Argo-España
Parte de la estrategia global de observación del océano

Report on Argo floats WMO 7901142 and 7901143 deployments

ARGO ESPAÑA – IEO - SOCIB / 24 – 87

Argo float deployment for
WMO 7901142 and 7901143

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1. Deployment design

Following the Argo program goals, the floats' density criteria calls for a 3º x 3º 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 two Core Argo floats in the Gulf of Cadiz, after some gaps in the network were identified.

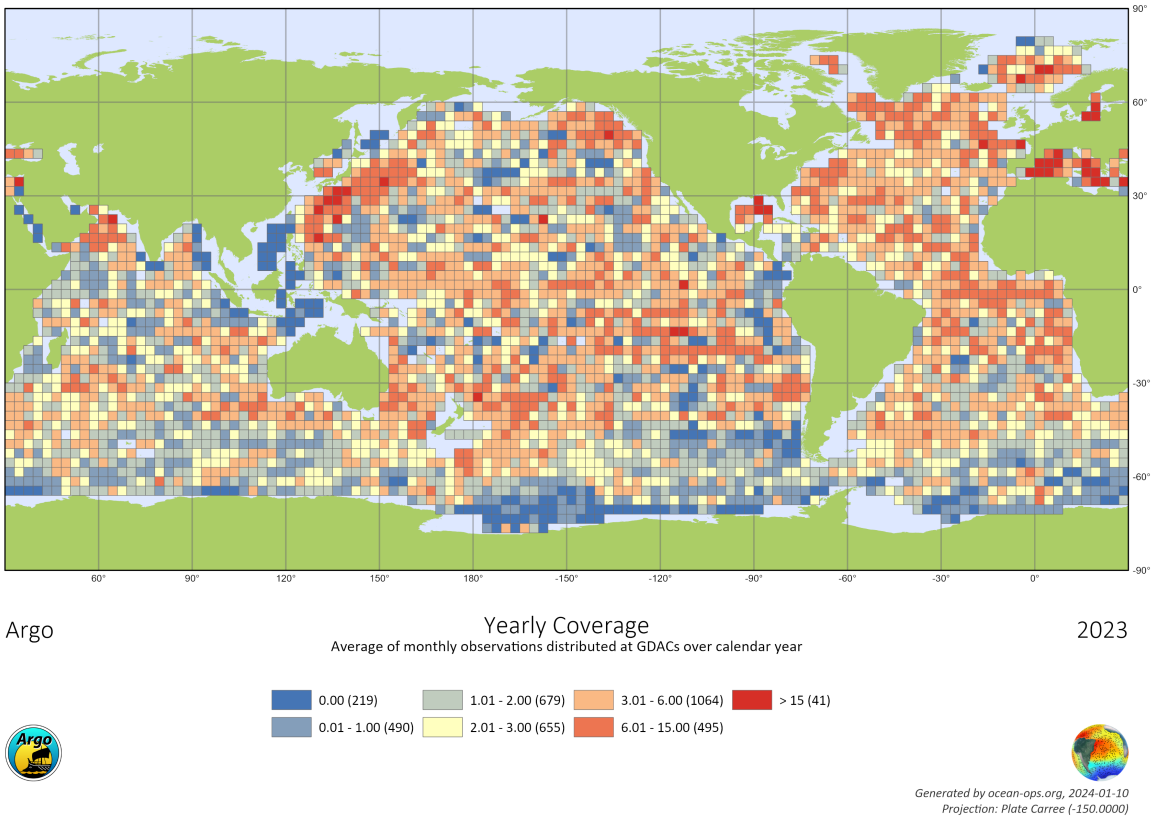

Figure 1. Density of Argo observations in the year 2023.

As PI of the *STOCA2401* cruise, Ricardo Sánchez Leal (IEO-CSIC) was requested to lead the Argo deployment planning. The cruise was divided into transects perpendicular to the coast with ideal characteristics for the requirements of Argo Spain. Floats deployed at the Cadiz Gulf are usually driven out to open sea due to the strength of the Mediterranean outflow, making this area a difficult region to observe continuously. The survey was divided in several transects, which includes ideal locations for Argo España purposes. The RV Ramón Margalef sailed between 35.75º N – 37.25º N and 5.75º W – 7.50º W (Fig.2). IEO - CSIC researchers and technicians led the planning for the launch of the two core Argo floats.

