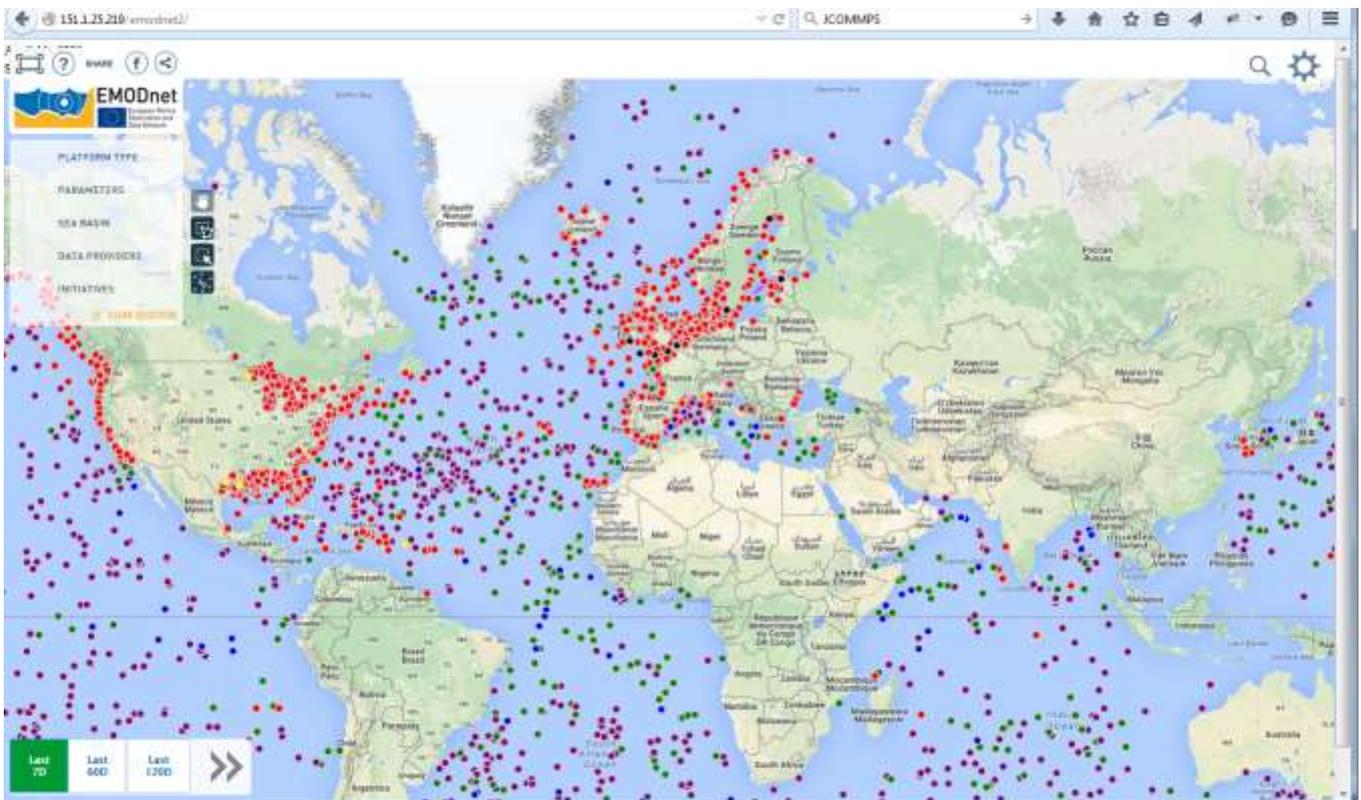
Figure 1 – map page under development

WP 5 Analysis, evaluation and feedback

Objectives:

- To report on the effectiveness of the system in meeting the needs of users and other EMODnet portals
- To analyse what further steps need to be taken for improvement, expansion and sustainability
- To assess the operationality of the EMODnet Physics portal Information System; Validate the services of the portal

GEO project WS – after the EMODnet presentation there was a discussions on the need for observing systems and the need for free availability of data and how that can be made sustainable in the future which underlined the importance for having data producers make their data available and accessible.

There is an increasing request for data in csv and acsii for multiple uses and to make opportunity ships data – CTD/XBT accessible and downloadable.

Originators are generally happy to make their data visible and accessible via EMODnet, what would help them very much is a sort of procedure, system to certify their data for different use in accordance with the European directives and recommendations: if EMODnet can somehow certify the data use and create meta-products almost ready to fulfil directives, originators can sow to Member States that their data are fundamental and the same data creates many products (or reports) and so we create a win-win loop in which Member States can better support EMODnet and in turn they get back useful services.

• Specific challenges or difficulties encountered during the reporting period

Nothing to be highlighted for the reporting period

• 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	Name	Organization	Type of user feedback (*e.g. technical, case study etc)*	Response time to address user request
24/6	Sara Almeida	Instituto Hidrográfico	Technical – incorrect metadata	1 day
11/6	Helene Pineau	Actimar	Technical – incorrect QF on L09 and K14 buoys	Still under verification
10/6	Sabine Schmidt	CNRS	Technical – incorrect platforms metadata	2 days

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● **Outreach and communication activities**

Please list all the relevant communications activities or products you have developed/executed during this period (including presentations, lectures, trainings, demonstrations and development of communication materials such as brochures, videos, etc.). Relevant scientific and/or popular articles you know have been published using/referring to EMODnet should be reported under indicator 11 in Section 7.

Dissemination and outreach		
When	What	note
18-20 May 2015	Ocean 2015, Genoa, Italy	Oral presentation
28-29 May 2015	European Marine Days, Athens, Greece	
10-12 June 2015	Sea Level Workshop, Mallorca, Spain	Oral presentation
15-16 June 2015	9th GEO European Projects WS, Copenhagen, Denmark	Oral presentation

To mention that DHI published a new brochure for their updated Mediterranean Wind – Wave Model and they mentioned and acknowledged EMODnet for enabling them to find more and better data.

