Delayed mode analysis of DEEP ARVOR floats

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Summary

WMO Number	DM Sallinity Correction
6901468	offset(0.008)
6901597	offset(0.019)
6901631	offset(0.009) and flag 4 cycles 27-30
6901632	offset(0.014)
6901757	offsets (0.011 cy.1-69 and 0.036 cy.69-143)
6901759	offset(0.003)
6901758	offsets (0.017 cy.1-18 and linear drift after)
6901602	No correction
6901760	offset(0.006)
6901762	offset(0.005)
6901603	offset(0.003)
6902810	offset(0.004)
6902811	No correction
6902812	offset(0.004)

Table 1: Salinity Correction applied in delayed mode for each deep-Arvor float

Contents

1 Presentation

Delayed Mode analysis was performed for each Arvor float (see table 2). First, salinity and temperature profiles were compared to nearby historical CTD profiles using verif_flag programs. Real time QC flags were verified and modified if necessary (see table 3). The OW method was then run to estimate a salinity offset or/and a salinity drift, using the configurations 39, 392 (see table 4) and historical CTD profiles as a reference database. Finally, corrections were applied in the netcdf files when we though it was necessary(see table 5).

WMO Number	Launch date	Centre	Pi	Last cycle analysed Active/NotActive	Cycle Duration
6901468	04/09/2012	IF	X.Andre	61(NA)	cy.1-8: 3 days cy.9-15: 2 days cy.16-16: 7 days cy.17-61: 2 days
6901597	17/11/2013	IF	V.Dutreuil/S.Le Reste	89(NA)	cy.1-1: 1.2917 days cy.2-56: 2 days cy.57-60: 5 days cy.61-64: 10 days cy.65-74: 5 days cy.75-79: 3 days cy.80-89: 5 days
6901631	23/05/2014	IF	V.Dutreuil/S.Le Reste	32(NA)	cy.1-1: 1.2917 days cy.2-4: 2 days cy.5-20: 3 days cy.21-32: 10 days
6901632	31/05/2014	IF	V.Dutreuil/S.Le Reste	142(NA)	cy.1-1: 1.2917 days cy.2-2: 1 days cy.3-4: 2 days cy.5-12: 3 days cy.13-142: 2 days
6901757	08/06/2015	IF	S.Le Reste	143(NA)	cy.1-143: 2 days
6901759	03/07/2015	IF	V.Thierry	10(NA)	cy.1-10: 10 days
6901758	03/07/2015	IF	V.Thierry	63(NA)	cy.1-1: 10.2882 days cy.2-63: 10 days
6901602	03/07/2015	IF	V.Thierry	33(NA)	cy.1-33: 10 days
6901760	11/07/2016	IF	V.T.	54(NA)	cy.1-1: 2.2882 days cy.2-54: 10 days
6901762	11/07/2016	IF	V.T.	66(NA)	cy.1-1: 2.2882 days cy.2-66: 10 days
6901603	06/08/2017	IF	V.Thierry	12(NA)	cy.1-12: 10 days
6902810	06/08/2017	IF	V.Thierry	1(NA)	cy.1-1: 10 days
6902811	09/08/2017	IF	V.Thierry	31(A)	cy.1-31: 10 days
6902812	09/08/2017	IF	V.Thierry	7(NA)	cy.1-7: 10 days

Table 2: Arvor floats

2 DMQC Summary

2.1 Verification of RT QC flags

Real Time QC flags were verified and modified if necessary. Table 3 gives the list of flags that have been modified during the delayed mode process.

WMO Number	Cycle	Param	Old flag	New flag	Levels	Date of modification
6901468	014A	TEMP	4	1	449.2 : 665	04/06/2018
		PSAL	1	4	329.2 : 447.9	04/06/2018
6901597	003A	TEMP	4	1	1338.2 : 1512.9	04/06/2018
		PSAL	1	4	1413.3 : 1413.3	05/06/2018
	080A	TEMP	4	1	286.9 : 312.7	04/06/2018
	083A	PSAL	1	4	1287.8 : 1988.1	04/06/2018
		PSAL	3	4	2012.6 : 3456.2	04/06/2018
6901757	006A	TEMP	4	1	5.8 : 305.5	04/06/2018
		PSAL	1	4	14.7 : 763.2	04/06/2018
	030A	TEMP	4	1	787.6 : 1263.2	04/06/2018
		PSAL	1	4	663 : 1987.9	04/06/2018
		PSAL	3	4	2012.8 : 3826.3999	04/06/2018
	032A	TEMP	4	1	938.2 : 1112.7	04/06/2018
		PSAL	1	4	787.6 : 1987.5	04/06/2018
		PSAL	3	4	2012.7 : 3813.2	04/06/2018
	040A	TEMP	4	1	1212.4 : 1237.6	04/06/2018
		PSAL	1	4	1038.3 : 1987.5	04/06/2018
		PSAL	3	4	2012.3 : 3802	04/06/2018
	112A	TEMP	4	1	255.3 : 837.6	04/06/2018
		PSAL	1	4	5.9 : 963.2	04/06/2018
	137A	TEMP	4	1	225.4 : 255.1	04/06/2018
		PSAL	1	4	265 : 275.1	04/06/2018
6901760	001D	PSAL	1	4	1822.3 : 1852	08/11/2016
		TEMP	2	4	1985.7 : 2169.5	08/11/2016
		PSAL	3	4	1985.7 : 2169.5	08/11/2016
		TEMP	1	4	1822.3 : 1852	08/11/2016
	001A	PSAL	1	4	8.1 : 1561.3	09/03/2018
6901762	052A	PSAL	1	4	5.9 : 730.3	25/05/2018

Table 3: Modified flags during DM analysis

A density inversion check (with a treshold value of 0.03) was performed on the raw profiles of each float (RTQC flags are not taken into account).

- 6901468 - Density inversions are found cycle: 14.
- 6901597 - Density inversions are found cycles: 3, 80, 83. Missing cycle :35.
- 6901631 - No Density inversions.
- 6901632 - No Density inversions. The float did not dive at cycle: 80.

- 6901757 - Density inversions are found cycles: 112, 137, 30, 32, 40, 6. The float did not dive at cycle: 89.
- 6901759 - No Density inversions.
- 6901758 - No Density inversions. Missing cycle :18.
- 6901602 - No Density inversions. Missing cycle :18.
- 6901760 - No Density inversions.
- 6901762 - Density inversions are found cycle: 52. The float did not dive at cycle: 25.
- 6901603 - No Density inversions.
- 6902810 - No Density inversions.
- 6902811 - No Density inversions.
- 6902812 - No Density inversions.

2.2 Salinity corrections applied

The OW method was run for each float to estimate a salinity offset or drift. The configuration parameters are listed in Table 4. The historical CTD reference database is used and results obtained with the OW method are given Table 5.

OW CONFIGURATION	39	392
CONFIG_MAX_CASTS	250	250
MAP_USE_PV	1	1
MAP_USE_SAF	0	0
MAPSCALE_LONGITUDE_LARGE	3.2	3.2
MAPSCALE_LONGITUDE_SMALL	0.8	0.8
MAPSCALE_LATITUDE_LARGE	2	2
MAPSCALE_LATITUDE_SMALL	0.5	0.5
MAPSCALE_PHI_LARGE	0.1	0.1
MAPSCALE_PHI_SMALL	0.02	0.02
MAPSCALE_AGE	0.69	0.69
MAPSCALE_AGE_LARGE	10	2
MAP_P_EXCLUDE	0	0
MAP_P_DELTA	250	250
Reference data base	CTD (2018v01)	CTD (2018v01)

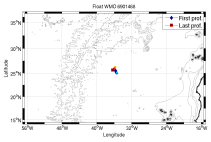
Table 4: Parameters of the OW method for the configurations 39, 392. Compared to the original OW method, the large scale mapping use a Gaussian decay - MAPSCALE_AGE_LARGE -, the calculation of the mapping error is modified and the horizontal covariance is taken into account for the computation of the error on the fit.

WMO Number	Calibration: Comparison with the reference CTD cast	Calibration: Correction from OW method (CTD ref)	Correction applied in the D files
6901468	0.01	0.009 ± 0.004 (config. 39)	OW correction
6901597	na	0.019 ± 0.006 (config. 39)	OW correction
6901631	0.013	0.009 ± 0.005 jump (0.42) cycles 27-30 (config. 39)	OW correction
6901632	0.014	0.014 ± 0.005 (config. 39)	OW correction
6901757	na	0.011 ± 0.005 up to cycle 69 and 0.036 ± 0.008 after (config. 39)	OW correction
6901759	0.003	0.004 ± 0.013 (config. 39)	From reference CTD cast
6901758	0.017	0.017 ± 0.008 up to cycle 18 and linear drift after (config. 392)	OW correction
6901602	0	0 ± 0.01 (config. 39)	No corretion
6901760	0.006	0.006 ± 0.008 (config. 392)	From reference CTD cast
6901762	0.005	0.003 ± 0.006 (config. 392)	From reference CTD cast
6901603	0.003	0.002 ± 0.012 (config. 392)	From reference CTD cast
6902810	0.004	0.003 ± 0.02 (config. 392)	From reference CTD cast
6902811	0	0 ± 0.007 (config. 392)	No corretion
6902812	0.004	0.005 ± 0.012 (config. 392)	From reference CTD cast

Table 5: Salinity corrections for the Arvor floats proposed by the OW method or by comparison with a shipboard CTD reference profile. Uncertainties are the statistical uncertainties from the OW method.

