Project	AtlantOS – 633211
Deliverable number	D9.2
Deliverable title	Web-based monitoring tool of the Atlantic Ocean observing system (Europe).
Description	Web-based service tool that monitor data flow and key performance indicators of the Atlantic observing system. The focus here is on the monitoring of European contributions, including the EuroGOOS Atlantic ROOSES.
Work Package number	9
Work Package title	System evaluation and sustainability
Lead beneficiary	IOC
Lead authors	A. Novellino (ETT); V. Fernández & E. Buch (EuroGOOS)
Contributors	WP9 partners
Submission data	23 February 2017 – first version
Due date	31.03.2017
Comments	Deliverable D9.2 is a web-based monitoring tool: (http://www.emodnet-physics.eu/atlantos/dashboard/Default.aspx). This report includes a detailed description of the web page capabilities and of the key performance indicators.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement nº 633211.

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Executive summary

AtlantOS is aimed at achieving a transition from a loosely-coordinated set of existing ocean observing activities producing fragmented, often monodisciplinary data, to a sustainable, efficient, and fit-for- purpose Integrated Atlantic Ocean Observing System (AtlantOS).

AtlantOS WP9 and WP10 are addressing the main challenge and scope of the call: the development and evaluation of a long-term, optimized Atlantic observing system as well as the disseminating and communicating of its benefits.

More specifically, AtlantOS WP9 will assess the current temporal and spatial coverage of Atlantic Observing and facilitating gap analysis: '*the creation of a monitoring tool for Atlantic Observing is a critical element for Europe to show its ambition to take on a leadership role'*. European Member States can immediately find out what part of the observing system they are supporting and how their investment is leveraged by similar contributions by other countries and regions.

One specific goal of AtlantOS WP9 is to develop web-based monitoring tools of the observing system data flow which includes several key performance indicators of the Atlantic observing system both at European and international levels.

The work in WP9 will provide quantitative and near real-time information of the state of the in-situ Atlantic Observing System. It will establish procedures that allow for its timely and comprehensive monitoring and evaluation, how well the Essential Ocean Variables (EOVs), agreed on in WP1, are addressed and develop a long-term sustainability plan for AtlantOS Observing System based on existing plans of international partners, European Member States as well as key European initiatives.

As planned, a web-monitoring tool focused on the European contribution and on data availability, data accessibility, user experience and feedback, has been were developed and its available and operational on the following web address:

http://www.emodnet-physics.eu/atlantos/dashboard/Default.aspx

A second web based tool is focused on the International contribution and monitors the international programs performances versus their targets and is described in Deliverable 9.1.

Results from the monitoring tools shows that in the reporting period, from 1st Jun 2015 to 1st Feb 2017 there were the following number of platforms available:
768 ARGO floats
158 CTDs
1431 Drifting buoys
75 GOSUD – Ferryboxes
8 Gliders
130 Mammals (CTD) data
485 fixed stations (including Permanent Sea Level Monitoring Service stations)
195 Profilers

1. Introduction

Free and open access to marine data is of vital importance for marine research and also a key issue for various studies, ranging from climate change to offshore engineering. Giving access to and harmonising marine data from different sources will at the end help industry, public authorities and researchers to find the data and to make more effective use of them in order to develop new products, services and to improve our understanding of how the seas behave.

Sharing observing data on marine environment benefits everyone: changes in one country's water affect those of its neighbours. National data do not tell us all we need to know about the seas as the European and global oceans are connected by shifting winds, global currents, etc.

Marine data is used for environmental impact assessments as well as for marine safety and security: sharing data saves lives by improving search and rescue operations at sea, improves livelihoods, encourages sustainable business practices and helps us to act in case of marine emergency situations. Marine data is used also for navigational safety, for forecasting pollution transport and monitor potential impact on human activities, etc. In summary, by sharing ocean observed data, the world becomes a safer, more interconnected and economically sustainable place.

In this context, the Global Ocean Observing System (GOOS)[1], the World Meteorological Organization International Oceanographic Commission (WMO IOC), and the Group on Earth Observations (GEO)[2] data sharing policies advocate for free and open availability of data. The WMO IOC and, specifically, the Commission for Oceanography and Marine Meteorology (JCOMM), is supporting near instantaneous exchange of weather information across the globe.

One of the foundation pillars of the U.S. Integrated Ocean Observing System (IOOS) is to make data discoverable, available and useable and over 15,000 datasets are available - to anyone, anywhere - in real-time.

The European Commission, represented by the Directorate-General for Maritime Affairs and Fisheries (DG MARE), is working on services for assembling marine data, metadata and data products and facilitating their access and re-use. In concrete, the European Marine Observation and Data Network (EMODnet) is a long-term programme to deliver a marine observation infrastructure offering the most effective support to the marine and maritime economy whilst supporting environmental protection needs. The EMODnet data infrastructure is developed through a stepwise approach in three major phases. Currently EMODnet is closing the 2nd phase of development with seven sub-portals in operation providing access to marine data from the following themes: bathymetry, geology, physics, chemistry, biology, seabed habitats and human activities.

[1] Bernal, P. (2004). Observing the ocean and forecasting its future: The development of the Global Ocean Observing System. In: Oceans: Interaction between Man and Maritime Environments, UN University Global Seminar, 5th Shimane Session. http://www.ioc-goos.org/index.php?option=com_oe&task=viewDocumentRecord&docID=1704

[2] Arzberger, Peter, Peter Arzberger, Peter Schroeder, Anne Beaulieu, Geof Bowker, Kathleen Casey, Leif Laaksonen, David Moorman, Paul Uhlir, Paul Wouters (2004). An International Framework to Promote Access to Data, Science 303. 1777-1778.

AtlantOS is aimed at achieving a transition from a loosely-coordinated set of existing ocean observing activities producing fragmented, often monodisciplinary data, to a sustainable, efficient, and fit-for- purpose Integrated Atlantic Ocean Observing System.

This objective will be achieved through research and innovation activities focused on several topics:

- requirements and systems design,
- improvement of the readiness of observing networks and data systems,
- engagement of stakeholders around the Atlantic, as well as strengthening Europe's contribution to the Global Ocean Observing System (GOOS), a major component of the Group on Earth Observations (GEO), its Global Earth Observation System of Systems (GEOSS), and specifically on its emerging "Oceans and Society: Blue Planet" initiative.

AtlantOS WP9 and WP10 are addressing the main challenge and scope of the call: the development and evaluation of a long-term, optimized Atlantic observing system and disseminating and communicating its benefits.

More specifically AtlantOS WP9 will assess the current temporal and spatial coverage of Atlantic Observing and facilitating gap analysis: *the creation of a monitoring tool for Atlantic Observing is a critical element for Europe to show its ambition to take on a leadership role*. European Member States can immediately find out what part of the observing system they are supporting and how their investment is leveraged by similar contributions by other countries and regions.

1.1. AtlantOS WP9 and Task 9.1

The work in WP9 will provide quantitative and near real-time information of the state of the in-situ Atlantic Observing System. It will establish procedures that allow for its timely and comprehensive monitoring and evaluation, how well the Essential Ocean Variables (EOVs), agreed on in WP1, are addressed and develop a long-term sustainability plan for AtlantOS Observing System based on existing plans of international partners, European Member States as well as key European initiatives.
The specific objectives are:

- to provide quantitative and near real-time information of the state of the in-situ Atlantic Observing System with defined key performance indicators to be monitored.
- to analyze and properly document for each EOV the adequacy of the current observing and information system, where the observation capability for a given EOV is being addressed by a complementary set of in-situ networks and satellite missions.
- to develop a long-term sustainability plan for Atlantic Observing System based on existing plans of international partners, European Member States as well as key European initiatives
- to develop commitments for long-term funding of AtlantOS observing System by funding agencies engaged in ocean observations for research, monitoring and operational purposes

AtlantOS WP9 will establish procedures that allow for a timely and comprehensive monitoring and evaluation of the Atlantic observing system and will address 'EOVs' monitoring gaps and provide a summary on issues

that impact the sustainability of the observing systems. Firstly, we will develop and implement a web-based monitoring system that can track the status of the various observing systems (Task 9.1).

At a European level, the work is embedded to an overall umbrella of a sustained European Ocean Observing System that brings together national, regional and European infrastructures (ESFRI roadmap, EuroGOOS/ROOS, EMODnet, Copernicus).

As planned web-monitoring tool was developed and are available on the web:

http://www.emodnet-physics.eu/atlantos/dashboard/Default.aspx

The web based monitoring tool is focused on the European contribution and on data availability, data accessibility, user experience and feedback.

This document describes the web monitoring tool and it is the documentation about the following AtlantOS deliverable:

D9.1 Web-based monitoring tool of the Atlantic Ocean observing system (international): A web-based service tool that will monitor data flow and key performance indicators of the Atlantic observing system. To focus will be on all AtlantOS networks (as defined by subtasks WP2 & WP3). PM24

D9.2 Web-based monitoring tool of the Atlantic Ocean observing system (Europe): Same as 9.1, i.e. A web-based service tool that will monitor data flow and key performance indicators of the Atlantic observing system but focusing on the monitoring of European contributions to the overall Atlantic Ocean Observing system.

As the web-based tools must capitalize on existing developments, the European version will be reuse the EMODNet physics portal adapted to the Atlantic Ocean.

2. EMODnet Physics

EMODnet Physics[3] is one of the seven Thematic lots, operating since 2010, and it is designed to be a single access point to near real time and historical data on physical conditions of seas and oceans.

EMODnet Physics is serving public and private institutions providing operational services (e.g. atmosphere and ocean forecasts), search and rescue, ocean science and provides a combined array of services and functionalities (facility for viewing and downloading, dashboard reporting and machine-to-machine communication services) to obtain free-of-charge data, meta-data and data products on the physical conditions of European sea basins and oceans.

EMODnet Physics make available near real time and historical validated marine and ocean data as monitored by fixed and moving platforms such as fixed stations, mooring buoys, tide gauges, surface drifters, ferryboxes, Argo floats, gliders, HF radars etc.

Each platform may provide one or more physical parameters of the sea, namely sea surface temperature, temperature in the water body column, sea surface salinity, sea salinity in the water column, sea surface currents, sea level, wave direction, wave peak, waves frequency, atmospheric pressure at sea level, sea turbidity, chlorophyll(a), etc.

EMODnet Physics builds on the EMODnet Physics portal developed under the ur-EMODnet preparatory actions (EMODnet Phase I from 2009-2013) and is based on the cooperation and collaboration with the three established pillars of the European Oceanographic Community:

- EuroGOOS and its Regional Operational Oceanographic Systems (ROOSs). EuroGOOS is a pan-European ocean observing network operating within the context of the Global Ocean Observing System of the Intergovernmental Oceanographic Commission of UNESCO (IOC GOOS). The ROOSs are responsible for the collection of data to fulfil the aims of the regional[4] service needs.

- Copernicus Marine Environment Monitoring Service (CMEMS)[5], and in particular with the In Situ Thematic Assembly Center (INSTAC). CMEMS is a European Commission programme (2015 – 2020) to provide operational monitoring and forecasting systems for global, Arctic and European regional seas based on satellite and in situ observations.

- SeaDataNet network of National Oceanographic Data Centres (NODCs)[6]. By means of a series of European founded research projects, the NODCs developed a pan European infrastructure for

[3] The EMODnet Physics management board is ETT (Coordinator), MARIS, IFREMER, BODC and EuroGOOS.

[4]ROOSs are responsible for the collection of data in Arctic Ocean (Arctic ROOS), Baltic Sea (BOOS), Northwest Shelf Sea (NOOS), Ireland–Biscay–Iberia Seas (IBI ROOS) and the Mediterranean Sea (MONGOOS)

[5] http://marine.copernicus.eu/

[6] Schhap D. (2016). SeaDataNet: Towards a Pan-European infrastructure for marine and ocean data management. In: Oceanographic and Marine Cross-Domain Data Management for Sustainable Development. Ed. Diviacco, P., Leadbetter, A.,Glaves, Helen. IGI Global, 155- 177.

providing up-to-date and high quality ocean metadata, data and data products, and for developing and promoting common data management standards.

By means of joint activities with its three pillars and with the most relevant Organizations and associations within the sector, EMODnet is undergoing significant improvements and expansion. Particularly, access to the NRT data stream is supported by the EuroGOOS - ROOSs and the CMEMS *in-situ* TAC system, whilst metadata discovery to the archived data is organized through the SeaDataNet network and infrastructure. The Coriolis infrastructure of IFREMER also plays an important role for providing access to the supplementary data from Argo floats (EuroArgo).

EMODnet Physics and CMEMS (former MyOcean projects) have always worked together to increase the quality of the service to the oceanographic community and more in general to any potential marine data users. In August 2016 EMODnet Physics and CMEMS put in place a MoU to keep working together and further develop services to users, which must be at the centre of the services.