THE MODELLING SYSTEM

The MWM database is the result of a modelling chain implementation which benefits of two state-of-the-art models for atmospheric modelling (WRF-ARW, a widely used non hydrostatic model, open source) and wave modelling (MIKE 21 SW, developed by DHI and widely used in thousands of offshore and coastal applications worldwide).

Several technical and scientific challenges have been addressed in the production of the database:

- the computational effort for simulating a long term analysis at high resolution, which required the use of a powerful HPC infrastructure;
- the huge storage capacity needed to save both wind-wave parameters and wave energy spectra;
- the implementation of complex and robust procedures for model validation, data handling and simulation control.

Probability Scatter Plot of Hs (Significant Wave Height) - comparison of model data vs satellite
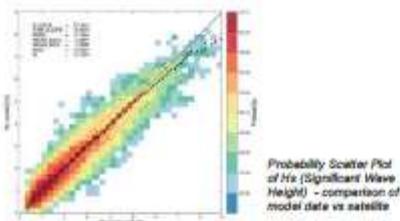
AVAILABLE PRODUCTS

- 35 years of historical data (1979 – 2014);
- wind and wave parameters (wind speed and direction, wave height, direction and periods);
- spectral data (available on a 0.1° grid for the whole Mediterranean Sea);
- time series to be used as boundary conditions of local scale wave models;
- ordinary and extreme wind and wave conditions;
- statistical processing of data;
- specific products and analyses at higher resolution upon request.

Estimation of significant wave height from satellite altimeter data
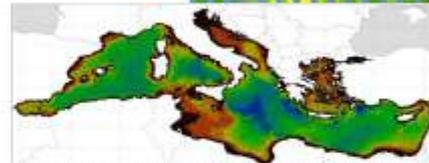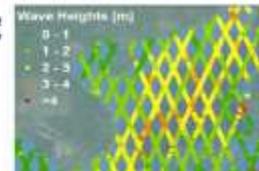
Bathymetry data on a flexible mesh of the Mediterranean Sea

MWM'S STRENGTHS

Compared to other available hindcast datasets, MWM has a number of features which makes it the main reference in the Mediterranean sea, in particular:

- the high resolution (up to 0.03° for the wave model, never lower than 0.1° for both wind and wave models) allows a proper simulation of local dynamics;
- the specific calibration based on measured data (available through EMODnet - European Marine Observation and Data Network - www.emodnet-physics.eu/map);
- the validation against satellite data over the entire Mediterranean Sea, through robust and innovative procedures;
- state-of-the-art numerical models, worldwide used in thousands of applications;
- the technical support from our team of experts;
- data readily available

NOT ONLY HISTORICAL DATA

In addition to the historical (hindcast) database, a forecast service for wind and wave in the Mediterranean Sea is also available. The system can be activated upon request and configured according to specific requirements.

DHI is an international research and consultancy organization which has operated for more than 50 years in the "world of water", from mountain river basins to surface and groundwater flows, from coastal and marine environments to technological networks, with specific competence in numerical modelling.
HyMOLab (Hydrodynamics and Met-Ocean Laboratory) is a structure of "Department of Engineering and Architecture of the University of Trieste". The HyMOLab group of researchers has operated for years within the fields of naval and met-ocean engineering, with self owned software and High Performance Computing facilities (HPSC).

For additional information, see: www.dhi-italia.it or write to dhi-italia@dhi-italia.it

The expert in **WATER ENVIRONMENTS**

• **Updates on Progress Indicators**

The Physics portal provides data from different platforms with specific set of parameters which can be classified into different time periods:

Latest data → freely available up to 60 days   (automatic quality check/flag procedures)
Recent data → organized in monthly data files (post 60 days, automatic quality check/flag procedures[8], requires user registration)
Long Term time series data → organized one data file for platform (automatic quality check/flag procedures, requires user registration)
Historical validated data → organized in CDI - dataset files hosted by NODCs (validated data[9], requires user registration).

The information for each of these types of information is summarized in the tables below each indicator listed.

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[8] http://www.emodnet-physics.eu/map/ARH/QualityCheck/recommendations_for_rtqc_procedures_v1_2.pdf
[9] Validated according the SeaDatanet Quality Check procedure -
http://www.seadatanet.org/content/download/18414/119624/file/SeaDataNet_QC_procedures_V2_%28May_2010%29.pdf

Indicator 1 - Volume of data made available through the portal[10]

parameter group	Waves and winds	Water Temperature	Water Salinity/ Conductivity/ Density	Currents	Light Attenuation/ Absorption/ Fluorescence/ Back Scattering	Sea Level	Atmospheric Parameters	Other Parameters	Chemical Parameters
Number of platforms providing operational data for latest 60days	251	2422	944	55	17	410	1003	992	259
Number of platforms providing operational data	291	3578	1159	71	25	510	1540	1326	349
Number of platforms providing historical validated data	171	407	132	365	35	368	39	164	17

1. *Summary table of all the available data (latest, recent, long term and validated historical) by Country, Organization, Platform type and Data availability*
   ➔ see Annex I

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[10] Databases connected to the system is the number of providers

