EuroGOOS / MedGOOS views on future directions of the Integrated Maritime Policy

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The European & Mediterranean Components of the Global Ocean Observing System

EuroGOOS is an Association, currently of 33 national agencies in 17 countries, founded in 1994 to further the goals of the Global Ocean Observing System (GOOS, international program co-sponsored by UNESCO/IOC, WMO, ICSU), and in particular to develop ***Operational Oceanography*** in the European sea areas and adjacent oceans primarily for public good (www.eurogoos.org).

MedGOOS is the corresponding association for the Mediterranean Sea with a partnership of 19 members from 16 riparian countries. It is established under the auspices of UNESCO-IOC to provide a regional framework for partnerships, synergies and capacity building for operational oceanography to the benefit of all coastal states in the region (www.medgoos.net).

Operational Oceanography & the Integrated Maritime Policy: Observing the oceans, monitoring climate and providing services to users of the sea

Operational Oceanography is defined as the activity of making systematic and long-term routine measurements of the seas, oceans and atmosphere, and their interpretation and dissemination. Important products are:

- nowcasts providing the most usefully accurate description of the *present state* of the sea including living resources
- forecasts of the *future condition* of the sea for as far ahead as possible

- hindcasts assembling long term data sets which will provide data for description of *past states*, and time series showing trends and changes

To support the delivery of such products state of the art infrastructures are used: satellites and in-situ observing systems (ships, buoys, drifting floats, moorings) continuously collect data and transmit them in real time while super-computing systems are used for complex simulations carried out by numerical models.

The datasets based on observations and model outputs are used to generate end-users products, often through intermediary value-adding organisations. Examples of final products include:

- warnings (of coastal floods, ice and storm damage, harmful algal blooms and contaminants, etc.),

- ocean climate variability
- electronic charts
- optimum routes for ships
- prediction of seasonal or annual primary productivity
- ocean currents and waves in support of Search And Rescue and oil pollution combat applications

Many of the final products must be distributed rapidly to industrial users, government agencies, and regulatory authorities. The hindcasts and analyses based upon them are delivered and used in slower time. Typically, they provide a contextual record and are used to determine trends and statistical properties of the marine environment, which are valuable in implementing policies, planning operations and for the design of structures deployed in the marine environment.

EuroGOOS members have extensive experience in all aspects of the operations described above. Most are also engaged in the underpinning research and development that sustain those operations.

Future Directions of the European Integrated Maritime Policy

EuroGOOS initial views on the Integrated Maritime Policy have been delivered during the open consultation process of the Green paper (EG07.07, 12 June 2007). This response had underlined the need for:

- A cross-cutting holistic approach
- Evidence based policy making and assessment
- Underpinning research and development

- Support of efficient and safe operations through dedicated services
- An integrated and sustainable EMODNET
- International collaboration especially at European regional seas
- Investment in human capacity in marine science

EuroGOOS acknowledges the fact that several steps have been made in the above areas through the Blue Book and subsequent initiatives (such as the "European Strategy for Marine and Maritime Research"). However, there is need for additional efforts and more ambitious investments regarding the development of EMODNET as a tool for sustained observations of our oceans and seas in support of IMP implementation. As it has been stated in the joint EuroGOOS – Marine Board Vision Statement of 2008 and the response to June 2009 EMODNET consultation, Europe needs *"an end-to-end, integrated and inter-operable network of systems of European marine observations and data*

communications, management and delivery systems, supported by a comprehensive user-oriented toolkit to enable implementation of the Integrated Maritime Policy for Europe". Specifically there is a need for:

Additional investments for the monitoring infrastructure

Operational observations of the marine environment are still limited to a small number of parameters (mainly physical) and have large spatial and temporal gaps especially at shelf and coastal areas. During the past decade the "open sea" or "climate" components of the Global Ocean Observing System has been well developed through large international collaborative research driven efforts (e.g. the ARGO program). However, the "ecosystem" and "coastal" components rely to a large extent on uncoordinated national initiatives, resulting in a very fragmented picture (see also figure below). The importance of such (coastal and biochemical) observations and data, for example for implementing the

Marine Framework Strategy Directive, cannot be over-emphasised. Therefore, observation gaps should be identified and prioritized and necessary investments should be made accordingly.

Support the long term operation of the observing system

Our present ocean observing capacity relies to a large extend on research funding while only few components of the monitoring system are operationally secured by long-term commitments from National Agencies. Components of the global observing system such as the drifting floats, time series stations and satellite observations, which allow observation and forecasting for the marine environment, are currently supported by research funding. Therefore, there is a need for transition of the present (and future) observing systems from research to sustained operational mode. The meteorological community or the Common Fisheries Policy arrangements, where Member States and the EU share responsibilities, are successful models that could be followed. Should its in-situ

component be appropriately addressed, GMES could provide an opportunity for the observing system transition towards an operational mode.

