

# Glider Mission Summary Report

CANALES CAMPAIGN 2019

SOCIB GLIDING SEP2019 (GF-MR-0096)



Balearic Islands  
Coastal Observing  
and Forecasting  
System

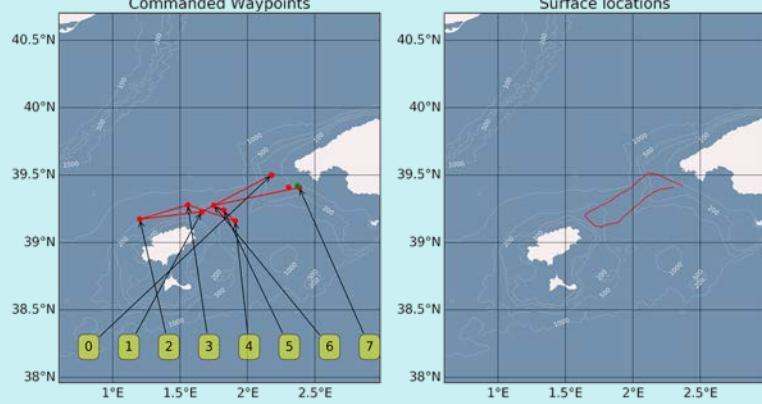


Govern de les Illes Balears



<b>Mission Name</b>	SOCIB_ENL_CANALES_SEP2019_SDEEP01_GFMR0096
<b>Platform Model</b>	<i>Slocum 1000m G2</i>
<b>Platform ID / Name / WMO Code</b>	<i>U244 / SDEEP01 / 68967</i>
<b>Related Platforms / Missions</b>	<i>None</i>
<b>Glider Software Version</b>	<i>Nav : 8.2 Acomms, Payload: 8.2</i>
<b>Start Date (UTC)</b>	<i>2019-09-09 10:00:01</i>
<b>End Date (UTC)</b>	<i>2019-09-17 08:11:41</i>
<b>Total Days</b>	<i>7.9</i>
<b>Total distance (Km / Nm)</b>	<i>166.4[km] 89.85[nm]</i>
<b>Battery Consumption (Ah)</b>	<i>54 (reading from 133 to 188)</i>
<b>Survey Area</b>	<i>Mallorca and Eivissa Channels (Western Mediterranean Sea)</i>
<b>Objective(s)</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>
<b>Significant events</b>	<ul style="list-style-type: none"> <li><i>First deployment was GFMR0095 failed due to a bug on software version 8.3</i></li> <li><i>Second one malfunction on the altimeter, GFMR0096, mission cancelled (then GFMR0097 succeed by replacing the altimeter, but by the end of the mission a malfunction on CTD pump was detect, it occurred during the entire mission)</i></li> <li><i>This glider was prepared with Teledyne, B.Allsup</i></li> <li><i>This glider was prepared just after a refurbishment</i></li> </ul>

Mission Preparation	<ul style="list-style-type: none"> <li><i>Preparation was a typical one, most of the steps belong to GFMR0095.</i></li> <li><i>This preparation was done under the supervision of B.Allsup (TWR) in order to update and improve SOCIB protocols.</i></li> </ul> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;"><b>Step</b></th><th style="text-align: left; padding: 2px;"><b>Status</b></th><th colspan="2" style="padding: 2px;"><b>Comments</b></th></tr> </thead> <tbody> <tr> <td style="padding: 2px;">Hardware check</td><td style="padding: 2px;">Ok</td><td colspan="2"></td></tr> <tr> <td style="padding: 2px;">Comms check</td><td style="padding: 2px;">Ok</td><td colspan="2" style="padding: 2px;">Avoided. SMS service out of order</td></tr> <tr> <td style="padding: 2px;">Batteries check</td><td style="padding: 2px;">Ok</td><td colspan="2" style="padding: 2px;">TWR battery pack</td></tr> <tr> <td style="padding: 2px;">Ballasting check</td><td style="padding: 2px;">Ok</td><td style="padding: 2px;">Target density: 1025,613 g/L</td><td style="padding: 2px;">Tank density: 1026,326 g/L</td></tr> <tr> <td style="padding: 2px;">Final sealing check</td><td style="padding: 2px;">Ok</td><td colspan="2"></td></tr> <tr> <td style="padding: 2px;">Fileset check</td><td style="padding: 2px;">Ok</td><td colspan="2"></td></tr> <tr> <td style="padding: 2px;">Harbor check</td><td style="padding: 2px;">Ok</td><td colspan="2"></td></tr> <tr> <td style="padding: 2px;">Compass Error Measurement</td><td style="padding: 2px;">NA</td><td colspan="2"></td></tr> </tbody> </table>			<b>Step</b>	<b>Status</b>	<b>Comments</b>		Hardware check	Ok			Comms check	Ok	Avoided. SMS service out of order		Batteries check	Ok	TWR battery pack		Ballasting check	Ok	Target density: 1025,613 g/L	Tank density: 1026,326 g/L	Final sealing check	Ok			Fileset check	Ok			Harbor check	Ok			Compass Error Measurement	NA		
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<i>Deployment</i>	<p>Vessel: SOCIB I            Personnel: 1 ETD + 1 GF            Location: N 39°25.1876' E 02°22.1631'</p>																
<i>Navigation</i>	<p><i>It was satisfactory during most mission time. The glider responded well to the commanded target waypoints.</i></p>  <p>Figure 1 – Commanded Waypoints</p>																
<i>Underwater Maneuvering</i>	<i>Performed well</i>																
<i>Engineering</i>	<table border="1"> <thead> <tr> <th>Sensor</th> <th>Oddities</th> <th>Warning</th> <th>Errors</th> </tr> </thead> <tbody> <tr> <td><i>pitch_motor</i></td> <td>4</td> <td>0</td> <td>0</td> </tr> <tr> <td><i>digifin</i></td> <td>164</td> <td>7</td> <td>0</td> </tr> <tr> <td><i>IRIDIUM</i></td> <td>36</td> <td>0</td> <td>0</td> </tr> </tbody> </table>  <p>Figure 2 – Errors, warnings and oddities</p>	Sensor	Oddities	Warning	Errors	<i>pitch_motor</i>	4	0	0	<i>digifin</i>	164	7	0	<i>IRIDIUM</i>	36	0	0
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<i>Communication Systems</i>	<p>Total number iridium calls [num]: 32.0            Iridium calls to secondary [num]: 0            ON overall iridium period [s]: 4534            Iridium calls state from 99 to 10 [num]: 34            Iridium calls state from 0 to 99 [num]: 1            Iridium calls state from 2 to 99 [num]: 32            Iridium calls state from 2 to 99 with c_iridium_on = 1 (Drop calls) [num]: 1            Missed call detected on: 2019-09-09 10:00:01.247590            Unstable comms detected on: 2019-09-09 10:00:01.247590</p>																
<i>Contextual/Awareness Sensors</i>	<p>Pressure transducer, internal vacuum and internal temperature worked correctly.            Compass also reported coherent values.            Altimeter did not detect the bottom correctly, mission aborted due to this fact</p>																

