


Rapport interne LPO/15-17

UMR 6523 Laboratoire de Physique des Océans 	DELAYED MODE QUALITY CONTROL OF OVIDE ARGO DATA FLOAT WMO 6900643	
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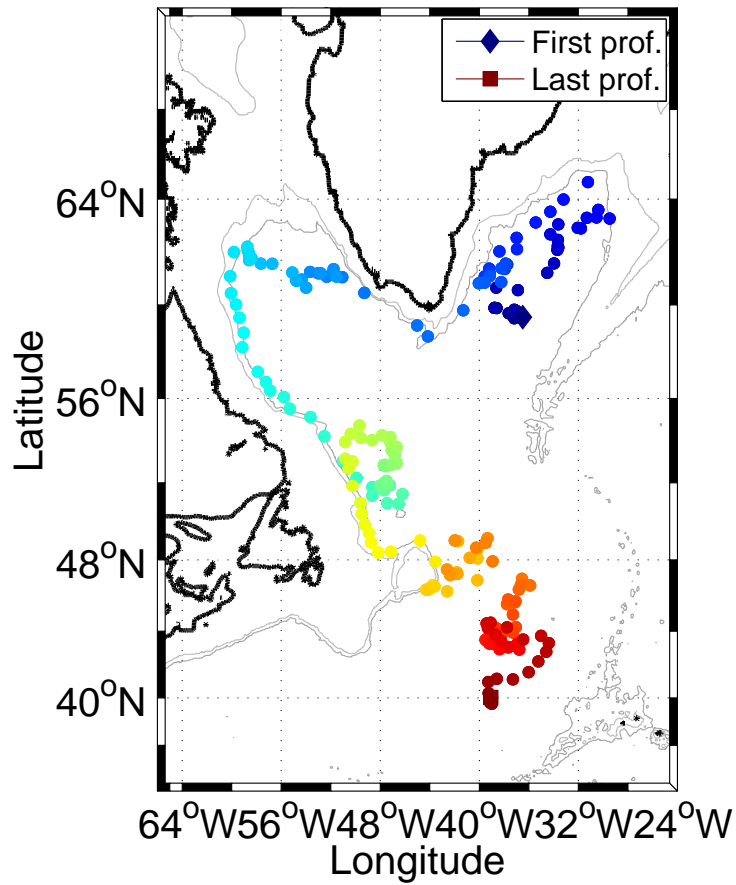
**DELAYED MODE QUALITY CONTROL OF OVIDE ARGO DATA
FLOAT WMO 6900643**

Internal Report LPO 15-17

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Float WMO 6900643



1 Presentation and DMQC summary

Warning : Note that all the figures are plotted with the latest QC flag values (the modifications mentioned table 2 are taken into account).

1.1 QC flag checks and interesting profiles

Warning : the resolution is equal to 10 dbar from the surface to 500 dbar, then 25 dbar from 500 to 2000 dbar. Salinity data between 0 and 5 dbar are suspicious because they are acquired when the pump of the CTD is turned off.

1.2 Salinity correction from the OW method

We cannot see any evidence of a drift or bias in the salinity measurement. We thus conclude that it is not necessary to correct the salinity data. Errors bars are maximum value between 0.01 and those determined from the OW method with parameters from the OW configuration 129.

2 Data

Number	Deployment (cycle OD) cycle OD	Last cycle 191
Provor WMO 6900643	30/06/2008 16h50	
DO - 07-DO-02	N 59.377 W 36.397	
Date of control	Float status	Last cycle
March 2012	Active	135
Coriolis transmission		25/04/12
Date of last control	Float status	Last cycle
September 2015	DEAD	24/09/2013
Coriolis transmission		22/10/15

Table 1: Status of the float

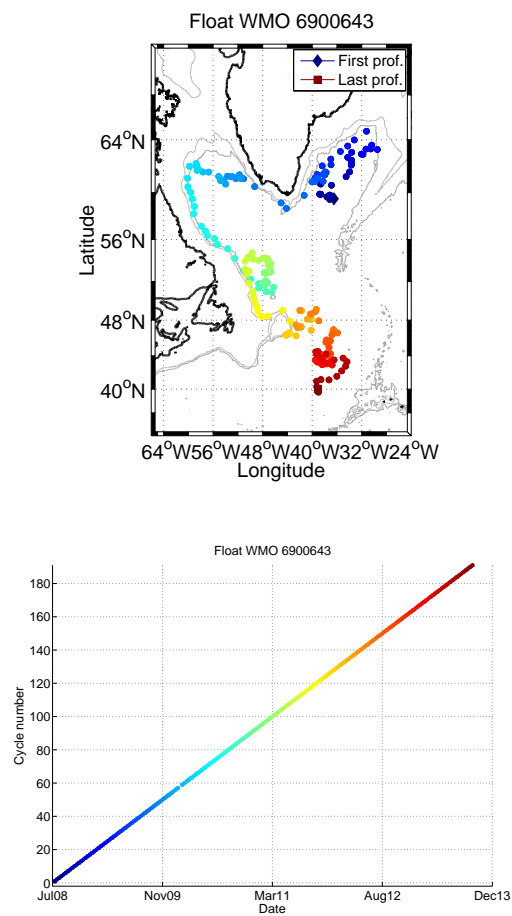


Figure 1: Profiles position and relationship between cycle number, date and color.

Cycle	Parameter	Vertical level	Old flag	New flag	Comments	Coriolis transmiss
8	TEMP,PSAL	levels 11 to 15	1	4		28/06/11
51	TEMP	levels 1,2	4	1		28/06/11
53	PSAL,TEMP	levels 10 to 24	1	4		28/06/11
55	PSAL	level 16	1	4		28/06/11
56	TEMP	2 values (around 180 dbar)	4	1		28/06/11
56	PSAL	1 value (around 180 dbar)	4	1		
59	PSAL	levels 7,8	1	4		28/06/11
71	PSAL	entire profile	3	1		28/06/11
104	TEMP	2 values	3	1		28/06/11
108	PSAL	2 values (around 250 dbar)	3	1		28/06/11
all cycles (except 0D, 78)	PSAL	level 1	1	4	untrustable data	28/06/11
all cycles (except 0D,58, 75,77,78)	PSAL	level 2	1	4	untrustable data	28/06/11
8	TEMP,PSAL	levels 11,15	4	1		02/04/12
53	PSAL	11,24	4	1		02/04/12
53	TEMP	10,24	4	1		02/04/12
127	TEMP	8,9,15,16	4	1		02/04/12
127	PSAL	9,15,16	4	1		02/04/12
128	TEMP,PSAL	15,16	4	1		02/04/12
130	TEMP	8,9	4	1		02/04/12
130	PSAL	9	4	1		02/04/12
131	TEMP	14,15,16	4	1		02/04/12
131	PSAL	13	4	1		02/04/12
110	TEMP,PSAL	1	4	1		22/10/15
0D,0A-195A	DOXY	entire profile	1	4	bad values because of the oxygen probe	22/10/15

Table 2: Float 6900643. Summary of the modifications of the real-time QC flags and of the interesting or suspicious data.

OW CONFIGURATION	129
CONFIG_MAX_CASTS	250
MAP_USE_PV	1
MAP_USE_PV_ELLIPSE	1
MAP_USE_FACTEUR	1
MAPSCALE_LONGITUDE_LARGE	3.2
MAPSCALE_LONGITUDE_SMALL	0.8
MAPSCALE_LATITUDE_LARGE	2
MAPSCALE_LATITUDE_SMALL	0.5
MAPSCALE_PHI_LARGE	0.1
MAPSCALE_PHI_SMALL	0.02
MAPSCALE_AGE	0.69
MAP_P_EXCLUDE	500
MAP_P_DELTA	250
Reference data base	CTD and ARGO

Table 3: Parameters of the OW method.

