



# EuroGOOS AISBL STRATEGY 2014-2020

September 2014

This is the EuroGOOS AISBL Strategy 2014-2020. It has been produced in 2014 by EuroGOOS AISBL Secretary General Kostas Nittis, the Executive Directors Board and the Members. It provides an overview of our priorities beyond 2014 which will eventually drive our current and future activities.

For more information on EuroGOOS, please visit <u>http://eurogoos.eu</u>.

Images on the cover (top left and clockwise): oceanographic buoy *Vida* 4 (credit: NIB); Arvor float deployment from *Pour-quoi-Pas?* Research Vessel (IFREMER); modelling North Sea temperature (MET Norway); and *Sentinel-1* satellite (ESA/ATG medialab).



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### Summary

<u>EuroGOOS</u> is an International Non-Profit Association of national governmental agencies and research organisations, committed to European-scale operational oceanography within the context of the intergovernmental <u>Global Ocean Observing System (GOOS)</u>.

It was founded in 1994 and has today 37 <u>members</u> from 18 European countries providing operational oceanographic services and carrying out marine research.

The core activity of EuroGOOS is the development and operation of regional operational systems. Five systems are at present part of EuroGOOS: the Arctic (Arctic ROOS), the Baltic (BOOS), the North West Shelf (NOOS), the Ireland-Biscay-Iberian area (IBI-ROOS) and the Mediterranean (MONGOOS). Strong cooperation within these regions, enabling the involvement of many more regional partners and countries, forms the basis of EuroGOOS work, and is combined with high-level representation at European and Global forums.

The present strategy sets the scene for the work of EuroGOOS for 2014-2020 containing the following key elements:





**Identify European priorities for operational Oceanography;** main focus will be on defining research priorities and relate to key European initiatives such as Copernicus, EMODnet and Marine Research Infrastructures. As part of this activity EuroGOOS will also work intensively on linking to the research community, industry, users and EU policies.

**Promotion of operational oceanography;** key elements here are networking, publications, conferences, EuroGOOS webpage, social media and increased engagement with various organisations such as GOOS Regional Alliances, GEO, SEASERA EraNET and JPI-Oceans.

**Foster Cooperation;** EuroGOOS will actively engage itself in close cooperation with key organisations on a global, European and regional scale.

**Co-production;** to allow for reduction in costs and higher specialization EuroGOOS will support actions leading to commonly available operational, observation and model-based, products and services among its members. Specifically EuroGOOS will aim to better coordinate co-production for the Marine Strategy Framework Directive (MSFD).

**Sustained Ocean Observations;** EuroGOOS will take a leading role to ensure coordination of the European contribution to a sustained marine observational system through the promotion of a European Ocean Observing System (EOOS) and will in this context work closely together with EU Copernicus Marine Service, EMODnet, EU Marine Research Infrastructures, JPI Oceans, EEA, ESA, EUMETSAT and its national members.

EuroGOOS expects through these activities to be an attractive partner for cooperation in the marine community – public as well as private industry – leading to an increased number of EuroGOOS members.



## 1. Background - Context

In 2014 EuroGOOS celebrates its 20 years of operation as an association of European national institutions that develop Operational Oceanography. At the same time it runs through its second year of operation as a formal International Non-Profit Association (INPA – AISBL) operating under Belgian Law. This recent change of the legal profile of the association has not changed its main objectives that have driven the work during the past two decades. But it provides new opportunities for a more efficient implementation of commonly agreed activities at a European level.

In the previous years the framework of operation of EuroGOOS was provided by the:

- Strategy for EuroGOOS, published in 1996 (EuroGOOS publication #1);
- EuroGOOS Agreement and the objectives included therein (EG99.18);
- EuroGOOS Priorities agreed in 2002 (EG03.43);
- EuroGOOS short term Strategy 2009-2013 (EG09.05)

Following the formation of EuroGOOS AISBL, the working framework is provided by the Articles of Association that define the following purpose for the association:

- Identify European priorities for operational oceanography (STRATEGIES);
- Promote operational oceanography and the development of underpinning science and technology at regional and global scales (**PROMOTION**);
- Foster cooperation within operational oceanography at regional and global scales, including the establishment or recognition, support and coordination of Regional Operational Oceanographic Systems (CO-OPERATION);
- Promote and coordinate the development of commonly available, operational, observation and model-based, products and services (CO-PRODUCTION);
- Ensure coordination of the European contribution to sustained marine observational systems necessary to meet the requirements for all marine-related purposes, including research, operational oceanography, and regular assessments of the state of our seas and oceans (SUSTAINED OBSERVATIONS).

