

Glider Mission Summary Report

CANALES CAMPAIGN 2017

SOCIB GLIDING AUG2017 (GF-MR-0061)



Balearic Islands
Coastal Observing
and Forecasting
System



| | |
|--------------------------------------|--|
| Mission Name | 20170724_GF-MR-0061_SOCIB-ENL-CANALES-AUG2017_sdeep04 |
| Platform Model | Slocum 1000m G2 |
| Platform ID / Name / WMO Code | U567 / SDEEP04 / 68997 |
| Related Platforms / Missions | <ul style="list-style-type: none"> • Intercalibration see GFMR0062 |
| Start Date | 2017-07-28 17:43:56 UTC |
| End Date | 2017-08-19 10:59:14 UTC |
| Total Days | 21.7 |
| Total distance (Km / Nm) | 478 / 259 |
| Battery Consumption (Ah) | 119 (reading from 17 to 136) |
| Survey Area | Mallorca and Eivissa Channels (Western Mediterranean Sea) |
| Objective(s) | Establishing the variability of the N/S exchange of water masses that occur through the Ibiza Channel(IC). Sampling standard transects across the Ibiza Channel several times using physical and biogeochemical sensors. No greater than 1 month gap in between consecutive iterations. The Mallorca Channel is also sampled when operationally practical. |

Mission Preparation

Preparation was done in SOCIB during IRENE campaign GFMR0060, so for this mission there are NOT preparation

| Step | Status | Comments |
|---------------------------|--------|----------|
| Hardware check | NA | |
| Comms check | NA | |
| Batteries check | NA | |
| Ballasting check | NA | |
| Final sealing check | NA | |
| Fileset check | NA | |
| Harbor check | NA | |
| Compass Error Measurement | NA | |