2. Summary of recent data availability (how much data in last month)

The following image shows the how many platforms are operationally delivering data – daily figure (more details in the Annex)
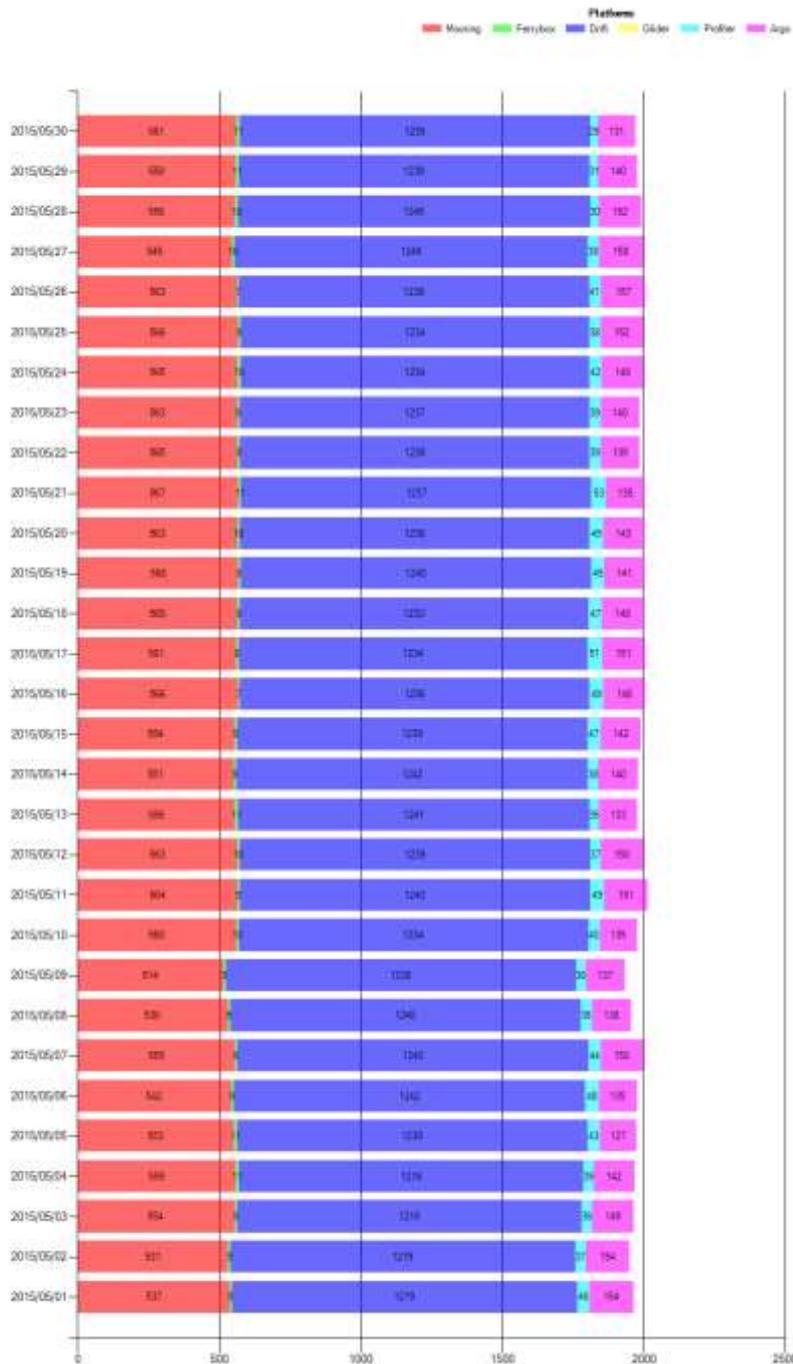
Figure 2 – May 2015
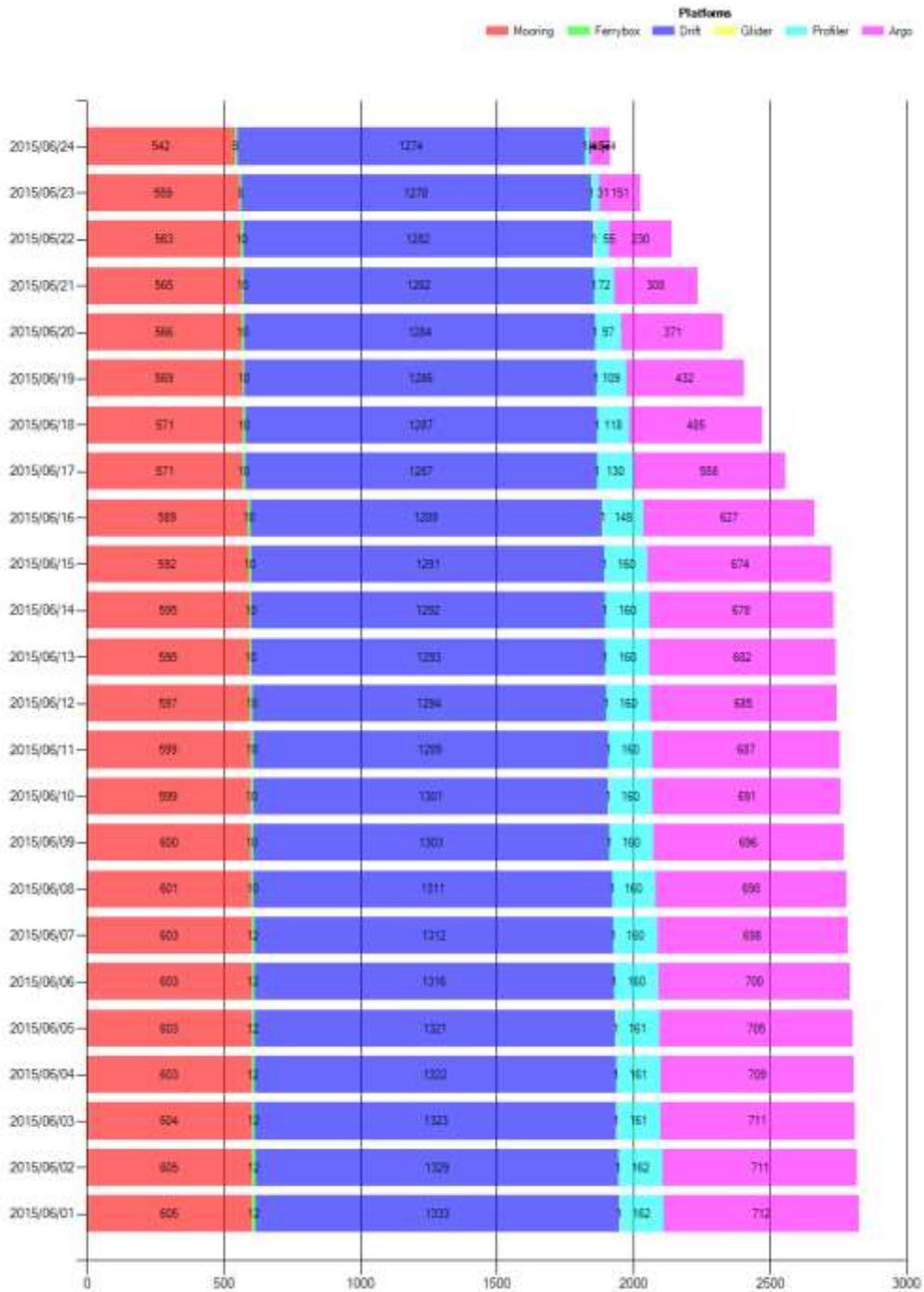
Figure 3 – June 2015 - Argos – drifter data are usually delivered within 5 and 7 days