The strategy of EuroGOOS for the 2014-2020 needs to fulfil the above objectives and is thus structured along these priorities, which actually form groups of activities and initiatives that need to be taken.

#### **Cross – cutting key issues**

Besides the above specific objectives and priorities, which are analysed in the following sections, there are several horizontal and cross-cutting issues that will drive the EuroGOOS strategy 2014-2020. These are summarized below.

*Links with research*. Operational oceanography can advance only by maintaining tight links with research and technological developments. The research community has played a key role over the past two decades in developing new observing and modelling systems that have gradually transitioned to operational tools increasing our capacity to monitor and predict the oceans. In Europe, the research framework programs (mainly FP4-FP7) have contributed to development



of new systems and formation of the research community of European operational oceanography. A key priority of the next years is to maintain and enhance the links between the operational and research communities, mainly through the Horizon 2020 funding framework but also taking advantage of other tools such as structural and cohesion funds. This should also be reflected in the membership of EuroGOOS by including the key European research institutes that develop operational oceanography.

*Links with industry.* The private sector has remarkable activities in operational oceanography, especially when it comes to innovative services and new technologies. However in most cases these activities are isolated and not linked to a broader framework. Thus the transfer of knowledge to national / public agencies to feed the operational activities is often delayed or even not realized at all. EuroGOOS should enhance the links with the private sector aiming to establish joint activities either at RTD or at operational implementation level. Horizon 2020 provides additional incentives for such collaborative actions and should be fully exploited during the coming years.

*Links with users.* Operational oceanography has always been user-driven and the dialogue with users has been a priority of EuroGOOS. During the past years and through the experience of Copernicus the engagement of service providers with users has increased and EuroGOOS has helped in this process. It will be a priority for the next years to consolidate and enhance this interaction with intermediate and end users, both for the definition of requirements and for assessment of operational oceanography services. This is expected to increase user uptake and strengthen the downstream services development.

**EU policies.** During the past years a series of EU policies and strategies has increased the requirements for ocean observations. The Marine Strategy Framework Directive, the Integrated Maritime Policy with EMODnet, the Marine Spatial Planning, are some examples of such new policies that bring new requirement on top of those posed by CFP and WFD. Fulfilling the requirements of these policies, with emphasis on MSFD, will be a key task for EuroGOOS and its members until 2020.

**Membership.** EuroGOOS AISBL in its new legal status needs to strengthen its position both at a European and Global scale, demonstrating its ability to represent the whole community. It is therefore a priority of EuroGOOS to expand its membership and include all European institutions that develop and implement Operational Oceanography. It is estimated that the number of 50 members by 2020 is a feasible target that will also fulfil the objective of representation of the whole community.



## 2. Strategies

#### *EuroGOOS should have well-processed views and strategies regarding Operational Oceanography and its priorities in Europe*

One of the functions of EuroGOOS is to develop common views among its members regarding key issues of common interest at European and regional scales. This increases the potential for more efficient interventions at various levels and promotion of the interests of EuroGOOS and operational oceanography. These strategies have to be well processed, with broad consensus among members and adaptive to the changing European and international conditions.

#### **RTD** priorities

The definition of priorities should be based on a systematic and thorough analysis of user needs, capacities and scientific – technological development. This is typically the work of the EuroGOOS working groups and it is thus expected that during the following years:

- The Science Advisory Working Group (SAWG) and the Coastal Modelling working group (COSMO) will contribute to development of science research priorities of Operational Oceanography in Europe;
- The Technology Plan Working Group (TPWG) will contribute to development of marine technology priorities;
- The EuroGOOS Products Working Group (EPWG) will contribute to development of priorities for new Services and Products. For the next years priority will be the products for MSFD.

The major goal for the next years is to maximize the impact on EU research funding priorities with emphasis on Horizon 2020, as well as regional and national Research Agendas.

#### **Key European initiatives**

EuroGOOS need a consistent position and strategy for key European initiatives that are relevant for Operational Oceanography and Marine Science. Such initiatives include:

**Copernicus Marine Service**. EuroGOOS has played an important role since the initial phase of Copernicus, including its involvement in the Implementation Group and preparation of the Marine Service Implementation Plan. Over the past couple of years, EuroGOOS has been involved mainly through the ECOMF Strategic Partnership and operation of the relevant working group (ESPWG). For the coming years EuroGOOS will aim to have an active role in the Copernicus marine service, with its efforts focusing on maximum engagement of its members, the insitu component and the uptake at national level; however its exact role will also depend on the structures that EU will setup for the implementation of the Service. It is expected, in particular, that EuroGOOS will establish strong links with Mercator Ocean which should be entrusted by the European Commission to implement the Copernicus Marine Service (delegation agreement).



