New members:
3 applications at 2019 GA; NIVA, PLOCAN and SHOM

Members leaving:
DLTM

Possible members:
Visits to AWI, NIOZ and METU

Some Black Sea Discussions

http://eurogoos.eu/
EuroGOOS activities are managed by the Executive Directors Board, appointed by the General Assembly.

The EuroGOOS Executive Board members are:

- Dr. George Petihakis
  Chair, Hellenic Centre for Marine Research, HCMR, Greece
- Dr. Henning Wehde
  Vice-Chair, Institute for Marine Research, IMR, Norway
- Dr. Bernd Brügge
  Member, Federal Maritime and Hydrographic Agency, BSH, Germany
- Prof. Urmas Lips
  Member, Estonian Marine Institute, University of Tartu, MSI TUT, Estonia
- Dr. Rosalia Santoleri
  Member, National Research Council, CNR, Italy
- Dr. Patrick Farcy
  Member, French Research Institute for Exploration of the Sea, Ifremer, France
- Dr. Enrique Alvarez Fanjul
  Member, Puertos del Estado, Spain
EuroGOOS Office

Glenn Nolan
Secretary General
Oversight and Office

Vicente Fernandez
Science Officer
AtlantOS, EuroGOOS, Data, EU projects

Erik Buch
Senior consultant on EU projects and tenders

Dina Eparkhina
Policy and Communications Officer
EuroGOOS, EOOS, EU projects, EP

Orla Colligan
Administrator
Office support, financial monitoring

4 staff members based in Brussels
Offices provided by BELSPO in Avenue Louise until March 2019
Move to RBINS (near EP) underway
EuroGOOS Structure

BOOS (Baltic)  ARCTIC ROOS  MONGOOS (Mediterranean)  NOOS (Northwest shelf)  IBI-ROOS (Iberia-Biscay-Ireland)

Working Groups
- Data-MEQ
- Technology Planning
- Science Advisory
- Coastal

Task teams
- Tide Gauge
- Ferrybox
- Glider
- HF radar
- Euro-ARGO
- Fixed Platforms
- Animal-Borne

MoU with EMSO
Sustained observations:
- Funding
- Gaps

Modelling:
- Future priorities
- Assimilation
- Hydrology

Data:
- Unlock access
- Convey requirements

Products:
- Requirements; science and other Inventory
- Fitness for purpose

INSPIRE:
- Recommendations
- Inventory

EuroGOOS Coastal Working Group
Coastal Working Group Members

Chair: Ghada El Serafy (Deltares, Netherlands)
Co-chair: Anna Rubio (AZTI, Spain)

Members
Joaquin Tintore (SOCIB, Spain)
Laura Ursella (OGS, Italy)
Federico Falcini (CNR, Italy)
Arthur Capet (Uni Liege, Belgium)
Joanna Staneva (HZG, Germany)
Tomasz Dabrowski (Marine Institute, Ireland)
Francisco Campuzano (IST, Portugal)
Jun She (DMI, Denmark)
Paloma de la Valee and Sebastien Legrand (RBINS, BE)
Bruce Hackett & Oyvind Saetra (Met Norway)
Veronique Creach (Cefas, UK)
Ivane Pairaud (Ifremer, France)
Marina Tonani (UK MetOffice)
Angelique Melet (Mercator Ocean, FR)
Sonja Wanke (Deltares, Netherlands)

EuroGOOS Office
Participation

48 Answers from 25 Institutes

- North Sea & North-West Atlantic Shelf / NOOS: 42.6%
- Baltic / BOOS: 29.6%
- Arctic / Arctic ROOS: 1.9%
- Mediterranean Sea / MONGOOS: 7.4%
- Iberian-Biscay-Irish Shelf / IBI: 11.1%
- Black Sea / BlackSea GOOS: 7.4%
EuroGOOS EU Projects and Tenders

EU projects:
- AtlantOS
- INTAROS
- EMODnet 3
- JERICO-Next
- ENVRI Plus
- SeaDataCloud (advisory in next phase)

Tenders:
- Mercator Ocean
- EEA (entering phase 3)
- INSTAC
- Data ingestion

http://eurogoos.eu/projects/
EuroGOOS EU Projects in planning

EuroSEA; BG7 observations and forecasting
EuroGOOS involved in governance and comms activity
Many ROOSs involved (12)

