



ALL-ATLANTIC OCEAN RESEARCH ALLIANCE

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

AA-TP Report: Training for Technicians Working Onboard Research Vessels



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



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JOINT PILOT ACTIONS

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 Training Platform (AA-TP)** Joint Pilot Action, that plans to establish the “All-Atlantic Training Platform” as a tool to identify training needs, gaps, initiatives and create workshops, summer schools, and floating universities for the benefit of early-career scientists and technicians in Ocean Science. Streamline and bring together existing training measures, new challenges and find new and attractive formats to include all stakeholders is essential to provide the best possible education for young talents.

This report is a deliverable in scope of All-Atlantic Training Platform (AA-TP) Activity 3: Training for Technicians Working Onboard Research Vessels (replacing “Summer school for early career scientists including components for technicians and data treatment”) as an initial event for the AA-TP programme training early career scientists and technicians in ocean instruments and data treatment. This report provides an overview of the technical course implemented.





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SUMMARY

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Developing countries often struggle to maintain and update oceanographic and other sophisticated electronic research equipment after these have been acquired. These acquisitions can be via, e.g. North-South joint programmes. When such programmes terminate the equipment and related software used in the joint projects become worn out over time and lack of funds for maintenance and dissipated knowledge and the difficulty of acquiring spare parts make them unusable. Personnel/technicians in less well funded countries and regions, due to lack of core funding, must often dedicate their work depending on program funding availability and foci and expertise bases are shifted accordingly. Expertise that may have been developed during a joint programme may be lost. This is a key skills gap which was identified in the Baseline Characterization.

The ability to access training on user-friendly, low-cost instrumentation, is still a limiting factor in coastal ocean observing, since the majority of marine observation equipment is difficult to deploy, costly to operate and requires specific technical skills. Shortage of local skills in ocean observation and interfacing capacities with stakeholders further exacerbates the problem. Moreover, a harmonized observation programme for global coastal waters has as yet to be established despite the efforts of the GOOS organisation. Existing programmes such as the ARGO float programme involve complex deployment (ships) and do not cover at all the coastal and shelf areas. Such programmes and existing models and satellites require reliable and extensive data sets for their calibration and validation in the coastal zone. Here we will work closely with the OPEMMODS Programme in POGO which is developing low cost and user-friendly instrumentation with emerging countries. We believe a practical skills development project would assist in addressing the problem. This project aims to address the skills shortfalls and train technical staff in Atlantic countries to maintain and update such equipment, thereby assisting their institutions to build and maintain skills required for equipment maintenance and replacement over time.





1. Contribution of the joint action to the implementation of the Belém Statement vision and goals

The Belém Statement aims to create a well-trained workforce through Capacity Development initiatives able to tackle the Atlantic Ocean multi-sectoral, multi-disciplinary challenges and opportunities, supporting the implementation of the Belém Statement. This means we need to strengthen the capacity at all levels. Technical support is needed in ocean science to produce the necessary information that decision makers can use for good and sustainable management.

The Corona virus pandemic is a good example how science-based decisions lead to meaningful governance. The scientific basis is not only depending on the work of scientists, but even to a larger extent even on the careful, cautious and knowledgeable work of thousands of technical staff in laboratories, who know exactly how to work with highly sophisticated equipment.



2. Implementation of the pilot action organising a technical training pre-course in Cape Town in December 2022

Planning of a Pre-Course started in April 2021 by identifying topics and needs in technical training elaborating the results of the AA-TP questionnaires and relevant experts in the field of oceanographic technology. A generous offer by the South African Government (Department For Forestry, Fisheries and Environment - DFFE) to provide the RV Agulhas II was welcomed and planning was directed for a training cruise in December 2021. A draft programme with first course content sketches was prepared and an application form developed, including selection criteria. Due to Covid-19 pandemic plans for the cruise in December 2021 had to be withdrawn and the cruise was postponed to July 2022 in combination with the routinely performed Seamester training cruise. The call was launched in April 2022. A total of about 20 applications were received.

