



1 avenue de la Prémondière  
44000 Nantes (France)  
Mobile: +33 (0)6 30 33 81 63  
carole.saout@glazeo.net



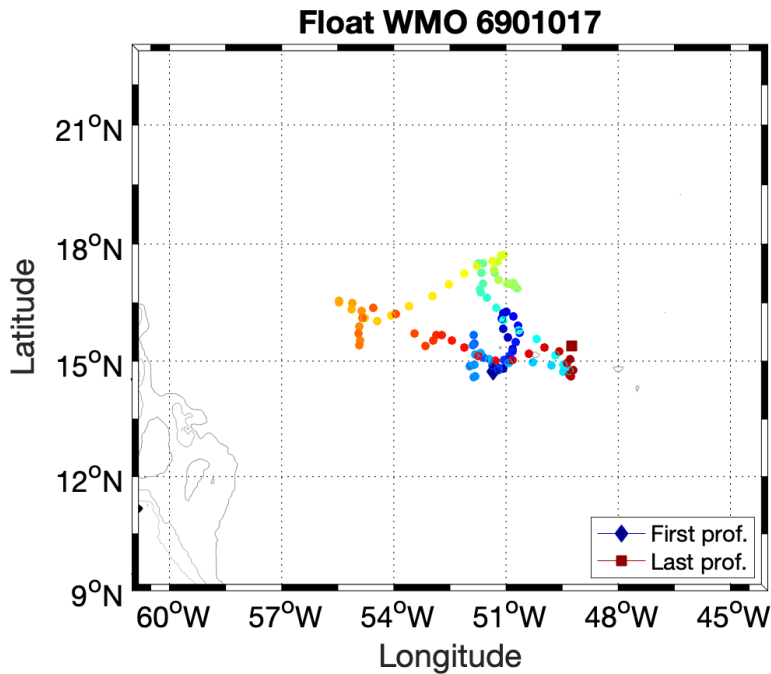
---

# DELAYED MODE QUALITY CONTROL OF ARGO DATA FROM DAC CORIOLIS

## FLOAT WMO 6901017

---

Auteur : Carole Saout  
November 12, 2019



# 1 General Presentation

<b>Platform Number</b>	<b>6901017</b>
<b>DAC</b>	IF-CORIOLIS
<b>Float Status</b>	Dead
<b>Project</b>	Euro-Argo and Coriolis
<b>Deployment Platform</b>	RARA AVIS
<b>Institution</b>	IFREMER
<b>Name of the PI</b>	N. LEBRETON
<b>Platform Model</b>	APEX APF9 (846)
<b>Serial Number</b>	OIN-13SH-ARL-05
<b>Sensor type</b>	SBE41 CP
<b>Positionning 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>	2014/02/03
<b>Deployment position</b>	long = -51.31, lat = 14.72
<b>Last studied cycle number</b>	101
<b>last studied cycle date</b>	2016/11/07
<b>last studied cycle position</b>	long = -49.25 , lat = 15

Table 2: Programmation and evolution.