	Hull/Hydrodynamics	No signs of problems																																																																																									
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	Recovery	<p>Emergency recovery performed as planned.</p> <table> <tr> <td>Vessel:</td><td>SOCIB I</td></tr> <tr> <td>Personnel:</td><td>1 ETD + 1 GF</td></tr> <tr> <td>Location:</td><td>N 39°24.6389' E 02°18.3216'</td></tr> </table>	Vessel:	SOCIB I	Personnel:	1 ETD + 1 GF	Location:	N 39°24.6389' E 02°18.3216'																																																																																			
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<b>SCI Profiles</b>	<p>(calibration sheets available upon request to <a href="mailto:glidertech@socib.es">glidertech@socib.es</a>)</p> <table border="1"> <thead> <tr> <th>Sensor Type:</th><th>CTD seabird</th><th>OPTODE Aanderaa</th><th>FLNTU</th></tr> </thead> <tbody> <tr> <td>Serial number:</td><td>0107</td><td>1410</td><td>4124</td></tr> <tr> <td>Calibration date:</td><td>02/06/2019</td><td>27/05/2019</td><td>06/06/2019</td></tr> <tr> <td>Casts:</td><td>526</td><td>526</td><td>263</td></tr> <tr> <td>Half-Yos:</td><td></td><td>526</td><td></td></tr> <tr> <td>Samples:</td><td>115011</td><td>107859</td><td>28311</td></tr> <tr> <td>Sampled distance [km]:</td><td>105</td><td>105</td><td>44</td></tr> <tr> <td>Intersample time [s]:</td><td>5.485</td><td>5.851</td><td>10.037</td></tr> <tr> <td>Sampling Frequency [Hz]</td><td>1/4</td><td>1/4</td><td>1/8      1/16</td></tr> <tr> <td>Depth range this configuration applies (m)</td><td>[-5, 2000]</td><td>[-5, 2000]</td><td>[-5, 150]      [150, 300]</td></tr> <tr> <td>Sampling during Diving</td><td>Y</td><td>Y</td><td>Y</td></tr> <tr> <td>Sampling during Overing</td><td>N</td><td>N</td><td>N</td></tr> <tr> <td>Sampling during Climbing</td><td>Y</td><td>Y</td><td>N</td></tr> <tr> <td>Sampling during Surface</td><td>N</td><td>N</td><td>N</td></tr> </tbody> </table>		Sensor Type:	CTD seabird	OPTODE Aanderaa	FLNTU	Serial number:	0107	1410	4124	Calibration date:	02/06/2019	27/05/2019	06/06/2019	Casts:	526	526	263	Half-Yos:		526		Samples:	115011	107859	28311	Sampled distance [km]:	105	105	44	Intersample time [s]:	5.485	5.851	10.037	Sampling Frequency [Hz]	1/4	1/4	1/8      1/16	Depth range this configuration applies (m)	[-5, 2000]	[-5, 2000]	[-5, 150]      [150, 300]	Sampling during Diving	Y	Y	Y	Sampling during Overing	N	N	N	Sampling during Climbing	Y	Y	N	Sampling during Surface	N	N	N																																	
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<b>Principal Investigator</b> (e-mail or contact phone/address)	<ul style="list-style-type: none"> <li>Prof. Joaquim Tintoré <a href="mailto:jtintore@socib.es">jtintore@socib.es</a> (+34 971439821)</li> </ul>
<b>Institute</b>	<ul style="list-style-type: none"> <li>SOCIB</li> </ul>
<b>Project Affiliation</b> (web-site)	<a href="http://www.socib.eu">http://www.socib.eu</a>
<b>Partnership / Participation</b>	<ul style="list-style-type: none"> <li>IMEDEA(CSIC-UIB)</li> </ul>
<b>Data Retrieval</b> (real-time [ RT ] / delayed-mode [ DM ])	<ul style="list-style-type: none"> <li>RT: sub-set via satellite link at each surface maneuver</li> <li>DM: full/direct memory card backup after glider disassembly during Conclusion mission-phase (of GFMR097)</li> </ul>
<b>Data Available From</b>	<a href="http://thredds.socib.es/thredds/catalog/auv/glider/sdeep01-scb_sdeep001/catalog.html">http://thredds.socib.es/thredds/catalog/auv/glider/sdeep01-scb_sdeep001/catalog.html</a>
<b>Further Details</b>	<a href="mailto:glidertech@socib.es">glidertech@socib.es</a>
<b>Global Overview</b>	  <p>Figure 3 - Map providing general overview of the Survey Area</p> <p>Online track: <a href="http://apps.socib.es/dapp/?deployments=981-9-0-FF66CC&amp;layers=none&amp;units=scientific">http://apps.socib.es/dapp/?deployments=981-9-0-FF66CC&amp;layers=none&amp;units=scientific</a></p>