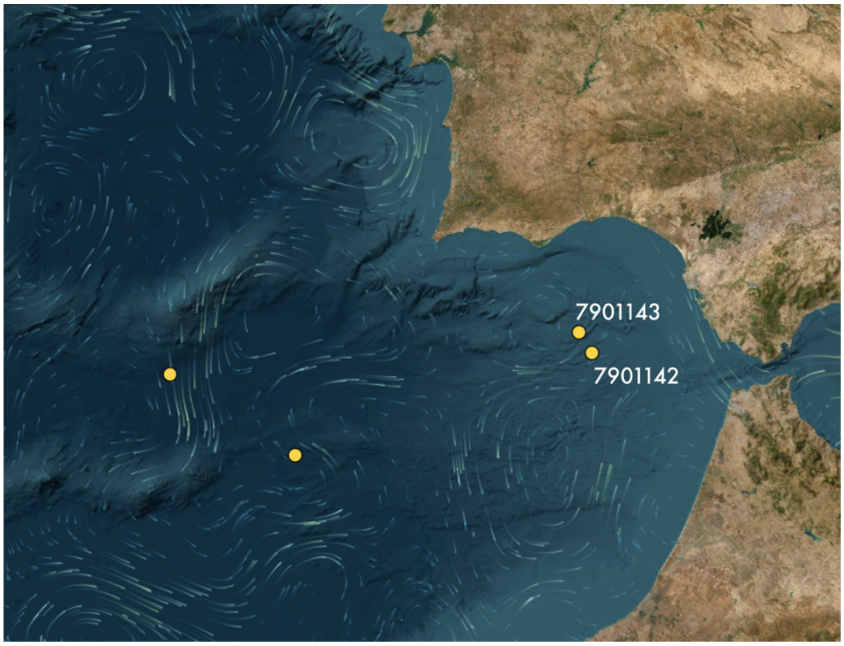

Figure 2. Deployed floats during STOCA2401 cruise.

2. Deployments data

Information of the floats' deployment is shown next:

a. WMO 7901142. The following table contains all the data of the WMO 7901142 deployment during the *STOCA2401* cruise (Fig. 3b). No troubled issues during the deployment were reported. CTD cast is available at the deployment location. Coriolis was notified on Jan 24, 2024, 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/7901142.html

DATE AND TIME	21 – 01 - 2024 / 04:26 UTC
DEPLOYMENT LOCATION	36°03.2579' N 07°20.1711' W
DEPLOYMENT PLATFORM	R/V RAMÓN MARGALEF
CRUISE ID	STOCA2401
FLOAT OWNER	IEO-CSIC
PLATFORM TYPE	NKE ARVOR – I
SERIAL NUMBER	AI2600-23SP005
TRANSMISSION SYSTEM	IRIDIUM
PARKING DEPTH (m)	1000
PROFILE FEPTH (m)	2000
DEPLOYMENT DEPTH (m)	900
WEATHER CONDITIONS	Smooth
DEPLOYMENT OPERATOR	Ricardo Sánchez

Table 1. WMO 7901142 information deployment.

Figure 3a (left). Identification of the float WMO 7901142 prior deployment from R/V Ramón Margalef. Figure 3b (right), deployment location and trajectory.

