

## 6<sup>th</sup> DATAMEQ meeting Minutes

*EuroGOOS office 235 Avenue Louise Brussels  
20<sup>th</sup> – 21<sup>st</sup> November 2018  
V0.1 29<sup>th</sup> November 2018*

The meeting started at 14h00 on the 20<sup>th</sup> November and finished at 12h00 on the 21<sup>st</sup> November. Due to multiple ROOS and Task Team meetings organised in parallel these two days some ROOS and Task Teams were not represented but all the topics were addressed by the group. The conclusion of the meeting will be distributed to the whole DATAMEQ group.

The Objectives of the meeting were to work TOR 1,2,3,4 and 5 based on the development taking advantage of the developments performed within the projects and Task Teams in close link with the EuroGOOS ROOSs

1. Propose a data policy for EuroGOOS (action from last General Assembly)
2. Revise what has been set up since 2015 and identify the improvements that are needed ( Copernicus Marine Service INSTAC- SeaDataNet- EMODnet-Physics and EMODnet-Chemistry, EMODnet-Biology, AtlantOS, Jerico-Next, ENVRI-FAIR )
3. Review progress with the EuroGOOS Task Team that were created in 2015
4. Define plan to enhance in situ product quality within the EU and International context
5. Define Action plan for next 2 years

### 1 Summary of the recommendations elaborated in 2015 and endorsed by the EuroGOOS Assembly

The recommendations from 2015 meeting were reviewed and progress have been made on most of them. They have served as guidelines in projects such as AtlantOS, ENVRIplus, JERICO-Next, EMODnet, SeaDataCloud or CMEMS INSTAC. Discussion of data exchange and sharing showed that some ROOSs have been much more effective than others in building a community around data sharing, and therefore improving the capability to develop better services to the ROOS community or to develop new projects using such data support.

#### Data Standardisation

Progress have been made towards common standards: an agreement was reached regarding unique ID for all platform (WMO ID when exist (systematic for all data transmitted on GTS) , catalogue C17 for ships, ), systematic use of EDMO code as attribute for Institutions, P07 +CF convention for parameter names ° Activity will continue within ENVRI-FAIR project.

The group recommend to carry on standardized information to inform users on Quality Control level applied of the data (Automated RTQC, Scientifically Assessed....). The group also recommend to continue to work with EuroGOOS Task Teams to reach a common level of platform description and sensor description ( a SensoML hierarchical description could become a solution) Guidelines for implementation of Data Citation ( DOI ) based on international work ( link RDA ODIP2) have been developed within AtlantOS project and a few networks have developed a network strategy. Sharing



such strategy within OBP (Ocean Best Practices) should be done and support to all task team should be pursued

#### Data Quality

The group recommends to update periodically the DataMEQ RTQC procedures for:

- T&S, Current and Sea-Level especially for coastal data
- For Wave
- For Currents from HF Radars
- For O<sub>2</sub>, Chl<sub>a</sub>, Nitrate and Carbon

And extend the list of parameters when appropriate

#### Data Aggregation

The group recommends to sustain European and regional data aggregation and portals in close collaboration with CMEMS and EMODnet with the parameters and platforms necessary for the ROOSes activities. This activity should be reinforced in some ROOS where it's less developed than in others.

The group recommends to update aggregated historical in situ datasets, important for reanalysis activities carried out within EUROGOOS. Such activity should be carried on jointly by EuroGOOS ROOSes, CMEMS, SeaDataNet and EMODnet to ensure proper in situ data interoperability, archiving and facilitate aggregated data product elaboration covering proper time and space coverage mainly for the reanalysis performed within CMEMS and by EuroGOOS members (Parameters : T&S, wave, sea-level, currents, oxygen, nutrients and carbon). The importance of properly finance data management activities is highlighted.

#### Traceability of Use

Within AtlantOS a prototype has been developed to provide feedback to providers on the downloads performed through Integrators of the data they share. Such activity should be turned into operation and sustained to support free and open data exchange within EuroGOOS community.

#### New providers involvement

The activity carried on by EuroGOOS with EMODnet to involve more the potential providers by organizing regional or thematic meetings should be continued in partnership with main European integrators ( CMEMS, SeaDataNet) in close link with the EuroGOOS Task Teams that are in charge of data management organisation and sharing within their community of operators.