The following figure shows the number of monthly files available per month per platform type (since January 2014) – to note that ARGO monthly files are released around half of the month.
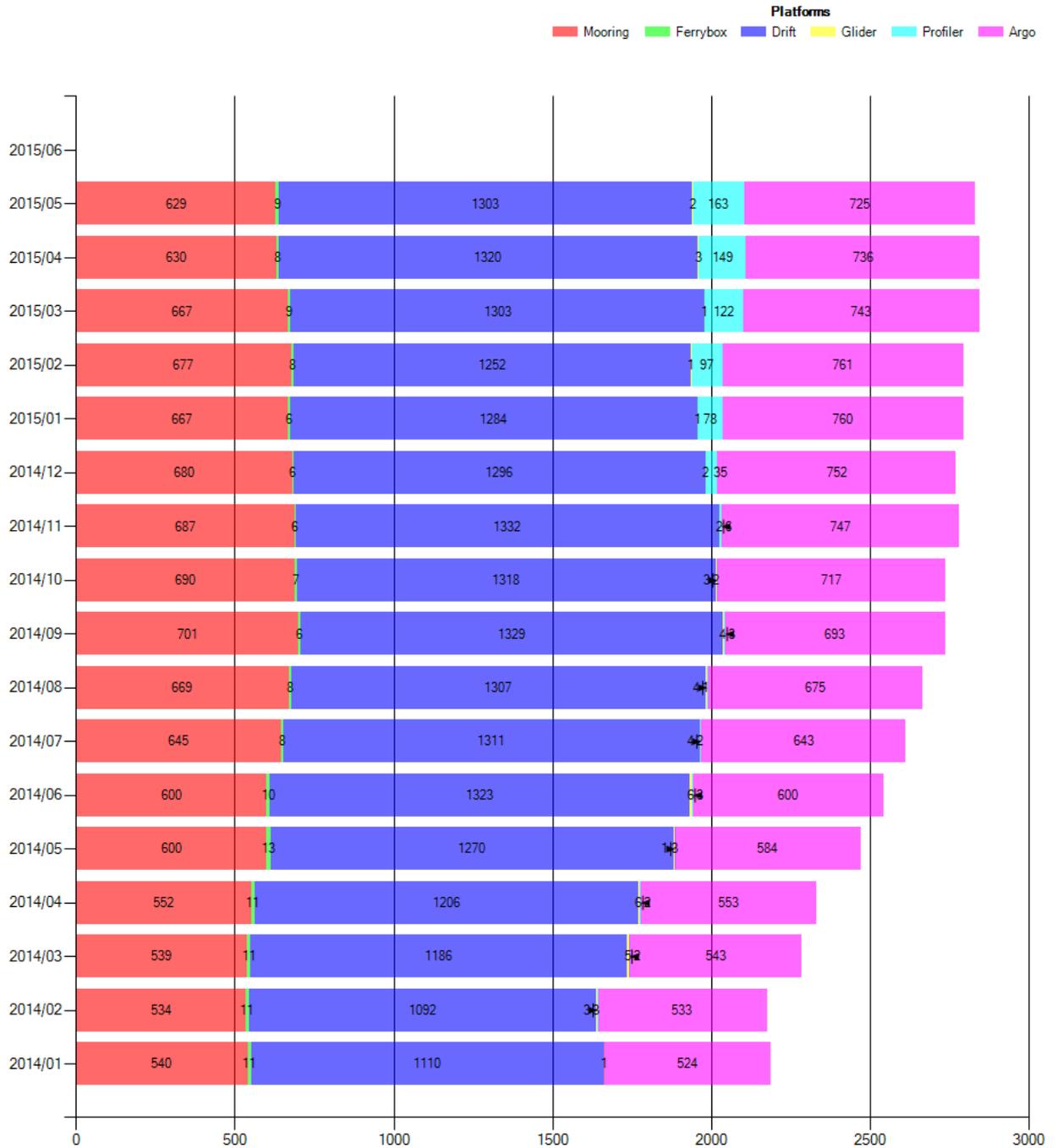
Figure 4 – recent data

2. *Summary table of platforms linked to historically validated datasets.*

The following table shows the figure for the historical datasets validated by the SeaDataNet - NODC network and made available/selectable via EMODnet Physics

	Number of platforms	number of datasets (CDIs)
December 2014	795	11450
February 2015	795	11450
April 2015	881	12046
June 2015 (*)	878	11757

(*) some duplicates were cleaned

To download data the user has to have either the SeaDataNet or MarineID login and password.

Indicator 2 – Organizations supplying each data type[11]

➜ See Indicator 1.1

Indicator 3 – Organization that have been approached to supply data

A specific interaction was started with the Malta in order to access both the HF Radar data.

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[11] Groups partner involved in the EMODnet Physics project are different from groups hosting and providing data from the same institute: all contributors are "non" partners.

Indicator 4 – Volume of each data type download from portal

Tracking and identification of the downloads from the portal is a work in progress. Currently the number of data request per country is used as a metric to provide a reference to the monitor activity. Tracking is limited to the IP.

