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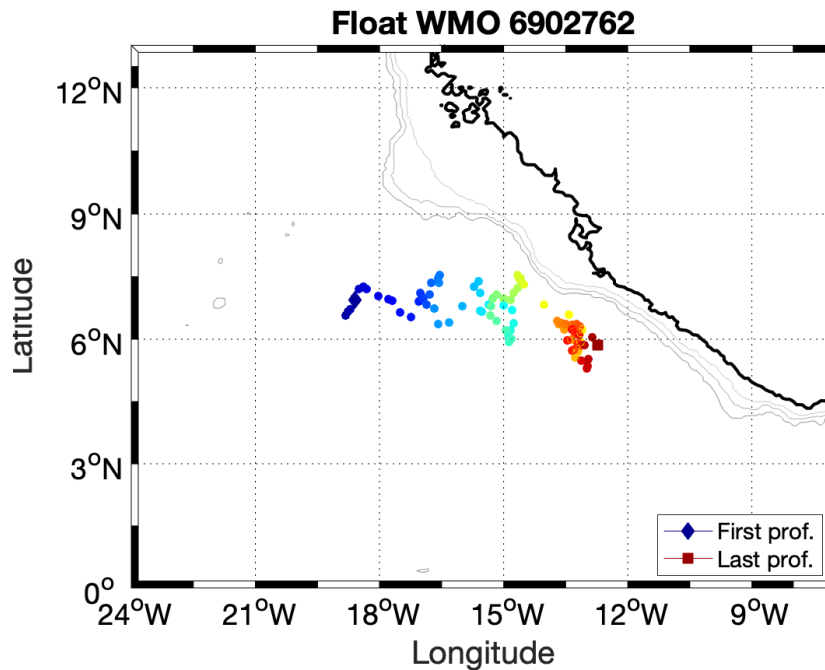
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# DELAYED MODE QUALITY CONTROL OF ARGO DATA FROM DAC CORIOLIS

## FLOAT WMO 6902762

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Auteur : Carole Saout  
February 20, 2020



# 1 General Presentation

<b>Platform Number</b>	<b>6902762</b>
<b>DAC</b>	IF-CORIOLIS
<b>Float Status</b>	Active
<b>Project</b>	PIRATA
<b>Name of the cruise</b>	PIRATA FR27
<b>Deployment Platform</b>	THALASSA
<b>Institution</b>	IFREMER
<b>Name of the PI</b>	B.Bourles
<b>Platform Model</b>	ARVOR (844)
<b>Serial Number</b>	AR2000-16FR019
<b>Sensor type</b>	SBE41 CP
<b>Positioning System</b>	ARGOS
<b>Data handbook</b>	1.2
<b>Format Version</b>	3.1

Table 1: Float characteristics.

<b>Deepest pressure in ascending profile (m)</b>	2000
<b>Parking depth (m)</b>	1000
<b>Cycle time (hours)</b>	240
<b>Deployment date</b>	2017/03/30
<b>Deployment position</b>	long = -18.57 , lat = 7.00
<b>Last studied cycle number</b>	89
<b>last studied cycle date</b>	2019/08/29
<b>last studied cycle position</b>	long = -12.72 , lat = 6

Table 2: Programming and evolution.

