
EuroGOOS
European Global Ocean
Observing System
EuroGOOS
Strategy 2030
www.eurogoos.eu

Chair's FOREWORD

Since its foundation in 1994, EuroGOOS has been pivotal in advancing pan-European cooperation in operational oceanographic research, technology development, capacity building, and data sharing.

Today, our association offers collaborations and exchange for over 130 organisations, agencies, and companies committed to operational oceanography from 30 countries. Our collaborations cast a wide net of contributions from inside and outside our membership via our five Regional Operational Oceanographic Systems (ROOS), working groups and task teams.

This decade offers unprecedented opportunities for ocean related research and activities. The United Nations Decade of Ocean Science for Sustainable Development 2021-2030 has set out a vision to achieve the science we need for the ocean we want. The Decade is an opportunity to improve knowledge, build infrastructures, and foster trans-disciplinary relationships, towards sustainable management of our ocean and coasts for future generations.

The ocean is at the heart of the European Green Deal, which will help Europe to transition into a fair and competitive economy where growth is decoupled from resource use. The Green Deal brings climate change to centre stage and demonstrates that scientific advice can lead to visionary political initiatives.

The new Research and Innovation funding programme Horizon Europe will also tackle climate change, help achieve the UN Sustainable Development Goals, and boost the European competitiveness and sustainable growth. There are new elements in this programme, such as the missions and new approach to partnerships, that will set more ambitious goals for our community.

EuroGOOS operates within the Global Ocean Observing System, coordinated by the Intergovernmental Oceanographic Commission of UNESCO (IOC GOOS). Our new strategy lays the foundation for an ambitious work ahead. In line with the GOOS framework, it is timely for EuroGOOS to expand its focus to climate and ocean health applications to respond to the needs of the European society. To achieve our objectives, we will need a cohesive community that connects and creates partnerships to harness European ocean knowledge, technology, and innovation. The EuroGOOS community is solid and diverse. Through trust, inclusiveness, integrity, and diversity, our members, ROOS, task teams, and working groups will work hand in hand to guide the implementation of our 2030 Strategy.

EuroGOOS will continue to lend its voice to operational oceanography and ocean observing in Europe and advocate for sustained operations to deliver reliable and timely services to society. Connecting with other ocean stakeholders, we will make sure to maximise the benefits of European operational oceanography partnerships. It is only through integration and cooperation that we will be able to reverse the cycle of decline of our ocean.

This new strategy reflects the effort and work our members have invested over the years to make EuroGOOS a successful and internationally recognised organization. I sincerely thank them for their active participation. I also pay tribute to the members of our EuroGOOS office, who have worked tirelessly to support our members and coordination structures. Together, we will meet the challenges set out in the strategy to strengthen European operational oceanography.

George Petihakis

Credit: Vanessa Cardin/OGS

EuroGOOS COMMUNITY

44 Member Organizations of EuroGOOS Association

from **18** countries

137 Organizations

involved as both members of the EuroGOOS Association, Regional Operational Oceanographic Systems, Working Groups, and Task Teams

from **30** countries

Credit: Holger Klein/BSH

European Global Ocean Observing System – EuroGOOS

Fit-for-purpose, integrated operational oceanography enables us to predict, monitor and manage our ocean, underpinning relevant decisions and policymaking in the marine domain.

Operational oceanography encompasses the entire value chain and provides a direct link to end-users through accessible ocean information in the form of services that support policy and real-time decision-making.

Today, as the ocean is undergoing dramatic changes due to human activities, it is imperative that we have the relevant information across all scales to adapt, build resilience, and protect the ocean and its ecosystems. Operational oceanography allows the tracking of the effectiveness of our management actions and guides adaptive responses towards the sustainable use of the ocean.