#### New services developments

With the development of big data infrastructures at European Scale, new capabilities are likely to be developed in the coming decade upon the existing data services as long as open data policy and interoperability of the data systems is achieved. The group recommend a close collaboration with, and between, the different initiatives (EOSC, DIAS, ...) so that the EuroGOOS community requirements are taken into consideration.



## 2 Propose a Strategy for an EuroGOOS Data Policy

EuroGOOS has a long history of data exchange but mainly made on best efforts. In 2000, 30 institutes signed an EuroGOOS data policy that have not been reviewed since that time and applied to the EuroGOOS prior to the AISBL set-up. IOC data policy was issued in 2003 signed by all countries and therefore applies also to EuroGOOS activities as IOC policy applies to data acquired under the auspices of IOC program and GOOS is one of them. Since 2000, SeaDataNet issued a data policy in 2006 that was not yet revised, CMEMS has one that applies to CMEMS products and Jerico issued a set of recommendations and define an open data policy for the station labelled as JERICO stations

A lot of services developed at European, regional or national scales are based on observations acquired by EuroGOOS and ROOS members and there is a potential risk that at any time an institute stop providing its data without warning and delays to adapt as not formal data policy or Data Exchange Agreement are in place in many of the ROOSs (or exist a very outdated one) .

The DATAMEQ proposal is to start from the 2000 EUROGOOS data policy, proposing that all data acquired under public funding should be shared without restriction in machine to machine interface with the community, as it is presently required in the H2020 projects. In this revision process we should simplify the data policy (because also the EU context has changed) and we should also mention in annex a list of initial EOVS that should be “mandatory” to share as essential for existing pan-EU-services such as Copernicus, EMODnet. The discussion of which are the mandatory platforms has been initiated (should Noise be included?).

It was also agreed that the possibility for a EuroGOOS member to opt out of this open data policy should be possible in some cases but it would need to be carefully justified (not make it to easy)

Benjamin Pfeil also suggested to have a look to the Open Research Data Pilot (guidelines for FAIR data in H2020 projects):

- [http://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/hi/oa\\_pilot/h2020-hi-oa-data-mgt\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf)
- <https://www.openaire.eu/what-is-the-open-research-data-pilot>

D. Schaap also mentioned that a Data Policy is only effective if it's respected by the community and if also sets obligations to the data providers

**Action:** EuroGOOS Office to propose a first draft of an updated EuroGOOS data policy, as a simplified version of the 2000 Data Policy, to be circulated among the DATAMEQ members before presentation to the EuroGOOS GA next May

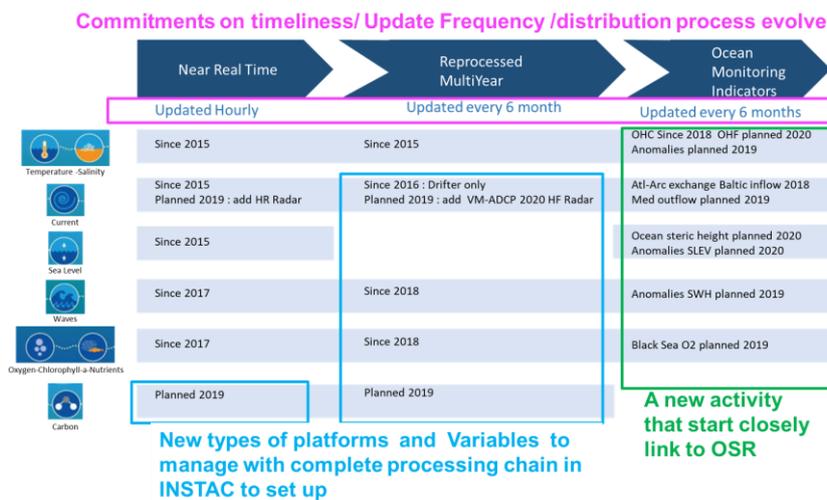
**Commented [VF1]:** I honestly believe that this is a huge task and needs to involve members and should be a community effort rather than a task for one person at the Office.

