UGOS GODEEP Cruise Report

R/V Pelican, PE23-23 2-6 June 2023 Cocodrie to Cocodrie, LA





Authors: Deb West-Mack and Heather Furey Woods Hole Oceanographic Institution Woods Hole, MA 02536 USA

Abstract

This cruise report documents the sixth deployment of S2A profiling floats as part of National Academy of Sciences Understanding Gulf Ocean Systems (NAS UGOS)-funded research in the eastern Gulf of Mexico. This is the second time this work has been completed on a stand-alone cruise. In past years, the deployments have been completed as part of NAS UGOS cruises led by Kathy Donohue and Randy Watts from the University of Rhode Island. NOAA-AOML participated in this cruise as a 'piggy-back' project.

Sixteen S2A profiling floats were deployed as part of the UGOS program. One BGC Argo float was also deployed and water sampled at 12 levels for float calibration for NOAA-AOML. We also tested various water releases for future cruises-of-opportunity for the WHOI Argo program.

This cruise was remarkable in that we chased tropical storm Arlene to the deployment area and used the Loop Current to aid us by 2.5 knots in traveling to the deployment stations.

Table of Contents:

- 1. Science Personnel
- 2. Overview
- 3. Cruise Narrative
- 4. CTD and Water Sampling
- 5. Profiling Float Deployments
- 6. Surface Drifter Deployments
- 7. Notes for next cruise, lessons learned

Acknowledgments

Appendix: scans of sampling and deployment logs

1. Science Personnel

Deb West-Mack, WHOI, Chief Scientist Cora Hersh, WHOI, Float Deployer/Graduate Student Jennifer McWhorter, NOAA, Float Deployer/CTD operations Thia Griffin-Elliott, NOAA, Communications Specialist Gabe Matthias, LUMCON, Marine Science Technician Rodney Redman, LUMCON, Engineer, Deck Ops Skyler Lebouef, LUMCON, Engineer, Deck Ops Jeff Bertram, LUMCON, AB

2. Overview

The *R/V Pelican* left Cocodrie, LA, on June 2, 2023 and steamed to the eastern central Gulf of Mexico. Science personnel D. West-Mack and Cora Hersh were in charge of all UGOS3 GODEEP activities, which were primarily core profiling float deployments; J. McWhorter was in charge of NOAA-AOML ancillary project which included the CTD casts, water sampling, and BGC float deployment; T. Griffin-Elliott was in charge of documenting the cruise. The cruise track is shown in Figure 1. Starting off the weather was rough as Tropical Storm Arlene occupied the anticipated deployment locations. While the *R/V Pelican* steamed towards the deployment stations, tropical storm Arlene moved away to the south and east. The weather improved throughout the cruise ending with light winds and calm seas. Although there were 7ft seas the ship's speeds out to the deployment stations was enhanced by up to 2.5 knots due to the Loop Current.



Figure 1. Cruise track for PE23-23, Cocodrie to Cocodrie, 2-6 June 2023. Schematic cruise track is overlaid on CMEMS geostrophic surface current streamlines from 6 June 2023. Stations are marked by gray circles. Image is from Ocean Virtual Laboratory (<u>https://ovl.oceandatalab.com/</u>).

3. Cruise Narrative

A timeline of events for this short cruise is provided in Table 1. We worked to get the final set of floats deployed in the target region of the southerly Gulf enclosed by the Loop Current. We also considered the locations of the existing floats in the Gulf and tried to keep the new floats in geographically different regions if possible. This target region had a lack of active floats. Due to the evolving position of the Loop Current, we assessed model, and ADT data daily (or multiple times per day) using the Ocean Virtual Laboratory viewer. Andrée Ramsey (WHOI) provided daily maps of proposed and existing profiling float locations on a contoured ADT field, with bathymetry and the EEZ overlaid. The original proposed float deployment locations and the final float deployment locations are shown in Figure 2. Overall cruise progress and station information is listed in Table 2.

Date	Day	Summary of activities (reported in LT)	Details
1-JUN-2023	THUR	Arrived at ship ~8:30 am. Floats and gear were loaded in science labs. Initialized all floats. Filmed. Met with captain, crew and LUMCON port officer Joe Malbrough. Captain conducted a safety briefing.	All floats started normally.
02-JUN-2023	FRI	Ship left port at 6 am and steamed to the middle of the Gulf of Mexico.	Rough weather following a category 2 storm.
03-JUN-2023	SAT	Completed four GODEEP stations. Filmed.	GODEEP Stations 1, 2, 3, 4: S2A deployment
04-JUN-2023	SUN	Completed seven GODEEP stations. Performed test CTD cast and test sampling. Filmed.	GODEEP Stations 5, 6, 7, 8: S2A deployment. Station 9: Test CTD cast 3/12 Niskins either did not close or leaked. Practiced deployment and recovery of package, practiced sampling, practiced CTD data acquisition, S2A deployment. Stations 10, 11: S2A deployment.
05-JUN-2023	MON	Completed five GODEEP stations. Performed CTD cast with bottle sampling.	GODEEP Stations 12, 13, 14, 15: S2A deployment. Station 16: CTD cast with DO, carbonate, and nutrient sampling.S2A and BGC deployments.
06-JUN-2023	TUE	Steamed home. Arrived port ~7 pm.	
07-JUN-2023	WED	Unloaded ship, prepared and staged shipment to WHOI.	

