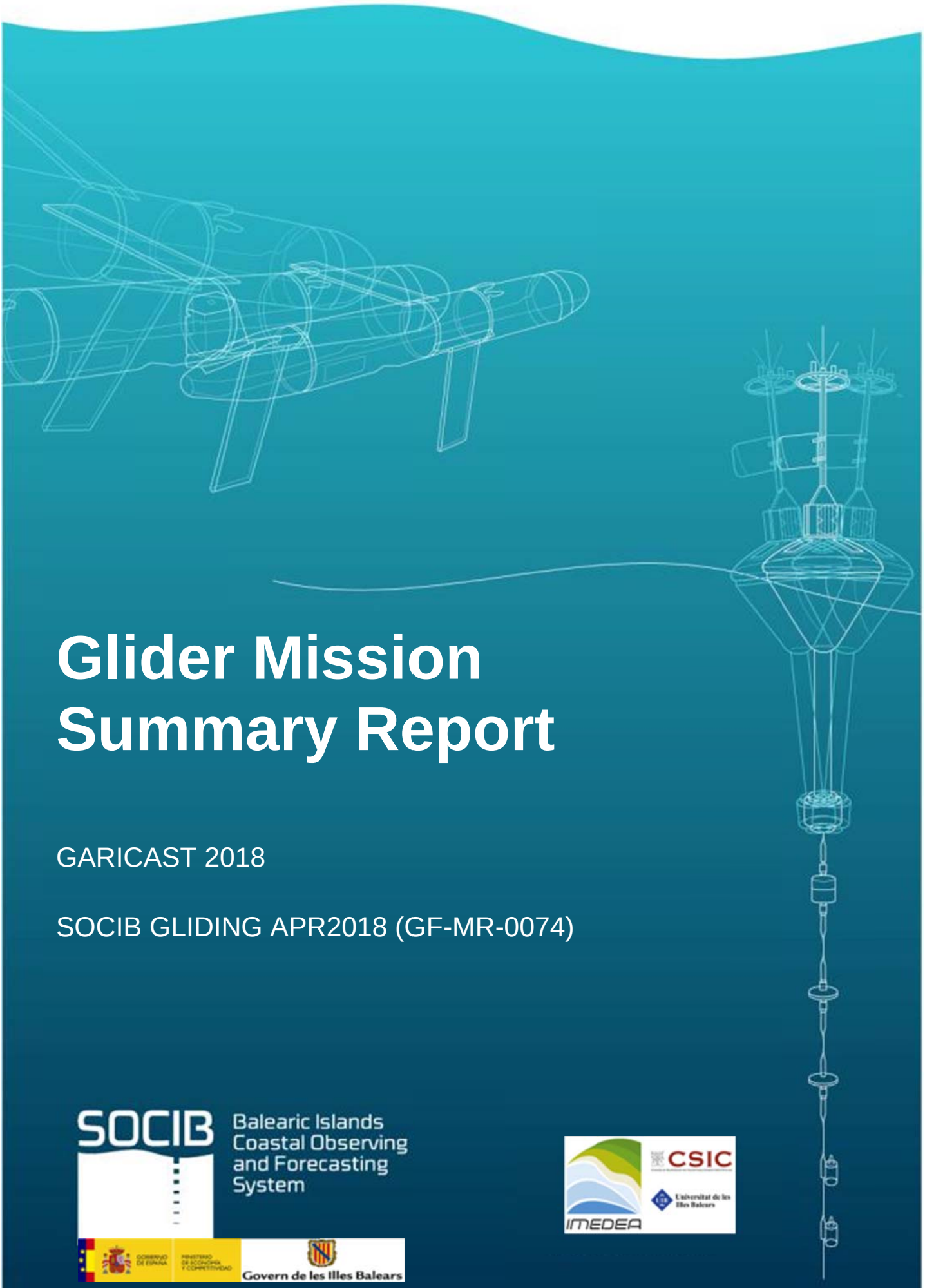

Glider Mission Summary Report

GARICAST 2018

SOCIB GLIDING APR2018 (GF-MR-0074)