## 2 Trajectory, positions and dates

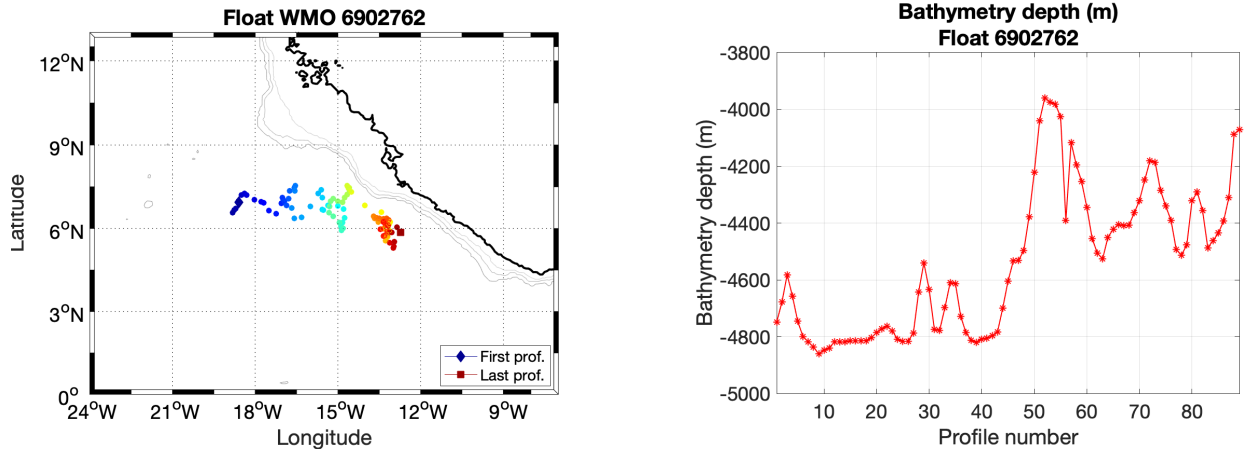


Figure 1: (left) : Profiles position, (right) : bathymetry depth function of cycle number.

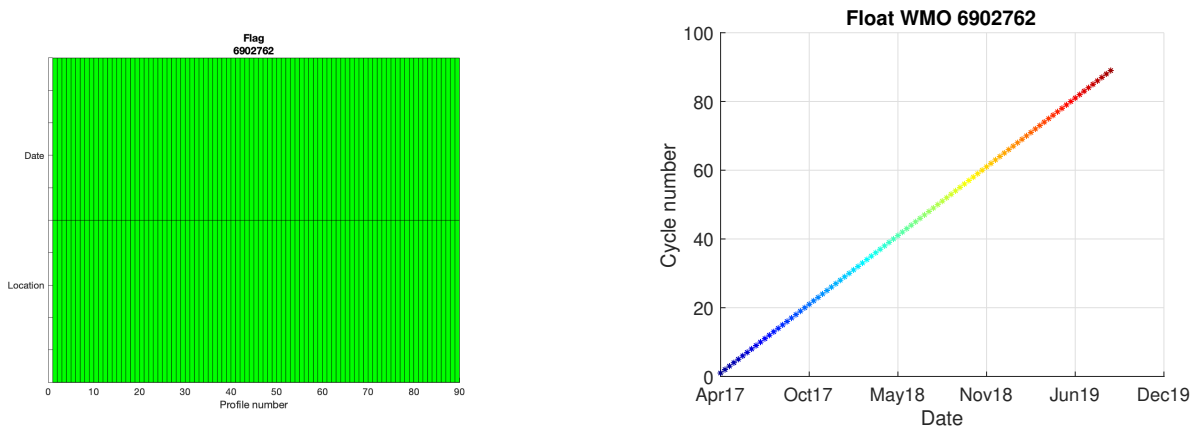


Figure 2: (left) : flags on profiles positions and dates.  
(right) : relationship between cycle number, date and color.

### 3 Informations on Meta-Data

<b>NAME</b>
ANOMALY
CONTROLLER_BOARD_TYPE_SECONDARY
CONTROLLER_BOARD_SERIAL_NO_SECONDARY
SPECIAL_FEATURES
CUSTOMISATION
STARTUP_DATE
STARTUP_DATE_QC
DEPLOYMENT_CRUISE_ID
END_MISSION_DATE
END_MISSION_STATUS
CONFIG_MISSION_COMMENT
PREDEPLOYMENT_CALIB_COMMENT

Table 3: Missing on Meta Data.