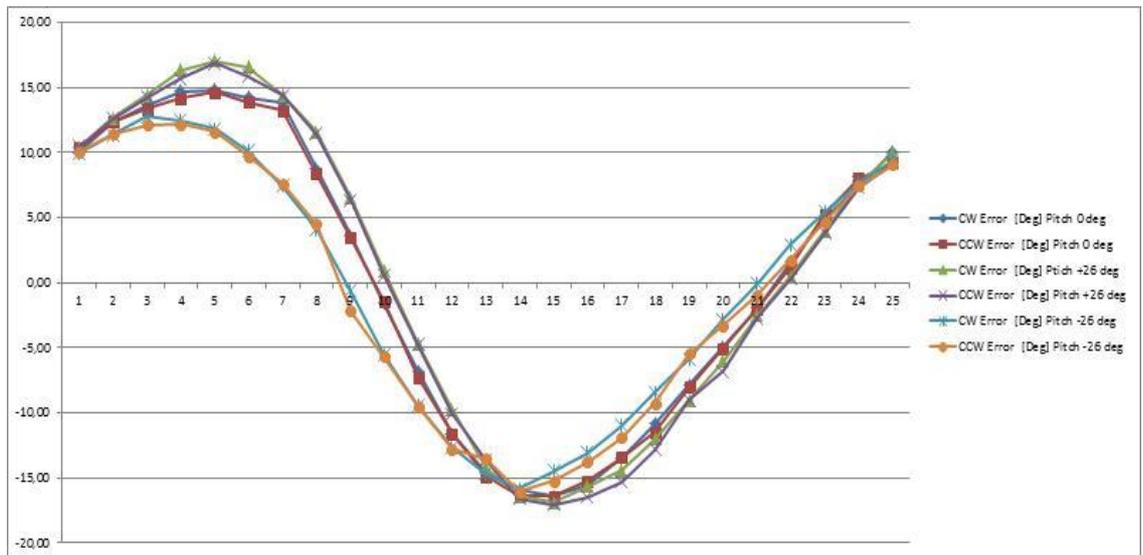


Figure 1 – Compass Error Measurement from GFMR0060 IRENE

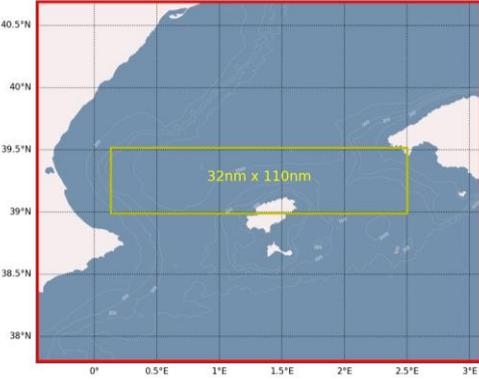
| Mission Survey | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|--|----------|-----------|------------|--------------|-----------|----------------------------|----|-----|---------|---|---|-----|-----|---|---|---|---------------|---|---|---|----------------|---|---|---|
| Deployment | <p>Mission launched after IRENE cruise.</p> <p>Mission launched from SOCIB-RV in the frame of CANALES-SUMMER-2017.</p> <p>U567 has been GARICASTed in 3 different stations on 28/07/2017</p> <table border="1"> <tr> <td>Vessel:</td> <td>SOCIB R/V</td> </tr> <tr> <td>Personnel:</td> <td>1 ETD + 1 GF</td> </tr> <tr> <td>Location:</td> <td>St. Antoni Coast (Eivissa)</td> </tr> </table> | Vessel: | SOCIB R/V | Personnel: | 1 ETD + 1 GF | Location: | St. Antoni Coast (Eivissa) | | | | | | | | | | | | | | | | | | |
| Vessel: | SOCIB R/V | | | | | | | | | | | | | | | | | | | | | | | | |
| Personnel: | 1 ETD + 1 GF | | | | | | | | | | | | | | | | | | | | | | | | |
| Location: | St. Antoni Coast (Eivissa) | | | | | | | | | | | | | | | | | | | | | | | | |
| Navigation | <p>It was very satisfactory. The glider responded well to the commanded target waypoints.</p> <div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;">Figure 2 – Commanded Waypoints</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| Underwater Maneuvering | Nothing relevant | | | | | | | | | | | | | | | | | | | | | | | | |
| Engineering | <table border="1"> <thead> <tr> <th>Sensor</th> <th>Errors</th> <th>Warmings</th> <th>Oddities</th> </tr> </thead> <tbody> <tr> <td>Digifin</td> <td>0</td> <td>80</td> <td>452</td> </tr> <tr> <td>Iridium</td> <td>0</td> <td>0</td> <td>151</td> </tr> <tr> <td>GPS</td> <td>0</td> <td>4</td> <td>0</td> </tr> <tr> <td>Science_super</td> <td>0</td> <td>3</td> <td>7</td> </tr> <tr> <td>ocean_pressure</td> <td>0</td> <td>0</td> <td>1</td> </tr> </tbody> </table> | Sensor | Errors | Warmings | Oddities | Digifin | 0 | 80 | 452 | Iridium | 0 | 0 | 151 | GPS | 0 | 4 | 0 | Science_super | 0 | 3 | 7 | ocean_pressure | 0 | 0 | 1 |
| Sensor | Errors | Warmings | Oddities | | | | | | | | | | | | | | | | | | | | | | |
| Digifin | 0 | 80 | 452 | | | | | | | | | | | | | | | | | | | | | | |
| Iridium | 0 | 0 | 151 | | | | | | | | | | | | | | | | | | | | | | |
| GPS | 0 | 4 | 0 | | | | | | | | | | | | | | | | | | | | | | |
| Science_super | 0 | 3 | 7 | | | | | | | | | | | | | | | | | | | | | | |
| ocean_pressure | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Communication Systems | <p>Were reliable and fluent</p> <p>Total number iridium calls [num]: 120.0 Iridium calls to secondary [num]: 4 ON overall iridium period [s]: 10129.7422002 Iridium calls state from 99 to 10 [num]: 128 Iridium calls state from 0 to 99 [num]: 15 Iridium calls state from 2 to 99 [num]: 112 Iridium calls state from 2 to 99 with c_iridium_on = 1 (Drop calls) [num]: 7</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| Contextual/Awareness Sensors | Pressure transducer, internal vacuum and internal temperature seemed to have worked correctly. Compass also reported coherent values. Altimeter detected the bottom correctly. | | | | | | | | | | | | | | | | | | | | | | | | |
| Hull/Hydrodynamics | No signs of problems | | | | | | | | | | | | | | | | | | | | | | | | |
| Mission Runs | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Recovery | <table border="1"> <tr> <td>Vessel:</td> <td>SOCIB-I</td> </tr> <tr> <td>Personnel:</td> <td>1 ETD + 1 SC</td> </tr> <tr> <td>Location:</td> <td>Dragonera Coast</td> </tr> </table> | Vessel: | SOCIB-I | Personnel: | 1 ETD + 1 SC | Location: | Dragonera Coast | | | | | | | | | | | | | | | | | | |
| Vessel: | SOCIB-I | | | | | | | | | | | | | | | | | | | | | | | | |
| Personnel: | 1 ETD + 1 SC | | | | | | | | | | | | | | | | | | | | | | | | |
| Location: | Dragonera Coast | | | | | | | | | | | | | | | | | | | | | | | | |

Glider Behavior

| Date: | 31/07/2017 | 01/08/2017 | 06/08/2017 | 09/08/2017 | 13/08/2017 | 16/08/2017 | 19/08/2017 |
|---|-------------|------------|------------|------------|------------|------------|-------------|
| Underwater Top Inflection Depth (m): | 15 | | | | | | |
| Underwater Bottom Inflection Depth (m) | 950 | | | | | | |
| Minimum Distance to Sea-floor to be kept (m) | 40 | | | | | | |
| Surface upon completion of this # of dives | ∞ | | | | | | |
| Surface if this amount of hours without stable communications (hrs) | 12 | | | | | | |
| Surface at this particular UTC times | 4,10, 16,22 | | | | | | 4,10, 9, 22 |
| Surface if a waypoint is hit within that distance (km) | 100 | | | | | | |
| Altimeter | on | | | | | | |
| Pitch angle attack[deg] | ±26 | | | | | | |
| goto | 0 | -1 | | | | | |
| Pitch control | battpos | | | | | | |
| Optics | ON | | OFF | ON | OFF | ON | |
| Goto number | 10 | 11 | | | | | |

