


Rapport interne LPO/15-22

UMR 6523 Laboratoire de Physique des Océans 	DELAYED MODE QUALITY CONTROL OF OVIDE ARGO DATA FLOAT WMO 6900498	
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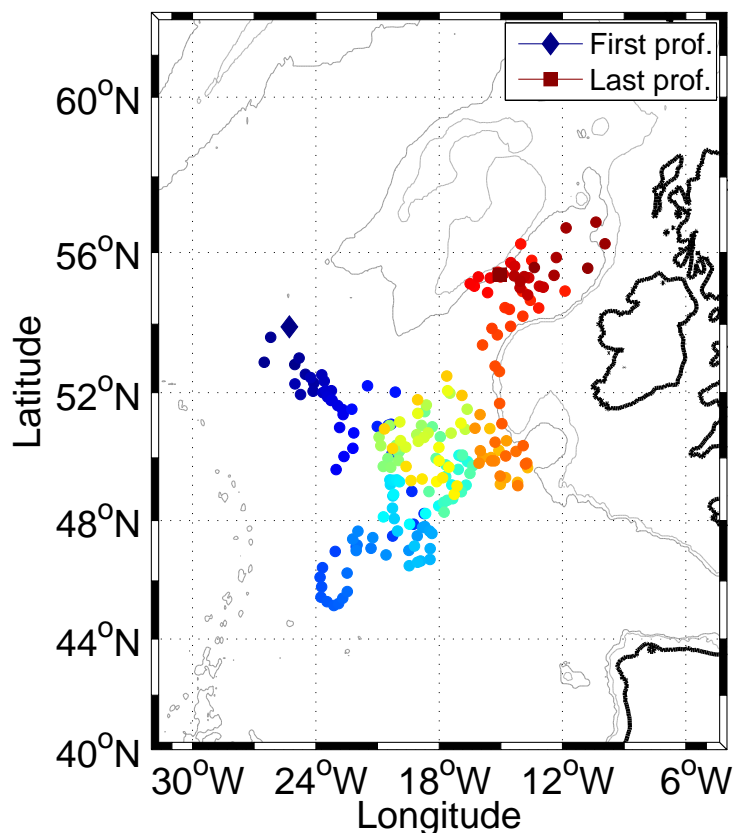
**DELAYED MODE QUALITY CONTROL OF OVIDE ARGO DATA
FLOAT WMO 6900498**

Internal Report LPO 15-22

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January 14, 2016

Float WMO 6900498



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 800 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 216
Provor WMO 6900498	25/06/2008 9H10	
CTS3 07-S3-14	N 54.027 W 25.54	
Date of control	Float status	Last cycle
January 2011	Active	93
Coriolis transmission		27/01/2011
Date of last control	Float status	Last cycle
September 2015	DEAD	27/05/2014
Coriolis transmission		22/10/15

Table 1: Status of the float

Cycle	Parameter	Vertical level	Old flag	New flag	Comments	Coriolis tran
30A	TEMP,PSAL	6 values around 700 dbar	3	1		19/01/
32A	TEMP,PSAL	7 values around 400 dbar	4	1		19/01/
35A	PSAL				suspicious	19/01/
36A	TEMP,PSAL	around 100 dbar	4	1		19/01/
	TEMP	600-1000 dbar	4	1		
	PSAL	600-1170 dbar	4	1		
45A	PSAL	395-486 dbar	3	1		19/01/
all cycles (except 0D)	PSAL	level 1	1	4	untrustable data	19/01/
			1	4		19/01/
all cycles (except 0D,52A,64A)	PSAL	level 2	1	4	untrustable data	19/01/
			1	4		19/01/

Table 2: Float 6900498. 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_PHL_LARGE	0.1
MAPSCALE_PHL_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.

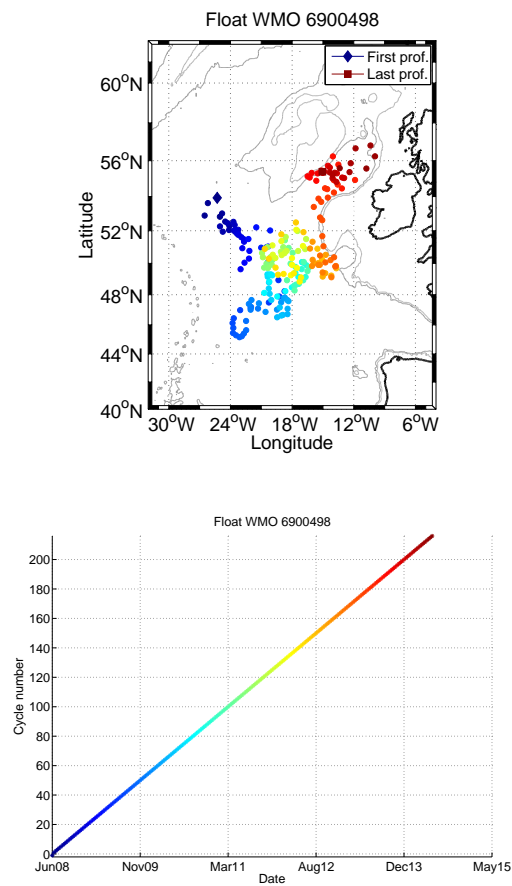


Figure 1: Profiles position and relationship between cycle number, date and color.

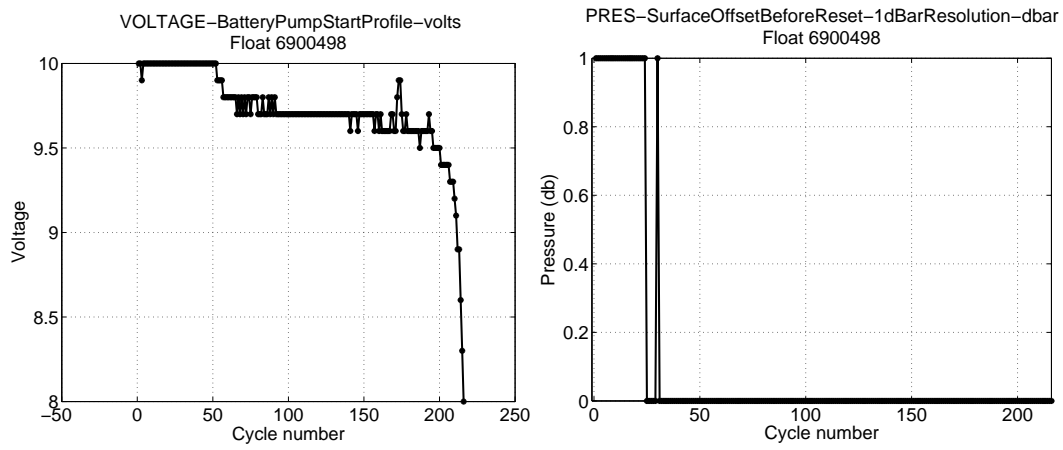


Figure 2: Battery Voltage and Surface Pressure

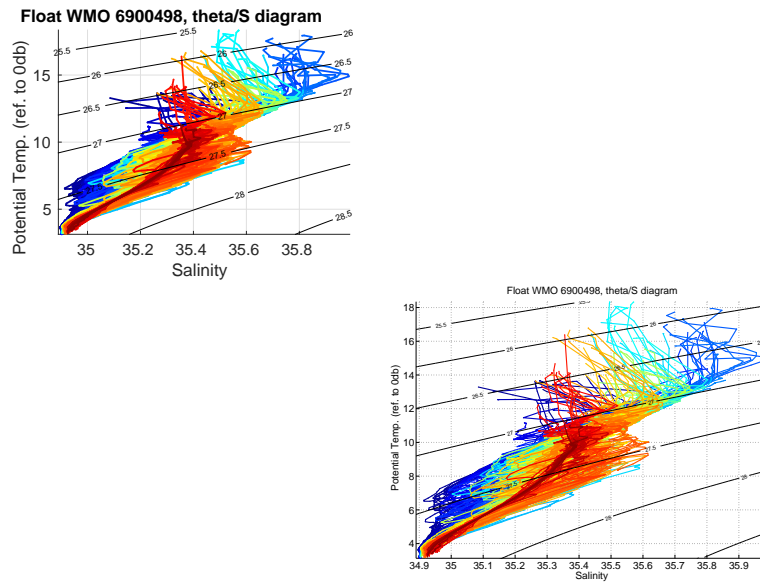


Figure 3: θ/S diagrams. (Left panel) Flags are not taken into account. (Right panel) Quality flags are taken into account.