 Table 1. Timeline of work operations.



Figure 2. Pre-cruise intentions (top panel) and post-cruise reality (bottom panel) of station locations and deployments based on evolving Loop Current and locations of existing profiling floats. Black stars indicate S2A profiling float deployment locations, the white star indicates the S2A and BGC float deployment and the water sampling station. A blue circle indicates the location of the test CTD cast. Note that the ADT field evolved over the course of the cruise and is shown in the top panel on the day before first deployment, and on the bottom panel on the last data of deployments.



Photo 1: Thia Griffin-Elliott, Deb West-Mack, and Gabe Matthias deploying S2A float 7776. (J. McWhorter)

1 BGC Arg 2 CTD / w 8.5 knot c * after first	go (NOAA-AG rater samplin cruising spee station, abc	OML) ng stations - ed out 3.5 hours	one test, o s between	one "real" (NC stations (56 k	DAA-AOML) m)			
date	~time	station	lat °N	long °W	GMT	requirements	asset	action
	LOCAL					/ s/n		
6/2/2023	06:00	port	29.12	90.66	11:00		port	leave dock
6/3/2023	13:00	1	26.501	87.000	18:00	s/n 7880	Argo#1	deploy float
6/3/2023	15:45	2	26.249	86.500	20:45	s/n 7779	Argo#2	deploy float
6/3/2023	18:45	3	26.000	86.001	23:45	s/n 7884	Argo#3	deploy float
6/3/2023	22:45	4	25.250	86.000	03:45 (6/4/2023)	s/n 7877	Argo#4	deploy float
6/4/2023	00:45	5	25.100	86.249	05:45	s/n 7861	Argo#5	deploy float
6/4/2023	02:45	6	25.249	86.499	07:45	s/n 7883	Argo#6	deploy float
6/4/2023	06:45	7	25.750	86.500	11:45	s/n 7873	Argo#7	deploy float
6/4/2023	10:00	8	25.500	87.000	15:00	s/n 7879	Argo#8	deploy float
6/4/2023	13:15	9	25.000	87.102	18:15		CTD#1	test cast – fire all Niskins, get familiar with CTD data acquisition system and with sampling procedure
6/4/2023	14:15	9	25.000	87.000	19:15	s/n 7878	Argo#9	deploy float
6/4/2023	17:30	10	25.200	87.500	22:30	s/n 7802	Argo#10	deploy float
6/4/2023	20:30	11	25.500	87.999	01:30 (6/5/2023)	s/n 7882	Argo#11	deploy float
6/5/2023	00:00	12	25.749	87.502	05:00	s/n 7772	Argo#12	deploy float
6/5/2023	03:15	13	26.001	87.000	08:15	s/n 7771	Argo#13	deploy float
6/5/2023	07:15	14	26.250	87.500	12:15	s/n 7796	Argo#14	deploy float
6/5/2023	11:00	15	26.000	87.999	16:00	s/n 7776	Argo#15	deploy float
6/5/2023	14:30	16	25.749	88.499	19:30		CTD#2	BGC cast, bottles collected
6/5/2023	16:15	16	25.751	88.500	21:15	s/n 7801	Argo#16	deploy float
6/5/2023	16:15	16	25.750	88.500	21:15	s/n 1469	BGC#1	deploy float
6/6/2023	19:00	port	29.120	90.660	00:00 (6/7/2023)		port	dock

Table 2. Overall station information and cruise progression.

PE23-23

16 core Argo (UGOS3 GODEEP)

4. CTD and Water Sampling

Water samples were collected to verify the calibration of some of the BGC parameters of the Navis BGC float. We were not interested in calibrating the profiling float data of the core floats as reference data is readily available.

After the first test cast, the rosette came onboard in rough shape: three Niskin failed to fire/close, two leaked, and one petcock slipped out of place. Onboard science tech Gabe Matthias found grease/oil on the firing mechanism, he scrubbed the mechanism clean and replaced o-rings on the Niskins which were leaking or had a malfunctioning petcock. The fixes by Gabe helped tremendously. On the deep cast, all of the 12 Niskins closed properly and only one Niskin leaked during the leak test performed on each Niskin bottle prior to sampling whereby the petcock is opened while the venting screw remains closed.

The deep CTD cast was collected at station 16 after which the ship was repositioned back to station and the BGC float was deployed. Bottle samples were collected at 2000 (the bottom of the cast), 1600, 1200, 800, 650 (the dissolved oxygen minimum), 200, 115 (the chlorophyll-a maximum), 75, 50, 25, and 2 dbar (the surface). Samples were collected for dissolved oxygen, DIC, and nutrients. The temperature of the water in the Niskin was measured at the time of drawing the water into the sample bottles. The water samples are not part of the scope of the UGOS3 GODEEP project, but for the NOAA-AOML study of the BGC parameters in the Gulf of Mexico.