## 2 Trajectory, positions and dates

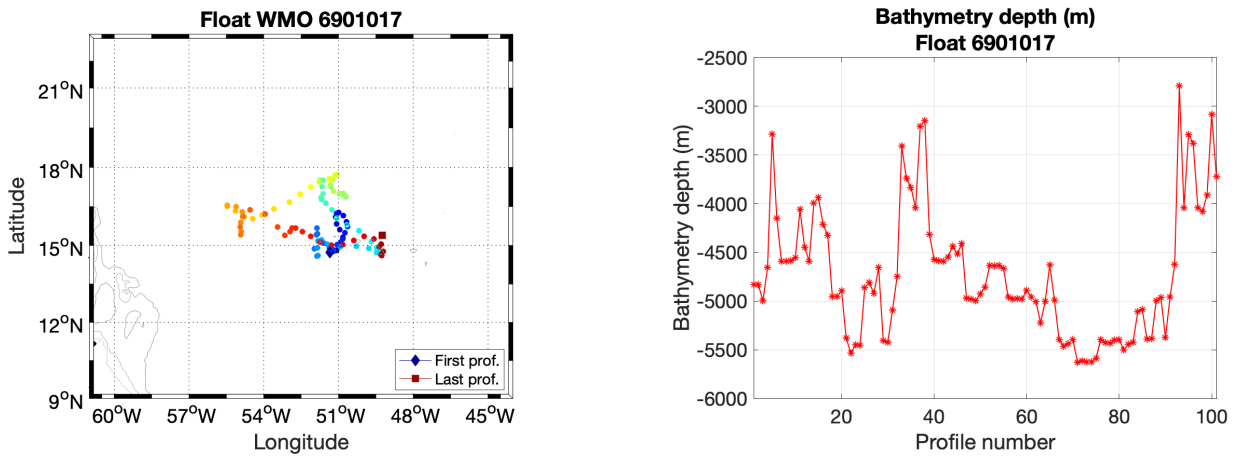


Figure 1: (left) : Profiles position, (right) : bathymetry depth function of cycle number.

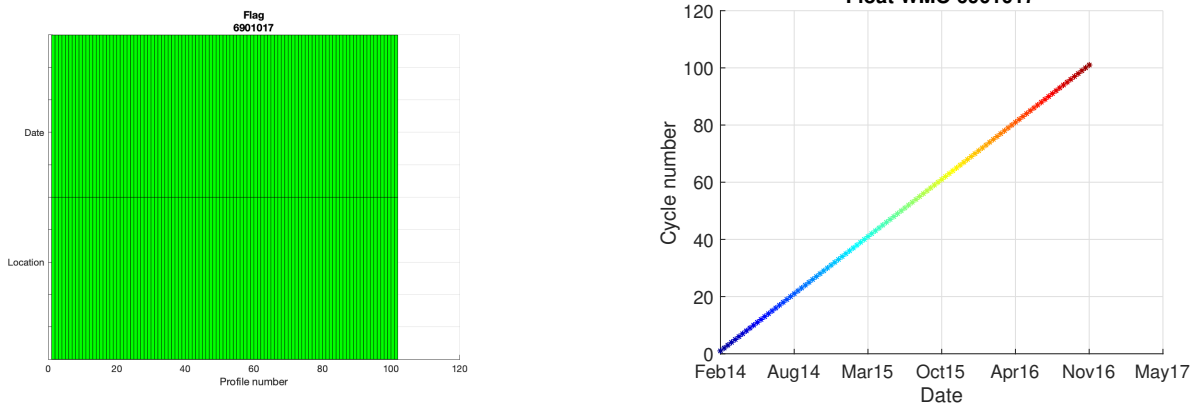


Figure 2: (left) : flags on profiles positions and dates.  
(right) : relationship between cycle number, date and color.

### 3 Informations on Meta-Data

NAME
ANOMALY
BATTERY_PACKS
CONTROLLER_BOARD_TYPE_SECONDARY
CONTROLLER_BOARD_SERIAL_NO_SECONDARY
SPECIAL_FEATURES
FLOAT_OWNER
OPERATING_INSTITUTION
CUSTOMISATION
STARTUP_DATE_QC
END_MISSION_DATE
END_MISSION_STATUS
CONFIG_MISSION_COMMENT
PREDEPLOYMENT_CALIB_COMMENT

Table 3: Missing on Meta Data.