SCI Profiles(calibration sheets available upon request to glidertech@socib.es)

| Sensor Type: | CTD seabird | OPTODE Aanderaa | FLNTU |
|--|-------------|-----------------|-------------|
| Serial number: | 9289 | 0411 | 3934 |
| Calibration date: | 23/feb/2015 | 21/jul/2014 | 25/mar/2015 |
| Casts: | 602 | 890 | 445 |
| Half-Yos: | 1206 | 1206 | 1206 |
| Samples: | 320789 | 221129 | 46792 |
| Sampled distance [km]: | 126 | 187 | 58 |
| Intersample time [s]: | 3.195 | 5.919 | 10.096 |
| Sampling Frequency [Hz] | 1/2 | 1/4 | 1/8 |
| Depth range this configuration applies (m) | [-5, 2000] | [-5, 2000] | [-5, 2000] |
| Sampling during Diving | Y | Y | Y |
| Sampling during Overing | N | N | N |
| Sampling during Climbing | N | Y | N |
| Sampling during Surface | N | N | N |

| | |
|--|---|
| <p>Principal Investigator (e-mail or contact phone/address)</p> | <ul style="list-style-type: none"> • Prof. Joaquim Tintoré [SOCIB – Accessed Infrastructure] jtintore@socib.es (+34 971439821) |
| <p>Institute</p> | <p>SOCIB in collaboration with IMEDEA</p> |
| <p>Project Affiliation (web-site)</p> | <p>http://www.socib.eu</p> |
| <p>Partnership / Participation</p> | <ul style="list-style-type: none"> • SOCIB (Accessed Infrastructure) • IMEDEA (in-kind contribution) |
| <p>Glider Software Version</p> | <p>Nav : 7.18 Acomms, Payload: 3.17</p> |
| <p>Data Retrieval (real-time [RT] / delayed-mode [DM])</p> | <ul style="list-style-type: none"> • RT: sub-set via satellite link at each surface maneuver • DM: full/direct memory card backup after glider disassembly during Conclusion mission-phase |
| <p>Data Available From</p> | <p>http://thredds.socib.es/thredds/catalog/auv/glider/sdeep04-scb_sldeep004/catalog.html</p> |
| <p>Further Details</p> | <p>glidertech@socib.es</p> |
| <p>Global Overview</p> | <div style="text-align: center;">   </div> <p>Figure 3 - Map providing general overview of the Survey Area</p> <p>Online track: http://apps.socib.es/dapp/?deployments=757-23-0-FFFF00&layers=none&units=scientific</p> |

