Report on the utilization of the MVP200 during the OUTPACE cruise (February/April 2015)

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1. Long-Duration Stations

LD-A (lon: 164.688, lat:-19.213) - 24/02 @ 11h UTC → 03/03 @ 11h UTC

We have performed:

Operation	Description	Sensors	Comments
Cross	Regular cross, 3 transects, 40 km x 40 km square	CTD*,** + fluo + LOPC	- Unexploitable Salinity (S) - Attention to the quality of Temperature (T) measurements, due to the partially "hidden" position of the sensor
MVP_before	Slightly smaller zigzag, 7 transects instead of 8, 20 km x <20 km square	CTD** + fluo + LOPC	Same as for *Cross*
MVP_after	Regular zigzag, 8 transects, 20 km x 20 km	SVPT*** + fluo + LOPC	Unexploitable T and S

* Broken Conductivity sensor (Fig. 1)

** Placed in the back of the fish (Fig. 2 shows the SVPT, but the position of the CTD is the same) so that the T sensor is only partially in the free flow of water (it is "shaded" by the metallic structure of the fish)

*** Placed in the back of the fish (Fig. 2), where T and D sensors are completely not in the free flow of water

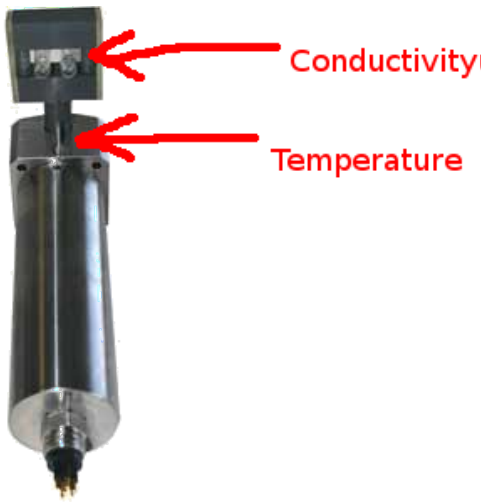

Fig. 1: AML microCTD with the position of the Conductivity (C) and Temperature (T) sensors

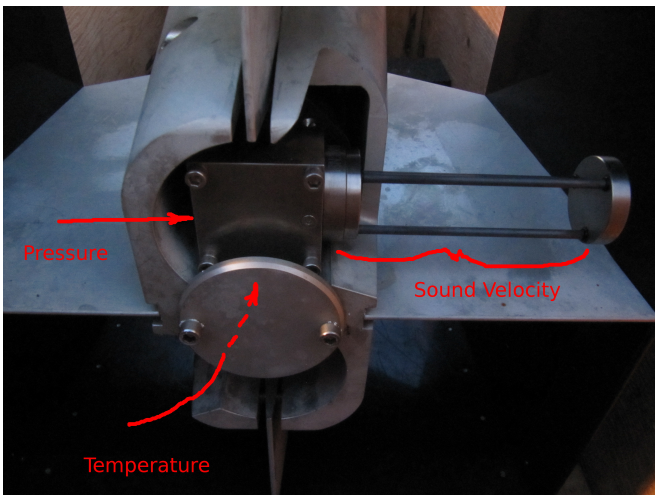

Fig. 2: Initial location of the Valeport SVPT, giving very bad measurements due to the "hidden" position of the Pressure (P) and Temperature (T) sensors

LD-B (lon: 189.142, lat: -18.24) - 12/03 @ 10h UTC → 21/03 @ 09h UTC

We have first changed the position of the Valeport SVPT. It has been put, thanks to a metallic tool built by the mariners onboard, in the middle of the fish, outside the protective plastic “wings”, to have it in the water flow without obstacles (Fig. 4). We have then performed:

Operation	Description	Sensors	Comments
Cross	Not at all a cross! 3 long transects (Fig. 3)	SVPT* + fluo + LOPC	- Acceptable S, but still very noisy and a little underestimated wrt the Rosette's CTD
MVP_before	Slightly smaller zigzag, 7 transects instead of 8, 20 km x <20 km square	SVPT* + fluo + LOPC	Same as for *Cross*
MVP_after	Just 1 long transect in-out of the chrlophyll-*a* patch	SVPT* + fluo + LOPC	Same as for *Cross*

* Placed in the middle of the fish, our new position, where measurements should be clean as the sensors are well in the water flow (see Fig. 4)

