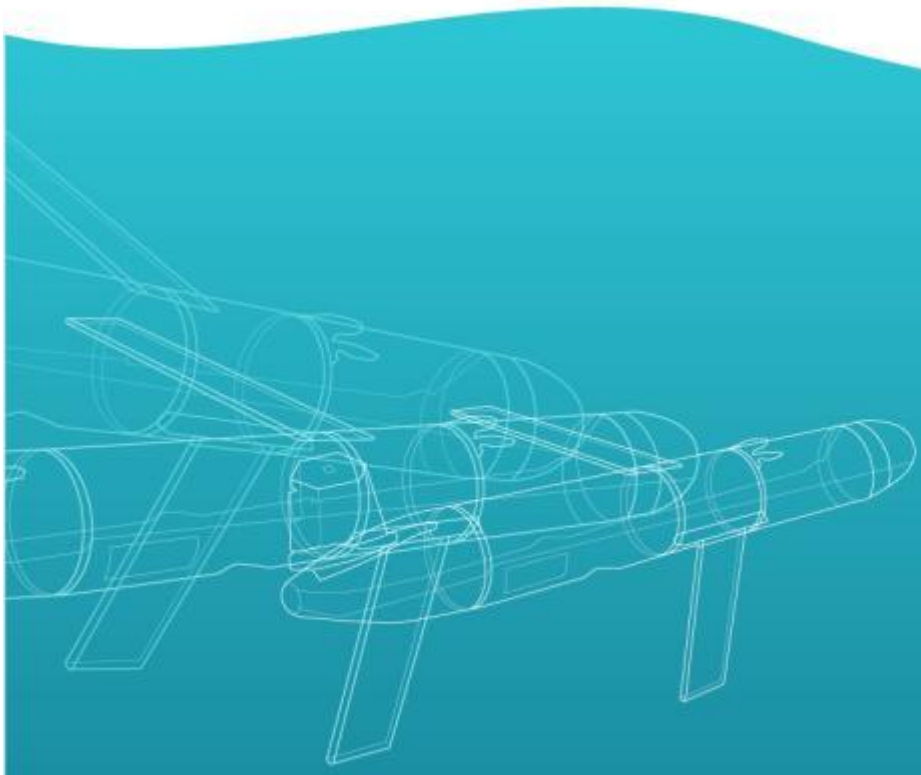

Glider Mission Summary Report

TNA CAMPAIGN / SOCIB GLIDER FACILITY

FEB2020 / GF-MR-0101

SOCIB Balearic Islands Coastal Observing and Forecasting System

Parc Bit. Ctra. Valldemossa, km. 7,4
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Mission Name	*SOCIB_EXT_SMART4_FEB2020_TERESA_GFMR0101*
Platform Model	*Slocum 1000m G2*
Platform ID / Name / WMO Code	*U518 / TERESA / Unknown*
Related Platforms / Missions	• *None*
Glider Software Version	*Nav : 8.2 Acomms, Payload: 8.2*
Start Date (UTC)	*2020-02-19 11:13:15*
End Date (UTC)	*2020-02-20 10:56:28*
Total Days	*1.0*
Total distance (Km / Nm)	*19.1[km] 10.31[nm]*
Battery Consumption (Ah)	*10.33 (reading from 4.82 to 15.15)*
Survey Area	*Sardegna – Menorca channel [Western Mediterranean Sea]*
Objective(s)	• *The Mediterranean Sea (MS) has been identified as hot sopto for climatic change, i.e., a region most impacted by ongoing warming trend and increase in extreme events. The MS provides a laboratory-type environment for documenting changes within it and for understanding the role of key processes involved making inferences on processes occurring also at the global scale.*
Significant events	• *MicroRider probe damaged during deployment, replaced insitu* • *Water leak* • *Malfunction on micro-rider software* • *Update micro-rider software after recovery (to ODAS5IR v4.0.0)* • *Preparation with CNR* • *Decided to do NOT upgrade to 8.4 nav/sci version*

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Mission Preparation

Preparation was a typical preparation. It was a double check preparation. The glider was already prepared in CNR

Step	Status	Comments	
Hardware chech	ok		
Comms check	ok		
Batteries check	ok	TWR pack.	
Ballasting check	ok	Target density: 1028,054 g/L	Tank density: 1028,785 g/L
Final sealing check	ok	During pressure test oil system leaked	
Fileset check	ok		
Harbor check	ok	Reduced, deployment on Calabona. Son Servera	
Compass Error Measurement	na	Not performed.	