1. Recent data download requests

Country	via Web Services	via Map Portal[12]	Total
Australia	2	0	2
Belgium	481	23	504
Canada	36	0	36
China	85	0	85
Denmark	0	18	18
Egypt	1	1	2
Estonia	0	1	1
Europe	2	2	4
France	74	8	82
Germany	346	30	376
India	2	0	2
Ireland	0	10	10
Italy	5681	50	5731
Japan	1	0	1
Korea, Republic of	5	0	5
Norway	0	4	4
Poland	0	2	2
Portugal	910	21	931
Russian Federation	64	4	68
Spain	1	17	18
Sweden	0	4	4
United Kingdom	1	6	7
United States	199	1	200
Total	**7891**	**202**	**8093**

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[12] www.emodnet-physics.eu/map

2. Summary of data download requests

	Artic, Barents, Greenland, Norwegian Sea	Atlantic, Bay of Biscay, Celtic Sea	Baltic Sea	Black Sea	Global	Mediterra nean Sea	North Sea	All sea Areas	Total
Australia	0	0	0	0	2	0	0	0	**2**
Belgium	1	410	0	0	1	2	95	5	**514**
Canada	0	0	0	0	34	0	2	0	**36**
China	0	0	0	0	85	0	0	0	**85**
Denmark	1	5	0	0	1	0	11	0	**18**
Egypt	0	0	0	0	1	1	0	0	**2**
Estonia	0	0	1	0	0	0	0	0	**1**
Europe	0	2	0	0	2	0	0	0	**4**
France	0	1	0	0	72	0	2	9	**84**
Germany	0	6	15	0	328	0	38	0	**387**
India	0	0	0	0	2	0	0	0	**2**
Ireland	0	22	0	0	0	0	0	3	**25**
Italy	0	47	0	0	75	5605	52	10	**5789**
Japan	0	0	0	0	1	0	0	0	**1**
Korea, Republic of	0	0	0	0	5	0	0	0	**5**
N.D.	0	48	3	0	2	421	240	154	**868**
Norway	0	0	0	0	0	0	4	0	**4**
Poland	0	0	0	0	0	0	0	3	**3**
Portugal	0	931	0	0	0	0	0	0	**931**
Russian Federation	0	0	0	0	59	0	3	6	**68**
Spain	0	3	0	0	1	13	0	4	**21**
Sweden	0	0	0	0	0	1	1	3	**5**
United Kingdom	0	0	0	0	1	5	0	3	**9**
United States	0	1	0	0	188	0	7	0	**196**
	2	**1476**	**19**	**0**	**860**	**6048**	**455**	**200**	**9060**

3. Most downloaded platforms[13]

Platform	Download	Web service	Total
AjaccioTG	2	76	78
61001	3	75	78
LeixoesTG	3	74	77
61197	3	73	76
61284	3	73	76
1900848	0	75	75
VigoTG	1	74	75
CNR-ISMAR-Head-office	0	73	73
61021	4	69	73
68422	1	71	72
61289	2	70	72
61022	3	69	72
61002	1	70	71
61295	1	70	71
6901836	2	69	71
6901839	2	69	71
6901491	2	69	71
6901822	2	69	71
6901823	2	69	71
6901835	2	69	71
6901879	2	69	71
6901818	2	69	71
62931	0	70	70
6900659	0	70	70
6100536	0	69	69
6100538	0	69	69
62907	0	69	69
62910	0	69	69
62932	0	69	69

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[13] http://www.emodnet-physics.eu/map/dashboard/ReservedAreaSection6.aspx

The following table is ordered by the most manually downloaded

Platform	Download	Web service	Total
62147	46	0	46
62164	41	0	41
62166	40	0	40
Anasuria	40	0	40
61198	10	0	10
RibeTG	7	0	7
64046	5	0	5
SocoaTG	4	60	64
61021	4	69	73
RON-CIVITAVECCHIA CIVI0	3	0	3
Frederikshavn	3	0	3
StornowayTG	3	0	3
61294	3	0	3
61277	3	0	3
ATHOS	3	0	3
SodraOstersjon	3	0	3
44623	3	0	3
62500	3	0	3
6901148	3	0	3
6901168	3	0	3
62052	3	0	3
Offshore area - NSP Survey B and CTD Site CK	3	6	9
W1M3A	3	60	63
SantanderTG	3	60	63
CIVITAVECCHIA CIVI0	3	66	69
61022	3	69	72
61197	3	73	76
61284	3	73	76
LeixoesTG	3	74	77

4. Validated historical data (CDIs) requests

The EMODnet Physics has recently been updated with new services to allow users to request historical validated data via CDIs.

The tracking and associated report are still under development.

5. Long term time series data requests

The EMODnet Physics is also providing some re-grouped and reanalyzed historical dataset. These datasets are not validated according the very detailed procedure defined within the NODCs network, and they consists of packages of data that from near real time delivery are grouped into one file for a certain time period.

Country	History
Belgium	2
France	3
Germany	3
Ireland	1
Italy	5
Not Defined	66
Poland	1
Russian Federation	2
Spain	3
Sweden	1
United Kingdom	2
Total	**89**

Indicator 5 – Organization that have downloaded each data type

➔ see indicator 4

Indicator 6 – Using user statistics to determine the main pages utilized and to identify data products being used

1. Monthly portal views as reported by Google Analytics

Portal	Visits	visit duration (average)	Page views	New visitors	New visitors %
June 2013	325	03:51	740	190	58%
July 2013	284	02:01	466	185	65%
August 2013	242	02:26	486	143	59%
September 2013	280	01:29	458	192	69%
October 2013	385	02:21	783	270	70%
November 2013	355	02:26	688	260	73%
December 2013	311	02:42	658	211	68%
January 2014	272	01:57	505	166	61%
February 2014	377	04:00	1007	191	50%
March 2014	342	02:06	686	191	56%
April 2014 (1st-18th)*	210	02:35	465	115	55%
April 2014 (18th-30th)	124	06:38	627	64	51%
May 2014	579	05:33	2014	191	33%
June 2014	282	03:49	685	155	57%
July 2014	188	01:40	347	110	58%
August 2014	190	01:55	492	105	55%
September 2014	280	03:02	705	160	67%
October 2014	280	02:54	693	133	65%
November 2014	462	02:44	1237	252	55%
December 2014	315	02:16	671	176	56%
January 2015	294	02:47	664	159	54%
February 2015	293	02:19	536	168	57%
March 2015	263	02:07	479	146	55%
April 2015	230	01:42	416	147	64%
May 2015	249	04:08	1103	147	51%
June 2015	211	02.43	490	117	55%