## 4 Quality check on basic parameters

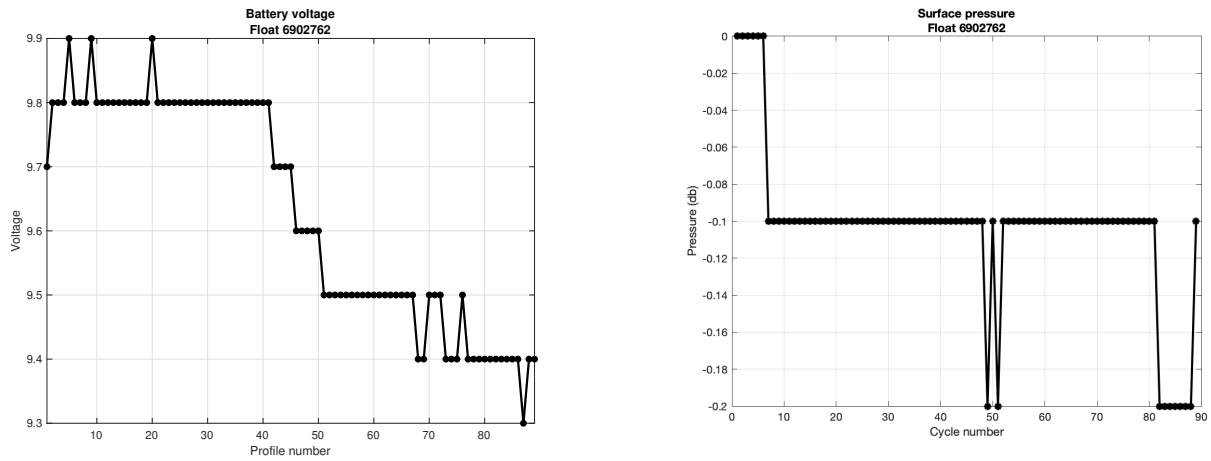


Figure 3: (left) : battery voltage - (right) : surface pressure from technical files.

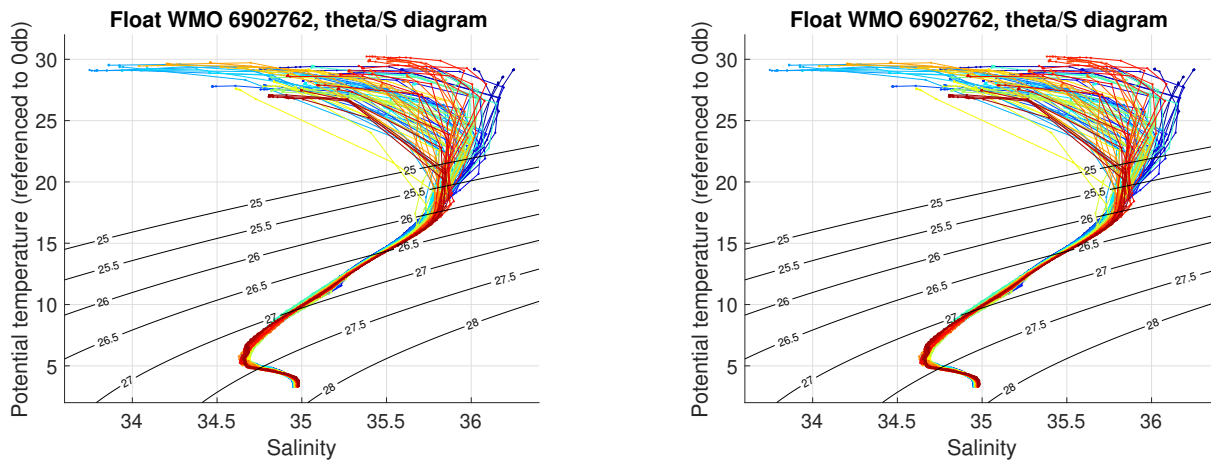


Figure 4:  $\theta/S$  diagrams.  
 (left panel) Flags are not taken into account.  
 (right panel) Quality flags are taken into account.