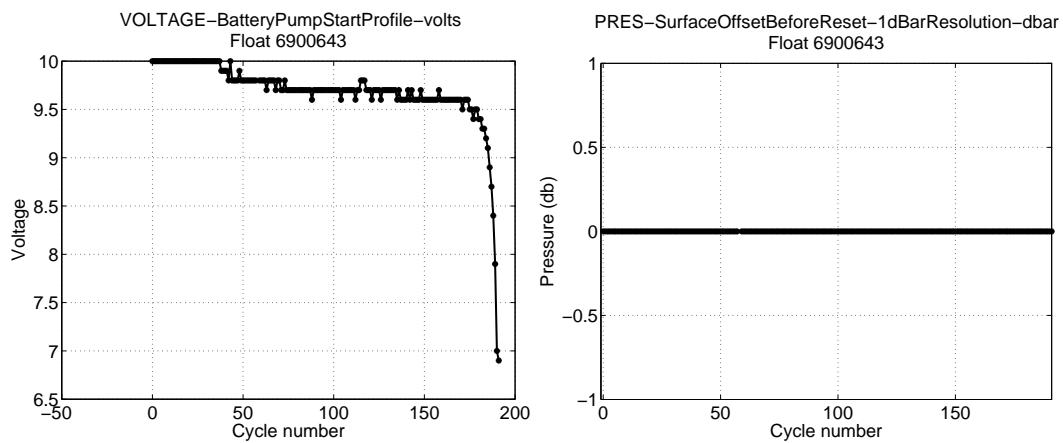


Figure 2: Battery Voltage and Surface Pressure

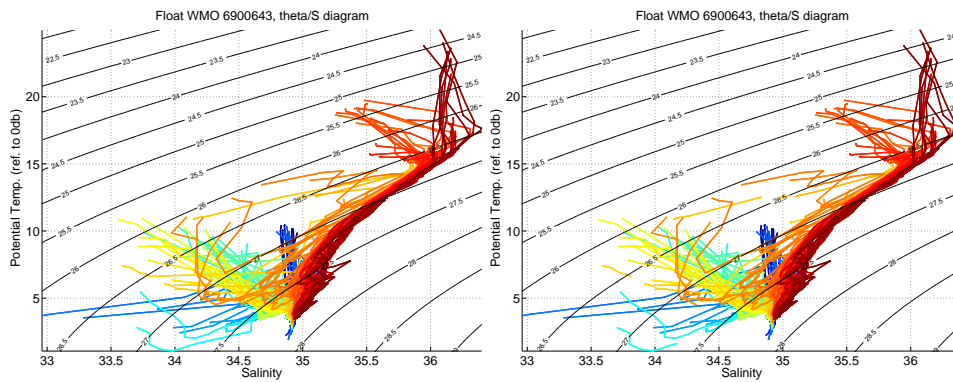


Figure 3: θ/S diagrams. (Left panel) Flags are not taken into account. (Right panel) Quality flags are taken into account.

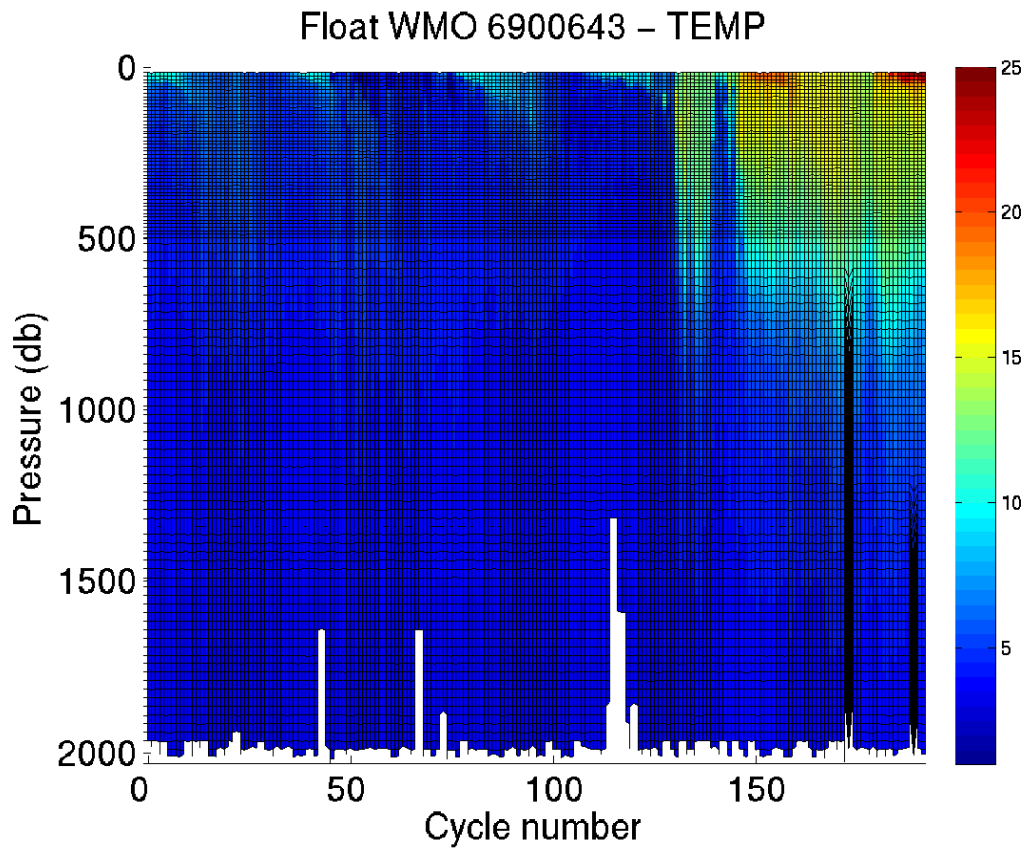


Figure 4: Temperature section along the float trajectory. Quality flags are not taken into account.

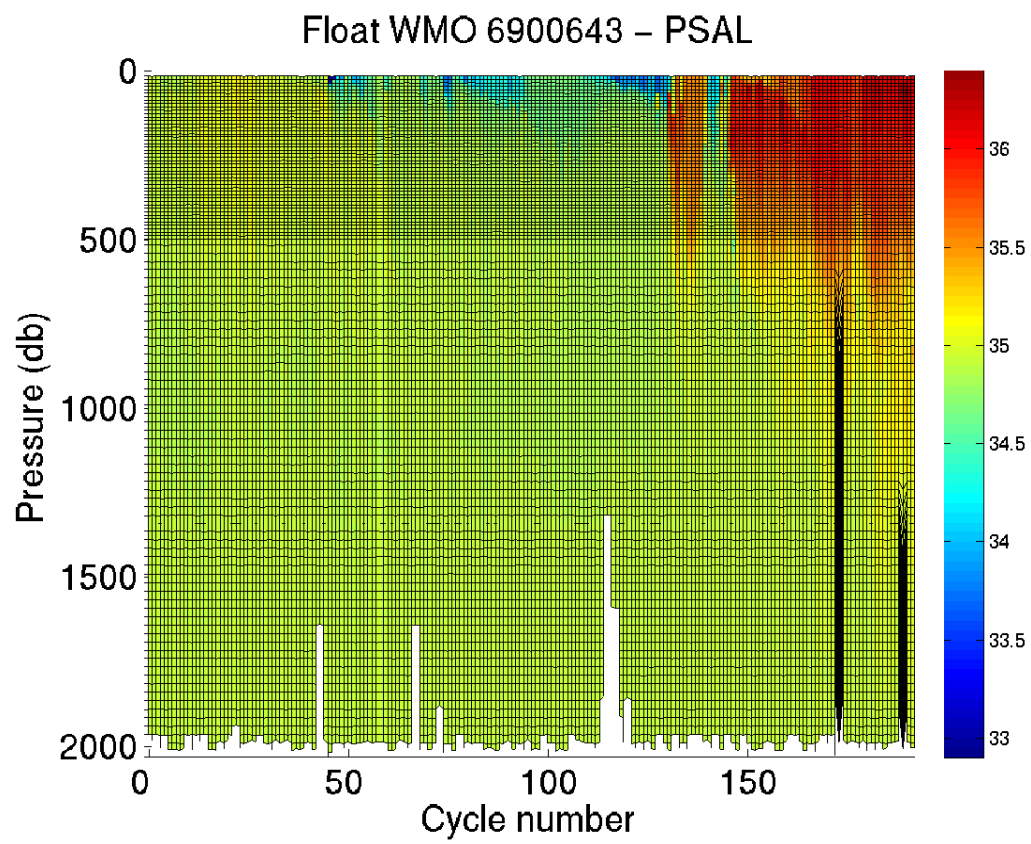


Figure 5: Salinity section along the float trajectory. Quality flags are not taken into account.