EMODnet Physics outcome is to organize the data flow of relevant data into the CMEMS and SDN infrastructure and make them available in a portal to serve public and private institutions by providing operational services (e.g. atmosphere and ocean forecasts), search and rescue, ocean science. EMODnet Physics provides a combined array of services and functionalities (facility for viewing and downloading, dashboard reporting and machine-to-machine communication services) to obtain free-of-charge data, meta-data and data products on the physical conditions of sea basins and oceans to serve European users needs. This scope has recently widen the EMODnet Physics coverage shifting from a European coverage to a global context in order to assure to the user, the access to data having same quality and formats. The following picture schematizes the EMODnet Physics data path:

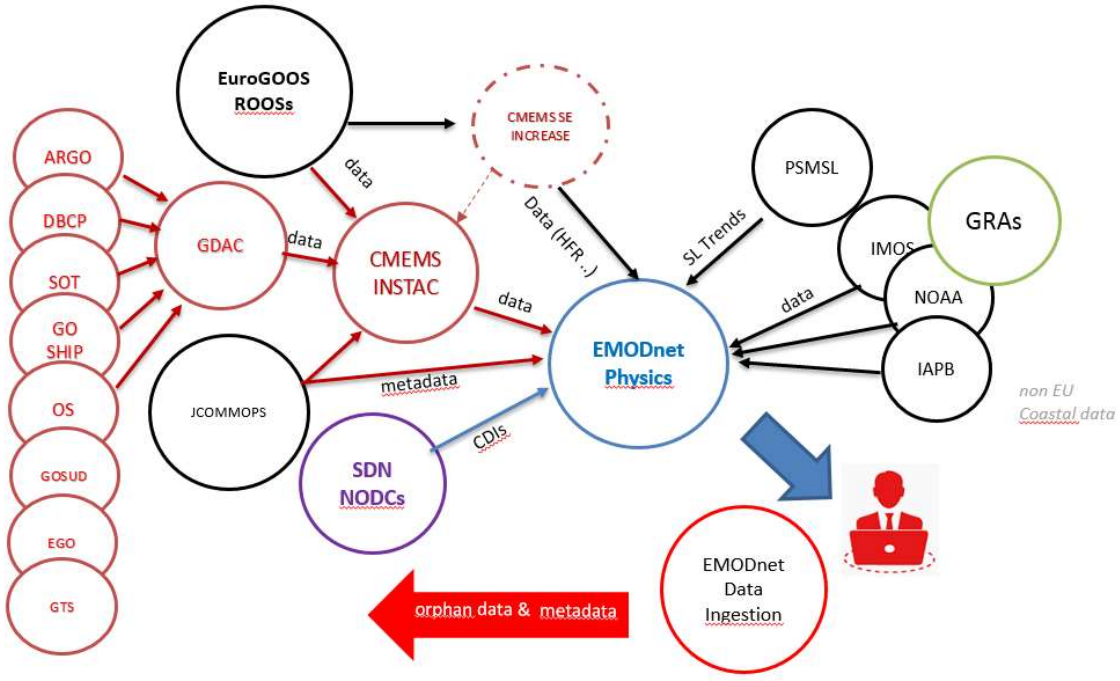


Figure 1. EMODnet Physics data path. ROOS: Regional Oceanographic Operational Sys.; NODC: National Oceanographic Data Centre; CMEMS: Copernicus Marine Environment Monitoring Service; SDN: SeaDataNet; JCOMMPOS: JCOMM in situ Observing Platform Support Centre; GDAC: Global Data Assembly Centre; PSMSL: Permanent Service Mean Sea Level DBCP: Data Buoy Coop. Panel; SOT: Ship Obs. Team; OS: OceanSITES;

Currently, the portal provides users with following key services and functions:

1. Landing page, www.emodnet-physics.eu/portal, which presents the European Marine Observation and Data network background and introduces the EMODnet Physics scope and goals. The landing page also provides community news and meetings reports, as well as direct links to EMODnet Physics operational services and to other EMODnet lot portals.

2. Dynamic map facility for viewing and downloading, www.emodnet-physics.eu/map, which is the central tool for users to search, visualize and download data, metadata and products. For near real time (NRT) data, the map allows viewing/retrieving, within a specified time (e.g. a 60-day sliding window) measurement points, values of data and quality of data. The geographical area (space window) defines the area of interest within which the measurement points, values of data and quality of data are presented. For the previous 60 days, a graph is provided with data availability within the timeframe. Information about the data originator, curator etc. is also provided. The tool also serves to visualize and retrieve data products such as time plots for specific parameters (e.g. monthly averaged temperature for data acquired during the specified time window).

3. Dashboard, www.emodnet-physics.eu/map/dashboard, which is a reporting service where users can view and export various statistics about the data portal content and usage. The EMODnet Physics dashboard represents a valuable tool to discover data availability and monitor performance of the infrastructure behind the portal. The tool also provides KPIs (key performance indicators) presenting how much data and how many platforms are made available on a daily base, and extracts statistics on page access and data downloads etc.

4. Interoperability services, the EMODnet Physics is developing interoperability services to facilitate machine-to-machine interaction and to provide further systems and services with European seas and ocean physical data and metadata. In particular, EMODnet Physics is providing OCG compliant WMS and WFS layers offering information about which parameters are available (where and who is the data originator, etc.). EMODnet Physics is providing SOAP - web services which allow linkage to external services with near real time data stream and facilitate a machine-to-machine data fetching and assimilation.

2.1. EMODnet Physics monitoring tools

EMODnet Physics d*ashboard* is a reporting service where users can view and export various statistics about the data portal content and usage. These monitoring tools represent a useful service to discover data availability and monitor performances of the infrastructure behind the portal.

The tool also provides KPIs (key performance indicators) showing how much data and how many platforms are made available on a daily basis, extracting statistics on page access and data downloads etc.

Data availability and latency are monitored when integrate at EMODnet Physics level to be compared with data availability and latency at infrastructure integration level.
This will help to identify problems in data dissemination chain

Data usage (page views and datasets download) are monitored and information is made available in the platform page dashboard. Collected information are already exportable in xml file (Figure 2 red box) and ready to be integrated in a more exhaustive service (Figure 3).

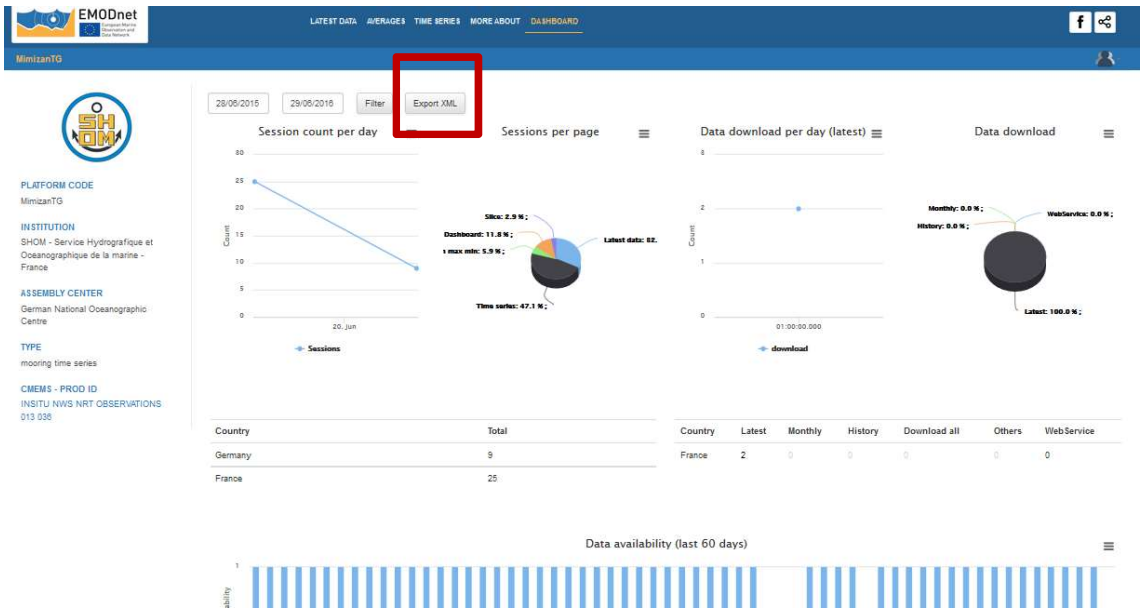
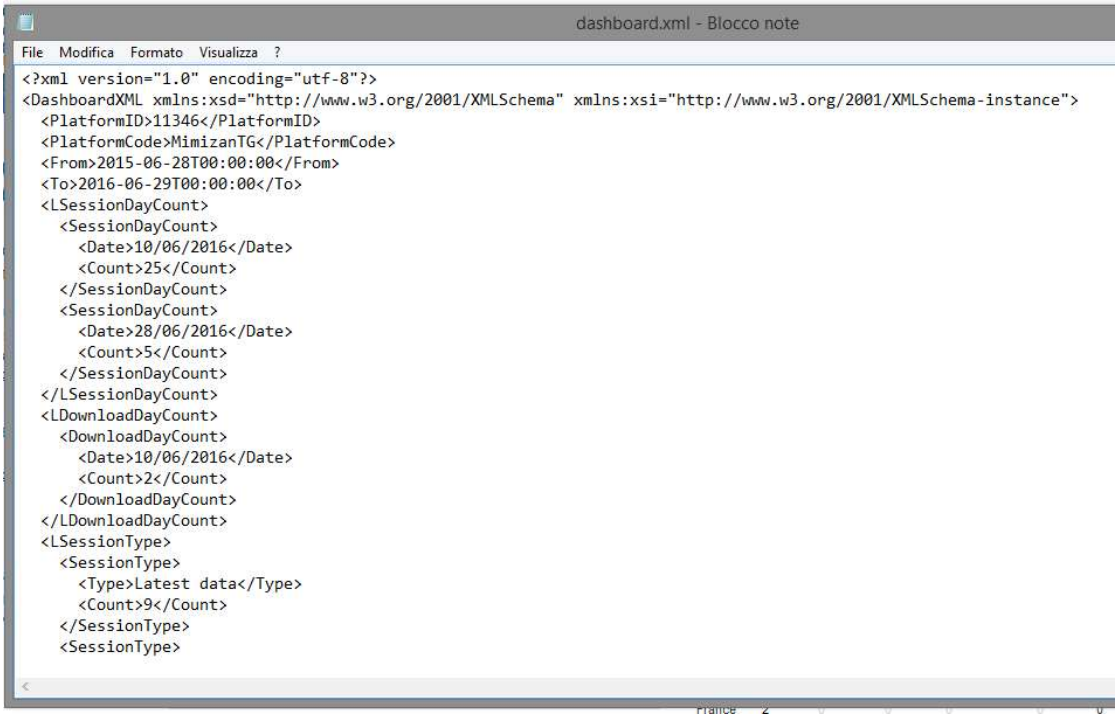


Figure 2. platform dashboard


dashboard.xml - Blocco note

File Modifica Formato Visualizza ?

```
<?xml version="1.0" encoding="utf-8"?>
<DashboardXML xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <PlatformID>11346</PlatformID>
  <PlatformCode>MimizanTG</PlatformCode>
  <From>2015-06-28T00:00:00</From>
  <To>2016-06-29T00:00:00</To>
  <LSessionDayCount>
    <SessionDayCount>
      <Date>10/06/2016</Date>
      <Count>25</Count>
    </SessionDayCount>
    <SessionDayCount>
      <Date>28/06/2016</Date>
      <Count>5</Count>
    </SessionDayCount>
  </LSessionDayCount>
  <LDownloadDayCount>
    <DownloadDayCount>
      <Date>10/06/2016</Date>
      <Count>2</Count>
    </DownloadDayCount>
  </LDownloadDayCount>
  <LSessionType>
    <SessionType>
      <Type>Latest data</Type>
      <Count>9</Count>
    </SessionType>
    <SessionType>
```

Figure 3. example of the xml stats

3. AtlantOS Web based monitoring tools

This section is presenting and describing in detail the web-based monitoring tool that is focused on the European contribution and on data availability, data accessibility and user experience and feedback.

This web monitoring tool is available at the following link:

http://www.emodnet-physics.eu/atlantos/dashboard/Default.aspx

In cooperation with WP7 a specific indicator was designed to consider the usability of systems and data and the user experience to discover, access, visualize and download data.

The usability and user experience can be only collected by means of user feedback. To this end, a survey was designed to collect and process data on periodic base in order to monitor progress and evolution of this KPI during the project time life (see Annex 1 for more details on the User Survey)

3.1. Monitoring tools for data availability and visibility

To support the monitoring activities of both WP7 and WP9, the first version of the AtlantOS dashboard was designed and published at: www.emodnet-physics.eu/atlantos/dashboard

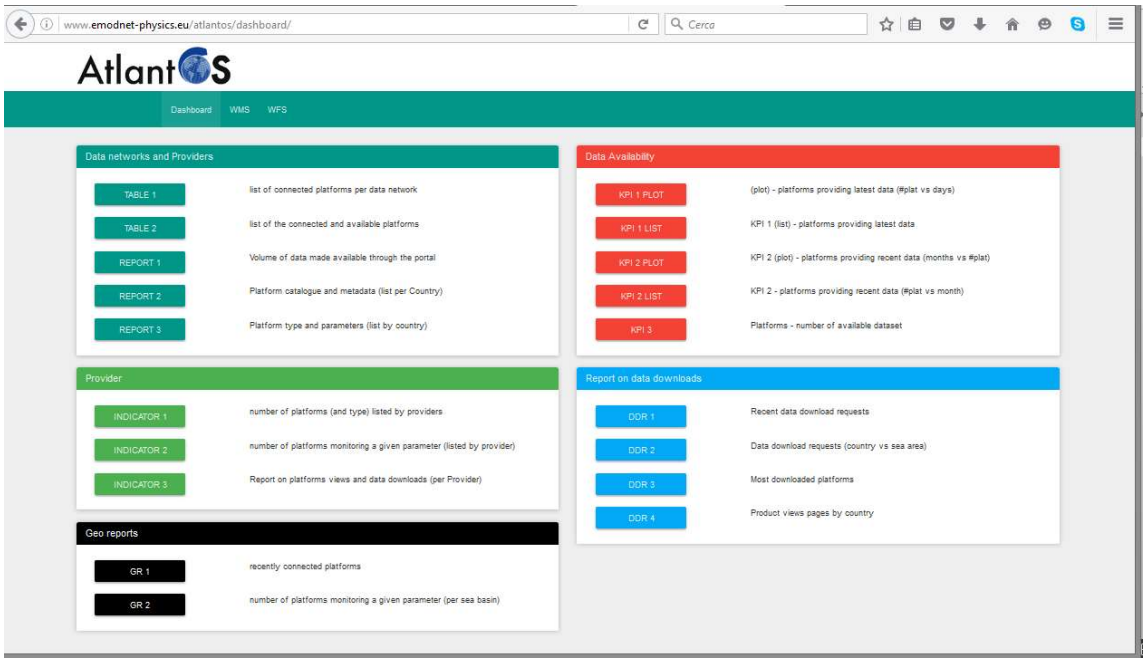


Figure 4: AtlantOS Dashboard Page

Dashboard is organized in sections e.g. data networks, single provider, geographical area, etc. for a given time window. Every report can be calculated referencing only the platforms included in the AtlantOS area or the entire EMODnet Physics database.