(*) 18th April the new EMODnet Physics landing portal was published

Map Page	Visits	visit duration (average)	Page views	New visitors	new visitors %
November 2013	247	09:41	1210	42	17%
December 2013	263	11:37	1520	55	21%
January 2014	345	10:20	1671	38	11%
February 2014	426	08:38	2031	130	31%
March 2014	502	06:29	2005	176	35%
April 2014	440	06:27	1452	162	36%
May 2014	582	05:32	2040	193	33%
June 2014	534	05:37	2102	188	39%
July 2014	432	08:31	2724	128	30%
August 2014	334	07:20	2514	102	33%
September 2014	554	06:36	3869	158	31%
October 2014	442	07:42	4533	136	31%
November 2014	590	07:08	5726	209	35%
December 2014	669	05:57	5118	316	47%
January 2015	684	07:29	6458	306	45%
February 2015	559	05:32	5160	232	41%
March 2015	893	05:38	7486	524	59%
April 2015	713	05:44	6583	444	62%
May 2015	1112	03.51	6338	796	71%
June 2015	965	02:40	4670	733	76%

(map page was not monitored before November)

2. Demography and Location of visitors

Table A – landing page visitors (May 2015 – June 2015)

	Language	Sessions	% New Sessions	New Users	Bounce Rate	Pages / Session	Avg. Session Duration
		211	55.45%	117	62.56%	2.32	00:02:43
1.	it	45(21.33%)	37.78%	17(14.53%)	62.22%	3.31	00:04:05
2.	en-us	39(18.48%)	79.49%	31(26.50%)	74.36%	1.67	00:00:57
3.	it-it	18(8.53%)	55.56%	10(8.55%)	55.56%	1.61	00:01:03
4.	fr	17(8.06%)	52.94%	9(7.69%)	58.82%	2.12	00:00:58
5.	de	13(6.16%)	53.85%	7(5.98%)	38.46%	2.46	00:04:52
6.	en-gb	13(6.16%)	76.92%	10(8.55%)	46.15%	2.77	00:03:15
7.	pt-br	12(5.69%)	100.00%	12(10.26%)	100.00%	1.00	00:00:00
8.	sv	11(5.21%)	0.00%	0(0.00%)	54.55%	2.27	00:07:41
9.	es	9(4.27%)	77.78%	7(5.98%)	55.56%	2.11	00:03:07
10.	es-es	6(2.84%)	33.33%	2(1.71%)	66.67%	1.33	00:00:05
11.	nl	6(2.84%)	33.33%	2(1.71%)	33.33%	5.00	00:08:39
12.	pt-pt	6(2.84%)	16.67%	1(0.85%)	50.00%	4.50	00:01:40
13.	sv-se	3(1.42%)	33.33%	1(0.85%)	33.33%	1.67	00:10:27

Table B – map page visitors (May 2015 – June 2015)

	Language	Sessions	% New Sessions	New Users	Bounce Rate	Pages / Session	Avg. Session Duration
		965	75.96%	733	65.60%	4.84	00:02:40
1.	(not set)	523(54.20%)	99.62%	521(71.08%)	98.09%	1.02	00:00:09
2.	en-us	105(10.88%)	68.57%	72(9.82%)	17.14%	16.26	00:05:03
3.	it-it	73(7.56%)	26.03%	19(2.59%)	35.62%	4.45	00:06:09
4.	it	57(5.91%)	21.05%	12(1.64%)	29.82%	8.25	00:10:17
5.	fr	41(4.25%)	53.66%	22(3.00%)	19.51%	14.22	00:05:14
6.	es	27(2.80%)	51.85%	14(1.91%)	22.22%	5.70	00:02:56
7.	en-gb	24(2.49%)	62.50%	15(2.05%)	41.67%	5.08	00:04:54
8.	sv	17(1.76%)	0.00%	0(0.00%)	35.29%	4.06	00:06:45
9.	de	16(1.66%)	62.50%	10(1.36%)	25.00%	8.56	00:03:23
10.	pt-pt	14(1.45%)	57.14%	8(1.09%)	28.57%	8.36	00:06:51
11.	es-es	13(1.35%)	69.23%	9(1.23%)	38.46%	4.15	00:01:00
12.	nl	6(0.62%)	50.00%	3(0.41%)	16.67%	12.67	00:03:29
13.	sv-se	6(0.62%)	33.33%	2(0.27%)	33.33%	3.33	00:00:58
14.	de-de	5(0.52%)	80.00%	4(0.55%)	20.00%	5.60	00:02:55
15.	fr-fr	5(0.52%)	20.00%	1(0.14%)	80.00%	2.20	00:00:36
16.	ca	4(0.41%)	75.00%	3(0.41%)	0.00%	6.25	00:01:26
17.	da	4(0.41%)	25.00%	1(0.14%)	25.00%	11.50	00:13:26
18.	el	4(0.41%)	75.00%	3(0.41%)	0.00%	11.75	00:11:47
19.	el-gr	4(0.41%)	50.00%	2(0.27%)	0.00%	21.00	00:06:17
20.	en	2(0.21%)	100.00%	2(0.27%)	50.00%	6.00	00:08:30
21.	gl-gl	2(0.21%)	50.00%	1(0.14%)	0.00%	3.50	00:03:24

Annex I

Indicator 1 - Volume of data made available through the portal[14]

The EMODnet Physics portal makes available the following data type:

- **Latest data** → freely available up to 60 days   (automatic quality check/flag procedures)
- **Recent data** → organized in monthly data files (post 60 days, automatic quality check/flag procedures[15], requires user registration)
- **Long Term time series data** → organized one data file for platform (automatic quality check/flag procedures, requires user registration)
- **Historical validated data** → organized in CDI - dataset files hosted by NODCs (validated data[16], requires user registration).