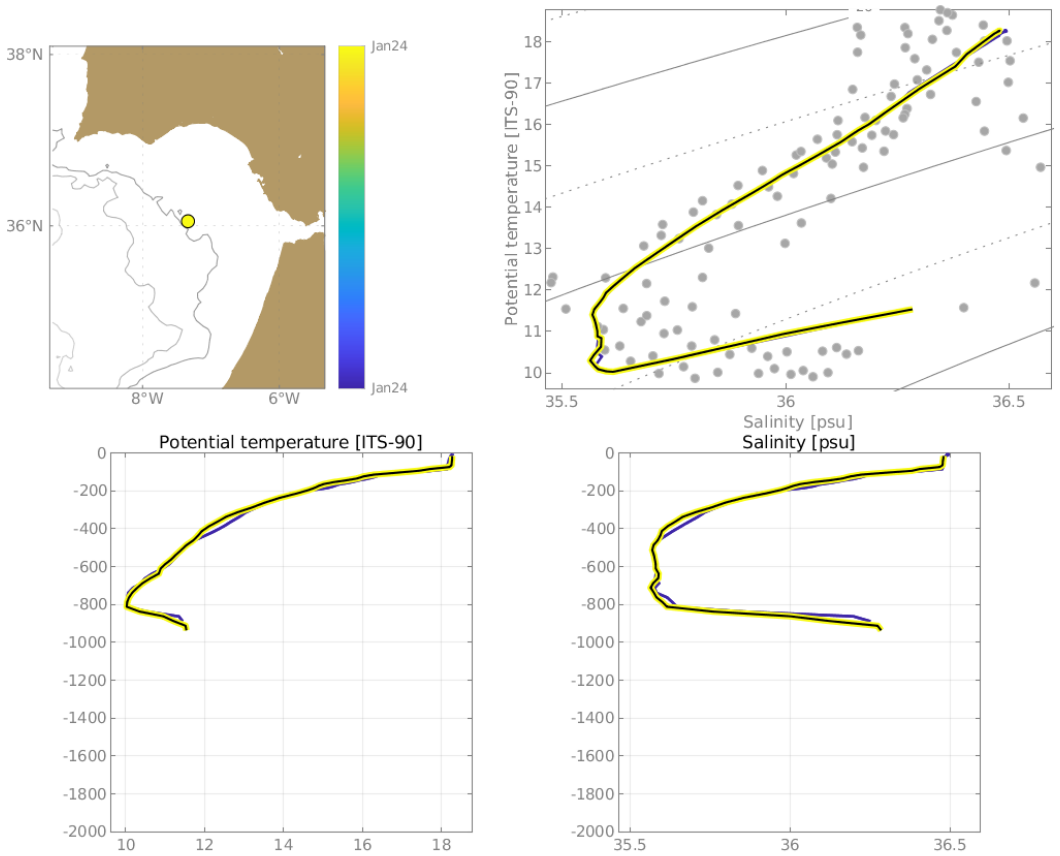

Figure 4. T-S diagram and temperature – salinity profiles from data collected by WMO 7901142.

a. WMO 7901143. The following table contains all the data of the WMO 7901143 deployment during the *STOCA2401* cruise (Fig. 5b). No troubled issues during the deployment were reported. CTD cast is available at the deployment location. Coriolis was notified on Jan 24, 2024, 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/7901143.html

DATE AND TIME	21 – 01 - 2024 / 16:05 UTC
DEPLOYMENT LOCATION	36°20.1635' N 07°13.1312' W
DEPLOYMENT PLATFORM	R/V RAMÓN MARGALEF
CRUISE ID	STOCA2401
FLOAT OWNER	IEO-CSIC
PLATFORM TYPE	NKE ARVOR – I
SERIAL NUMBER	AI2600-23SP008
TRANSMISSION SYSTEM	IRIDIUM
PARKING DEPTH (m)	1000
PROFILE FEPTH (m)	2000
DEPLOYMENT DEPTH (m)	900
WEATHER CONDITIONS	Smooth
DEPLOYMENT OPERATOR	Ricardo Sánchez

Table 2. WMO 7901143 information deployment.