## Scientific Preliminary Review

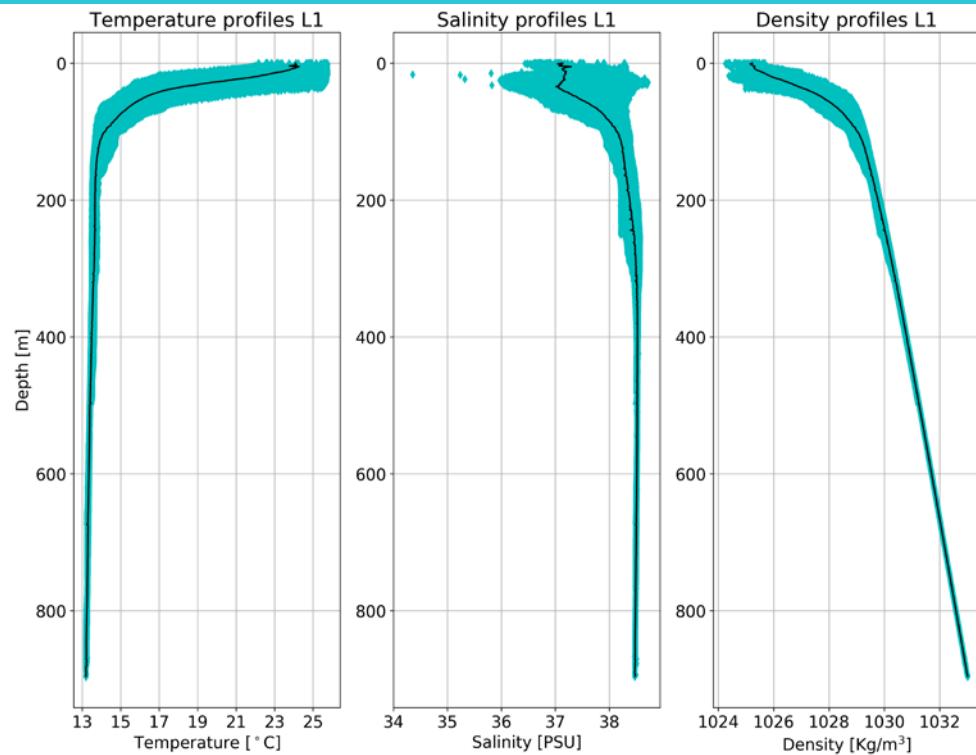


Figure 4 - CTD profiles

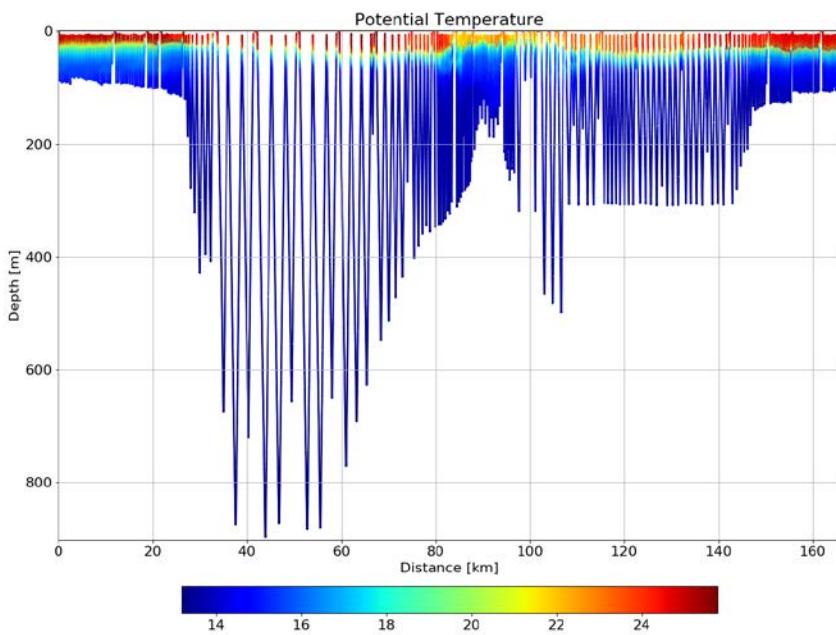