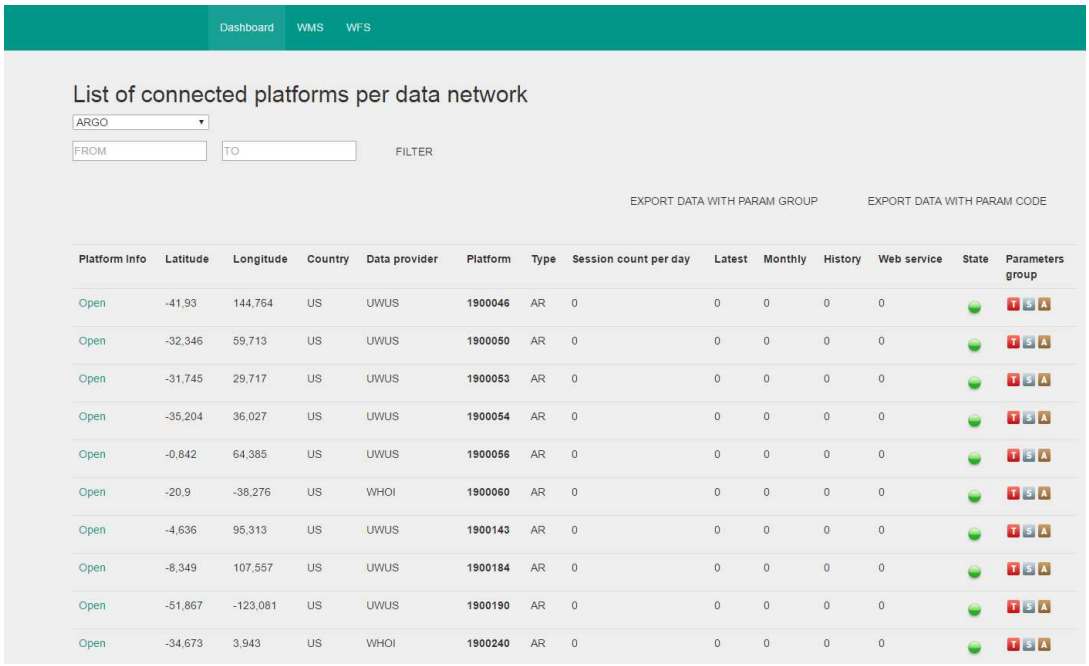
3.1.1. Data Networks and Providers

The 'Data Networks and Providers' reports provide detailed information on all the platforms of the AtlantOS network both in terms of metadata and data volume. Five reports are available:

TABLE 1: list of connected platforms per data network

By selecting the data network (Argo, GOSUD, US NDBC, …) and a time window, the procedure returns all the platforms connected to the network with the following details:

- *Platform Info*: direct link to the platform page on the map portal
- *Latitude/Longitude*: position of the platform (in case of moving platforms, this is the last position reported).
- *Country*: country of platform data owner
- *Data provider*: the provider of the platform data
- *Platform*: platform name
- *Type*: platform type code
- *Session count per day*: number of request of the specific platform page in the period specified by the time window input
- *Latest*: number of latest data download in the period specified by the time window input
- *Monthly*: number of monthly data download in the period specified by the time window input
- *History*: number of history data download in the period specified by the time window input
- *Web service*: number of ws request in the period specified by the time window input
- *State*: on/off
- *Parameters group*: type of data provided by the platform (water temperature, salinity, etc.)



Platform Info	Latitude	Longitude	Country	Data provider	Platform	Type	Session count per day	Latest	Monthly	History	Web service	State	Parameters group
Open	-41,93	144,764	US	UWUS	1900046	AR	0	0	0	0	0		
Open	-32,346	59,713	US	UWUS	1900050	AR	0	0	0	0	0		
Open	-31,745	29,717	US	UWUS	1900053	AR	0	0	0	0	0		
Open	-35,204	36,027	US	UWUS	1900054	AR	0	0	0	0	0		
Open	-0,842	64,385	US	UWUS	1900056	AR	0	0	0	0	0		
Open	-20,9	-38,276	US	WHOI	1900060	AR	0	0	0	0	0		
Open	-4,636	95,313	US	UWUS	1900143	AR	0	0	0	0	0		
Open	-8,349	107,557	US	UWUS	1900184	AR	0	0	0	0	0		
Open	-51,867	-123,081	US	UWUS	1900190	AR	0	0	0	0	0		
Open	-34,673	3,943	US	WHOI	1900240	AR	0	0	0	0	0		

Figure 5: TABLE 1: list of connected platforms per data network

The result of the query can be exported in csv format.

TABLE 2: list of the connected and available platforms

This report provides a list of all platform provided by the system with the following details:

- *Latitude/Longitude*: position of the platform
- *Country*: country of origin of the provider of the platform
- *Data provider*: the provider of the platform data
- *EDMO Code*: European Directory of Marine Organizations (EDMO) id where available of the data provider
- *Platform*: platform name
- *Type*: platform type code
- *Data assembly center*:
- *NODC*: National Oceanographic Data Center
- *Data network*: platform affiliation to networks and projects
- *Recent data From – To*: monthly files data availability (time period)
- *Recent data #files*: monthly files data availability (number of available files/ number of expected files)
- *Long term TS From – To*: history files data availability (time period)
- *CDI dataset ID - validated historical data From – To*: CDI dataset availability (time period)
- *CDI dataset ID #files*: CDI dataset availability (number of available files)
- *State*: on/off
- *60 days*: data available in the last 60 days (true/false)
- *Parameters group*: type of data provided by the platform (water temperature, salinity, etc...)

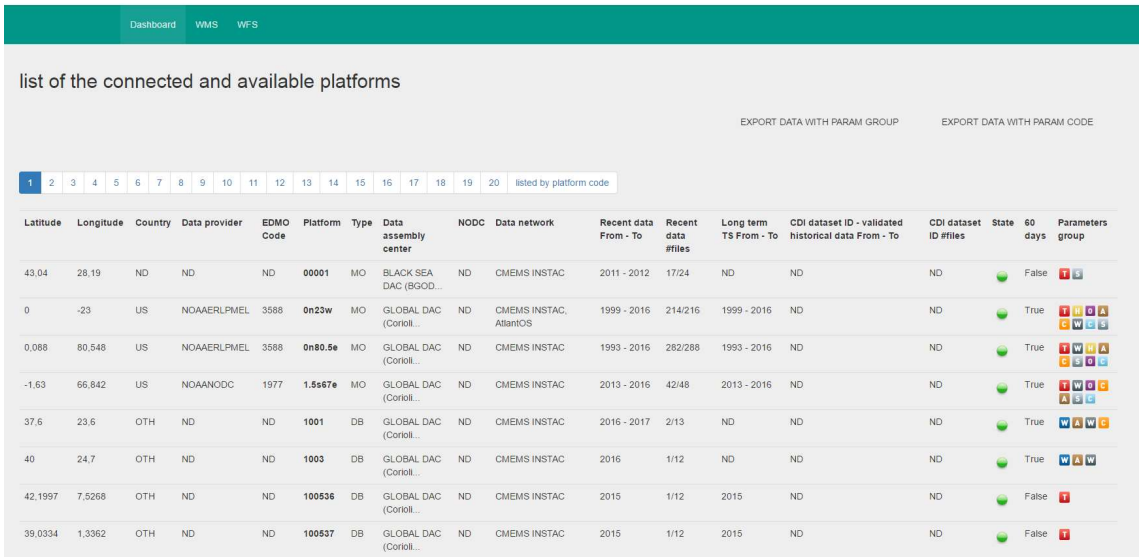


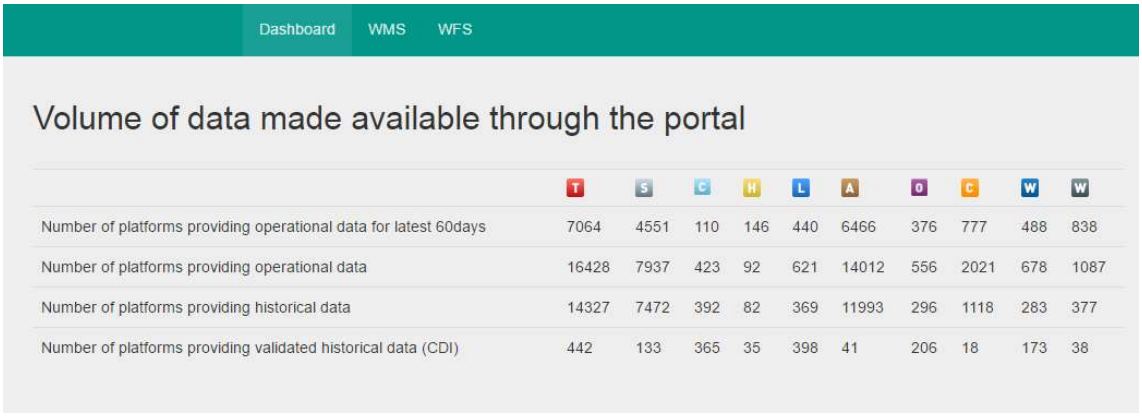
Figure 6: list of the connected and available platforms

The result of the query can be exported in csv format.

REPORT 1: Volume of data made available through the portal

This report provides an overview of the type of information handled by the platforms. The resulting table shows the number of platform providing physical parameters data grouped by type (Water Temperature, Water Salinity/ Conductivity/ Density, Currents, Light Attenuation/ Absorption / Fluorescence/ Back Scattering, Sea Level, Atmosphere, Other Parameters, Chemical Parameters, Waves, Winds). In concrete, the results are produced for:

- Operational data for the latest 60 days
- Operational data (total)
- Historical data
- CDI



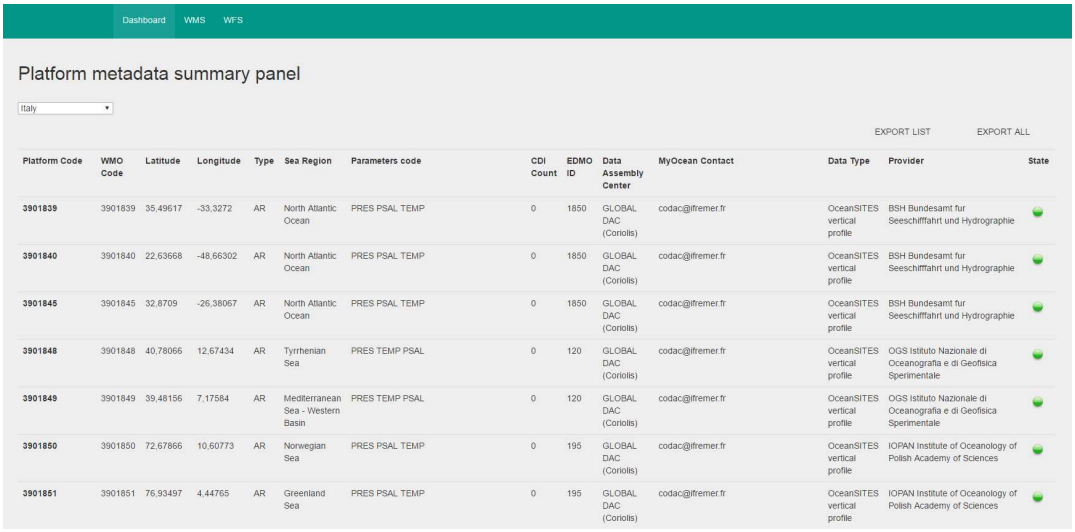
	T	S	C	H	L	A	O	C	W	W
Number of platforms providing operational data for latest 60days	7064	4551	110	146	440	6466	376	777	488	838
Number of platforms providing operational data	16428	7937	423	92	621	14012	556	2021	678	1087
Number of platforms providing historical data	14327	7472	392	82	369	11993	296	1118	283	377
Number of platforms providing validated historical data (CDI)	442	133	365	35	398	41	206	18	173	38