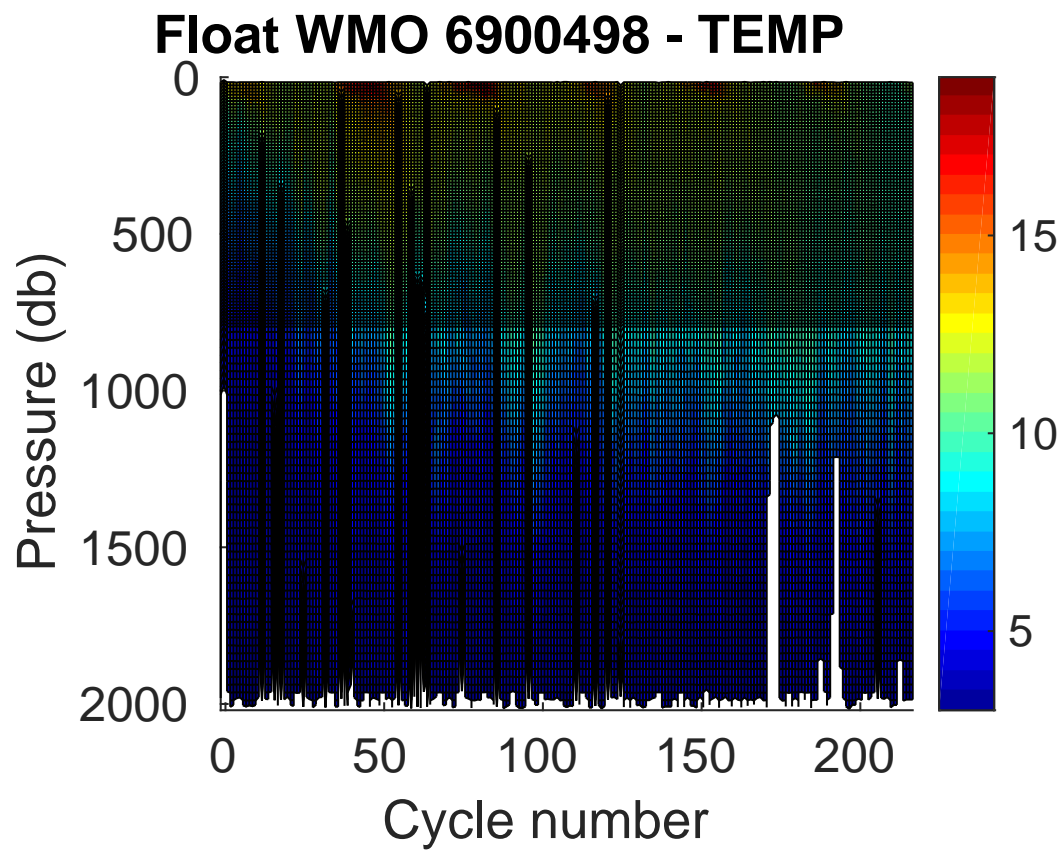


Figure 4: Temperature section along the float trajectory. Quality flags are not taken into account.

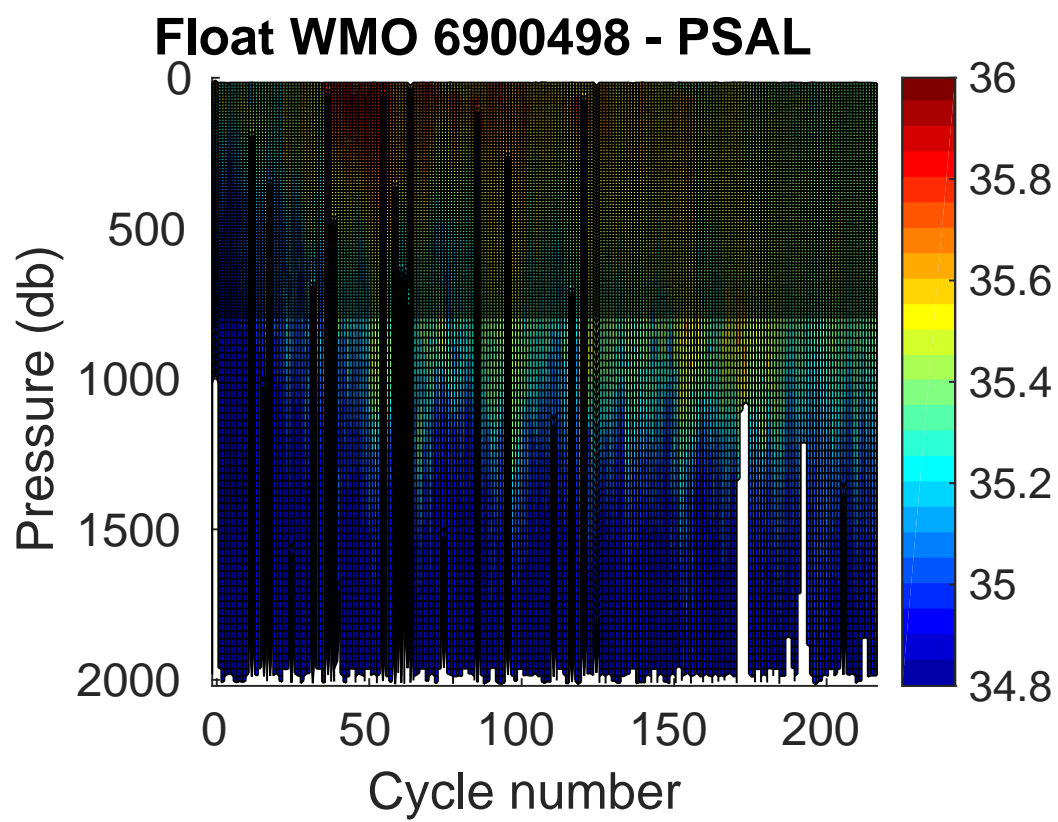


Figure 5: Salinity section along the float trajectory. Quality flags are not taken into account.

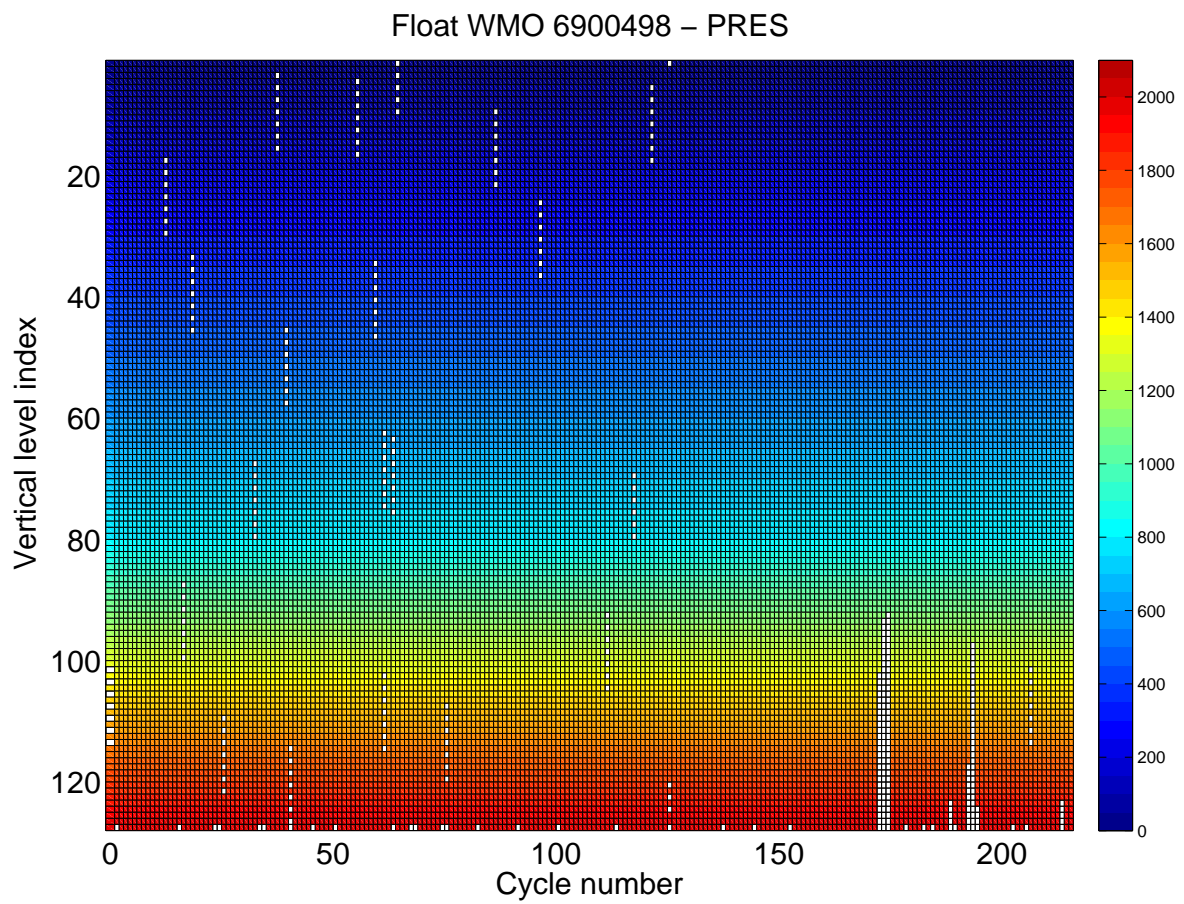


Figure 6: Pression as fonction of cycle number and vertical level index along the float trajectory. Quality flags are taken into account.