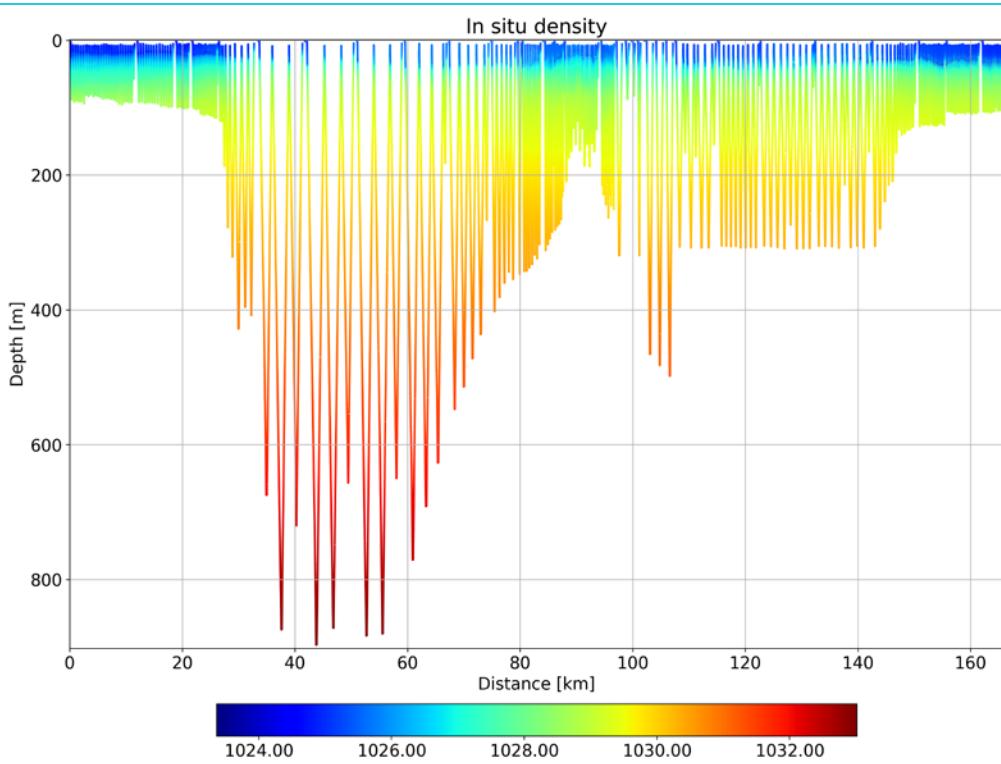
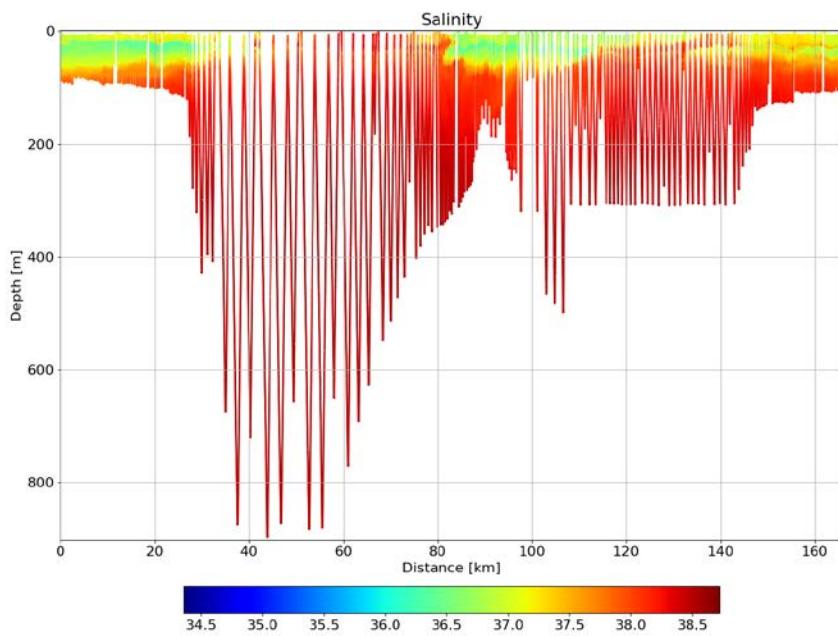


Figure 5 - Potential temperature (full depth range)