## 4 Quality check on basic parameters

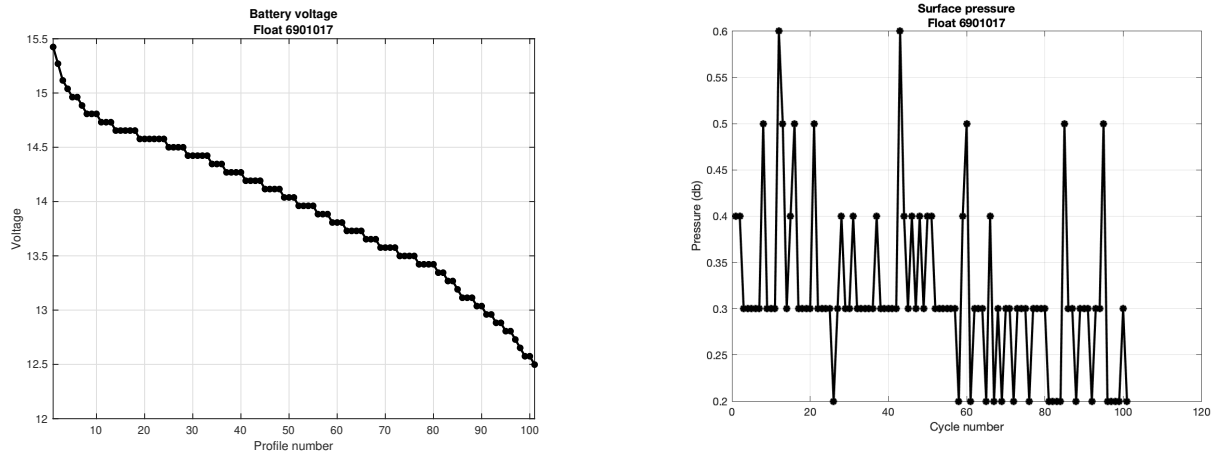


Figure 3: (left) : battery voltage - (right) : surface pressure from technical files.

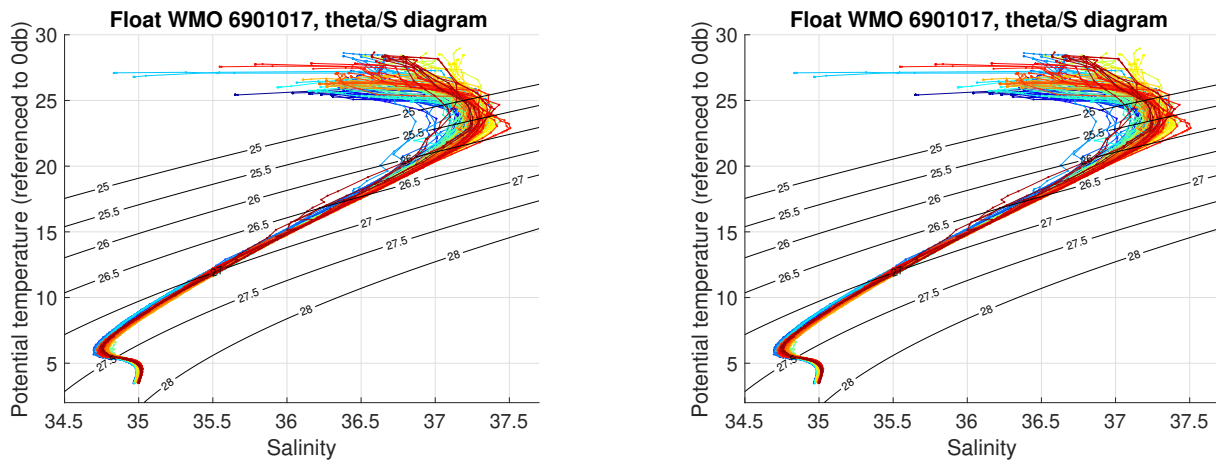


Figure 4:  $\theta/S$  diagrams.  
(left panel) Flags are not taken into account.  
(right panel) Quality flags are taken into account.