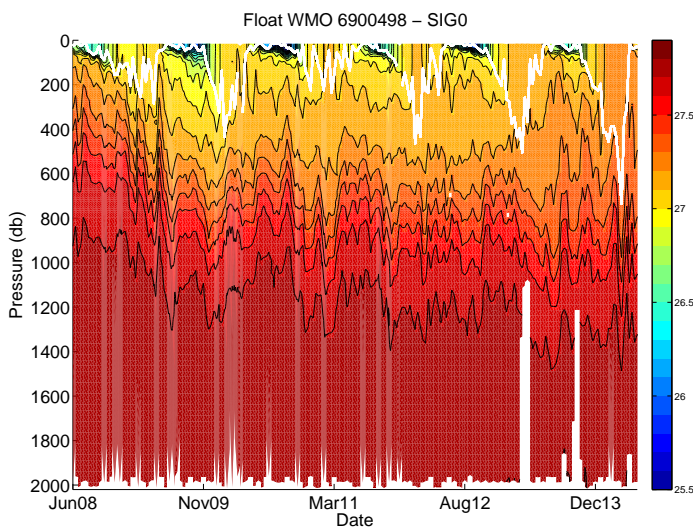
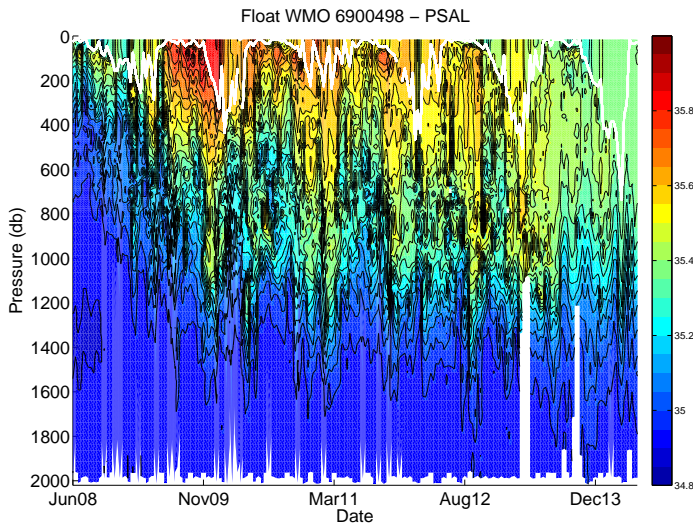
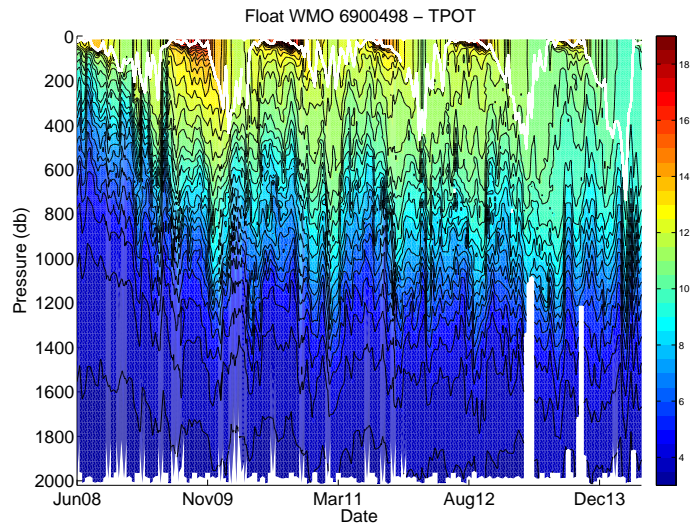


Figure 7: Potential temperature, salinity and potential density sections along the float trajectory (interpolated on standard levels). Quality flags are taken into account.

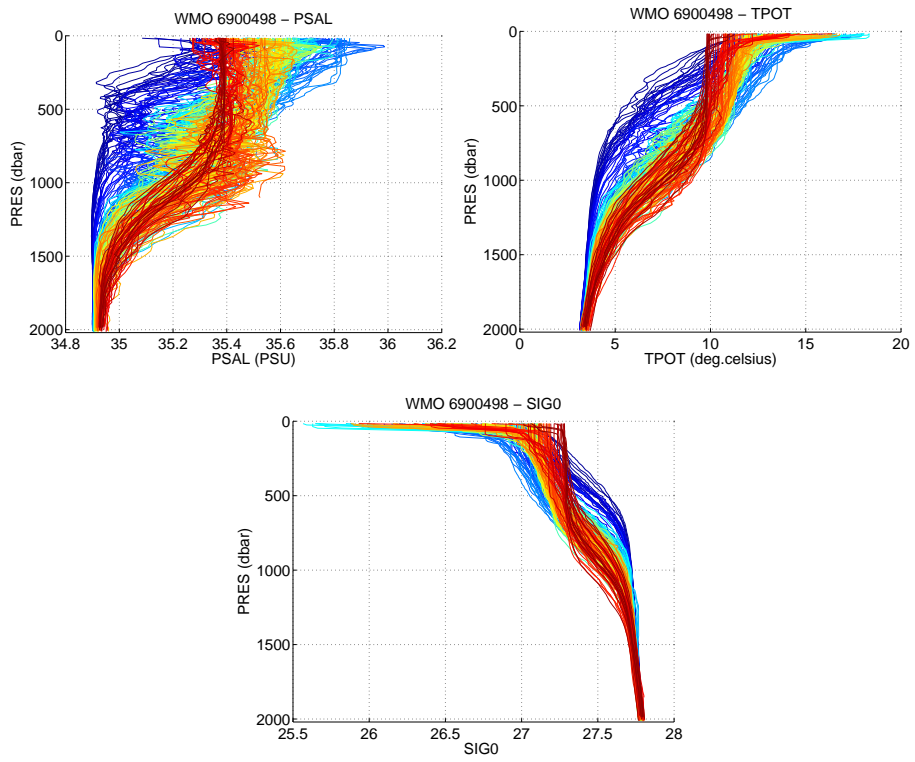


Figure 8: Salinity, Potential Temperature and Potential Density profiles. Quality flags are taken into account.

3 Comparison to the OVIDE 2008 nearest CTD profile

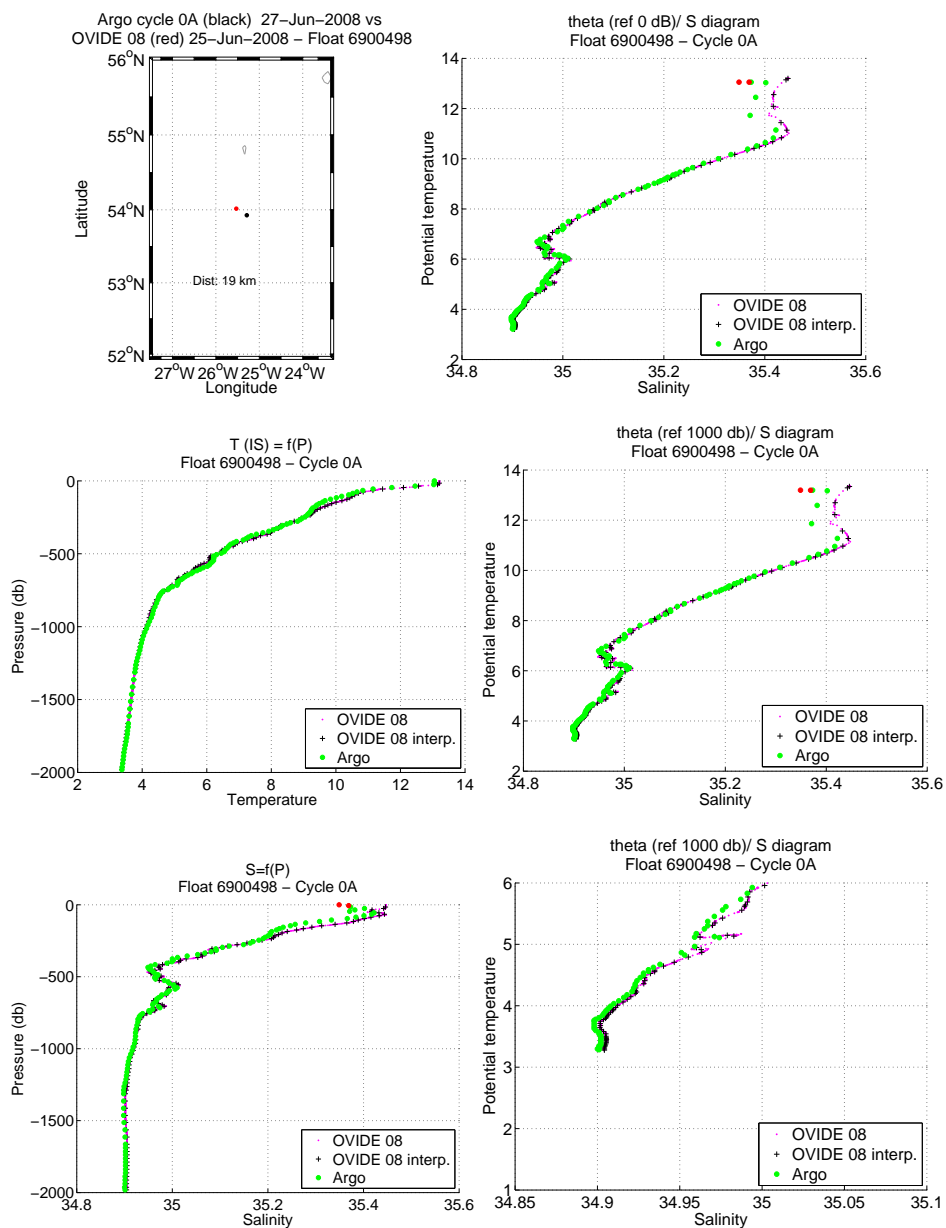


Figure 9: Comparison of the cycle 0A with the nearest CTD profile done after the float deployment.