Figure 7: Volume of data made available through the portal

REPORT 2: Platform catalogue and metadata (list per Country)

This report provides a detailed list of the metadata associated with every platform of a specific country. The metadata shown in the web page are:

- *Platform Code*: platform name
- *WMO Code*: WMO international identifier
- *Latitude/Longitude*: position of the platform
- *Type*: platform type code
- *Sea Region*: Geographical region where the platform is located
- *Parameters code*: parameters acquired by the platform
- *CDI Count*: number of CDI for the platform
- *EDMO ID*: European Directory of Marine Organisations (EDMO) id where available
- *Data Assembly Center*:
- *CMEMS (MyOcean) Contact*: e-mail of the contact person
- *Provider*: the provider of the platform data
- *State*: on/off



Platform Code	WMO Code	Latitude	Longitude	Type	Sea Region	Parameters code	CDI Count	EDMO ID	Data Assembly Center	MyOcean Contact	Data Type	Provider	State
3901839	3901839	35.49617	-33.3272	AR	North Atlantic Ocean	PRES PSAL TEMP	0	1850	GLOBAL DAC (Coriolis)	codac@ifremer.fr	OceanSITES vertical profile	BSH Bundesamt fur Seeschifffahrt und Hydrographie	
3901840	3901840	22.63668	-48.66302	AR	North Atlantic Ocean	PRES PSAL TEMP	0	1850	GLOBAL DAC (Coriolis)	codac@ifremer.fr	OceanSITES vertical profile	BSH Bundesamt fur Seeschifffahrt und Hydrographie	
3901845	3901845	32.8709	-26.38067	AR	North Atlantic Ocean	PRES PSAL TEMP	0	1850	GLOBAL DAC (Coriolis)	codac@ifremer.fr	OceanSITES vertical profile	BSH Bundesamt fur Seeschifffahrt und Hydrographie	
3901848	3901848	40.78066	12.67434	AR	Tyrrhenian Sea	PRES TEMP PSAL	0	120	GLOBAL DAC (Coriolis)	codac@ifremer.fr	OceanSITES vertical profile	OGS Istituto Nazionale di Oceanografia e di Geofisica Sperimentale	
3901849	3901849	39.48156	7.17584	AR	Mediterranean Sea - Western Basin	PRES TEMP PSAL	0	120	GLOBAL DAC (Coriolis)	codac@ifremer.fr	OceanSITES vertical profile	OGS Istituto Nazionale di Oceanografia e di Geofisica Sperimentale	
3901850	3901850	72.67866	10.60773	AR	Norwegian Sea	PRES PSAL TEMP	0	195	GLOBAL DAC (Coriolis)	codac@ifremer.fr	OceanSITES vertical profile	IOPAN Institute of Oceanology of Polish Academy of Sciences	
3901851	3901851	76.93497	4.44765	AR	Greenland Sea	PRES PSAL TEMP	0	195	GLOBAL DAC (Coriolis)	codac@ifremer.fr	OceanSITES vertical profile	IOPAN Institute of Oceanology of Polish Academy of Sciences	

Figure 8: Platform catalogue and metadata (list per Country)

The result list can be exported in .csv format.

REPORT 3: Platform type and parameters (list by country)

This report provides a brief list of the metadata associated with every platform order by country. For every platform, the information provided are:

- *Platform Code*: platform name
- *Type*: platform type code
- *ROOS*: Regional Operational Oceanographic Systems (only for the EuroGOOS ROOSs, empty field for other cases)
- *Latitude/Longitude*: position of the platform
- *Sea Region*: region of the sea where the platform is located
- *Data Provider*: the provider of the platform data
- *CDI Series ID*: id of the CDI files
- *Parameters group*: type of data provided by the platform (water temperature, salinity, etc...)
- *State*: on/off

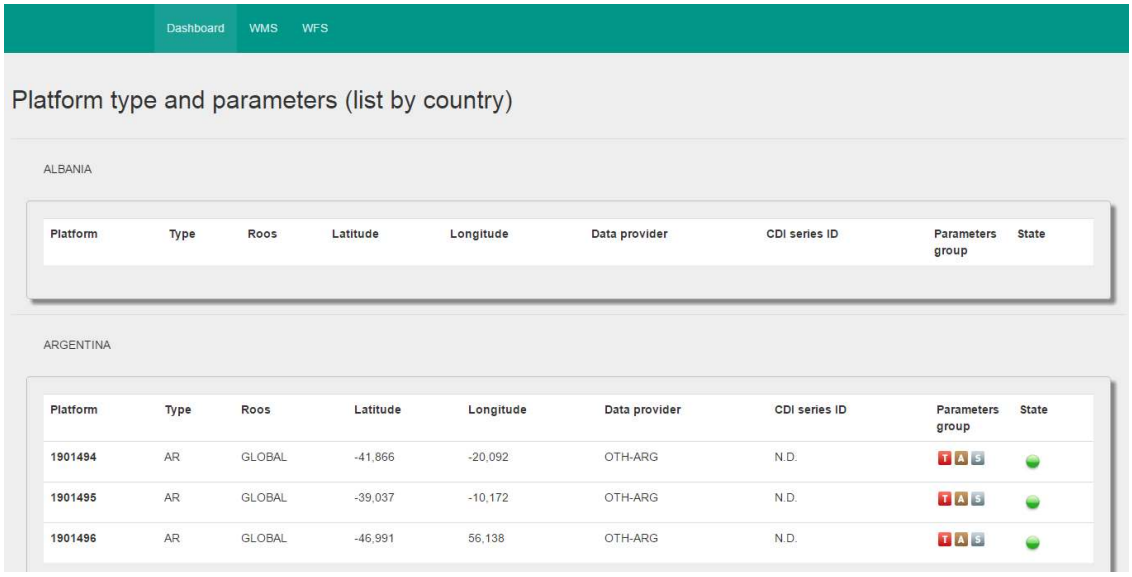


Figure 9: Platform type and parameters (list by country)

3.1.2. Data Availability

The Data Availability reports provide quantitative and graphical information on the accessibility of data in terms of temporal distribution. Five reports are available:

KPI 1 PLOT - platforms providing latest data (#plat vs days)

This report provides a chart that shows the daily distribution of the *NRT* ("Near Real-Time") data in a given time period. Every bar indicates the total amount of platform that has sent data to the system in a specific day divided per platform type (mooring, Ferrybox, glider, …). The default time window is set to the last 5 days but the user can modify the interval through a simple user control.

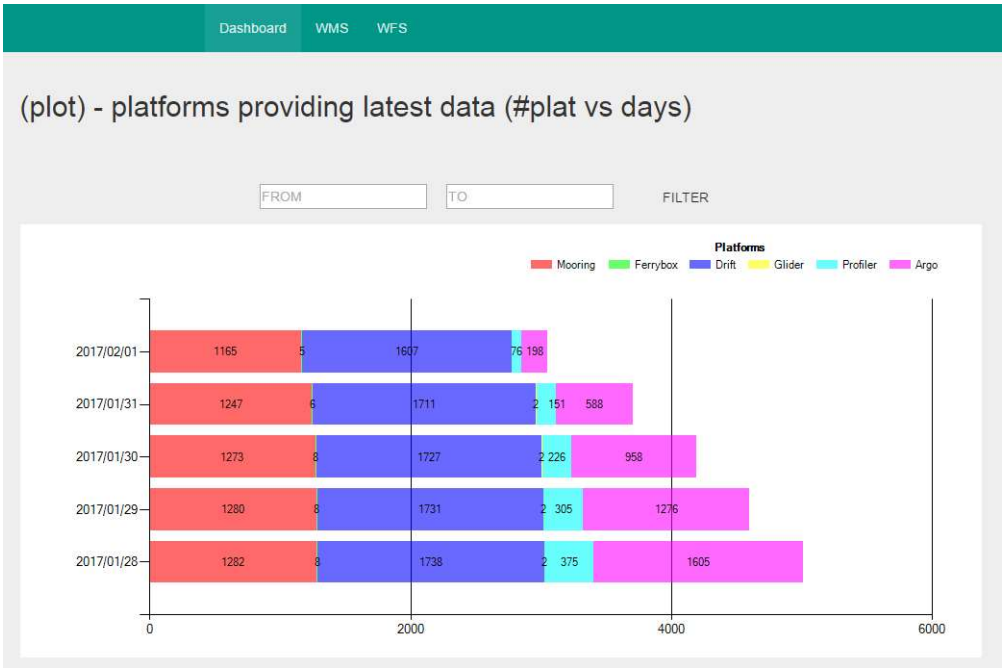


Figure 10: platforms providing latest data (#plat vs days)

KPI 1 LIST - platforms providing latest data

This report is the numerical representation from which the KPI 1 PLOT is based. The list, order by country, provides metadata on the platforms that have acquired data in the last 60 days (*NRT* data). For every platform, the details shown are:

- *Data Provider*: the provider of the platform data
- *Platform code*: platform name
- *Platform type*: platform type code
- *Latitude/Longitude*: position of the platform
- *EdiosID*: identifier in the European Directory of the Ocean Observing Systems
- *Data assembly center*:
- *Latest*: number of observation acquired in the last 60 days
- *Monthly*: number of monthly observation
- *Parameters*: parameters acquired by the platform
- *Long term TS*: availability of historical data (time period)
- *Parameters long term TS*: parameters acquired in the historical data

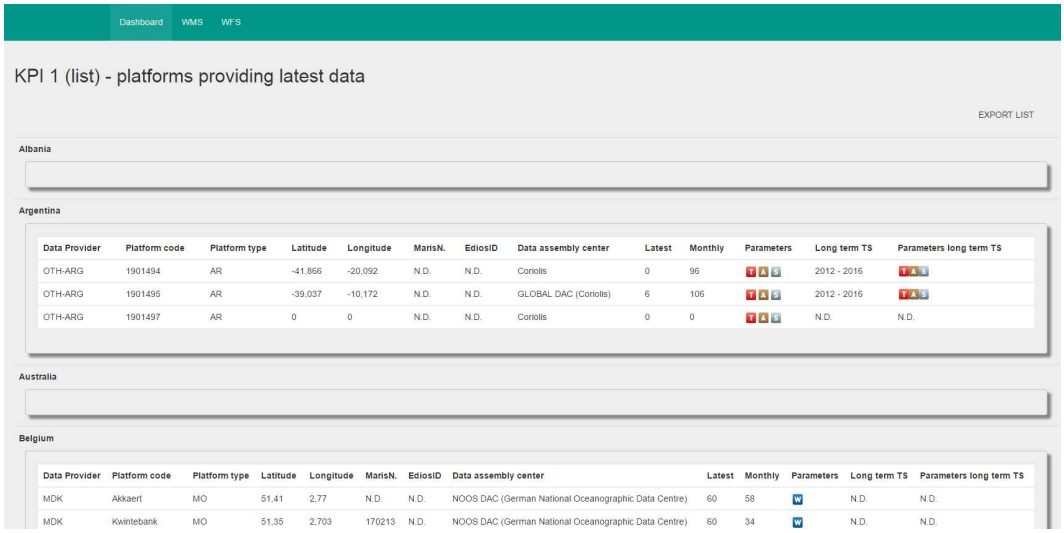


Figure 11: platforms providing latest data

The resulting list can be download in .csv format.

KPI 2 PLOT - platforms providing recent data (months vs #plat)

This report provides a chart that shows the monthly distribution of the *recent* ("monthly file") data in a given time period. Every bar indicates the total amount of platform that has provided monthly files to the system in a specific month divided per platforms type (mooring, Ferrybox, glider, …). The default time window is set to the last 12 month but the user can modify the interval through a simple user control.

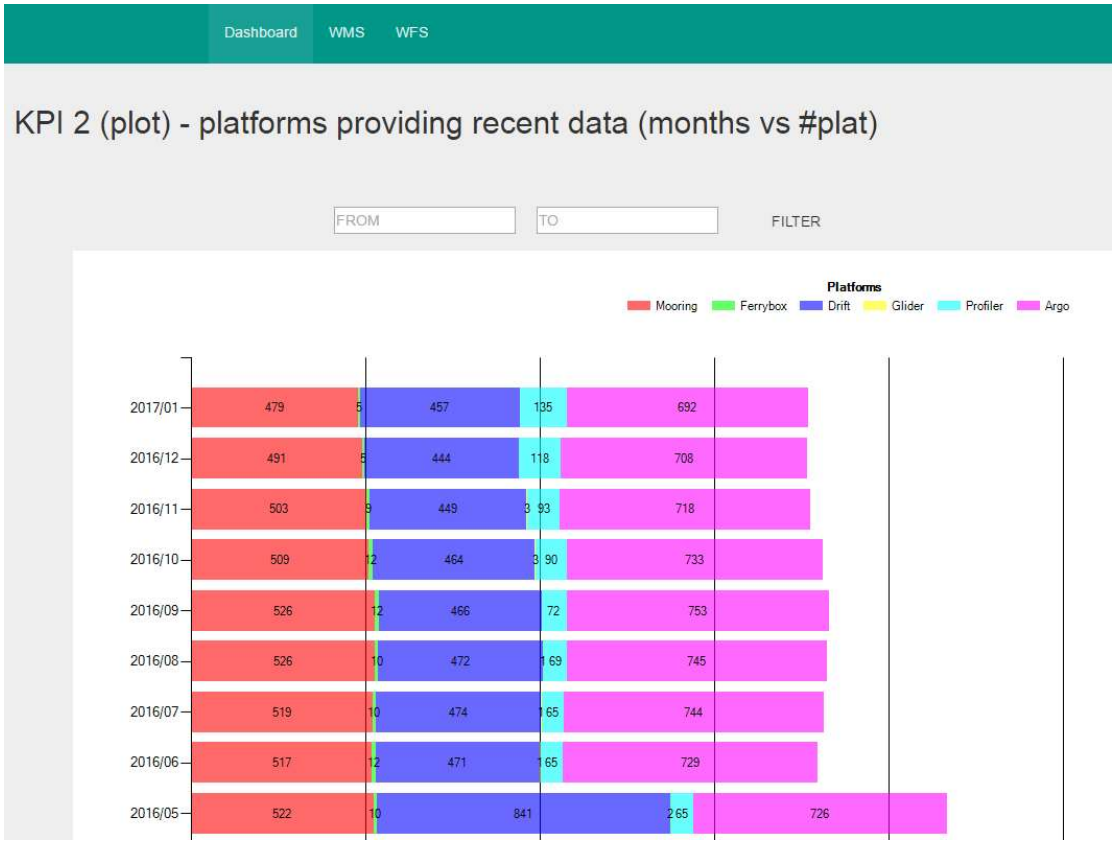


Figure 12: platforms providing recent data (months vs #plat)

KPI 2 PLOT2 - platforms providing recent data (#plat vs month)

This report provides the same information of KPI2 PLOT with a reverse axis visualization.

