

The Vision

The 2nd Marine Board Forum, held in Brussels on 16 September 2010, culminated in a unanimous call from its participants for the prioritization at national and EU level of actions to deliver:

“A long-term, stable and integrated network of strategic marine observatories, installed and operated through multi-national cooperation and support, providing consistent in situ data from the seas and oceans in support of the EU Integrated Maritime Policy¹ and as a driver for smart, sustainable and inclusive growth in Europe (Europe 2020²)”.

What are marine observatories?

The ocean observing system consists of a combination of remote and *in situ* sensing platforms including satellites, research vessels, ships of opportunity, marine research stations, Argo floats and fixed monitoring buoys. The 2nd Marine Board Forum and this Vision Statement address one critical component of this broad observation infrastructure: strategic *in situ* observing capacities which provide long-term time-series data. These “marine observatories” provide the backbone of the ocean observation system and the EMODNET³.

Why do we need long-term time-series data?

Long-term time-series datasets from the marine environment are of critical importance to facilitate:

- Effective policy making and sustainable management of the seas and oceans
- Monitoring of the rate and scale of environmental change, including climate change and biodiversity loss
- Detection of hazards and events
- Understanding ocean, earth and climate system processes

The seas and oceans support maritime industries and provide goods and services which are of critical importance for human societies and economies. However, marine ecosystems are under considerable pressure from ocean acidification, global climate change as well as localised impacts from human activities such as fisheries, aquaculture, pollution, transport and marine renewable energy. To sustainably manage our interaction with the sea, and to meet policy and societal needs, requires knowledge of the marine environment and the ability to predict future changes. Long-term and consistent data on key biological, chemical and physical (including geological) parameters from the seas and oceans is, therefore, essential. Such data can only be obtained through a network of marine observatories.

What barriers must be overcome?

In Europe, approximately 90% of the annual investment on ocean observing and monitoring comes from Member States. Although several research infrastructures which could contribute towards a marine observatory network are listed on the ESFRI⁴ Roadmap (2008), only some elements of an observatory network are currently in place. Long-term observations are fragmented, located according to national (rather than pan-European or regional) needs, deliver different measurements in different ways and are largely supported by inadequate funding mechanisms, making their future uncertain. Moreover, observations for research and observations for management purposes are not always well integrated.

To achieve the vision of an inter-operable and stable network of observatories in European regional seas and oceans, which is integrated in the global observing systems, there are many barriers to overcome, including:

- A lack of coordination between EU and national investments in ocean observing infrastructures and activities;
- An over-reliance on short-term funding programmes and research projects to deliver essential operational oceanography data;
- Significant gaps in existing coverage (i.e. areas where there is no data);

¹ An Integrated Maritime Policy for the European Union (http://ec.europa.eu/maritimeaffairs/policy_documents_en.html)

² Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth (http://ec.europa.eu/eu2020/index_en.htm)

³ European Marine Observation and Data Network (http://ec.europa.eu/maritimeaffairs/emodnet_en.html#1)

⁴ European Strategy Forum on Research Infrastructures (http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri)

⁵ European Research Infrastructure Consortium (ERIC) (http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=eric)

Marine Board Statement

Towards a European Network of Marine Observatories

- A limited partnership approach between EU Member States, and with third countries;
- Different goals for different observatories, resulting in inconsistent measurements, technologies and data products; and
- No common EU implementation strategy.

What actions are needed to deliver the vision?

To pave the way to achieving the vision, the following preparatory actions are urgently needed:

1. A Europe-wide mapping exercise and gap analysis on long-term marine data provision

Building on existing information gathering initiatives, implement a detailed mapping exercise and gap analysis which will:

- **Identify the Needs:** Assess the policy, economic and scientific requirements at local, regional, pan-European and global scales, which must be met by an integrated observatory network.
- **Examine what is already in place:** Assess what observation activities are already in place in coastal seas and open oceans, focusing for example on location, technology, measurements, data management and funding structure. Also, identify synergies and overlaps in effort.
- **Identify the gaps in coverage:** Assess the shortcomings in data coverage. What areas are not well covered? In areas where observations are regularly made, what data is missing and how much of the seafloor, water column, air-sea interface and biota is monitored? Do older datasets exist and can that data be used or rescued?

2. A European strategy on the development of an integrated network of marine observatories

Based on the above mapping exercise, and building on existing national and regional observing systems, develop a comprehensive European strategy for the development of an integrated network of marine observatories which provides a detailed roadmap for the development of a full network of observatories and making recommendations on critical issues including:

- Strategic location of observation activities in regional sea and ocean locations, generated from a full-network perspective, rather than individual observatory perspective;
- Coordination of existing and new observation activities for the network with consistency of operation and measurement;
- Technology needs and uses to ensure consistency of measurements, of operation and inter-operability between all parts of the network;
- Research priorities to deliver new sensor and platform solutions;
- Innovative and long-term funding mechanisms combining EU and Member and Associated State funding streams to support development of a full network and its continued operation;
- Use of new or existing legal frameworks for joint funding and management of marine research infrastructures (e.g. ERIC⁵, developed by the European Commission);
- Integration of the enhanced European ocean observing network in the international capacity for Earth observation; and
- Use of an advanced e-infrastructure framework to gather and make available consistent and quality-controlled datasets from distributed observing systems.



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