EuroGOOS is recognised as the voice of European operational oceanography and has played an important role in establishing Europe's capacity and competitiveness in this field since its foundation in 1994. At the time of this publication, EuroGOOS has 44 member organisations who provide oceanographic, hydrographic, and meteorological services, and carry out marine research. EuroGOOS membership is open to organizations from countries which are members of the Council of Europe. Collectively, EuroGOOS members align their efforts to strengthen science, technology, and innovation through purposely created structures. Five regional operational oceanographic systems (ROOS) work within EuroGOOS: in the Arctic (Arctic ROOS), the Baltic (BOOS), the North West Shelf (NOOS), the Ireland-Biscay-Iberian area (IBI-ROOS) and the Mediterranean (MONGOOS). The ROOS together with the EuroGOOS working groups and task teams (i.e. observing platform networks) provide a forum for cooperation on best practices, unlock marine data, advance modelling and forecasting capabilities, and deliver common strategies, priorities, and standards for an integrated, sustained, and fit-for-purpose European ocean observing. Between the EuroGOOS association members and the members of the ROOS, task teams and working groups, the EuroGOOS community includes over 130 organisations.

EuroGOOS provides policy advice and advocates for sustained ocean observing as a fundamental element of operational oceanography, supporting a broader European framework for ocean observing partnerships, the European Ocean Observing System framework (EOOS).

The EuroGOOS 2030 Strategy underpins the implementation of the Global Ocean Observing System 2030 Strategy and expands EuroGOOS strategic foci to include the operational monitoring, data provision, and services for ocean health and climate. This Strategy will strengthen the contribution of the EuroGOOS large network of organisations to the UN Decade of Ocean Science for Sustainable Development 2021-2030.

Vision

SUSTAINED OCEAN OBSERVING

and operational oceanography services that benefit the European society and are supported by it.

As a Regional Alliance of the Global Ocean Observing System (GOOS) programme of IOC-UNESCO, EuroGOOS advocates for sustained ocean observing to deliver fit-for-purpose ocean knowledge and information from the coast to the open and deep ocean. EuroGOOS raises the profile of operational oceanography, underpinned by a broad range of ocean observations determined essential for the sustainable use and preservation of European seas.

Our ocean is changing - it is warming up, acidifying, losing oxygen and biodiversity, and is overexploited and polluted. We have a responsibility to respond to these difficult challenges with the help of science, technology, innovation, and responsible decision and policy making. Europe can rise to the occasion and provide support through its extensive capability in ocean observing, monitoring, and operational services. However, this can only be effective with a coordinated approach and integration, as well as continued support.

Europe has come a long way in setting up some of the core marine services we have today. EuroGOOS continues to establish partnerships based on trust within a fragmented ocean observing capacity across the European nations, through a series of initiatives, EU projects, and EuroGOOS coordination instruments.

EuroGOOS will further work to connect and enhance the existing partnerships and communities, including within its structures, and foster coordination and synergies. We will capitalise on the work of our task teams, working groups, and ROOS, improve the integration of their efforts, and expand their scope to services for ocean health and climate.