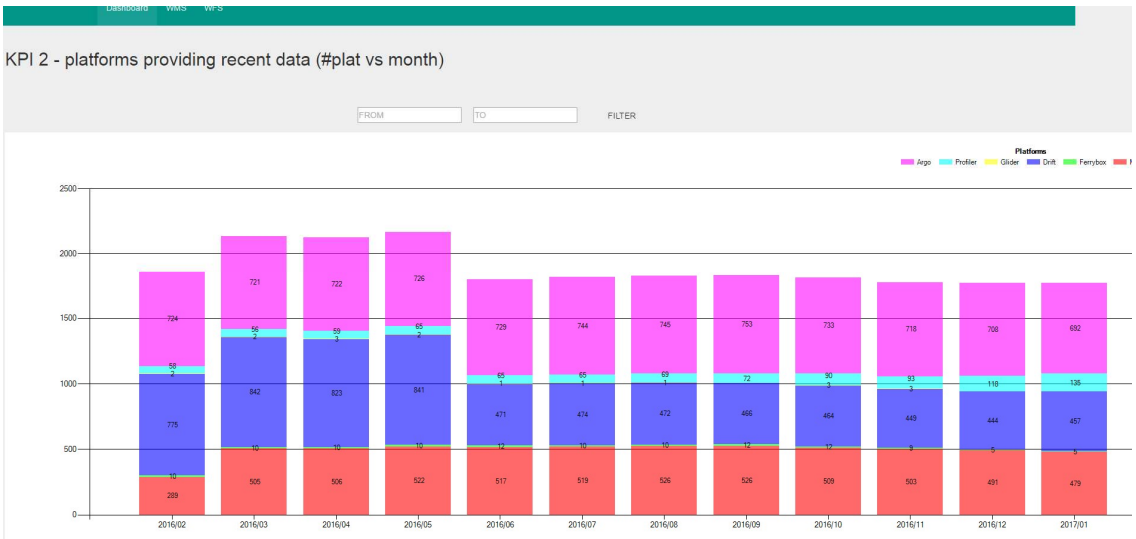


Figure 13: platforms providing recent data (#plat vs month)

KPI 3 - Platforms - number of available dataset

EMODnet Physics portal makes available the following data type:

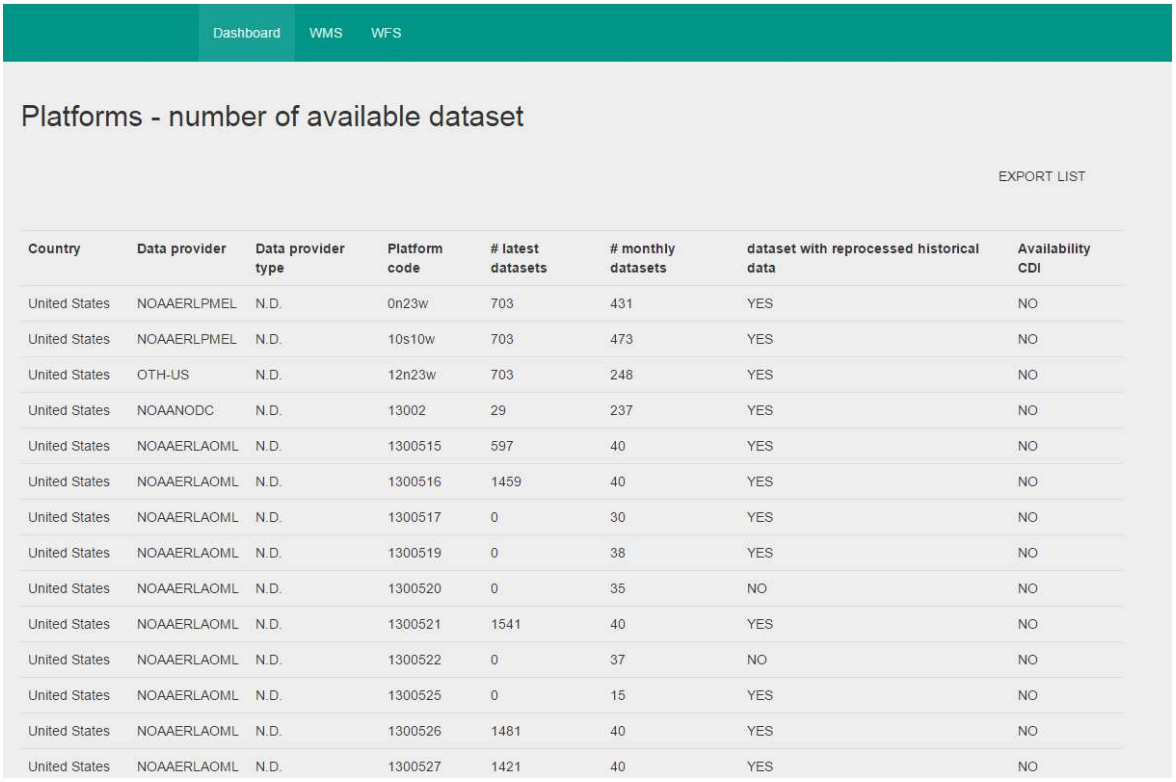
- Latest data: freely available up to 60 days (automatic quality check/flag procedures)
- Recent data: organized in monthly data files (post 60 days, automatic quality check/flag procedures, requires user registration)
- Long Term time series data: organized one data file for platform (automatic quality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

The report provides, for every active platform in the system, information about the available dataset. More specifically, the information shown here is:

- *Country*: country of the data owner of the platform
- *Data provider*: institution providing the data
- *Platform code*: name of the platform
- *# latest datasets*: number of nrt dataset
- *# monthly datasets*: number of monthly dataset
- *dataset with reprocessed historical data*: availability of historical data (yes/no)
- *Availability CDI*: availability of CDI metadata (yes/no)

The following table lists the full data availability, in particular it lists the typology of platform, 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).

The list can be exported in .csv format.



Country	Data provider	Data provider type	Platform code	# latest datasets	# monthly datasets	dataset with reprocessed historical data	Availability CDI
United States	NOAAERLPMEL	N.D.	0n23w	703	431	YES	NO
United States	NOAAERLPMEL	N.D.	10s10w	703	473	YES	NO
United States	OTH-US	N.D.	12n23w	703	248	YES	NO
United States	NOAANODC	N.D.	13002	29	237	YES	NO
United States	NOAAERLAOML	N.D.	1300515	597	40	YES	NO
United States	NOAAERLAOML	N.D.	1300516	1459	40	YES	NO
United States	NOAAERLAOML	N.D.	1300517	0	30	YES	NO
United States	NOAAERLAOML	N.D.	1300519	0	38	YES	NO
United States	NOAAERLAOML	N.D.	1300520	0	35	NO	NO
United States	NOAAERLAOML	N.D.	1300521	1541	40	YES	NO
United States	NOAAERLAOML	N.D.	1300522	0	37	NO	NO
United States	NOAAERLAOML	N.D.	1300525	0	15	YES	NO
United States	NOAAERLAOML	N.D.	1300526	1481	40	YES	NO
United States	NOAAERLAOML	N.D.	1300527	1421	40	YES	NO

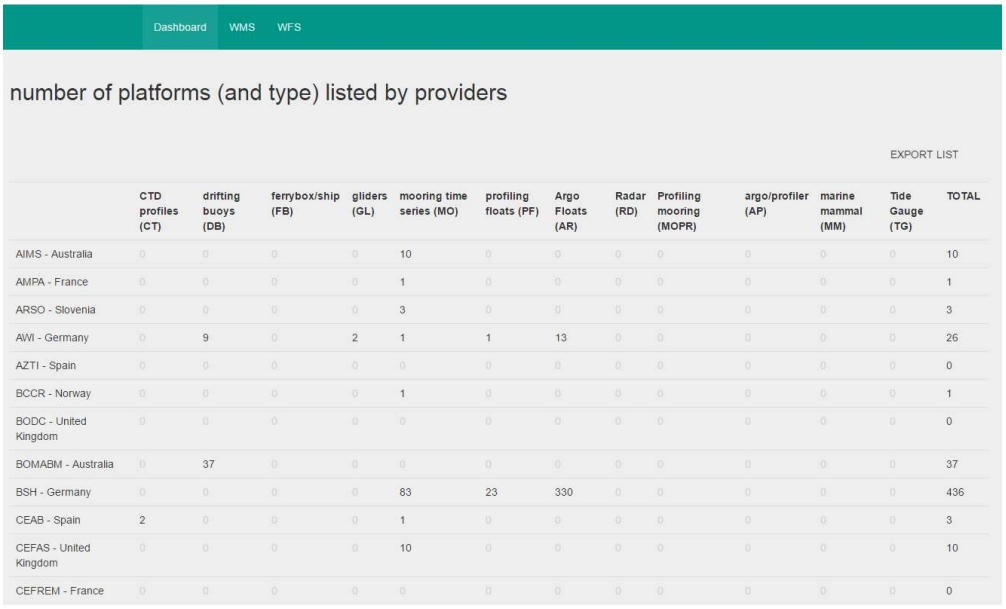
Figure 14: number of available dataset

3.1.3. Provider

The Provider section of the Dashboard provides three indicators regarding the number of platforms and their data access by users, with a specific focus on the platforms providers.

INDICATOR 1 - number of platforms (and type) listed by providers

This indicator shows the number of platform currently active on the system grouped by type and provider. The list can be exported in .csv format.

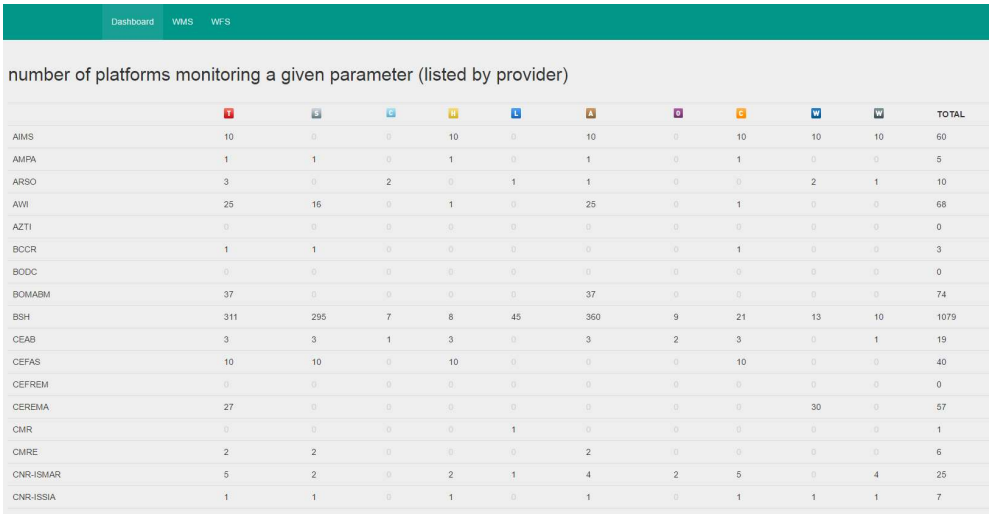


	CTD profiles (CT)	drifting buoys (DB)	ferrybox/ship (FB)	gliders (GL)	mooring time series (MO)	profiling floats (PF)	Argo Floats (AR)	Radar (RD)	Profiling mooring (MOPR)	argo/profiler (AP)	marine mammal (MM)	Tide Gauge (TG)	TOTAL
AIMS - Australia	0	0	0	0	10	0	0	0	0	0	0	0	10
AMPA - France	0	0	0	0	1	0	0	0	0	0	0	0	1
ARSO - Slovenia	0	0	0	0	3	0	0	0	0	0	0	0	3
AWI - Germany	0	9	0	2	1	1	13	0	0	0	0	0	26
AZTI - Spain	0	0	0	0	0	0	0	0	0	0	0	0	0
BCCR - Norway	0	0	0	0	1	0	0	0	0	0	0	0	1
BODC - United Kingdom	0	0	0	0	0	0	0	0	0	0	0	0	0
BOMABM - Australia	0	37	0	0	0	0	0	0	0	0	0	0	37
BSH - Germany	0	0	0	0	83	23	330	0	0	0	0	0	436
CEAB - Spain	2	0	0	0	1	0	0	0	0	0	0	0	3
CEFAS - United Kingdom	0	0	0	0	10	0	0	0	0	0	0	0	10
CEFREM - France	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 15: number of platforms (and type) listed by providers

INDICATOR 2 - number of platforms monitoring a given parameter (listed by provider)

This indicator shows the number of platform currently active on the system grouped by parameter monitored and provider.