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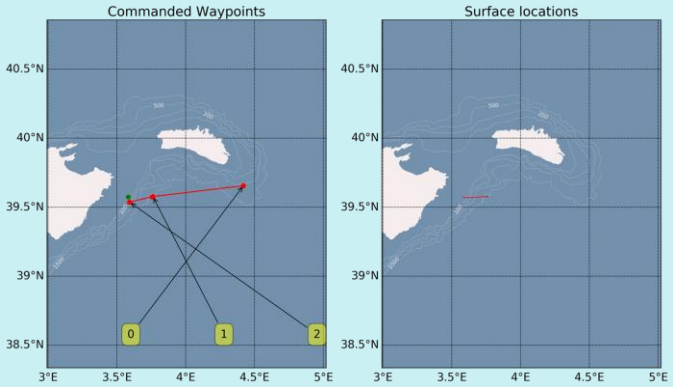
Mission Survey

Deployment	*Vessel:* *Valiant* *Personnel:* *2 ETD + 1 GF + 2 CNR* *Location:* *N 39°34.3896' E 03°34.9404' (Cala Bona)*
Navigation	*It was satisfactory during most mission time. The glider responded well to the commanded target waypoints.*  *Figure 1 – Commanded Waypoints*
Underwater Maneuvering	*Detected internal water leak.*
Engineering	*Sensor* / *Oddities* / *Warning* / *Errors* *attitude_rev* / *0* / *3* / *0* *science_super* / *368* / *6* / *0* *digifin* / *16* / *4* / *0* *IRIDIUM* / *32* / *1* / *0* *DE_PUMP* / *8* / *0* / *0*
Communication Systems	*Total number iridium calls [num]: 32.0* *Iridium calls to secondary [num]: 2* *ON overall iridium period [s]: 1992* *Iridium calls state from 99 to 2 [num]: 1* *Iridium calls state from 99 to 10 [num]: 30* *Iridium calls state from 0 to 99 [num]: 9* *Iridium calls state from 2 to 99 [num]: 21* *Iridium calls state from 10 to 99 [num]: 1* *Unestable comms detected on: 2020-02-19 11:13:15.100400*
Contextual/Awareness Sensors	*Pressure transducer, internal vacuum and internal temperature worked correctly. Compass also reported coherent values.* *Altimeter detected the bottom correctly.* *Micro-rider raised over 1600 oddities, those produced 368 odditiesand 6 warnings on the glider. Error reported :* *- microRider_run, 1066: Max error limit reached (1)* *- ERROR from PROGLET microRider : 1013* *See report and suggestions from Rocklandsicentific Feb 27th 2020*
Hull/Hydrodynamics	*Water leak in forward section. During the preparation was performed 1h 100bar test, no signs of leak. See more details on 20200224_GF_MR-0102-CNR_EXT-SMART4-FEB2020_Teresa\5_Sealing.* *No signs of spray during conclusion step.*
Mission Runs	*2 due to water leak abort*
Recovery	*Vessel:* *Valiant* *Personnel:* *2 ETD + 1 GF* *Location:* *N 39°34.4205' E 03°45.2896' (Cala Bona)*