CTD#	Date/Time [GMT]	Latitude (°N)	Longitude (°W)	Cast depth (m)	Sampling scheme
1	04-JUN-2023 13:22	25.000	87.102	500	Test sampling, test data acquisition, rosette controller firing, and Niskin closing
2	05-JUN-2023 14:32	25.749	88.499	2020	at 2, 25, 50, 75, 115, 150, 200,650, 800, 1200, 1600, 2000 meters

Table 3. Hydrographic stations.



Photo 2: Jen McWhorter and Cora Hersh discussing bottle sampling locations. (T. Griffin-Elliott)

5. Profiling Float Deployments

Seventeen Argo floats, 16 core and 1 BGC, were deployed in and around the Loop Current in the Gulf of Mexico. All of the core floats measure pressure, temperature, and conductivity and report 2-dbar binned data for pressure [dbar], temperature [°C], and salinity [psu]. In addition to measuring pressure, temperature, and salinity, the BGC float also measures optical dissolved oxygen, nitrate, backscattering and fluorescence and optical pH. The core floats were deployed using a modified Argo mission with a 5-

day cycle drifting at 1500 dbar and profiling from 2000 dbar. The BGC float was also deployed with a modified Argo mission with a 10-day cycle drifting at 1500 dbar and profiling from 2000 dbar. The floats are set to drift at 1500 dbar to help prevent the floats leaving the Gulf of Mexico through the Florida Straits. The core floats are S2A floats manufactured by MRV equipped with a SBE41CP CTD. The NAVIS BGC float, manufactured by Sea-Bird, is equipped with an SBE41CP CTD, MCOMS (backscattering and fluorescence), SBE63 (optical dissolved oxygen), optical pH, and SUNA (nitrate). Deployment information is provided in Table 4.

	WMO s/n	WHOI s/n	AOML s/n	Date/Time [GMT]	Latitude	Longitude	Comments
1	4903554	7880	9361	03-JUN-2023 17:56	26.500622° N	87.000138° W	S2A 5 days, 1500 dbar
2	4903545	7779	9352	03-JUN-2023 20:47	26.249488° N	86.499789° W	S2A 5 days, 1500 dbar
3	4903557	7884	9364	03-JUN-2023 23:48	26.000398° N	86.000715° W	S2A 5 days, 1500 dbar
4	4903551	7877	9358	04-JUN-2023 03:50	25.249991° N	85.999875° W	S2A 5 days, 1500 dbar
5	4903549	7861	9356	04-JUN-2023 05:40	25.100281° N	86.248964° W	S2A 5 days, 1500 dbar
6	4903556	7883	9363	04-JUN-2023 07:45	25.248845° N	86.499052° W	S2A 5 days, 1500 dbar
7	4903550	7873	9357	04-JUN-2023 11:49	25.749702° N	86.499700° W	S2A 5 days, 1500 dbar
8	4903553	7879	9360	04-JUN-2023 15:08	25.499947° N	87.000067° W	S2A 5 days, 1500 dbar
9	4903552	7878	9359	04-JUN-2023 1914	24.999913° N	87.000007° W	S2A 5 days, 1500 dbar
10	4903548	7802	9355	04-JUN-2023 22:27	25.199777° N	87.499532° W	S2A 5 days, 1500 dbar
11	4903555	7882	9362	05-JUN-2023 01:34	25.499735° N	87.999242° W	S2A 5 days, 1500 dbar
12	4903543	7772	9350	05-JUN-2023 05:00	25.749175° N	87.501732° W	S2A 5 days, 1500 dbar
13	4903542	7771	9349	05-JUN-2023 08:14	26.000671° N	86.999822° W	S2A 5 days, 1500 dbar
14	4903546	7796	9353	05-JUN-2023 12:12	26.250042° N	87.499942° W	S2A 5 days, 1500 dbar
15	4903544	7776	9351	05-JUN-2023 16:00	26.000000° N	87.999300° W	S2A 5 days, 1500 dbar
16	4903547	7801	9354	05-JUN-2023 21:15	25.750562° N	88.500122° W	S2A 5 days, 1500 dbar
17	7901009	1469		05-JUN-2023 21:17	25.749540° N	88.499598° W	Navis BGC 10 days, 1500 dbar

 Table 4.
 Floats Deployed.

6. Water Releases

The performance of water releases (see Photos 3 and 4), the standard mechanism by which an Argo float is deployed, was studied and improved during the cruise. Lately, the water releases have underperformed. Initially, eight of the floats were equipped with starch collars facing up (the standard procedure) and eight floats were equipped with starch collars facing down (as suggested by MRV). See Photo 5 below. The eight floats with the starch collar inserted face down were deployed first with poor results. Only one of the water releases worked properly, four of the water releases with starch-side down were popped before the plastic was removed, two floats had to be slipped out from the straps and one float slipped through the straps. The water releases for the remain 8 floats were then reconfigured with the starch collar facing down and a lighter spring (WB Jones part no. 278). All 8 water releases with the new configuration worked. Test results are shown in Table 5.