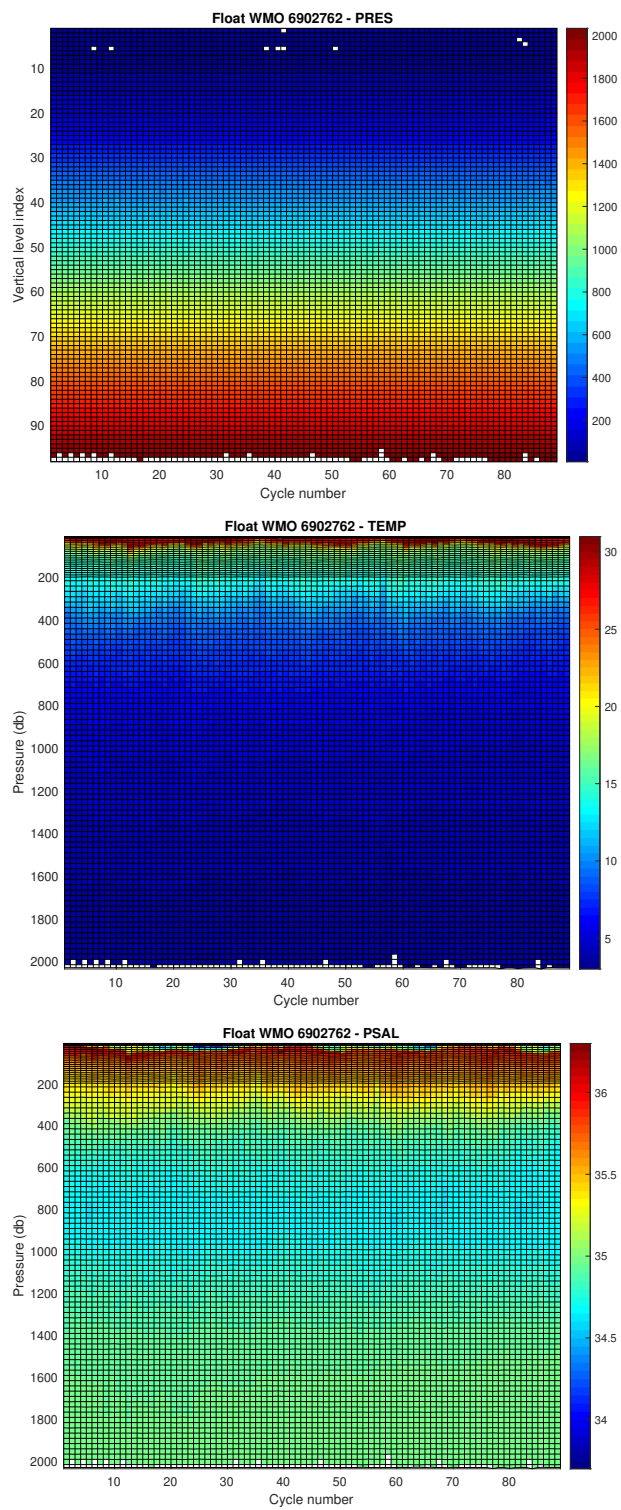


Figure 5: Sections of pressure (top), temperature (middle) and salinity (bottom) section along the float trajectory. Quality flags are not taken into account.

