

Argo-España

Parte de la estrategia global de observación del océano



Report on Argo float deployment of *RADMED0818* cruise

ARGO ESPAÑA – IEO / 18 – 46

Argo float deployment for
WMO 6901252 and 6901270

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1. Deployment design

Following the Argo program goals, the float density criteria demands a coverage distribution of $3^{\circ} \times 3^{\circ}$ grid cells (Fig. 1). In order to maintain the global Argo network coverage and taking in account the current distribution of the Argo floats, Argo España planned 2 float deployments, north of Menorca island and south of Cartagena (Western Mediterranean Basin), after some gaps in the network were identified.

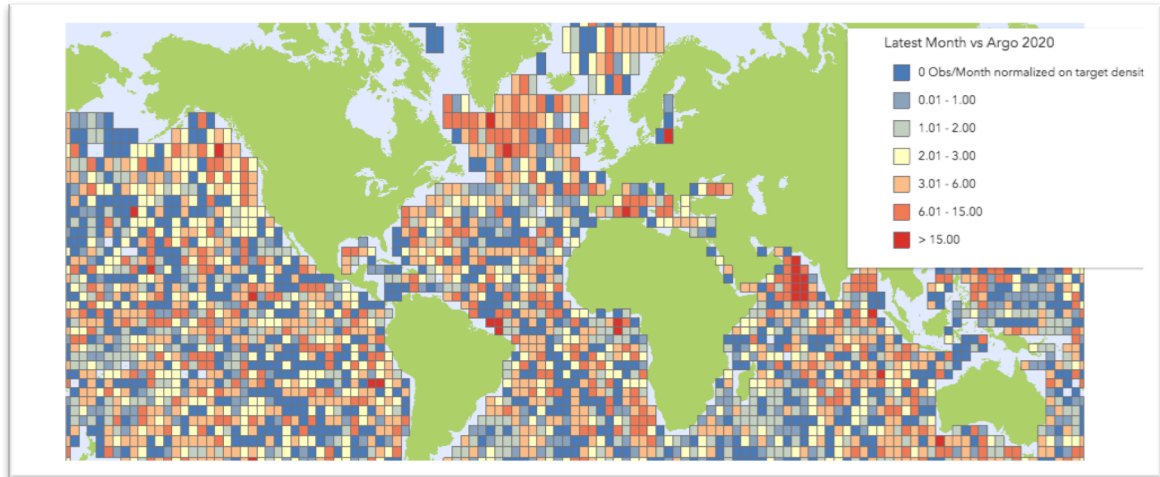


Figure 1. Density of Argo observations in the 2018 May vs the Argo 2020 challenge.

As PI of the *RADMED0818* cruise, Rosa Balbín and Mariano Serra (Spanish Oceanographic Institution - IEO) were requested to support the Argo deployments planning. The R/V Ángeles Alvariño was planned to carry out the research between 35° N to 42° N and 6° W to 4° E (Fig.2), which includes ideal locations for Argo España purposes. Stations CP5 and FJF (MH) were selected for both Argo deployments.