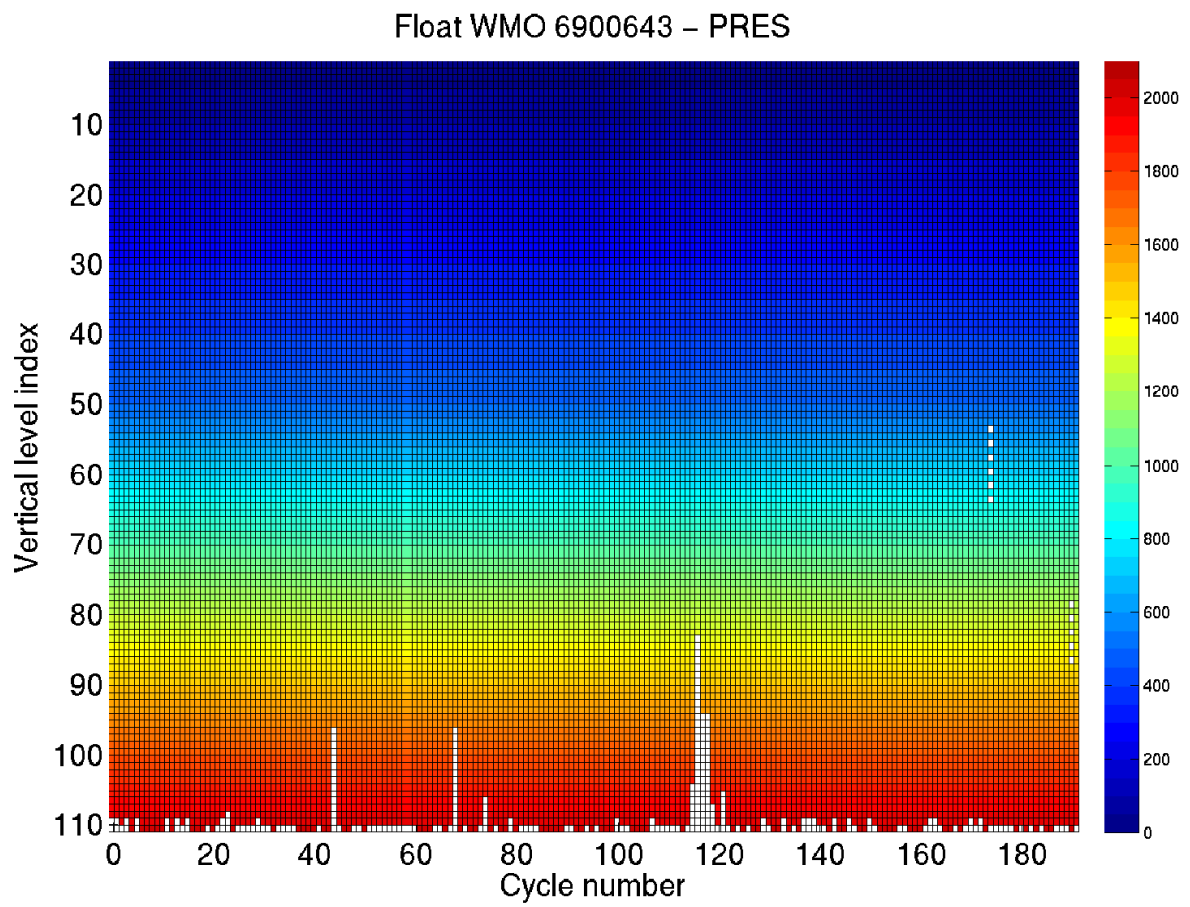


Figure 6: Pression as fonction of cycle number and vertical level index along the float trajectory. Quality flags are taken into account.

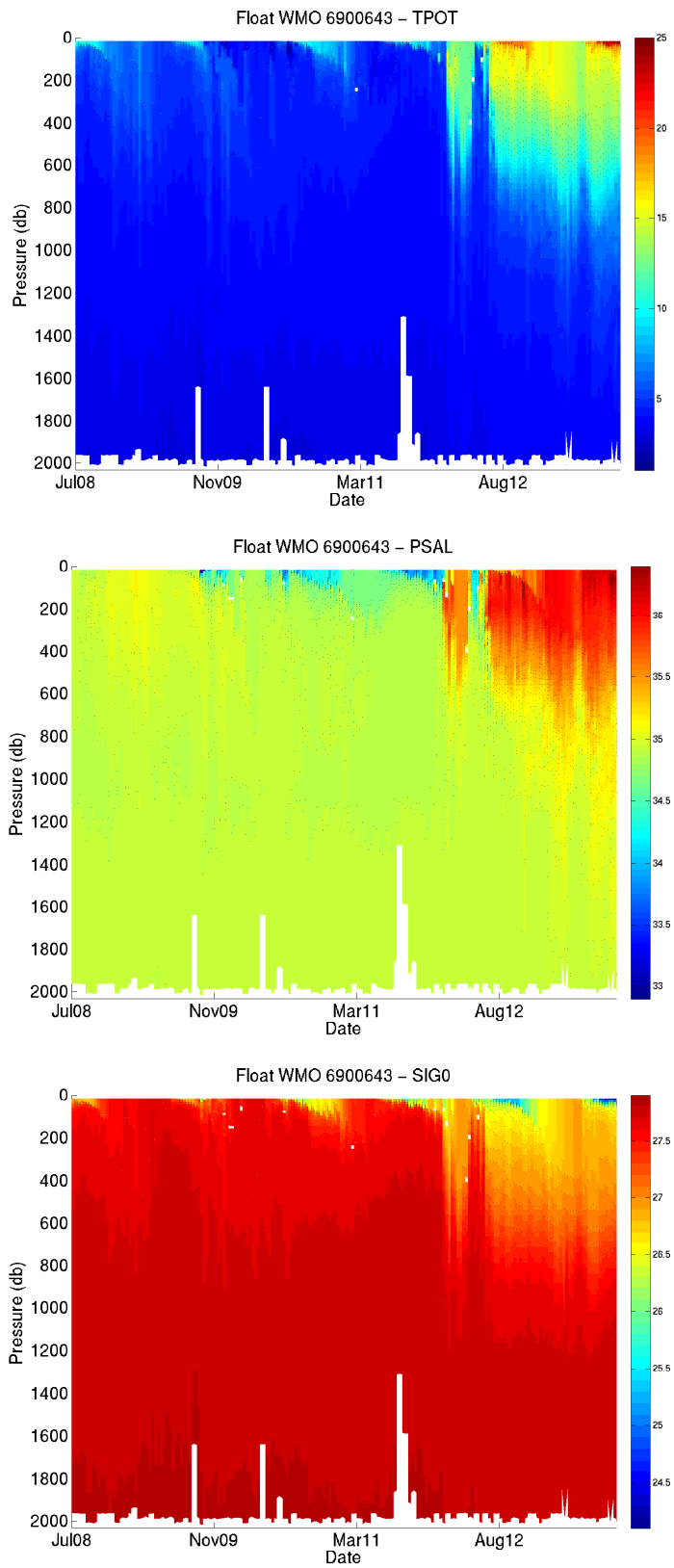


Figure 7: Potential temperature, salinity and potential density sections along the float trajectory (interpolated on standard levels). Quality flags are taken into account.

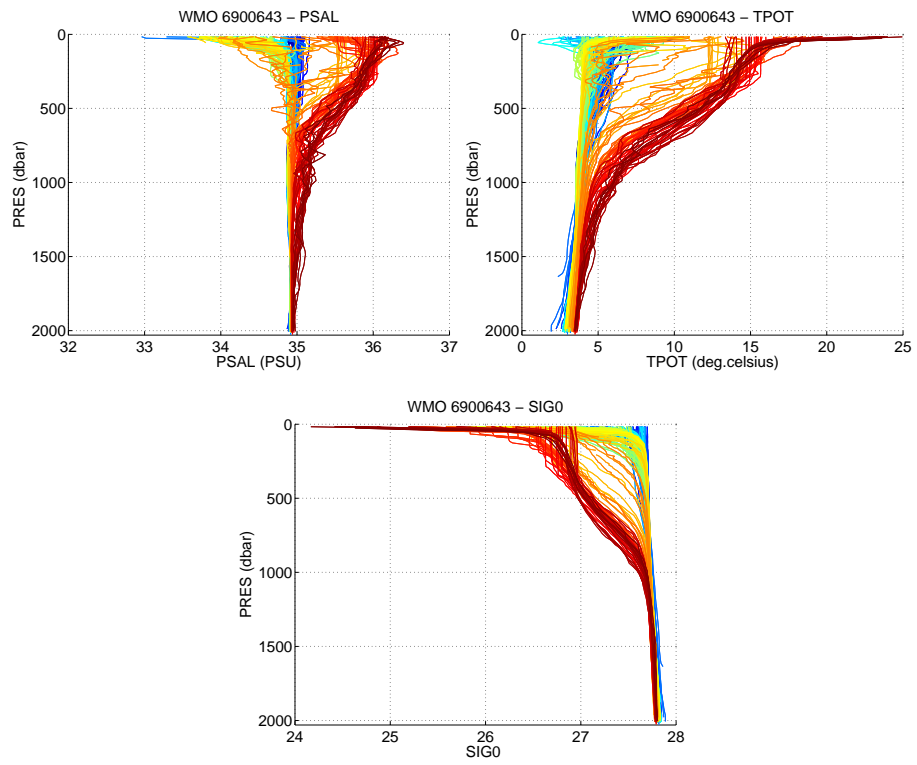


Figure 8: Salinity, Potential Temperature and Potential Density profiles. Quality flags are taken into account.