Mission

TO LEAD

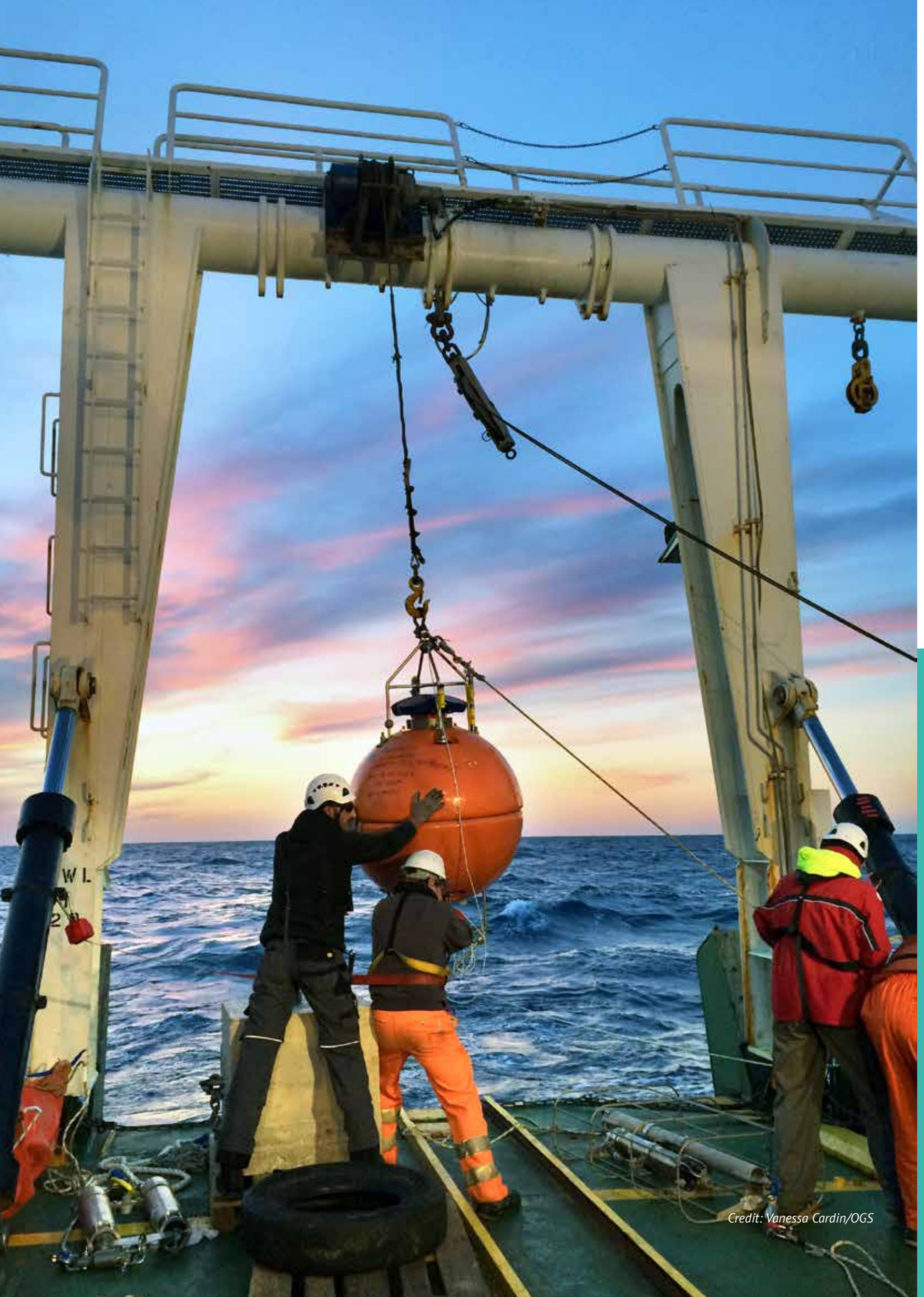
the development and implementation of sustained and coordinated operational oceanography across Europe.

Significant investment in ocean observing infrastructures by European nations has been made to deliver operational services, support and progress research, innovation, data management, and technology development. Yet, many are funded over the short term, making the overall resourcing of ocean observations uncertain. EuroGOOS will advocate for sustained funding and fitness-for-purpose of the observing and forecasting systems to deliver services of benefit to their users and society. Improved coordination and collaboration will help to speak as one community with the policy and decision makers and promote sustained resourcing and operations, achieving better oceanographic services to society.

EuroGOOS will continue to be the voice of and focal point for European operational oceanography and the ocean observations that underpin it. We will continue to lead the design and implementation of the EOOS framework and support essential ocean services for Europe. Through advocacy, stakeholder engagement, and ocean literacy EuroGOOS will raise the profile of operational oceanography societal benefits and ocean observations in general.

EuroGOOS acknowledges the diversity of its members who engage with our activities on a best endeavour basis. This diversity and the geographic heterogeneity of members' operational oceanographic systems enable us to learn from each other and work towards our vision and make operational oceanography a valued asset for Europe.

Credit: BSH



Credit: Vanessa Cardin/OGS

EuroGOOS 2030 OBJECTIVES

To achieve our mission 2030, we defined five strategic objectives. These objectives were developed by reflecting on experiences gained through the implementation of past EuroGOOS strategies, as well as surveys and thought-mapping sessions with our members, task teams, working groups, and ROOS, and the stakeholder engagement activities during the development of the EOOS framework.