SOCIB Balearic Islands Coastal Observing and Forecasting System

Govern de les Illes Balears

IMEDEA CSIC Universitat de les Illes Balears

Mission Name	*20180417_GF-MR-0074_SOCIB-TEST-GARICAST-APR2018_sdeep00*
Platform Model	*Slocum 1000m G2*
Platform ID / Name / WMO Code	*U243 / SDEEP00 / 68457*
Related Platforms / Missions	• *SOCIB R/V (this GF-MR-0074 test mission took place as a chapter of the cruise CANALES/RV-SPRING-2018). Details about the rest of the chapters can be found in the cruise's report*
Start Date	*2018-04-17 07:58:13 UTC*
End Date	*2018-04-17 12:24:03 UTC*
Total Days	*1*
Total distance (Km / Nm)	*n/a (glider did not fly autonomously but performed 3 vertical casts whilst attached to the SOCIB-R/V's rosette. However, the distance covered by the ship, in between the timestamps written here, was 33,41 Km/18,06 Nm. Also, in total, the glider sampled a vertical distance of 4.844 meters)*
Battery Consumption (Ah)	*≈1 Ah (from 41,329Ah to 42,419Ah)*
Survey Area	*Ibiza-Valencia Channel (Western Mediterranean)*
Objective(s)	*The main objective of the GARICAST (Glider Against Rosette Inter-Comparison cAST) is to dispose of scientifically-reliable data-sets (as many of them as technically possible) holding the output measurements, from duplicated scientific sensors (mounted both on a Glider and on a Rosette), generated by vertical-profiling from a ship (in this particular case the SOCIB-RV) deploying, from the surface to the distance-cleared sea-floor, a meta-instrument based on the Glider and the Rosette being robustly and closely attached to each other and to a crane.* *Then, GARICASTs can be used to characterize the error in the Glider sensor measurements against a well-trusted source which is the set of sensors on board the Rosette. Ultimately, the knowledge about these errors can lead to glider data correction for quality control.* *Secondly, GARICAST tests serve also as a realistic pressure test for the glider.*

Mission Preparation

There was no specific preparation of U243 for this mission.

U243 performed the trial mission GF-MR-0073 (to test overall performance after some delicate repairs) from 05/Apr/2018 to 09/Apr/2019. Since the results of this test were successful (but some oddities raised by the on-board altimeter), it was decided not to disassemble SDEEP00 and leave it ready for this GF-MR-0074 GARICAST mission.

Therefore, after a light GF-MR-0073's conclusion phase, U243 was stored and waited until it was placed on-board SOCIB-RV on Friday the 13th of April 2019. The ship got mobilized, for the cruise CANALES/RV-SPRING-2018, on Monday the 16th of April 2019.

U243 On-board Sensors for this mission (same as per GF-MR-0073 and GF-MR-0075):

Sensor Type	Manufacturer	Serial Number	Last-Calibration Date
CTD (pumped)	SBE	0064	05/Dec/2016
FLNTU	WebLABS	3711	16/Dec/2016
OXYGEN	AADI	1409	14/Feb/2017

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Mission Survey

16/Apr/2018

- *DAY-1 of the cruise*
- *Rough sea encountered*
- *No Glider field-activity*
- *21-22pm,lt (GARICAST bracket installed on the rosette's frame plus other preparatives)*

