

## *Optimizing and Enhancing the Integrated Atlantic Ocean Observing System*

**Introduction** - **AtlantOS** *Optimising and Enhancing the Integrated Atlantic Ocean Observing Systems* is a large scale EU Horizon 2020 research and innovation project contributing to the Trans-Atlantic Research Alliance, GOOS (Global Ocean Observing System), and GEO (Group on Earth Observations). The project pools the effort of 57 European and 5 non-European partners (research institutes, universities, marine service providers, multi-institutional organisations, and the private sector) from 18 countries to collaborate on optimizing and enhancing Atlantic Ocean observing. It has a budget of € 20.5M for 4 years (April 2015 – June 2019) and is coordinated by GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany (Prof. Dr. Martin Visbeck). The work is organised along work packages on: i) observing system requirements and design studies, ii) enhancement of ship-based and autonomous observing networks, iii) interfaces with coastal ocean observing systems, iv) integration of regional observing systems, v) cross-cutting issues and emerging networks, vi) data flow and data integration, vii) societal benefits from observing /information systems, and viii) system evaluation and resource sustainability. Engagement with wider stakeholders, including end-users of Atlantic Ocean observation products and services, is embedded throughout the project.

Atlantic Ocean observation is currently undertaken through loosely-coordinated, *in-situ* observing networks, satellite observations and data management arrangements of heterogeneous international, national and regional design to support science and a wide range of information products. Thus there is tremendous opportunity to develop the systems towards a fully integrated Atlantic Ocean Observing System (AtlantOS) consistent with the recently developed ‘Framework of Ocean Observing’ (FOO). The FOO was outlined by a group of experts in charge to develop a strategy for the future to foster progress in sustained ocean observing considering the recognition that more integration across disciplines is needed. The FOO is responsive to user needs and societal drivers.

The **vision of AtlantOS** is to improve and innovate Atlantic observing by using the Framework of Ocean Observing to obtain an international, more sustainable, more efficient, more integrated, and fit-for-purpose system. The AtlantOS initiative aims to have a long-lasting and sustainable contribution to realising societal, economic and scientific benefits arising from this integrated approach, with implementation extending beyond the project’s lifetime. Advances will be achieved by improving the value for money, extent, completeness, quality and ease of access to Atlantic Ocean data required by industries, product supplying agencies, scientists and citizens.

The overarching target of the AtlantOS initiative is to deliver an advanced framework for the development of an integrated Atlantic Ocean Observing System that goes beyond the state-of-the-art, and can be sustained after the project’s lifetime.

The sustainability will derive from the AtlantOS<sup>1</sup> aims:

- to improve international collaboration in the design, implementation and benefit sharing of ocean observing,
- to promote engagement and innovation in all aspects of ocean observing,
- to facilitate free and open access to ocean data and information,
- to enable and disseminate methods of achieving quality and authority of ocean information,
- to strengthen the Global Ocean Observing System, engage with the Blue Planet initiative of GEO, and to support national and regional efforts to sustain observing systems that are critical for a number of services in Europe and beyond including the Copernicus Marine Environment Monitoring Service and its strategic alignment with the aims of the Galway Statement and the Belem Statement on Atlantic Ocean Cooperation.

The Galway Statement signed in 2013 by the EU Canada and the US and that of the Belem Statement signed in 2017 by the EU, Brazil and South Africa on Atlantic Ocean Cooperation, launching a Transatlantic Ocean Research Alliances to enhance collaboration to better understand the Atlantic Ocean and sustainably use, protect its resources and govern human activities.

<sup>1</sup> <https://www.atlantos-h2020.eu/>