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Glider Behavior

Date:	Event	Underwater Top Inflection Depth (m):	Underwater Bottom Inflection Depth (m)	Minimum Distance to Sea-floor to be kept (m)	Surface upon completion of this # of dives	Surface if this amount of hours without stable communications (hrs)	Surface at this particular UTC times	Surface if a waypoint is hit within that distance (km)	Altimeter	Pitch angle attack[deg]	Pitch control	Optics	Goto version	Overtime (days)
19/02/2020	Initial config	10	50	40	4	12	off	100	on	±26	servo	ON	0	60
20/02/2020	Microrider oddities													
20/02/2020	Leak													

SCI Profiles

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

Sensor Type:	**CTD seabird**	**OPTODE Aanderaa**	**FLNTU**	**MicroRider**
Serial number:	9239	0360	Not present	0125
Calibration date:	24/oct/2019	06/jan/2020		Unknown
Casts:	na	na		
Half-Yos:	na			
Samples:	18431	na		
Sampled distance [km]:	na	na		
Intersample time [s]:	2.965	na		
Sampling Frequency [Hz]	1/4	1/4		
Depth range this configuration applies (m)	[-5, 2000]	[-5, 2000]		
Sampling during Diving	Y	Y		
Sampling during Overing	Y	Y		
Sampling during Climbing	Y	Y		
Sampling during Surface	N	N		

*na : bug on script, unable to process, dataset too low

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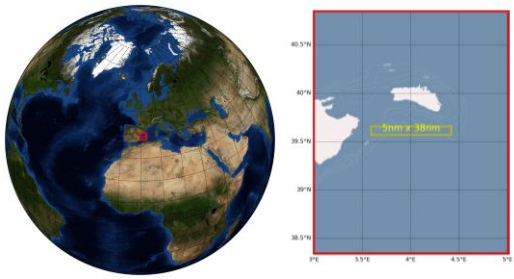
Principal Investigator (e-mail or contact phone/address)	• *Prof. Borghini Mireno [-Accessing User-] mireno.borghini@sp.ismar.cnr.it (+39 0187 978313 320)* • *Prof. Joaquim Tintoré [SOCIB – Accessed Infrastructure] jtintore@socib.es (+34 971439821)*
Institute	• *SOCIB in collaboration with IMEDEA* • *ISMAR Istituto di Scienze Marine Arsenale - Tesa 104, Castello 2737/F, 30122 Venezia, Italy*
Project Affiliation (web-site)	• *http://www.socib.eu* • *http://www.ismar.cnr.it/*
Partnership / Participation	• *PARTHENOPE (CNR-ISMAR)* • *SOCIB (Accessed Infrastructure)* • *IMEDEA (in-kind contribution)*
Data Retrieval (real-time [RT] / delaved-mode [DM])	• *RT: sub-set via satellite link at each surface maneuver* • *DM: full/direct memory card backup after glider disassembly during Conclusion mission-phase*
Data Available From	*http://thredds.socib.es/thredds/catalog/auv/glider/teresa-cnr_teresa/catalog.html*
Further Details	*glidertech@socib.es*
Global Overview	 *Figure 2 - Map providing general overview of the Survey Area* Online track: http://apps.socib.es/dapp/?deployments=1029-2-0-00FF00&layers=none&units=scientific

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Scientific Preliminary Review