The EuroGOOS members, ROOS, task teams, working groups, and networks, share a set of values that will help us navigate towards our 2030 mission with integrity. We value the trust of the organisations involved in EuroGOOS, we believe that to advance we must work together, and ensure we strengthen inclusiveness and diversity in all our efforts.

1 STIMULATE
communities of practice

2 ADVOCATE
for coordinated and integrated European ocean observing and operational oceanography.

3 STRENGTHEN
and expand partnerships

4 PROMOTE
sustainability across the value chain of operational oceanography and ocean observing

5 MOBILISE
the public on the importance of the ocean and oceanographic services

1 STIMULATE
communities of practice

EuroGOOS has long provided a forum for exchange of best practices in operational oceanography. We will maintain and expand the European communities of practice to respond to user requirements and service delivery, integrating advancements in ocean observing and forecasting. We will enhance the international ocean best practices system and boost synergies across all sectors of oceanography.

We will bolster integration of our ROOS, task teams, and working groups increasing their capacity to deliver services and transfer marine technology and know-how across European countries and regions.

We will work to support data providers, step-up timely and FAIR (findable, accessible, interoperable, and reusable) data delivery for the ocean observing services, and help connect operational oceanography with research and monitoring for integrated estuary-coastal-open ocean predictions. We will call for quality requirements and standards of different applications to ensure interoperability and reusability of data.

Through stronger communities of practice, EuroGOOS will further support integrated regional and pan-European observing and forecasting strategies built on efficient and sustained national capacities and best practices, and promote capacity development.

As a sustained association with a legal entity and robust financing prospects, EuroGOOS will continue to ensure that the results of the European and regional projects can achieve long-term impact by being embedded in the EuroGOOS work, transferring technologies and knowledge towards stronger European leadership in operational oceanography. We will continue to provide the oceanographic communities with consolidated guidance and advice, analysing the gaps, making recommendations, and crystallising best practices – towards resilient and user-focused ocean observing and forecasting systems.

2 ADVOCATE
for coordinated and integrated European ocean observing and operational oceanography

More than ever, society needs reliable ocean forecasts and oceanographic services. EuroGOOS has successfully advocated for sustained and fit-for-purpose European ocean observing and forecasting systems. We will continue our advocacy work, strengthening science-policy interfaces and productive dialogue with decision-makers.

We promote European operational oceanography in the context of the GOOS. Strong regional oceanographic systems, both in Europe and globally, will create a responsive and coordinated GOOS and underpin an adequate global response to climate change impacts, responsible ocean resource management, equitable science, and sustainable blue economy. By leading and monitoring the implementation of the EOOS framework, EuroGOOS will work towards sustained ocean observations as the basis of the ocean services value chain, and ensure that we have the ocean observations needed to achieve a fit-for-purpose Earth system knowledge.

EuroGOOS will further unite its members and communities voicing the priorities, opportunities, and needs of operational oceanography. As a unique forum for operational oceanography, with its foci towards ocean physics and hydrography, chemistry, biology, and climate, EuroGOOS will help its members to channel pan-European priorities to their funders and decision-makers. At the same time, we will continue to advocate for the national systems' sustainability at European and global levels. We will also stimulate the creation of a policy and legal framework to support responsive European oceanographic research needed to solve the challenges the ocean faces today.

European ocean observing and forecasting systems have been developed through remarkable advancements in science diplomacy and research and technology partnerships. EuroGOOS will work with its partners to showcase these achievements and strengthen their impacts. We will further our efforts to explain and promote the diversity of European oceanography, which forms, despite its complexity, a resilient and successful enterprise. EuroGOOS will work to improve synergies and optimisation of the existing observing system, and reduce duplications and inefficiencies.

Interlinked with the other objectives of this strategy, this objective will be developed with the aim of connecting the existing efforts contributing to oceanographic products and services in Europe, from regional conventions, to strategic projects, to other organisations and initiatives in the realm of ocean observing.