The following table lists the full data availability, in particular it lists the typology of platform (MO= mooring buoy/fixed platform; FB=ferrybox; GL= glider, DB = drifting buoy, AR = Argo), whether it is providing data (NRT true/false), recent data time coverage (from to) and number of files (if the first number is lower than the second there are temporal gaps in the monthly data files; if the first number is higher than the second the platform hosts different data acquisition sets – e.g. Arkona), long term time series files (from to), if there are historical validated data for that platform (CDI) in SeaDataNet-NODCs network (from to, and the number of available CDIs covering the specified time range).

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[14] Description:
(NRT) Latest data → freely available up to 60 days   (automatic quality check/flag procedures)
Recent data → organized in monthly data files (post 60 days, automatic quality check/flag procedures[14], requires user registration)
Long Term time series (TS) data → organized one data file for platform (automatic quality check/flag procedures, requires user registration)
Historical validated data → organized in CDI - dataset files hosted by NODCs (validated data[14], requires user registration).

[15] http://www.emodnet-physics.eu/map/ARH/QualityCheck/recommendations_for_rtqc_procedures_v1_2.pdf

[16] Validated according the SeaDatanet Quality Check procedure -

http://www.seadatanet.org/content/download/18414/119624/file/SeaDataNet_QC_procedures_V2_%28May_2010%29.pdf

Summary table of all the data (latest, recent, long term and validated historical) by Country, Organization, Platform type and Data availability[17]

Country	Data provider	Platform	Type	Data assembly center	Recent data From - To	Recent data #files	Long term TS From - To	CDI dataset ID - validated historical data From - To	CDI dataset ID #files	NRT true/ false

See the ExcelFile – "EMODnetPhysics_Annex"

Where N.D. means that metadata or data is not available yet or it is under check procedure.
M: YY/XX → if YY = XX there are no temporal gaps in monthly time series

Annex II

The following table indicates how much data was delivered by each platform, if the value is lower than 60 it means that there are gaps into the data platform temporal time series.

Number of daily files per platform in the last month[18]

Country	Data provider	Platform code	Number of daily files in last two solar month (last updated/mm/yyyy)

See the ExcelFile – "EMODnetPhysics_Annex"

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[17] http://www.emodnet-physics.eu/map/Dashboard/Section1.aspx

[18] each platform delivers data on daily base which is added to a daily file, after one month the daily files are reorganized and grouped in a monthly file. http://www.emodnet-physics.eu/map/Dashboard/Section13.aspx

Organizations Acronym

AE	Amoco Exploration - Aberdeen - United Kingdom
AIRFORCE	General Office for Air Force Meteorology - Italy
APAT	APAT - Agency for Environmental Protection and Technical Services - Italy
APATVENICE	APAT of Venice - ex Istituto Idrografico e Mareografico di Venezia - Italy
AWI	AWI - The Alfred Wegener Institute - Germany
BANGOR	University of Wales - School of Ocean Sciences - United Kingdom
BODC	British Oceanographic Data Centre - United Kingdom
BSH	BSH - Bundesamt für Seeschifffahrt und Hydrographie - Germany
CALABRIA	Regione Calabria - Italy
CEAB	CEAB – Centre d'Estudis Avançats de Blanes - Spain
CEFAS	CEFAS - Centre for Environment, Fisheries & Aquaculture Science - UK
CETMEF	CETMEF - Centre d'etudes techniques maritimes et fluviales - France
CMR	CMR - Christian Michelsen Research - Norway
CMRE	CMRE - Centre for Maritime Research and Experimentation - Italy
CNRISMAR	Institute of Marine Science U.O.S. of Pozzuolo di Lerici (SP) - Italy
CNRSCOM	CNRS - Center of Oceanology of Marseille - La Seyne Sur Mer - France
CNRSCPPM	CNRS - Center for Particle physics of Marseilles - IN2P3 - CPPM - France
COSTADYN	Center Dynamics of the Nearshore Zone
CUGRI	University Centre for the Prediction and Prevention of Major Hazards - Italy
CYPRUS	Cyprus Oceanography Center - Cyprus
DAFSAML	Department of Agriculture and Fisheries for Scotland - Aberdeen Marine Laboratory - United Kingdom
DAMSA	DaMSA - Danish Maritime Safety Administration - Denmark
DCA	Danish Coastal Authority, Ministry of Transport and Energy
DELTARES	Deltares - Nederland
DISAT	DISAT - Department of Structural, Water and Soil Engineering - Italy
DMI	DMI - Danmarks Meteorologiske Institut - Denmark
ENELCRIS	ENEL SPA - Centro Ricerca Idraulica e Strutturale (CRIS) - Servizio Idrologico - Italy
ENSTA	ENSTA - Ecole Nationale Superieure des Techniques Avancees - France
EPA	EPA - Environmental Protection Agency, Department of Marine Research - Lithuania
ESEOO	ESEOO - Establecimiento de un sistema Espanol de oceanografia operacional - Spain
ESTADO	Puertos del Estado - Spain
EUSKALMET	Euskalmet- Basque Goverment - Spain
FMI	FMI - Finnish Meteorological Institute - Finland
GEES	University of Birmingham School of Geography Earth and Environmental Sciences - United Kingdom
GEODNA	Iv Javakhishvili Tbilisi State University, Centre of Relations with UNESCO Oceanological Research Centre and GeoDNA (UNESCO) - Georgia
GTUGIH	Georgian Institute of Hydrometeorology of Georgian Technical University - Georgia