Scientific Preliminary Review

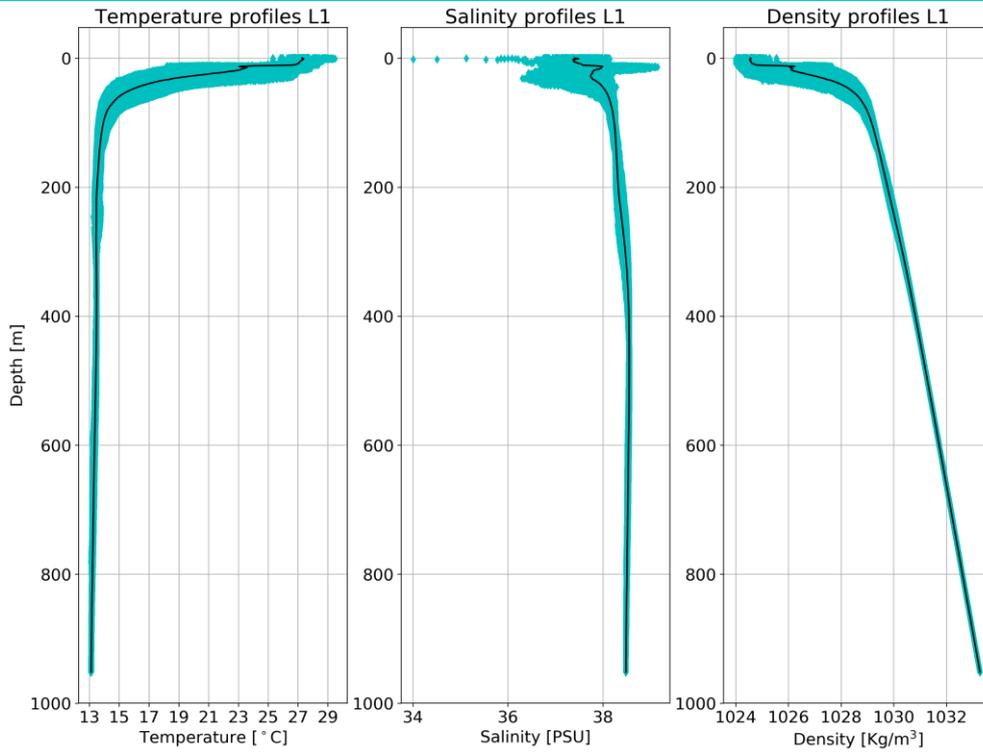


Figure 4 - CTD profiles

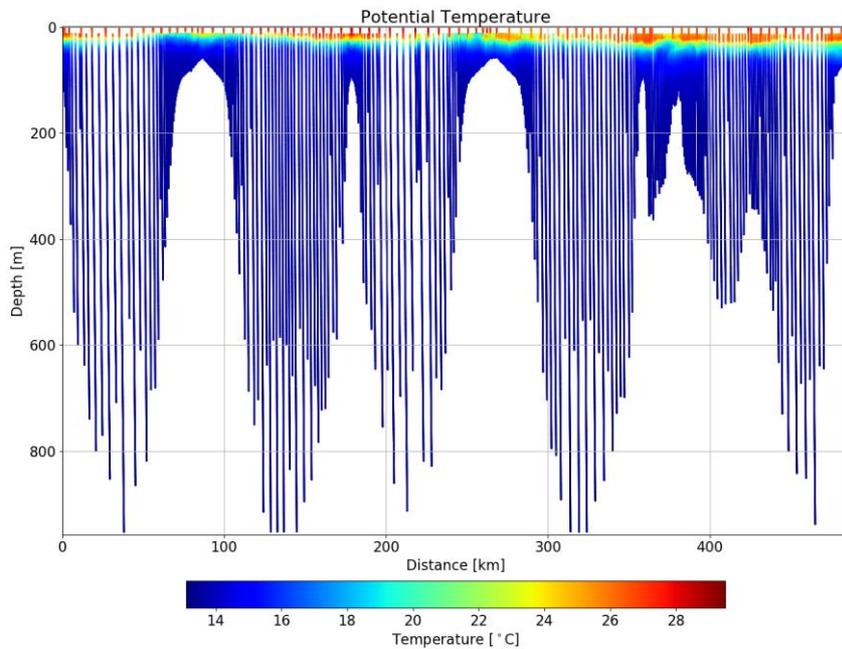


Figure 5 - Potential temperature (full depth range)

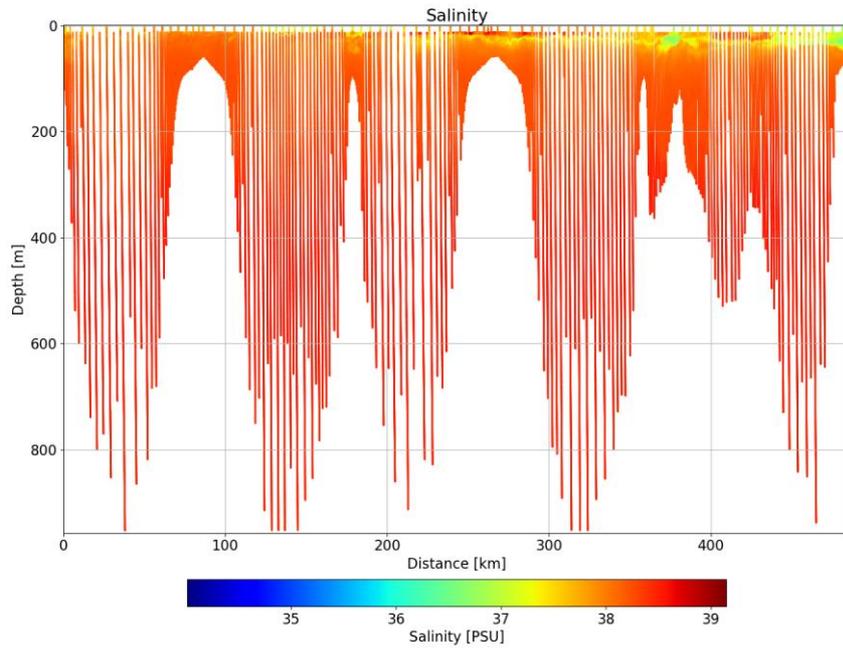


Figure 6 - Corrected salinity (full depth range)

