

Argo-España



Parte de la estrategia global de observación del océano

Report on Argo floats during RAPROCAN2312 cruise

ARGO ESPAÑA – IEO - SOCIB / 24 – 88

Argo float deployment for
WMO 6990625 and 4903712

Jan 30, 2024

A. González-Santana - L. Díaz- Barroso
Instituto Español de Oceanografía (IEO) - Sistema de Observación y Predicción
Costero de las Illes Balears (SOCIB)

1. Deployment design

Following the Argo program goals, the floats' density criteria calls for a 3° x 3° grid cells coverage distribution of (Fig. 1). To maintain the global Argo network coverage and taking in account the current distribution of the Argo floats, IEO-CSIC (Instituto Español de Oceanografía – Consejo Superior de Investigaciones Científicas) planned the deployment of one core Argo float and one Deep Arvor float in the Canary basin, after some gaps in the network were identified.

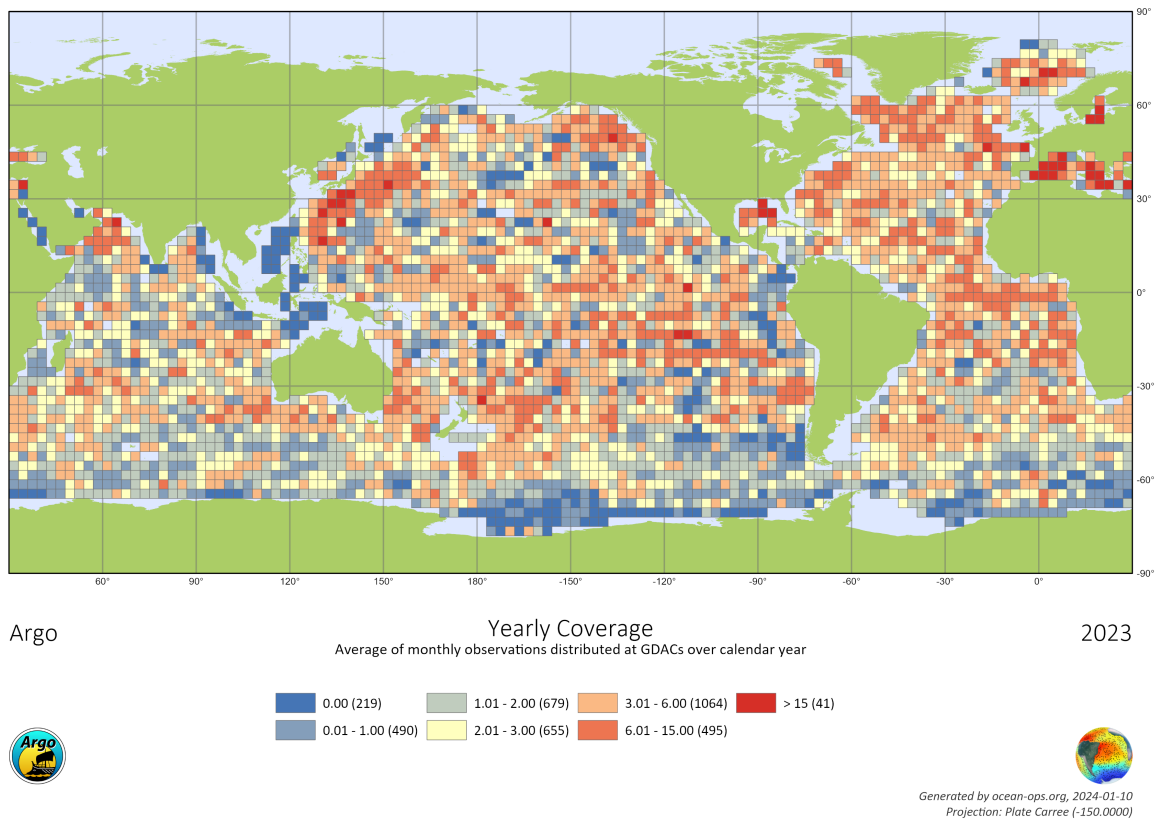


Figure 1. Density of Argo observations in the year 2023.