4 Cycle 32 - Comparison to the nearest historical CTD profiles

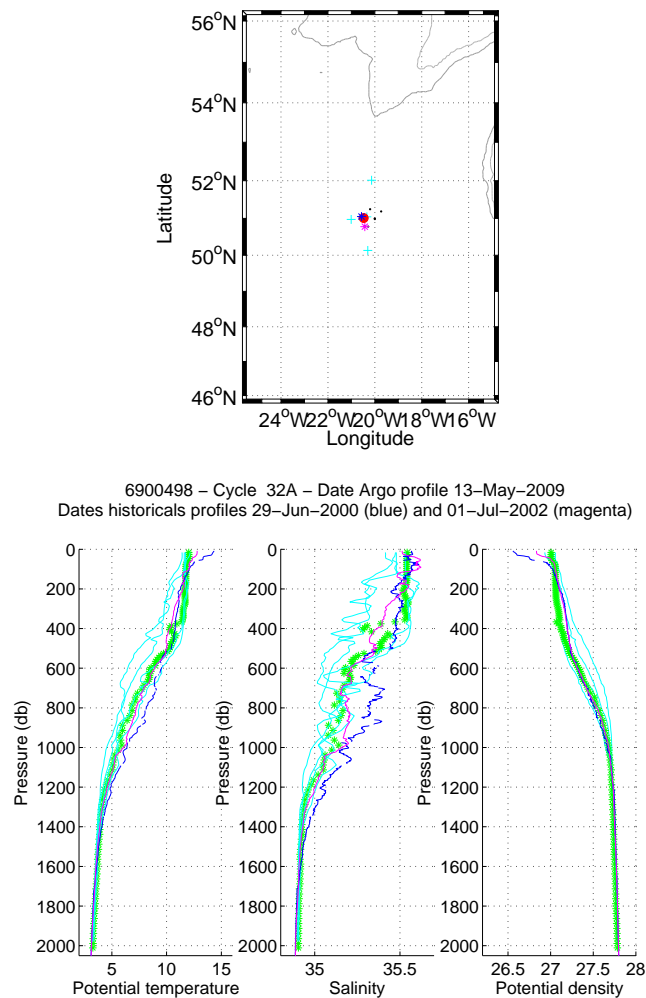


Figure 10: Flotteur 6900498, cycle 32. Upper panel: Position of the analysed CTD profile (red) and of the nearest CTD profiles (black). The nearest CTD profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function 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).

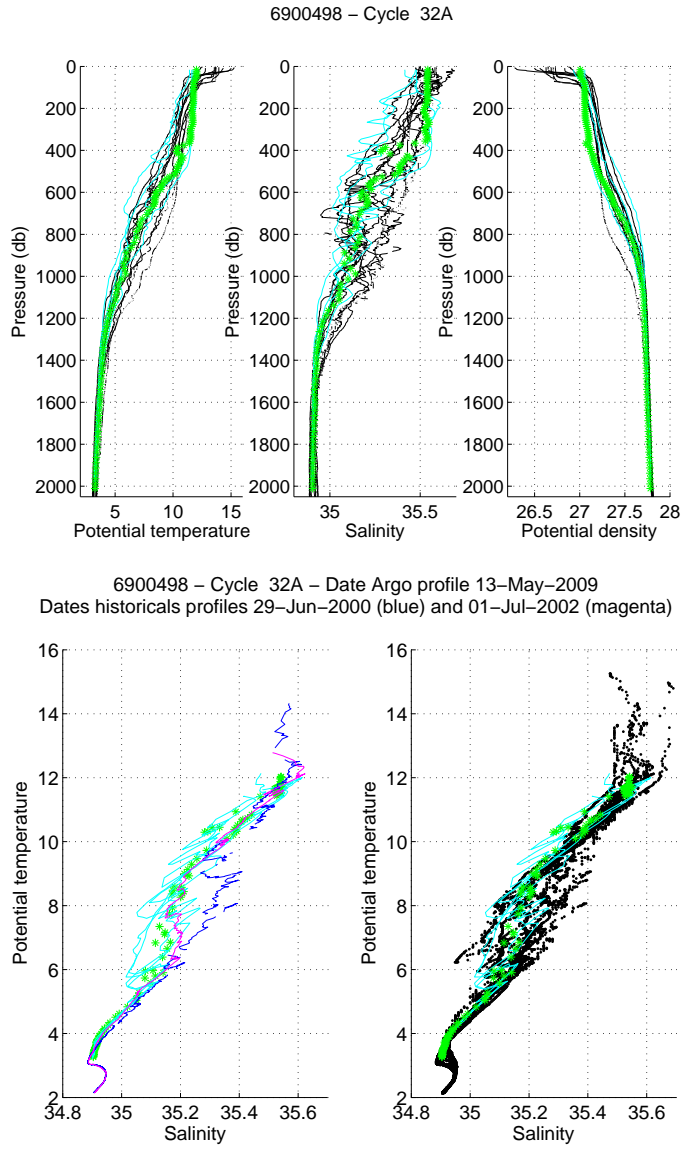


Figure 11: Float 6900498, cycle 32. The analysed CTD profile (stars) is compared to the nearest CTD profiles (black line) and to two specific profiles: the nearest CTD profile in time (magenta) and the nearest CTD profile in space (blue). The color of the analysed CTD profile represents the QC flag (green 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 32A - Comparison to the nearest ARGO profiles

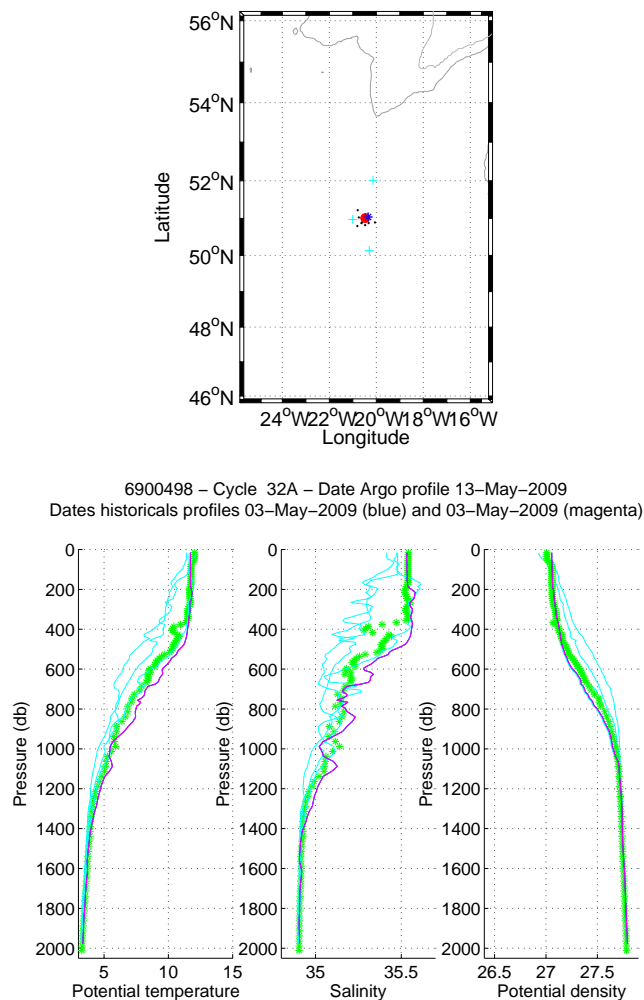
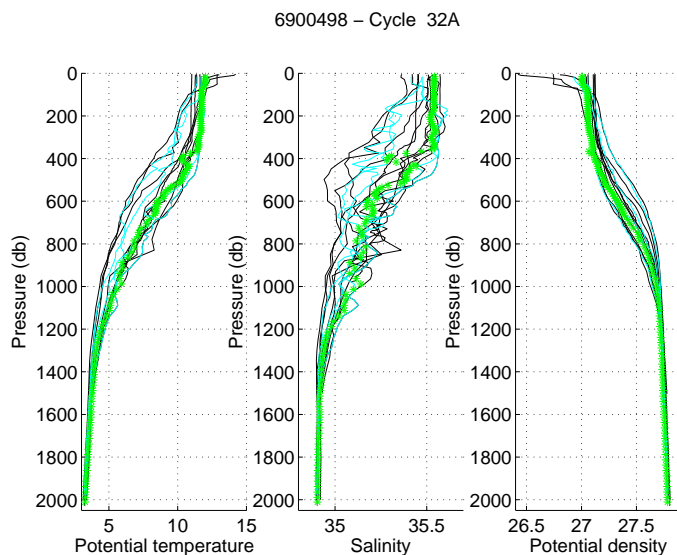


Figure 12: Flotteur 6900498, cycle 32A. Upper panel: Position of the analysed Argo profile (red) and of the nearest Argo profiles (black). The nearest Argo profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function 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).



6900498 – Cycle 32A – Date Argo profile 13–May–2009
 Dates historicals profiles 03–May–2009 (blue) and 03–May–2009 (magenta)

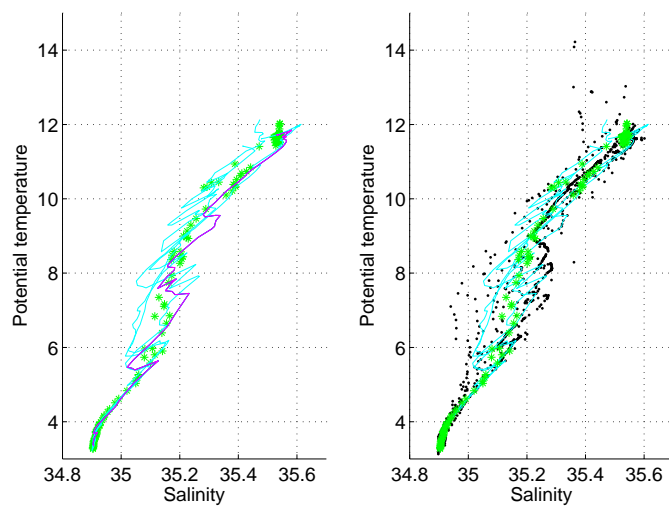


Figure 13: Float 6900498, cycle 32A. The analysed Argo profile (stars) is compared to the nearest Argo profiles (black line) and to two specific profiles: the nearest Argo profile in time (magenta) and the nearest Argo profile in space (blue). The color of the analysed Argo profile represents the QC 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 35 - Comparison to the nearest historical CTD profiles