**EMODnet.** EuroGOOS has developed its position for EMODnet through the relevant <u>vision</u> paper issued in collaboration with the European Marine Board (2010). The Secretary General or the Chair have been / are members of the MODEG expert group having the opportunity to promote the views of the association. Furthermore the Secretariat (and now the AISBL) participates in the EMODnet Physics project that develops the portal and organizes the data flow of the relevant data. In the future EuroGOOS should be ready to adapt its position and strategy regarding EMODnet, depending on the structures that the EC will decide to put in place for the implementation and long-term operation of the system. Contribution is expected from the Data Management Exchange and Quality Working Group (DataMEQ). The overall strategy is that **EuroGOOS should establish a leading role in the implementation of EMODnet**.

**Marine Research infrastructures.** During the recent years research infrastructures have been recognized as a key component of the research-funding framework of Europe (FP7, Horizon2020). The ESFRI framework and the Integrated Actions projects have been the key tools in this process. The Operational Oceanography community has been particularly active in this effort and projects such as Euro-Argo (ESFRI, ERIC), EuroSITES – FixO3, GROOM, and JERICO (IA) are developing the relevant networks of observing systems (Argo floats, Fixed Observatories, Gliders, Coastal Systems). During the next years **EuroGOOS will promote the convergence of efforts under the umbrella of a European Ocean Observing System (EOOS), also in view of the long-term sustainability of the systems (see section 6).** 



## 3. Promotion

#### EuroGOOS should systematically and effectively promote Operational Oceanography and the need for relevant investments in infrastructures as well as research & technological development actions

A key function of EuroGOOS since its foundation has been the promotion of Operational Oceanography at different levels. This practice will continue and be intensified during the coming years since the need for further advancement and sustainability of observing and computing infrastructures remains a pressing issue. Furthermore, there is a need to consolidate the role of EuroGOOS as the key organization for ocean observations and Operational Oceanography services in Europe. This promotion has to target different groups of stakeholders:

- The EU with emphasis on the Horizon 2020 research funding program;
- The funding agencies that are already supporting development of Operational Oceanography or can potentially do it in the future;
- The Users of Operational Oceanography in order to increase the uptake of products and services and increase their support for the development and sustainability of Operational Oceanography
- The marine and in general environmental sciences community in order to enhance collaboration towards further advancement of Operational Oceanography through RTD.

The key activities and tools that will be used are described below.

#### **Publications**

EuroGOOS publications have always been a key product of the association but their production rate has decreased during the recent years. Priority for the next years will be to **intensify the production of publications, including both position papers on relevant strategic issues and scientific papers regarding research and technological development of operational oceanogra-phy**. The main method will be the publication of the output of the working groups of EuroGOOS that under their new mode of operation will have a limited duration of work on a specific topic and the goal to publish their output at the end of their term.

#### **Engagement in key initiatives**

Participation in wider initiatives of the marine and environmental sciences allows the promotion of EuroGOOS outside the operational oceanography community. During the next years EuroGOOS will increase its interactions with such initiatives in order to establish its leading role in ocean monitoring and forecasting and increase the opportunities for large-scale collaborative actions. Among others, **EuroGOOS will increase its engagement in GEO and its interaction with the research funding agencies networked under SEASERA EraNET and JPI-Oceans** (Joint Programing Initiative: Healthy and Productive Seas and Oceans).



#### Networking

EuroGOOS has over the past years established collaborations with other European networks of Marine Science, promoting the role and importance of the association and operational oceanography. These include the European Marine Board (EMB) with which common activities have been undertaken (joint vision paper on EMODnet, 2010), ICES (especially through the WGOOFE group), CIESM and MARS (through the MARCOM project) as well as with EUMETSAT (GMES-PURE project). During the coming years **EuroGOOS will enhance its interaction with other European and international networks of marine and environmental sciences**.

#### **EuroGOOS Conference**

The EuroGOOS conference has been a key activity of the association since its foundation. Over the years it has become a reference event for the operational oceanography community that meets every three years to discuss scientific and technological developments and interact with users. During the coming years **EuroGOOS will aim to further increase the impact of its conference by delivering more focused messages and enhancing the science-policy dialogue as well as the User's interactions**.