3 Float 6901468

3.1 Trajectory



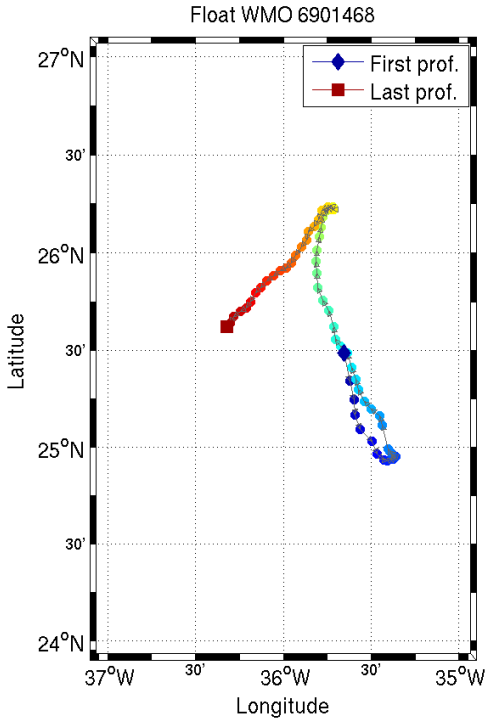


Figure 1: Float 6901468. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

3.2 Sections along the float trajectory - raw data

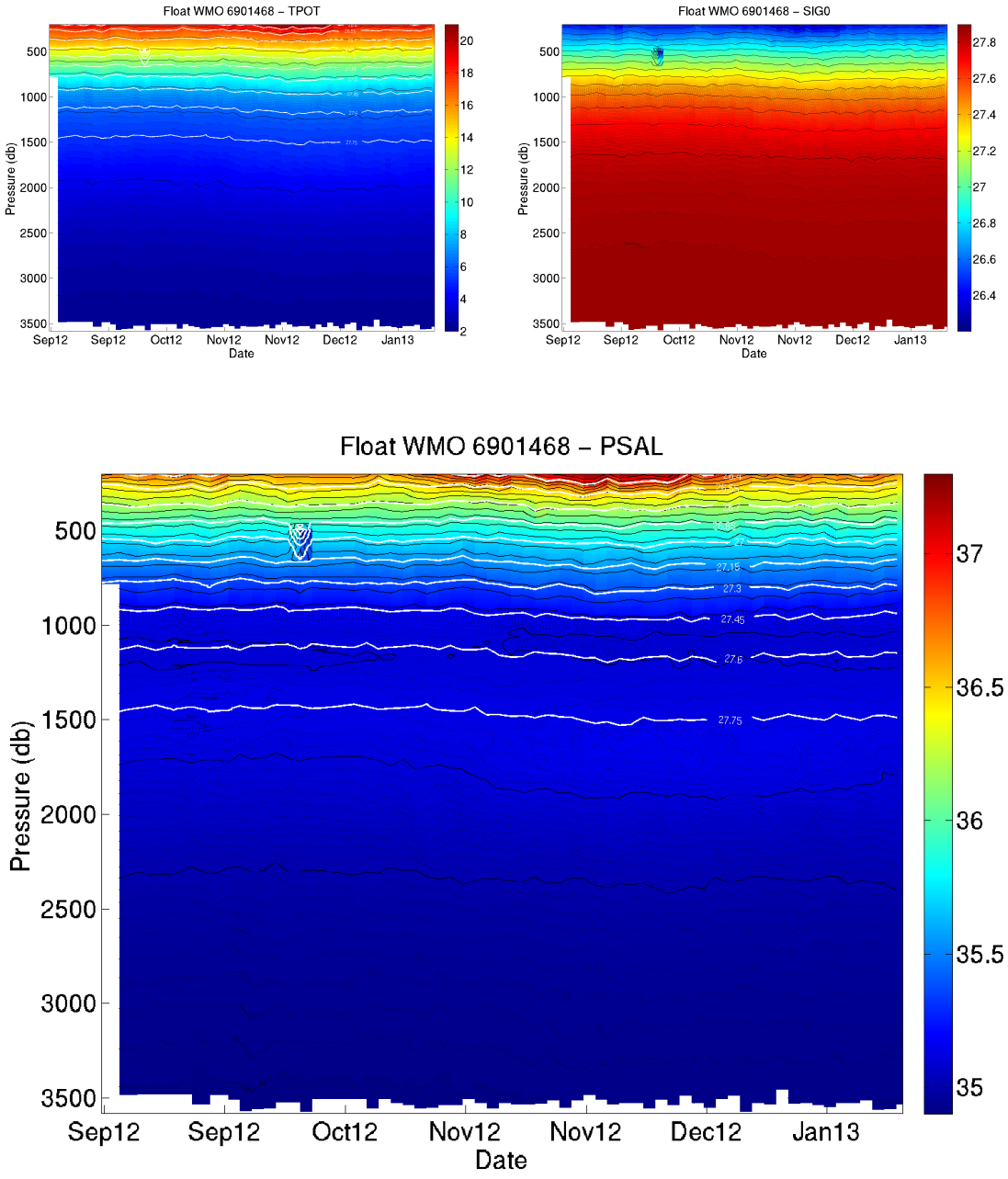


Figure 2: Float 6901468. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

3.3 Theta/S diagrams - raw data

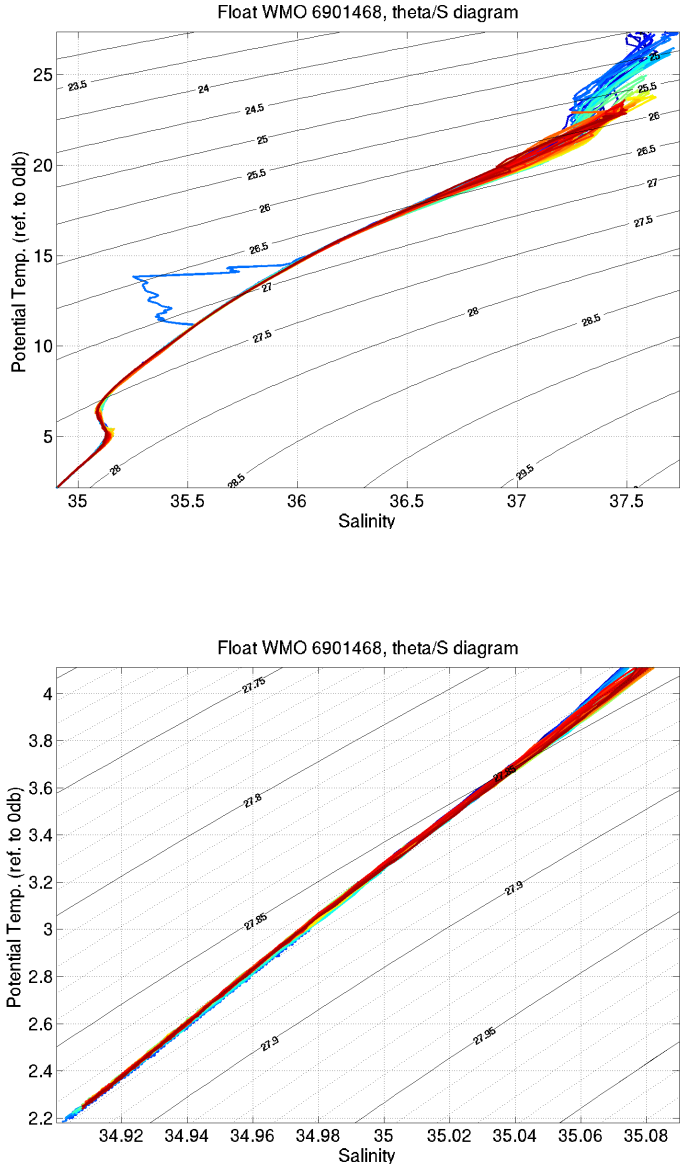


Figure 3: Float 6901468. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

3.4 Results of the OW method