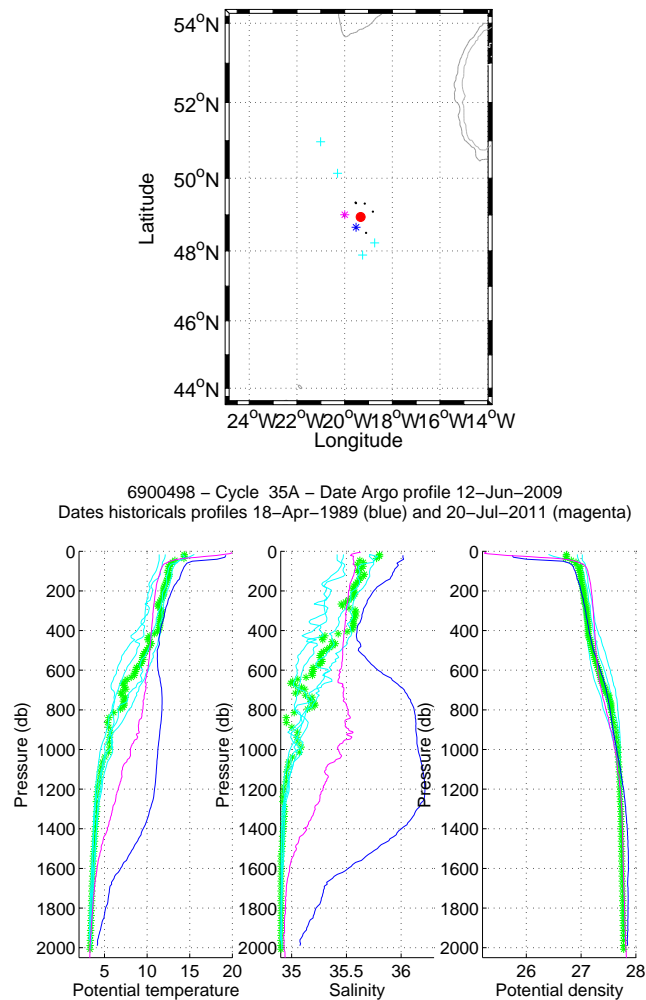
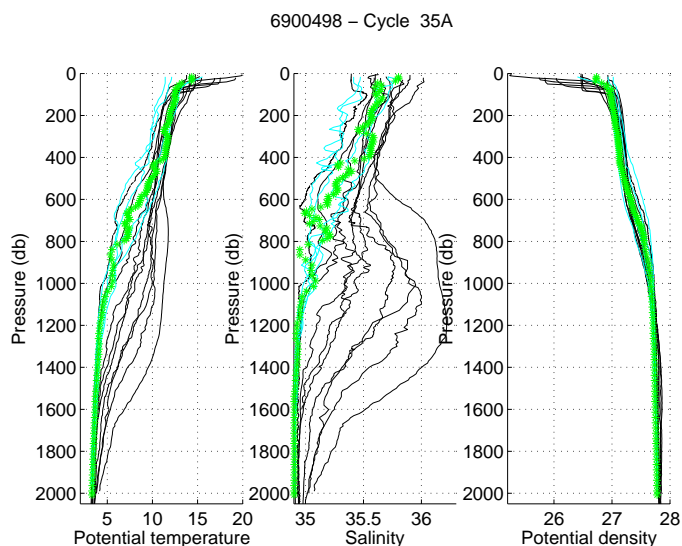


Figure 14: Flotteur 6900498, cycle 35. Upper panel: Position of the analysed CTD profile (red) and of the nearest CTD profiles (black). The nearest CTD profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function 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).



6900498 – Cycle 35A – Date Argo profile 12–Jun–2009
 Dates historical profiles 18–Apr–1989 (blue) and 20–Jul–2011 (magenta)

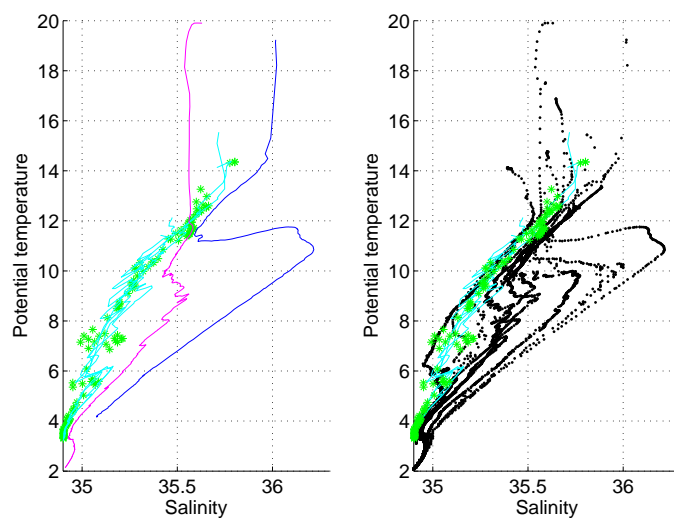


Figure 15: Float 6900498, cycle 35. The analysed CTD profile (stars) is compared to the nearest CTD profiles (black line) and to two specific profiles: the nearest CTD profile in time (magenta) and the nearest CTD profile in space (blue). The color of the analysed CTD profile represents the QC flag (green 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 35A - Comparison to the nearest ARGO profiles

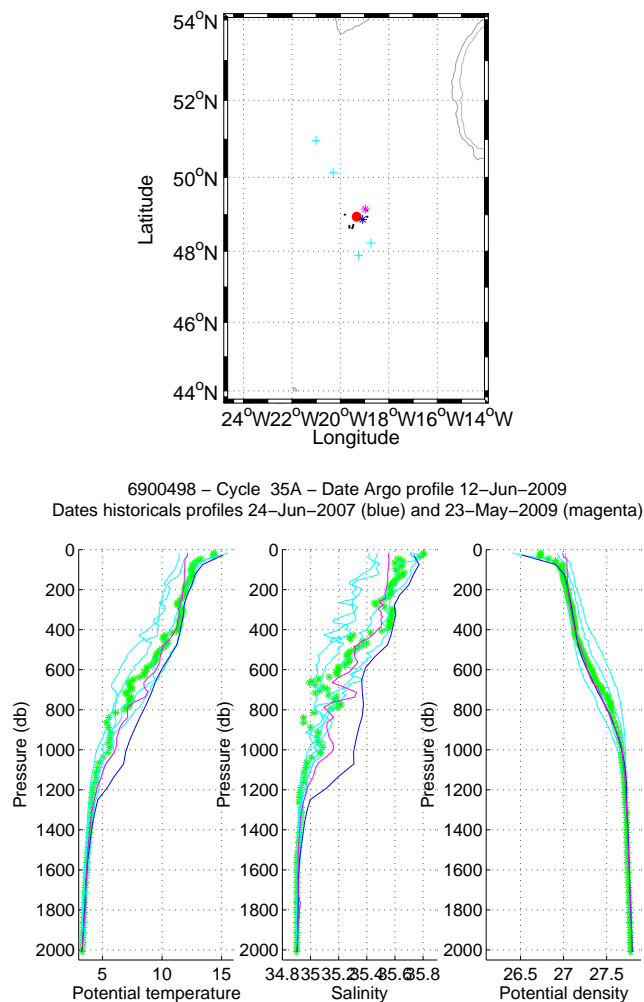
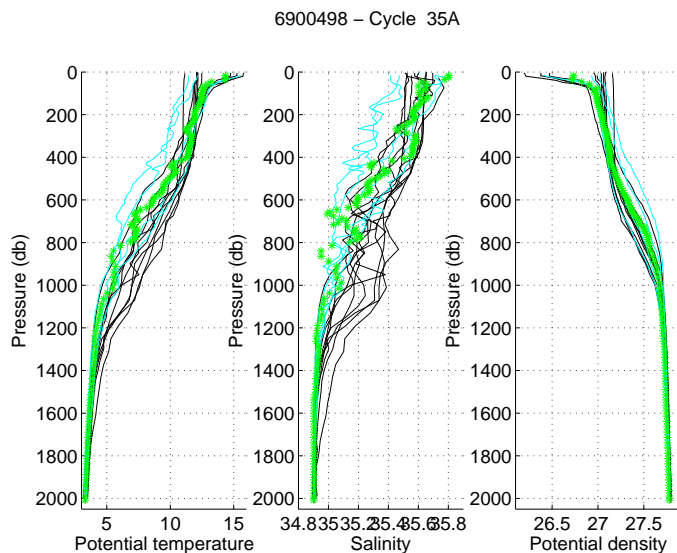


Figure 16: Flotteur 6900498, cycle 35A. Upper panel: Position of the analysed Argo profile (red) and of the nearest Argo profiles (black). The nearest Argo profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function 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).