17/Apr/2018

- *8am,lt: departure. U243 receives altim. transducer from U568 which is installed at 90º to face the sea-bottom perpendicularly*
- *8:30am,lt: glider ON and configured (software) for the GARICAST test*
- *09:30am,lt*
  - *GF-MR-0074 signed in and activated at DAPP*
  - *U243 attached to the rosette by being mounted on the GARICAST bracket*
  - *DIGIFIN taped to avoid vibrations*
- *10am,lt: first GARICAST of the day*
  - *Cruise Station: S_03*
  - *Glider GPS: N38º 59.955' E00º 59.628'*
  - *Target Depth: -650 m*
- *10:30am,lt: glider on-board (0180000.dbd and 0180000.ebd sent over)*
- *11:11am,lt: second GARICAST of the day*
  - *Cruise Station: S_04*
  - *Glider GPS: N39º 00.020' E00º 51.888'*
  - *Target Depth: -829 m*
- *11:50am,lt: glider on-board (0181000.dbd and 0181000.ebd sent over)*
- *12:18am,lt: third GARICAST of the day*
  - *Cruise Station: S_05*
  - *Glider GPS: N39º 00.0002' E00º 44.136'*
  - *Target Depth: -950 m*
- *01:00pm,lt: glider on-board (0182000.dbd and 0182000.ebd sent over)*
- *01:16pm,lt: U243 unmounted. It gets its original altimeter back (since the results, against the rosette's altimeter, with U568's transducer, have been very successful it is assumed that U243's was not working well enough)*
- *01:26pm,lt: glider mounted back on the rosette and ready for the next GARICAST*
- *01:40pm,lt: fourth GARICAST of the day*
  - *Cruise Station: S_06*
  - *Glider GPS: N39º 00.051' E00º 36.526'*
  - *Target Depth: -950 m*
- *02:20pm,lt: glider on-board (0183000.dbd and 0183000.ebd sent over)*
- *03:01pm,lt:*
  - *U243 unmounted from the bracket and the bracket uninstalled from the rosette*
  - *Glider, bracket and other accessories rinsed, cleaned and prepared for storage*
  - *U568's transducer left on-board U243. U243's original transducer will be stored at the GLab waiting for further tests*
- *03:14pm,lt: GF-MR-0074 mission stopped in DAPP. Other wrap-up tasks.*
- *04:00pm,lt: GARICAST test-day is over*
- *07pm,lt-09pm,lt: XML Script (for dockserver) written to automatize the software configuration of the glider prior to a GARICAST station*

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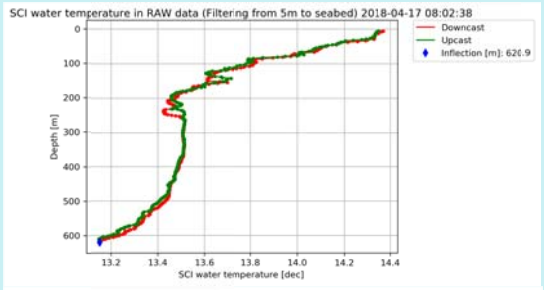
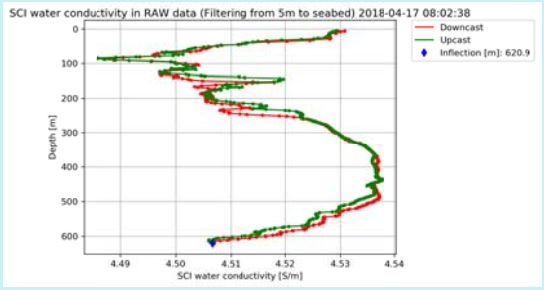
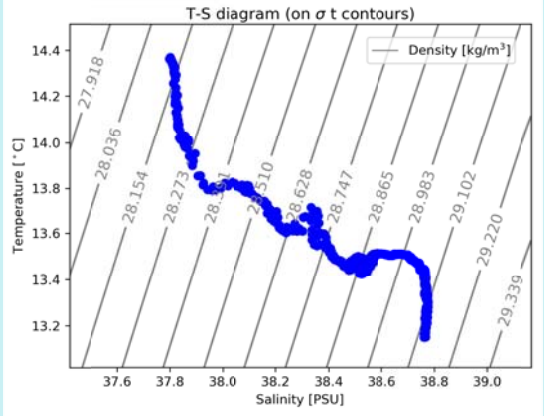
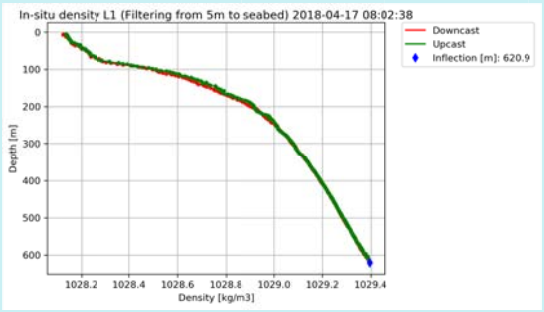
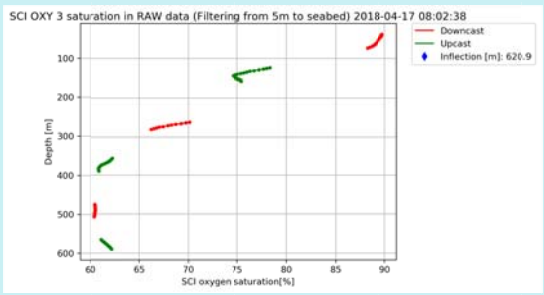
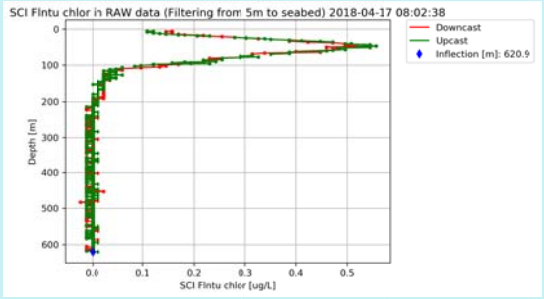
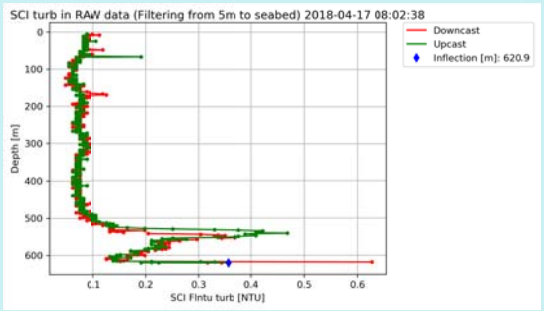
Mission Conclusion	*SDEEP00 returned to the GLab (IMEDEA) on Friday the 20th of April 2019 and it went under the Conclusion Phase four days after.* *Since SDEEP00 was in very good shape (altimeter issues solved by installing U568's transducer) it was decided to perform again (happened also during GF-MR-0073's Conclusion) a light version of the conclusion protocol so as not to disassemble SDEEP00 therefore limiting the action to external cleaning and RF downloading of the GF-MR-0074/GARICAST dataset.* *At the end, SDEEP00 was stored and left waiting for the GF-MR-0075 (preSWOT) mission preparation to begin.*
Preliminary Results, Conclusions and Future Work	*SOCIB DATA CENTER processed this mission's datasets with the SOCIB Glider ToolBox (SGTB) which produce a netCDF file called "dep0022_sdeep00_scb-sldeep000_L2_2018-04-17_data_dt.nc" (accessible through SOCIB Thredds repository as specified below in this report).* *GARICAST #1 (20180417_0957_S2_03)*       