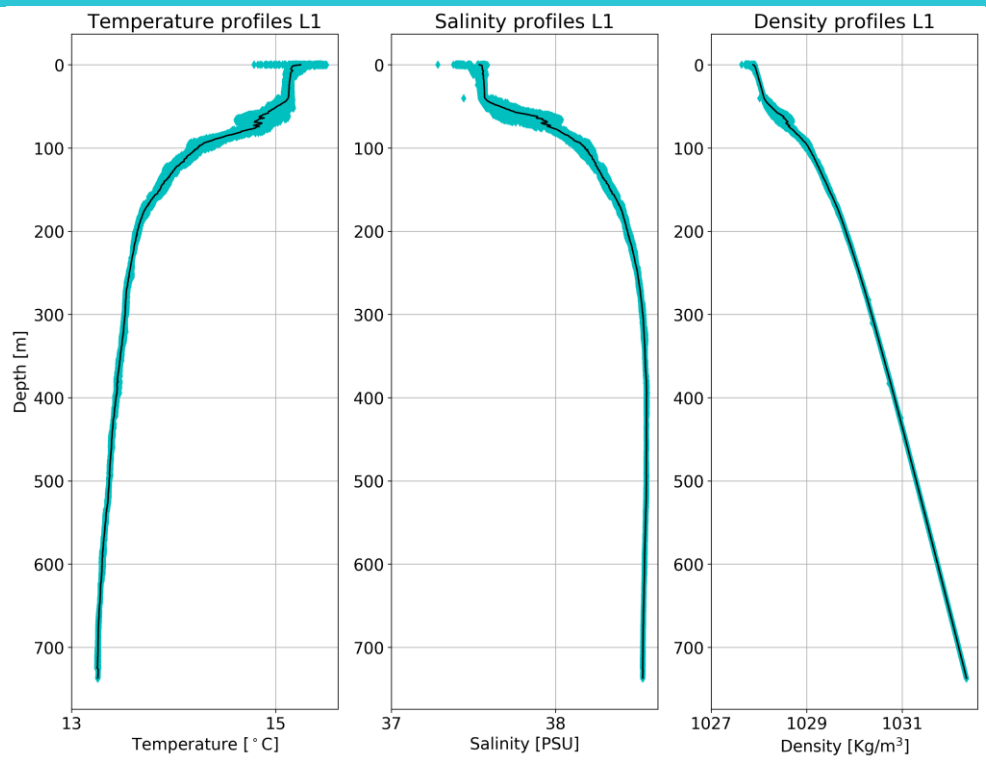

Figure 3 - CTD profiles

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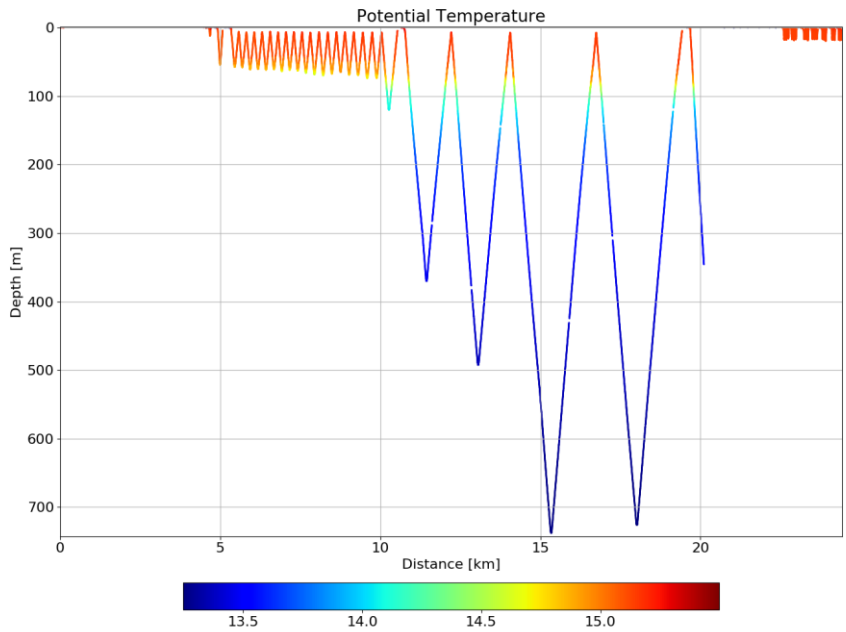

Figure 4 - Potential temperature (full depth range)