3 Comparison to the OVIDE 2008 nearest CTD profile

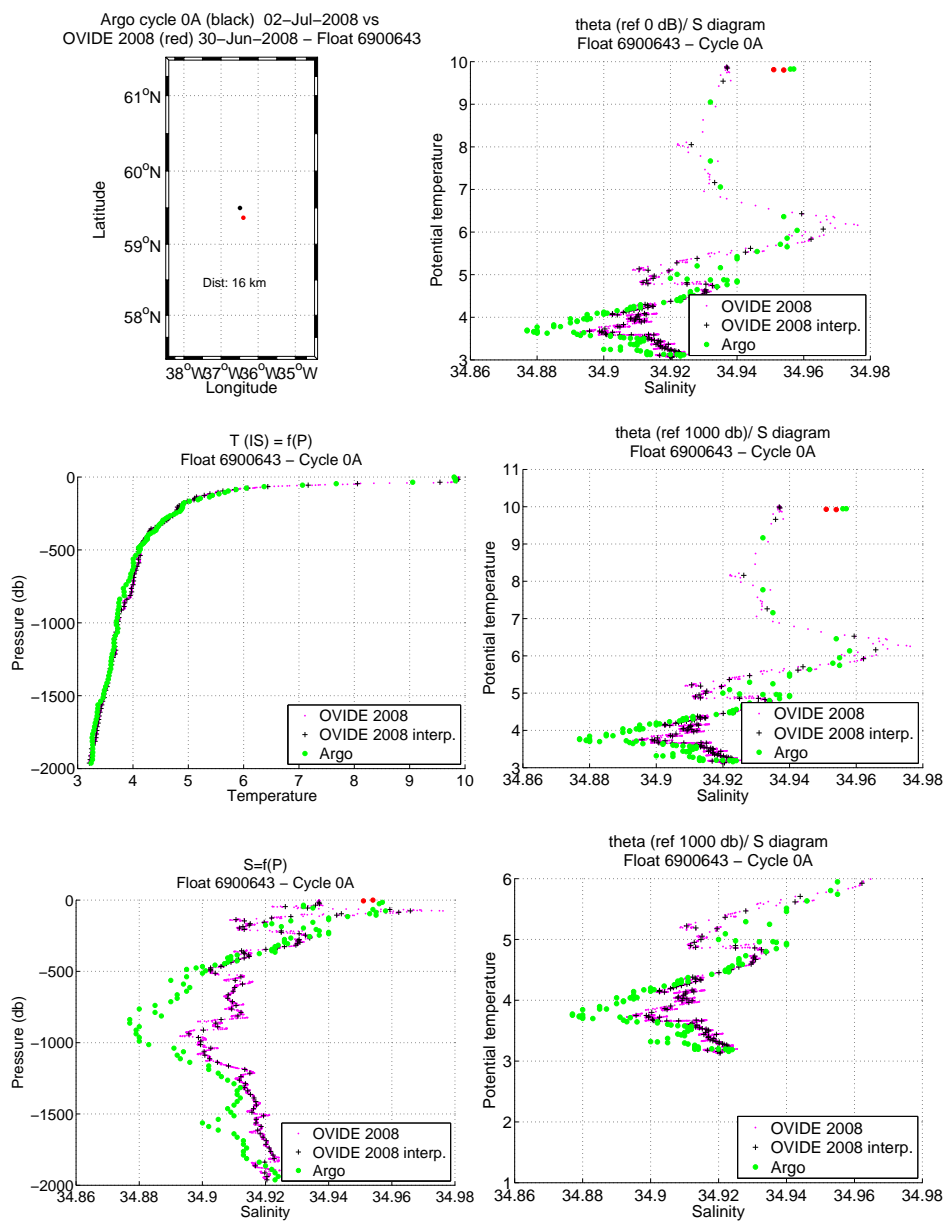


Figure 9: Comparison of the cycle 0A with the nearest CTD profile done after the float deployment.

4 Cycle 71 - Comparison to the nearest historical CTD profiles

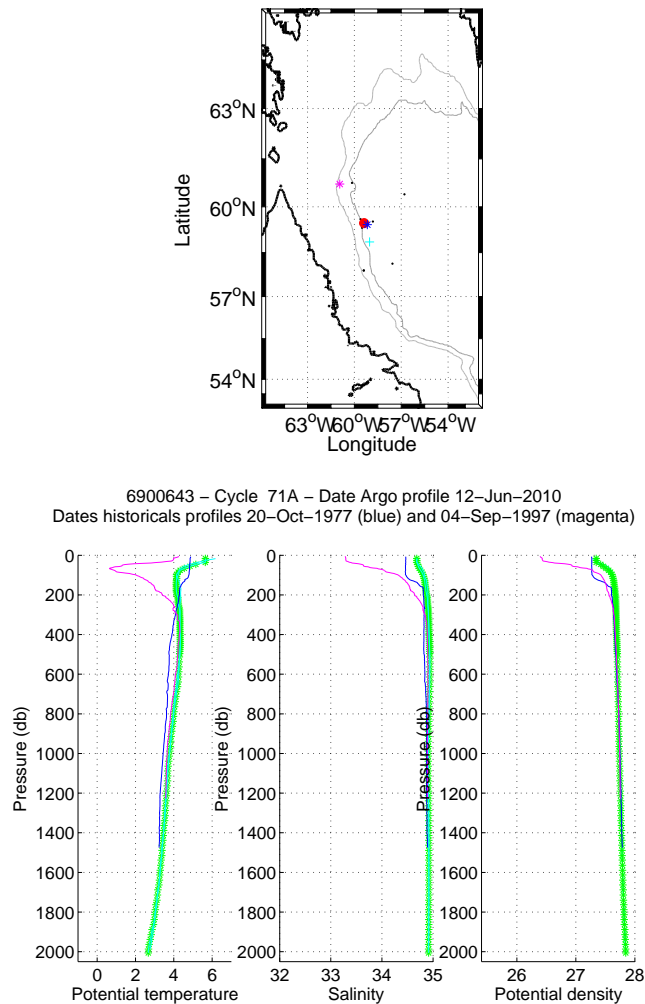


Figure 10: Flotteur 6900643, cycle 71. Upper panel: Position of the analysed CTD profile (red) and of the nearest CTD profiles (black). The nearest CTD profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function of pressure for the analysed CTD profile (stars) and for the nearest CTD profile in time (magenta line) and for the nearest CTD profile in space (blue line). The color of the analysed CTD profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4).

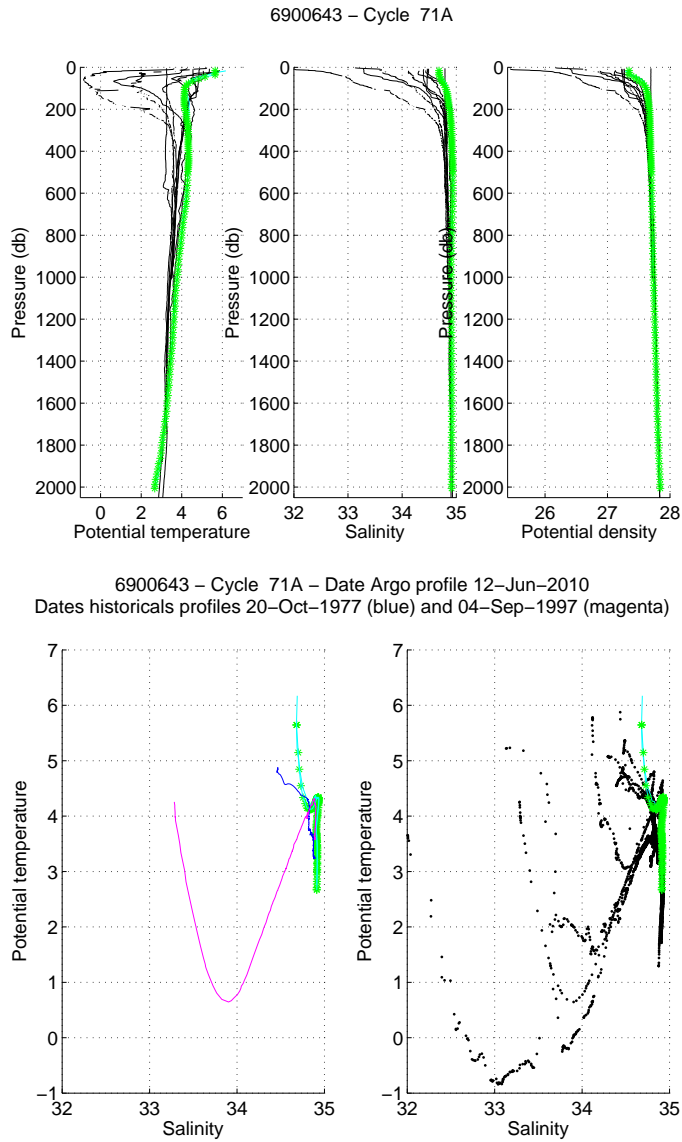


Figure 11: Float 6900643, cycle 71. The analysed CTD profile (stars) is compared to the nearest CTD profiles (black line) and to two specific profiles: the nearest CTD profile in time (magenta) and the nearest CTD profile in space (blue). The color of the analysed CTD profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4). (Upper panels) Temperature (left panel), salinity (middle panel) and potential density (right panel) as function of pressure. (Lower panels) θ/S diagrams.