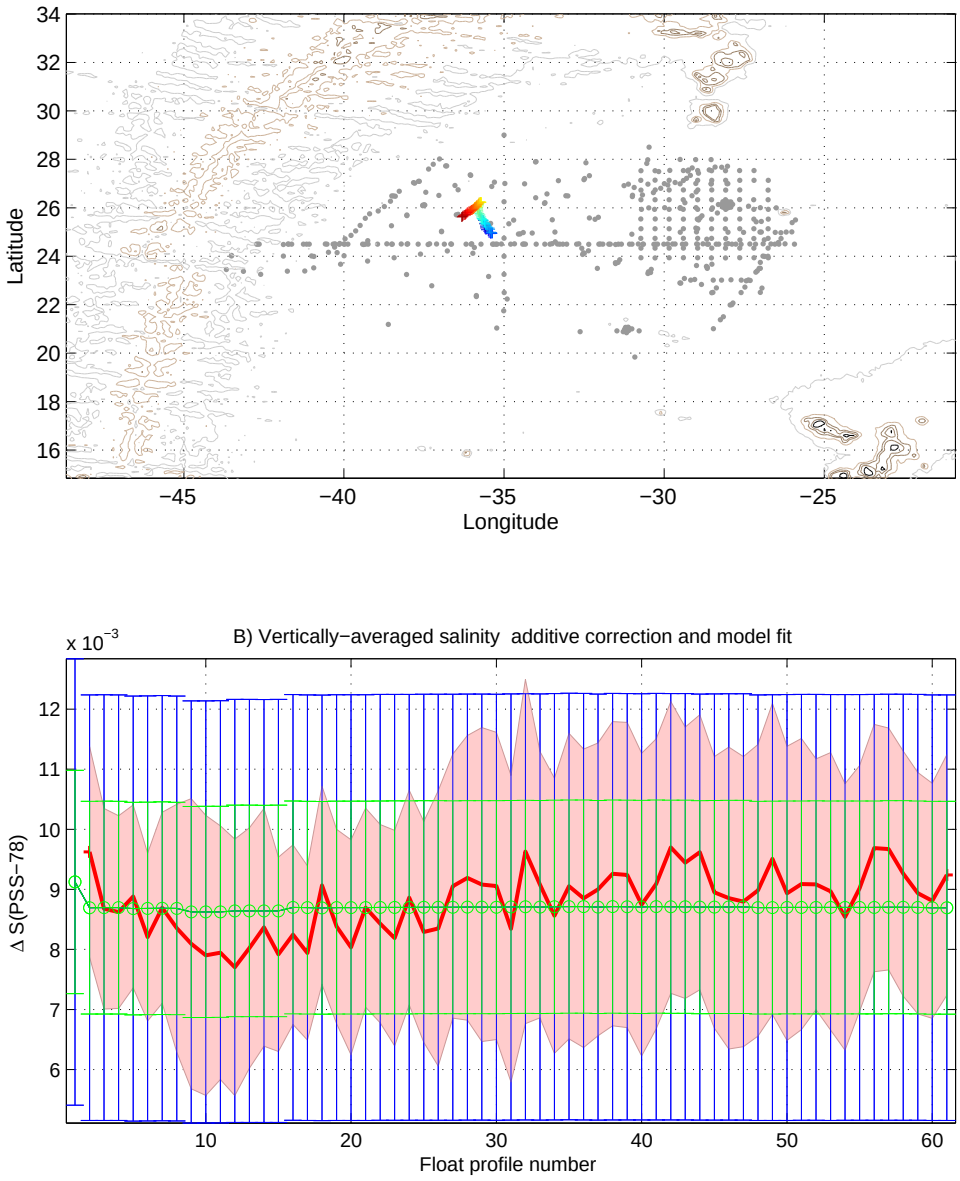
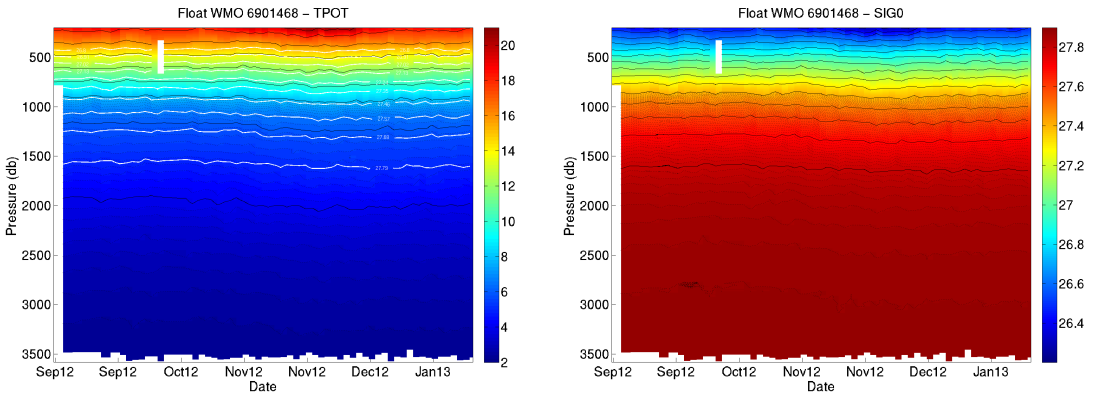


Figure 4: Float 6901468. Results of the OW method (configuration 39). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

3.5 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offset(0.008)



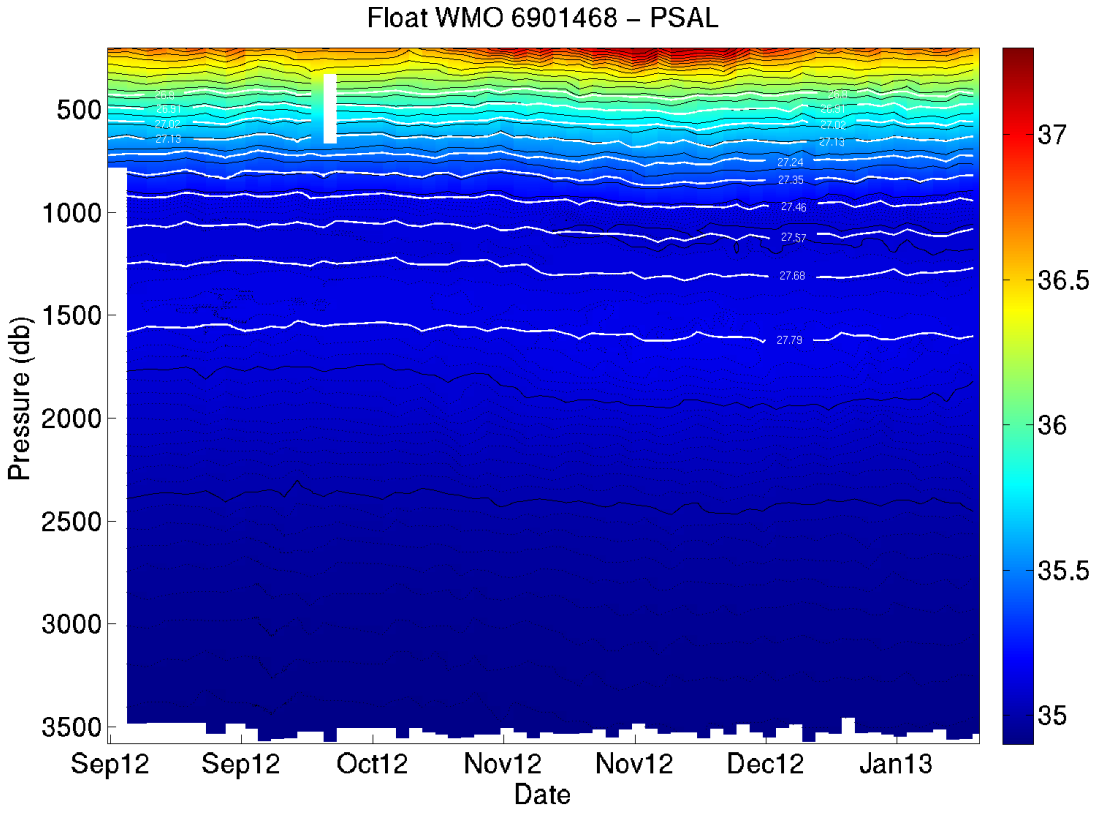


Figure 5: Float 6901468. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

3.6 Theta/S diagrams - adjusted data

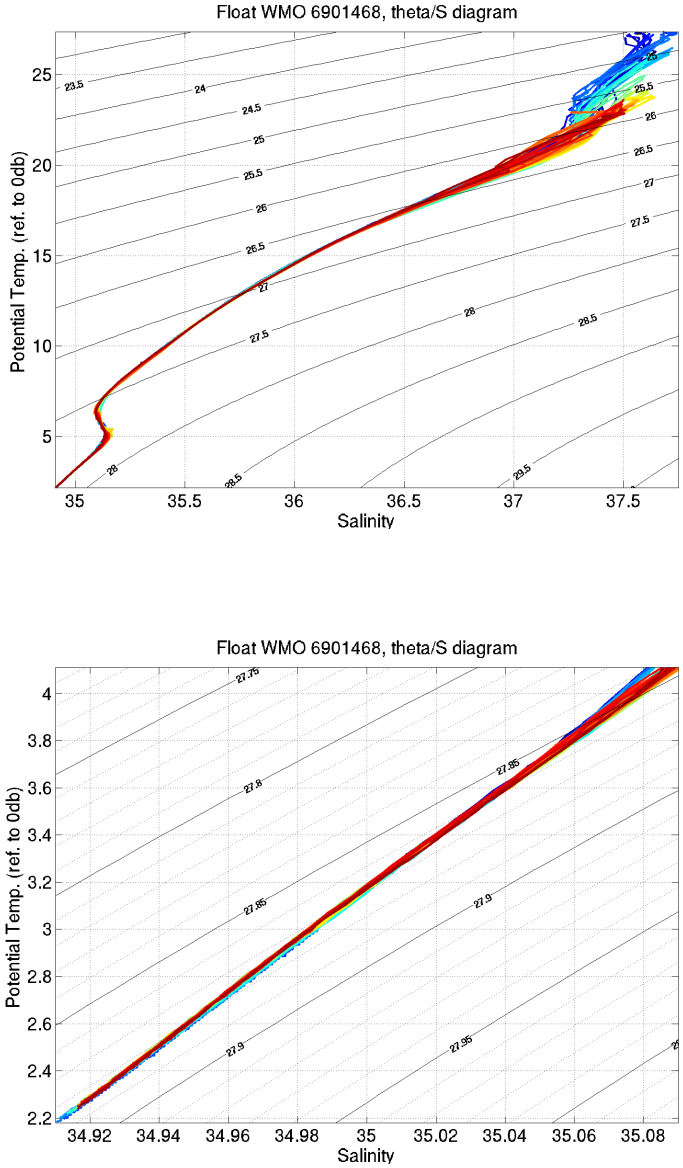
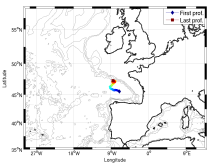