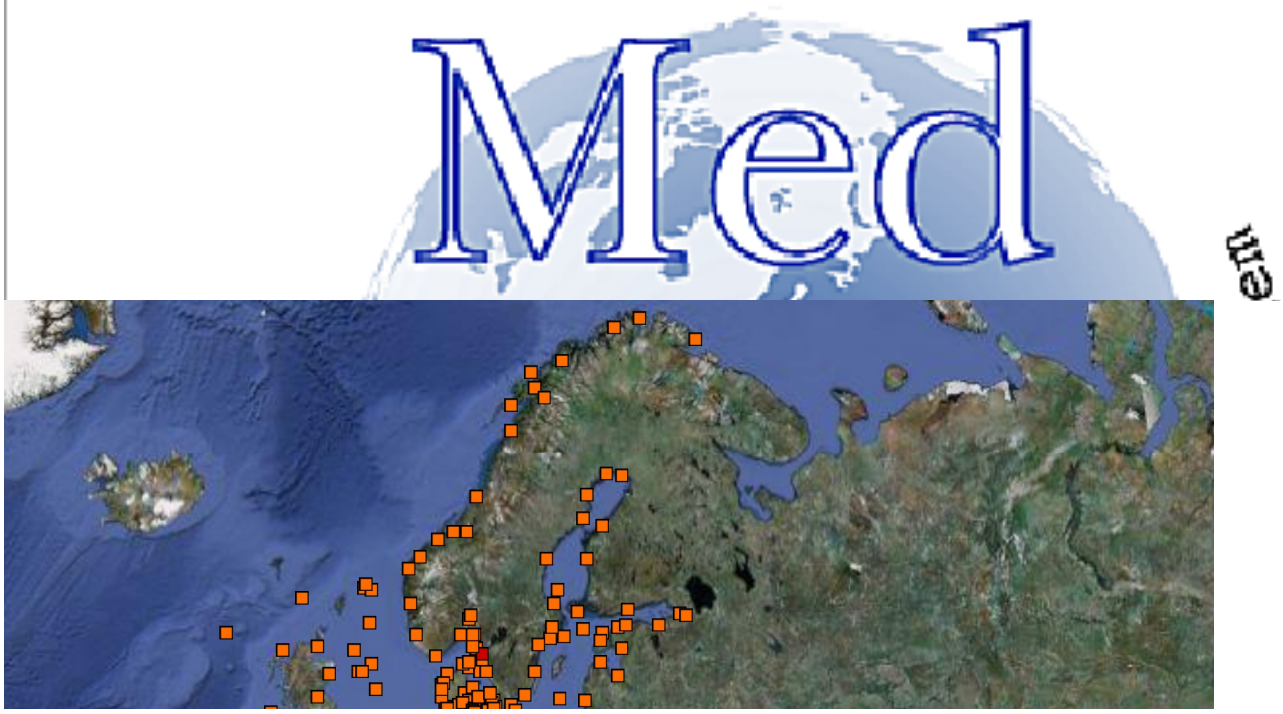
Specialized infrastructures: Coastal Observatories

EuroGOOS supports the development of joint efforts in coastal areas targeted to research and environmental policies implementation. Coastal Observatories are restricted sea areas where research organizations, governmental agencies, industry and others can concentrate their resources to gain better knowledge on properties and processes of the coastal ocean. A network of Coastal Observatories focusing on different regions and problems have a chance to create required knowledge by better resolving the ocean properties and processes at the relevant temporal and spatial scales while they can support Maritime Spatial Planning in coastal zones.

International collaboration and Capacity building in European regional seas

A Maritime Policy can be successfully implemented only in partnership with the non-European countries bordering the European Seas. This is especially relevant for the regional European Seas: Baltic – Mediterranean – Black Sea. Capacity building programs should be initiated in support of Maritime Policy implementation in these seas, especially targeting marine research and development of observing systems by neighbouring riparian countries. The absence of any observing systems in the south Mediterranean Sea coastline and the Black Sea is clearly demonstrated in the figure below and can only be addressed by focused capacity building activities.


European
Global
Med
GOOS
Mediterranean Global Ocean Observing system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Monitoring stations operated by EuroGOOS / MedGOOS members. Indicative of spatial gaps along European coasts. Similar gaps exist on the type of parameters measured by these stations (almost all of them provide physical data only while biochemical and water quality data are not considered).