5 Cycle 71A - Comparison to the nearest ARGO profiles

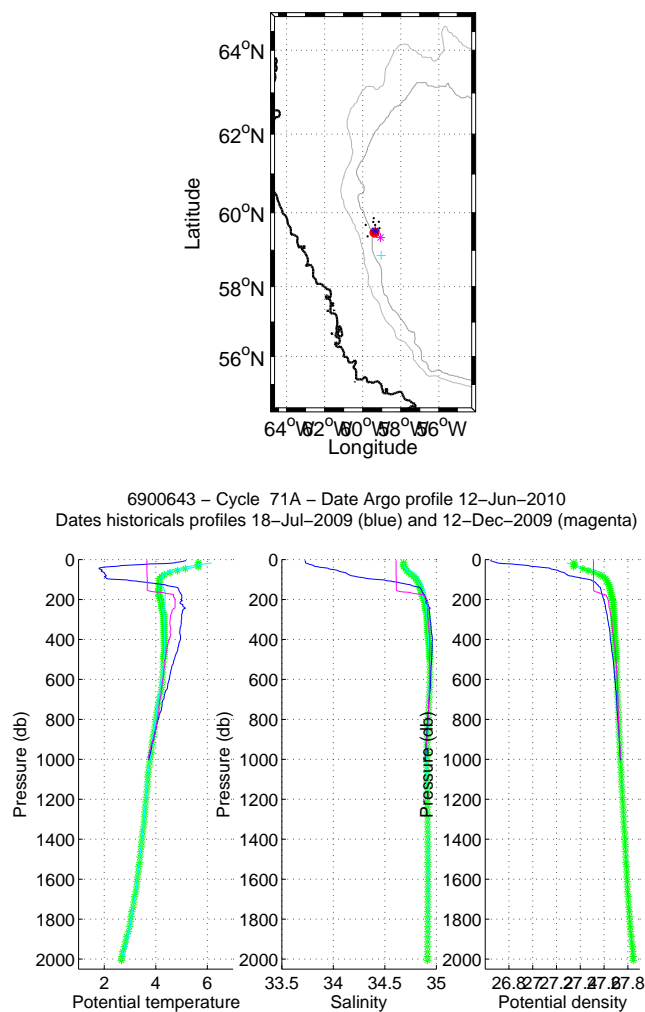
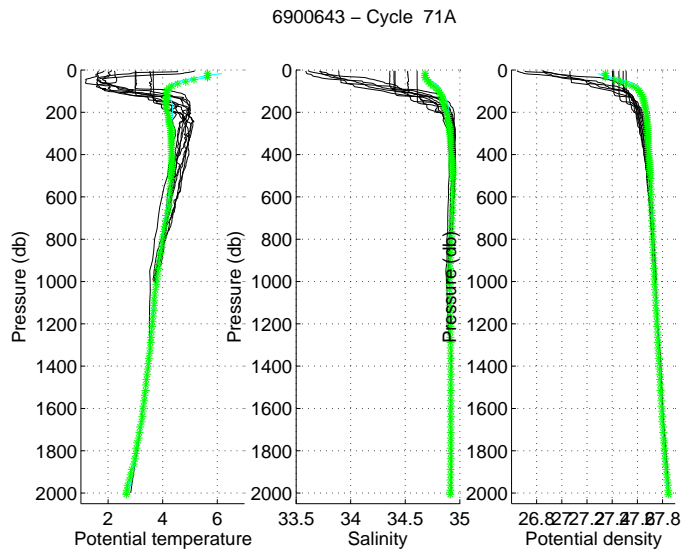


Figure 12: Flotteur 6900643, cycle 71A. Upper panel: Position of the analysed Argo profile (red) and of the nearest Argo profiles (black). The nearest Argo profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function of pressure for the analysed Argo profile (stars) and for the nearest Argo profile in time (magenta line) and for the nearest Argo profile in space (blue line). The color of the analysed Argo profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4).



6900643 – Cycle 71A – Date Argo profile 12–Jun–2010
 Dates historical profiles 18–Jul–2009 (blue) and 12–Dec–2009 (magenta)

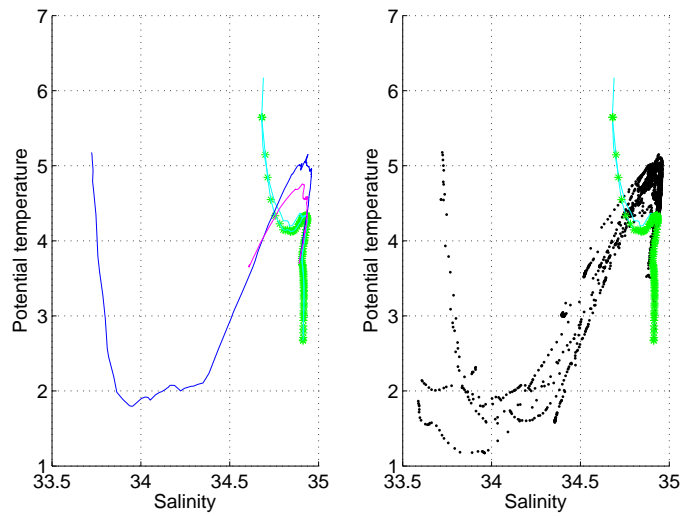


Figure 13: Float 6900643, cycle 71A. The analysed Argo profile (stars) is compared to the nearest Argo profiles (black line) and to two specific profiles: the nearest Argo profile in time (magenta) and the nearest Argo profile in space (blue). The color of the analysed Argo profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4). (Upper panels) Temperature (left panel), salinity (middle panel) and potential density (right panel) as function of pressure. (Lower panels) θ/S diagrams.

6 Cycle 104 - Comparison to the nearest historical CTD profiles

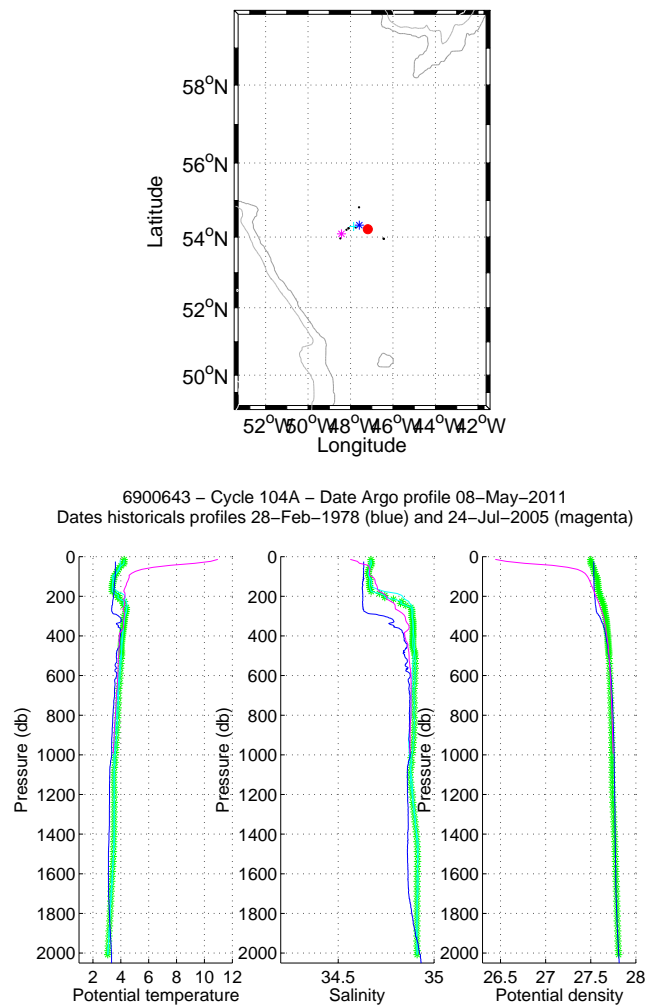


Figure 14: Flotteur 6900643, cycle 104. Upper panel: Position of the analysed CTD profile (red) and of the nearest CTD profiles (black). The nearest CTD profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function of pressure for the analysed CTD profile (stars) and for the nearest CTD profile in time (magenta line) and for the nearest CTD profile in space (blue line). The color of the analysed CTD profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4).