Photo 3: Water release assembled. (D. West-Mack)



Photo 4: Water release parts housing, spring, pin, starch collar, and bobbin carrier. (D. West-Mack)



Photo 5: Starch collar with starch-side down (left) and starch collar starch-side up (right). (D. West-Mack)

Donloymont	Float	Water	Spring type /		
Number	Number	number	orientation	Comments	
1	7880	I	Purple	Worked	
_			starch down		
2	7779	VIII	Purple	Starch collar broken upon arrival; replaced the starch	
			starch down	and broke again on deck before deployment;	
				deployed using the sling method	
3	7884	III	Purple	Float slipped through the straps on the way down,	
			starch down	water release did not get wet	
4	7877	VI	279	Starch collar broken upon arrival; replaced the starch	
			starch up	collar starch side up with spring 279; cut the top	
				string to slip the float through the straps; release did	
				not fire until back onboard	
5	7861	VII	Purple	Water release did not fire; slipped the float through	
			starch down	the straps by cutting the top string	
6	7883	V [-IIII-]	Purple	Water release did not fire; slipped the float through	
			starch down	the straps by cutting the top string	
7	7873	1111	Purple	Starch collar was broken upon arrival; deployed the	
			starch down	float using the sling method	
8	7879	П	Purple	Starch collar was broken upon arrival; deployed the	
			starch down	float using the sling method	
9	7878	XIII	278	Replaced the purple spring with spring 278 with	
			starch down	starch collar starch side down - worked	
10	7802	XII	278	Replaced the purple spring with spring 278 with	
			starch down	starch collar starch side down - worked	
11	7882	XI	278	Replaced the purple spring with spring 278 with	
			starch down	starch collar starch side down - worked	
12	7772	XIV	278	Replaced the purple spring with spring 278 with	
			starch down	starch collar starch side down - worked	
13	7771	XVI	278	Replaced the purple spring with spring 278 with	
			starch down	starch collar starch side down - worked	
14	7796	IX	278	Replaced the purple spring with spring 278 with	
			starch down	starch collar starch side down - worked	
15	7776	XV	278	Replaced the purple spring with spring 278 with	
		-	starch down	starch collar starch side down - worked	
16	7801	х	278	Replaced the purple spring with spring 278 with	
			starch down	starch collar starch side down - worked	

 Table 5.
 Water Release Performance.

7. Notes for next cruise, lessons learned.

- Before the cruise it was decided to use the general Gulf of Mexico float mission, where the float performs its initial checkout dive and then immediately goes into the 5-day mission. The standard mission appeared to work for the deployment locations for this cruise. In the future it may be helpful to have a couple of floats loaded with the QuickStart mission (two full profiles before 5-day drift). This would help to ensure a couple of profiles in a specified region before the float drifts from the area. The main drawback to the QuickStart mission is that the 'seek' function must be turned off for the first two profiles but turned on before the 5-day cycle.
- A test cast early in the cruise was key in ensuring good rosette performance. During the test cast 3 bottles didn't fire and 2 bottles leaked. The science technician put a lot of work into the rosette and by the deep cast all bottles fired and only one bottle leaked.
- Request a shorter rope for deployment, the standard line was too long and unwieldy.

Acknowledgements.

This work was funded through National Academy of Science Grant #200013145 from the Understanding Gulf Ocean Systems' "An Operational System using Real-time Subsurface Observations to Improve Loop Current Forecasts", or 'GODEEP'.

	CRUISE: U	6 053 Star	tion #: 16	Cast #:	In ch	arge of sample sheet: $\int_{\mathcal{O}} r \omega$
	Date: 6-5-2	2023 Time:		Latitude:		Longitude: Bottom Depth:
Niskin	Pressure	O2 draw	02	DIC	Nuts	Comments
-	2000	8.8/8.3	23469	7224		flask is chipped - O2/ hose for Dic pulled at after othering
5	1600	200	23369	7516	2	have for DIC alled at a fler stopping
	1200	9.0	2326	7215	N	Oz flask is chipped
4	800	11.1	2296	7506	Ч	Oz Akst 15 ch. caed
2	60°*(50	015.2	226 6	6133	2	OUP 02 min likely to be around here, move depth to adjust 02 04 5
9	200	22.2/12.6	228 G/231G	7225	6	Outhere ble 5 heated on test-squaring and the DU
-	150	24.7	230 67	3128	t	
8	105	26.2	2256	7510/6134	00	ChIMAX OUPLICATE DIC
6	75	27.0	222G	2514	6	Oup ar
10	50*	27.3	2276	7514	01	Chl max will be somewhere between 50-75
11	25	28.0	2210	6141	11	
12	2	27.8	220 G	7512	21	
A	Additional Co	imments:				
	Indicat	tes denth that	t mav he mo	ved to canture	the O2 min a	nd chl max, but of course vou can chance anv or all denths!
	mainit	nin indan cai	and of third	amidaa na na na		and the many out of the start blange any, of an ucputs,
	0 F 100	+ + +	5+ ed 790100	higher a	ir temp	the never 930 for 12 Unicates for
	in	4	0) - 0 - 1	01.T 1	-	1/1/0 0/1/
	· CTO around	d sat	down	oxy gr	Josuss u	was blocked until 2 to vie 1
	· 1.3 h	at Lurr	int 33	sy he e	5-6 m	und or the ship
	· Dynamiker	2 DI Wa	ter on C	r samples	needed to	be refilted repeatedly
						[26 0]
			110	1 have	1	16:17 - 7112 EIIA
			(dox)	ile la la		21:17 25
			2~1	~ 10 s		9161417 00

