



ALL-ATLANTIC OCEAN RESEARCH ALLIANCE

Creating an Atlantic Ocean Community by Implementing
the Galway and Belém Statements

AA-MARINET report – AA-COASTNET line of activity:

Network creation and training activity



**BUILDING AN ALL ATLANTIC
OCEAN COMMUNITY**
Implementing the Belém Statement



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ALL-ATLANTIC JOINT PILOT ACTIONS

Following a year-long collaborative process among more than 70 stakeholders at the Atlantic level, the All-Atlantic Ocean Research Alliance Multi-Stakeholder Platform, divided into 5 sub-multi-stakeholders platforms, identified more than 1000 initiatives towards strengthening marine research and innovation collaboration at the Atlantic level, 56 gaps and 79 needs/recommendations to achieve the All-Atlantic Ocean Research Alliance ambition, guided by a total of 20 Strategic Objectives, 20 Operational Objectives, and 10 Key Performance Indicators.

Based on these findings and on the idea of collaboration, alignment, and use of existing resources, they have developed six ambitious and long-term collaborative Joint Pilot Actions:

- [All-Atlantic Training Platform \(AA-TP\)](#)
- [All-Atlantic Aquaculture Technology and Innovation Platform \(AA-ATiP\)](#)
- [All-Atlantic Marine Biotechnology Initiative \(AA-BIOTECMAR\)](#)
- [All-Atlantic Data Enterprise 2030 \(AA-DATA2030\)](#)
- [All-Atlantic Blue Schools Network \(AA-BSN\)](#)
- [All-Atlantic Marine Research Infrastructure Network \(AA-MARINET\)](#)

This report is developed by the **All-Atlantic Marine Research Infrastructure Network (AA-MARINET)** Joint Pilot Action, that provides tools to support a transatlantic network of Research Infrastructures initiatives, promoting Trans-National Access and other methods for sharing infrastructures in the Atlantic area. It will work as a platform where stakeholders can share information about planned observation activities and available spare capacities, creating a forum where thematic networking and synergies will bring a better articulation of infrastructure-related activities in the Atlantic basin, improving the support of multidisciplinary science to address global societal challenges.

This report is a deliverable in scope of [AA-MARINET](#) task 6.2 [AA-COASTNET](#) “All Atlantic COASTal observing and technology NETWORK” that aimed at proposing a framework and a work plan to establish a network dedicated to Marine Coastal Observation with the countries part of the Belem and Galway Statements. This network will help to share know-how and strategies to support excellence in marine coastal research to better answer societal and policy needs and to promote the convergence and the alignment of RIs dedicated to coastal observation. The AA-COASTNET Joint Action will establish a network that is able to connect, align and maximise the coastal observation efforts already existing in both edges of the tropical and southern Atlantic.



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SUMMARY

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The AA-COASTNET “All Atlantic COASTal observing and technology NETwork” Joint Action in scope of [AA-MARINET](#) Joint Pilot Action proposes a framework and a work plan to establish a network dedicated to Marine Coastal Observation with the countries part of the Belém and Galway Statements. This network aims to help sharing know-how and strategies to support excellence in marine coastal research to better answer societal and policy needs and to promote the convergence and the alignment of RIs dedicated to coastal observation. The AA-COASTNET Joint Action establishes a network that is able to connect, align and maximise the coastal observation efforts already existing in both edges of the tropical and southern Atlantic.

The partners involved in this joint action are key entities in their country for coastal observation and technology. In **Brazil** there are three GOOS-Brazil initiatives, the Brazilian Coastal Monitoring System (SiMCosta), the National Buoy Program (PNBoia) and the Best Practices in Ocean Observations (MePrO), which are networks dedicated to meteorological and oceanic measurements (surface biogeochemical sensors, currents, waves), research and prediction; **South Africa** is participating with the Shallow Marine and Coastal Research Infrastructure “SMCRI” based on the South African Environmental Observation Network “SAEON” and the South African Institute for Aquatic Biodiversity “SAIAB”; **West Africa** (Gulf of Guinea) is participating with the Coastal sea Surface temperature network “PROPAO” and regional databank; **Cabo Verde** is participating with the CVOO (Cabo Verde Ocean Observatory) which is collecting data since 2006 with a deep sea mooring and also the infrastructure OSCM (Ocean Science Center of Mindelo) that can be used also in the region; **Argentina** is participating with the EMAC low-cost buoys and stations monitoring network and **Europe** is participating with the Joint European Research Infrastructure of Coastal Observatories “JERICO-RI” that is a system of systems strengthening the European network of coastal observatories dedicated to observe and monitor the complex marine European coastal seas.