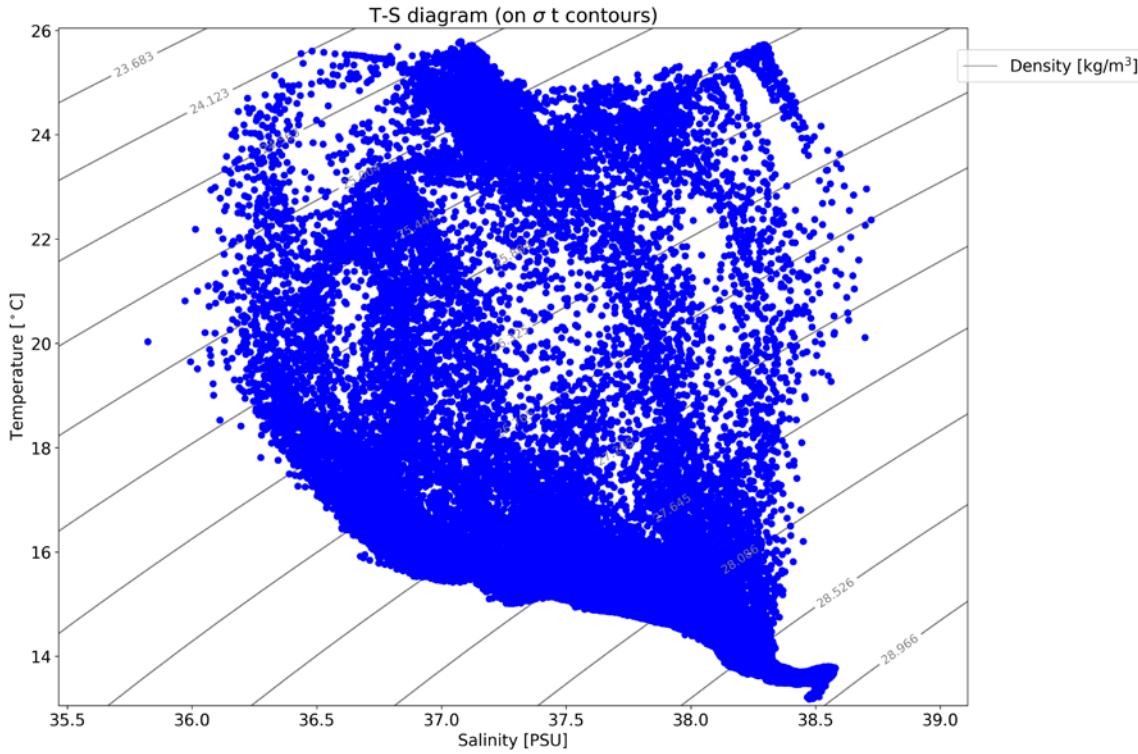


Figure 8 - T-S diagram (thermal-lag corrected)