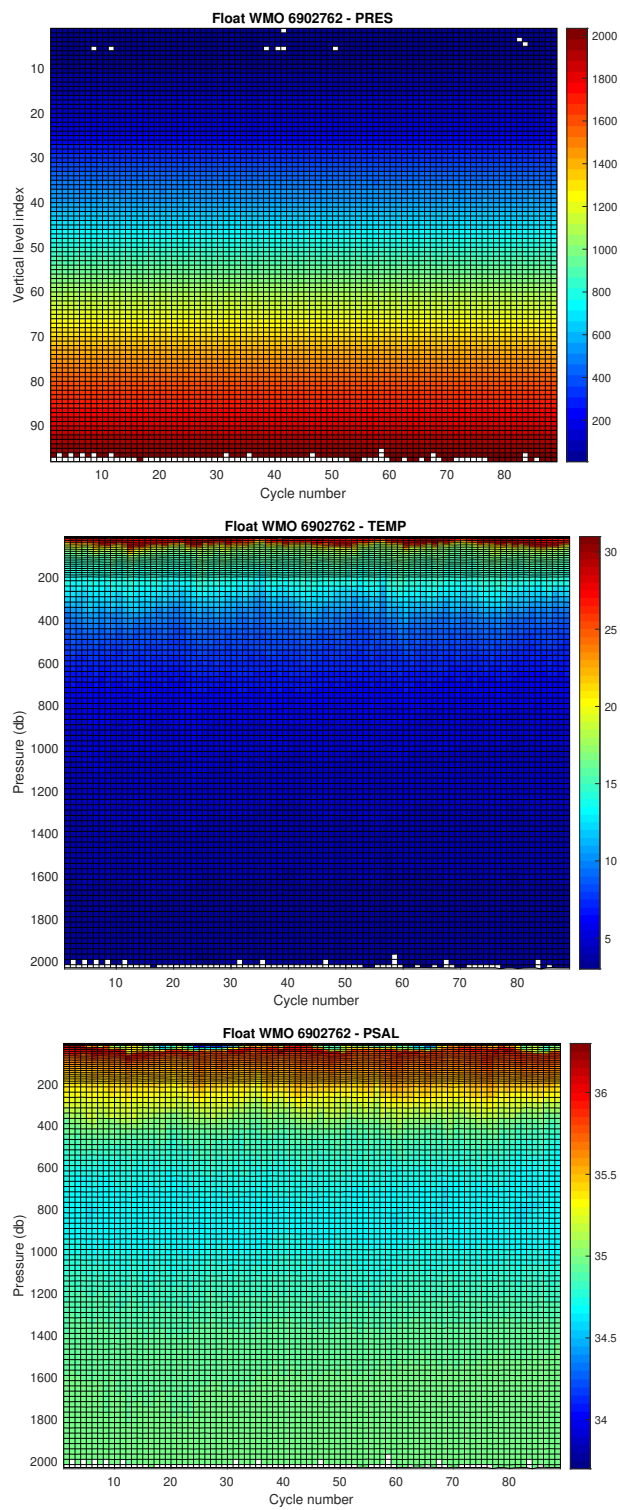


Figure 6: Sections of pressure (top), temperature (middle) and salinity (bottom) section along the float trajectory. Quality flags are taken into account.

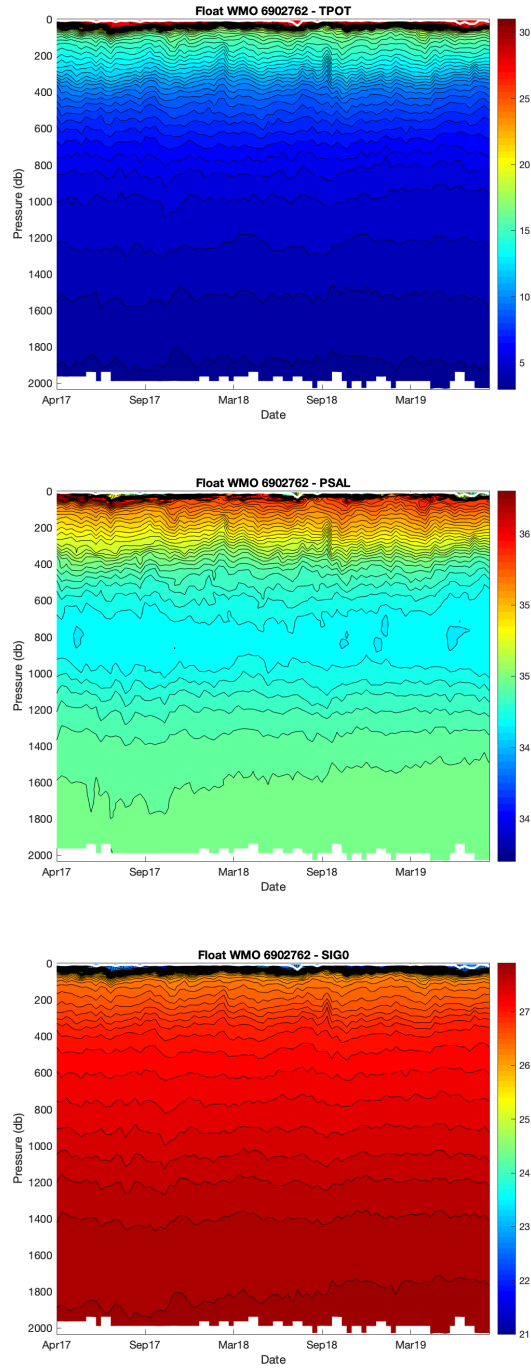


Figure 7: Sections of pressure (top), temperature (middle) and salinity (bottom) section along the float trajectory. Quality flags are taken into account.