Figure 6: Float 6901468. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

4 Float 6901597

4.1 Trajectory



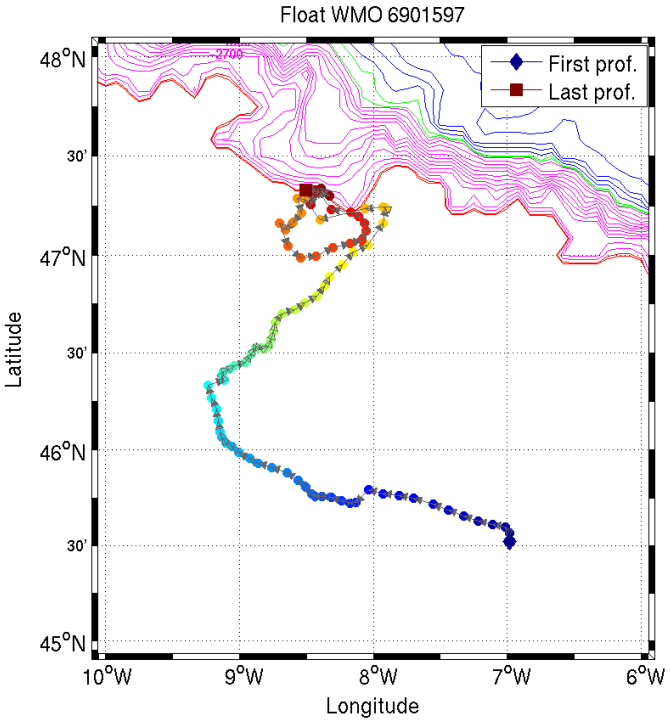


Figure 7: Float 6901597. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

4.2 Sections along the float trajectory - raw data

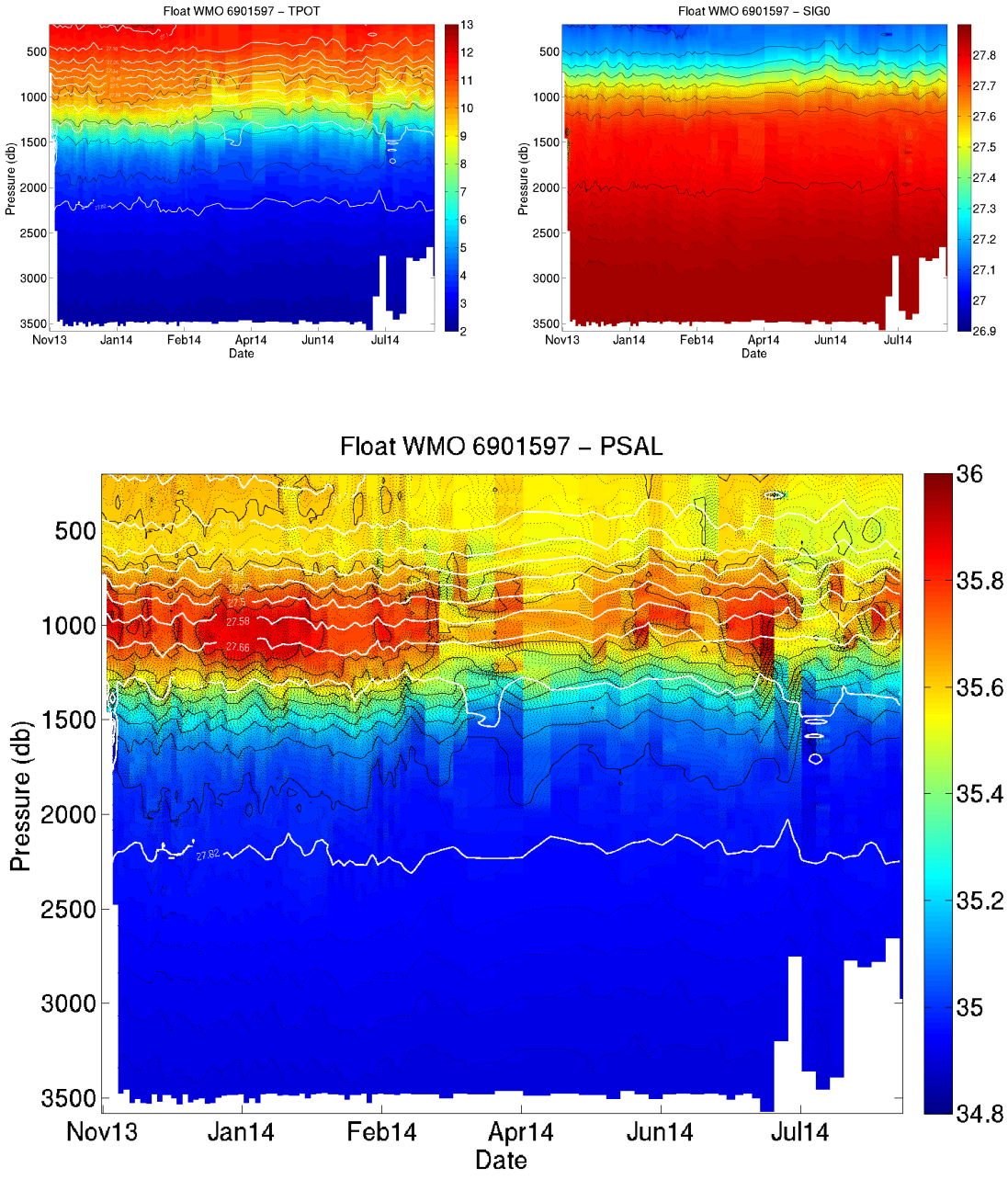


Figure 8: Float 6901597. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

4.3 Theta/S diagrams - raw data

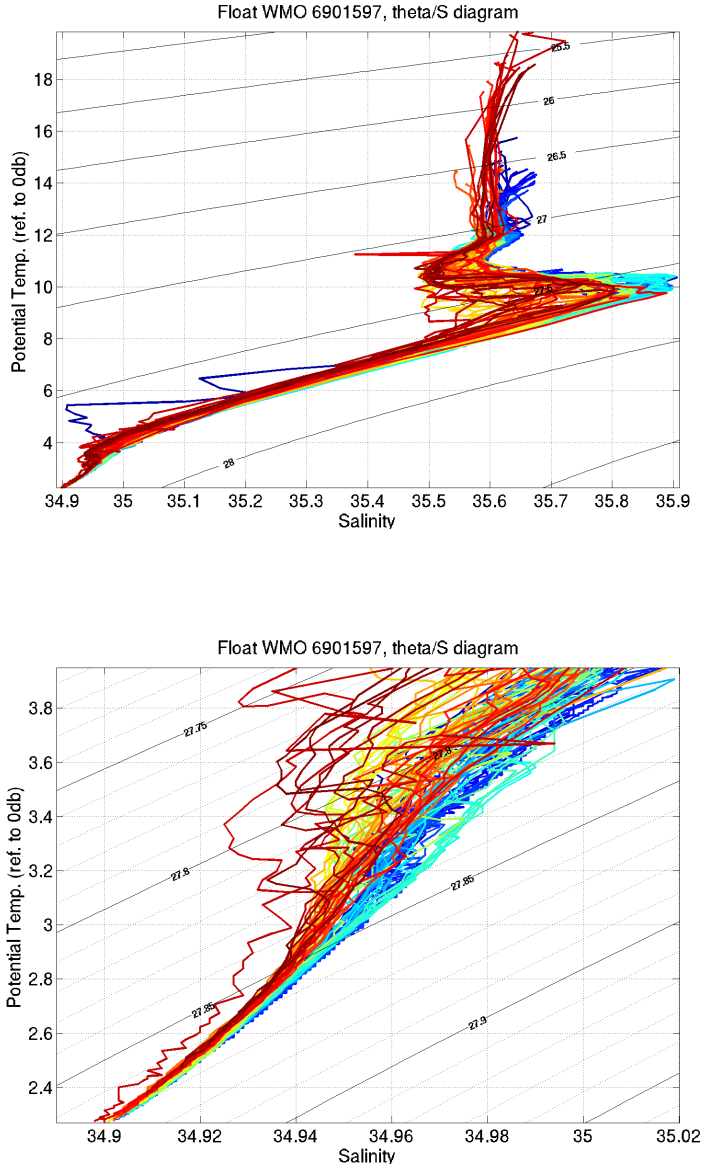


Figure 9: Float 6901597. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