#### Communication

Up to now EuroGOOS had not focused much on communication activities. Recognizing that efficient communication is an important component of the promotion effort, **EuroGOOS will inten**sify in the coming years its communication activities mainly using Internet and social media tools. Different messages will be used to address the different stakeholders such as the Operational Oceanography community, the Users community, the Policy makers and key Stakeholders at Global, European and National levels. The EuroGOOS members will need to play a key role in this process in order to formulate messages and disseminate them at national level.

EuroGOOS has just launched its new webpage which constitutes a strong tool for promotion of EuroGOOS. The EuroGOOS office will in close cooperation with the ROOS's and Working Groups secure updated information and news of EuroGOOS activities.



## 4. Cooperation

#### EuroGOOS should further enhance cooperation between key institutions that develop Operational Oceanography at Global, European and Regional Scales

The development of Operational Oceanography involves major investments in infrastructures, including observing systems and high performance computing hardware, as well as human resources with appropriate training. Such investments are difficult to be made by a single country and thus active cooperation has always been key for the development of GOOS. Especially when it comes to open ocean systems either at regional or at global scales. During the next years EuroGOOS will continue to promote active cooperation at different levels in order to maximize the efficiency of national resources and investments in operational oceanography.

#### **Global scale**

**GRA**. EuroGOOS has always had an active contribution to the GOOS Regional Alliances (GRA) and together with MONGOOS have promoted the formation of their Forum and more efficient collaboration through the establishment of the GOOS Regional Council (GRC). EuroGOOS has chaired the GRC between 2007-2010 and has hosted two out of the six GRA Forums. During the next years EuroGOOS will continue to actively support the GRAs aiming to strengthen the network and promote more joint activities and harmonization of practices at global level.

**IOC/GOOS Project Office**. EuroGOOS will seek to enhance the cooperation with GOOS **Office of IOC especially for the European contribution to the global component.** A GOOS office representative will be invited to all the General Meetings of EuroGOOS AISBL. An active collaboration is expected during the EU funded project for the Integrated Atlantic Ocean Observing System that is expected to be implemented during 2015-2018.

**JCOMM. GODAE Ocean View.** During the previous years there is increasing European representation in JCOMM through individual scientists / national representatives. This trend should continue in order to have a more substantial representation of the Oceanographic community. **EuroGOOS will promote an increased representation of European countries to JCOMM and will aim to better coordinate them to achieve a harmonized European voice.** Regarding GODAE Ocean View (GOV), the EuroGOOS Secretariat has established contact with the respective project office aiming to a closer collaboration and joint activities during the coming years.

**ICES.** ICES have established a Working Group on Operational Oceanography for Fisheries and Environment (WGOOFE) focusing on a user/provider interface of operational oceanography products and develops, maintains and reviews a web-portal for extant operational oceanographic products for users in fisheries and environmental research. This works complements very well the activities of the EuroGOOS Product Working Group. **EuroGOOS will therefore work for a closer cooperation and joint meetings between ICES and EuroGOOS on operational oceanographic products.** 



#### **European Scale**

**National institutes.** EuroGOOS AISBL currently (2014) has 36 members from 16 European countries. As already mentioned the target is that EuroGOOS AISBL will have 50 members by 2020. In the same timeframe EuroGOOS will aim to enhance the cooperation between these institutes in order to increase the level of joint collaborative actions at European scale and achieve more coherent views on European affairs.

**European networks.** EuroGOOS will continue its efforts for enhanced cooperation between European networks that develop Operational Oceanography and Ocean Observation infrastructures. This mainly involves the networks that have been developed through infrastructure projects and focus on specific observing platforms (Argo floats, Gliders, Fixed Moorings, FerryBox, Coastal Systems, Sea Level). It also involves networks that contribute to ocean observations outside the operational oceanography community (e.g. MARS network of marine stations). The collaboration with EUMETNET will be of high priority for the next years since there is a large potential for joint actions.

#### **Regional scale**

**ROOS.** EuroGOOS will continue to support and enhance the role of the five Regional Operational Oceanography Systems – ROOS. Emphasis will be given to cross-regional collaboration aiming to avoid duplication of efforts and higher degree of harmonization. The operation of EuroGOOS working groups with balanced representation of ROOSs will be a key tool in this effort.

**Regional Partners.** Within each region, **EuroGOOS will promote closer collaboration with non-EU counties bordering the shared seas** (US, Canada, North African, Middle-East, Baltic and Black Sea countries, etc.). The collaboration with the respective GRAs will be the key tool in this effort. The cooperation with Regional Conventions is also expected to be enhanced, especially through the process of MSFD implementation.