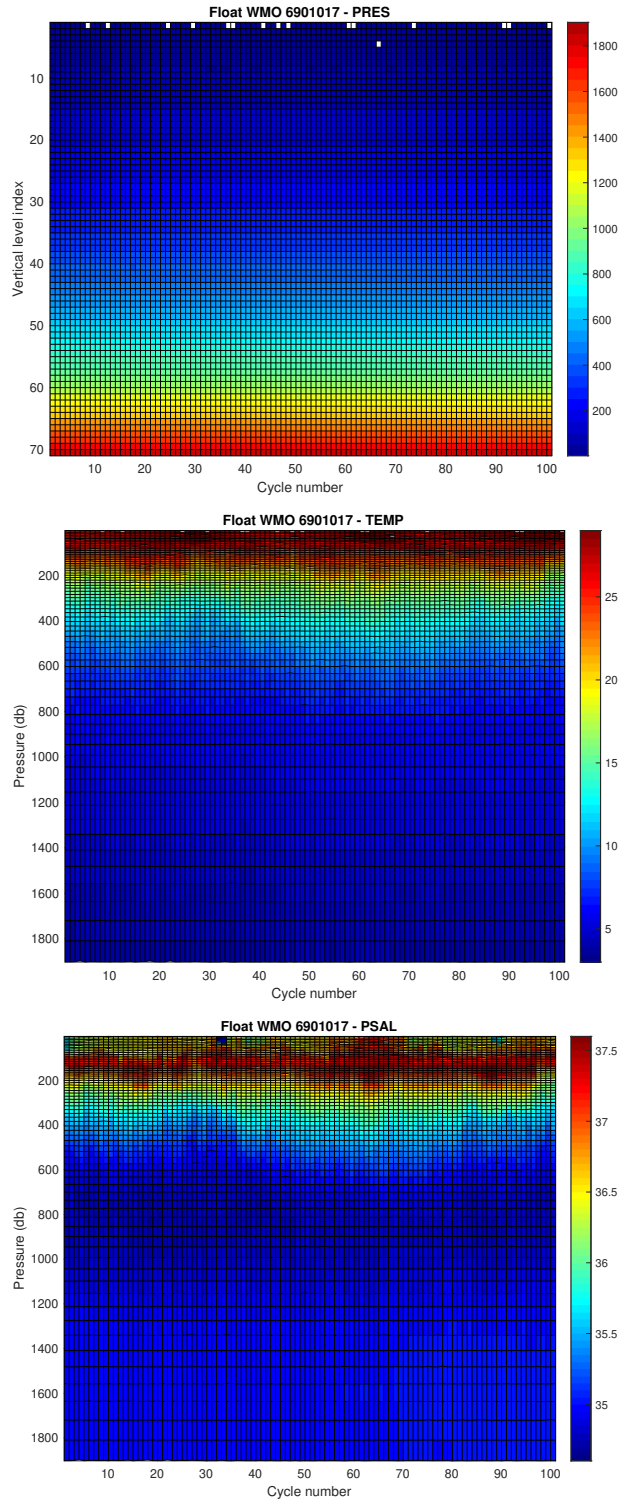


Figure 5: Sections of pressure (top), temperature (middle) and salinity (bottom) section along the float trajectory. Quality flags are not taken into account.