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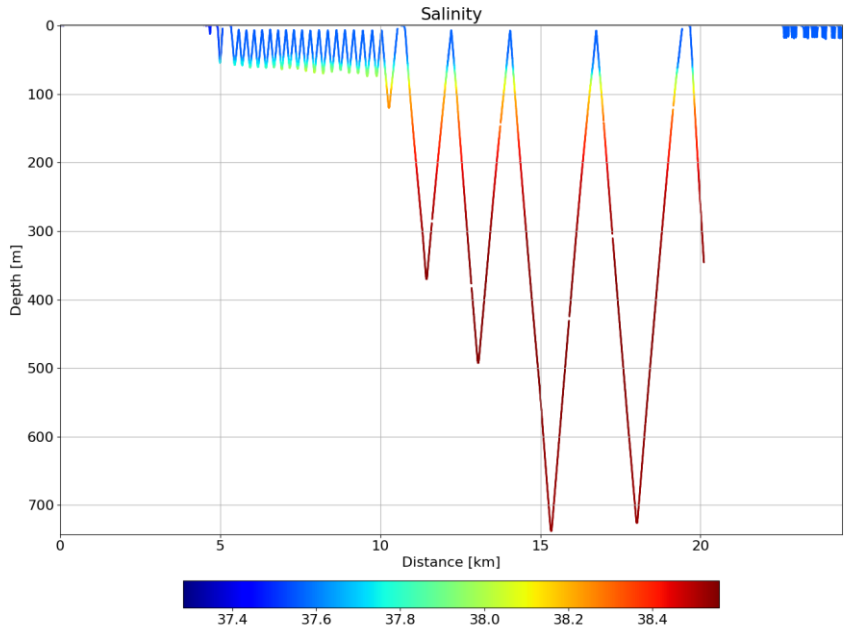

Figure 5 - Corrected salinity (full depth range)

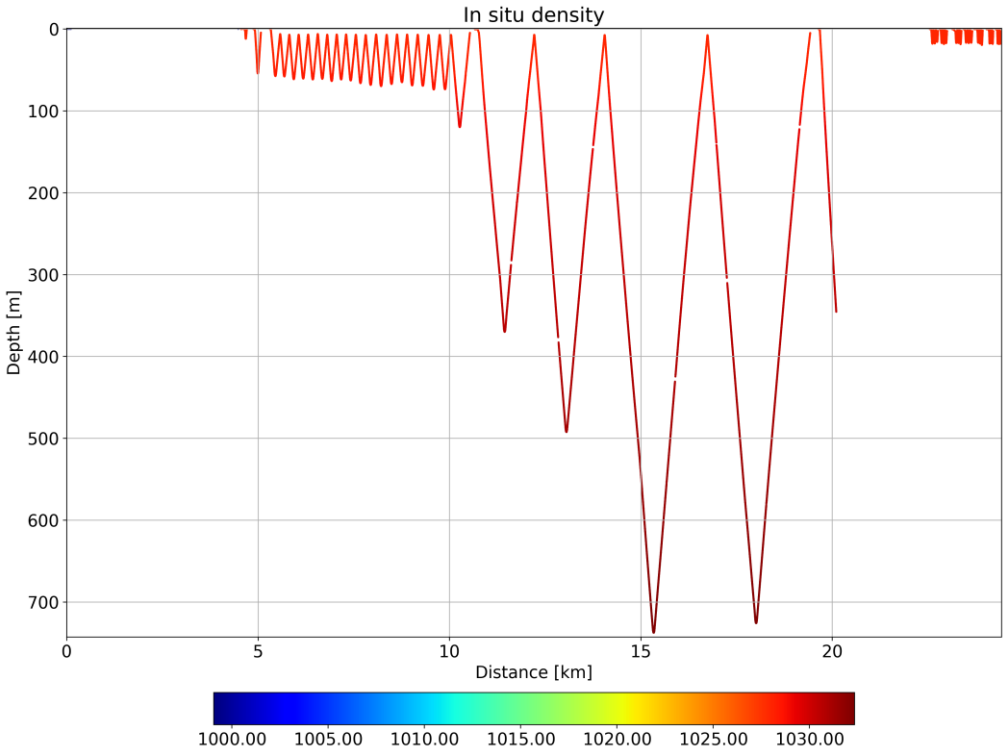

Figure 6 – In-situ Density derived from corrected salinity and temperature (full depth range)