4.4 Results of the OW method

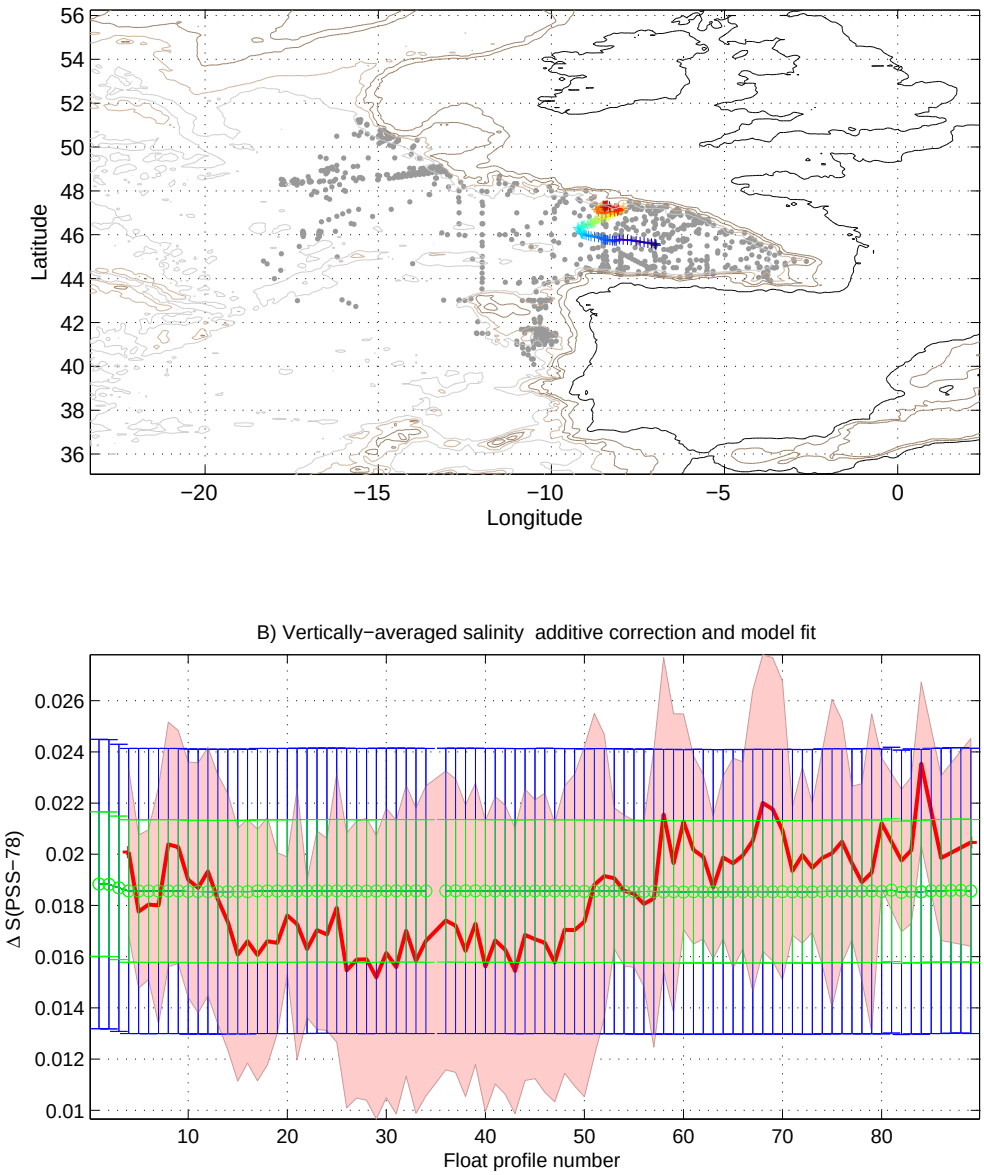


Figure 10: Float 6901597. Results of the OW method (configuration 39). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

4.5 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offset(0.019)

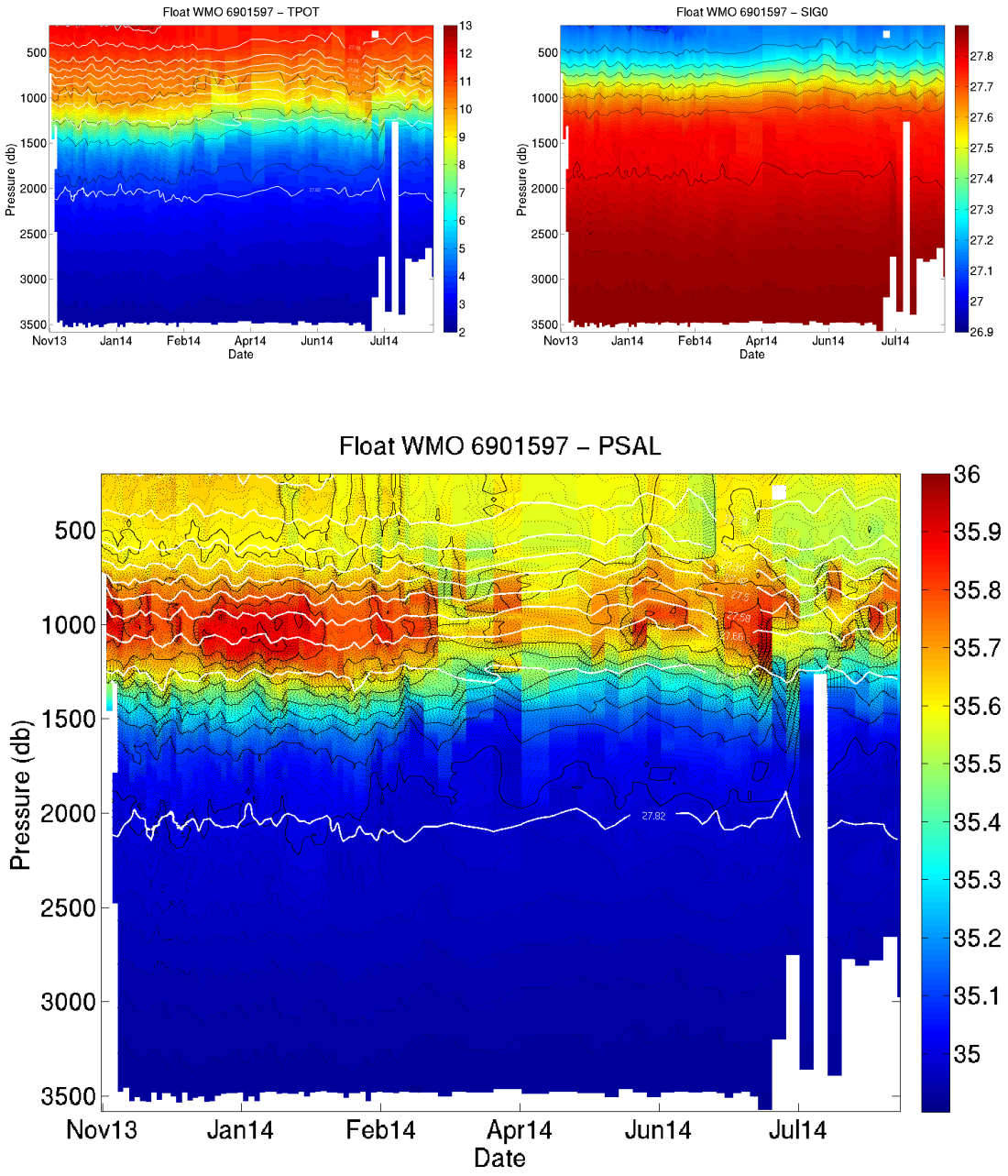


Figure 11: Float 6901597. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

4.6 Theta/S diagrams - adjusted data

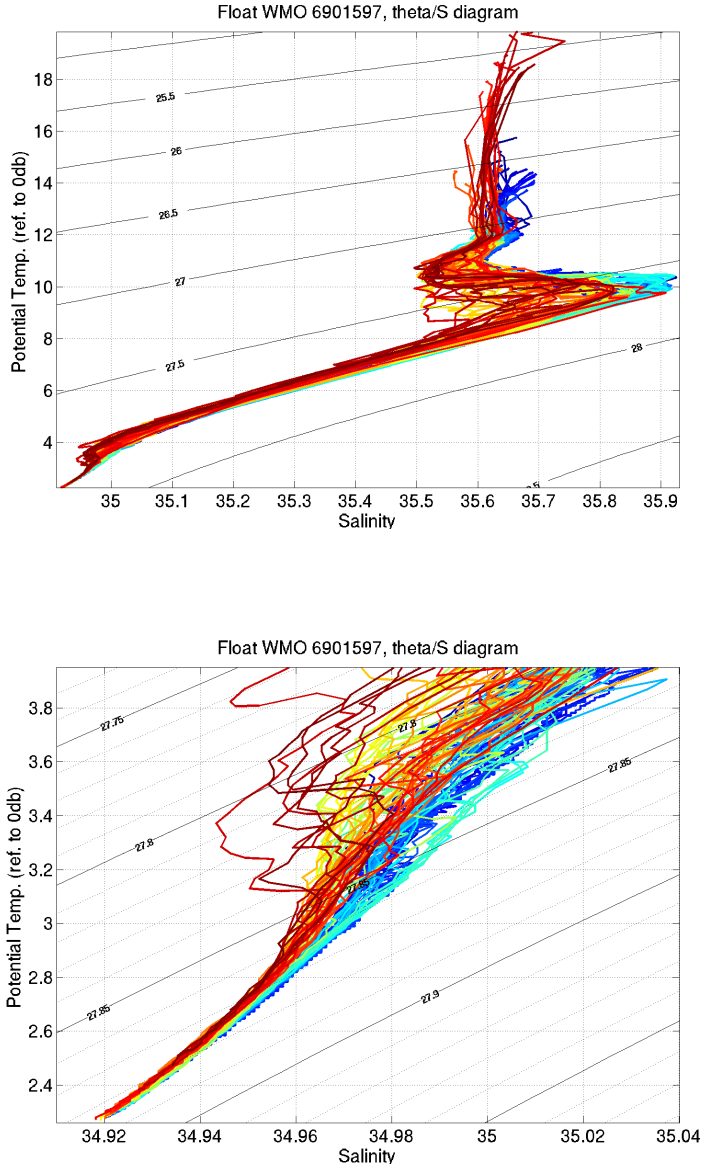
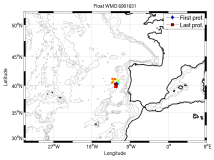