## 5 QC flag checks and interesting profiles

No profile is flagged with Qc at 4 from cycle 0 to cycle 89.

## 6 Pressure Calibration :

ARVOR float with *PRES\_SurfaceOffsetCorrectedNotResetNegative\_1cBarResolution\_dBar*  
 i.e. correction on-board, no need to do DM adjustment in pressure.

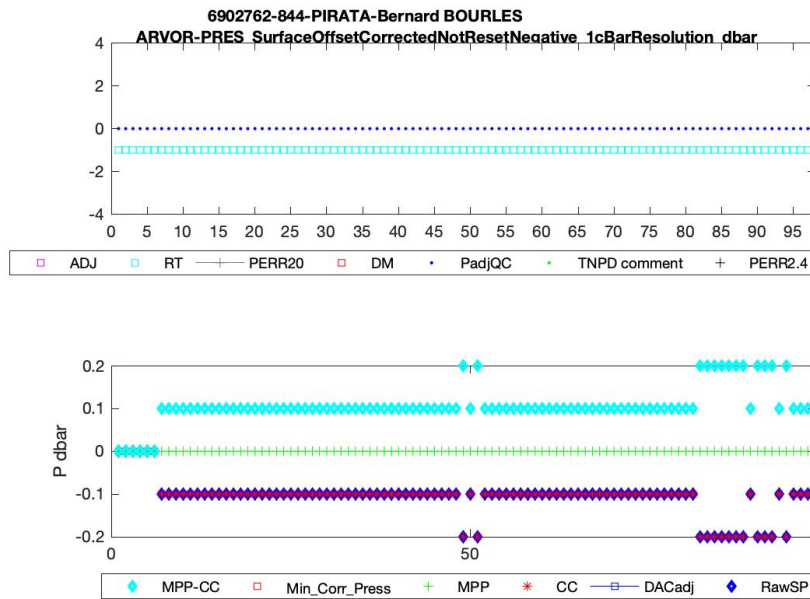


Figure 8: Surface pressure time serie for float 6902762. Legend : blue diamonds : Raw Surface Pressure ; blue squares : DAC adjustment (if DM exist) ; red points : calculated correction CC ; green diamonds with the minimal profile pressure value (MPP) ; pink squares : corrected minimal surface pressure ; cyan diamonds :  $MPP - CC$

## 7 OW method, CONFIGURATION #NA\_ARGO\_refinement

We use OW method adjusted by Cabanes et al., 2016. The method excludes profiles flagged at 4 in real-time. Input salinities are raw float profiles measurements.

We observe a positive drift in the salinity measurements, from cycle 45 to the last one. We suggest to apply the OW's corrections to salinity data.

ARGO CLIMATOLOGY	2019V03
CTD CLIMATOLOGY	2019V01
CONFIG_MAX_CASTS	250
MAP_USE_PV	1
MAP_USE_SAF	0
MAPSCALE_LONGITUDE_LARGE	3.2
MAPSCALE_LONGITUDE_SMALL	0.8
MAPSCALE_LATITUDE_LARGE	2
MAPSCALE_LATITUDE_SMALL	0.5
MAPSCALE_PHILARGE	0.1
MAPSCALE_PHLSMALL	0.02
MAPSCALE_AGE	0.69
MAPSCALE_AGE_LARGE	2
MAP_P_EXCLUDE	0
MAP_P_DELTA	250

breaks	none
max_breaks	4
use_percent_gt	0.5

Table 5: Calibration parameters.

