

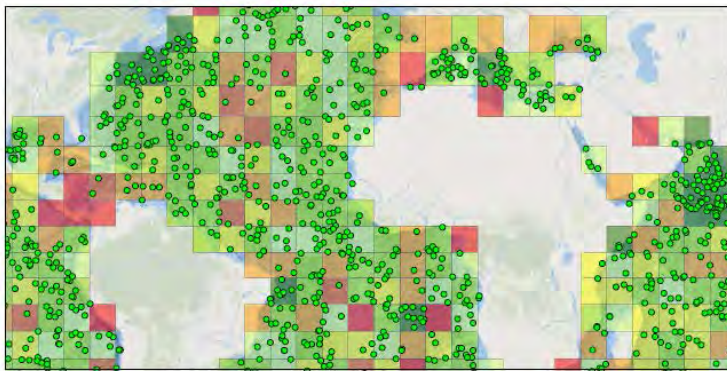
## 2. weekly report SO 259-3

After final tests of upgrades to engine and equipment in the North Sea the RV Sonne reached the French port of Brest. While many technicians left the ship, three ARGO floats joined the cruise. Romain Cancouet and his team came to the harbor to deliver three floats, as illustrated in Figure 1. Romain also gave instructions on activation and deployment.



**Figure 1** Delivery of three ARGO floats in Brest, France. The RV Sonne in Brest harbor (left), a French Euro-ARGO float (15kg, 1.8m, center) and the delivery crew (right) with Romain Cancouet giving us deployment instructions to the far right.

ARGO float are robots that autonomously sample temperature and salinity profiles from the ocean surface down to 2000m depth. Observations are delivered via satellites within a few hours after the data acquisition to data centers where the data are processed and provided to users through free and open data access. The data are needed to understand the role of the ocean on the Earth's climate and to predict evolutions of weather and climate. Given their limited lifetime (the internal battery lasts only for about two years) and to assure sufficient ocean coverage, about 1000 floats are deployed each year by national programs. Locations of operating ARGO floats in the Atlantic Ocean as of Dec 18, 2017 are illustrated in Figure 2.