1. AA-COASTNET Workshops

AA-COASTNET organised two workshops, back-to-back with the two All-Atlantic Ocean Research Alliance Forums, in [2021](#) and [2022](#). The AA-COASTNET workshops are the barebone of the Joint Action to connect stakeholders from the Belém and Galway Statement signatory countries and defined the pillars of the long term All-Atlantic COASTal observing and technology NETWORK.

The workshops addressed the identified topics that are of prime interest for coastal observing systems to share, gaps, pros and cons in every country of the Belem and Galway Statement in order to emulate an All-Atlantic synergy for coastal observation.

The short- and long-term objectives of the workshops were to improve the coordination and alignment of programmes/initiatives and projects between South, North Atlantic regions including the EU and its Member States.

They contributed to creating the right conditions for the development of homogenised and fit for purpose (accuracy) monitoring, modelling, planning, management and prediction capacities. As well, the workshops made the point on how to increase the competitiveness of the EU's blue economy by developing new technologies to service societal needs and new value chains. The workshops established a long-term strategy for the consolidation of education and training networks including more ocean-engaged citizens and communities. Finally, the workshops started the elaboration of the prospective for a long term transatlantic coastal network.

Due to COVID-19 the workshops were conducted as online events.

a. AA-COASTNET Workshop at the All-Atlantic2021 - All-Atlantic R&I for a Sustainable Ocean: Ministerial & Stakeholder Conference (2 June 2021)

The [first event of the AA-COASTNET](#) took place on the 2nd of June 2021 as a virtual side event of the [All-Atlantic2021 - All-Atlantic R&I for a Sustainable Ocean: Ministerial & Stakeholder Conference](#). The workshop was organised by the chair of the AA-COASTNET joint action Laurent Delauney (Ifremer/JERICO) and by the co-chair of the AA-COASTNET joint action, Moacyr Araujo (DOCEAN/UFPE). 95 persons registered and 55 persons attended.

The first AA-COASTNET workshop addressed the need for integration of different observing systems and technologies, best practices methodologies and procedures, metrology concepts and the integration/intercomparison of the existing regional data acquisition methodologies, trying to maximise the synergy between oceanography, engineering and metrology, for those regional initiatives. It connected existing initiatives with a view to optimise the use of resources for coastal observing initiatives like SMCRI in South Africa, PROP AO in West Africa, CVOO in Cabo Verde, PLOCAN in Canary, SiMCosta, PNBoia and MePRO in Brazil, EMAC/IADO in Argentina, and JERICO-RI in Europe.



This event showcased the long-term goals of AA-COASTNET, to optimise the appropriate use and sharing of research infrastructures to achieve the Belém and Galway statement objectives. The core members of the network shared know-how and strategies to increase operational efficiencies to better answer societal and policy needs.

The agenda was:

AGENDA

- **Introduction** to AA-COASTNET Objectives (10mn)
- **Coastal observation networks** (80mn):
 - 1 - SMCRI (South Africa), Tommy Bornman
 - 2 - PROPAO (Ivory Coast, West Africa), Kone Vamara
 - 3 - SiMCosta (Brazil), Carlos Garcia,
 - 4 - PNBoia (Brazil), Tobias Ramalho,
 - 5 - MePrO (Brazil), Fábio Nascimento,
 - 6 - EMAC / IADO (Argentina), Gerardo M. E. Perillo
 - 7 - CVOO (Cabo Verde Ocean Observatory), Silva Pericles
 - 8 - CRODT, (Senegal), Saliou Faye
 - 9 - JERICO-RI (France), Laurent Delauney
- **Discussion** (30mn)
 - AtlantOS (5mn)
 - CoastPredict (5mn) - Discussion
 - Coordination wrap up - Next steps

b. AA-COASTNET Workshop at the All-Atlantic Ocean Research Alliance Forum 2022 - Scientific event (7 June 2022)

The [second event of the AA-COASTNET](#) took place on the 7th of June 2022 as a virtual scientific side event of the [All-Atlantic Ocean Research Alliance Forum 2022](#). The workshop was organised by the co-chair of the AA-COASTNET joint action, Moacyr Araujo (DOCEAN/UFPE) and the chair of the AA-COASTNET joint action Laurent Delauney (Ifremer/JERICO). About 65 people attended the online event.