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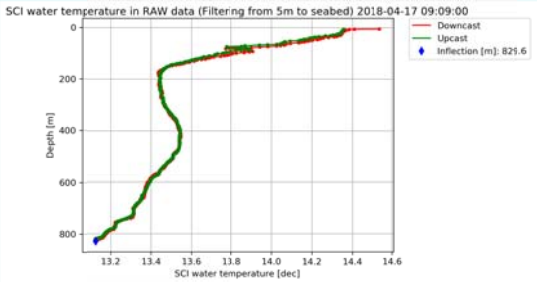
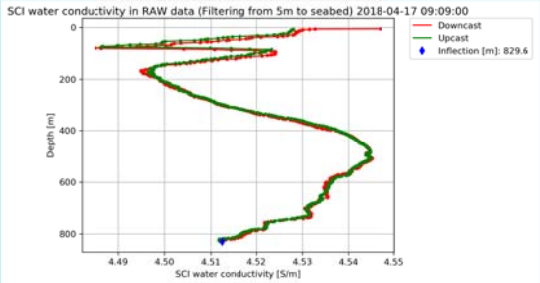
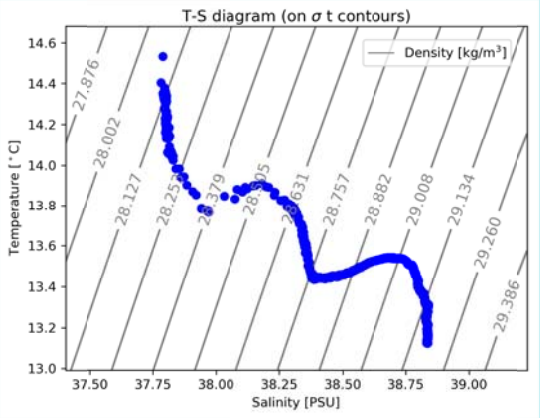
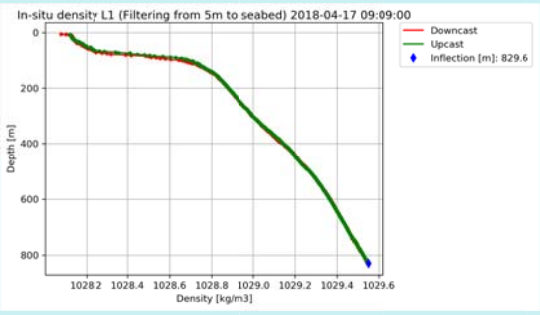
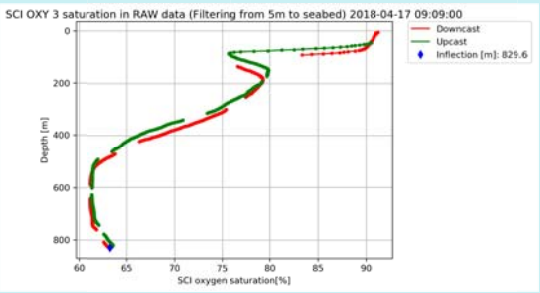
GARICAST #2 (20180417_1105_S2_04)