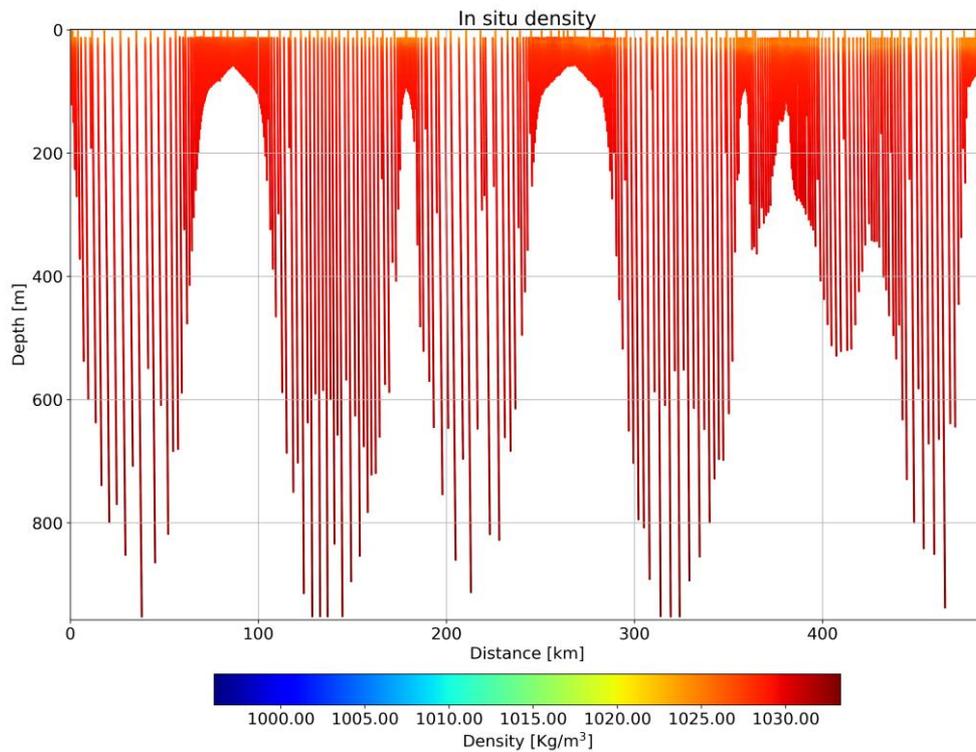
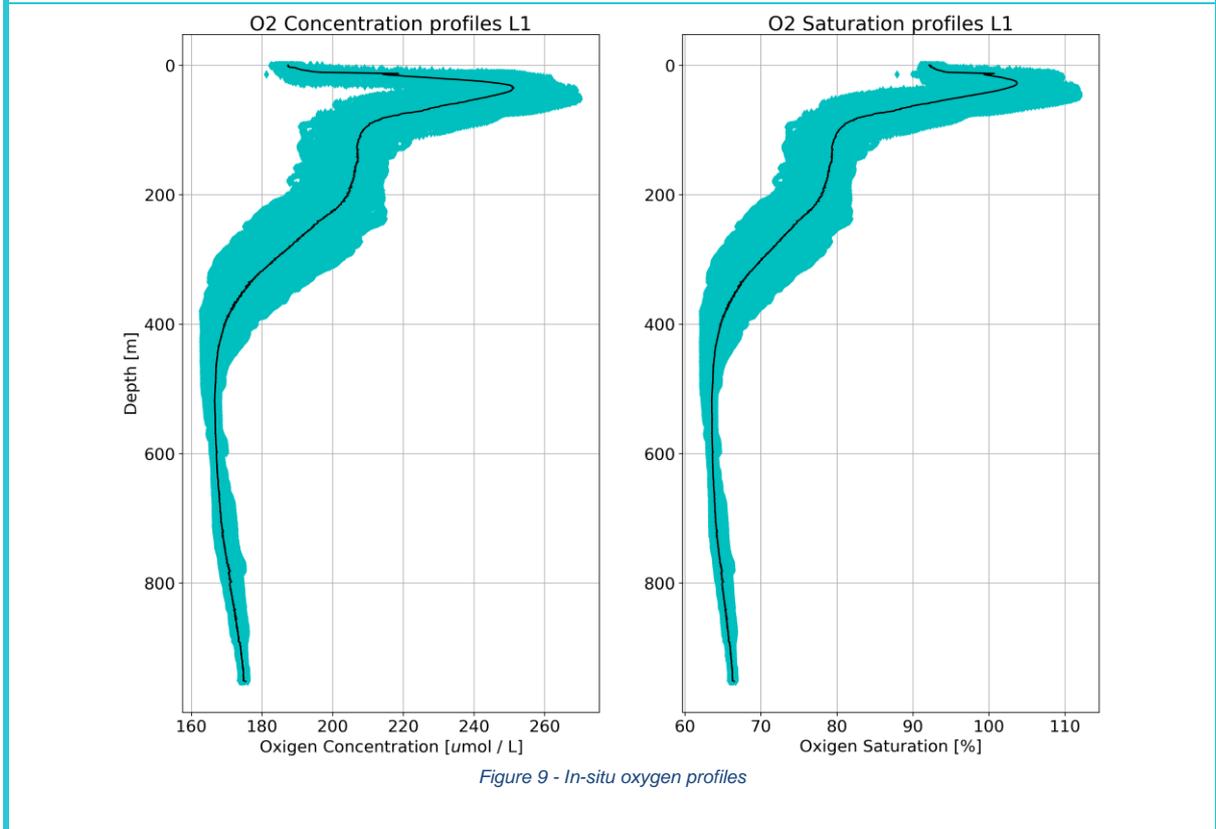