**Commented [SPIBP02R1]:** Of course it will involve the community but one need to start and EuroGOOS office is the only team financed for such coordination activity

### 3 What are the progresses through projects related to data access that can benefit EuroGOOS

#### 3.1 Data exchange and integration Copernicus Marine service (CMEMS INSTAC)

S Pouliquen presented the progress made by the in situ Tac from CMEMS (<http://www.marineinsitu.eu/>), the present catalogue of products, and the new products that will be proposed starting next year with the delivery of new current product derived from HF Radars, the integration of carbon products (SOCA, GLODAP) in the CMEMS catalogue and the integration of NRT carbon data in the INSTAC. She also mentioned the collaboration with EMODnet-Chemistry for the development of BGC products for ecosystem modelling and with SeaDataNet for historical T&S product. She also mentioned the updated schedule for Historical product that is planned to be twice a year in 2020 and the developments of Ocean Monitoring Indicators in link with the production of the annual Ocean State Reports.



She also mentioned the development of a T/S MIN/MAX climatology that has been used for historical product quality assessment and is presently being turned into operation within the NRT QC processing chain.

#### 3.2 Historical data in SeaDataNet

D Schaap presented the progress made within the SeaDataNet infrastructure. The CDI Data Discovery and Access service is one of its core services and presently connect 115 data centres from 34 countries around European seas. This CDI service allows discovery and download through a shopping list mechanism. As driver of several EMODnet portals and by means of several related EU projects the number of connected data centres has expanded largely in the last decade compared to the original 40 core centres. Also the number of CDI entries has doubled in the last 5 years to > 2.2



million data sets for physics, chemistry, biology, geology, and bathymetry. The SeaDataNet CDI service only focuses on data acquired by European originators (at present > 650 organisations) and facilitates that these data resources become available with a common metadata format (ISO19115 - 19139 profile supported by SDN controlled vocabularies) and in common data formats (SDN ODV and NetCDF (CF)). However the aim of the current EU SeaDataCloud project is to provide its users also discovery and access to other relevant marine data sources. For [marine data portals](#) SeaDataCloud works on operationalising the GEODAB metadata brokerage service as earlier developed by CNR-ESSI for GEOSS. In the framework of the ODIP2 project (Ocean Data Interoperability Platform) a prototype of this brokerage service was deployed for providing an integrated search service to discover SDN, US-NCEI and IMOS catalogues while using also a semantic mapping between the vocabularies used ('aka Rosetta Stone'). For [third parties](#) such as municipalities, regional governments, university departments, and industries who are not yet engaged in the mainstream marine data management infrastructures in their countries and Europe (EuroGOOS, CMEMS, SeaDataNet, EurOBIS, ...), the EMODnet Ingestion portal and activity has been developed. This allows third parties to ingest their data sets, which are then assigned to a thematic data centre for further elaboration and final inclusion in the European infrastructures. This also includes a cooperation with EuroGOOS ROOS's, CMEMS-INSTAC, and EMODnet Physics for identifying and connecting more operators of ocean observing platforms for NRT data exchange and with SeaDataNet for additional validation and long term stewardship of these data sets.

For closing the still existing gap between operational oceanography (EuroGOOS ROOS's – CMEMS INSTAC) and delayed mode data management (NODCs and SeaDataNet) the SeaDataCloud project has made great progress with further developing Sensor Web Enablement (SWE). This development has been and is undertaken with several EU projects. Recently a SWE ingestion service has been delivered in SeaDataCloud by 52North for ingesting (near) real time data sets from operational oceanography sensor networks such as run at research vessels and other platforms. This SWE solution consists of a series SensorML profiles, and a SMLE editor for network operators to describe their platforms and sensors in a standard way with metadata supported by SDN vocabularies which also have been populated further. The SWE ingestion service also includes various modes to receive and include operational data streams into a local database managed by the OO network operator, where metadata and data are combined and made available by SOS services for sharing to direct clients of the OO network operator. This provides a modern alternative for the current FTP data distribution as operated in the EuroGOOS ROOS's and CMEMS-INSTAC data exchange. Also it will provide more rich metadata which is something that users are increasingly demanding. The OO network operators can also decide to use the SOS services for giving NODCs access to the operational data streams for further semi-automatic validation and elaboration and inclusion in national data archives and SeaDataNet. The SWE standards and software are made available as open source by SeaDataCloud and a number of pilots are undertaken with SeaDataCloud partners such as BODC and Marine Institute for testing the protocols and the performances considering operational data streams from multiple sensors. D. Schaap therefore makes a strong plea to EuroGOOS OO network operators to consider adoption of the SWE software framework as its model can be used to set up dedicated pipelines of streaming data combined with metadata. SeaDataCloud is planning further testing and operational deployments with volunteering OO network operators, also as part of the new SeaDataCloud 2 proposal which is being prepared.