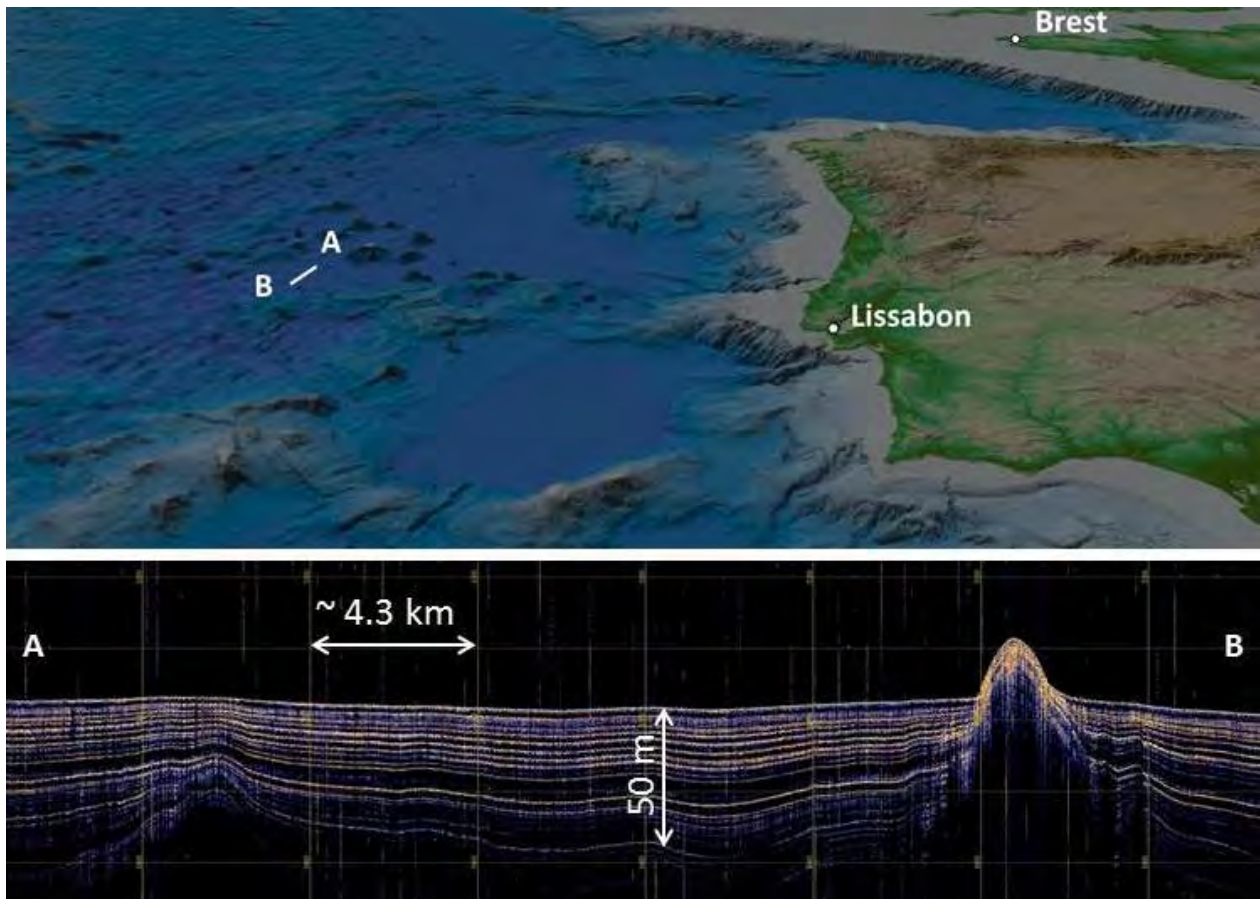


ARGO	<u>lon (E)</u>	<u>lat (N)</u>
#1	-20.42	24.53
#2	-21.76	-2.50
#3	-27.94	-14.21

**Figure 2** ARGO float locations (green dots) in the Atlantic as of Dec18, 2017 and planned deployment locations (right) preferably in areas outside the EEZ with currently no or only few ARGO floats.

A deployment should occur in ARGO sparse regions but only outside Exclusive Economic Zones (EEZ). Based on current ARGO float distributions of Figure 2, the selected lat/lon deployment locations for the three ARGO instruments were picked and are listed in Figure 2. These locations already reveal that we have deviated from our originally scheduled cruise-path, now passing between Africa and the Cape Verde Islands, to permit extended bathymetry observations, which need to be outside EEZ, in the relatively poor sampled southern Atlantic regions off Brasil.

First bathymetry samples with the multi-beam echo sounder (Kongsberg EM122) and the sub-bottom profiler (Atlas Teledyne P-70) when passing the “Iberian Plain” west of Spain and Portugal are presented below. These data were collected after the RV Sonne left the Exclusive Economic Zone (EEZ) of Spain. Abyssal Plains generally lie between continental shelves and the mid-ocean ridges. They make up around 50% of the ocean floor and have water depths of 3,000 to 6,000 m. In comparison to mid-ocean ridges they are characterized by a relatively high thickness of sediments. In the lower panel of Figure 3 an echogram of the sub-bottom profiler in the area of the “Iberian Plain” is depicted. A consistent sediment accumulation is visible as homogeneous sediment layers up to 50 m within the seabed.



**Figure 3:** Overview of the location of the displayed echogram (top) and the echogram of sediments in the area of “Iberian Plain” (bottom)

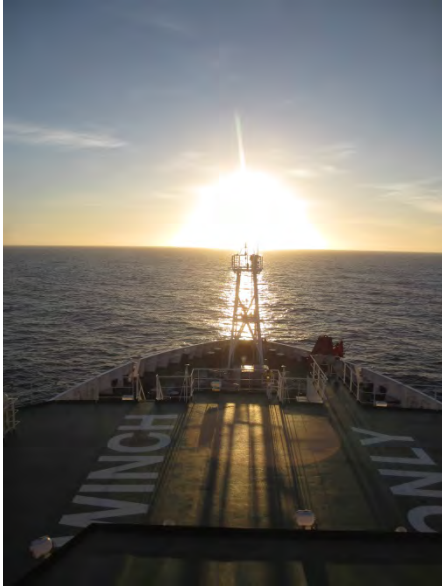
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*extra figures*



**Figure A1** selected pictures of the RV Sonne in the harbor of Brest, France



**Figure A2** the RV Sonne on its way from Europe to South America around Xmas 2017