Several zoom meetings were necessary for the preparation and programme adjustment. It turned out that the Technical Training could not be realised in the way that is was planned and defined in the AA-TP description and it was decided to look for an alternative solution. This was found in the use of the FRV Algoa, also owned and generously offered by DFFE. The course and cruise were postponed to December 2022. Due to the size of the vessel the number of participants had to be reduced to 14.



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3. Programme of the course

The participants arrived on Monday 3 December to pass a maritime safety course and a medical examination as required for boarding a South African Research Vessel.

The programme of the course started on Sunday 11 December with a joint dinner of participants and lecturers. Monday and Tuesday (12-13 December) were dedicated to lectures ashore in the DFFE Peter Stoker Centre in Cape Town port. Wednesday and Thursday (14-15 December) were planned to be used for practical training onboard FRV Algoa. A wrap-up session and farewell lunch followed on Friday (16 December).

A more detailed programme is attached. Due to bad weather (Wind speed >6 Bft) the Thursday cruise had to be cancelled and the wrap-up was pre-poned.


 PROGRAMME OVERVIEW ALL-ATLANTIC TRAINING PLATFORM Training for Technicians Working Onboard Research Vessels										
TIME	SUNDAY 11 DEC 2022	MONDAY 12 DEC 2022	TUESDAY 13 DEC 2022	WEDNESDAY 14 DEC 2022	THURSDAY 15 DEC 2022	FRIDAY 16 DEC 2022				
9:00	ARRIVALS	LECTURES	LECTURES	PRACTICAL EXERCISES AT SEA • SAFETY ASPECTS	PRACTICAL EXERCISES AT SEA • SAFETY ASPECTS	WRAP-UP				
10:00										
11:00										
12:00						LUNCH	LUNCH	• CONNECTING TO SHIP'S INFRASTRUCTURE	• CONNECTING TO SHIP'S INFRASTRUCTURE	BREAK
13:00										
14:00	ICEBREAKER / GET TOGETHER	LECTURES	LECTURES	• FAILURE DETECTION	• FAILURE DETECTION	FAREWELL LUNCH				
15:00										
16:00										
17:00										
18:00							BREAK	BREAK	BREAK	BREAK
19:00	WORKING DINNER	WORKING DINNER	WORKING DINNER	WORKING DINNER						

Figure 1 Overall programme of the Technical Course.



4. Wrap-up Session for AA-TP Technical Training Course in Cape Town, South Africa

At the end of the course, a session was held in the Peter Stoker Centre of DFFE’s Antarctica and Islands to obtain feedback from the participants on how they experienced the course. All participants attended, both lecturers and trainees.

Overall and general

Each participant was asked to give their overall impression of whether the course was a worthwhile experience for them. All the participants said that they had enjoyed the course and that it was worthwhile, in terms of sharing knowledge, gaining practical experience, and opportunities to learn. Those who had given lectures (Fabian Hüge, Isa Olegbede and Camila Marin) were also positive. All apparently appreciated the opportunity, especially being exposed to a wide range of equipment and their uses, including robotics such as wave gliders, the wide range of subjects. The other lecturers were also complimented for their excellence.

Some of the comments included: “amazing experience”; “great opportunities”; “fantastic equipment”; “benefiting from highly experienced teachers, especially on the ship”.

Best experiences

The participants were asked what they had enjoyed the most or benefited the most from. Some of the responses were:

- The dinner at Moyo, Kirstenbosch, as they had the chance to also talk to experts of the Floating University - JPA workshop, that was organised on 11 and 12 December
- Exposure to a wide range of equipment
- New technology
- Cape Town
- The robotics lab and talking to the engineers
- Being exposed to experienced and expert people



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Specific Aspects

Icebreaker: This was experienced as pleasant, but somewhat miss-placed, since they had already been together for a few days for the safety course and medicals. It could rather be held during the first meal together.

Networking dinner: Although Moyo at Kirstenbosch was considered a fantastic venue with great food, more networking and interactions with everyone would have been appreciated by some, including the dissemination of a guest list, so that the trainees would know who they could approach.