Finally D.Schaap mentions the major upgrade which is well underway in SeaDataCloud adopting cloud technology for making the CDI service better performing and more attractive for its users. This includes adding a cloud caching system at partner EUDAT which will hold copies of all SeaDataNet unrestricted data files and which will be maintained by each connected data centre (currently 115) by operating a local replication manager node and a central import manager dashboard. The CDI



Search interface is being upgraded for making the discovery and shopping easier and faster for users by GUI and machine-to-machine services. The upgraded system will also make it easier to handle restricted data requests. There will be a link with the European Open Science Cloud (EOSC) which is facilitated by having EUDAT on board of the SeaDataCloud project.

### ***3.3 New services from EMODNet-Physics***

For a question of lack of time, Antonio Novellino didn't made his presentation but distributed it to the DATAMEQ persons. EMODnet Physics is providing access to both near real time and historical validated data. EMODnet Physics is not running any platform therefore it relays on a federated structure that links data providers (or other key integrators). On top of this data flow, EMODnet Physics is providing additional search, viewing and downloading services on data. In this framework INSTAC-CMEMS and SeaDataNet are the key European data integrators and EMODnet Physics is federating the catalogues subsets that are matching with EMODnet Physics scope and requirements. INSTAC-CMEMS and SDN subsets are integrated with other available sources to make available the most comprehensive data catalogue (e.g. by integrating more than 400 European tide gauge stations, the 290 Global Sea Level Observing System - GLOSS - core network, and more than 1300 Permanent Service for Mean Sea Level – PSMSL -, EMODnet Physics is offering one of the widest in situ data collections for sea-level data). It performs data aggregation, and provide similar services for HF Radars (some products will be included and disseminated by CMEMS in 2019), river outflow and water noise. It also play the key role for unlocking access to existing data by organising specific workshop at regional or national level (SDN and INSTAC as well as EuroGOOS are involved in the workshops organization at different levels). Lately started providing access to aggregated products that may be federated from EMODnet Physics network and pillars (e.g. it made available a new interface to discover the SDN Temperature and Salinity climatology while the product download is redirected to the original host), or may be developed by EMODnet Physics itself (e.g. Total Suspended Matter, Under Water Noise Impulsive Event Register, etc).

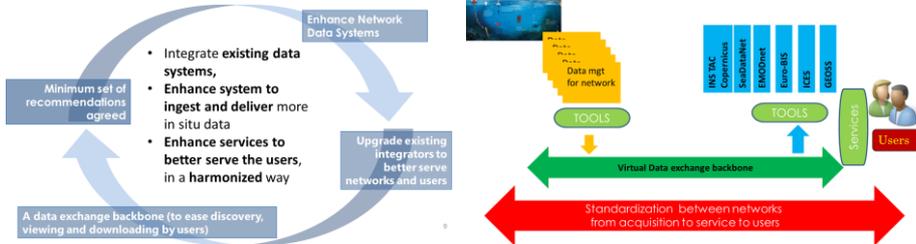
EMODnet-Physic also provided widgets that are used by CMEMS- INSTAC WWW site to provide viewing service on the latest 30 days of data

### ***3.4 New services from EMODNet-Biology***

No presentation on EMODnet-Biology was made as nobody attended

### ***3.5 Recommendations from AtlantOS H2020 project***

For a question of lack of time, S Pouliquen didn't made her presentation but distributed it to the DATAMEQ persons. AtlantOS is a research and innovation project that proposes the integration of ocean observing activities across all disciplines for the Atlantic, considering European as well as non-European partners. Within the Data Management WP data standardisation and interoperability has been enhanced to facilitate integrated access to the Atlantic networks in situ data and data exchange with the principal European integrators. A continuous improvement loop has been established to gradually enhance FAIRness of both networks and integrators data systems and build common tools that allow easier exchanges through a virtual backbone interface .



Moreover a catalogue , describing the networks, integrators and linking to Atlantic products available through the integrators or developed by AtlantOS has been developed using SEXTANT and could be maintained and enhanced by EuroGOOS if needed. Monitoring tools based on JCOMMOPS and EMODnet tools have also been developed to give visibility of the existing data shared at Atlantic level and to identify gaps. A prototype of a system that would allow traceability of use has also been developed that could be further developed in the future.