	T	S	C	H	L	A	O	C	W	W	TOTAL
AIMS	10	0	0	10	0	10	0	10	10	10	60
AMPA	1	1	0	1	0	1	0	1	0	0	5
ARSO	3	0	2	0	1	1	0	0	2	1	10
AWI	25	16	0	1	0	25	0	1	0	0	68
AZTI	0	0	0	0	0	0	0	0	0	0	0
BCCR	1	1	0	0	0	0	0	1	0	0	3
BODC	0	0	0	0	0	0	0	0	0	0	0
BOMABM	37	0	0	0	0	37	0	0	0	0	74
BSH	311	295	7	8	45	360	9	21	13	10	1079
CEAB	3	3	1	3	0	3	2	3	0	1	19
CEFAS	10	10	0	10	0	0	0	10	0	0	40
CEFREM	0	0	0	0	0	0	0	0	0	0	0
CEREMA	27	0	0	0	0	0	0	0	30	0	57
CMR	0	0	0	0	1	0	0	0	0	0	1
CMRE	2	2	0	0	0	2	0	0	0	0	6
CNR-ISMAR	5	2	0	2	1	4	2	5	0	4	25
CNR-ISSIA	1	1	0	1	0	1	0	1	1	1	7

Figure 16: number of platforms monitoring a given parameter (listed by provider)

INDICATOR 3 - Report on platforms views and data downloads (per Provider)

This report provides a detailed list of platform belonging to a single provider (that can be selected by the user) with information on the data availability. In particular, for every station the report shows the following information:

- *Platform Info*: direct link to the platform page on the map portal
- *Latitude/Longitude*: position of the platform
- *Country*: country of origin of the provider of the data
- *Data provider*: the provider of the platform data
- *Platform*: platform name
- *Type*: platform type code
- *Session count per day*: number of request of the specific platform page in the period specified by the time window input. If not specified, by default it considers last 30 days.
- *Latest*: number of latest data download in the period specified by the time window input
- *Monthly*: number of monthly data download in the period specified by the time window input
- *History*: number of history data download in the period specified by the time window input
- *Web service*: number of ws request in the period specified by the time window input
- *State*: on/off
- *Parameters group*: type of data provided by the platform (water temperature, salinity, etc.)

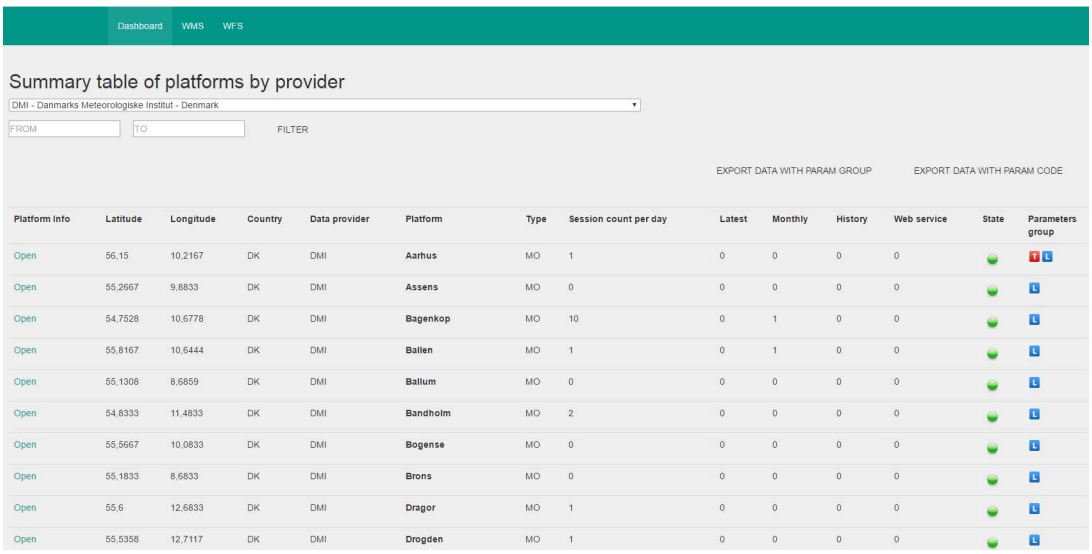


Figure 17: Report on platforms views and data downloads (per Provider)

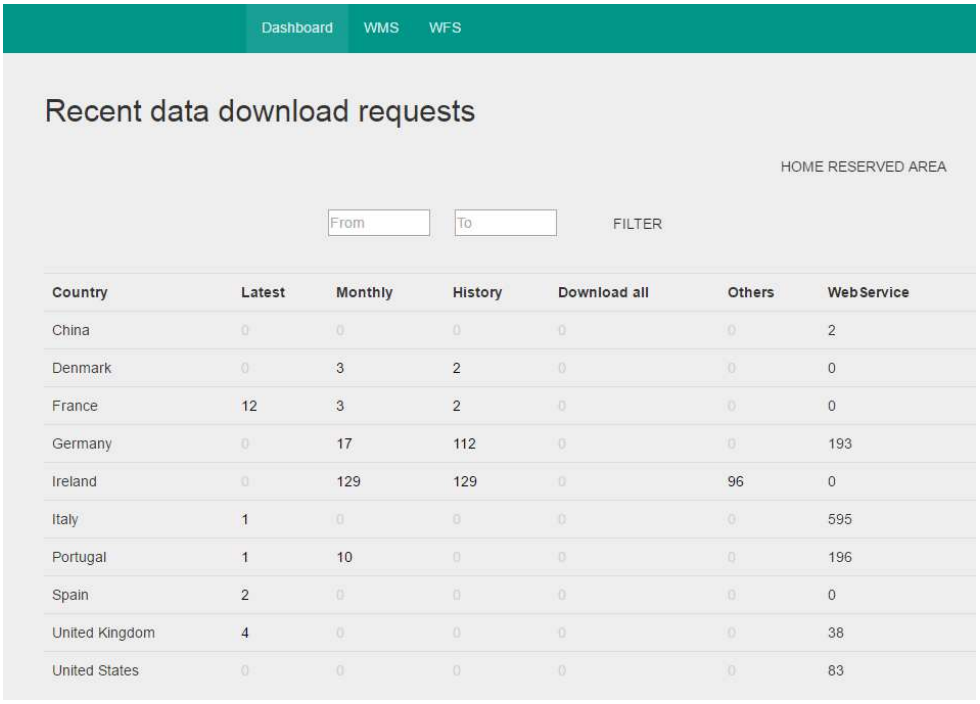
The resulting list can be exported in .csv format.

3.1.4. Report on data downloads

The four report in this section focus on the data access and data download by the system users.

DDR 1 - Recent data download requests

This report list all the data download request divided per type of file/services (latest, monthly, history, all, others, web service) and grouped by countries from where the request originates, in a specific time period (default is 5 days). The country is identified by the geolocation of the IP of the web request, using a free geolocation database, GeoLite2 (http://dev.maxmind.com/geoip/geoip2/geolite2).

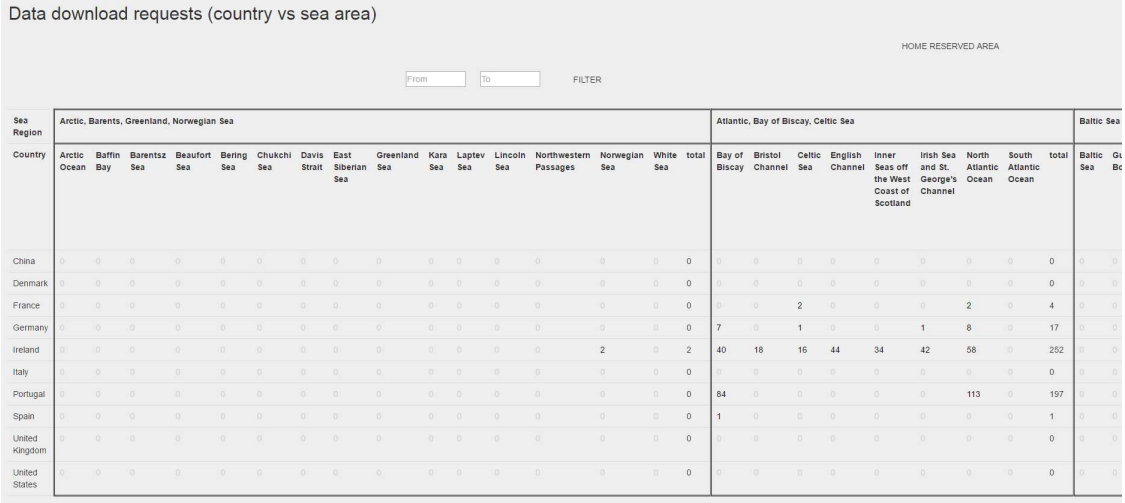


Country	Latest	Monthly	History	Download all	Others	WebService
China	0	0	0	0	0	2
Denmark	0	3	2	0	0	0
France	12	3	2	0	0	0
Germany	0	17	112	0	0	193
Ireland	0	129	129	0	96	0
Italy	1	0	0	0	0	595
Portugal	1	10	0	0	0	196
Spain	2	0	0	0	0	0
United Kingdom	4	0	0	0	0	38
United States	0	0	0	0	0	83

Figure 18: Recent data download requests

DDR 2 - Data download requests (country vs sea area)

This report shows the total number of requests of data download divided per sea region/country and grouped by countries from where the request originates, in a specific time period (default is 5 days). The country is identified by the geolocation of the IP of the web request.

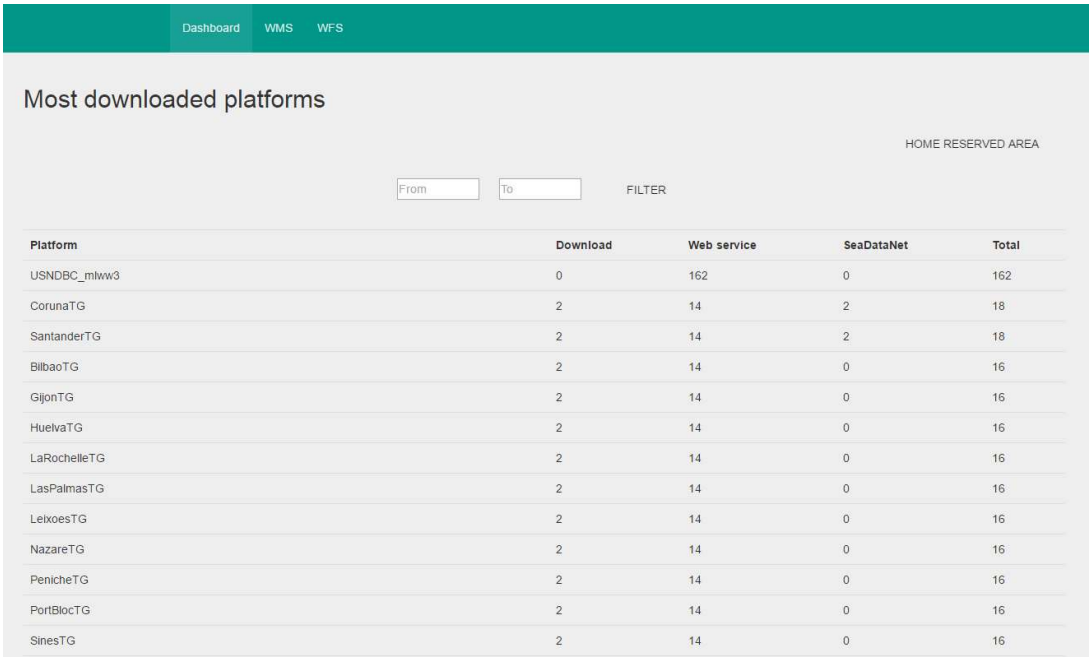


Sea Region	Arctic, Barents, Greenland, Norwegian Sea																Atlantic, Bay of Biscay, Celtic Sea									Baltic Sea	
Country	Arctic Ocean	Baffin Bay	Barentsz Sea	Beaufort Sea	Bering Sea	Chukchi Sea	Davis Strait	East Siberian Sea	Greenland Sea	Kara Sea	Laptev Sea	Lincoln Sea	Northwestern Passages	Norwegian Sea	White Sea	total	Bay of Biscay	Bristol Channel	Celtic Sea	English Channel	Inner Seas off the West Coast of Scotland	Irish Sea and St. George's Channel	North Atlantic Ocean	South Atlantic Ocean	total	Baltic Sea	Gu Bo
China	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Denmark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
France	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4	0	0
Germany	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	1	0	0	1	8	0	17	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	40	18	16	44	34	42	58	0	252	0	0
Italy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84	0	0	0	0	0	113	0	197	0	0
Spain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
United Kingdom	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 19: Data download requests (country vs sea area)

DDR 3 - Most downloaded platforms

The DDR3 report provides a list of the platform whose data has been downloaded ordered by the number of total downloads. The list provides also the number of download request divided per type (direct download, web service and SeaDataNet CDI requests). The time window of the request can also be selected manually by the user.