HCMRIO	Hellenic Centre for Marine Research, Institute of Oceanography (HCMR/IO) - Greece
HIDROGRAFICO	Instituto Hidrografico - Portugal
HPA	HPA - Hamburg Port Authority - Germany
HRS	Hydraulics Research Station - United Kingdom
HRWALLINGFORD	HR Wallingford Group Ltd. - United Kingdom
HZG	HZG - Helmholtz-Zentrum Geesthacht - Germany
ICOT	Institute of Coastal Oceanography and Tides - United Kingdom
ICPSM	Comune di Venezia - Centro Previsioni e Segnalazioni Maree - Italy
IEO	Spanish Oceanographic Institute - Spain
IFM	IFM - Institute of Oceanography, University of Hamburg - Germany
IFREMER	IFREMER - France
IFREMERBREST	IFREMER - Centre de Brest - France
IMEDEA	IMEDEA - Mediterranean Institute for Advanced Studies - Spain
IMR	IMR - Institute of Marine Research - Norway
IMS-METU	IMSMETU - Middle East Technical University - Institute of Marine Sciences - Turkey
INSU	INSU - Institut National des Sciences de l'Univers - France
IOBAS	IOBAS - Institude of Oceanology - Bulgarian Academy of Science - Bulgaria
IOI	International Ocean Institute - Malta Operational Centre - University Of Malta - Physical Oceanography Unit - Malta
IOPAS	IOPAS - Institute of Oceanology of the Polish Academy of Sciences - Poland
IOSBL	Institute of Oceanographic Sciences - Bidston Laboratory - United Kingdom
IOST	Institute of Oceanographic Sciences Taunton - United Kingdom
IOSWL	Institute of Oceanographic Sciences Wormley Laboratory - United Kingdom
IRD	IRD - L'Institut de recherche pour le développement - France
ISMAR	ISMAR - Istituto di Scienze Marine - Italy
ISPRA	ISPRA - Istituto Superiore per la Protezione e la Ricerca Ambientale - Italy
KIELMS	KIELMS - University of Kiel Institute for Marine - Germany
KNMI	KNMI - Koninklijk Nederlands Meterolologisch Instituut - Netherlands
LEGMA	LEGMA - Latvian Environment, Geology and Meteorology Agency - Latvia
LOCEAN	LOCEAN - Laboratoire d'Oceanographie et du Climat - France
LOV	LOV - Laboratoire Oceanographique de Villefranche - France
LPO	Laboratory of Physical Oceanography - UMR 6523 CNRS-IFREMER-IRD-UBO - France
MAFFLFL	Ministry of Agriculture, Fisheries and Food, Lowestoft Fisheries Laboratory
MARINE	Marine Institute - Ireland
MARLAB	Fisheries Research Services - Aberdeen Marine Laboratory - United Kingdom
MDK	MDK - Maritieme Dienstverlening en Kust - Belgium
MET	MET éireann - Irish Meterological Service - Ireland
Meteo France	Meteo France - France
METNO	MetNo - Norwegian Meteorological Institute - Norway
METOFFICE	Met Office- United Kingdom
MIO	MIO - Mediterranean Institute of Oceanography - France
MSI	MSI - Marine Systems Institute - Estonia

MUMM	MUMM - Management Unit of the North Sea Mathematical Models - Belgium
NHS	NHS - Norwegian Hydrographic Service - Norway
NIB	NIB - National Institute of Biology - Slovenia
NIMRD	NIMRD - National Institute for Marine Research and Development - Romania
NIO	National Institute of Oceanography - United Kingdom
NIVA	NIVA - Norsk Institutt for Vannforskning - Norway
NMA	NMA - Norwegian Mapping Authority - Norway
NRA	National Rivers Authority - United Kingdom
NUIG	NUIG - National University of Ireland - Galway - Ireland
NWAHEM	NWAHEM - North-West Regional Administration for Hydrometeorology and Environmental Monitoring - Russia
OES	Offshore Environmental Systems Ltd
OGS	Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - Division of Oceanography - Italy
OILPLAT	Oil Platform - Private Industry
PEML	University of Liverpool - Port Erin Marine Laboratory - United Kingdom
PLOCAN	PLOCAN - Oceanic Platform of the Canary Islands - Spain
POL	Proudman Oceanographic Laboratory - United Kingdom
RIKZ	Rijkswaterstaat Waterdienst - Netherlands
SAMS	Scottish Marine Biological Association - United Kingdom
SBR	SBR - Station Biologique de Roscoff - France
SHOM	SHOM - Service Hydrografique et Oceanographique de la marine - France
SMHI	Swedish Meteorological and Hydrological Institute - Sweden
SNAMPROGETTI	Snamprogetti SPA - Italy
SOC	Southampton Oceanography Centre - United Kingdom
SYKE	SYKE - Finnish Environment Institute - Finland
TIDAL	University of Liverpool Tidal Institute and Observatory
UAC	UAC - Universidade dos Açores - Portugal
UBO	Laboratoire de Physique des Oceans - UBO (Universite de Bretagne Occidentale - France
UHMI	Marine branch of Ukrainian Hydrometeorological Institute
UKHO	United Kingdom Hydrographic Office - United Kingdom
UKM	UKM - United Kingdom Recent Marine Data - UK
UKMOMF	UKMO MF - Met Office - Meteo France - UK &France
UKOOA	United Kingdom Offshore Operators Association - United Kingdom
UMAAPDII	Malaga University (UMA) - Applied Physics departament II - Spain
UPC	UPC - Universitat Politecnica de Catalunya - Spain
UPT	Polytechnic University of Tirana - Institute of GeoSciences, Energy, Water and Environment - Albania
VMM	VMM - Flemish government agency - Belgium
WEATHER	National Institute of Meteorology and Hydrology, Bulgarian Academy of Sciences - Bulgary
WSAL	WSAL - Waterways and Shipping Authority Lübeck - Germany
WSAW	WSAW - Waterways and Shipping Authority Wilhelmshaven (WSA-WIL) - Germany

WSOB	WSOB - Waterways and Shipping Office Bremerhaven - Germany
WSOC	WSOC - Waterways and Shipping Office Cuxhaven - Germany
WSOE	WSOE - Waterways and Shipping Board Emden - Germany
WSOS	WSOS - Waterways and Shipping Office Stralsund
WSOT	WSOT - Waterways and Shipping Office Toenning - Germany
XUNTA	Xunta Galicia - Spain