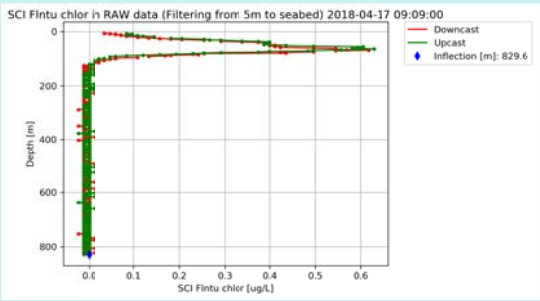


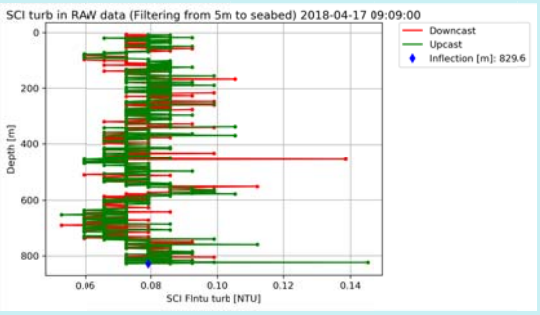












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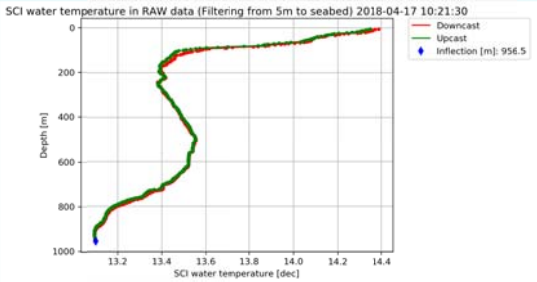
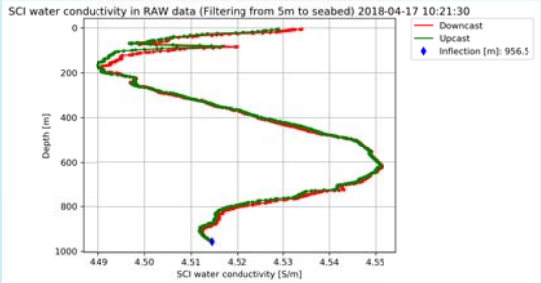
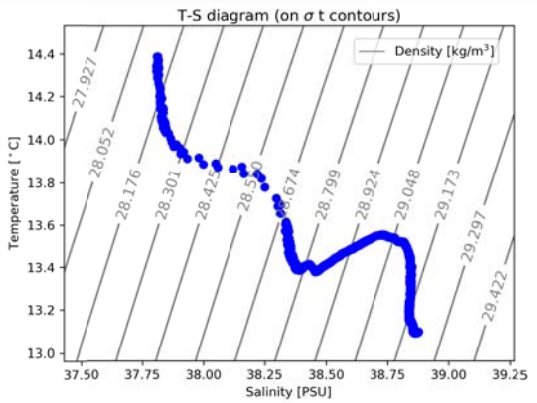
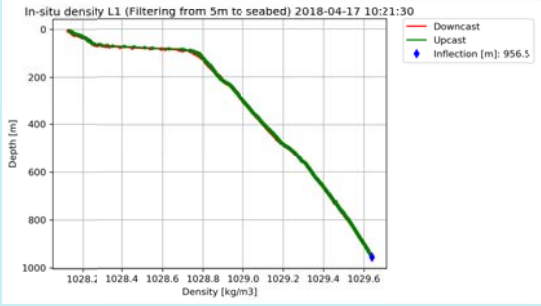
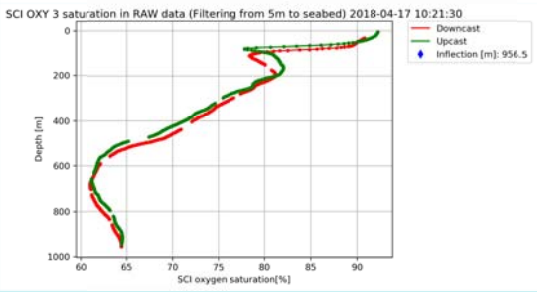
GARICAST #3 (20180417_1218_S2_05)