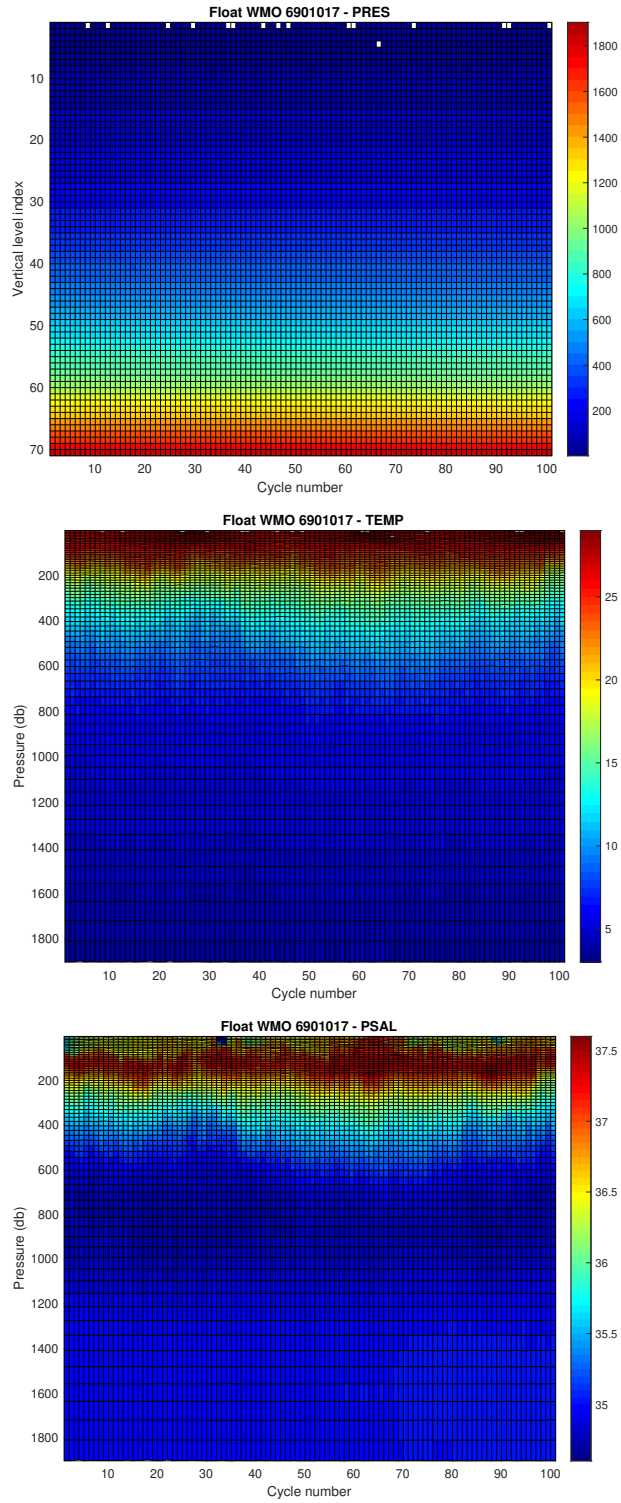


Figure 6: Sections of pressure (top), temperature (middle) and salinity (bottom) section along the float trajectory. Quality flags are taken into account.