Appendix: Scans of sampling logs and deployment sheets.

	WHOI Argo Floa	WHOI Argo Float Deployment Log					
Please email info to: deploymentinfo@whoi.edu							
Pre-deployment informatio	n						
Argo Float Type	S2A/ALTO	NAVIS BGC 🛭 Deep					
Float Serial #	7880	Ship Pelican	10:15 am				
Cruise name	U605-3						
Pre-deployment checks							
ihockwatch	□ Activated (red)	Not activated (white)					
emperature sticker	□ < 100 □ 100	৳ 110 □ 120 □ 130	□ 140 □ 150				
Verify with WHOI that the second s	e float has been start	ted up and startup messa	ages received				
Deployment							
Deployment operator	Dab Dest Hac	k Corn Hersh	-				
Date	06/03/2023	Time (GMT)	1756				
atitude	26.500622	Longitude	-087.000138				
eployment type	☐ Boxed ☐ Unbo ⊈ Lowered with wa hand	Boxed Unboxed Sing method Lowered by hand					
essel lee position	□ Stern 😰 Starboard 🗆 Port						
eployment height		Ship speed (kts)					
vind (Beaufort)		Sea State					
athymetry (m)							
D station (if applicable)		-					
dditional comments	water release	worked					

	WHOI Argo Floa	at Deployment Log	
Please email info to: deplo	ymentinfo@whoi.edu	1	
Pre-deployment informatio	n		
Argo Float Type	S2A/ALTO	NAVIS BGC 🗆 Deep	
Float Serial # 7779		Ship Pelican	10:15 am
Cruise name	UG05-3		
Pre-deployment checks			Cong and the
Shockwatch	□ Activated (red)	KNot activated (white)	-
Temperature sticker	□ < 100 □ 100	0≱.110 □ 120 □ 130	0 140 0 150
Q Verify with WHOI that th	e float has been star	ted up and startup messa	ages received
Deployment			a the second second
Deployment operator	Cora Hersh	Deb West-Mack	
Date	06/05/2023	Time (GMT)	2047
Latitude	26. 2499 \$8	Longitude 🥙	-86.499789
Deployment type	Boxed Unbo Lowered with wa hand	oxed ater release ™ Sling me	thod Lowered by
Vessel lee position	🗆 Stern 🔊 Starbo	oard 🗌 Port	
Deployment height		Ship speed (kts)	
Wind (Beaufort)		Sea State	
Bathymetry (m)			
CTD station (if applicable)			
Additional comments	Water release	popped -> sting methe	

WHOI Argo Float Deployment Log						
Please email info to: deploymentinfo@whol.edu						
Pre-deployment informatio	n					
Argo Float Type	S2A/ALTO	NAVIS BGC 🗆 Deep				
Float Serial #	7884	Ship Pelican	9:30 am			
Cruise name	U605-3					
Pre-deployment checks						
Shockwatch	Activated (red)	🕅 Not activated (white)				
Temperature sticker	□ < 100 □ 100	Q(110 🗆 120 🗆 130	□ 140 □ 150			
A Verify with WHOI that the float has been started up and startup messages received						
Deployment	Rent Sec.					
Deployment operator	Core Hersh	Jen McWhorter	-			
Date	06/03/2023	Time (GMT)	2348			
Latitude	26.000398	Longitude	- 86.000 7/5			
Deployment type	Boxed Unboxed Zowered with water release Sling method Lowered by hand					
Vessel lee position	Stern Starboard Port					
Deployment height		Ship speed (kts)				
Wind (Beaufort)		Sea State				
Bathymetry (m)						
CTD station (if applicable)						
Additional comments	fleat slipped	through straps				

WHOI Argo Float Deployment Log							
Please email info to: deploymentinfo@whoi.edu							
Pre-deployment information	1		Contraction of the second				
Argo Float Type	S2A/ALTO	NAVIS BGC 🗆 Deep					
Float Serial #	7877	Ship Pelican	10:15 am				
Cruise name	U605-3						
Pre-deployment checks	and the second	the Parameter					
Shockwatch	□ Activated (red)	Not activated (white)					
Temperature sticker	□ < 100 □ 100 🕵 110 □ 120 □ 130 □ 140 □ 150						
X Verify with WHOI that the float has been started up and startup messages received							
Deployment							
Deployment operator	Deb West-Mac	k Jen Melshorter	•				
Date	06/04/2023	Time (GMT)	0350				
Latitude	25.24999\$1	Longitude	- 85,999875				
Deployment type	Boxed Unboxed SrLowered with water release Sling method Lowered by hand						
Vessel lee position	🗆 Stern 🖉 Starboard 🗅 Port						
Deployment height		Ship speed (kts)					
Wind (Beaufort)		Sea State					
Bathymetry (m)							
CTD station (if applicable)							
Additional comments	Water release did not work						