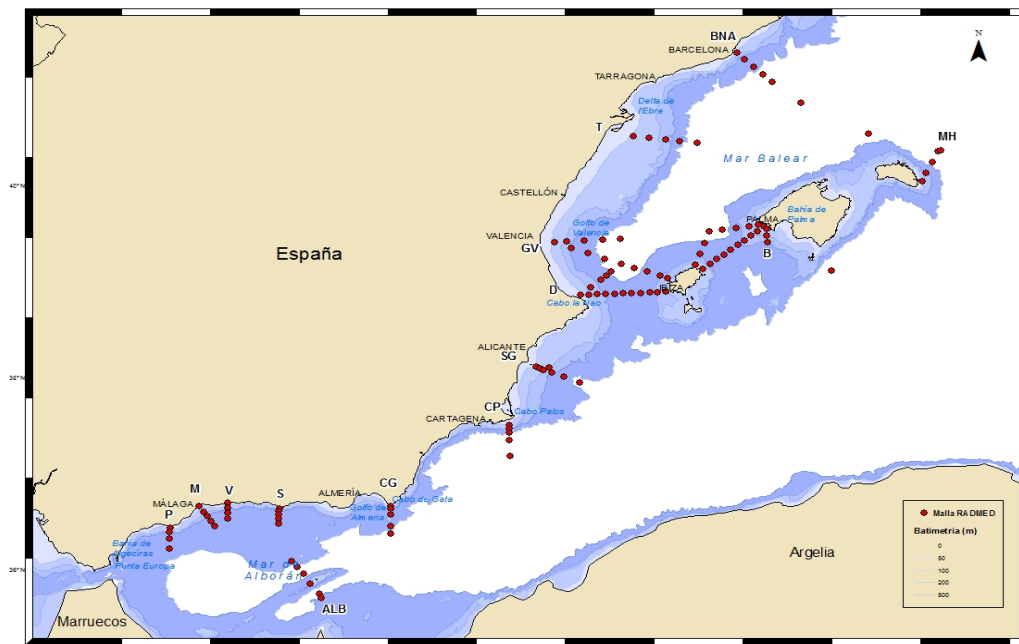


Figure 2. Stations distribution of the *RADMED0818* cruise.

2. Deployment data

Information of the float deployments is showed in this paragraph.

- a. **WMO 6901252.** The following table contains all the data of the WMO 6901252 deployment during *RADMED0818* cruise. No troubled issues during the deployment were reported. CTD cast is available at the deployment location. Coriolis was notified 18 August, 2018 and all the information was registered at the Argo Information Center database. The data is free and publicly available through the Argo data stream:

<http://www.oceanografia.es/argo/datos/ArgoEsGraficos/6901252.html>

| DATE AND TIME | 2018 - 08 - 11 / 17:42 GMT |
|----------------------|-------------------------------|
| DEPLOYMENT LOCATION | 40° 09.59' N 04° 36.96' E |
| DEPLOYMENT PLATFORM | R/V Ángeles Alvariño |
| CRUISE ID | <i>RADMED0818</i> |
| FLOAT OWNER | IEO |
| PLATFORM TYPE | NKE Arvor - L |
| SERIAL NUMBER | AL2500 - 17SP001 |
| TRANSMISSION SYSTEM | ARGOS |
| PARKING DEPTH (m) | 750 |
| PROFILE FEPTH (m) | 2000 |
| DEPLOYMENT DEPTH (m) | 2524 |
| WEATHER CONDITIONS | <i>Ripples without crests</i> |
| DEPLOYMENT OPERATOR | Verónica Cainzos |

Table 1. WMO 6901252 information deployment.

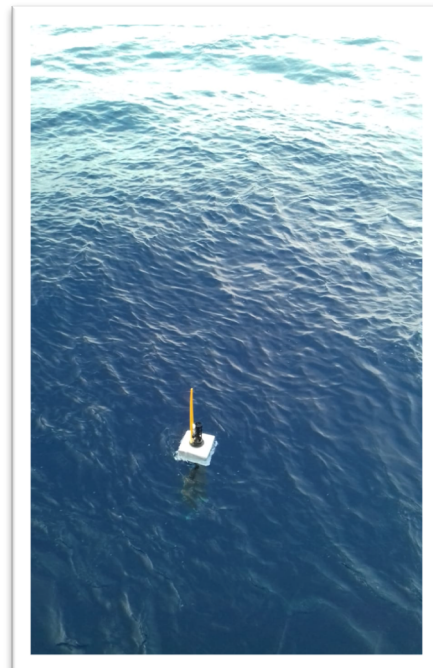
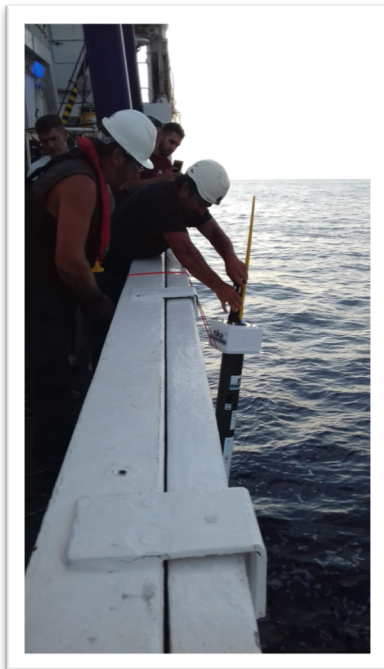


Figure 3 (a) and Figure 3 (b). R/V Ángeles Alvariño's staff during the deployment maneuver of the float WMO 6901252 (a). Deployed float (b).