The RAPROCAN2312 cruise was divided into 24 stations with ideal characteristics for the requirements of Argo Spain. The RV Ramón Margalef sailed between 27° N & 30° N and 12° W & 20° W (Fig.2). Researchers and technicians from the IEO - CSIC led the planning for the launch of the two mentioned floats.

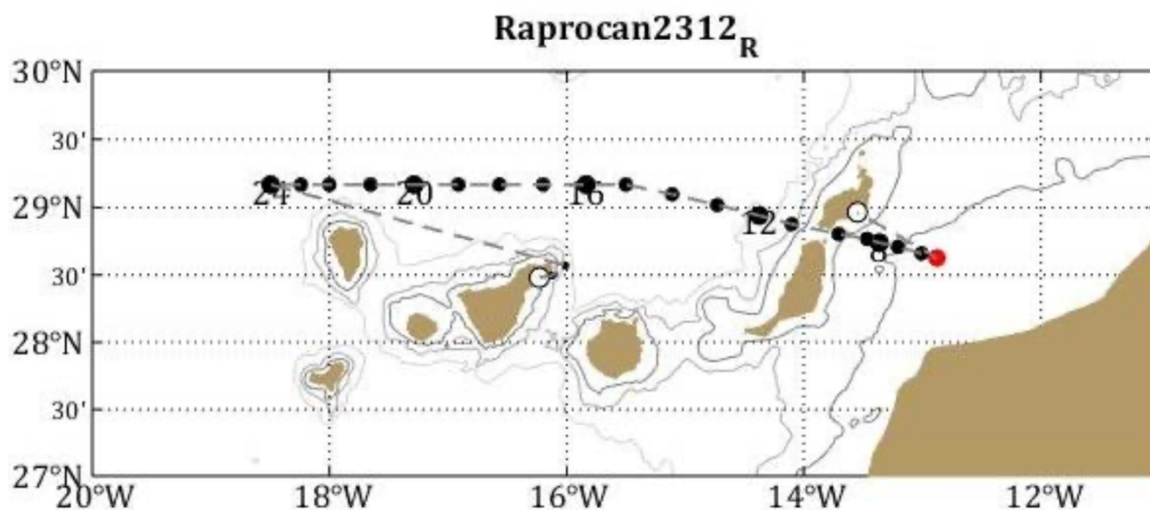


Figure 2. Deployment stations during RAPROCAN2312 cruise.

2. Deployments' data

Information of the floats' deployment is shown next:

- a. WMO 6990625. The following table contains all the data of the WMO 6990625 deployment during the RAPROCAN2312 cruise, deployed at station 15 (Fig. 2). No troubled issues during the deployment were reported. CTD cast is available at the deployment location (Fig. 3b). Coriolis was notified on Dec 13, 2023, 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/floats/6990625.html>

DATE AND TIME	12 - 12 - 2023 / 13:30 UTC
DEPLOYMENT LOCATION	29° 09.283 N 15° 30.260 W
DEPLOYMENT PLATFORM	R/V RAMÓN MARGALEF
CRUISE ID	RAPROCAN2312
FLOAT OWNER	IEO-CSIC
PLATFORM TYPE	NKE ARVOR - I
SERIAL NUMBER	AI2600-23SP004
TRANSMISSION SYSTEM	IRIDIUM
PARKING DEPTH (m)	1000
PROFILE FEPTH (m)	2000
DEPLOYMENT DEPTH (m)	3500
WEATHER CONDITIONS	Calm
DEPLOYMENT OPERATOR	Alberto González

Table 1. WMO 6990625 information deployment.



Figure 3a (left). Deployment maneuver of float 6990625 from R/V Ramón Margalef. Figure 3b (right), deployment location and trajectory.