6900498 – Cycle 35A – Date Argo profile 12–Jun–2009
 Dates historicals profiles 24–Jun–2007 (blue) and 23–May–2009 (magenta)

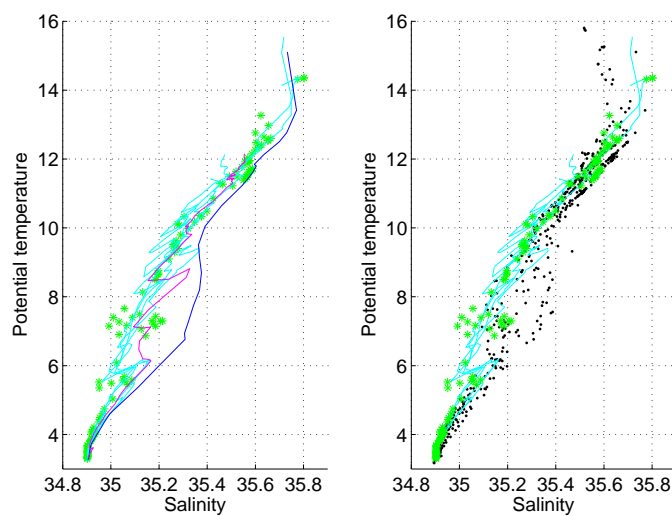


Figure 17: Float 6900498, cycle 35A. The analysed Argo profile (stars) is compared to the nearest Argo profiles (black line) and to two specific profiles: the nearest Argo profile in time (magenta) and the nearest Argo profile in space (blue). The color of the analysed Argo profile represents the QC 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 36 - Comparison to the nearest historical CTD profiles

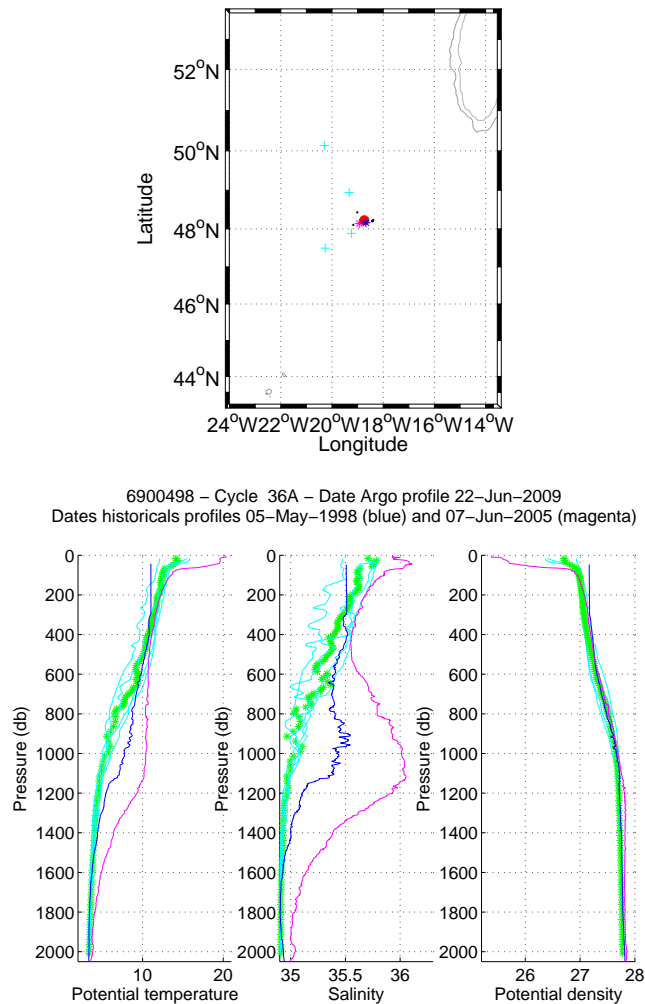
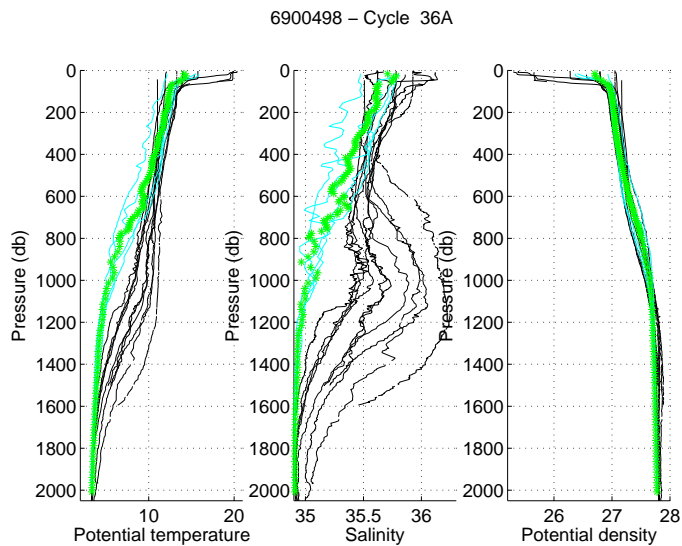


Figure 18: Flotteur 6900498, cycle 36. Upper panel: Position of the analysed CTD profile (red) and of the nearest CTD profiles (black). The nearest CTD profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function 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).



6900498 – Cycle 36A – Date Argo profile 22–Jun–2009
 Dates historicals profiles 05–May–1998 (blue) and 07–Jun–2005 (magenta)

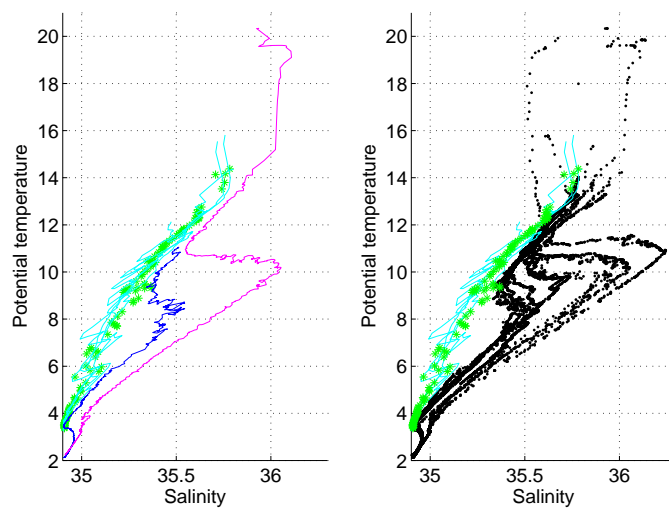


Figure 19: Float 6900498, cycle 36. The analysed CTD profile (stars) is compared to the nearest CTD profiles (black line) and to two specific profiles: the nearest CTD profile in time (magenta) and the nearest CTD profile in space (blue). The color of the analysed CTD profile represents the QC flag (green 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 36A - Comparison to the nearest ARGO profiles

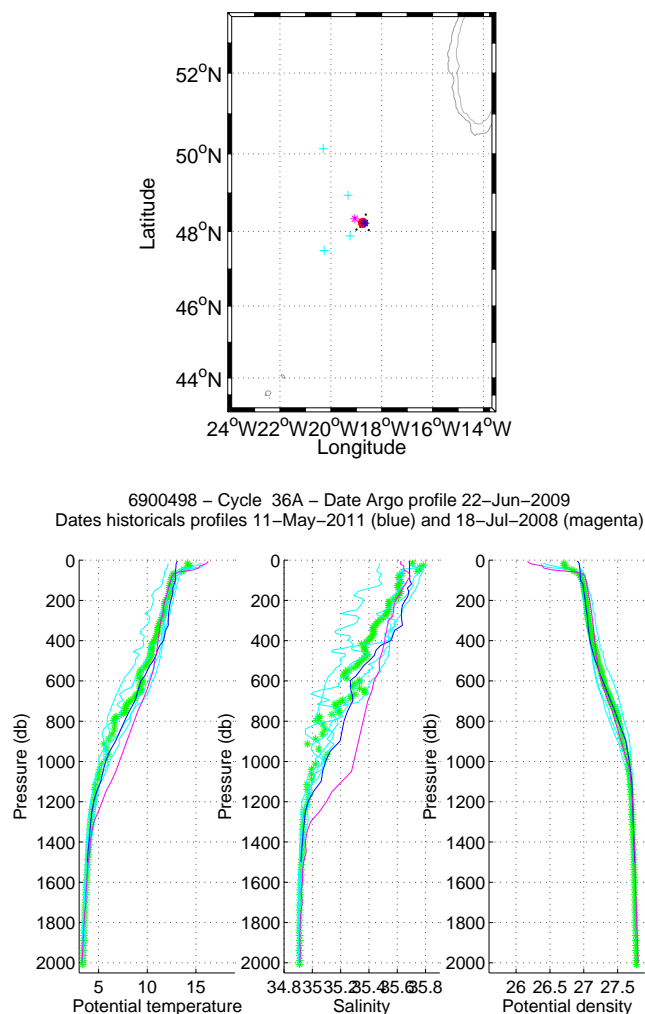
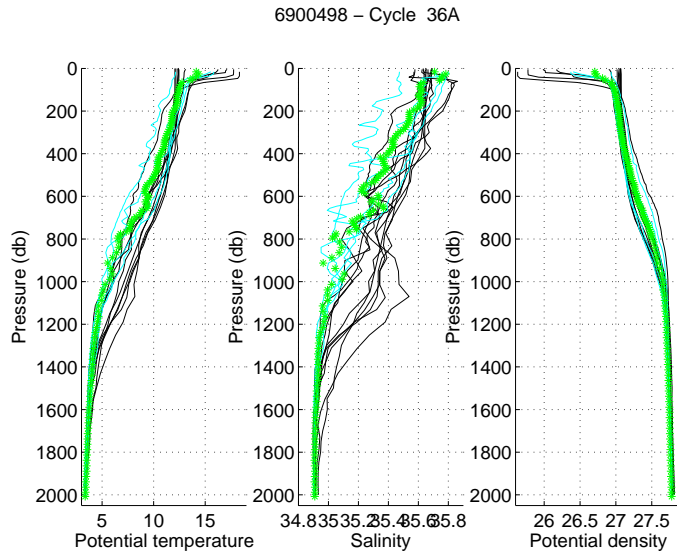


Figure 20: Flotteur 6900498, cycle 36A. Upper panel: Position of the analysed Argo profile (red) and of the nearest Argo profiles (black). The nearest Argo profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function 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).