Figure 12: Float 6901597. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

5 Float 6901631

5.1 Trajectory



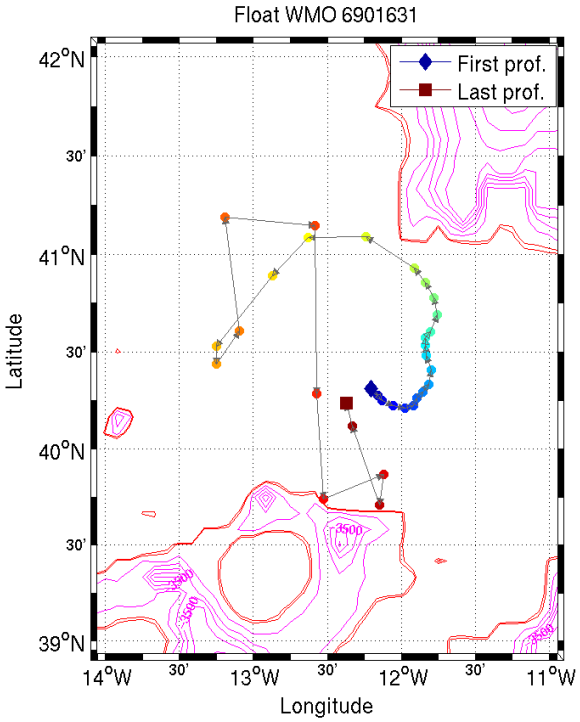


Figure 13: Float 6901631. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

5.2 Sections along the float trajectory - raw data

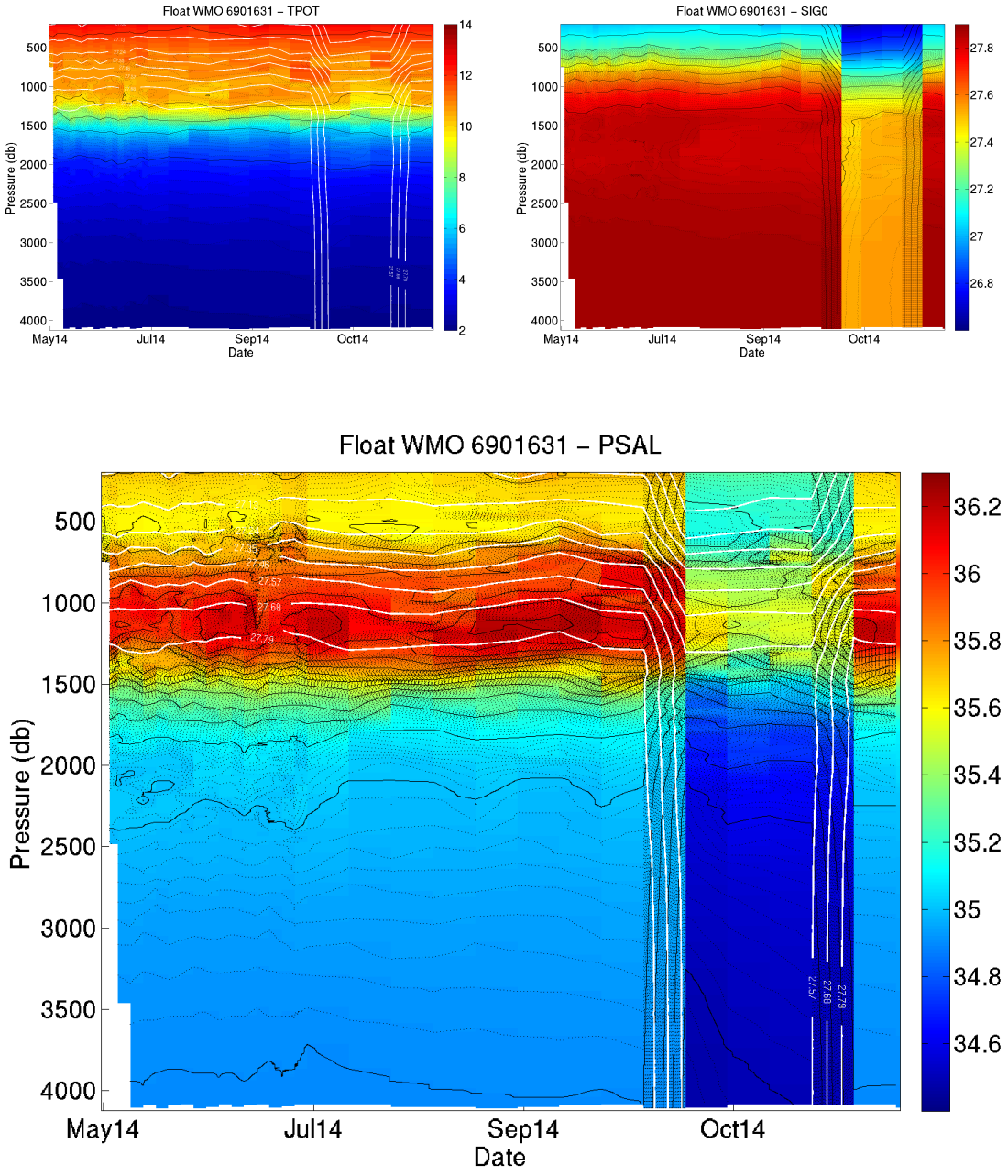


Figure 14: Float 6901631. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

5.3 Theta/S diagrams - raw data

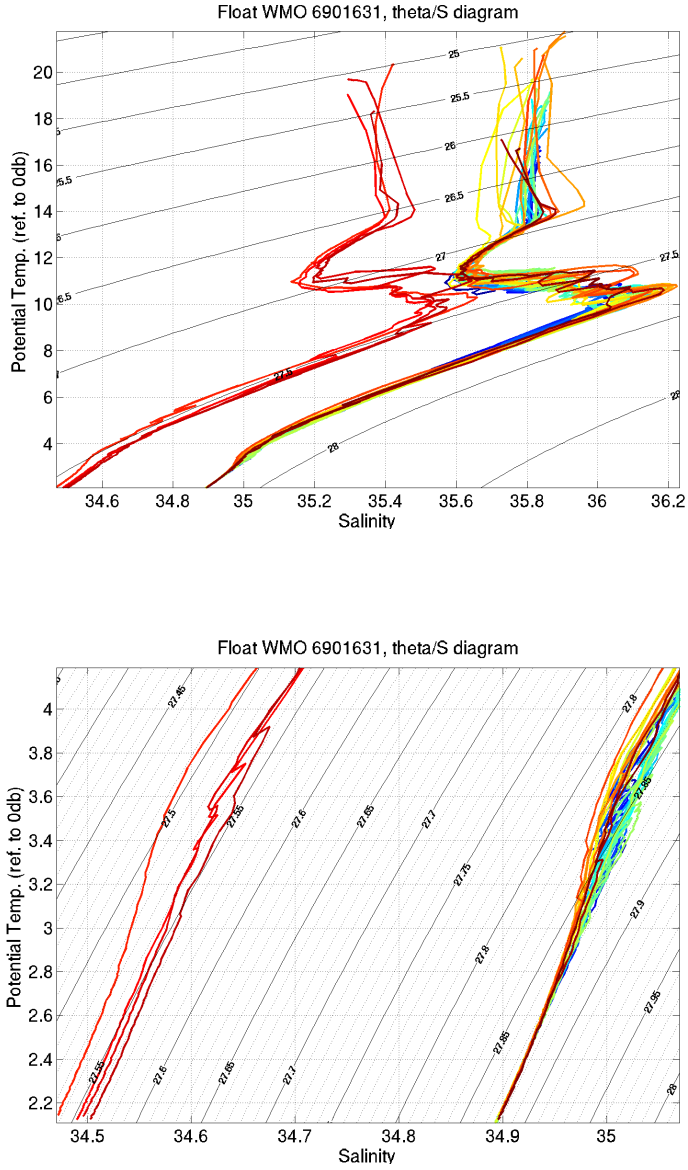


