

DEPLOYING ARGO FLOATS IN THE BARCELONA WORLD RACE

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Abstract

While most Argo floats are naturally deployed by research vessels, a growing number of float operations has been allocated to the sailing community, through ship-based non-governmental organization NGOs or trans-oceanic races in the last few years. The aim is to establish win-win partnerships, with Argo floats being deployed in poorly sampled areas without regular shipping, and to get sailors genuinely involved in oceanographic science activities. In the case of big events, it is also an opportunity for Argo to benefit from broad media coverage, and for the organizers, a chance to display a scientific impact of their projects. Thanks to joint forces of The Coriolis Deployment Team and the IOC-UNESCO/WMO support centre JCOMMOPS, both hosted by Ifremer in Brest, the beginning of 2015 saw probably the so far largest event of that kind, with the deployment of one Argo float by all of the eight crews participating in the Barcelona World Race. In coordination with Coriolis and JCOMMOPS, the race management gave the green light for "Argo day" on the 23rd of January, and eight floats were successfully deployed in the Atlantic Ocean between 24° and 44° south.

Meeting the challenges of float deployments in a round-the-world race

The history of Coriolis Argo floats with sailing races goes back to 2011-2012 when Stève Ravussin and Michel Desjoyeaux deployed Argo floats from their racing yachts on the way to the departure of the Krys Ocean Race from New York to Brest. Four floats were also deployed the same year by a racing yacht between the Caribbean and Europe. It has now however been a world's first with all participants of the 2015 Barcelona World Race taking a float onboard per official racing instructions, with a strong cooperation put into place between the race organizer (Barcelona Foundation for Ocean Sailing, FNOB) and IOC-UNESCO/JCOMMOPS, supported by a number of scientific research institutions. It is a very strong commitment from the race and hopefully marks a milestone in "sailing and science" partnerships. Beyond operational needs, it offers the Argo program also an unprecedented outreach potential.

After first successful onboard tests, the project was presented at an international press conference at United Nations UN headquarters in New York in summer 2014, and training was given to the skippers in Barcelona before the departure in December 2014. Most sailors were happy to contribute to an oceanographic science program, but they were less keen to embark almost 20kg of additional weight on their yachts; for fair conditions in terms of competition, it was thus agreed to deploy all floats on a carefully chosen "Argo day" (instead of giving a deployment area), allowing for deployments in data sparse areas of the South Atlantic.

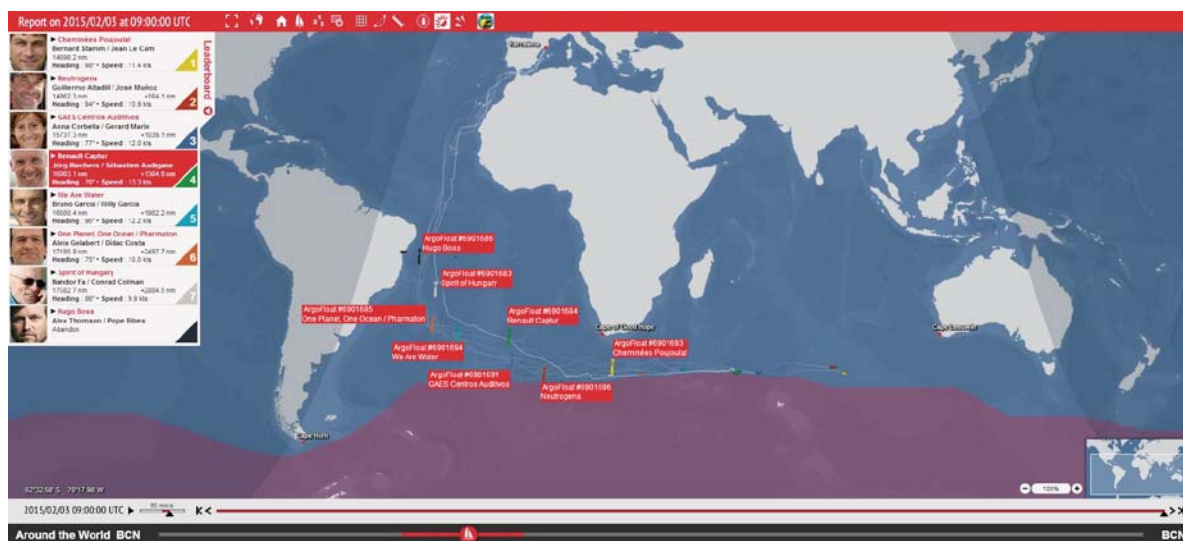


Figure 1: Boat and float positions at Argo day (courtesy of Geovoile and www.barcelonaworldrace.org)

Apart from one yacht which dismasted after 15 days, abandoned the race and released the float therefore earlier (as per agreement for such a scenario), the other competitors were given the go-ahead 23 days after the departure from Barcelona, when the weather conditions allowed a safe launch and the leading boats were hitting the 40°S latitude. During those 23 days, the floats (as the crews!) were exposed to some intense sailing, meaning a quite rough treatment in terms of shocks and vibrations. The deployment itself was also challenging for some instruments and skippers, who did not reduce the boat speed to the recommended 2 knots to put the floats at sea and instead deployed at impressive 16 knots of boat speed. Despite all that, all floats have entered the operational mode shortly after the deployment and at the time of writing, the eight floats, all of the NKE Arvor Light type, have successfully accomplished at least eight 10-day cycles and performed eight 2000m CTD profiles.