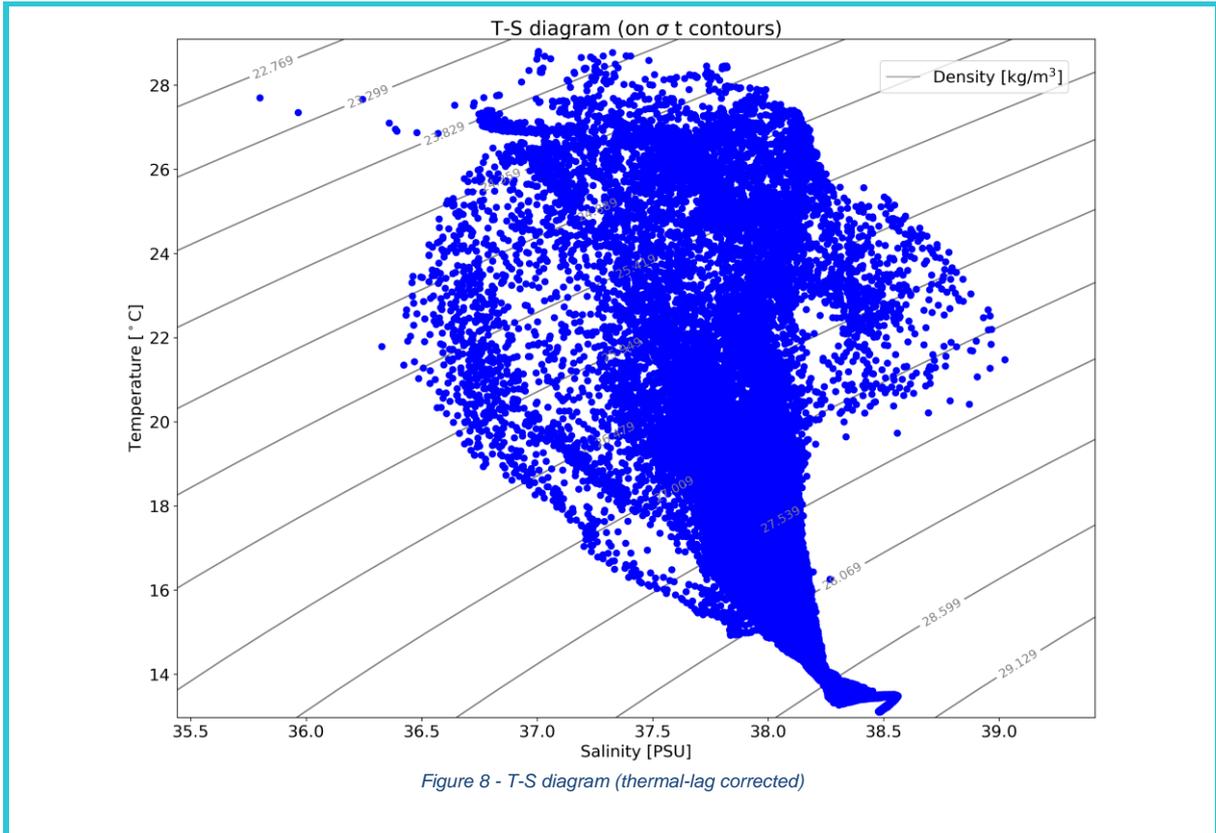