JERICO 3:
Proposal submitted
EuroGOOS in sustainability and communications WPs

Other projects:
Mercator (discussions ongoing)
EEA (SC3 from Jan 2019)
SDC 2 advisory
NEURONE (In-situ requirements)
FORCOAST (CWG)

http://eurogoos.eu/projects/
Science
Strategy
Sustained observing
Cooperation
Capacity development

EuroGOOS is current GRA chair
## Example of data requirements in CIS²

### Requirements for ocean data

<table>
<thead>
<tr>
<th>Name</th>
<th>Group</th>
<th>Uncertainty</th>
<th>Update Frequency</th>
<th>Timeliness</th>
<th>Horizontal resolution</th>
<th>Vertical resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sea Surface Salinity</strong></td>
<td>Ocean</td>
<td>Threshold: 0,1psu Breakthrough: 0,07psu Goal: 0,05psu</td>
<td>Threshold: 72d Breakthrough: 24d Goal: 6d</td>
<td>Threshold: 3d Breakthrough: 2d Goal: 1d</td>
<td>Threshold: 25km Breakthrough: 10km Goal: 5km</td>
<td></td>
</tr>
<tr>
<td><strong>Sea Surface Temperature</strong></td>
<td>Ocean</td>
<td>Threshold: 0,5K Breakthrough: 0,2K Goal: 0,1K</td>
<td>Threshold: 3d Breakthrough: 24h Goal: 6h</td>
<td>Threshold: 3h Breakthrough: 2h Goal: 1h</td>
<td>Threshold: 25km Breakthrough: 10km Goal: 5km</td>
<td></td>
</tr>
<tr>
<td><strong>Subsurface currents</strong></td>
<td>Ocean</td>
<td>Threshold: 50cm/s Breakthrough: 20cm/s Goal: 10cm/s</td>
<td>Threshold: 3d Breakthrough: 1d Goal: 6h</td>
<td>Threshold: 3h Breakthrough: 2h Goal: 1h</td>
<td>Threshold: 100km Breakthrough: 50 km Goal: 10km Threshold: 50m Breakthrough: 10m Goal: 1m</td>
<td></td>
</tr>
<tr>
<td><strong>Subsurface salinity</strong></td>
<td>Ocean</td>
<td>Threshold: 0,1psu Breakthrough: 0,07psu Goal: 0,05psu</td>
<td>Threshold: 12h Breakthrough: 3h Goal: 1h</td>
<td>Threshold: 1d Breakthrough: 6h Goal: 3h</td>
<td>Threshold: 30km Breakthrough: 5km Goal: 1km Threshold: 100m Breakthrough: 10m Goal: 1m</td>
<td></td>
</tr>
<tr>
<td><strong>Subsurface temperature</strong></td>
<td>Ocean</td>
<td>Threshold: 1k Breakthrough: 0,5k Goal: 0,1k</td>
<td>Threshold: 24d Breakthrough: 3d Goal: 1d</td>
<td>Threshold: 3d Breakthrough: 1d Goal: 12h</td>
<td>Threshold: 50km Breakthrough: 10km Goal: 2km Threshold: 50m Breakthrough: 10m Goal: 1m</td>
<td></td>
</tr>
<tr>
<td><strong>Surface currents</strong></td>
<td>Ocean</td>
<td>Threshold: 20cm/s Breakthrough: 10cm/s Goal: 5cm/s</td>
<td>Threshold: 3d Breakthrough: 1d Goal: 12h</td>
<td>Threshold: 3d Breakthrough: 1d Goal: 6h</td>
<td>Threshold: 20km Breakthrough: 5km Goal: 1km</td>
<td></td>
</tr>
</tbody>
</table>
General meeting conclusions

- **Consolidation and sustainability** of the global and regional in-situ observing systems remain a strong concern. There are critical sustainability gaps and major gaps for biogeochemical observations (carbon, oxygen, nutrients, chl-a). New mechanisms need to be set up between the EU and member states to address them.

- To follow the evolution of ocean general circulation models in term of spatial resolution, which in future will reach the kilometric scale at global level, there is a **clear need of more sensors deployed at global and regional scale**.

- In terms of platforms, **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 at global and regional level. Nowadays Argo is the key in-situ sensor for operational oceanography, providing thousands of daily measurements of ocean physics and progressively becoming the main source of biogeochemical observations in the open seas.