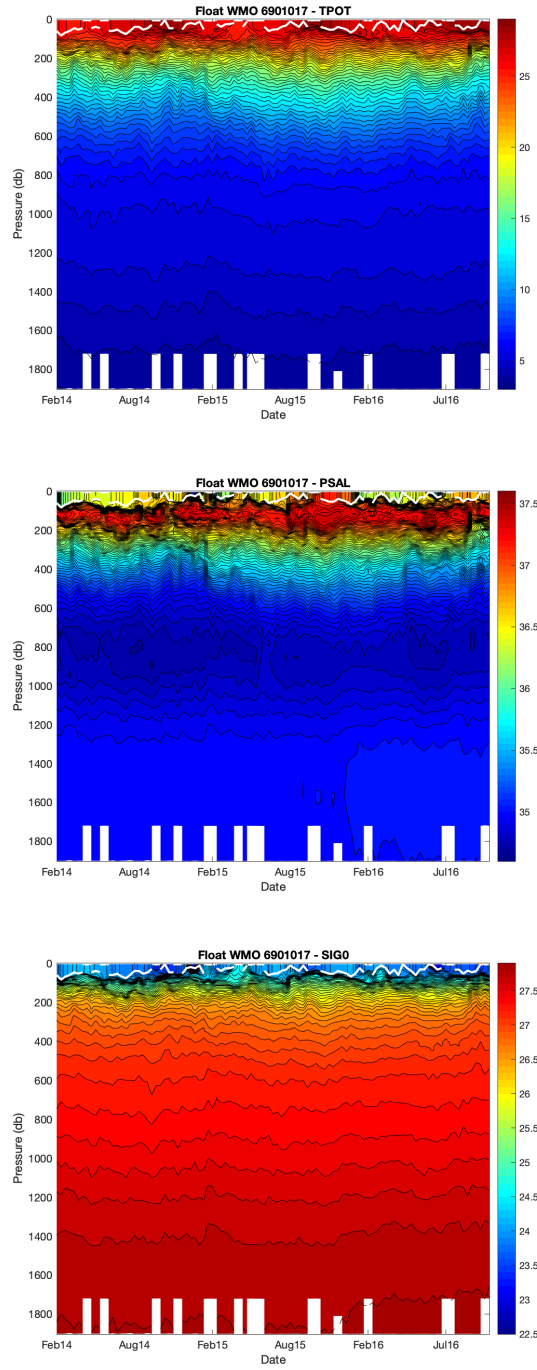


Figure 7: Sections of pressure (top), temperature (middle) and salinity (bottom) section along the float trajectory. Quality flags are taken into account.



## 5 QC flag checks and interesting profiles

No profile detected with bad P/T/S from cycle 0 to cycle 101.

## 6 Pressure Calibration :

APEX float with *PRES\_SurfaceOffsetNotTruncated.dBar* i.e. no correction is made on-board. Surface values for non-truncated pressure are all between 0.2 and 0.6 dbar, which means less than 1dbar. There is no need to do DM adjustment in pressure.

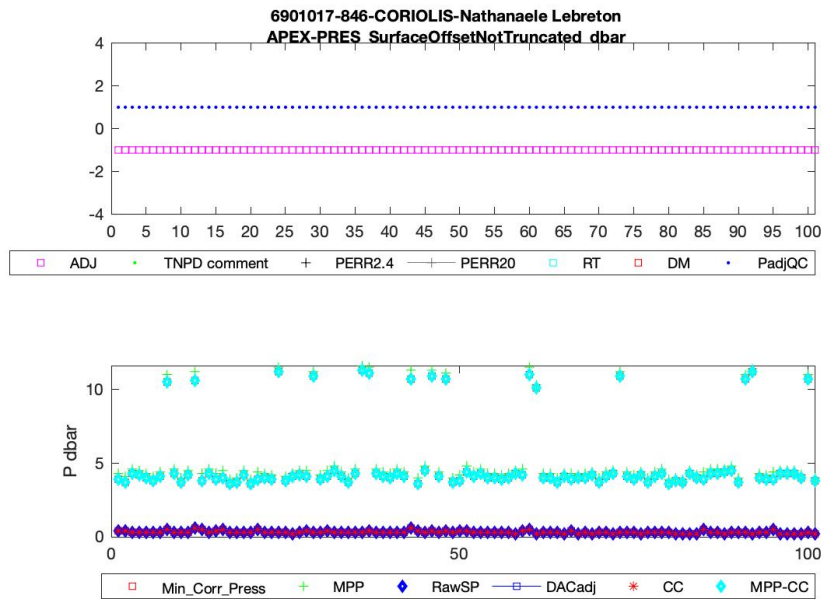


Figure 8: Surface pressure time serie for float 6901017. Legend : blue diamonds : Raw Surface Pressure ; blue squares : DAC adjustment (if DM exist) ; red points : calculated correction CC ; green diamonds with the minimal profile pressure value (MPP) ; pink squares : corrected minimal surface pressure ; cyan diamonds :  $MPP - CC$

## 7 OW method, CONFIGURATION #NA\_CTDANDARGO

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 drift in the salinity measurements from cycle 70 to the last one. We suggest to apply OW's correction to salinity data for the section [cycle 70 - cycle 101] .

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_PHI_LARGE	0.1
MAPSCALE_PHI_SMALL	0.02
MAPSCALE_AGE	0.69
MAPSCALE_AGE_LARGE	2
MAP_P_EXCLUDE	500
MAP_P_DELTA	250

Table 4: Mapping parameters.

breaks	none
max_breaks	4
calseries	[ones(1,70) 2*ones(1,n-70)]
use_percent_gt	0.5

Table 5: Calibration parameters.