6900498 – Cycle 36A – Date Argo profile 22-Jun-2009
 Dates historicals profiles 11-May-2011 (blue) and 18-Jul-2008 (magenta)

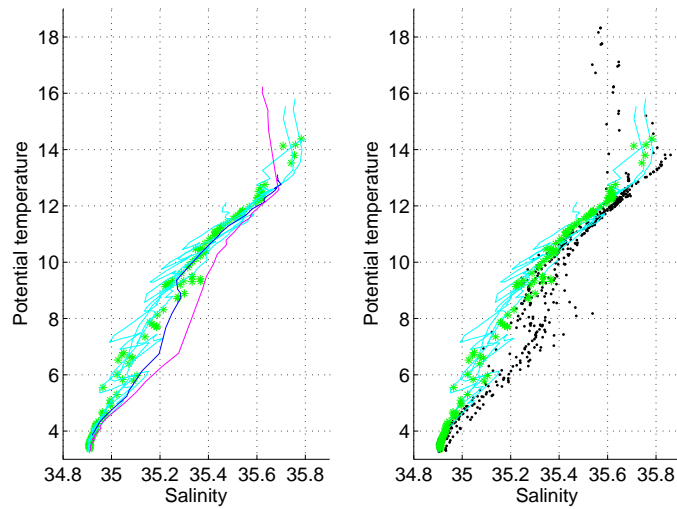


Figure 21: Float 6900498, cycle 36A. The analysed Argo profile (stars) is compared to the nearest Argo profiles (black line) and to two specific profiles: the nearest Argo profile in time (magenta) and the nearest Argo profile in space (blue). The color of the analysed Argo profile represents the QC 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 Cycle 45 - Comparison to the nearest historical CTD profiles

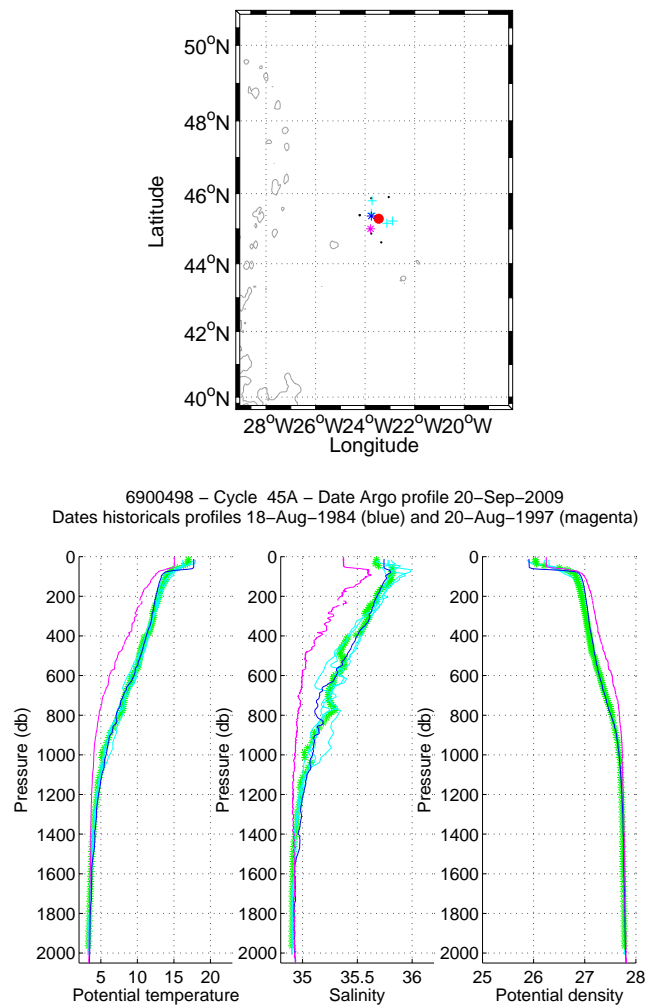
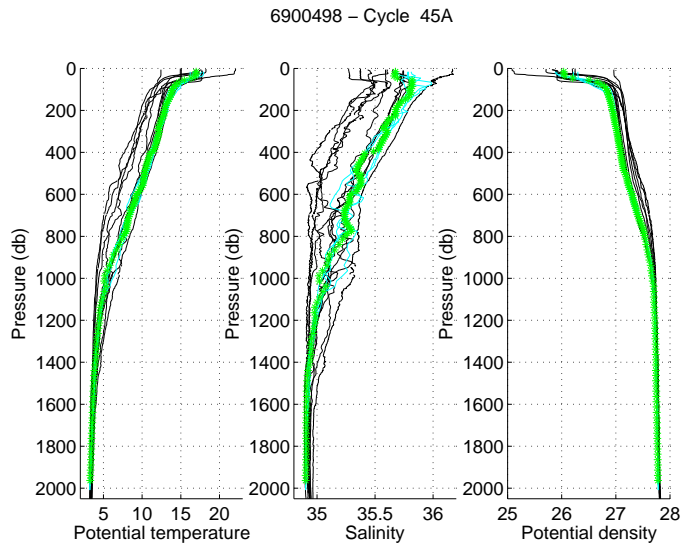


Figure 22: Flotteur 6900498, cycle 45. Upper panel: Position of the analysed CTD profile (red) and of the nearest CTD profiles (black). The nearest CTD profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function 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).



6900498 – Cycle 45A – Date Argo profile 20–Sep–2009
 Dates historicals profiles 18–Aug–1984 (blue) and 20–Aug–1997 (magenta)

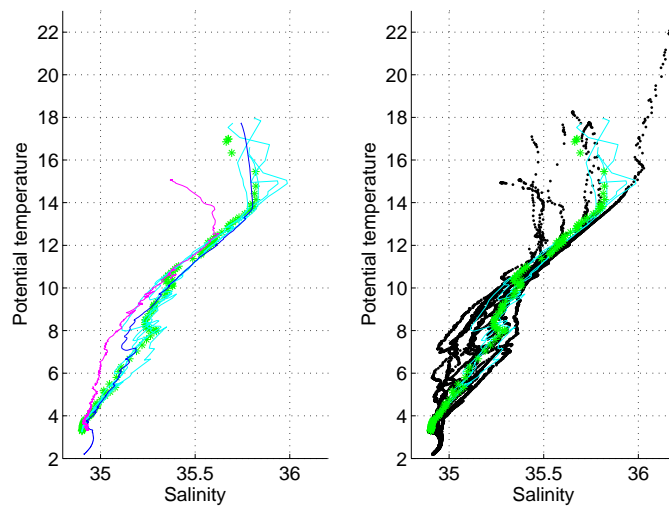


Figure 23: Float 6900498, cycle 45. The analysed CTD profile (stars) is compared to the nearest CTD profiles (black line) and to two specific profiles: the nearest CTD profile in time (magenta) and the nearest CTD profile in space (blue). The color of the analysed CTD profile represents the QC flag (green 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.

11 Cycle 45A - Comparison to the nearest ARGO profiles

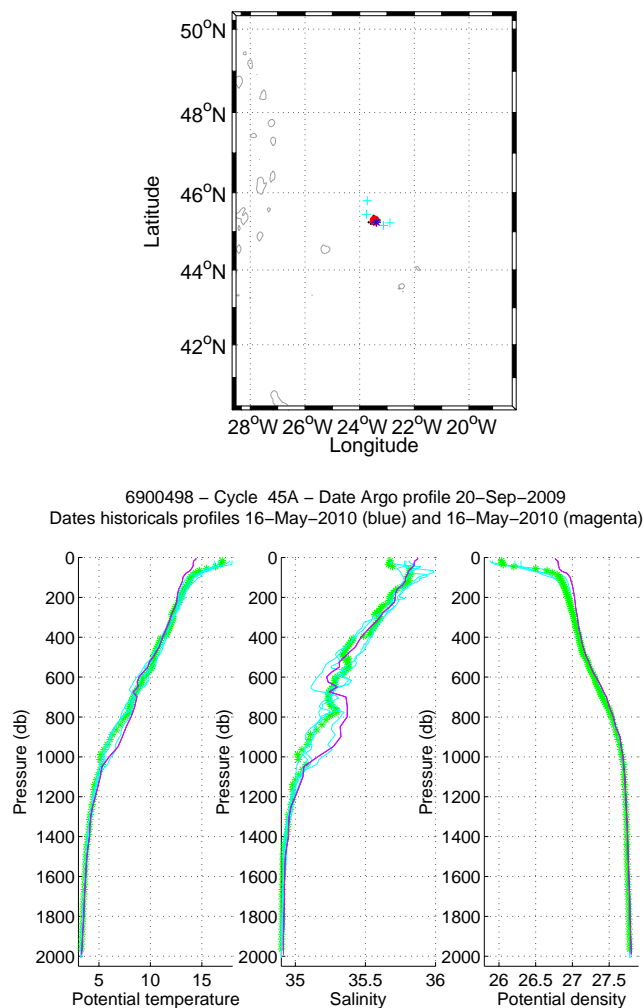


Figure 24: Flotteur 6900498, cycle 45A. Upper panel: Position of the analysed Argo profile (red) and of the nearest Argo profiles (black). The nearest Argo profile in time is in magenta while the nearest CTD profile in space is in blue. Lower panels: Temperature, salinity and potential density as function 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).