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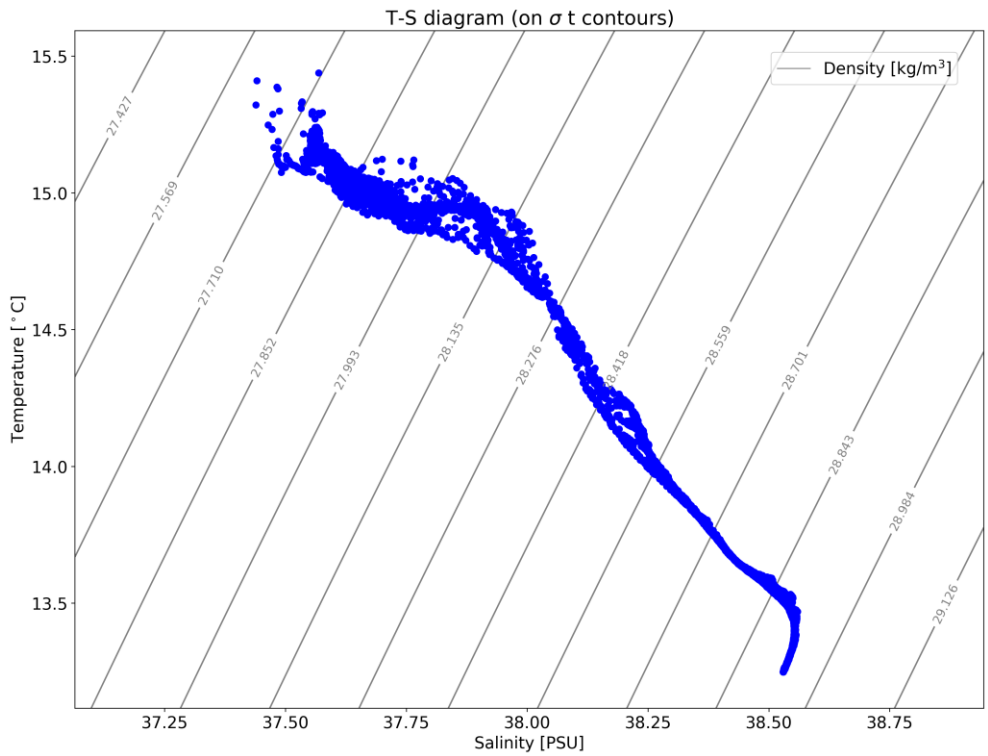

Figure 7 - T-S diagram (thermal-lag corrected)