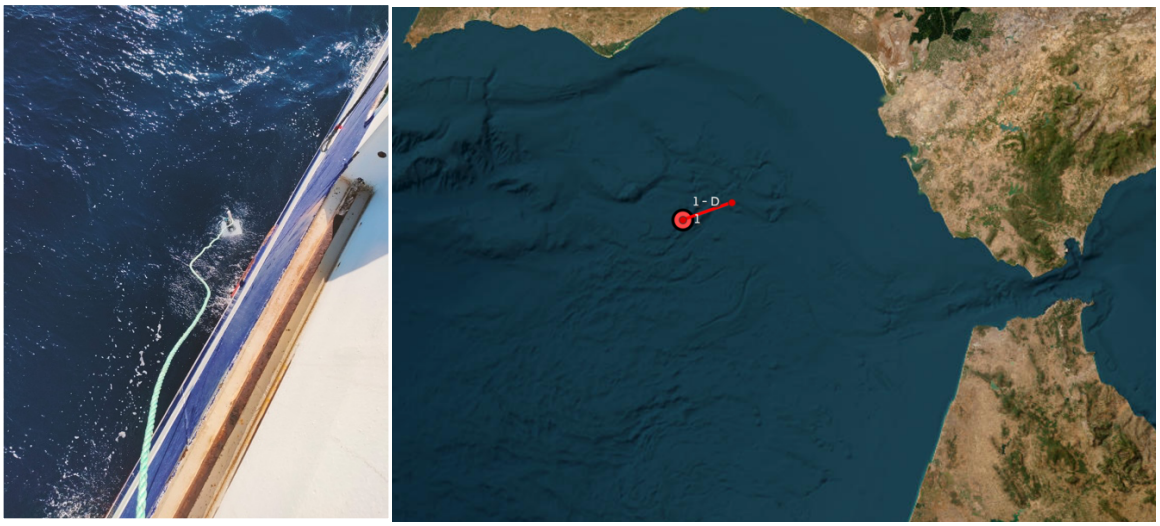

Figure 5a (left). Deployment maneuver of the float WMO 7901143 from R/V Ramón Margalef. Figure 5b (right), deployment location and trajectory.

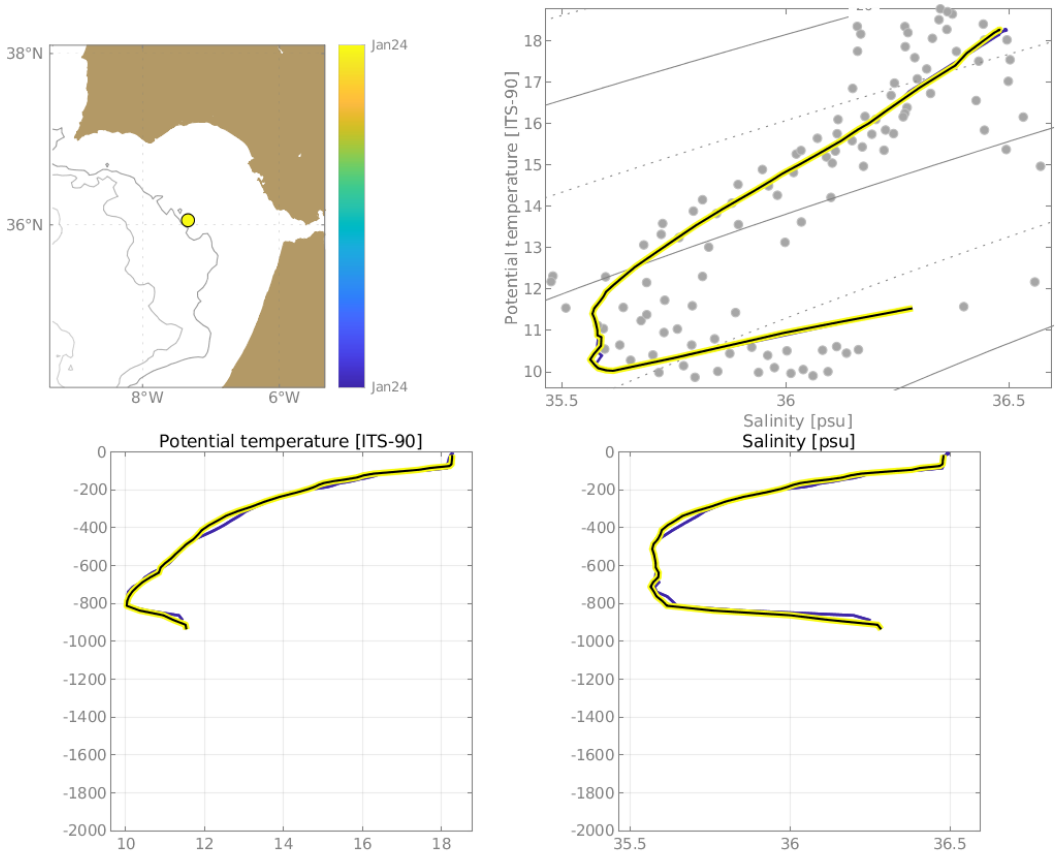

Figure 6. T-S diagram and temperature – salinity profiles from data collected by WMO 7901143.

3. Float configuration

"MC" parameters (table 4) were set according to the scientific requirements and the oceanographic study areas. The core Argo floats were configured to dive up to 2000 m of profile depth carrying out 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 cycle 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	2nd 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 7901142 and 7901143 float deployed during the STOCA2401 cruise.

4. Acknowledgements

Argo España would like to thank Ricardo Sánchez-Leal, all the technical and scientific staff of the *STOCA2401* cruise and rest the crew of the R/V Ramón Margalef, who cooperated for the success of the mission.