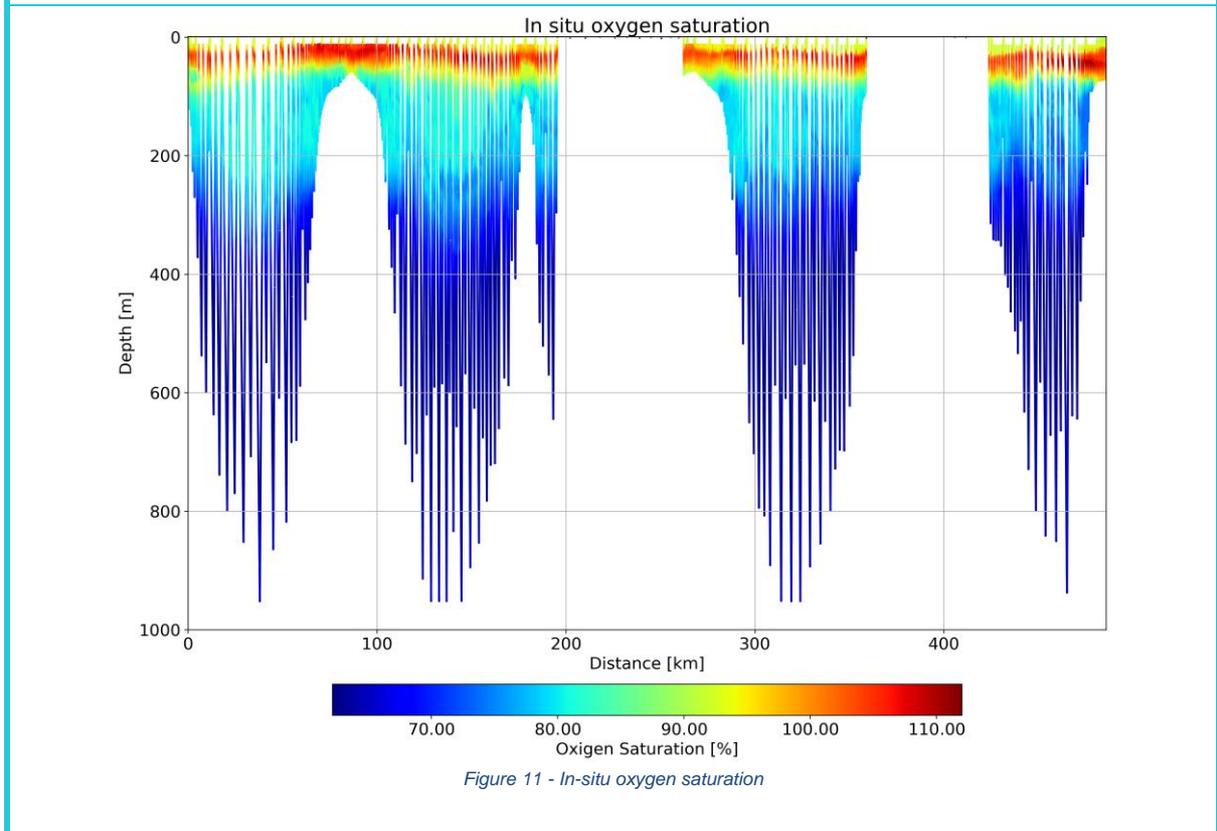
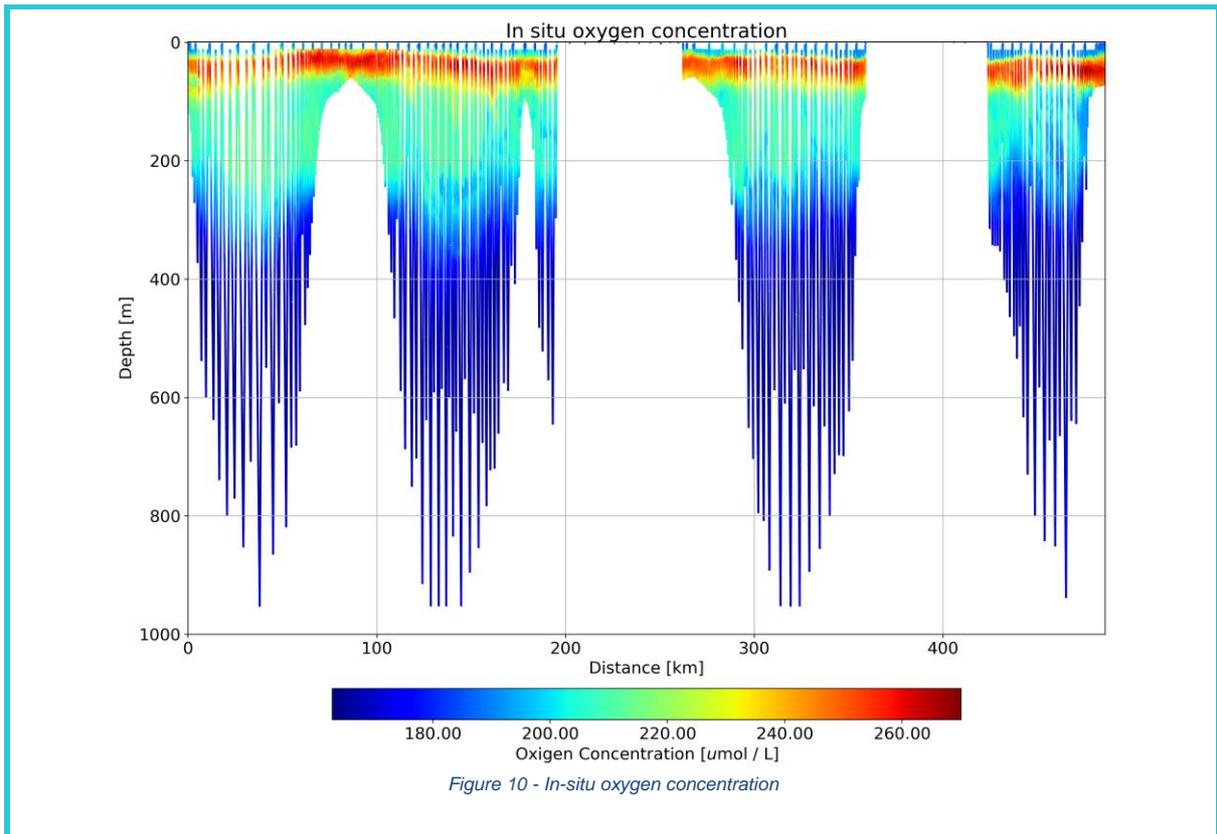