As a summary, no AtlantOS system has been developed, but rather existing components have been enhanced, tools developed that led to and improved Atlantic data system that will last after the end of the AtlantOS project.

### 3.6 MYCOAST project: *Complying with Data Interoperability Standards”: Actions on homogenization for data management along the coastal observatories of the Atlantic coast( 2018-2020)*

The Intereg MyCoast project aims, within the IBI-Roos community at filling the gap between large system (observation and model) and local systems. Within this project, one workpackage is dedicated to interoperability issues to promote information sharing and interoperability between coastal observatories and the common European information sharing systems. The resulting synergy will allow deploying and capitalizing innovative and standardized tools in the risk management systems applied mainly to extreme weather events leading to flooding, maritime safety and coastal pollution.

The methodology is to use existing standards (not reinventing the wheel), choose some types of datasets to standardize first (not trying to do them all at once) and encourage the use of same standards by all coastal observatories. They plan to create or adopt guidelines, tools, scripts and software to respond both local users and European initiatives. They decided to first start with HF Radar, fixed platform and CTD profiles.

Such deliverables could be made available both on OceanBestPractices repository and EuroGOOS DataMEQ websites to better guide coast observing system operators.

**Action:** *compile these Best Practices and data recommendation documents and put them in the EuroGOOS web.*

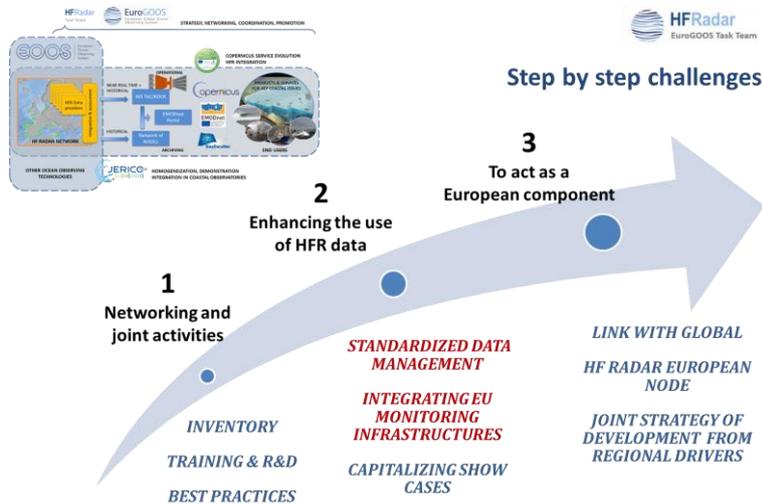
## 4 EuroGOOS Task Team plans regarding Data Management activities

### 4.1 Ferrybox : Status of European FerryBox data base and availability of FerryBox data for European networks

Gisbert Breitbach from HZG presented the European Ferrybox database that manage the ferrybox data in transect . S Pouliquen mentioned that it was essential for sharing with integrators, such as CMEMS, to add the platform ship ID as platform ID has been chosen within DATAMEQ as the unique ID that should be always attached to the data. Gisbert Breitbach mentioned that it was available via the OpenDAP interface and that it is planned to be added within the present DB. Gisbert Breitbach works with BSH to export in OceanSites CMEMS using the new CMEMS standardisation. The integration is progressing slowly as HZG was hoping to receive the ferrybox data in the recommended format but this is not the case . Presently they are receiving data from COSYNA, IMR, NIVA , SYKE and HCMR and deals with the following parameter : T S O2 Fluorescence Turbidity . HZG is using the 52North SOS service for enhanced viewing service .

### 4.2 Recent activities on standardization of HF Radar data model coordinated by the HFR Task Team. (J Mader)

The HFR Task Team includes 24 European operators representing 64 individual radar Stations. The potential societal benefits are high for both NRT and historical data, this is why it's essential to harmonise data streams at EU level. HF radar activities are progressing thanks to activities carried on within H2020 projects (e.g. Jerico and Jerico-Next and SeaDataCloud), CMEMS projects (INCREASE Service Evolution and INSTAC) and EMODnet-Physics.



Within Jerico-Next the deliverable D5-14 provides recommendations on improved common procedures for HFR QC analysis and would be worth to be put the on the DataMEQ WWW and also in the OBP.



Action: upload this deliverable on Data procedures in the EuroGOOS and OBP websites.