WHOI Argo Float Deployment Log						
Please email info to: deple	oymentinfo@whoi.edu	1				
Pre-deployment information	on	AND AND AND AND	an state of the loss			
Argo Float Type	S2A/ALTO	NAVIS BGC 🗆 Deep				
Float Serial # 7861		Ship Pelican	9:30 am			
Cruise name	UGOS-3					
Pre-deployment checks						
Shockwatch	□ Activated (red)	RNot activated (white)				
Temperature sticker	□ < 100 □ 100	□ < 100 □ 100 🕸 110 □ 120 □ 130 □ 140 □ 150				
${\ensuremath{\boxtimes}}$ Verify with WHOI that the float has been started up and startup messages received						
Deployment	A. A.					
Deployment operator	Deb Jen	Skyhr				
Date	06/04/2023	Time (GMT)	0540			
Latitude	25.100281	Longitude	-86.248964			
Deployment type	Boxed Unboxed Solution Unboxed Solution Solution					
Vessel lee position	□ Stern 😰 Starboard 🗆 Port					
Deployment height		Ship speed (kts)	-			
Wind (Beaufort)		Sea State				
Bathymetry (m)						
CTD station (if applicable)						
Additional comments	water release d	lid not work				

WHOI Argo Float Deployment Log					
Please email info to: deploy	ymentinfo@whoi.edu				
Pre-deployment information	n				
Argo Float Type	DS2A/ALTO □	NAVIS BGC 🛛 Deep			
Float Serial #	7883	Ship Pelican	9:30 am		
Cruise name	UGOS-3				
Pre-deployment checks			and the second		
Shockwatch	□ Activated (red)	Mot activated (white)			
Temperature sticker	□ < 100 □ 100	110 □ 120 □ 130	□ 140 □ 150		
S Verify with WHOI that the	e float has been star	ted up and startup messa	ages received		
Deployment					
Deployment operator	Deb J	en			
Date	06/04/2023	Time (GMT)	0745		
Latitude	25.24 8845	Longitude	- 86. 497052		
Deployment type	Boxed Unboxed Lowered with water release Sling method Lowered by hand				
Vessel lee position	□ Stern @ Starboard □ Port				
Deployment height		Ship speed (kts)			
Wind (Beaufort)		Sea State			
Bathymetry (m)					
CTD station (if applicable)		-			
Additional comments	water release	did not work			

-	WHOI Argo Floa	t Deployment Log		
Please email info to: deploymentinfo@whoi.edu				
Pre-deployment informatio	n			
Argo Float Type	S2A/ALTO	NAVIS BGC 🗆 Deep		
Float Serial #	7873	Ship Pelican	9:30 am	
Cruise name	UGOS-3			
Pre-deployment checks				
Shockwatch	□ Activated (red)	Not activated (white)		
Temperature sticker	□ < 100 □ 100	🗷 110 🗆 120 🗆 130	□ 140 □ 150	
10 Verify with WHOI that th	e float has been star	ted up and startup messa	ages received	
Deployment				
Deployment operator	Core Je	•		
Date	06/04/2023	Time (GMT)	1149	
Latitude	25,749702	Longitude	- 86.499700	
Deployment type	Boxed Unboxed Lowered with water release Sing method Lowered by hand			
Vessel lee position	🗆 Stern 🗆 Starbo	ard 🙀 Port		
Deployment height		Ship speed (kts)		
Wind (Beaufort)		Sea State		
Bathymetry (m)				
CTD station (if applicable)				
Additional comments	sling method			

	WHOI Argo Floa	t Deployment Log			
Please email info to: deploy	mentinfo@whoi.edu				
Pre-deployment information	n de la companya de la				
Argo Float Type	S2A/ALTO □	NAVIS BGC Deep			
Float Serial #	7879	7879 Ship Pelican 4:30 am			
Cruise name	UGOS-3				
Pre-deployment checks					
Shockwatch	□ Activated (red)	Not activated (white)			
Temperature sticker	□ < 100 □ 100	🕅 110 🗆 120 🗆 130	□ 140 □ 150		
X Verify with WHOI that the	e float has been start	ed up and startup messa	ages received		
Deployment					
Deployment operator	Jen Korn	Thia			
Date	6/4/23	Time (GMT) /0: 08	cal		
Latitude 25,49947		Longitude 8 7,00004	7		
Deployment type	□ Boxed □ Unboxed □ Lowered with water release S Sling method □ Lowered by hand				
Vessel lee position	□ Stern □ Starboard 🗹 Port				
Deployment height		Ship speed (kts)			
Wind (Beaufort)		Sea State			
Bathymetry (m)					
CTD station (if applicable)					
Additional comments	Heavier en	nd of Flo	the sling		
	towards	heavy side	.)		
,	* water	release a	loody polled		