**Arctic.** Over the past years the interest for the Arctic and its marine environment is steadily increasing. Operational ocean observations in the Arctic are limited and there are perspectives for major investments in the coming years. **EuroGOOS will actively contribute to developments in the Arctic through its ROOS (ArcticROOS) and will support the efforts for evolution of this ROOS to a GRA**.



## 5. Co-production

#### EuroGOOS should support collaborative actions leading to commonly available operational, observation and model-based, products and services

Similar to the need for sharing infrastructures and making common investments for the development of operational oceanography capacities, there is a need for enhanced cooperation in production of services. This allows reduction of cost and higher specialization of each provider in a specific observational or model – based product or service. Ultimately, coproduction optimizes quality and maximizes the benefits for the community.

#### **European Scale**

The EU funded research projects of recent years have supported the coproduction of pan-European or regional services. **EuroGOOS will support such efforts with emphasis on the Copernicus Marine Service and EMODnet. The development and co-production of downstream services that can be used by national agencies and private users will also be promoted**. The working groups for Data Management (DataMEQ), Coastal Modelling (COSMO) and Products (EPWG) will continue to work on harmonization of practices that facilitate co-production of services.

#### **Regional scale**

Coproduction has been developed in some regions, such as the Baltic, but cannot be considered a common practice for all European Seas. EuroGOOS will support the extension of coproduction practices to all ROOSs by sharing best practices and improving knowledge transfer. EuroGOOS will also support it extension with new products and services, especially on the downstream side (end-user applications). Since for open ocean systems coproduction is already relatively advanced, emphasis will be put over the next years on shelf seas systems and especially their insitu observations and services components.

#### **MSFD**

Delivery of specific products for the needs of the Marine Strategy Framework Directive will be a major obligation for EU member states during the coming years. Since the emphasis is not on coastal but rather on shelf and open seas of Europe, there is an obvious need for collaboration for the production of the relevant deliverables by neighbouring countries. Some EuroGOOS members are already active in this process especially for the design of the needed monitoring programmes. **EuroGOOS will aim to better coordinate coproduction for the MSFD, starting with the next assessment of the monitoring programs in 2016. EuroGOOS will also work to demonstrate the use of Operational Oceanography observational and modelling products for the needs of MSFD.** 



## 6. Sustained Ocean Observations

EuroGOOS should ensure coordination of the European contribution to sustained marine observational systems necessary to meet the requirements for all marine-related purposes, including research, operational oceanography, and regular assessments of the state of our seas and oceans

In-situ marine observations and their sustainability have always been the key priority of EuroGOOS. With the Remote Sensing observations and the Ocean Forecasting services having successfully entered into the long term planning of Copernicus, the promotion of the in-situ components and their sustainability needs additional focus over the coming years. The aim will be to achieve more coherent observing strategies and maximize the availability of ocean data in an open and free framework.

#### EOOS

**EuroGOOS will promote the need for the development of an integrated European Ocean Observing System (EOOS) during the next years**. The proposed system will be based to a large extend on past and planned investments: national systems, regional collaborative observing programs such as FerryBox and VOS, European programs and infrastructures such as: Euro-Argo, JERICO, FixO3, GROOM HF-Radars etc. But following a *system* approach which means an additional level of operational networking and a governance scheme that will allow common programing and joint investments. This effort will be carried out in collaboration with the European Marine Board and other initiatives such as JPI-Oceans.

EuroGOOS will take initiative to lead and coordinate activities within the various observation platforms by establishing a number of <u>Ocean Observing Task Teams</u> such as HF-Radars, gliders, Ferryboxes, tide gauges, moorings etc. and with strong link to EURO-Argo. The purpose is to get these groups well organized creating synergy within the task teams themselves and across the task teams.

#### **EMODnet**

EMODnet represents today a key EU initiative for in-situ marine data especially for their availability and dissemination to end-users. EuroGOOS participates actively in the process especially through participation to the Physics component and the relevant projects, promoting the role of ROOSs (see also the strategies section). Apart from the overall strategy to continue playing a leading role, **EuroGOOS will promote during the next years the use of EMODnet/DG MARE funding to support new ocean observations** and not only data management and dissemination.