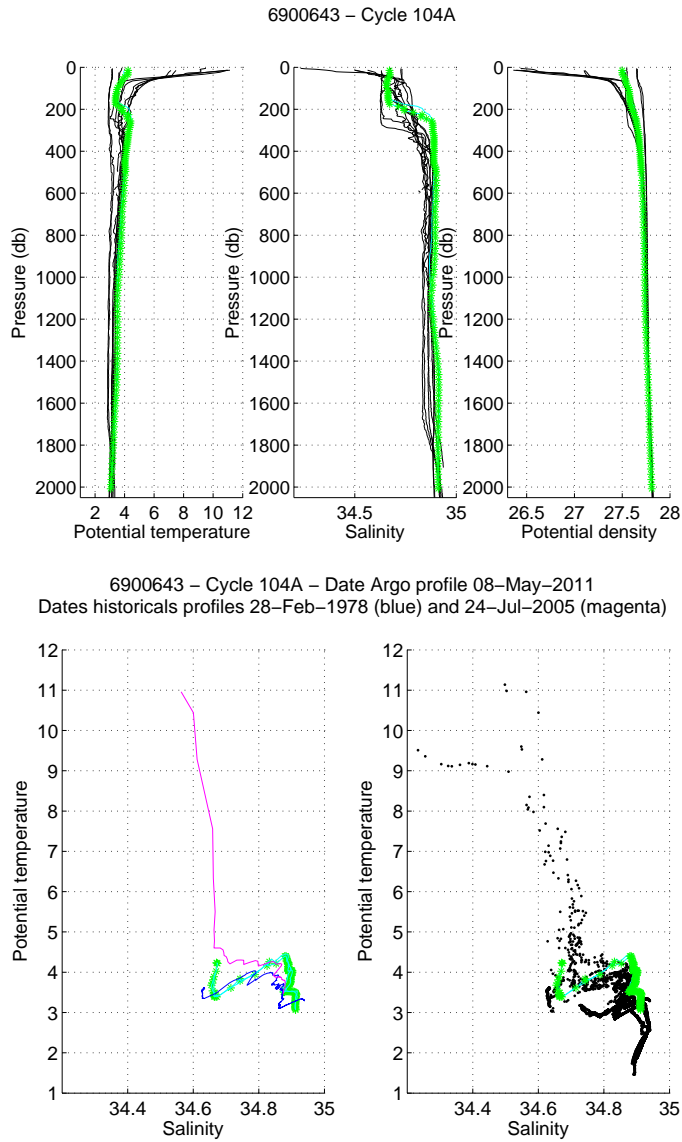


Figure 15: Float 6900643, cycle 104. The analysed CTD profile (stars) is compared to the nearest CTD profiles (black line) and to two specific profiles: the nearest CTD profile in time (magenta) and the nearest CTD profile in space (blue). The color of the analysed CTD profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4). (Upper panels) Temperature (left panel), salinity (middle panel) and potential density (right panel) as function of pressure. (Lower panels) θ/S diagrams.

7 Cycle 104A - Comparison to the nearest ARGO profiles

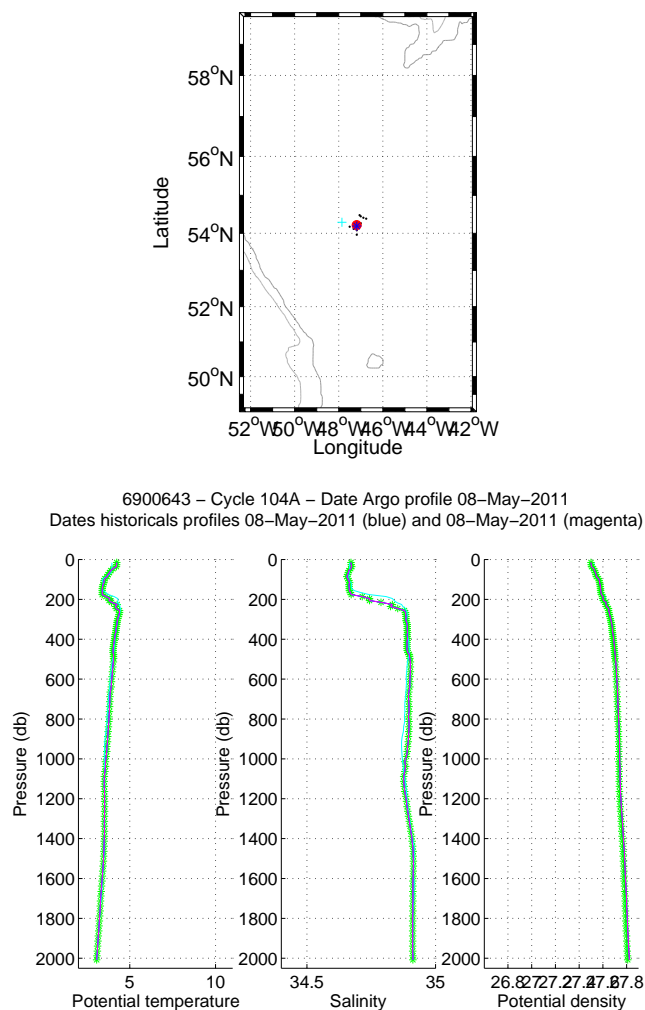


Figure 16: Flotteur 6900643, cycle 104A. Upper panel: Position of the analysed Argo profile (red) and of the nearest Argo profiles (black). The nearest Argo profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function of pressure for the analysed Argo profile (stars) and for the nearest Argo profile in time (magenta line) and for the nearest Argo profile in space (blue line). The color of the analysed Argo profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4).

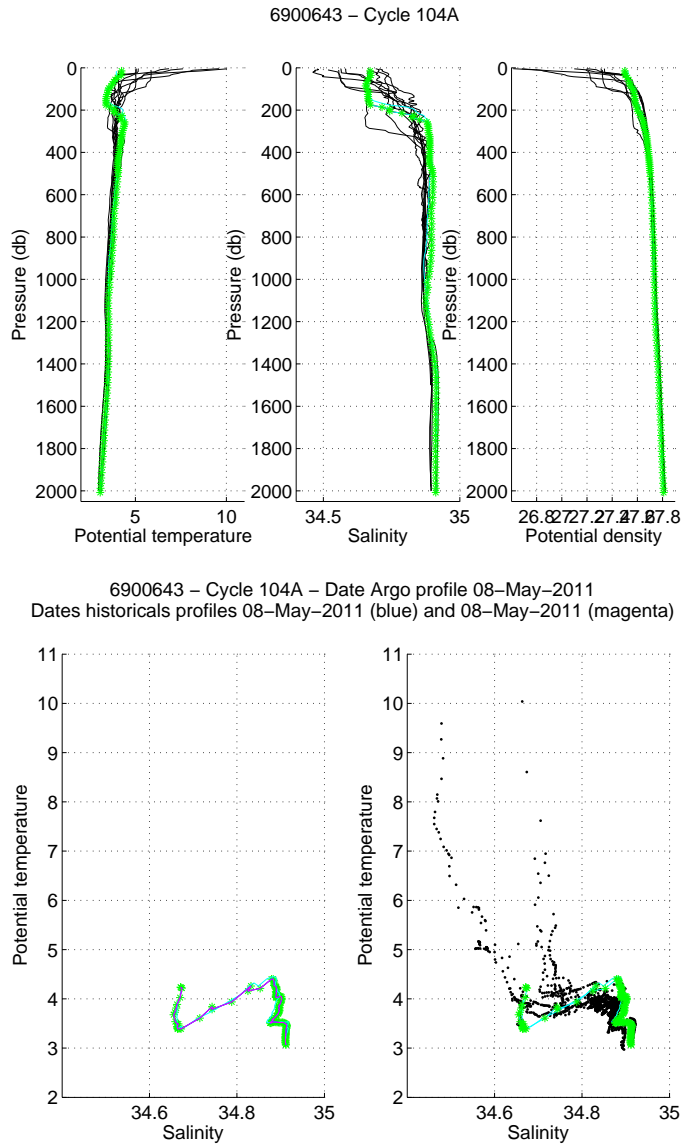


Figure 17: Float 6900643, cycle 104A. The analysed Argo profile (stars) is compared to the nearest Argo profiles (black line) and to two specific profiles: the nearest Argo profile in time (magenta) and the nearest Argo profile in space (blue). The color of the analysed Argo profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4). (Upper panels) Temperature (left panel), salinity (middle panel) and potential density (right panel) as function of pressure. (Lower panels) θ/S diagrams.