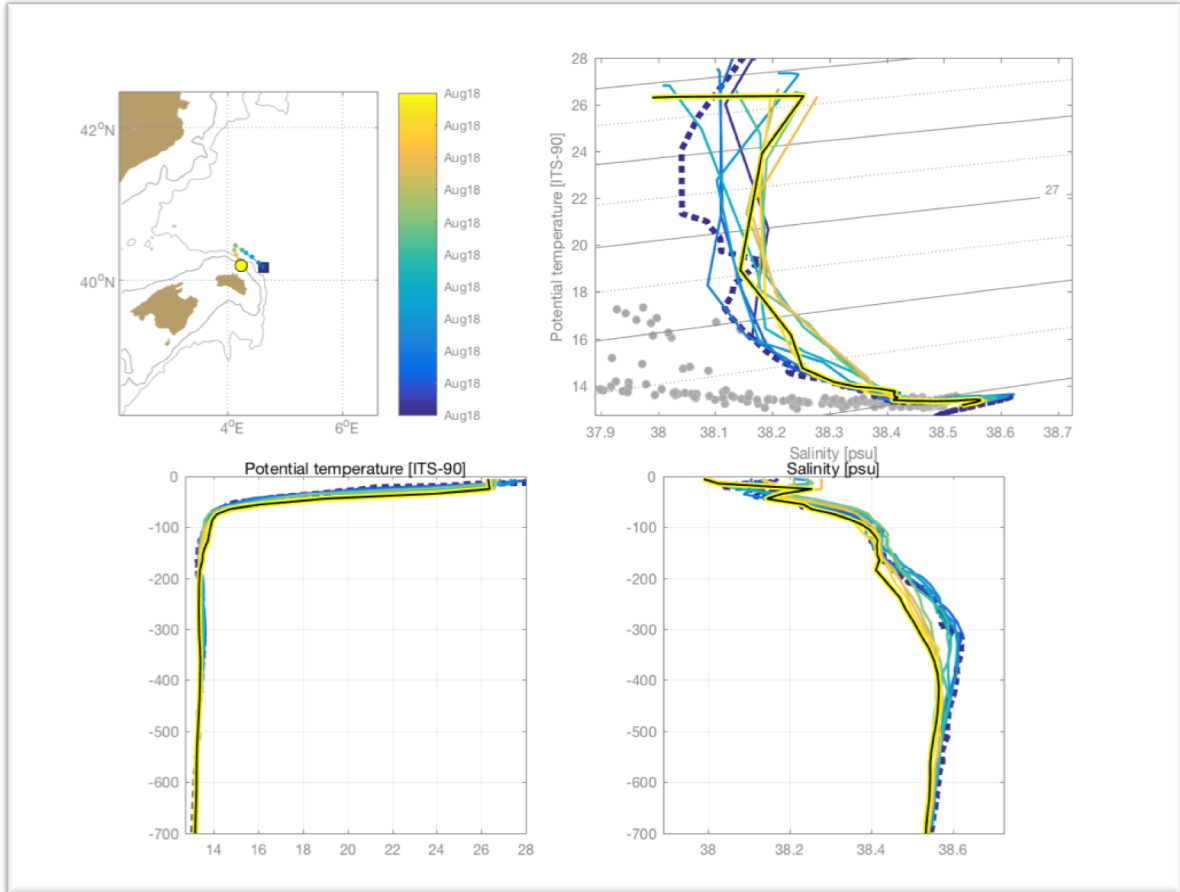


Figure 4. The trajectory of the float since the deployment is shown in the upper left side of the picture. T-S diagram of the data collected by WMO 6901252 is shown in the upper right side of the picture. The grey points are the climatology of the area. The black line is the last profile carried out by the float. The dark blue dashed line describes the CTD cast carried out from the R/V Ángeles Alvariño. Potential Temperature and Salinity profiles are also shown in the lower side on the picture.