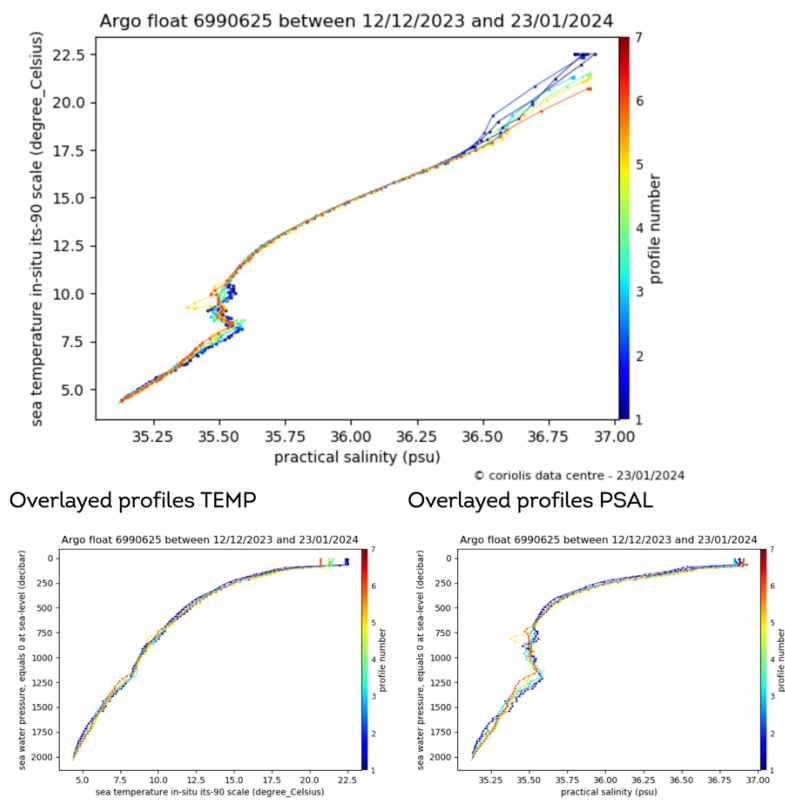


Figure 4. T-S diagram and temperature – salinity profiles from data collected by WMO 6990625.

- a. WMO 4903712. The following table contains all the data of the WMO 4903712 deployment during the RAPROCAN2312 cruise, deployed at station 24 (Fig. 5b). No troubled issues during the deployment were reported. CTD cast is available at the deployment location. Coriolis was notified on Dec 13, 2023, and all the information was registered at the Argo Information Center database. The data is free and publicly available through the Argo data stream:

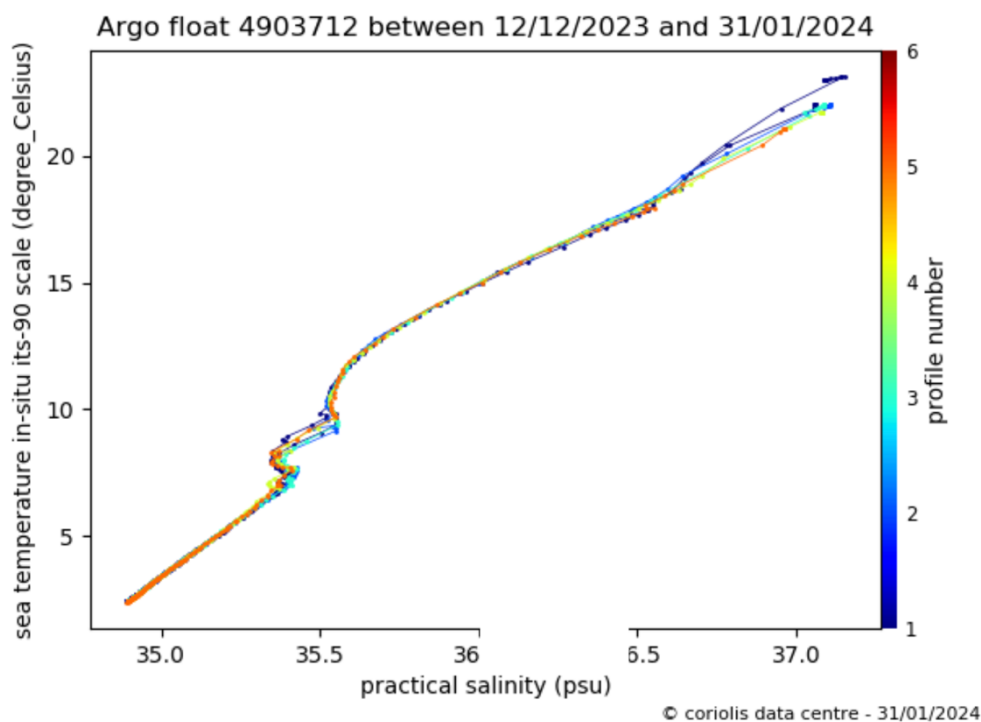
<http://www.oceanografia.es/argo/datos/floats/4903712.html>