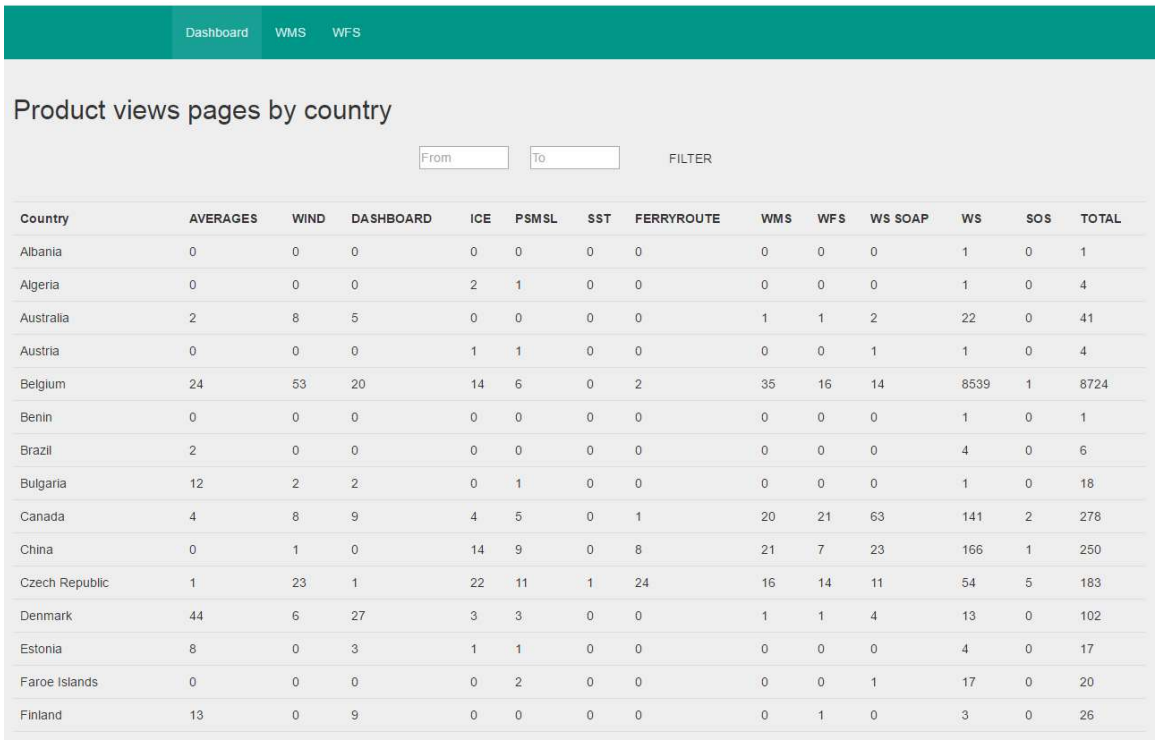
Platform	Download	Web service	SeaDataNet	Total
USNDBC_mlww3	0	162	0	162
CorunaTG	2	14	2	18
SantanderTG	2	14	2	18
BilbaoTG	2	14	0	16
GijonTG	2	14	0	16
HuelvaTG	2	14	0	16
LaRochelleTG	2	14	0	16
LasPalmasTG	2	14	0	16
LeixoesTG	2	14	0	16
NazareTG	2	14	0	16
PenicheTG	2	14	0	16
PortBlocTG	2	14	0	16
SinesTG	2	14	0	16

Figure 20: - Most downloaded platforms

DDR 4 - Product views pages by country

This report offers an insight of the users' utilization of AtlantOS services and product pages. The list provides the number of access of every product pages (Averages, Wind, Dashboard, Ice, PSMSL, SST – Sea Surface temperature, Ferry Routes) and data/metadata services such as WMS, WFS, SOS (description of platform

metadata in SensorML standard) and custom Web Service requests, grouped by country of origin of the request.
The time window of the request can also be selected manually by the user.



Country	AVERAGES	WIND	DASHBOARD	ICE	PSMSL	SST	FERRYROUTE	WMS	WFS	WS SOAP	WS	SOS	TOTAL
Albania	0	0	0	0	0	0	0	0	0	0	1	0	1
Algeria	0	0	0	2	1	0	0	0	0	0	1	0	4
Australia	2	8	5	0	0	0	0	1	1	2	22	0	41
Austria	0	0	0	1	1	0	0	0	0	1	1	0	4
Belgium	24	53	20	14	6	0	2	35	16	14	8539	1	8724
Benin	0	0	0	0	0	0	0	0	0	0	1	0	1
Brazil	2	0	0	0	0	0	0	0	0	0	4	0	6
Bulgaria	12	2	2	0	1	0	0	0	0	0	1	0	18
Canada	4	8	9	4	5	0	1	20	21	63	141	2	278
China	0	1	0	14	9	0	8	21	7	23	166	1	250
Czech Republic	1	23	1	22	11	1	24	16	14	11	54	5	183
Denmark	44	6	27	3	3	0	0	1	1	4	13	0	102
Estonia	8	0	3	1	1	0	0	0	0	0	4	0	17
Faroe Islands	0	0	0	0	2	0	0	0	0	1	17	0	20
Finland	13	0	9	0	0	0	0	0	1	0	3	0	26

Figure 21: Product views pages by country

3.1.5. Geo Reports

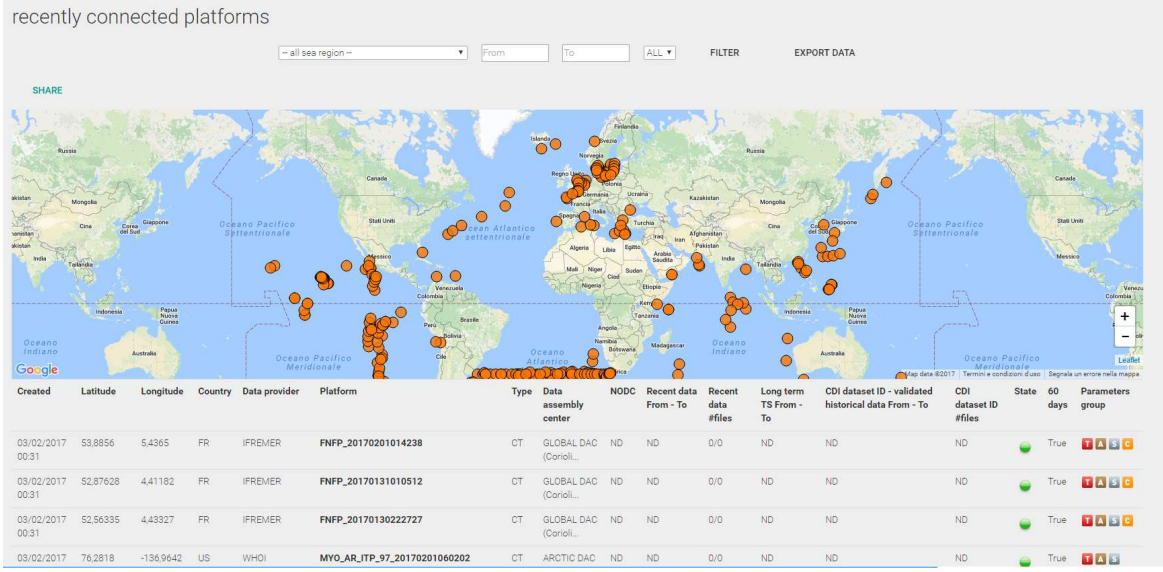
The reports in this section are general reports on platform monitoring and metadata.

GR 1 - recently connected platforms

This report provides a list of all platform that has been included in the system. The web interface allows the users to select a specific sea region, a time range (default is last 30 days) and the current state of the platform in the system (activated or not). The result web page provides bot a graphical (map) and list representation. The platform details provided are:

- *Created*: date of platform creation in the system
- *Latitude/Longitude*: position of the platform
- *Country*: country of origin of the provider of the data
- *Data provider*: the provider of the platform data
- *EDMO Code*: European Directory of Marine Organisations (EDMO) id where available
- *Platform*: platform name
- *Type*: platform type code
- *Data assembly center*:
- *NODC*: National Oceanographic Data Center
- *Data network*: platform affiliation to networks and projects
- *Recent data From – To*: monthly files data availability (time period)
- *Recent data #files*: monthly files data availability (number of available files/ number of expected files)
- *Long term TS From – To*: history files data availability (time period)
- *CDI dataset ID - validated historical data From – To*: CDI dataset availability (time period)
- *CDI dataset ID #files*: CDI dataset availability (number of available files)
- *State*: on/off
- *60 days*: data available in the last 60 days (true/false)
- *Parameters group*: type of data provided by the platform (water temperature, salinity, etc...)

The resulting list is also downloadable in csv format.

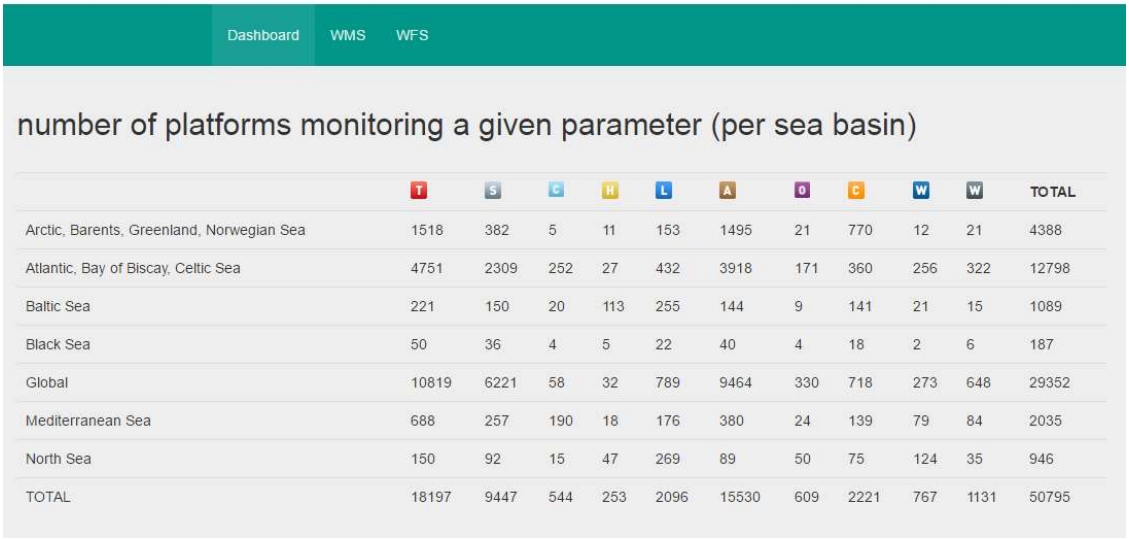


Created	Latitude	Longitude	Country	Data provider	Platform	Type	Data assembly center	NODC	Recent data From - To	Recent data #files	Long term TS From - To	CDI dataset ID - validated historical data From - To	CDI dataset ID #files	State	60 days	Parameters group
03/02/2017 00:31	53,8856	5,4365	FR	IFREMER	FNFP_20170201014238	CT	GLOBAL DAC (Corioli...	ND	ND	0/0	ND	ND	ND		True	T A S C
03/02/2017 00:31	52,87628	4,41182	FR	IFREMER	FNFP_20170131010512	CT	GLOBAL DAC (Corioli...	ND	ND	0/0	ND	ND	ND		True	T A S C
03/02/2017 00:31	52,56335	4,43327	FR	IFREMER	FNFP_20170130222727	CT	GLOBAL DAC (Corioli...	ND	ND	0/0	ND	ND	ND		True	T A S C
03/02/2017	76,2818	-136,9642	US	WHOI	MYO_AR_ITP_97_20170201060202	CT	ARCTIC DAC	ND	ND	0/0	ND	ND	ND		True	T A S

Figure 22: - recently connected platforms

GR 2 - number of platforms monitoring a given parameter (per sea basin)

This report provides the total number of platform in the system that monitor a specific parameter grouped per sea basin. Every row indicates how many platform located in a given sea basin acquired data of a specific type (temperature, wind, salinity, etc...)



number of platforms monitoring a given parameter (per sea basin)

	T	S	G	H	L	A	O	C	W	W	TOTAL
Arctic, Barents, Greenland, Norwegian Sea	1518	382	5	11	153	1495	21	770	12	21	4388
Atlantic, Bay of Biscay, Celtic Sea	4751	2309	252	27	432	3918	171	360	256	322	12798
Baltic Sea	221	150	20	113	255	144	9	141	21	15	1089
Black Sea	50	36	4	5	22	40	4	18	2	6	187
Global	10819	6221	58	32	789	9464	330	718	273	648	29352
Mediterranean Sea	688	257	190	18	176	380	24	139	79	84	2035
North Sea	150	92	15	47	269	89	50	75	124	35	946
TOTAL	18197	9447	544	253	2096	15530	609	2221	767	1131	50795

Figure 23: number of platforms monitoring a given parameter

4. Annex 1 – User Survey

The user survey was designed in cooperation and collaboration with WP7. It is here reported for the completeness of the documentation.