Argo visibility through supportive projects

As global climate change has become a vastly discussed topic, public awareness has led to a significant interest in the ways of climate monitoring related systems such as Argo floats. The sailing community being at the forefront of anything that has to do with meteorology and ocean is usually very concerned about research and applied science in those fields. Both sailors and followers of an event such as a round-the-world race are thus a very appreciative audience for a science program linked with the sportive event. Conrad Colman, skipper on Spirit of Hungary put it that way: “As sailors we are naturally hugely affected by the changes in the weather so it feels great to be able to contribute to its greater understanding during our race”, and Anna Corbella, skipper of GAES Centros Auditivos with Gerard Marín, added that “it means a lot to us both to do what we can to help the scientific community while we are sailing this race. [...] It makes us happy to help. We will make a little ceremony to throw the beacon in the water”. The crews did good jobs by posting pictures, videos and comments of their float launch shortly after the operation.



Figure 2: Floats deployments on Argo day onboard (from left to right) One Planet,One Ocean/Pharmaton, GAES Centros Auditivos and Spirit Of Hungary

Apart from Argo, Coriolis, UNESCO and race websites, the related press release was largely quoted and dozens of articles were published following Argo day, not only in the sailing and the science related press, but also in mainstream media and social networks. It is probably appropriate to state that such a level of communication on Argo, including explanation of the program, the network and the floats themselves was never achieved in such a short period of time. This is largely due to the characteristics of modern ocean racing, where communication is part of the challenge, and where skippers have almost become public relations PR professionals, being able to deliver quality images or video footage as well as live comments in real time. The race website has also proven to be particularly efficient, providing a lot of quality material for the press and the public. As part of the Argo project in the 2015 Barcelona World Race, a partnership between JCOMMOPS and the provider of the mapping tool, Geovoile, was set up in order to display the latest information on these particular Argo floats directly on the race-tracker, together with the yachts (Fig. 1). A simple click on a float gives the user direct access to the corresponding float information from the JCOMMOPS web portal. On the other hand, a special page was set up on the Coriolis Data Center website to follow the floats deployed during the race and to access data. All those efforts coordinated at different levels (Skippers, Coriolis Deployment Team and Data Center, JCOMMOPS, Race Management, Euro Argo...) allowed for a successful operation that will be repeated, and also represents an interesting link to the next edition in 4 years. Follow-up operations have already started, and the Volvo Ocean Race has in March also deployed autonomous oceanographic instruments on the difficult Cape Horn leg from all participating yachts, showing the potential of such partnerships across different ocean observing programs.



Beside the racing community, JCOMMOPS and Coriolis also organize deployments with other sailing ships operating in undersampled zones, including traditional tall ships and expedition vessels, but also smaller pleasure yachts if they are organized in NGOs. Without such a NGO framework, efforts for logistics mostly exceed human resources on the science side. Those collaborations help informing the broader public on operational oceanography in general, and on Argo in particular. In this perspective, the Barcelona World Race was also a perfect way to kick off an educational project with 9-year old children from a school in Brest, who met the local skipper Bernard Stamm together with coordinators from Coriolis and JCOMMOPS before his departure to Barcelona. The children then “adopted” his float, and a relationship was maintained during the entire race and beyond in a one year long “sailing and science” project, including a visit of the Ifremer center in Brest during a week of Argo qualification tests, and a meeting with Bernard Stamm back from winning the 2015 edition.

Figure 3: One Planet, One Ocean/Pharmaton skippered by Spaniards Aleix Gelabert and Didac Costa in BWR 2015



Figure 4: Bernard Stamm and Jean Le Cam with their Argo float signed by pupils from Jacques Prévert School in Brest (photo left: Yvon Jezequel / right: Team Poujoulat)

Conclusion

The deployment of Argo floats in the 2015 Barcelona World Race was challenging in terms of technical constraints on the instrumentation side, but also in terms of logistics for the coordinators, and eventually the deployment operation itself for the skippers, who at the same time participated in a 90 days nonstop -and only double-handed- circumnavigation. It proved to be very successful in all aspects; all floats were deployed and work correctly, and in addition to the operational point of view, it was also an outstanding way for Argo to send a message to the outside world. The feedback from the involved crews is very positive. Given that in many data sparse areas, in particular in the Southern Ocean, racing yachts are often the only available and recurrent volunteer ships, a sound partnership with this community is considered to be of high value and thus continuously enhanced by the operational teams on the scientific side.