- a. **WMO 6901270.** The following table contains all the data of the WMO 6901270 deployment during *RADMED0818* cruise. No troubled issues during the deployment were reported. CTD cast is available at the deployment location. Coriolis was notified 20 August, 2018 and all the information was registered at the Argo Information Center database. The data is free and publicly available through the Argo data stream:

<http://www.oceanografia.es/argo/datos/ArgoEsGraficos/6901270.html>

| DATE AND TIME | 2018 - 08 - 18 / 16:56 GMT |
|----------------------|---|
| DEPLOYMENT LOCATION | 37° 12.37' N 00° 45.45' W |
| DEPLOYMENT PLATFORM | R/V Ángeles Alvariño |
| CRUISE ID | <i>RADMED0818</i> |
| FLOAT OWNER | IEO |
| PLATFORM TYPE | NKE Arvor - L |
| SERIAL NUMBER | AL2500 - 17SP019 |
| TRANSMISSION SYSTEM | ARGOS |
| PARKING DEPTH (m) | 750 |
| PROFILE FEPTH (m) | 2000 |
| DEPLOYMENT DEPTH (m) | 2553 |
| WEATHER CONDITIONS | <i>Small waves with breaking crests</i> |
| DEPLOYMENT OPERATOR | Verónica Cainzos |

Table 2. WMO 6901270 information deployment.

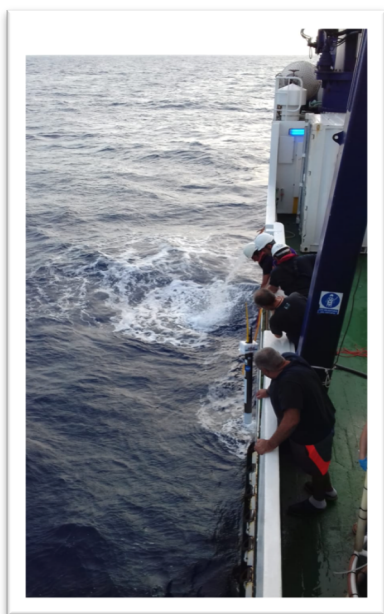


Figure 5 (a) and Figure 5 (b). R/V Ángeles Alvariño's staff during the deployment maneuver of the float WMO 6901270 (a). Deployed float (b).