A workcamp was organised in September 2018 to engage with providers and present available tools to process and share their data. Such activity will facilitate the integration in CMEMS, EMODnet Physics and SDC.

EMODnet Physics is already providing access to the European HFR catalogue and is offering a HFR derived sea surface current product<sup>1</sup>. Within CMEMS, quality controlled NRT total current will be available in 2019, and radial currents in 2020 with an extension to historical products in 2020. The plan is to integrate 37 HF radars in April 2019, 22 more in 2020 and even more in 2021. Similarly, integration in SDC of complete timeseries is planned.

AZTI is also working together with other partners, CNR and Ifremer to set up an EU HF GDAC. Potential data providers will have access to tools to process their data or will be able to rely on other partners to process their data from raw data according to provider needs. These tools are presently in Matlab (based from USA tools) and in Java. A Python version would be highly appreciated.

Finally, the Task Team is a focal point of connection to the international JCOMM/GEO HF Radar activity, highlighting the European work.

## 5 Brainstorming on enhancing access to BGC observations

### 5.1 CMEMS in Situ Requirement analysis

In July 2018, a workshop was organised by Mercator-Océan-International and EuroGOOS to better assess what are the CMEMS in situ requirements, to analyse the gaps and to provide recommendations in term of enhancement of the observing system as well as requirement in term of data management. The complete report as well as the OceanOBS19 whitepaper will be distributed to the DATAMEQ members.

Hereafter the main recommendations related to in situ observations :

- Observations are a fundamental pillar of the operational oceanography (OO) added value chain and OO is highly dependent on the timely availability of comprehensive satellite and in situ observations.
- Although the same backbone observing system is used for OO services, climate and ocean health, OO services have specific requirements (e.g. timeliness < 1-2 days, high space and time resolution).
- There are critical sustainability and sampling gaps for in-situ observations and, in particular, major gaps for BGC EOVs (e.g. carbon, oxygen, nutrients, Chl-a).
- Consolidation of the Argo core mission (T&S-0-2000 m) including the sampling of polar seas and marginal seas and developing its two major extensions (BGC Argo and Deep Argo) is a strong priority for CMEMS at global and regional levels.
- Argo needs to be complemented by reference measurements from long time series at fixed points from moorings and ship based hydrographic surveys with the best quality standards (GO-SHIP) standards.

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<sup>1</sup> <http://www.emodnet-physics.eu/Map/Products/V2/PRODUCTS.aspx?PRODTYPE=RD>



- Improving European Regional Ocean Observing Systems (ROOSes) and key observing systems such as ferry-boxes, gliders, tide gauges and HF Radars are strong priorities for regional CMEMS products.
- A specific effort for the Arctic region is needed; there are severe limitations with measurements over the seasonal ice zone, which is growing broader and none of the platforms available today can collect data there.
- Development of a dedicated network able to collect FRMs for all the ocean variables estimated by the Copernicus Satellite component is also important for CMEMS.

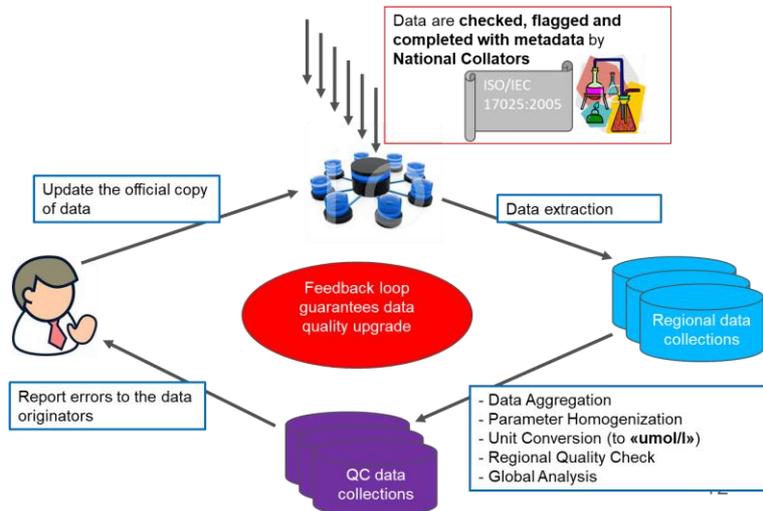
In terms of Data Managements, some recommendations were highlighted in the workshop:

- Timeliness is a very important parameter to be improved in order to ensure that data are available at each model run; particularly for coastal applications where ocean dynamics evolve on a rather short time (QC should not be delaying the public release of data).
- Data harmonization and their access need to be improved; specifically, data sampling, transmission, calibration, processing, archiving and retrieval of required variables shall be improved, using distributed and connected databases.
- For global models, in-situ data have to be gathered in a large database with a unified file format and easy to handle. Subsampling in time and space will depend on the use and model configuration.
- In the Baltic, most of the ship data cannot be accessed timely, both for operational forecasting and ocean state assessment report, and currently BOOS and BAL MFC only receive near real time data from less than two-thirds of the total amount of tide gauge stations.