Table 4: Mapping parameters.

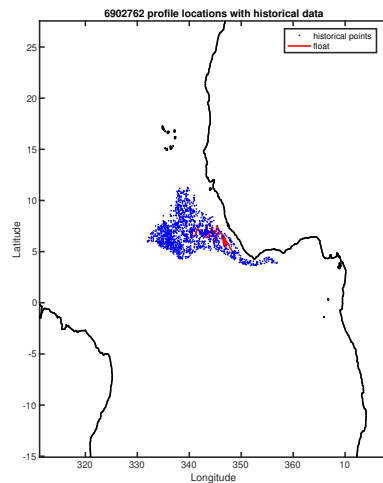


Figure 9: Position of the historical and float data.

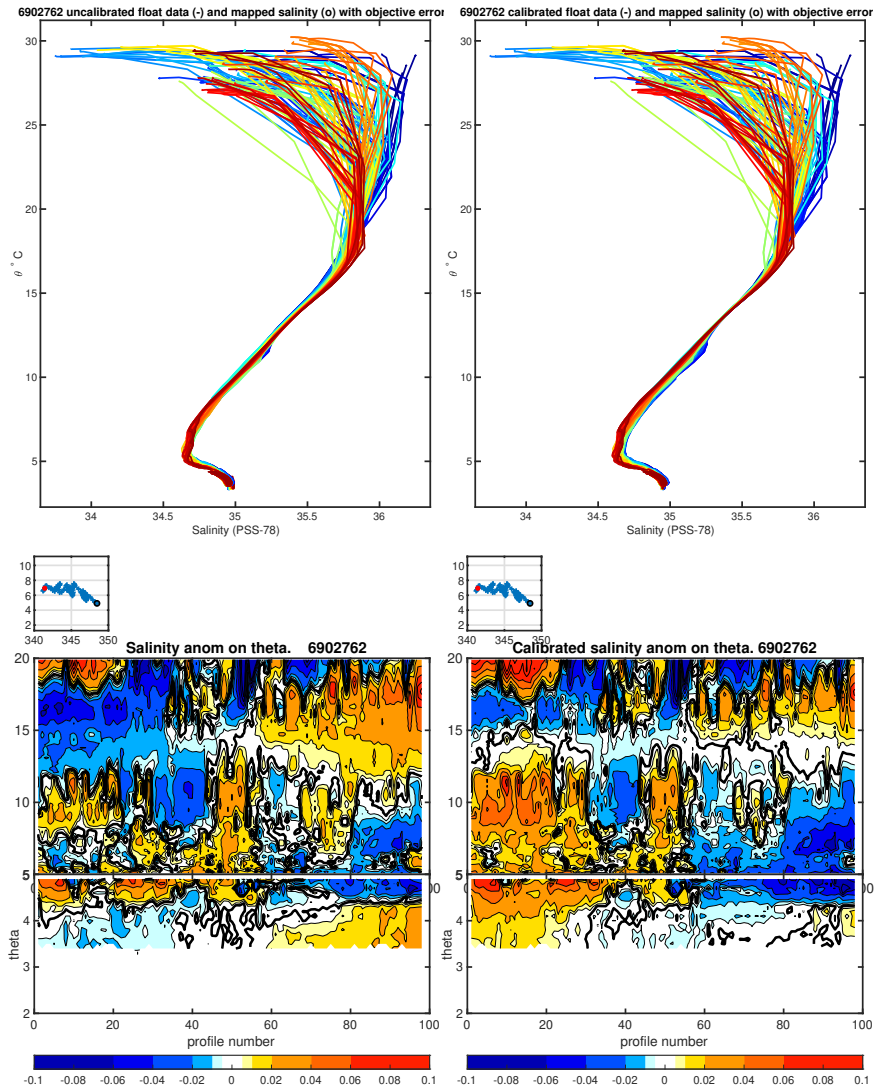


Figure 10: **(top panel)** : Comparison of the  $\theta/S$  diagram of the float with the historial database. (left) raw data. (right) corrected data using the OW correction.  
**(bottom panel)** : Salinity anomaly. (left) raw data. (right) corrected data using the OW correction.