	WHOI Argo Floa	t Deployment Log	
Please email info to: deploy	ymentinfo@whoi.edu	ı.	
Pre-deployment information	n		
Argo Float Type	S2A/ALTO	NAVIS BGC 🗆 Deep	
Float Serial #	7878 Ship Felican 10:15 am		
Cruise name	UGOS-3		
Pre-deployment checks			
Shockwatch	Activated (red)	Not activated (white)	
Temperature sticker	□ < 100 □ 100 ⊉(.110 □ 120 □ 130 □ 140 □ 150		
Verify with WHOI that the	e float has been star	ted up and startup messa	iges received
Deployment			and the second second
Deployment operator	Deb, Core,	Gabe	
Date	06/04/2023	Time (GMT)	1914
Latitude	24,999913	Longitude	- 87.000007
Deployment type	☐ Boxed ☐ Unboxed ⊈(Lowered with water release ☐ Sling method ☐ Lowered by hand		
Vessel lee position	□ Stern 🛒 Starboard □ Port		
Deployment height		Ship speed (kts)	
Wind (Beaufort)		Sea State	
Bathymetry (m)			
CTD station (if applicable)			
Additional comments	water releas	e w/ spring 2.78.	worked

	WHOI Argo Float Deployment Log				
Please email info to: deploymentinfo@whoi.edu					
Pre-deployment information	n		and a state of the		
Argo Float Type	S2A/ALTO	NAVIS BGC 🗆 Deep			
Float Serial #	7802	ship Pelican	10:15 am		
Cruise name	0505-3				
Pre-deployment checks			Alexander gestingente		
Shockwatch	□ Activated (red)	X Not activated (white)			
Temperature sticker	□ < 100 □ 100	⊠ 110 □ 120 □ 130	□ 140 □ 150		
g Verify with WHOI that th	e float has been start	ted up and startup messa	ges received		
Deployment		at the second second			
Deployment operator	Cra, Jen.	Deb			
Date	06/04/2023	Time (GMT)	22 27		
Latitude	25.199777	Longitude	- 87. 4995 32		
Deployment type	□ Boxed □ Unboxed □ Lowered with water release □ Sling method □ Lowered by hand				
Vessel lee position	🗆 Stern 🕞 Starbo	ard Port			
Deployment height		Ship speed (kts)			
Wind (Beaufort)		Sea State			
Bathymetry (m)					
CTD station (if applicable)					
Additional comments	water releas	e w/ spring 278.	-coorked		

	WHOI Argo Floa	t Deployment Log		
Please email info to: deploy	ymentinfo@whoi.edu			
Pre-deployment information	n	Saladina di Balani	11日16日2月1日日1月1日	
Argo Float Type	S2A/ALTO	NAVIS BGC 🛛 Deep		
Float Serial #	7882	Ship Pelican	10:15 am	
Cruise name	UGOS-3			
Pre-deployment checks	S 202 . Su	Aster Alter		
Shockwatch	□ Activated (red)	Not activated (white)		
Temperature sticker	□ < 100 □ 100	§2 110 □ 120 □ 130	□ 140 □ 150	
g Verify with WHOI that th	e float has been star	ted up and startup messa	ages received	
Deployment	And the stronge is	Chief Schreiter		
Deployment operator	Deb , Thin			
Date	06/05/2023	Time (GMT)	0 34	
Latitude	25.499735	Longitude	-87.999242	
Deployment type	Boxed Unboxed Sling method Lowered by hand			
Vessel lee position	🗋 Stern 🖼 Starbo	ard Port		
Deployment height		Ship speed (kts)		
Wind (Beaufort)	Sea State			
Bathymetry (m)				
CTD station (if applicable)				
Additional comments	water release	e w/ spring 278 -	worked	

WHOI Argo Float Deployment Log				
Please email info to: deploymentinfo@whoi.edu				
Pre-deployment information	1			
Argo Float Type	S2A/ALTO	NAVIS BGC 🗆 Deep		
Float Serial #	7772 Ship Pelican 10:15 ar			
Cruise name	UGOS-3			
Pre-deployment checks		Without the Table	States and some	
Shockwatch	□ Activated (red)	政 Not activated (white)		
Temperature sticker	□ < 100 □ 100	x 110 120 130	□ 140 □ 150	
Verify with WHOI that the	e float has been start	ed up and startup messa	iges received	
Deployment				
Deployment operator	Deb, Thia			
Date	06/05/2023	Time (GMT)	0000-0500	
Latitude	25.749175	Longitude	- 87.501732	
Deployment type	Boxed Unboxed S Lowered with water release Sling method Lowered by hand			
Vessel lee position	Stern 😰 Starboard 🗆 Port			
Deployment height		Ship speed (kts)	1	
Wind (Beaufort)		Sea State		
Bathymetry (m)				
CTD station (if applicable)				
Additional comments	water release w/ spring 279 - worked			