The agenda was:

- Introduction to AA-COASTNET Objectives
- Coastal observation networks status
- Discussion
 - Updates/advances on CoastPredict programme
 - Discussion
 - Wrap up
 - Next steps



The speakers were:

- 1 - SiMCosta (Brazil), Carlos Garcia,
- 2 - MePrO (Brazil), Fábio Nascimento,
- 3 - PNBoia (Brazil), Tobias Ramalho,
- 4 - EMAC / IADO (Argentina), Gerardo M. E. Perillo
- 5 - JERICO-RI (France), Laurent Delauney
- 6 - SMCRI (South Africa), Tommy Bornman

and then, an invite speaker from the Coastpredict programme:

- 7 - Joaquín Tintoré, SOCIB (Spain); Co-chair of the CoastPredict programme

During the various presentations of the various coastal networks their progress and difficulties were presented. Then the CoastPredict programme was presented. The Coastpredict programme's main objective is to improve the observing and Predicting the Global Coastal Ocean. CoastPredict will redefine the science of observing and predicting the Global Coastal Ocean. CoastPredict will focus on the many common worldwide features of the coastal ocean to design systems in a global framework that can be implemented locally in other coastal locations worldwide. This is very in line with the AA-COASTNET objectives.



2. AA-COASTNET workshops outcomes

The main common needs identified by the coastal observation communities that came together at the AA-COASTNET workshops are:

- Knowledge exchange (training, teaching culture of planning and documenting...) (Personnel exchange program)
- Best Practices!
- Common database (first at the country level)
- Calibration of sensors (labs and knowledge) => but adapted to specificity of the country
- A global metrology network
- Low cost sensors technology
- Financial support for maintenance and expansion
- Sharing contacts, building a shared space for presentations & links to common interest publications & documents.

It was also agreed that AA-COASTNET should be kept active to engage in concrete actions to address the above common needs. To do so, the CoastPredict initiative could host some actions co-designed under the AA-COASTNET. In the same way, if JERICO-RI is endorsed by the 2024 ESFRI Roadmap, the AA-COASTNET network could be part of the JERICO-RI objectives, even though JERICO-RI is not limited to countries part of the Galway and the Belém statement.



3. AA-COASTNET Training activity “Five-day COURSE ON SELF-MANAGED MONITORING PROGRAM FOR COASTS”

Ecosystem monitoring requires reliable information about all variables necessary to analyse the health and evolution of the system in both space and time. This needs a number of instrumented platforms distributed according to the ecosystem characteristics and conditions.

Even for small ecosystems, the cost of installation, and posterior and maintenance of the network increases exponentially with the number of stations and sensors. For research groups with low budgets buying commercial platforms and sensors could be prohibitive, especially if the sensors must be imported. Since, even the sensor of the highest quality subject to the environment may deteriorate or stop working, the time to repair or replace it becomes crucial because the time series will have data gaps that may even affect the total monitoring effort.

Within the last 15 years the Instituto Argentino de Oceanografía (IADO) started a program to design, develop and build its own sensors and platforms. Today there are more than 30 active stations and buoys in lakes, rivers and in the coast of the country and in Uruguay and Portugal. All stations have direct communication with the server at IADO (<https://emac.iado-conicet.gob.ar/2019>).

The idea of the AA-COASTNET training “**Five-day COURSE ON SELF-MANAGED MONITORING PROGRAM FOR COASTS**” was to create a network connectivity by training people that will be able to train others. The AA-COASTNET trainees built low cost sensors and deployed them in situ. The Data FAIRness principle was addressed in a data session to ensure the trainees know "how to" upload the data to a recognized data repository and distributor that follows FAIR practices.