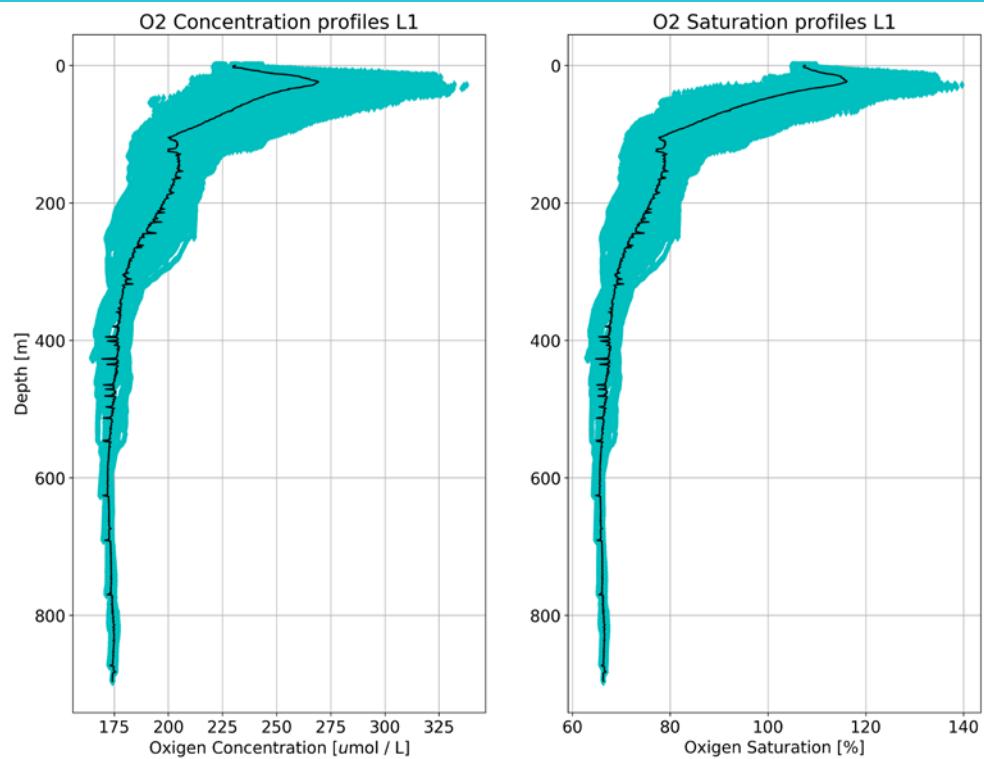
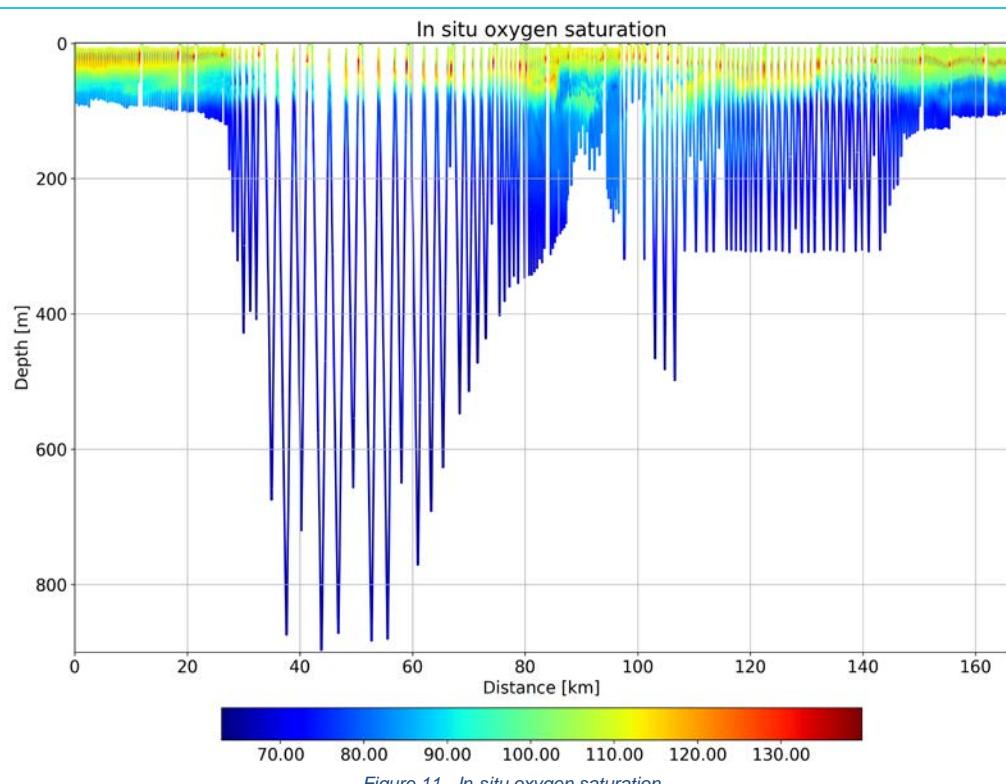
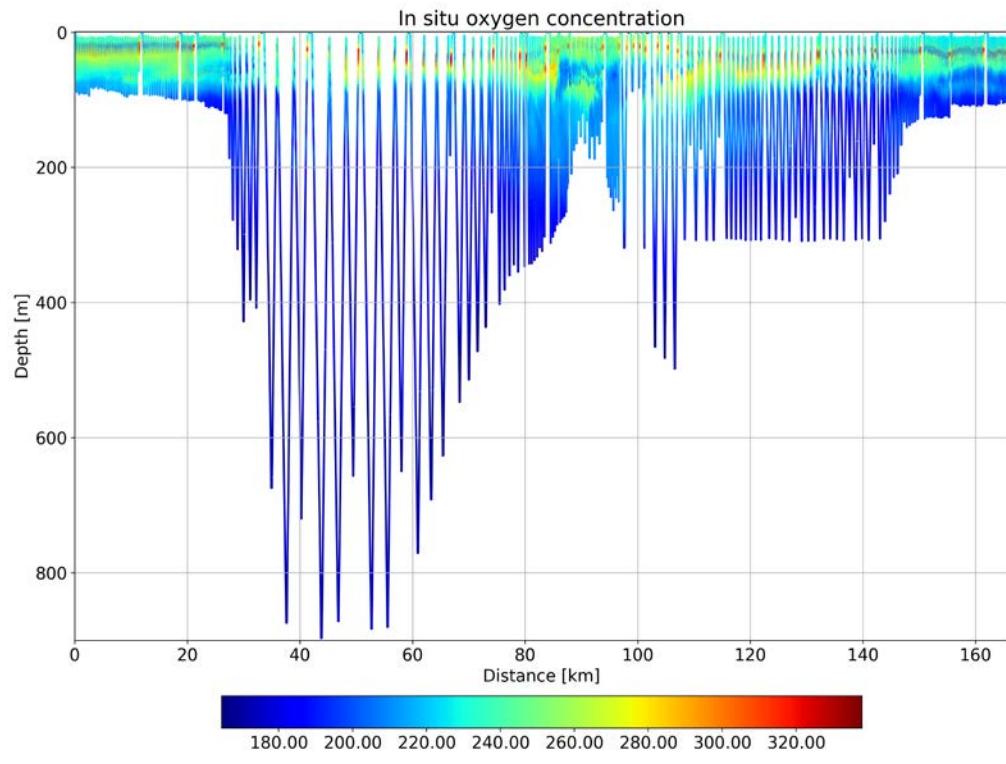