	WHOI Argo Floa	t Deployment Log		
Please email info to: deplo	ymentinfo@whoi.edu			
Pre-deployment informatio	n	an and the strength of		
Argo Float Type	S2A/ALTO	NAVIS BGC 🗆 Deep		
Float Serial #	7771	Ship Pelican	T: 10:15 am	
Cruise name	UGDS - 3			
Pre-deployment checks				
Shockwatch	□ Activated (red)	🖄 Not activated (white)		
Temperature sticker	□ < 100 □ 100	110 🗆 120 🗆 130	□ 140 □ 150	
K Verify with WHOI that th	e float has been start	ed up and startup messa	ages received	
Deployment				
Deployment operator	Corn/Jen			
Date	6/5/2023	Time (GMT)	3:14 an wal	
Latitude	26,000671	Longitude	86,999822	
Deployment type	□ Boxed □ Unboxed 反Lowered with water release □ Sling method □ Lowered by hand			
Vessel lee position	🗆 Stern 🖉 Starbo	□ Stern 🕱 Starboard 🗆 Port		
Deployment height	Ship speed (kts)			
Wind (Beaufort)		Sea State		
Bathymetry (m)				
CTD station (if applicable)				
Additional comments	Water role W/spring	ase worked : 278		

WHOI Argo Float Deployment Log				
Please email info to: deplo	ymentinfo@whoi.edu			
Pre-deployment informatio	n			
Argo Float Type	🖞 S2A/ALTO 🗆	NAVIS BGC 🗆 Deep		
Float Serial # 7796		Ship Pelican 9:30 an		
Cruise name	UGOS-3	r		
Pre-deployment checks				
Shockwatch	Activated (red)	🕅 Not activated (white)		
Temperature sticker	□ < 100 □ 100	⊠ 110 □ 120 □ 130	D 140 D 150	
3 Verify with WHOI that th	e float has been start	ted up and startup messa	iges received	
Deployment	Description of			
Deployment operator	Corn / J.	~~		
Date	6-5-2023	Time (GMT)	07:12 . Local	
Latitude	26.250043	Longitude 87, 499	117	
Deployment type	Boxed Unboxed Sing method Lowered by hand			
Vessel lee position	□ Stern 🖉 Starboard 🗆 Port			
Deployment height	Ship speed (kts)			
Wind (Beaufort)	Sea State			
Bathymetry (m)				
CTD station (if applicable)		0		
Additional comments	Awater r w/ spring	278 wor	k•d	



Please email info to: deplo	WHOI Argo Floa	t Deployment Log	
Pre-deployment informatio	n	The states	
Argo Float Type	S2A/ALTO	NAVIS BGC 🗆 Deep	
Float Serial # 7776	* Ship Pelican 10:15 An		
Cruise name	UGOS-3		
Pre-deployment checks			
Shockwatch	□ Activated (red)	(XNot activated (white)	
Temperature sticker	□ < 100 □ 100	₽.110 □ 120 □ 130	□ 140 □ 150
ST Verify with WHOI that the	e float has been star	ted up and startup messa	ages received
Deployment			
Deployment operator	Deb Thin		
Date	06/05/2023	Time (GMT)	1600
Latitude	26.000000	Longitude	- 87.99300
Deployment type	☐ Boxed ☐ Unbo ∯ Lowered with wa hand	oxed ater release 📋 Sling me	thod Lowered by
Vessel lee position	🗆 Stern 🔉 Starbo	oard Port	
Deployment height		Ship speed (kts)	
Wind (Beaufort)		Sea State	
Bathymetry (m)			
CTD station (if applicable)			
Additional comments	water releas	ic w/ spring 278	-worked

WHOI Argo Float Deployment Log				
Please email info to: deploymentinfo@whoi.edu				
Pre-deployment information	n	a second and the	Sector States	
Argo Float Type	S2A/ALTO	NAVIS BGC 🛛 Deep		
Float Serial # 7801	Ship Pelican 9:30 am			
Cruise name ()(-05-3				
Pre-deployment checks				
Shockwatch	□ Activated (red)	Not activated (white)		
Temperature sticker	□ < 100 □ 100	溪 110 🗆 120 🗆 130	□ 140 □ 150	
CALC Verify with WHOI that the	e float has been start	ed up and startup messa	iges received	
Deployment	A CONTRACTOR			
Deployment operator	Cora Hersh ,	Deb		
Date	06/05/2023	Time (GMT)	2115	
Latitude	25.250562	Longitude	-88.500/22	
Deployment type	☐ Boxed ☐ Unboxed ☑ Lowered with water release ☐ Sling method ☐ Lowered by hand			
Vessel lee position	Stern Starboard Port			
Deployment height		Ship speed (kts)		
Wind (Beaufort)		Sea State		
Bathymetry (m)				
CTD station (if applicable)				
Additional comments	water release	e w/ spring 278 -	worked	