Figure 15: Float 6901631. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

5.4 Comparison with the reference CTD cast

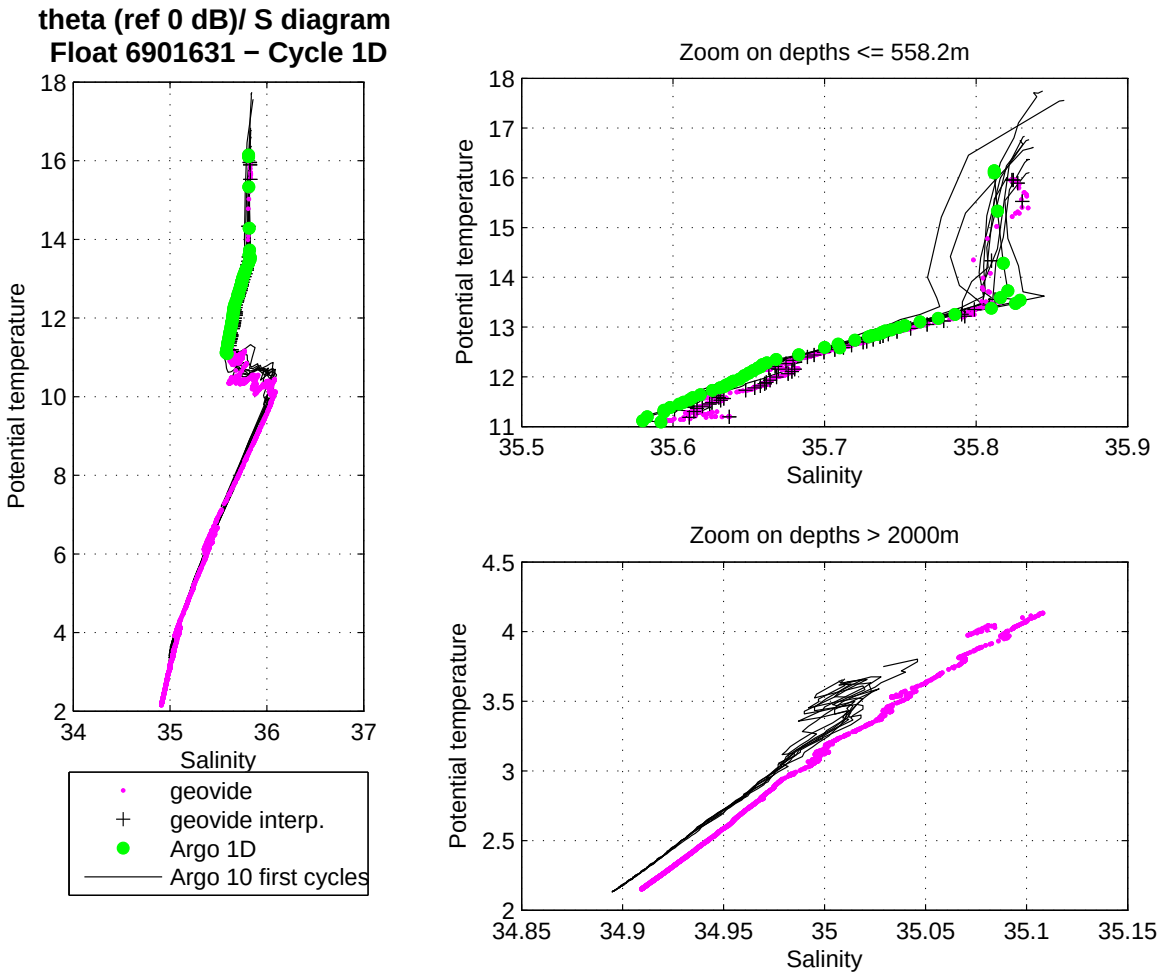


Figure 16: Float 6901631. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

5.5 Results of the OW method

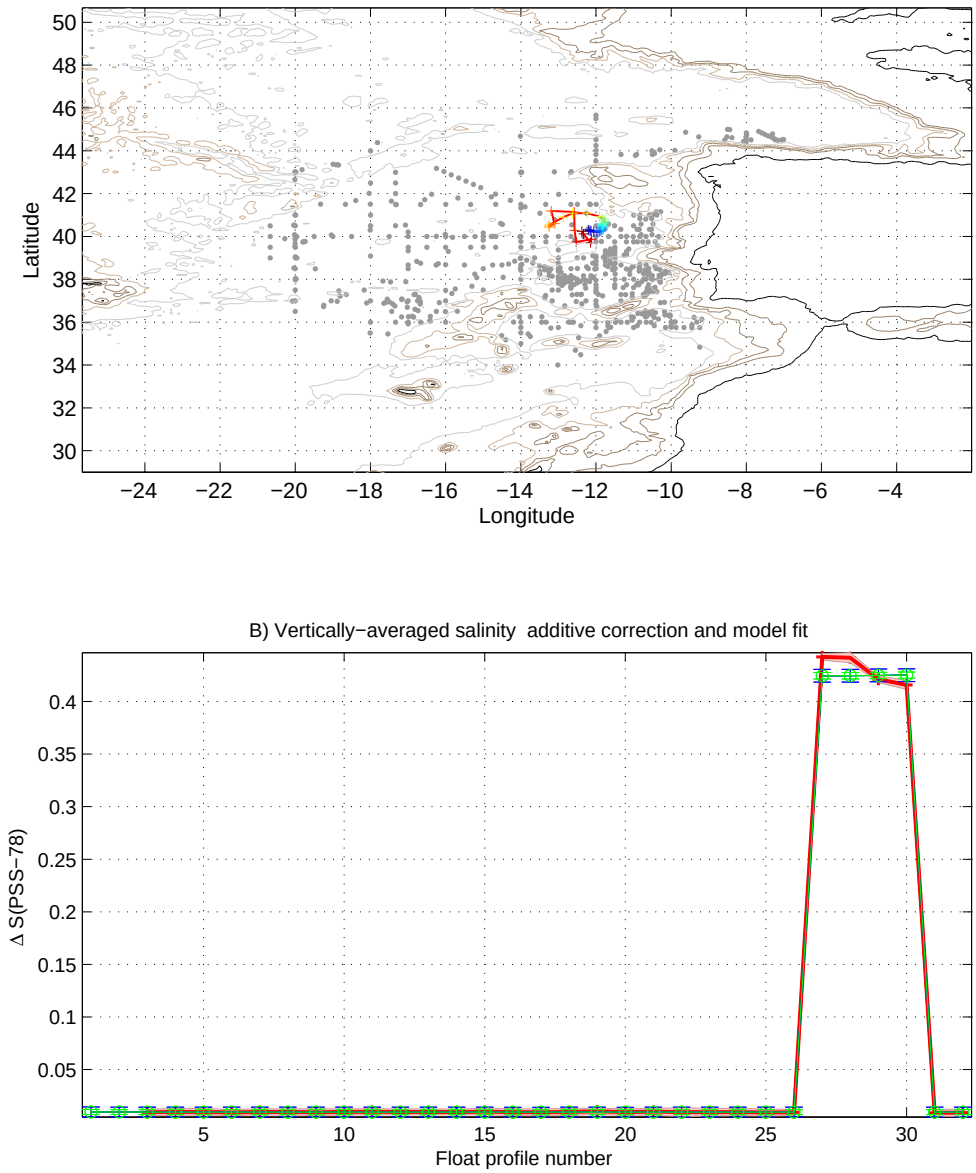


Figure 17: Float 6901631. Results of the OW method (configuration 39). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

5.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offset(0.009) and flag 4 cycles 27-30