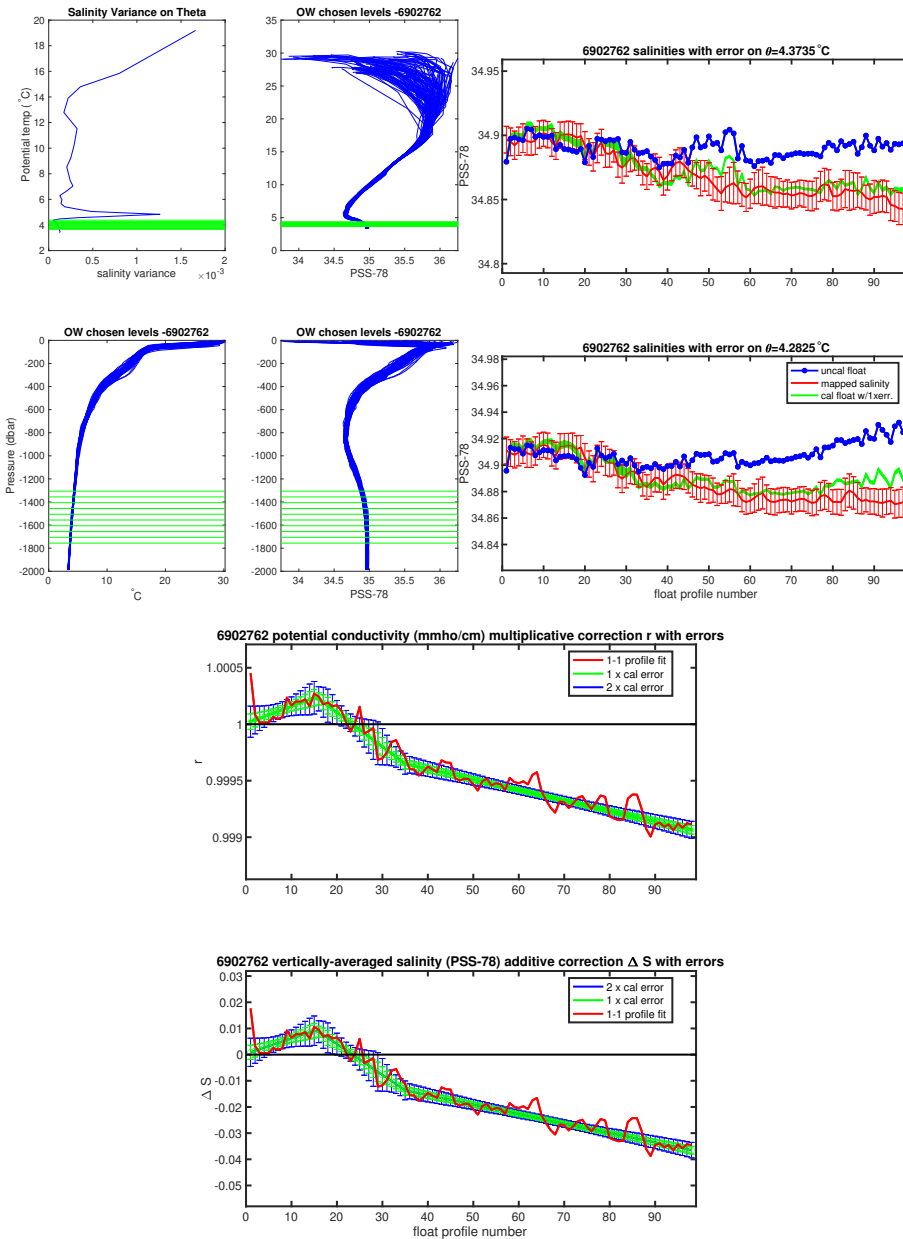


Figure 11: (top left) :  $\theta$ - levels chosen for the calibration. (top right) : comparison, on various  $\theta$  levels, between the float data and the historical data interpolated at the float position. (bottom): Correction proposed by the OW method.