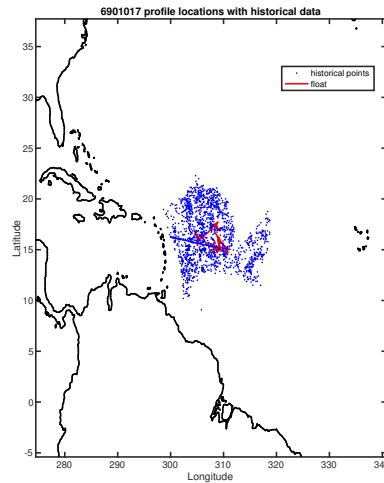


Figure 9: Position of the historical and float data.

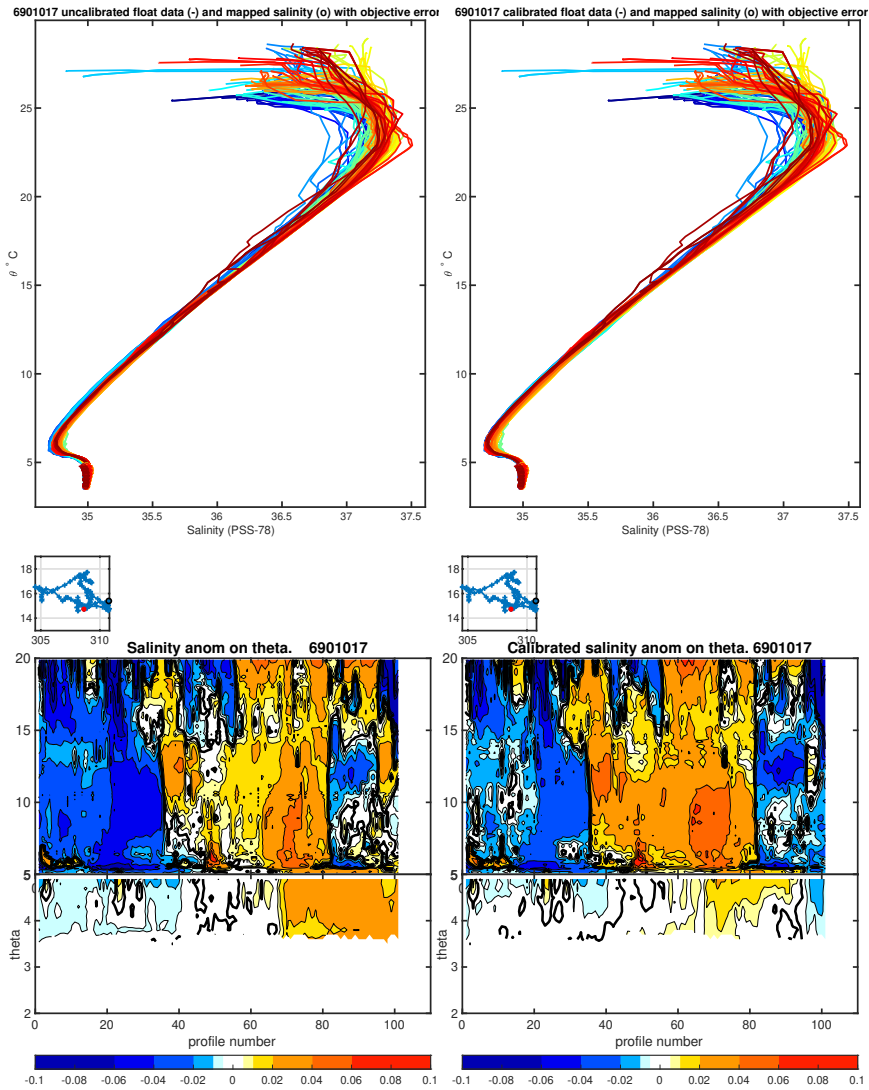


Figure 10: **(top panel)** : Comparison of the  $\theta/S$  diagram of the float with the historial database. (left) raw data. (right) corrected data using the OW correction.  
**(bottom panel)** : Salinity anomaly. (left) raw data. (right) corrected data using the OW correction.