Initially planned in 2020, the training course organised by IADO was postponed to 10-14 October 2022 due to the COVID-19 pandemic. A total of 7 trainees participated in the training activity. Four participants were supported by AA-MARINET seed funds provided by the AANChOR project and 3 others have not requested funding. The participants of the course were from South Africa (1), Portugal (1), Brazil (5). Three of the Brazilians participants were covered by their institution.

During the course the trainees were given theoretical and practical training about the objectives and how to set up a monitoring network and how to build their own sensors from scratch. They were divided in two groups, which build up an optical turbidity sensor and a wave sensor using accelerometers. The last day of the course, the trainees were taken on a field trip where they were able to install their sensors in a buoy developed by IADO group and moored the buoy in Bahia Blanca Estuary for a period of 4h. Meanwhile the trainees were shown how to take care and clean the sensors of a permanent buoy deployed by IADO at the Bahia Blanca harbour. After the 4hour period, the trainees participated in the process of rescuing the buoy, downloaded the data and pre-processed them. Since the Brazilian group brought with them a commercial, calibrated multiparametric sonde, the participants were able to check the accuracy of the turbidity. Based on commentaries and a survey, the participants were very satisfied with the course.



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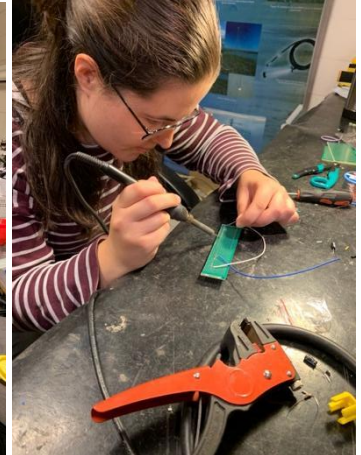
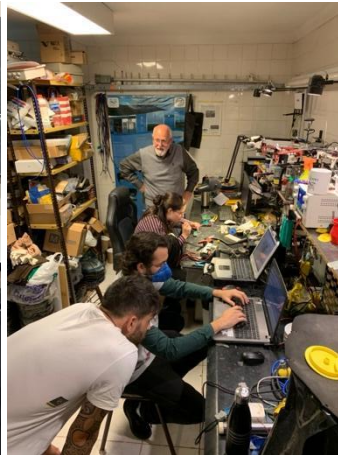


Fig 1 : AA-COASTNET Training on Low cost systems for ocean observation





4. AA-COASTNET Next steps

In order to keep the AA-COASTNET community alive and be able to go further in terms of objectives as described in the outcomes of the workshops, there are two strategies that could be possible and would facilitate a relative sustainability of the network.

The AA-COASTNET could be one of the projects of the CoastPredit programme endorsed by the UN Decade of Ocean Science and one of the 3 Programmes co-designed with GOOS. Indeed, the AA-COASTNET Joint Action was presented during the last CoastPredit general assembly in Bologna (17-19 January 2023) and was very welcomed. And indeed, the CoastPredit objectives are very well aligned with the AA-COASTNET ones:

- A predicted Global Coastal Ocean.
- A fit-for-purpose oceanographic information infrastructure benefiting stakeholders such as specialised users who interpret, share and sometimes sell information to end users such as businesses, government and individuals.
- An integrated coastal ocean observing and forecasting system adhering to best practices and standards, designed as a global framework and implemented locally.
- Open and free access to coastal information and the growth of ocean literacy.
- Innovative and sustainable applications for coastal solutions/services.

and the AA-COASTNET joint project action could fit easily in the [6 focus areas](#) of the CoastPredit program. Then, it could be a good strategy that the AA-COASTNET applies to be one of the [affiliated projects](#) of the CoastPredit program.

In addition, JERICO-RI will apply to the ESFRI Roadmap in 2024. The application can mention the AA-COASTNET as an added value of JERICO being an European scale research infrastructure dedicated to coastal ocean observation and then being able to sustain such AA-COASTNET initiative and as well having the possibility to level up AA-COASTNET at the global level thanks to the CoastPredit program.



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