DATE AND TIME	10 – 12 - 2023 / 19:49 UTC
DEPLOYMENT LOCATION	29°10.059' N 18°29.930' W
DEPLOYMENT PLATFORM	R/V RAMÓN MARGALEF
CRUISE ID	RAPROCAN2312
FLOAT OWNER	IEO-CSIC
PLATFORM TYPE	NKE ARVOR – I
SERIAL NUMBER	AD1700-22SP001
TRANSMISSION SYSTEM	IRIDIUM
PARKING DEPTH (m)	1000
PROFILE FEPTH (m)	2000
DEPLOYMENT DEPTH (m)	4235
WEATHER CONDITIONS	Smooth
DEPLOYMENT OPERATOR	Alberto González

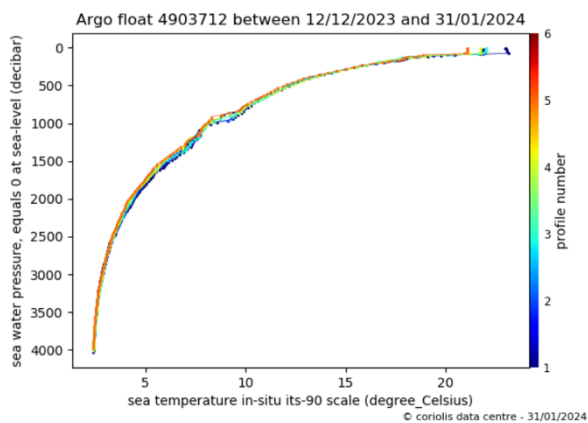
Table 2. WMO 4903712 information deployment.



Figure 5a (left). Deployment maneuver of the float WMO 4903712 from R/V Ramón Margalef. Figure 5b (right), deployment location and trajectory.



Overlaid profiles TEMP



Overlaid profiles PSAL

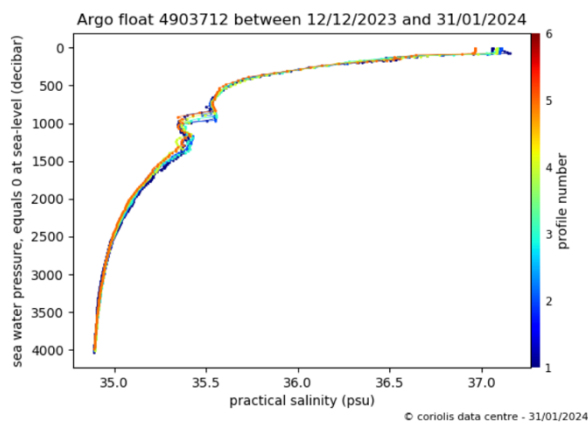


Figure 6. T-S diagram and temperature – salinity profiles from data collected by WMO 4903712.