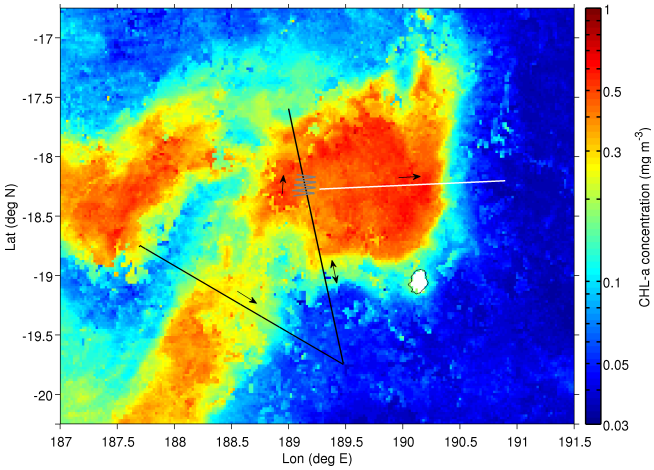

Fig. 3: Average Chlorophyll-a concentration (CLS data) with MVP track. (Black) Cross, (gray) MVP_before, (white) MVP_after

Fig. 4: New "home-made" position of the Valeport SVPT in the middle of the fish, fully in the water flow.

LD-C (lon: 194.06, lat: -18.42) – 22/03 @ 22h UTC → 29/03 @ 09h UTC

Only the Cross has been performed here. Almost at the end of it (we were lucky), the MVP stopped working because of a thick bend along the cable (see Fig. 5) that prevented the downcast to be performed until the end (Max Cable Out or Max Depth). There was no time for the MVP_before anyway, but the MVP_after was replaced by an "old-style", almost North-South, CTD transect (CTD_after).

Operation	Description	Sensors	Comments
Cross	Regular cross, 3 transects, 40 km x 40 km square	SVPT* + fluo + LOPC	- Acceptable S, but still very noisy and a little underestimated wrt the Rosette's CTD
CTD_after	Just 1 long transect with 7 classic Rosette CTD's	All Rosette's sensors	CTD 200, 201, …, 206

* Placed in the middle of the fish, our new position, where measurements should be clean as the sensors are well in the water flow (see Fig. 4)

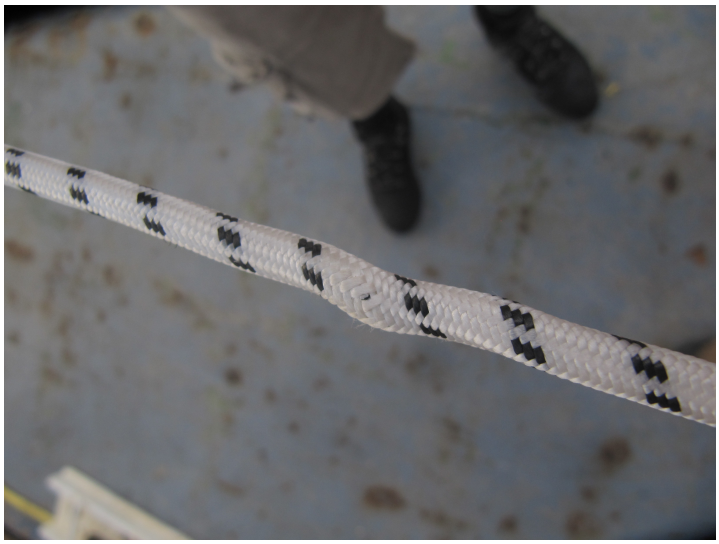

Fig. 5: Cable bending causing the MVP to interrupt its downcasts

2. Post-calibration tests

Test #	MVP file(s)	MVP configuration	MVP comments	CTD file(s)	CTD comment	Other instr's file(s)	Other comment
1	2015-02-25 _111401	AML uCTD with broken C	Last zigzag profile (MVP_before)	out_c_021	Made right after the MVP		
2	2015-02-26 _094058	AML uCTD with broken C	Station mode, vertVel = 1 m/s	out_c_030	Made right after the MVP		
3	2015-02-27 _115523 _121226 _123429	AML uCTD with broken C	Station mode, 1 < vertVel < 2 m/s	out_c_037	Made right after the MVP	RBRprofile_3	RBR attached to the back of the fish
4	2015-03-02 _080328 _081950 _084304	SVPT, bad position (rear of the fish)	Station mode, vertVel = 1 m/s	out_c_063	Made right before the MVP		
5	2015-03-06 _230819 _231503 _233357 _234039 _234729 _235418 2015-03-07 _000114	SVPT, “home-made” position	Zigzag mode, made on purpose	out_c_080	Made right after the MVP		
6	2015-03-08 _061050	SVPT, “home-made” position	Station mode, vertVel = 1 m/s	out_c_087	Made right before the MVP	VMP_profile_ 6	VMP profile made right after the MVP
7	2015-03-14 _225233 2015-03-15 _003131	SVPT, “home-made” position	During zigzag (MVP_before)	out_c_104	Made at one of the edges of MVP_before		