8 Cycle 108 - Comparison to the nearest historical CTD profiles

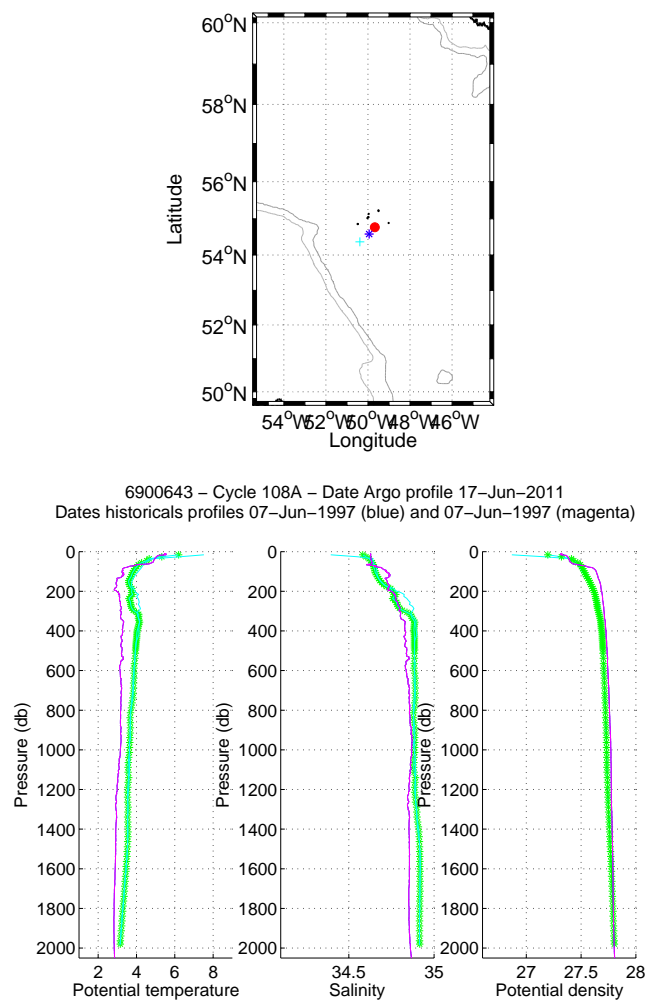
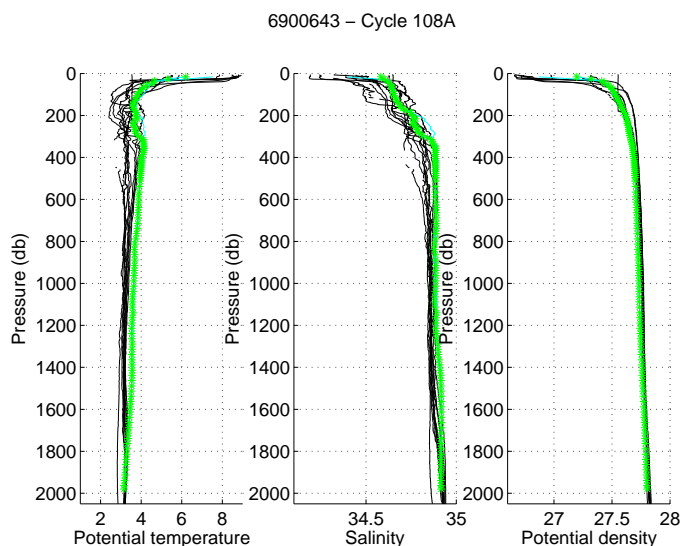


Figure 18: Flotteur 6900643, cycle 108. Upper panel: Position of the analysed CTD profile (red) and of the nearest CTD profiles (black). The nearest CTD profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function of pressure for the analysed CTD profile (stars) and for the nearest CTD profile in time (magenta line) and for the nearest CTD profile in space (blue line). The color of the analysed CTD profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4).



6900643 – Cycle 108A – Date Argo profile 17–Jun–2011
 Dates historicals profiles 07–Jun–1997 (blue) and 07–Jun–1997 (magenta)

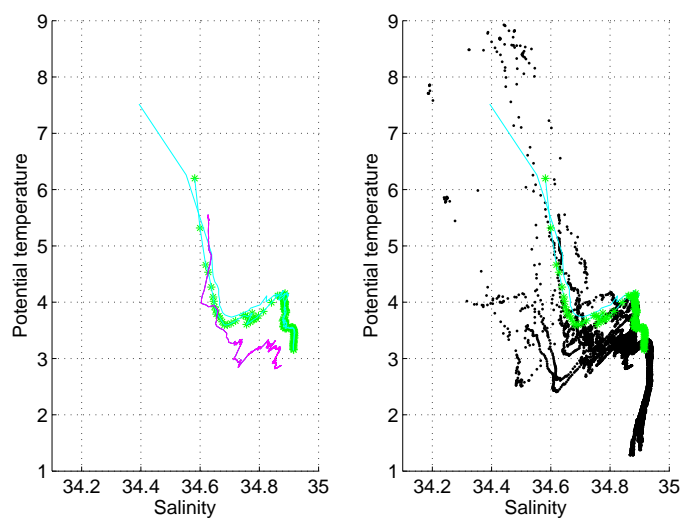


Figure 19: Float 6900643, cycle 108. The analysed CTD profile (stars) is compared to the nearest CTD profiles (black line) and to two specific profiles: the nearest CTD profile in time (magenta) and the nearest CTD profile in space (blue). The color of the analysed CTD profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4). (Upper panels) Temperature (left panel), salinity (middle panel) and potential density (right panel) as function of pressure. (Lower panels) θ/S diagrams.

9 Cycle 108A - Comparison to the nearest ARGO profiles

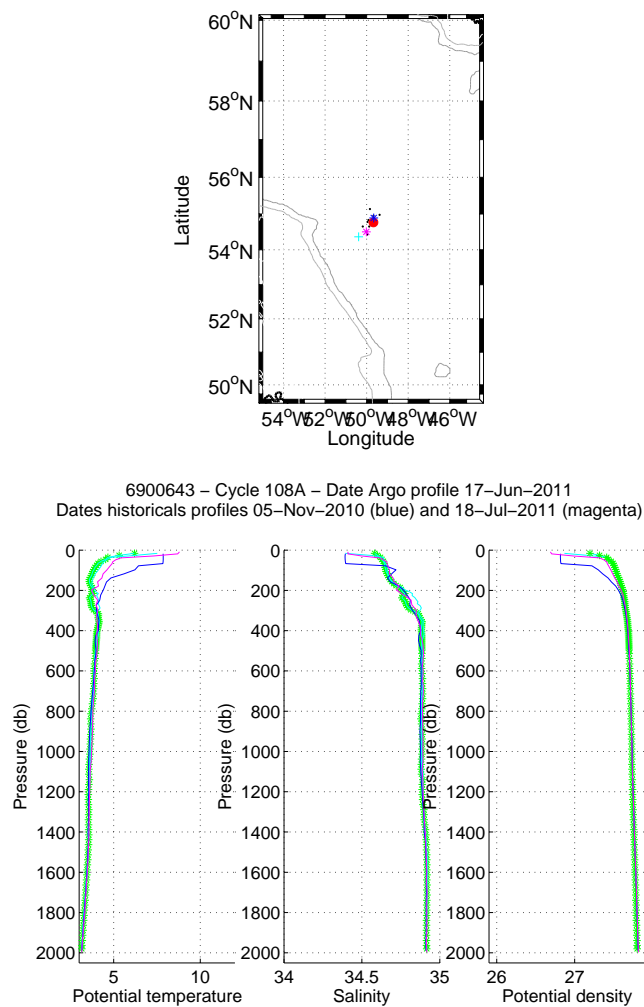


Figure 20: Flotteur 6900643, cycle 108A. Upper panel: Position of the analysed Argo profile (red) and of the nearest Argo profiles (black). The nearest Argo profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function of pressure for the analysed Argo profile (stars) and for the nearest Argo profile in time (magenta line) and for the nearest Argo profile in space (blue line). The color of the analysed Argo profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4).

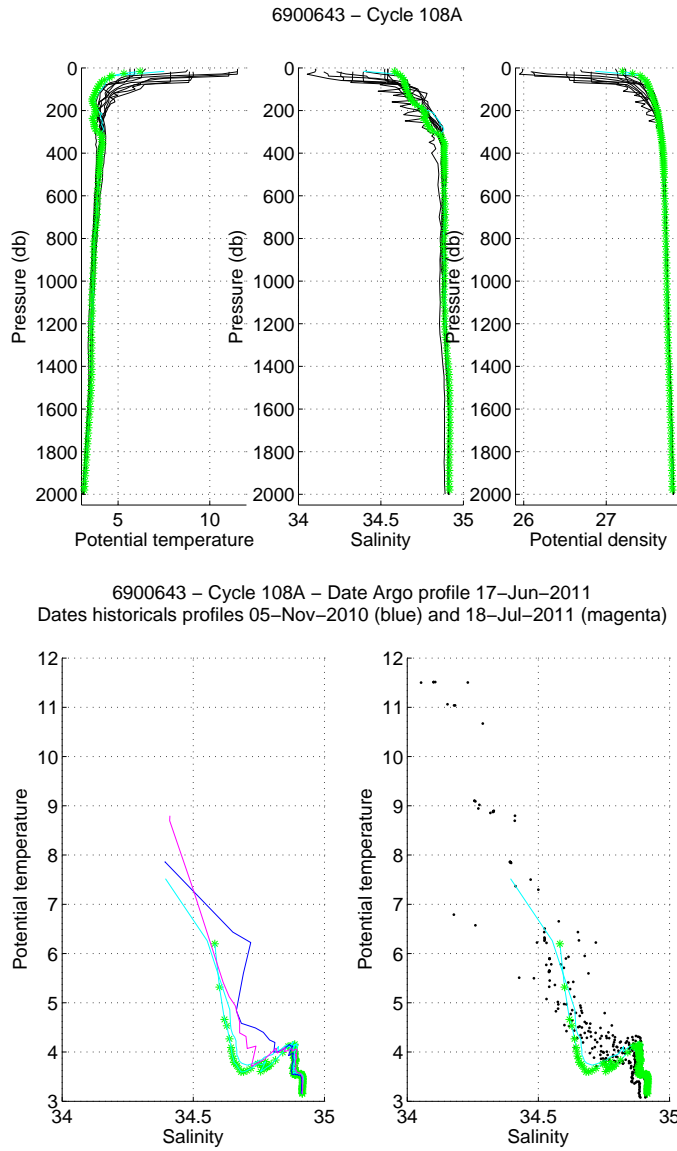


Figure 21: Float 6900643, cycle 108A. The analysed Argo profile (stars) is compared to the nearest Argo profiles (black line) and to two specific profiles: the nearest Argo profile in time (magenta) and the nearest Argo profile in space (blue). The color of the analysed Argo profile represents the QC flag (green for a QC=1; blue for a QC=2; orange for a QC=3 and red for a QC=4). (Upper panels) Temperature (left panel), salinity (middle panel) and potential density (right panel) as function of pressure. (Lower panels) θ/S diagrams.