3. Float configuration

“MC and PM” parameters (table 3 and 4) were set according to the scientific requirements and the oceanographic study areas. The core Argo float was configured to dive up to 2000 m of profile depth carrying out cycles of 235 hours, with a parking depth of 1000 m. In the same way, the Deep Arvor float was configured to dive up to 4000 m of profile depth in cycles of 235 hours, with a parking depth of 1000 m.

Command no.	Name	Default Value	Units
Mission Commands			
MC0	Total Number of Cycles	300	Whole number
MC1	Number of cycles with “Cycle Period 1”	300	
MC2	Cycle Period 1	235	Hours
MC3	Cycle Period 2	235	Hours
MC4	Reference Day	2	Nº of days
MC5	Expected hour at the surface	6	Hours
MC6	Delay Before Mission	0	Minutes
MC7	CTD acquisition mode		
MC8	Descent Sampling Period	0	Seconds
MC9	Drift Sampling Period	12	Hours
MC10	Ascent Sampling Period	10	Seconds
MC11	Drift Depth for “MC1” first cycles	1000	dBar
MC12	Profile Depth for “MC1” first cycles	2000	dBar
MC13	Drift Depth after “MC1” cycles are done	1000	dBar
MC14	Profile Depth after “MC1” cycles are done	2000	dBar
MC15	Alternate profile period	1	
MC16	Alternate profile pressure	2000	dBar
MC17	Threshold surface/Intermediate Pressure	10	dBar
MC18	Threshold Intermediate /bottom Pressure	200	dBar
MC19	Thickness of the surface slices	1	dBar
MC20	Thickness of the intermediate slices	10	dBar
MC21	Thickness of the bottom slices	25	dBar
MC22	Iridium End Of life period	60	Minutes
MC23	2 nd Iridium Session Wait Period	0	Minutes
MC24	Grounding mode (0= Shift, 1 : Stay grounded)	0	
MC25	Grounding switch pressure	50	dBar
MC26	Delay at surface if grounding at surface	1	Minutes
MC27	Optode type (0: none, 1 : 4330, 2 : 3830)	0	
MC28	CTD sensor Cut-Off pressure (Pump stop)	5	dBar
MC29	“In Air acquisition” cycle periodicity	0	
MC30	“In Air acquisition” sampling period	30	Seconds
MC31	“In Air acquisition” total duration	5	Minutes

Table 3. Configuration sheet sample for the WMO 6990625 float deployed during the RAPROCAN2312 cruise.

Parameter no.	Name	Default Value	Units
Mission Parameters			
PM0	Number of Cycles	255	Whole number
PM1	Cycle Period	10	Nb of days
PM2	Reference Day	2	days
PM3	Estimated time at the surface	6	Hours
PM4	Delay Before Mission	0	Minutes
PM5	Descent Sampling Period	0	Seconds
PM6	Drift Sampling Period	12	Hours
PM7	Ascent Sampling Period	10	Seconds
PM8	Drift Depth	1000	dBar
PM9	Profile Depth	4000	dBar
PM10	Threshold surface/Intermediate Pressure	10	dBar
PM11	Threshold Intermediate /bottom Pressure	200	dBar
PM12	Thickness of the surface slices	1	dBar
PM13	Thickness of the intermediate slices	10	dBar
PM14	Thickness of the Bottom slices	25	dBar
PM15	Iridium End Of Life transmission period	60	Minutes
PM16	2 nd Iridium session wait period	0	Minutes
PM17	Wait at surface after grounding	60	Minutes
PM18	Bottom area threshold after grounding	50	dBar

Table 4. Configuration sheet sample for the WMO 4903712 float deployed during the RAPROCAN2312 cruise.

4. Acknowledgements

Argo España would like to thank the crew of the R/V Ramón Margalef, who cooperated for the success of the mission.