- **Timeliness** is also an important parameter to be improved, to ensure that **data are available at each model run**; this is particularly important for coastal applications where ocean dynamics evolve on a rather short time.
Improving ROOSs (Regional Ocean Observing Systems) 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. More core and BGC Argo floats are needed. IMB buoys are needed to measure ice thickness and snow depth that is critical for remote sensing algorithm calibration and validation.

Data harmonization and their access need to be improved as well; specifically, data sampling, transmission, calibration, processing, archiving and retrieval of required variables shall be improved, using distributed and connected databases.

Development of a dedicated network able to collect Fiducial Reference Measurements for all the ocean variables estimated by the Copernicus Satellite component is also important for CMEMS, since these data are also used for the development of new products and their validation.
Thematic studies are carried out on-demand in response to specific requests from the European Commission or the EEA. Thematic studies usually take the form of in-depth analyses of critical data, observations, and products, and they may address topics such as observation types, relevant standards, data quality, data policy, availability and application of data access technologies, e.g. data services and information systems, data formats, and data processing methodologies.

The following thematic studies are currently running:

• Usage of in situ data in the Copernicus Space Component;
• Research Infrastructures and Copernicus;
• Sustainability of existing in situ system
• Dialog with H2020 research projects on the design of in situ observation systems; and
• Engagement with the World Meteorological Organisation
• Engagement with IOC
• Data Delivery options
Source of funding

Source of Funding (%) - All systems

- Mixed Research/Institutional/Private
- Institutional funds (annual budget)
- Only Research Funds (European/National)
## Funding Source – ocean and meteorology

<table>
<thead>
<tr>
<th>Funding source</th>
<th>Ocean</th>
<th>Meteo.</th>
<th>Atm. composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional funds (annual budget)</td>
<td>28.6%</td>
<td>73.0%</td>
<td>45.0%</td>
</tr>
<tr>
<td>National research fund</td>
<td>15.4%</td>
<td>4.1%</td>
<td></td>
</tr>
<tr>
<td>EU Research Funding</td>
<td>4.4%</td>
<td>0.8%</td>
<td></td>
</tr>
<tr>
<td>Institutional funds (annual budget), National research fund</td>
<td>8.8%</td>
<td>5.7%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Institutional funds (annual budget); EU Research Funding</td>
<td>3.3%</td>
<td>5.7%</td>
<td></td>
</tr>
<tr>
<td>Institutional funds (annual budget); National research fund; EU Research Funding;</td>
<td>7.7%</td>
<td>0.8%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Institutional funds (annual budget) + various combinations of external funding</td>
<td>9.9%</td>
<td>4.9%</td>
<td>15.0%</td>
</tr>
<tr>
<td>National research fund; EU Research Funding</td>
<td>7.7%</td>
<td>0.8%</td>
<td></td>
</tr>
<tr>
<td>Various combinations of external funding</td>
<td>14.2%</td>
<td>4.2%</td>
<td></td>
</tr>
</tbody>
</table>
EuroGOOS:
Co-organizer
Co-author
Support for Sponsor Committee

- NOOS and Arctic ROOS meetings
- DATAMEQ
- Coastal WG
- Members, ROOS and Chairs actively involved in the event
Ocean observing in Europe is done by a multitude of actors at national, regional and pan-European levels.

The EOOS process is mobilising the ocean observing community to build a common strategic vision and a framework for Europe.
Connecting communities

EOOS events Advisory Committee of ocean observation and monitoring stakeholders

Stakeholder consultation, Strategy and Implementation Plan and Call to Action co-design

EOOS Forum, March 2018

EOOS Conference, November 2018
• **Data collection** - the foundation of the whole marine knowledge value chain;
• **Ocean data** = blue growth enabler & prerequisite for protecting ocean health;
• Ocean science & observation is only a service to mankind if the **data are made publicly available**;
• Policy drivers and societal needs exist, and we have the infrastructures, know-how, networks, mechanisms to build on what exists already – can we step up to the challenge of enhanced dialogue and coordinate our existing capability to deliver a more coherent approach?