Classes: The quality of the lectures was high, the selection of subject matter excellent. Suggestions for improvements included a section on marine geology and perhaps the use of models of instruments for a more hands-on experience. Also, that an expert for the CTD lecture would have been better (Marco Worship had to step in at the last moment and present someone else's lecture because the designated expert had to withdraw at the last moment). It was felt that less free time was needed, and wrap-up sessions at the end of each day were suggested. It was also suggested, that some of the very good lectures, that covered a broad range of interests, should be offered online to reach a larger audience. However, it was underlined by other participants that it was important to have personal contact during teaching sessions. It was also suggested that consideration could be given to having groups or streams, so that the interests of individuals could be accommodated to a greater extent. Having exercises during a lecture, such as the one given by Camila Marin, was considered useful to enhance understanding.

At-Sea Training: The Algoa was highly suitable and appreciated, especially the treatment the trainees received from the crew. They enjoyed the food, as well as the atmosphere on the vessel, which was friendly and helpful. They enjoyed learning about operations on the ship. Some of the participants felt that they would have wanted more opportunity to use equipment themselves and process some samples and data.

Organizational Logistics: The administrative staff at Leibnitz-ZMT were complimented for their efficiency and quick responses to all matters.

Safety Course and Medicals: The course at STC-SA was considered enjoyable, interactive, valuable and useful, especially since each participant received an IMO-approved certificate, valid for 5 years, which means that they can use it anywhere in the world if they go to sea again in future.

Hotel: The participants who stayed at the Breakwater Lodge and Protea City Lodge said they had been comfortable and the food had been plentiful and good.



What can we improve?

We, as the course organizers and leaders, realised that we should strive to better publicise the course, so that there are more applications and definitely more applications from technicians and trainee technicians. Almost all the applicants were in fact post-graduate students who wanted more exposure to technical aspects.

Although the overall impression was positive, we did receive feedback on what was felt could be improved.

The most common amongst these was that the participants felt that they would like to have more hands-on experience with the equipment and more time at sea. The second day had to be conducted in port because of poor weather, and this also limited practical experience. There were some suggestions that the theoretical part could have been done online, so that the practical part could be extended. However, others appreciated the personal interactions. Some of the trainees felt also that they would have benefited more from actually collecting and analysing their own data and writing a report on what they had done, as well as that a project-based approach could be considered. But these critics may have their origin in the status of the participants being postgraduate students. We also realised that there had not been sufficient time to focus on the trouble-shooting and maintenance aspect of equipment, which should definitely be addressed in future courses, as this is priority area for technicians. As mentioned above, the task for the next courses is to stimulate more technicians to apply. This has to be formulated more clearly in the call and communicated to institute directors that forward the call or nominate the applicants.

Cruise planning should be more time-efficient, with more different equipment fitted in a day's work at sea. This also applies to the lectures to some extent.

Our conclusion from this session is that we should strive that the vessel is available for a longer period, perhaps a week, with trainees staying on board so that as much time as possible can be spent at sea for a broader experience. A slightly larger vessel, such as the FRS Africana, would be ideal for this (Johann Augustyn comment). Other vessels of opportunity should also be considered (e.g. RV Polarstern, Brazilian vessels, etc.). Here a close cooperation with the All-Atlantic Floating University Network activity (Luis Pinheiro) and the AA-MARINET JPA (Florence Coroner) should be strived for.

Suggestions on logistical aspects:

Information about suitable clothing should be distributed, perhaps a packing list.

Also, more information could be gathered upfront about dietary preferences.

A T-shirt to build some team spirit could be considered in future.



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5. Overall Conclusion

We believe the first Technical Training Course offered under AA-TP has been a success, with some limitations. We believe we are on the right track to achieving the major objectives, but some learnings have been achieved and some adjustments can be made for future such initiatives.

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- The captain, officers and crew of the FRS Algoa.
- Other lecturers included Tamaryn Morris, Andre Hoek, Josh Huysamen, Johan Rademan, Fabian Hüge, Camila Marin and Isa Elegbede. All were excellent.
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- Patrick Kleinbooi of STC-SA who organised the safety training and medicals at short notice.
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