## 5.2 EMODnet-Chemistry

EMODnet is a long term initiative as part of Blue Growth Strategy, funded by DG-Mare that aims at enhance the data life cycle from observations to information to better fulfil end users. A Giorgetti presented EMODnet-Chemistry that aims to collect, aggregate, standardize, check the chemical quality of data (water column, biota, sediment), developing new services to share information and products. The targeted applications are eutrophication, ocean acidification, contaminant and marine litter. The period covered is 1898 to 2018. B. Pfiel pointed out that EMODnet-Chemistry is collecting pH and pCO<sub>2</sub> but doesn't provide product for Ocean Acidification. EMODnet-chemistry is based on the SeaDataNet infrastructure and therefore and EMODnet-Chemistry benefits from the SeaDataCloud improvements and relies on data collected by only European countries.

Presently 45 institutes from 23 countries and 3 international agencies are contributing to EMODnet-Chemistry. One main targeted application is the MSFD directive, and therefore EMODnet-chemistry has a tight connection with EEA, RSC, JRC, ICES, Experts Group to provide relevant information for parameters identified as indicators of 4 MSFD descriptors. EMODnet-chemistry actors are also involved in MSFD Technical Group on Data (TG/DATA) chaired by EEA and moving towards INSPIRE compliance. EEA has asked the EIONET National Focal Points to send data to EMODnet Chemistry/ICES for MSF data reporting in replacement of WISE. Adaptation of EMODnet data format to EEA needs is underway. Harmonizing in ODV and Measurements units using P01 vocabulary.



EMODnet-Chemistry provides both data collection of quality assessed data (same format , same unit) and 3D fields computed with DIVA tool.

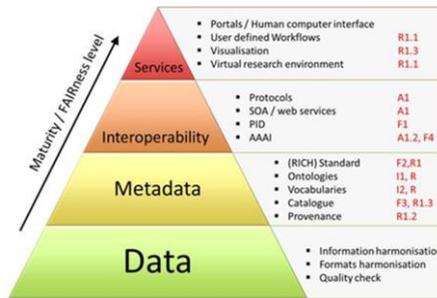
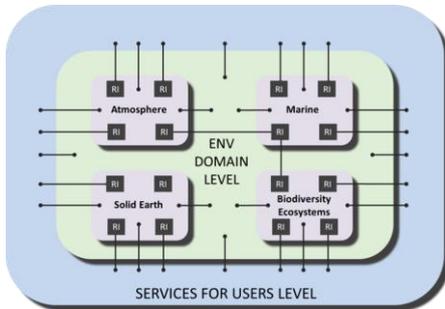
Next step it to provide similar product on marine litter and activity already started on beach litter with OSPAR and ICES and will continue with micro-litter data collection and in future sea-floor litter.

### 5.3 The H2020 ENVRI-FAIR project new opportunities to coordinate better

S Pouliquen provided an overview of the ENVRI-FAIR project that was accepted under the EOSC-04-2018 call and that will start in January 2019. It aims at enhancing the ESFRI Research Infrastructures Data FAIRness that will require:

- Well defined community policies and standards on all steps of data life cycle.
- Each participating RI will have sustainable, transparent and auditable data services, for each step of data life cycle, compliant to the FAIR principles.
- Each data service is chosen based on rational and transparent assessments of costs and other aspects

The high-impact ambition of ENVRI-FAIR is to establish the technical preconditions for the successful implementation of a virtual, federated machine-to-machine inter-face to access environmental data and services provided by the contributing ENVRIs, called the ENVRI-hub. For users who require the full spectrum of environmental parameters, the ENVRI-hub will offer a platform that reflects the complexity and diversity of the ENVRI landscape, while preserving their specific structures and addressing the requirements they were designed for. Improvements for users will be visible at RI level, domain level (Marine, Atmosphere, Solid Earth and Biodiversity Ecosystem) and at Environmental level as shown in the figure hereafter



The main focus of ENVRI FAIR is put on the implementation of services at RI level, driven by RI priorities. Each subdomain is organised as one work package to ensure strong cohesion of implementation within subdomains and therefore driven by sub-domain priorities.