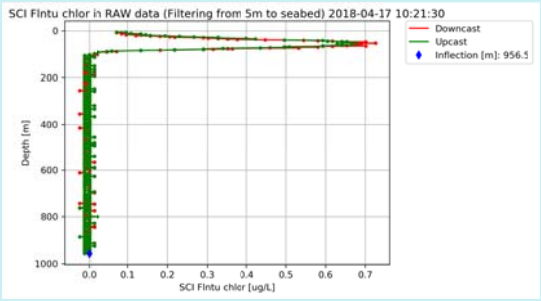


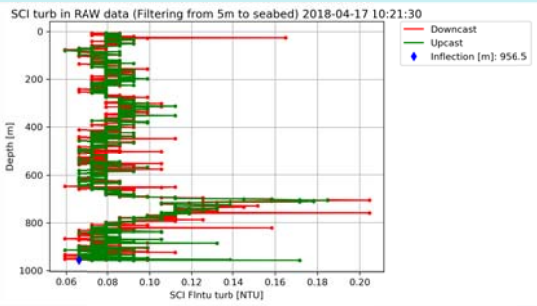












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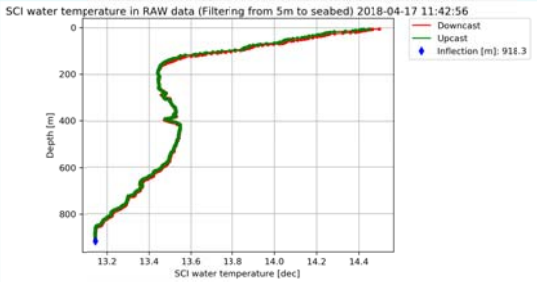
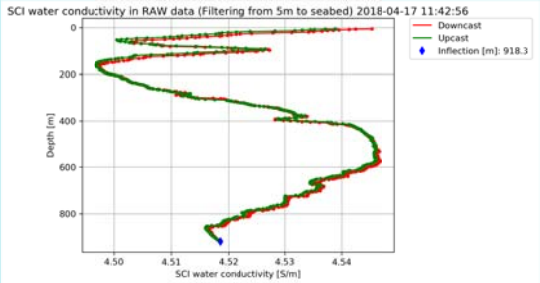
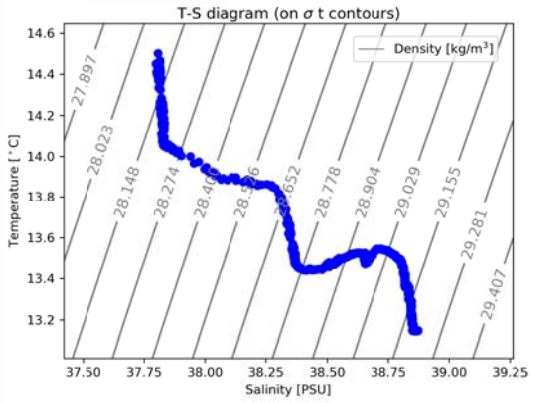
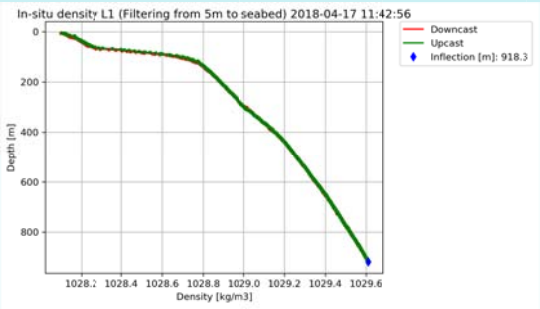
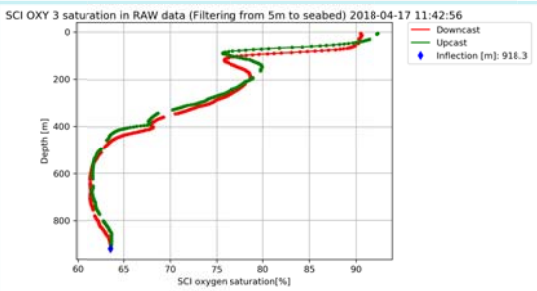
GARICAST #4 (20180417_1340_S2_06)