#### **EEA – Copernicus**

Through the preparatory phase of Copernicus and its in-situ component, EuroGOOS has developed a close collaboration with EEA. A relevant MoU has been signed, according to which EuroGOOS will coordinate the delivery of in-situ data to the Copernicus Marine Service, using ROOSs as the interface between national data providers and the Service. Although final decisions have not been taken regarding the in-situ component of Copernicus and the relevant structures / governance, **EuroGOOS will maintain a close collaboration with EEA regarding ocean obser**vations, including the needs of Copernicus and MSFD. It will also work closely with Mercator Ocean which should be the entrusted entity for the Copernicus Marine Service implementation.

#### **ESA and EUMETSAT – Copernicus**

The European Space Agency (ESA) is developing a new family of satellite missions called Sentinels specifically for the operational needs of the EU Copernicus Services (<u>http://www.esa.int/Our\_Ac-tivities/Observing\_the\_Earth/Copernicus/Overview4</u>). Each Sentinel mission is based on a constellation of two satellites to fulfill revisit and coverage requirements, and are highly relevant in regards to establishing a sustainable satellite based ocean and coastal observing system to be merged and integrated with in-situ data. The polar orbiting satellite missions will support ocean forecasting systems, as well as environmental and climate monitoring and include:

**Sentinel-1**: an all-weather, day-and-night radar imaging mission for monitoring of sea ice, ocean waves, high-resolution wind, oil spill and surface current features. The first satellite was successfully launched on 3 April 2014.

**Sentinel-2**: a multispectral high-resolution imaging mission to provide, for example, imagery of waterways and coastal areas.

**Sentinel-3**: a multi-instrument mission to measure sea level, surface geostrophic current, sea ice thickness, sea surface temperature and ocean color.

Jason CS (or Sentinel-6) as a follow on of the Jason series of high precision altimetry.

<u>EUMETSAT</u> supports the development of operational oceanography through the delivery of ocean data to its Member States, the Copernicus marine service, and users worldwide. This includes systematic and long-term routine satellite based observations of the ocean and surface weather, real-time processing and distribution of data products, their ingestion into ocean prediction systems exploited by service providers (like the Copernicus Marine Service) and, ultimately, timely delivery of information services to users. EUMETSAT already delivers a range of ocean products extracted from the satellite observations of:

- the Jason-2 high precision altimetry mission, jointly exploited with NOAA, CNES and NASA;

- the Metop and Meteosat satellites;
- and of partners' missions

#### **National Systems**

Ocean observations are based on national systems and relevant infrastructures. Therefore, apart from promotion and coordination at European level, there is a need to develop similar initiatives at national level where the decisions for future funding are made. **EuroGOOS will support this effort to guarantee sustainability of national investments for ocean observing systems, mainly** 



**through initiatives of its members.** To increase the efficiency of this effort, EuroGOOS will seek to enhance coordination and exchange of best practices among its members.



## ANNEX

List of organizations & Initiatives relevant to EuroGOOS



**<u>CIESM</u>** - The Mediterranean Science Commission

ECMWF – European Centre for Medium Range Weather Forecasting

EEA - European Environmental Agency

ESA - European Space Agency

EU

- <u>Copernicus</u>
- <u>EMODnet</u> European Marine Observation and Data network
- ESFRI European Strategy Forum on Research Infrastructures
- <u>Horizon 2020</u>
- Integrated Maritime Policy
- Marine Spatial Planning

Marine Strategy Framework Directive
EUMETNET
EUMETSAT
Euro-Argo ERIC

European Marine Board (EMB) EuroSITES - European Ocean Observatory Network

FERRYBOX FixO3 - The Fixed point Open Ocean Observatory network

GEO – Global Earth Observations

<u>GODAE Ocean View</u> – Global Ocean Data Assimilation Experiment <u>GROOM</u> - Gliders for Research, Ocean Observation and Management

ICES - International Council for Exploration of the Sea

 <u>WGOOFE</u> - Working Group on Operational Oceanography for Fisheries and Environment

<u>IOC</u> - Intergovermental Oceanographic Commission

- <u>GOOS</u> Global Ocean Observing System
- GRA GOOS Regional Alliances

<u>JCOMM</u> (IOC/WMO) - Joint Technical Commission for Oceanography and Marine Meteorology <u>JERICO</u> - Joint European Research Infrastructure network for Coastal Observatories <u>JPI-Oceans</u> - The Joint Programming Initiative Healthy and Productive Seas and Oceans

MARS – The European Network of Marine Research Institutes and Stations Mercator Ocean (entrusted entity for the Copernicus Marine Service) MyOcean - The pre-operational marine service of Copernicus

<u>SEAS-ERA</u> - Towards Integrated Marine Research Strategy and Programmes