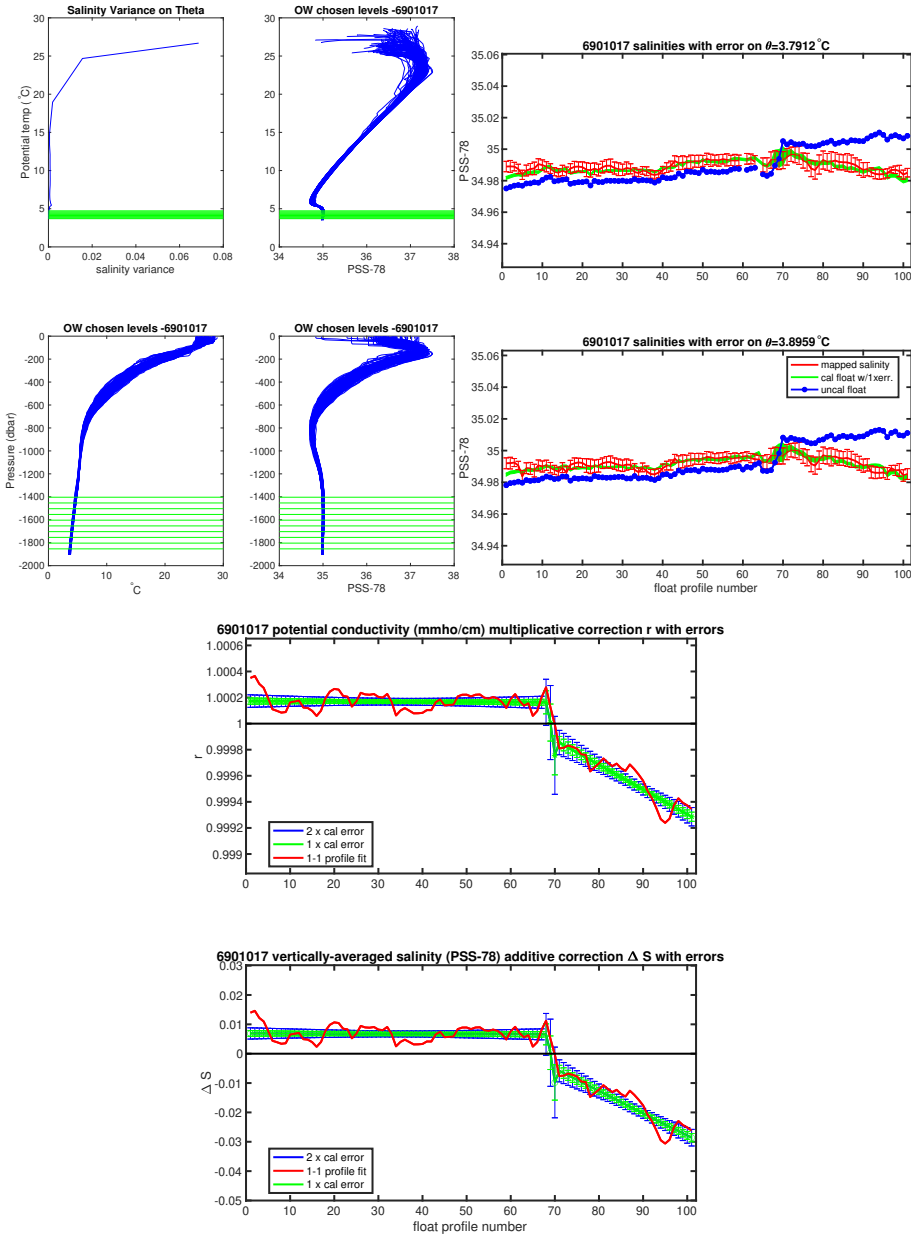


Figure 11: (top left) :  $\theta$ - levels chosen for the calibration. (top right) : comparison, on various  $\theta$  levels, between the float data and the historical data interpolated at the float position. (bottom): Correction proposed by the OW method.