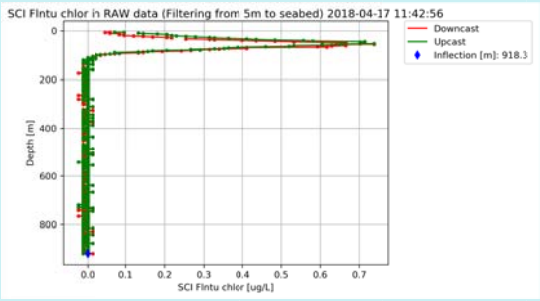


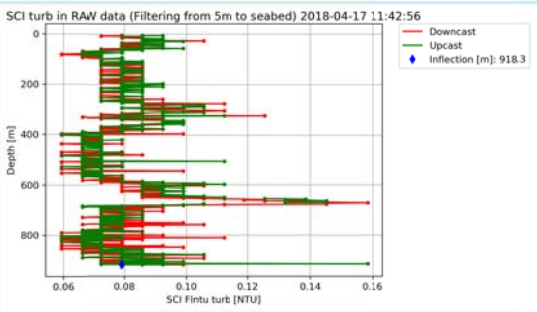












Conclusions

- *This GF-MR-0074 was a technical and tactical success without human nor material damages.*
- *U243's altimeter transducer put on the shelf after considering it susceptible to failure. U243 has been equipped with U568's transducer*
- *Gathered dataset seems to be reliable to allow fare comparison against rosette's dataset*
- *SDEEP00 left ready (and extensively tested) for the next mission*

Further Work

- *Lab testing on U243's altimeter transducer*
- *U243 stored and waiting for GF-MR-0075 (preSWOT) mission preparation to begin*
- *Biogeochem. Team from SOCIB will compare this GF-MR-0073/GARICAST dataset against rosette's dataset*

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Principal Investigator (e-mail or contact phone/address)	• *Prof. Joaquim Tintoré [SOCIB Director] jtintore@socib.es (+34 971439821)* • *PhD. John Allen [SOCIB Biogeochem. Leader] jallen@socib.es*
Institute	• *SOCIB*
Project Affiliation (web-site)	*http://www.socib.eu*
Partnership / Participation	• *SOCIB* • *IMEDEA(CSIC-UIB)*
Glider Software Version	*Nav : 7.21 LISST; Payload: 7.21*
Data Retrieval (real-time [RT] / delayed-mode [DM])	• *RT: no RT send over the satellite link* • *DM: full RF memory card backup after glider disassembly during Conclusion mission-phase*
Data Available From	*http://thredds.socib.es/thredds/catalog/auv/glider/sdeep00-scb_sldeep000/L1/2018/catalog.html?dataset=auv/glider/sdeep00-scb_sldeep000/L1/2018/dep0022_sdeep00_scb-sldeep000_L1_2018-04-17_data_dt.nc*
Further Details	*glidertech@socib.es*

Global Overview

Figure 1 - Map providing general overview of the Survey Area

Online track: http://apps.socib.es/dapp/?deployments=799-1-100-FF8888&layers=isobaths,ocean_basemap&units=scientific

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