Credit: Dina Eparkhina/EuroGOOS

3 STRENGTHEN
and **expand partnerships**

The EU Green Deal and the objectives of the UN Decade of Ocean Science for Sustainable Development can only be achieved through inclusive and open partnerships.

Partnerships are paramount in achieving common objectives and gaining the European added value in the co-production of oceanographic services and information. Partnerships will also be critical to ensure these services are user-focused and the ocean information underpinned by our work can support decision-making.

The existing partnerships will be strengthened and new ones will be created to support the implementation of all objectives in the EuroGOOS 2030 Strategy. Through stimulating responsive and efficient communities of practice, we will engage well outside our established circles of influence. We will aim to create new partnerships with scientific sectors and relevant actors in business, education, and arts.

Co-design of the EOOS framework with users and stakeholders is a key imperative for EuroGOOS. We will build on our achievements in the coordination of European operational oceanography and further our role towards new partnerships in the domains of ocean health and climate services.

We will focus our efforts on building stronger synergies between the operational oceanography and the environmental monitoring and climate research communities. These new connections will help enhance and coordinate observations in ocean health and climate and support the reuse of data collected for operational services to improve the confidence of environmental assessments and climate change predictions.

EuroGOOS will further support the development of sustained European Research Infrastructures and a wide range of oceanographic services, working hand in hand with the established European services in the Copernicus programme and EMODnet, as well as long-term data initiatives like SeaDataNet. We will build on the successes of the meteorological agencies in our network to achieve stronger coordination and data exchange supporting ocean modelling. We will continue our joint endeavours with the OceanOPS monitoring service of GOOS, as well as other global programmes supporting the implementation of the OceanObs'19 Living Action Plan.

4 PROMOTE
sustainability across the value chain of **operational oceanography** and **ocean observing**

EuroGOOS endeavours to place the delivery of observations, hindcasts, and forecasts needed by users on a sustained footing. This requires robust coordination at European level, strong connection to users, and the understanding of the monetary and non-monetary value of the ocean observing enterprise.

EuroGOOS will lead the EOOS framework and contribute to related projects and initiatives, bringing the ocean observing operators, European Research Infrastructures, funders, users, as well as policy and decisionmakers, together. Working as one community we can ensure sustained European ocean observing and resulting services that are responsive to the needs of users and stakeholders. We will learn from the successes of the meteorological community where a large portion of observations has achieved long-term resource prospects.

EuroGOOS will voice the need for sustained ocean observing and operational oceanography to deliver the services people rely upon. The international and European visibility of EuroGOOS will help our members and partners demonstrate the value of the backbone national capabilities feeding the European competitiveness in ocean research, technology, and innovation development. Our work on the sustainability of oceanographic services will emphasise to managers and decision-makers that behind every weather forecast or maritime management plan lies an array of international data exchange partnerships, observing infrastructures, and computational know-how. All of these elements comprise operational oceanography and require long-term commitment.

Credit: Rafael Luis Méndez Peña/IEO

5 MOBILISE

the public on **the importance** of **the ocean** and **oceanographic services**

EuroGOOS will keep promoting public engagement activities by our members and the broader community. Public engagement is a way to demonstrate the societal benefits of ocean information and services and achieve sustainability.

Almost all societal objectives of the UN Decade of Ocean Science for Sustainable Development require integrated, sustained, and fit-for-purpose ocean observing. Increasing societal and policy awareness about the ocean observing and forecasting needs, challenges, and opportunities is impossible without advocacy and ocean literacy. This is also an important aid to achieve sustained operations and funding of the ocean observing systems maintained, in Europe, predominantly with public funds.

We will build on the achievements of our Ocean Literacy Network and further the expansion of advocacy and ocean literacy as strategic activity areas in oceanography. We will explore collaboration with citizen scientists as well as the next generation of ocean scientists, seafarers, and users of the ocean. Supporting objective 3 on partnerships, this work will promote the EuroGOOS engagement with sectors outside traditional ocean observing activities, among others, culture, arts, and social sciences. This will help us to co-develop shared understanding and arguments valuing the role of the ocean and oceanography for society.

