# Optimizing and Enhancing the Integrated Atlantic Ocean Observing System

## Reporting

### Project Information

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<th>AtlantOS</th>
<th>Grant agreement ID: 633211</th>
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<td><strong>Project website</strong></td>
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<td><strong>Status</strong></td>
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<td><strong>Start date</strong></td>
<td>1 April 2015</td>
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- € 20 652 921

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- € 20 652 921

Coordinated by:
- HELMHOLTZ ZENTRUM FUR OZEANFORSCHUNG KIEL
  - Germany

### This project is featured in...

**RESULTS PACK**

Environmental Observations for informing citizens and supporting policymaking through innovative applications

21 August 2020

Periodic Reporting for period 3 - AtlantOS (Optimizing and Enhancing the Integrated Atlantic Ocean Observing System)
The ocean covers about 70% of earth’s surface. It provides us with key resources such as food, energy and materials, transport, recreational services and regulates weather and climate. A growing and more affluent population increases the environmental pressure on the ocean due to climate change, over exploitation, coastal build up, habitat destruction and pollution. Moreover, there is a growing demand for those marine ecosystem service and the desire to grow an ocean blue-green economy.

An integrated, effective, sustainable, and purposeful in-situ and satellite ocean observing system is needed to document, understand and possibly predict the ocean. Ocean information is critical to record change, facilitate timely warning of ocean-based hazards, initialize ocean system models for weather, climate and environmental forecasting, and to provide knowledge on the ocean dimension of sustainable development, the potential of the blue-green ocean economy and ocean protection and restoration.

So far, Atlantic Ocean observation was undertaken through loosely coordinated, in-situ observing networks, satellite observations and their data management arrangements remain heterogeneous. Thus, there is tremendous opportunity to advance and integrate the systems towards a fully integrated System. While the overall architecture, best practices, essential ocean variables are best articulated at the global level i.e. through the Global Ocean Observing System (GOOS) and the Blue Planet initiative of the Group on Earth Observations (GEO), implementation actions are more efficiently coordinated at the basin scale.

The EU Horizon 2020 project AtlantOS contributed to the above-mentioned challenges by focusing on the Atlantic Ocean basin. The project pooled the expertise and work of 57 European and 5 non-European partners (research institutes, universities, marine service providers, multi-institutional organisations, and the private sector) from 18 countries.

The AtlantOS consortium made significant progress on a number of key areas including refining observing system requirements, innovation, integration and enhancement of ship-based and autonomous observing networks, implementation of integrated regional observing, supporting cross-cutting issues and emerging networks, improving data flow and integration, showcasing of societal benefits to support of system evaluation and sustainability, to more coherent national engagement, and finally dissemination, communication and legacy building in form of the AtlantOS program.

Project partners have shown great willingness to innovate and cooperate across disciplines, domains and regions. They advanced the integration of existing initiatives, improved data flows and established...
a large number of good and best practices. The eleven work packages have accomplished impactful results and delivered strategies to improve e.g. spatial and parameter coverage, basin scale completeness, quality, authority and ease of access to data. Furthermore, user consultations with ocean information producers, the private sector, wide range of scientists, NGOs, educators, national funders and those who work in the field of ocean literacy have been strengthened. AtlantOS provided a regional perspective, delivered a strategy for the future and showcased the possibility of regional coordination to implement the ambitions articulated by international organizations (e.g. IOC-UNESCO, WMO, Blue Planet of GEO).

An independent AtlantOS BluePrint process resulted in a published a high-level strategy towards a sustained All-Atlantic Ocean Observing System. This led to the establishment of the All-Atlantic Ocean Observing System (AtlantOS) Program in 2019 (https://www.atlantos-ocean.org).

AtlantOS held a large number of international workshops and symposia culminating in the high level AtlantOS Symposium at UNESCO in March 2019. Experts also presented at international community gatherings and had impact on future design and implementation actions in the Atlantic. It’s achievements have been reported against 123 deliverables as well as in brochures, newsletter, poster, videos and scientific papers. Summaries can be found on the outcome oriented AtlantOS post project webpage (https://www.atlantos-h2020.eu) and in the linked ‘AtlantOS H2020 Project Accomplishments’ report.

**Progress beyond the state of the art and expected potential impact (including the socio-economic impact and the wider societal implications of the project so far)**

The AtlantOS project defined the principles for a sustainable ocean observing system that would be able to fully realize societal, economic and scientific benefits. Throughout its lifetime it supported several key implementation actions that will lead to improvements in the value for money, extent, completeness, quality and ease of access to Atlantic Ocean data and information as increasingly required by governments, science and the private and public sectors by: (a) improving international collaboration in the design, implementation and benefit sharing, (b) promoting engagement and innovation (c) facilitating free and open access to data and information, and (d) enabling and disseminating methods of achieving quality and authority of ocean observation-based information.

The AtlantOS project directly supported the implementation actions in support of the Global Ocean Observing System (GOOS) program and contributed to the Blue Planet Initiative of GEO. Moreover, it supported Atlantic Ocean Cooperation as articulated in the Galway and Belem Statements. AtlantOS further contributed key information in support of the ocean dimension of the 2030 Agenda for Sustainable Development. The project strengthened Europe’s ocean efforts by cooperating with several key EU actors (CMEMS, EMODnet, EUROGOOS) and articulated the Atlantic dimension of the emerging European Ocean Observing System (EOOS, see “Vision 2030 for sustained European Atlantic Ocean observing” document) and supported the G7 Future of Seas and Oceans initiative.

Post the AtlantOS project lifetime, the monitoring, coordination, and cooperation in the Atlantic Ocean
is in a much better shape in 2019 than it was in 2015. Moreover, the progress in the Atlantic due to improved observations, coordination and data management as well as the articulation of joint principle and goals served as inspiration for other basin scale initiatives (Mediterranean, Arctic, etc.) and received significant attention at the recent OceanObs19 Conference.

The main legacy of AtlantOS is a much more integrated, networked and aware community of experts that is willing to advance Atlantic Ocean observing, to support the AtlantOS international program (https://www.atlantos-ocean.org) to engage in the follow up of the OceanObs19 conference and will provide visibility of the All Atlantic Ocean Observing System in the framework of the upcoming UN Decade of Ocean Sciences for Sustainable Development (2021-2030) and similar European (Ocean Missions, Horizon Europe, ‘European Green Deal’) and international ocean observing initiatives. AtlantOS has laid the foundation for the transformation of ocean observing from ‘niche to norm’, from an activity of experts for experts to a comprehensive Atlantic Ocean Observing System that benefits all of us living, working and relying on the ocean.