The Marine Domain involve the Euro-Argo ERIC, the EMSO ERIC, ICOS-ERIC (ocean), Life-Watch ERIC and well as SeaDataNet infrastructure and EMODNET -Chemistry. In addition to enhancing FAIRness of all MARINE RIs involved in ENVRI-FAIR, an important challenge is to improve Bio-geochemical (BGC) data interoperability with VIP users being Copernicus for ecosystem modelling and EMODnet-chemistry for MSFD.

#### 5.4 Discussion

Enhancing BGC data exchange within EuroGOOS and its ROOSes was recognised as a priority. The problem was recognised as vast that the recommendation was

1. Identify as targeted users CMEMS, MSFD and the Research community (take IOCCP panel of GOOS recommendation) : the EOV that should be first addressed are Oxygen, Carbon, nutrients and BGC-Argo variables( as importance of BGC-Argo should grow in the coming decade)
2. Data harmonisation between the different initiative is critical and ENVRI-FAIR should play a key role on this activity as long as progress are shared with the EUROGOOS community through DATAMEQ-WG.
3. Converging on QC recommendations and working toward providing information on data uncertainties will improve the development of products

It was highlighted that different projects are, and will deal with, BGC data harmonisation and product elaboration and therefore it's essential to regularly share progress and discuss issues with the EuroGOOS community through DATAMEQ and the data activities in ROOSes to ensure coherency and facilitate the recommendations endorsement by the EuroGOOS data centers

The European BGC data activities should be developed in close collaboration with other international activities such as BGC-Argo, SOCCONET...



## 6 Annex 1 Agenda

### Tuesday 20<sup>th</sup> November

13h00-14h00: Summary of the recommendations elaborated in 2015 and endorsed by the EuroGOOS Assembly (S Pouliquen)

14h00-15h00 : Propose a Strategy for an EuroGOOS Data Policy : V Fernandez/EuroGOOS-

15h00-17h30: What are the progresses through projects related to data access that can benefit EuroGOOS (20mn talk 10 mn questions)

- Data exchange and integration Copernicus Marine service (CMEMS INSTAC) (S Pouliquen)
- Historical data in SeaDataNet (D Schaap/ P Thijssse)

#### *Coffee Break*

- New services from EMODNet
  - Physics: A Novellino
  - Chemistry : A Giordetti
  - Biology : N Holdsworth
- Recommendations from AtlantOS H2020 project (S Pouliquen)
- MYCOAST project: Complying with Data Interoperability Standards": Actions on homogenization for data management along the costal observatories of the Atlantic coast (J Mader)

17h30-18h30 : EuroGOOS Task team plans regarding Data Management activities (20 mn talk 10 mn questions)

- Ferrybox : Status of European FerryBox data base and availability of FerryBox data for European networks. ( Gisbert Breitbach /HZG)
- Recent activities on standardization of HF Radar data model coordinated by the HFR Task Team. (J Mader)
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### Wednesday 21<sup>st</sup> November

8h30-10h30 : Brainstorming on enhancing access to BGC observations

- Introduction: in Situ Requirement analysis: V Fernandez /E Buck EuroGOOS - A Reppuci/MOI
- Introduction: The H2020 ENVRI-FAIR project (S Pouliquen) new opportunities to coordinate better
- How to enhance BGC data exchange for EuroGOOS and its ROOSs
- European Data management within the International context: facilitate integration at European and International level : what is missing in terms of standards, tools, ...

10h30- 11h30 Define Action plan for coming 2 years

**End of meeting at 12h00**



## 7 Annex 2 Participants

Ifremer	Sylvie Pouliquen
EuroGOOS	Vicente Fernandez
AZTI	Julien Mader
UiB	Benjamin Pfeil
PdE	Marta de Alfonso
Maris	Dick Schaap
OGS	Alessandra Giorgetti
ETT	Antonio Novellino
HZG	Gisbert Breitbach
BSH	Susanne Tamm
CEFAS	Kate Collingridge