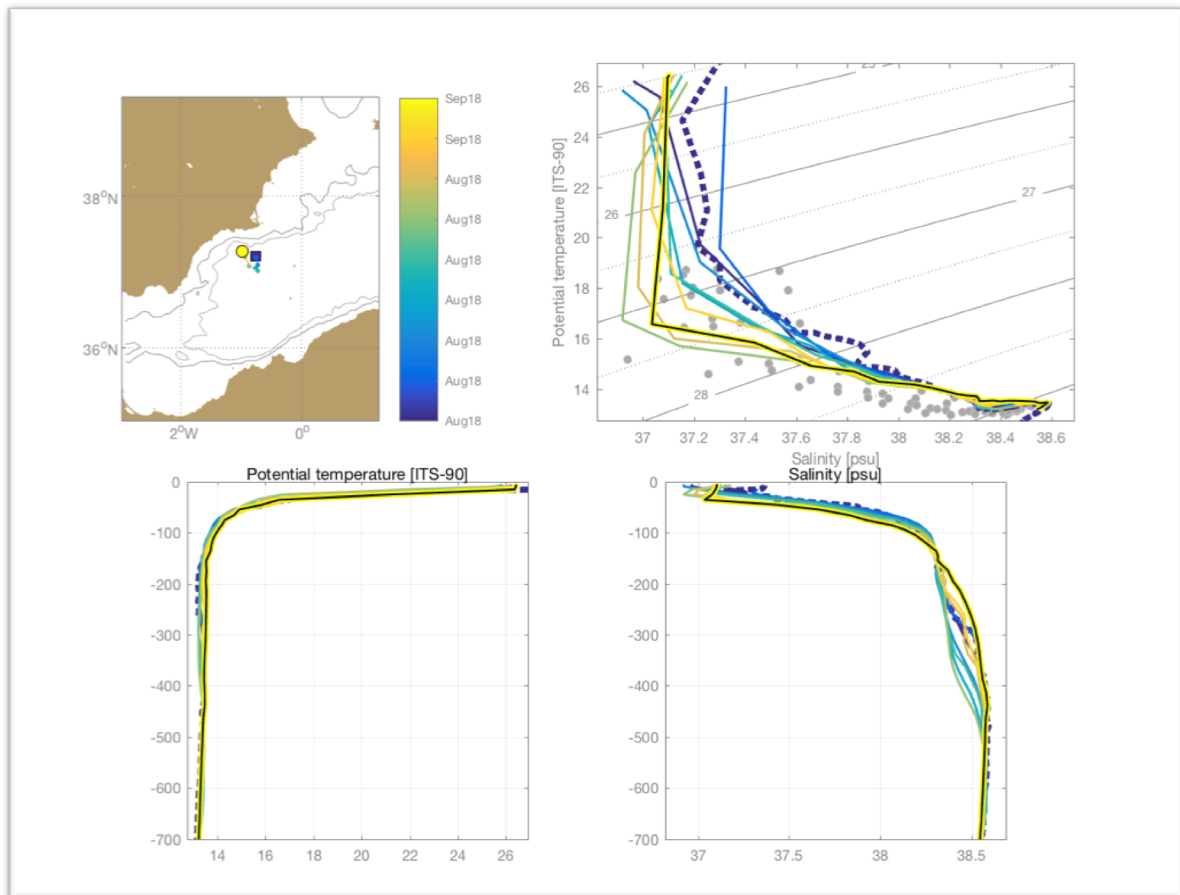


Figure 6. The trajectory of the float since the deployment is shown in the upper left side of the picture. T-S diagram of the data collected by WMO 6901270 is shown in the upper right side of the picture. The grey points are the climatology of the area. The black line is the last profile carried out by the float. The dark blue dashed line describes the CTD cast carried out from the R/V Ángeles Alvariño. Potential Temperature and Salinity profiles are also shown in the lower side on the picture.

3. Floats configuration

“MC” parameters (table 3) were set according to the scientific requirements and the oceanographic area of study (Western Mediterranean Basin). In the first instance, both floats will dive up to 800 m depth carrying out 10 cycles of 48 hours, with a parking depth of 500 m. After, the float will dive up to 2000 m depth carrying out the rest of the cycles (MC 0) with a period of 5 days and a parking depth of 750 m.

| Command no. | Name | Def Value | Units |
|-------------------------|--|---------------------|----------------|
| Mission Commands | | | |
| MC0 | Total Number of Cycles | 300 | Whole number |
| MC1 | Number of cycle with "Cycle Period 1" | 300 10 | Number of days |
| MC2 | Cycle Period 1 | 240 48 | Hours |
| MC3 | Cycle Period 2 | 240 120 | Hours |
| MC4 | Reference Day | 2 | Number of days |
| MC5 | Estimated time at the surface | 6 | Hours |
| MC6 | Delay Before Mission | 0 | Minutes |
| MC7 | Descent Sampling Period | 0 | Seconds |
| MC8 | Drift Sampling Period | 12 | Hours |
| MC9 | Ascent Sampling Period | 10 | Seconds |
| MC10 | Drift Depth for "MC1" first cycles | 1000 500 | dBar |
| MC11 | Profile Depth for "MC1" first cycles | 2000 800 | dBar |
| MC12 | Drift Depth after "MC1" cycles are done | 1000 750 | dBar |
| MC13 | Profile Depth after "MC1" cycles are done | 2000 | dBar |
| MC14 | Threshold surface/Intermediate Pressure | 10 | dBar |
| MC15 | Threshold Intermediate /bottom Pressure | 200 | dBar |
| MC16 | Thickness of the surface slices | 1 | dBar |
| MC17 | Thickness of the intermediate slices | 10 | dBar |
| MC18 | Thickness of the bottom slices | 25 | dBar |
| MC19 | Iridium End Of life transmission period (UNUSED) | 60 | Minutes |
| MC20 | 2 nd Iridium Session Wait Period (UNUSED) | 0 | Minutes |
| MC21 | Grounding mode (0= Shift, 1 : Stay grounded) | 0 | |
| MC22 | Grounding switch pressure | 50 | dBar |
| MC23 | Delay at surface if grounding at surface | 1 | Minutes |
| MC24 | Optode type (0: none. 1 : 4330. 2 : 3830) | 1 | |

Table 3. Configuration sheet for all the floats deployed during *RADMED0818* cruise.

4. Acknowledgements

Argo España would like to thank Mariano Serra (IEO), Rosa Balbín (IEO), Verónica Cainzos (IEO), Safo Piñeiro (IEO) and the rest of the crew of the R/V Ángeles Alvariño, who cooperated for the success of the mission. The Argo floats have been co-financed by FEDER funds from "Programa Operativo Crecimiento Inteligente 2014 - 2020".



Figure 7. Deployment location from CLS satellite viewer (ref. 44187 and 44288).