Our ocean literacy activities will help us place citizens at the centre of the ocean observing enterprise, empower oceanographers and meteorologists in our networks as ocean stewards, and increase public involvement in ocean science, gaining new advocates.

Credit: Elisa Banchi/OGS

Credit: Vanessa Cardin/OGS

IMPLEMENTING

the Strategy

We will implement our strategy through the efforts of our big community consisting of the EuroGOOS ROOS, task teams, working groups, and networks, supported by the EuroGOOS Executive Directors Board and Office.

In addition, our strategic involvement in relevant European projects and initiatives will be a valuable aid on the way to EuroGOOS 2030. We will continue our co-design and engagement activities with European and global partners towards a robust and user-focused EOOS framework. The EOOS framework development, together with the implementation of the EuroGOOS 2030 Strategy, will form a powerful effort of the European ocean observing community to step-up the delivery of the ocean knowledge and information needed by society.

The EuroGOOS Strategy Implementation Plan will be reviewed annually by our members to ensure the evolution of the science, technology, and policy landscape is taken into account. The annual General Assembly meeting of EuroGOOS will include an impact session to discuss progress. Also, annual EuroGOOS internal integration workshops will continue to help our subsidiary bodies to align their efforts and capitalise on pan-European synergies.

In addition to the Implementation Plan, this Strategy will be supported by a roadmap for the expansion of our scope towards operational observations and services for climate and ocean health. This will include a plan to advocate and facilitate the development and use of operational oceanography technologies in climate and ecological services at regional and national scales, and a membership expansion and engagement strategy to improve diversity in our membership representation and engage more fully with the EuroGOOS members on climate and ocean health topics.

List of EuroGOOS

MEMBERS (May 2021)

Belgium
- Agency for Maritime and Coastal Services (MDK), Coastal Division
- Royal Belgian Institute of Natural Sciences (RBINS), OD NATURE

Croatia
- Croatian Meteorological and Hydrological Service (DHMZ)
- Croatian Institute of Oceanography and Fisheries (IZOR)

Denmark
- Danish Meteorological Institute (DMI)
- Defence Centre for Operational Oceanography (FCOO)

Estonia
- Tallinn University of Technology, Marine Systems Institute

Finland
- Finnish Meteorological Institute (FMI)

France
- SHOM
- Ifremer
- Mercator Ocean International

Germany
- Federal Maritime and Hydrographic Agency (BSH)
- Helmholtz-Zentrum hereon GmbH

Greece
- Hellenic Centre for Marine Research (HCMR)

Ireland
- Marine Institute (MI)

Italy
- Euro-Mediterranean Center on Climate Change (CMCC)
- National Research Council of Italy (CNR)
- Italian National Agency for new technologies, energy and sustainable economic development (ENEA)
- National Institute of Geophysics and Volcanology (INGV)
- Italian National Institute for Environmental Protection and Research (ISPRA)
- National Institute of Oceanography and Experimental Geophysics (OGS)

Netherlands
- Deltares
- Royal Netherlands Meteorological Institute (KNMI)
- Rijkswaterstaat

Norway
- Norwegian Institute for Water Research (NIVA)
- Institute of Marine Research (IMR)
- Norwegian Meteorological Institute (MET Norway)
- Nansen Environmental and Remote Sensing Center (NERSC)

Poland
- Institute of Meteorology and Water Management (IMGW-PIB)
- Institute of Oceanology, Polish Academy of Sciences (IO PAN)
- Maritime Institute in Gdansk (MIG)

Portugal
- Hydrographic Institute
- Portuguese Institute for the Ocean and Atmosphere (IPMA)

Slovenia
- Slovenian Environment Agency
- National Institute of Biology (NIB)

Spain
- Balearic Islands Coastal Observing and Forecasting System (SOCIB)
- Oceanic Platform of the Canary Islands (PLOCAN)
- AZTI
- Spanish Institute of Oceanography (IEO)
- Puertos del Estado

Sweden
- Swedish Meteorological and Hydrological Institute (SMHI)

United Kingdom
- Centre for Environment, Fisheries and Aquaculture Science (Cefas)
- National Oceanography Centre (NOC)
- UK Met Office

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