1. User feedback and experience

a. User background

Background	
Age	19-30 31-40 41-50 51-60 >61
Gender	M F
Education	Engineering (ICT) - Computer Science Engineering (others) Environmental Science Maths - Physics - Oceanography Human Sciences – Law Economics Other (specify)
Level of Education	Master PhD Other (specify)
Sector of work	National government Regional/local government Research funding organisation Public research organisation RI operator – public RI operator – private RI user Private organisation - Industry Large Industry Private SME International organisation Other
Typical application	Research Environment Security Navigation .. Other (specify)
Organization (optional)	
Country of work	

b. Knowledge of the networks, infrastructures, programs for in-situ observations/data

Knowledge of the networks/infrastructures/programs/… Please rank your level of knowledge of the following items (1 = never; 10 = know very well)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
VOS	Voluntary Observing Ship										
SOOP	Ship Of Opportunity Program										
CPR - SAHFOS	Continuous Plankton Recorder survey operated by SAHFOS										
Fish and Plankton Surveys	Fish and Plankton Surveys collected at ICES										
	Seafloor mapping										
Autonomous Observing Networks											
Argo	Profiling Float global network										
Gliders											
Drifters											
OceanSITES	Network of Deepwater reference stations										
EATN	European Animal tracking Network										
Coastal observing systems											
Ferrybox											
FOS	Fishery Observing System										
Coastal profilers											
Fixed Moorings											
Integrators											
SeaDataNet											
CMEMS INS TAC	Copernicus Marine Environment Monitoring Service In Situ Thematic Assembly Centre										
ICES	International Council for the Exploration of the Sea										
EuroOBIS	European Ocean Biogeographic Information System										
MarineRegions											
WoRMS	World Register of Marine Species										
OBIS	Ocean Biogeographic Information System										
EMODnet Bathymetry	European Marine Observation and Data Network – Bathymetry lot										
EMODnet Biology	European Marine Observation and Data Network – Biology lot										
EMODnet Chemistry	European Marine Observation and Data Network – Chemistry lot										
EMODnet Physics	European Marine Observation and Data Network – Physics lot										
GEOSS	Global Earth Observation System of Systems										
International programs and GDAC											
DBCP	Data Buoy Cooperation Panel										

CORIOLIS	Data Centre for Operational Oceanography and Research										
EGO	Everyone's Gliding Observatories										
EUMETNET											
Other relevant observing networks and data collection programs											
FixO3	Fixed-point Open-Ocean Observatories										
GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

Knowledge of the infrastructures, programs, … Please provide one sentence of description for following items	
Ship based observation Networks	
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program
VOS	Voluntary Observing Ship
SOOP	Ship Of Opportunity Program
CPR - SAHFOS	Continuous Plankton Recorder survey operated by SAHFOS
Fish and Plankton Surveys	Fish and Plankton Surveys collected at ICES
	Seafloor mapping
Autonomous Observing Networks	
Argo	Profiling Float global network
Gliders	
Drifters	
OceanSITES	Network of Deepwater reference stations
EATN	European Animal tracking Network
Coastal observing systems	
Ferrybox	
FOS	Fishery Observing System
Coastal profilers	
Fixed Moorings	
Integrators	
SeaDataNet	
CMEMS INS TAC	Copernicus Marine Environment Monitoring Service In Situ Thematic Assembly Centre
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MarineRegions	
WoRMS	World Register of Marine Species
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EMODnet Chemistry	European Marine Observation and Data Network – Chemistry lot
EMODnet Physics	European Marine Observation and Data Network – Physics lot
GEOSS	Global Earth Observation System of Systems
International programs and GDAC	
DBCP	Data Buoy Cooperation Panel
CORIOLIS	Data Centre for Operational Oceanography and Research
EGO	Everyone's Gliding Observatories
EUMETNET	
Other relevant observing networks and data collection programs	
FixO3	Fixed-point Open-Ocean Observatories
GOSUD	Global Ocean Surface Underway Data
OTN	Ocean Tracking Network
PIRATA	
SOCAT	Surface Ocean CO2 Atlas (SOCAT)
TMA	Transport Mooring Array

c. Visibility of the networks, infrastructures, programs

Visibility of the infrastructure Please rank the level of visibility (easiness to find) the item on Google (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
VOS	Voluntary Observing Ship										
SOOP	Ship Of Opportunity Program										
CPR - SAHFOS	Continuous Plankton Recorder survey operated by SAHFOS										
Fish and Plankton Surveys	Fish and Plankton Surveys collected at ICES										
	Seafloor mapping										
Autonomous Observing Networks											
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Gliders											
Drifters											
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GEOSS	Global Earth Observation System of Systems										
International programs and GDAC											
DBCP	Data Buoy Cooperation Panel										
CORIOLIS	Data Centre for Operational Oceanography and Research										

EGO	Everyone's Gliding Observatories										
EUMETNET											
Other relevant observing networks and data collection programs											
FixO3	Fixed-point Open-Ocean Observatories										
GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

Visibility of the infrastructure Please rank the level of visibility (easiness to find) the item on Sextant (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
VOS	Voluntary Observing Ship										
SOOP	Ship Of Opportunity Program										
CPR - SAHFOS	Continuous Plankton Recorder survey operated by SAHFOS										
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International programs and GDAC											
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CORIOLIS	Data Centre for Operational Oceanography and Research										
EGO	Everyone's Gliding Observatories										
EUMETNET											
Other relevant observing networks and data collection programs											

FixO3	Fixed-point Open-Ocean Observatories										
GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

Visibility of the infrastructure Please rank the level of visibility (easiness to find) the item on SeaDataNet (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
VOS	Voluntary Observing Ship										
SOOP	Ship Of Opportunity Program										
CPR - SAHFOS	Continuous Plankton Recorder survey operated by SAHFOS										
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	Seafloor mapping										
Autonomous Observing Networks											
Argo	Profiling Float global network										
Gliders											
Drifters											
OceanSITES	Network of Deepwater reference stations										
EATN	European Animal tracking Network										
Coastal observing systems											
Ferrybox											
FOS	Fishery Observing System										
Coastal profilers											
Fixed Moorings											
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GEOSS	Global Earth Observation System of Systems										
International programs and GDAC											
DBCP	Data Buoy Cooperation Panel										
CORIOLIS	Data Centre for Operational Oceanography and Research										
EGO	Everyone's Gliding Observatories										
EUMETNET											

Other relevant observing networks and data collection programs											
FixO3	Fixed-point Open-Ocean Observatories										
GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

Visibility of the infrastructure Please rank the level of visibility (easiness to find) the item on CMEMS INS TAC (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
VOS	Voluntary Observing Ship										
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EUMETNET											
Other relevant observing networks and data collection programs											

FixO3	Fixed-point Open-Ocean Observatories										
GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

Visibility of the infrastructure Please rank the level of visibility (easiness to find) the item on ICES (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
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EUMETNET											
Other relevant observing networks and data collection programs											

FixO3	Fixed-point Open-Ocean Observatories										
GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

Visibility of the infrastructure Please rank the level of visibility (easiness to find) the item on EuroOBIS (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
VOS	Voluntary Observing Ship										
SOOP	Ship Of Opportunity Program										
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DBCP	Data Buoy Cooperation Panel										
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EGO	Everyone's Gliding Observatories										
EUMETNET											
Other relevant observing networks and data collection programs											

FixO3	Fixed-point Open-Ocean Observatories										
GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

Visibility of the infrastructure Please rank the level of visibility (easiness to find) the item on EMODnet Biology (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
VOS	Voluntary Observing Ship										
SOOP	Ship Of Opportunity Program										
CPR - SAHFOS	Continuous Plankton Recorder survey operated by SAHFOS										
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International programs and GDAC											
DBCP	Data Buoy Cooperation Panel										
CORIOLIS	Data Centre for Operational Oceanography and Research										
EGO	Everyone's Gliding Observatories										
EUMETNET											
Other relevant observing networks and data collection programs											

FixO3	Fixed-point Open-Ocean Observatories										
GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

Visibility of the infrastructure Please rank the level of visibility (easiness to find) the item on EMODnet Chemistry (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
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International programs and GDAC											
DBCP	Data Buoy Cooperation Panel										
CORIOLIS	Data Centre for Operational Oceanography and Research										
EGO	Everyone's Gliding Observatories										
EUMETNET											

Other relevant observing networks and data collection programs											
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GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

Visibility of the infrastructure Please rank the level of visibility (easiness to find) the item on EMODnet Physics (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
VOS	Voluntary Observing Ship										
SOOP	Ship Of Opportunity Program										
CPR - SAHFOS	Continuous Plankton Recorder survey operated by SAHFOS										
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	Seafloor mapping										
Autonomous Observing Networks											
Argo	Profiling Float global network										
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Other relevant observing networks and data collection programs											

FixO3	Fixed-point Open-Ocean Observatories										
GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

Visibility of the provider/owner/PI How easy is to identify find the data provider/owner/PI in it? (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
VOS	Voluntary Observing Ship										
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Other relevant observing networks and data collection programs											
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GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

d. Data, products and fitness for purpose

Used AtlantOS Essential Variables (as defined in AtlantOS WP7) How often are you using the following Variables? (1 = never; 10 = always)											
		1	2	3	4	5	6	7	8	9	10
A05 – AtlanOS Essential Variables											
Identifier	Label										
EV_OXY	Oxygen										
EV_RADFLX	Radiative fluxes										
EV_RAIN	Rainfall										
EV_SALIN	Salinity										
EV_SEALVL	Sea Level										
EV_POM	Suspended particles										
EV_SEATEMP	Temperature										
EV_TTRACE	Transient Traces										
EV_WAVES	Waves										
EV_WDIR	Wind Direction										

Used EOV How often are you using the following EOV? (1 = never; 10 = always)										
	1	2	3	4	5	6	7	8	9	10
http://goosocean.org/index.php?option=com_content&view=article&id=14&Itemid=114										
Identifier - Label										
Physics										
Sea state										
Ocean surface stress										
Sea ice										
Sea surface height										
Sea surface temperature										
Subsurface temperature										
Surface currents										
Subsurface currents										
Sea surface salinity										
Subsurface salinity										
Heat flux / radiation										
Biogeochemistry										
Dissolved Oxygen										
Inorganic macro nutrients										
Carbonate System										
Transient tracers										
Suspended particulates										
Nitrous oxide										
Stable Carbon Isotopes										
Dissolved organic carbon										
Ocean Colour										
Biology and Ecosystems										
Phytoplankton biomass and diversity										
Zooplankton biomass and diversity										
Fish abundance and distribution										
Marine turtles, birds, mammals abundance and distribution										
Live coral										
Seagrass cover										
Macroalgal canopy										
Mangrove cover										

Accessibility/discoverability of data Please rank the level of easiness to find data/products you need in the following: (1 = very difficult; 10 = very easy)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
Ship based observation Networks											
GO-SHIP	Global Ocean Ship based Hydrographic Investigations Program										
VOS	Voluntary Observing Ship										
SOOP	Ship Of Opportunity Program										
CPR - SAHFOS	Continuous Plankton Recorder survey operated by SAHFOS										
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Drifters											
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Ferrybox											
FOS	Fishery Observing System										
Coastal profilers											
Fixed Moorings											
Integrators											
SeaDataNet											
CMEMS INS TAC	Copernicus Marine Environment Monitoring Service In Situ Thematic Assembly Centre										
ICES	International Council for the Exploration of the Sea										
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GEOSS	Global Earth Observation System of Systems										
International programs and GDAC											
DBCP	Data Buoy Cooperation Panel										
CORIOLIS	Data Centre for Operational Oceanography and Research										
EGO	Everyone's Gliding Observatories										

EUMETNET											
Other relevant observing networks and data collection programs											
FixO3	Fixed-point Open-Ocean Observatories										
GOSUD	Global Ocean Surface Underway Data										
OTN	Ocean Tracking Network										
PIRATA											
SOCAT	Surface Ocean CO2 Atlas (SOCAT)										
TMA	Transport Mooring Array										

usability of data and products Please rank the level of easiness to visualize/understand available data/products (1 = very difficult ; 10 = very easy)											
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Usability of data and products Please rank the level of completeness of the available data, metadata, products (1 = incomplete ; 10 = complete)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
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Usability of data and products Please rank the level traceability to the original measurements (1 = incomplete ; 10 = complete)											
Acronym	Description	1	2	3	4	5	6	7	8	9	10
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Fit for purpose Please rank the level of fitness for your purpose of the available data/products (1 = not relevant ; 10 = very useful)											
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e. Miscellaneous

Have you ever encountered problems in downloading data?	• Restrictions? • Technical problems (e.g. timeout, corrupted…) • No support/no contacts • Other
Most relevant product according your job/expertise	• Data – dataset as it is • Qualified dataset • Product (e.g. outcome of a model, elaboration in space/time of different data sources) • Reanalysis (e.g. trends, averages in time/space) • Other
Are you interest in data subset?	• Time • Space • Parameters • Platforms • Networks • Programs
Did you encounter barriers in using data?	• Lack of information • Lack of resources • Intellectual Property Right • Timeliness of the delivery • Other
feeding back issues, lessons learnt, and possible improvements to data providers	• (open) access to data • Foster Interoperability • Provide services for data repository and management • Common formats/adaptors tools • Harmonize policies, rules and guidelines for data storage management and access • Leverage data accessibility

1. (optional) Are you willing to know outcomes and participate to news surveys (please provide email)
2. (optional) other comments/messages/feedback