“If we want to build solid, fact-based policy and harness our society for today’s and tomorrow’s challenges, we need to make sure that ocean observations continue […] cross-sector international collaboration is a must and coordination and sharing is a Commission priority.”  
Karmenu Vella, EC Commissioner for DG MARE
EOOS pilot projects

AtlantOS deliverable 10.1: European policy context and timeline for ocean observations

Figure Credit: EMB
GOOS Focal Points Europe
Proposed Governance
≥ 2019

New Governance Structure in place as of 1 May 2019

- Steering Group
  Chair: EuroGOOS
- Advisory Committee
  Chair: EMB
- Operations Committee
  proposed chair: TBD
- Funders Committee
  proposed chair: JPI Oceans

Forum
& other stakeholder engagement mechanisms (consultations, events, workshops, webinars, etc.)

www.eoos-ocean.eu
Help us shape the future EOOS!

Check [www.eoos-ocean.eu](http://www.eoos-ocean.eu) for latest information
• 30 EuroGOOS members completed the questionnaire, i.e. 71% of the EuroGOOS membership.
• Respondents were from 16 countries represented on EuroGOOS, i.e. 89% of countries represented on EuroGOOS.
At what level would you like to see the Office represent EuroGOOS strategic priorities?

1. **100% relevant**: Pan-European
2. **44% relevant**: Sea-Basin
3. **37% relevant**: Global
4. **15% relevant**: Local

What should be the most important activities of the EuroGOOS Office?

1. **96.3% relevant**: Promote the importance of ocean observing, data and services for policy, research, and industry
2. **81% relevant**: Prepare background and help implementing the strategy, agreed at the Assembly and Board meetings
3. **59% relevant**: Coordinate the implementation of EuroGOOS working groups and task teams
4. **30% relevant**: Assist in coordination of national and local initiatives in ocean observing, data and services AND equally ranked – Perform technical work in projects for the benefits of all the members (gap analysis, sustainability studies, etc).
1. EuroGOOS is perceived both as a broad-spectrum ocean observing network and an operational oceanography organization. Clear scope and role of EuroGOOS is missing.

→ EuroGOOS members and the Board should urgently start the process of re-defining the exact scope and thematic and influence areas linked to ocean observing science, technology, operation, and services.

2. EuroGOOS has a good set of instruments to perform its activities, i.e. working groups, task teams, and ROOS. However, these aren't well integrated and lack strategic influence. The office and Board should address the EuroGOOS activities holistically and set up new management and follow-up frameworks allowing for a genuine integration.

→ A EuroGOOS activities brainstorming can be envisaged; followed up by a guidance document for the chairs' and members' approval.

3. Members receive a low level of information about EuroGOOS projects. Some projects are perceived duplicating efforts or competing with members.

→ EuroGOOS projects should be discussed and planned holistically together with the EuroGOOS core activities and EOOS, to allow activities fully benefit each other, and the members.

4. EuroGOOS should host the office for EOOS. However, the objectives of both EuroGOOS and EOOS should be further clarified.

→ Office continue providing the EOOS office. Engage with the members and Board on finetuning the shared understanding of the EuroGOOS and EOOS objectives (see also recommendation 1).
5. EuroGOOS general assembly should discuss strategic items, from science to technology to EU programming, allowing members to jointly participate in strategic decision making.

- Co-design the assembly agenda with the Board and members well in advance; and allow enough discussion time during the meeting.

6. There is interest among the members to join ongoing WGs, task teams and ROOS.

- The office should discuss this with the activities’ chairs and subsequently consider new nominations calls.

7. Members want to see more policy influence by the office.

- Office should propose a policy-communication strategy which will allow a stronger lobbying role and impactful outreach, co-designed with the members, Board and activities.

8. Membership expansion should target countries not yet represented and organizations with major influence in ocean observing. It is noted, EuroGOOS tend to keep members for a long time.

- Finetune the EuroGOOS membership expansion strategy to consider the EuroGOOS broadening of scope (see also recommendation 1).
Recently done or in the pipeline to promote members’ activities:

- **Member benefits survey** (designed with Board and Chairs)
- Revamped website
- **Member products catalogue**
- Survey of members’ **communication channels** and responsible staff members
- **Member sharing platform** for national ocean literacy activities (in development)
- **Meet the Members campaign** (in development, along the lines of the very successful ICOS RI #ICOScapes photo exhibition; potential launch at OceanObs ’19)
- European Maritime Day **workshop on maritime technologies** (in development to involve members, TTs and ROOS and WGs)