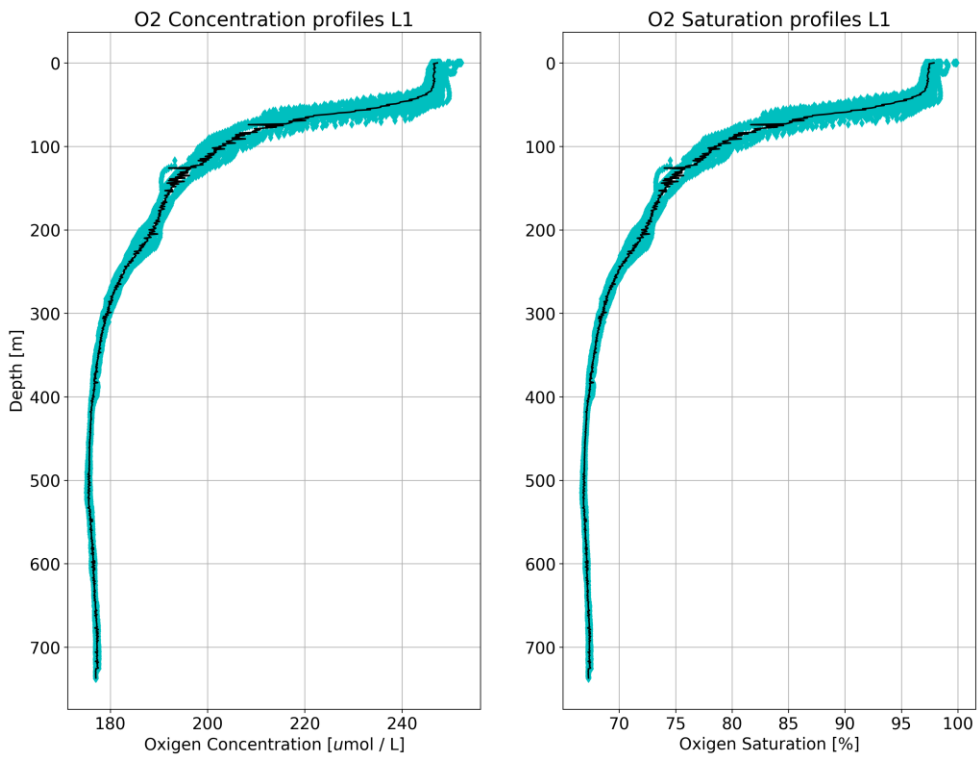

Figure 8 - OXY profiles

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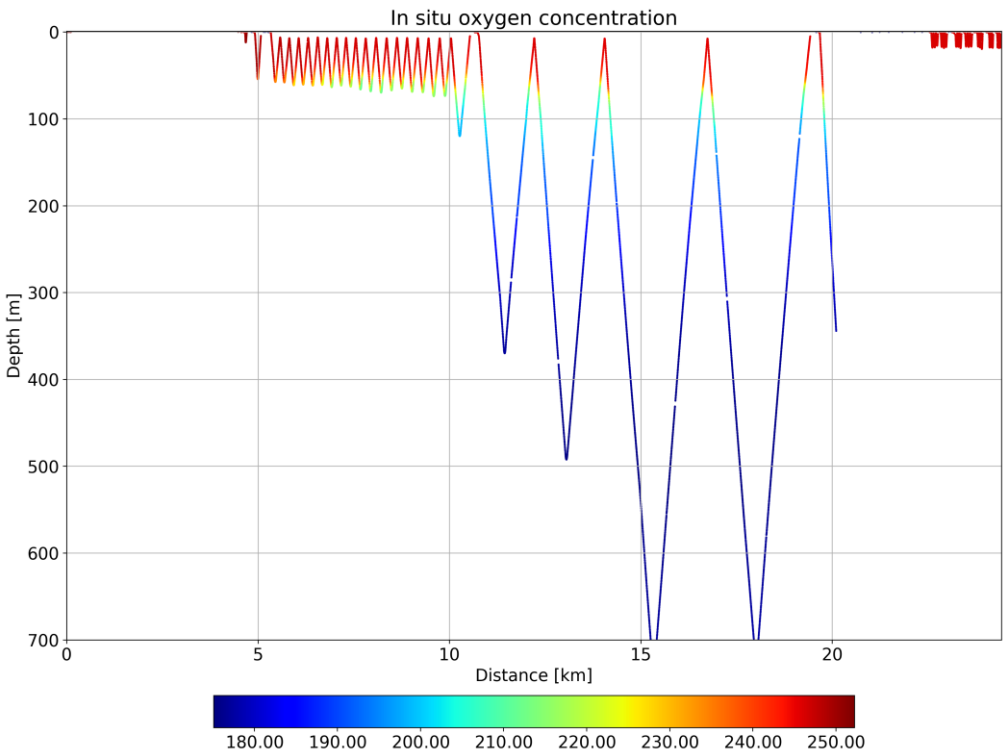