Figure 9 - In-situ oxygen profiles



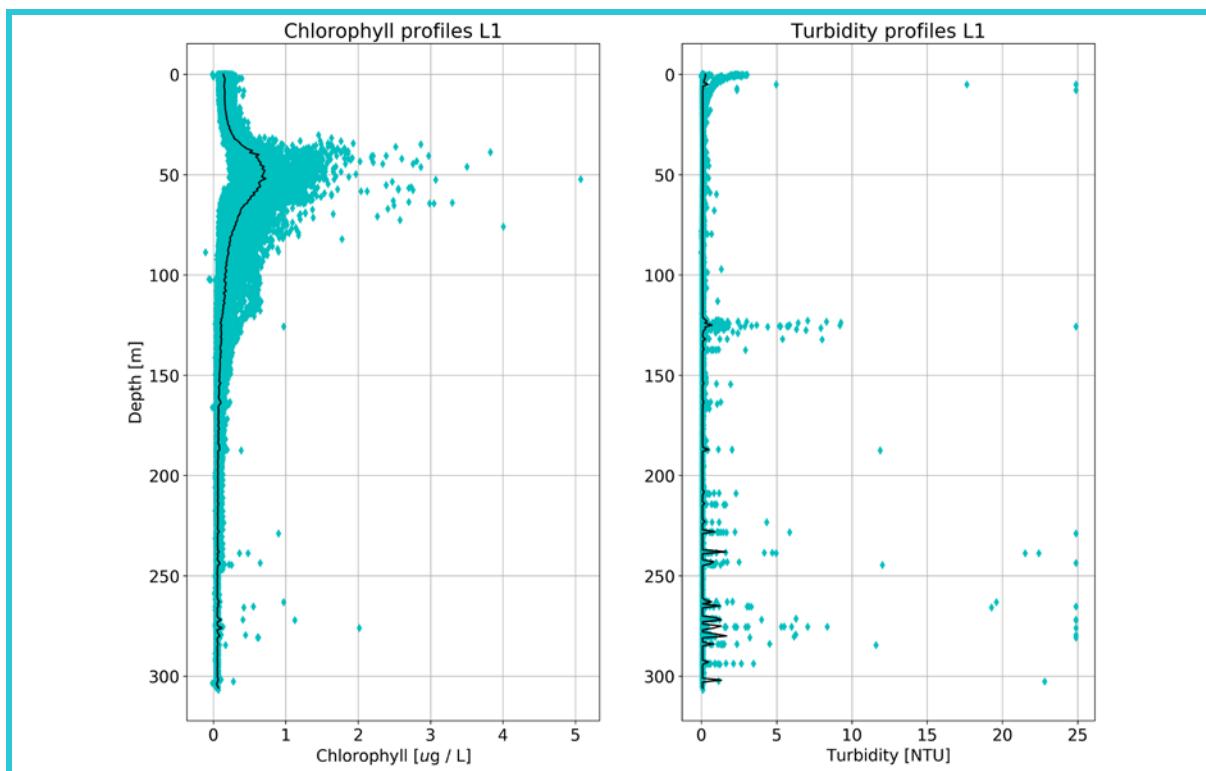


Figure 12 – In situ Chlorophyll and Turbidity profiles

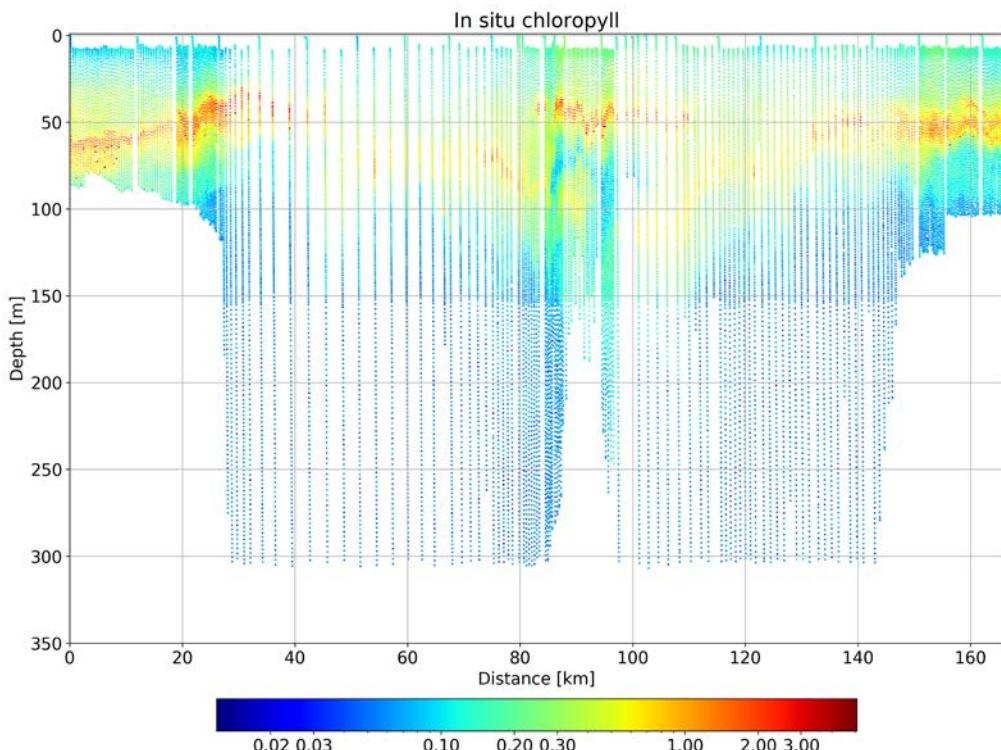