10 OW method, CONFIGURATION # 129

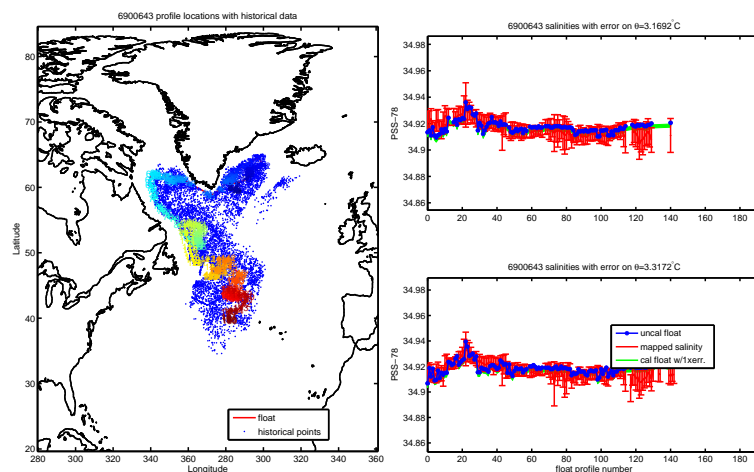


Figure 22: Figures from the OW method. (Left) Position of the historical and float data. (Right) Comparison, on various θ levels, between the float data and the historical data interpolated at the float position.

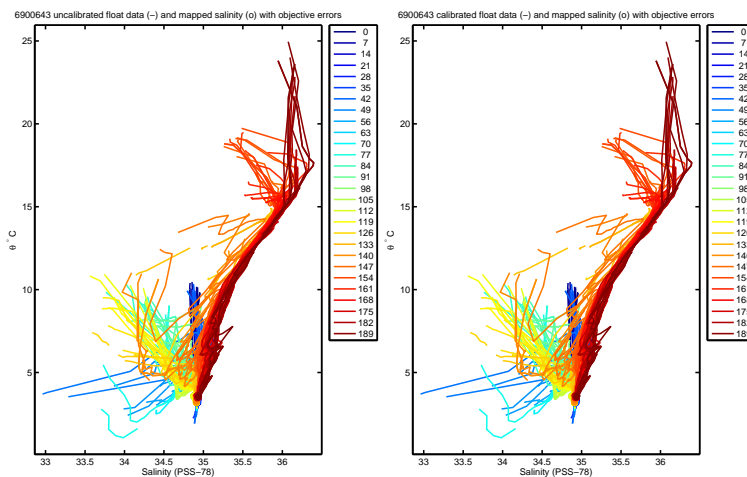


Figure 23: Figures from the OW method. Comparison of the θ/S diagram of the float with the historical database. (left) raw data; (right) corrected data using the OW correction.

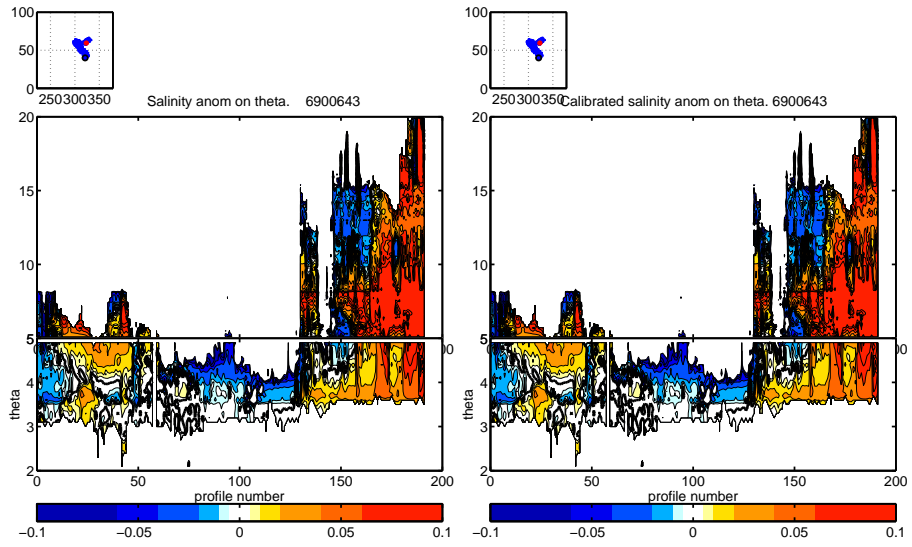


Figure 24: Figures from the OW method. Salinity anomaly:(left) raw data; (right) corrected data using the OW correction.

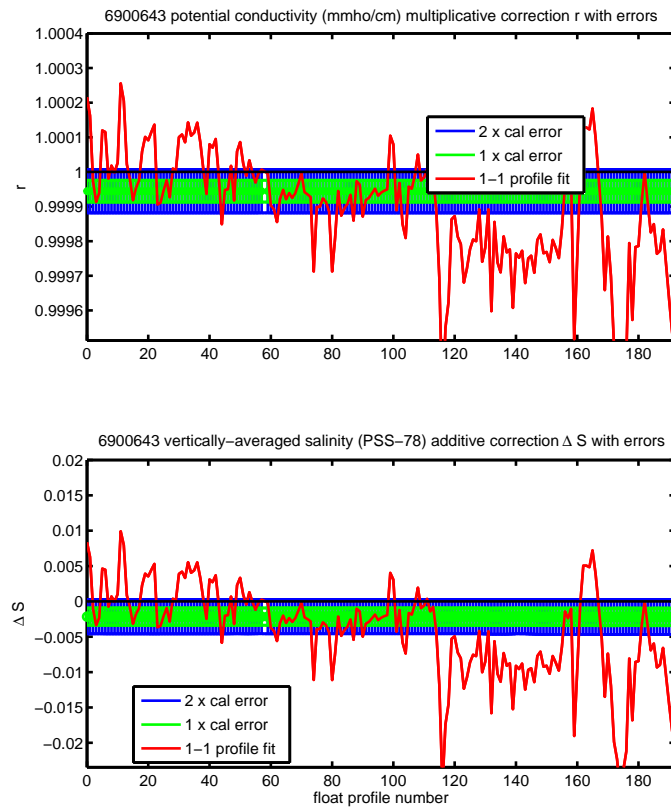


Figure 25: Correction proposed by the OW method.

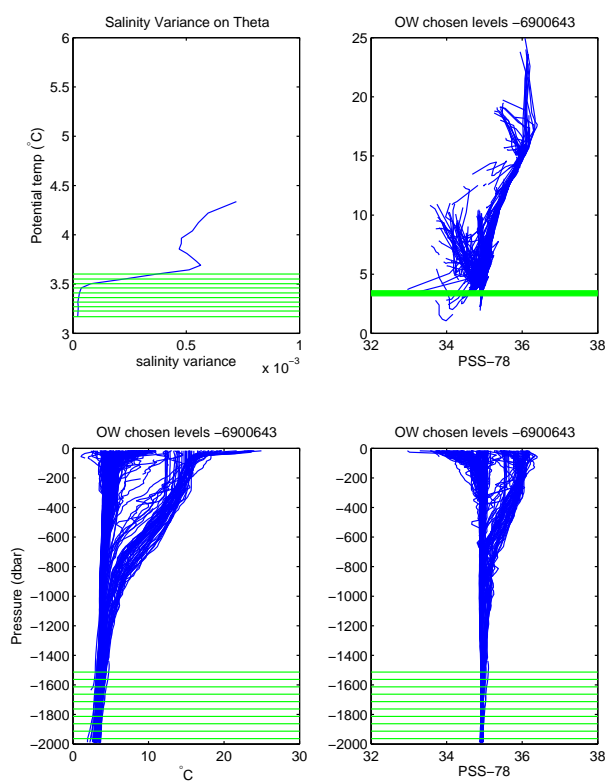


Figure 26: Chosed levels by the OW method.