Figure 7 – In-situ Density derived from corrected salinity and temperature (full depth range)





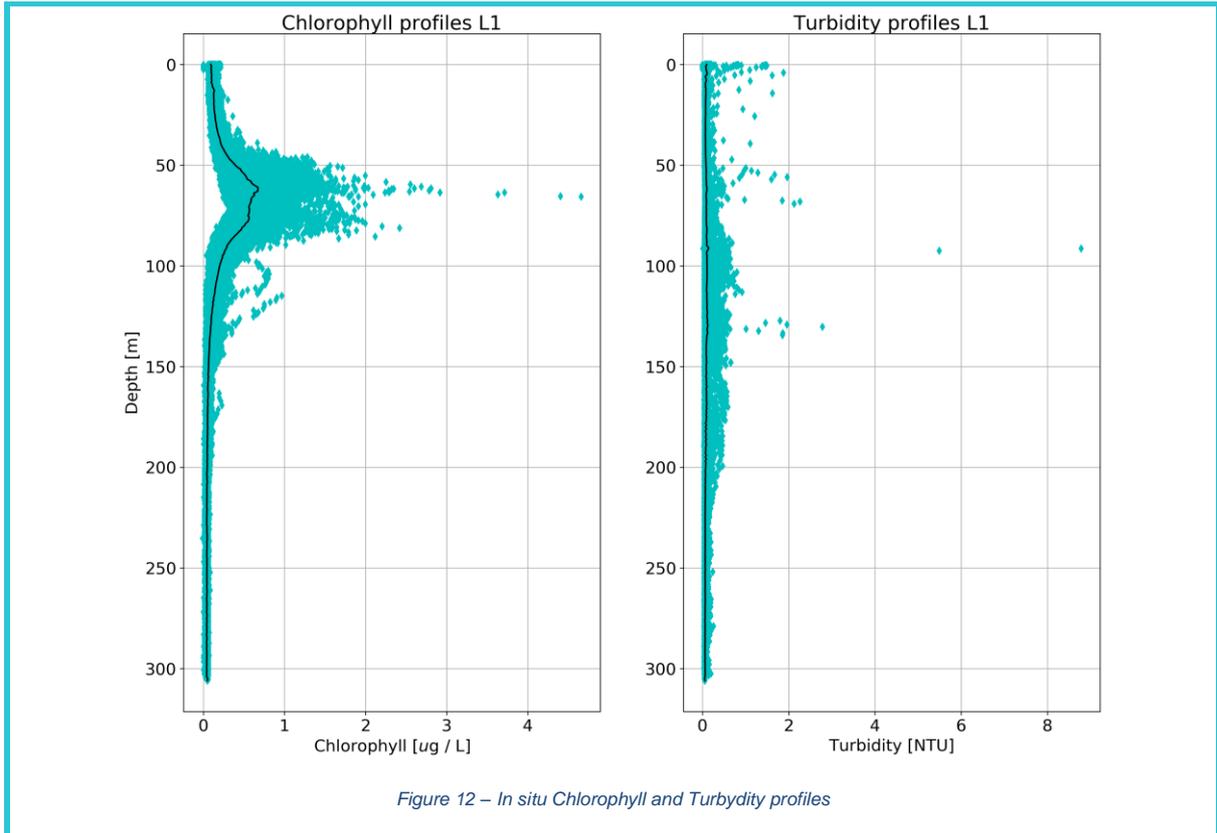


Figure 12 – In situ Chlorophyll and Turbidity profiles

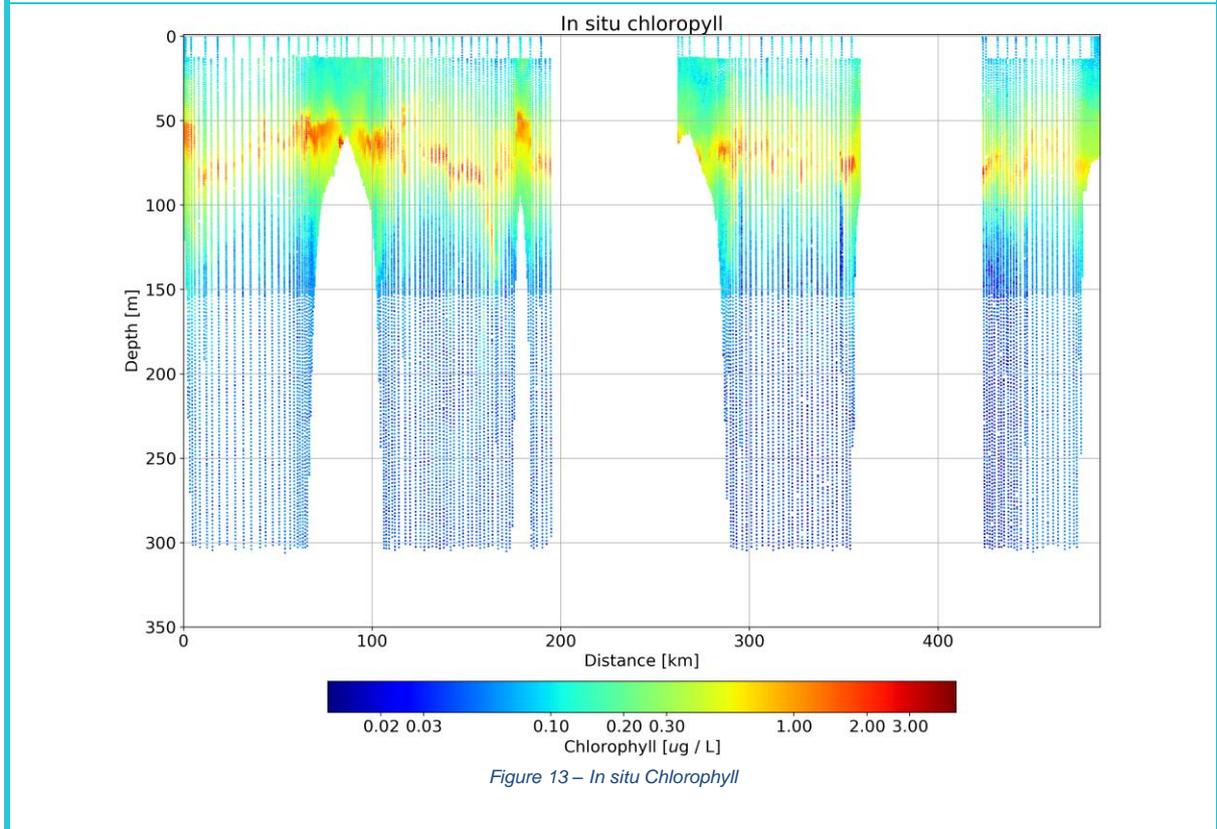


Figure 13 – In situ Chlorophyll