Figure 13 – In situ Chlorophyll

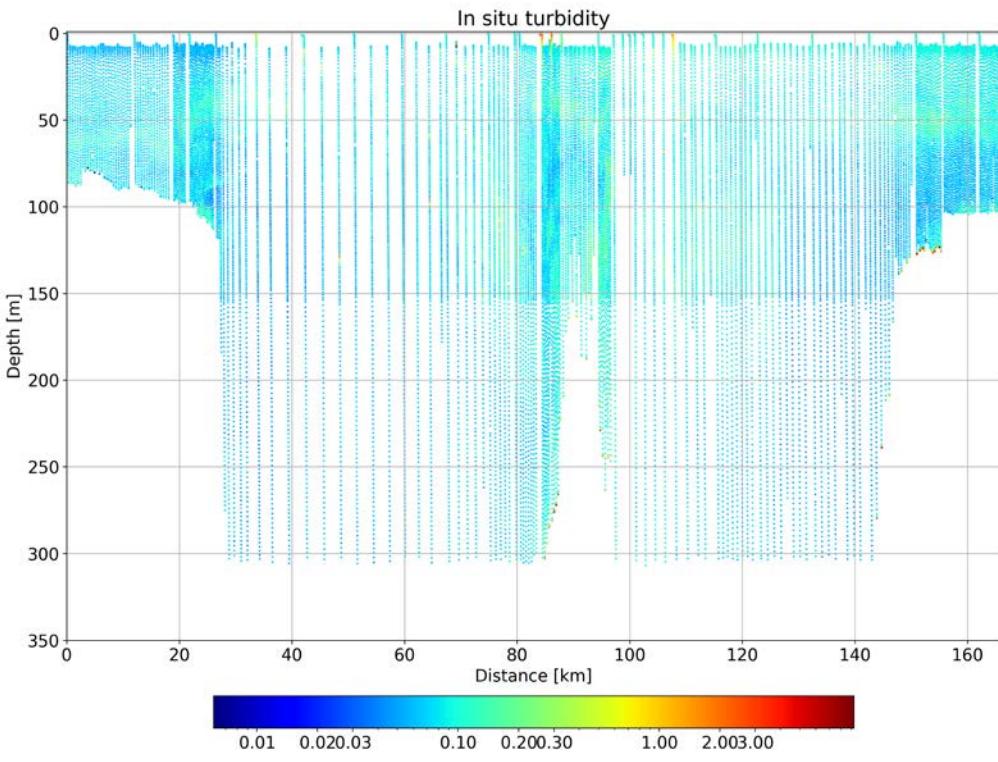


Figure 14 – In situ Turbidity

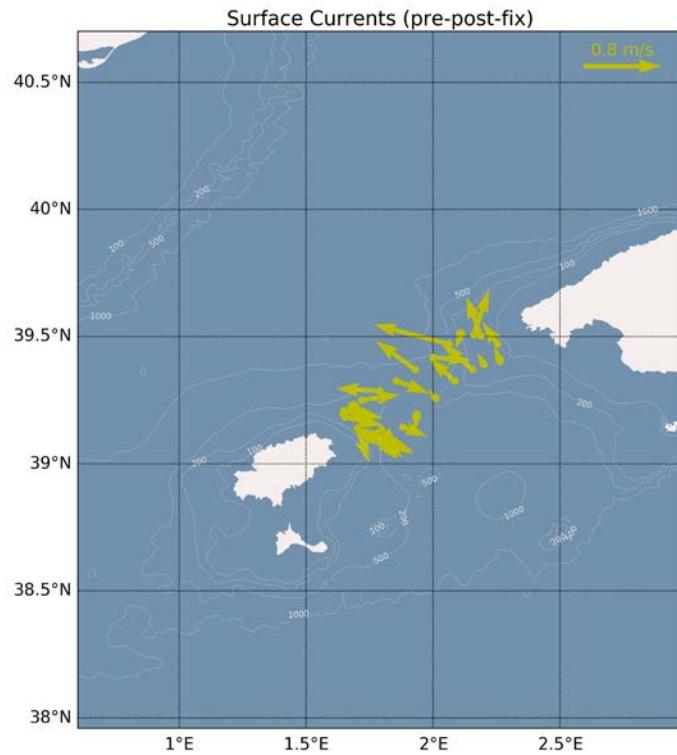


Figure 15 – Surface currents based on pre and post fix