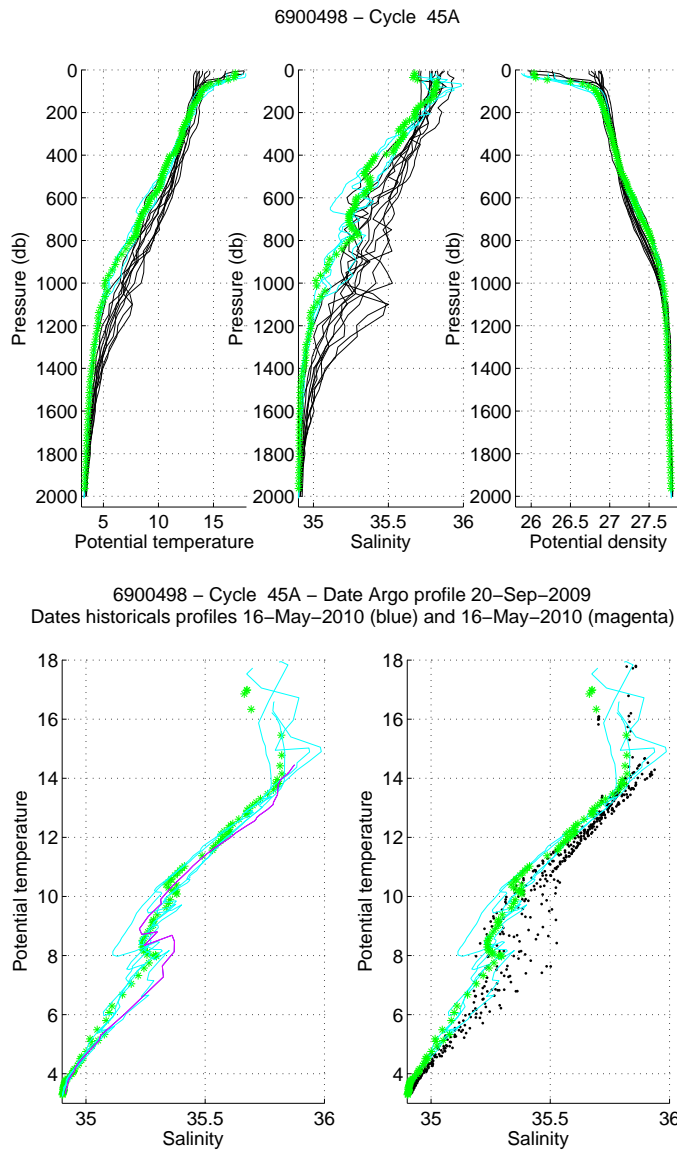


Figure 25: Float 6900498, cycle 45A. The analysed Argo profile (stars) is compared to the nearest Argo profiles (black line) and to two specific profiles: the nearest Argo profile in time (magenta) and the nearest Argo profile in space (blue). The color of the analysed Argo profile represents the QC 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.

12 OW method, CONFIGURATION # 129

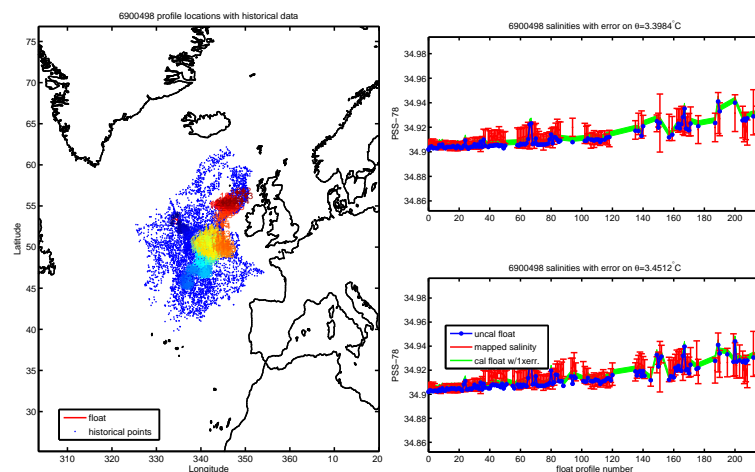


Figure 26: Figures from the OW method. (Left) Position of the historical and float data. (Right) Comparison, on various θ levels, between the float data and the historical data interpolated at the float position.

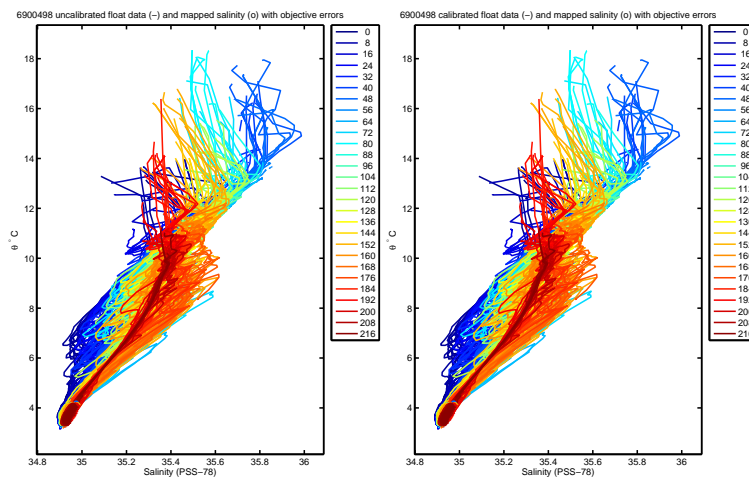


Figure 27: Figures from the OW method. Comparison of the θ/S diagram of the float with the historical database. (left) raw data; (right) corrected data using the OW correction.

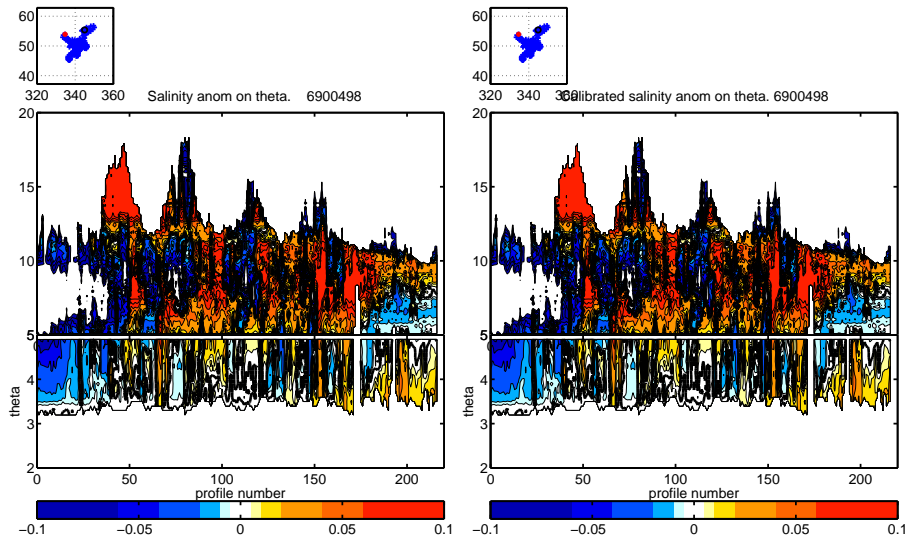


Figure 28: Figures from the OW method. Salinity anomaly:(left) raw data; (right) corrected data using the OW correction.

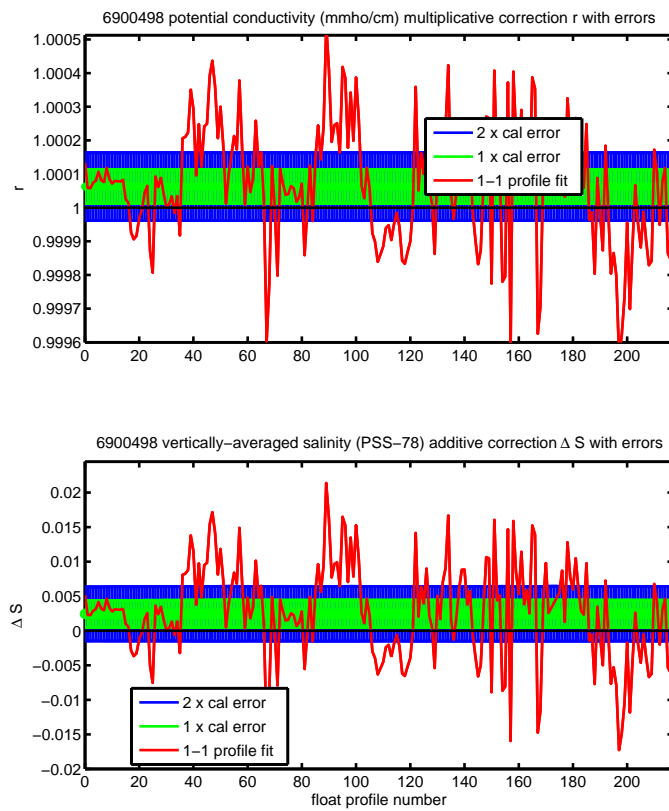


Figure 29: Correction proposed by the OW method.

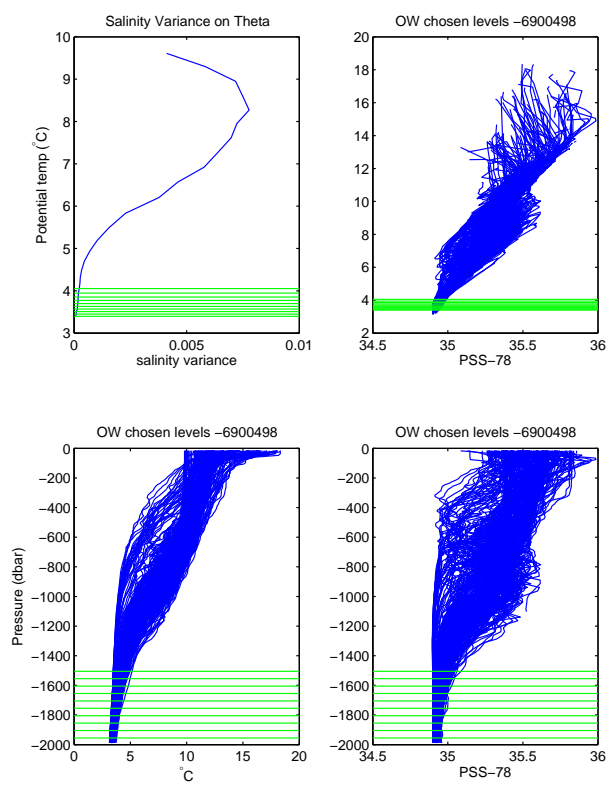


Figure 30: Chosed levels by the OW method.