Figure 9 - In-situ oxygen concentration

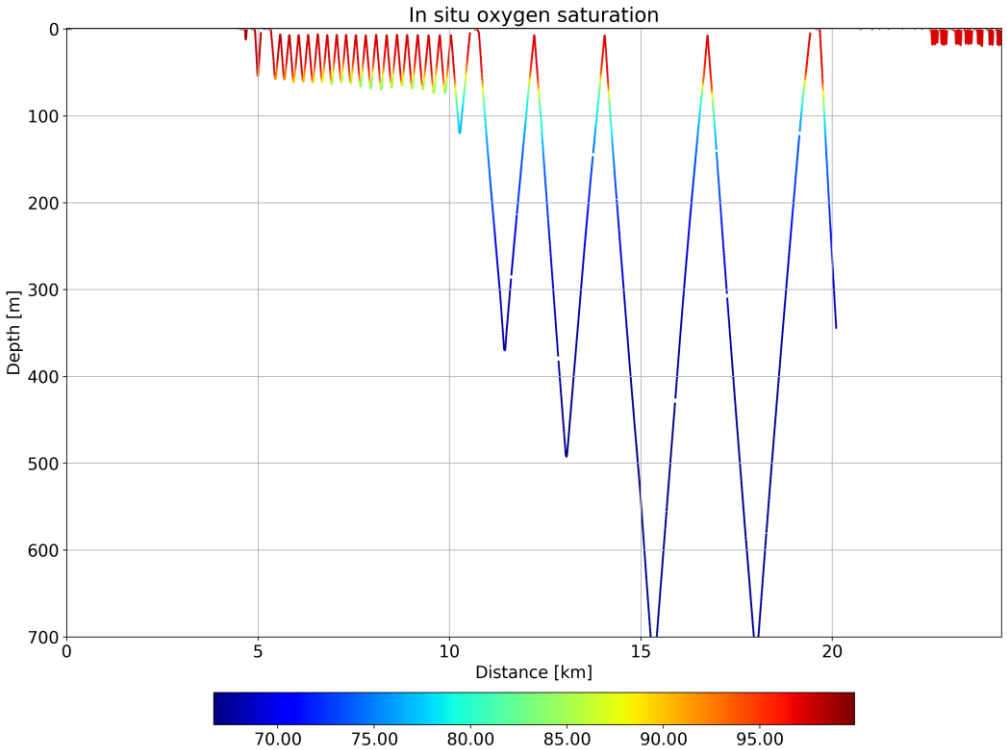

Figure 10 - In-situ oxygen saturation

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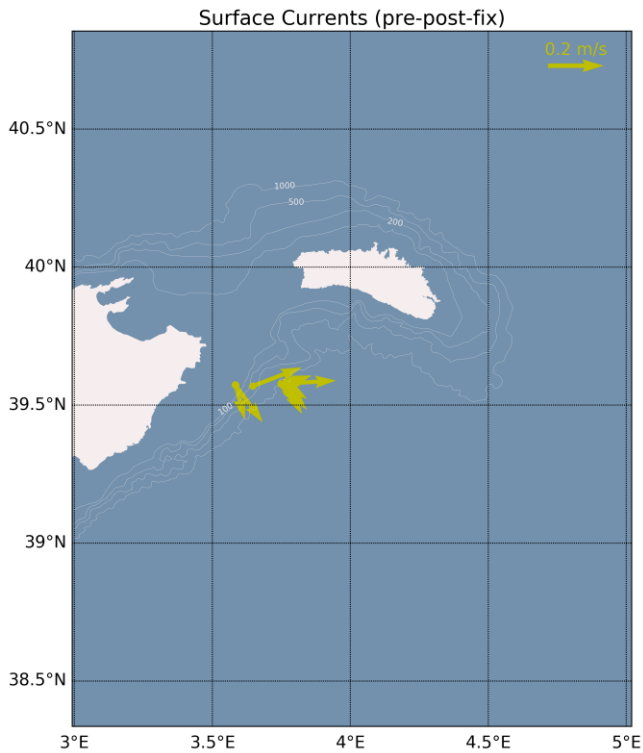

Figure 11 – Surface drift based column integrated water current

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