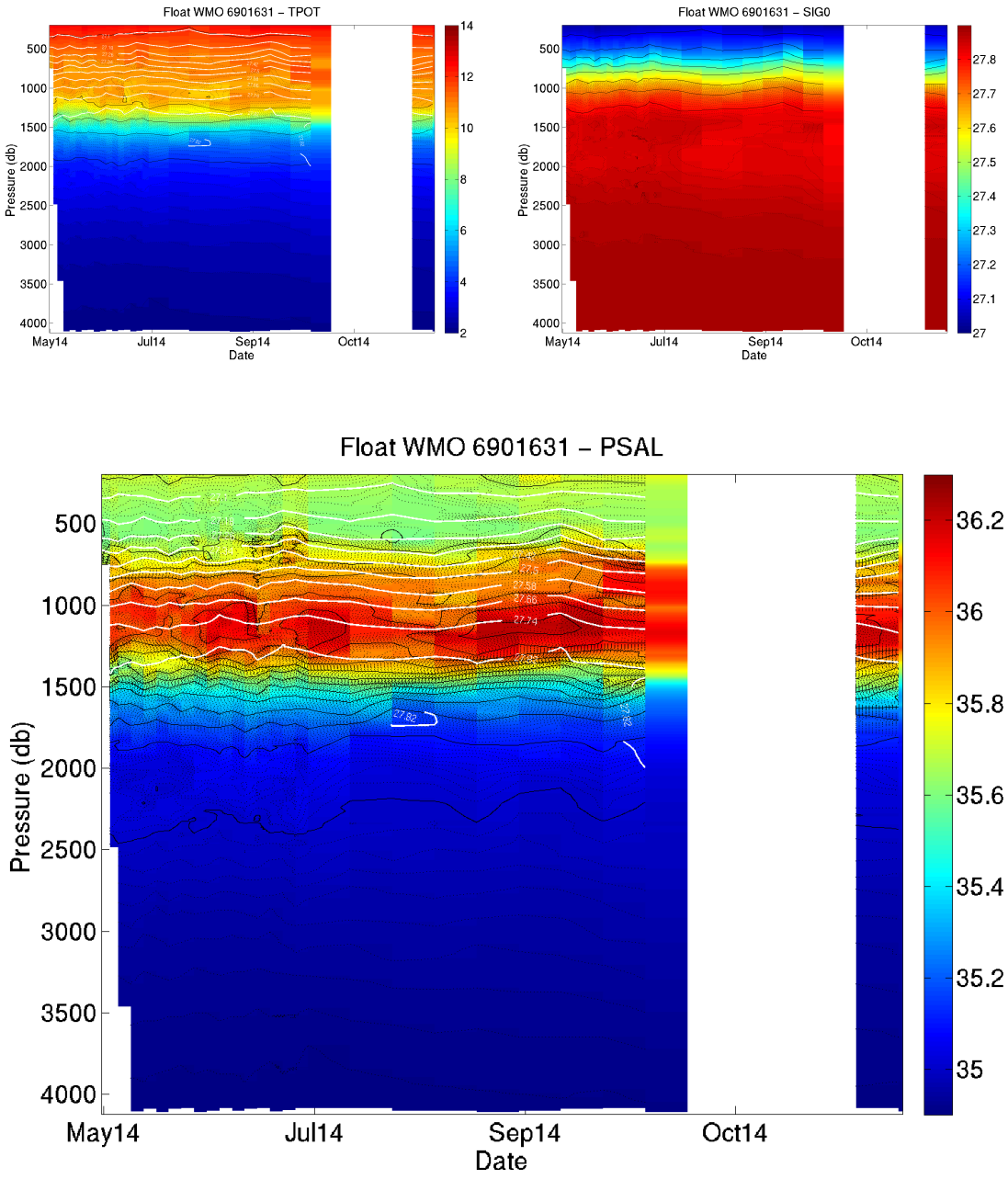


Figure 18: Float 6901631. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

5.7 Theta/S diagrams - adjusted data

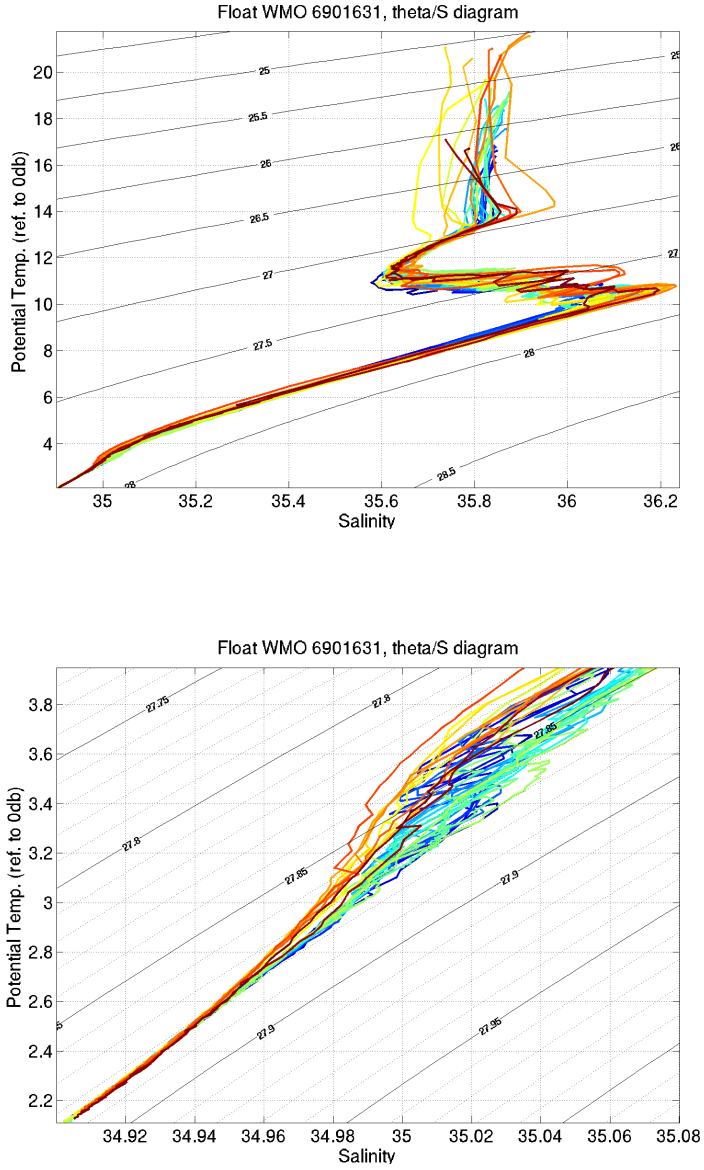
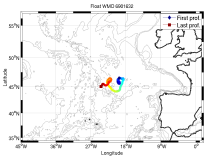


Figure 19: Float 6901631. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

6 Float 6901632

6.1 Trajectory



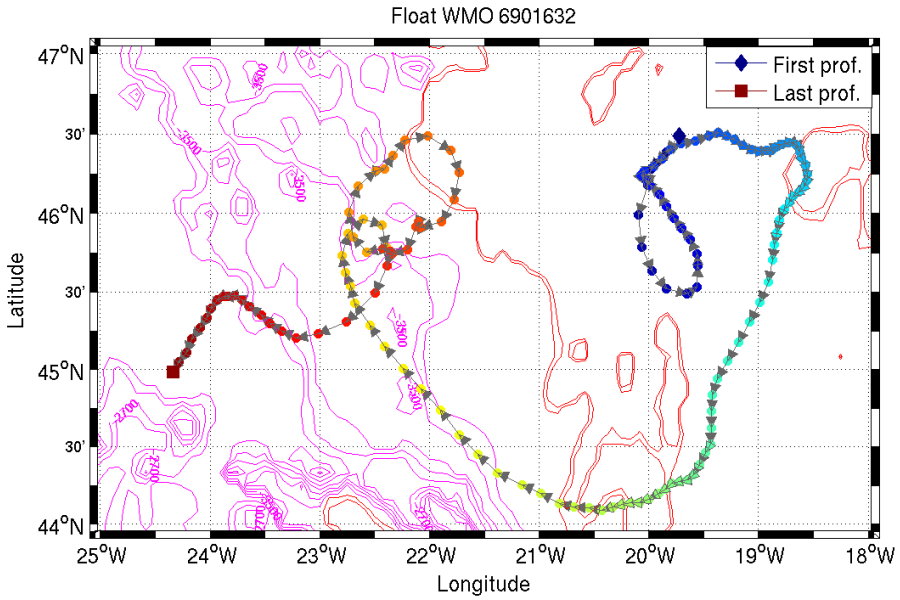


Figure 20: Float 6901632. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

6.2 Sections along the float trajectory - raw data

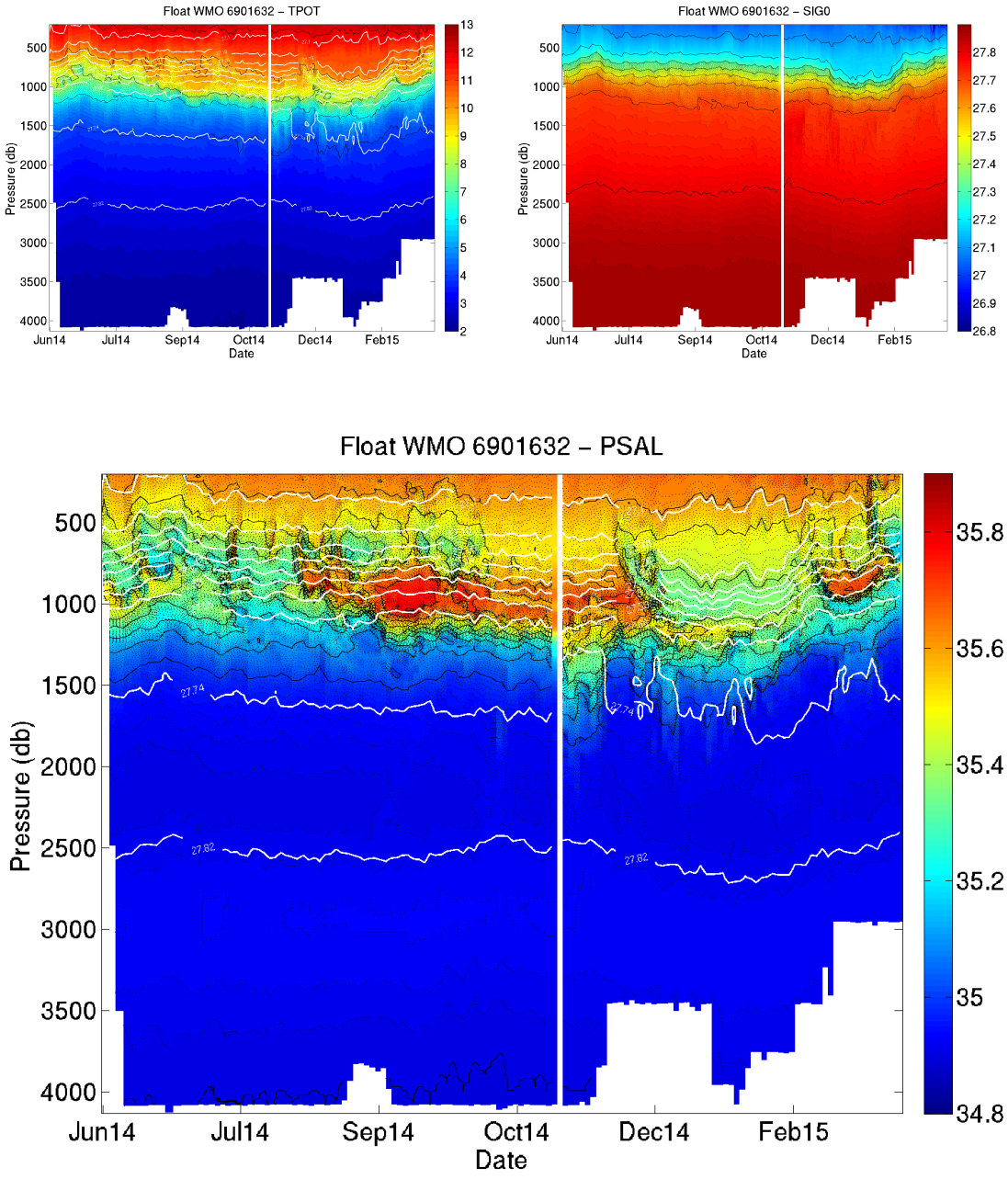


Figure 21: Float 6901632. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

6.3 Theta/S diagrams - raw data

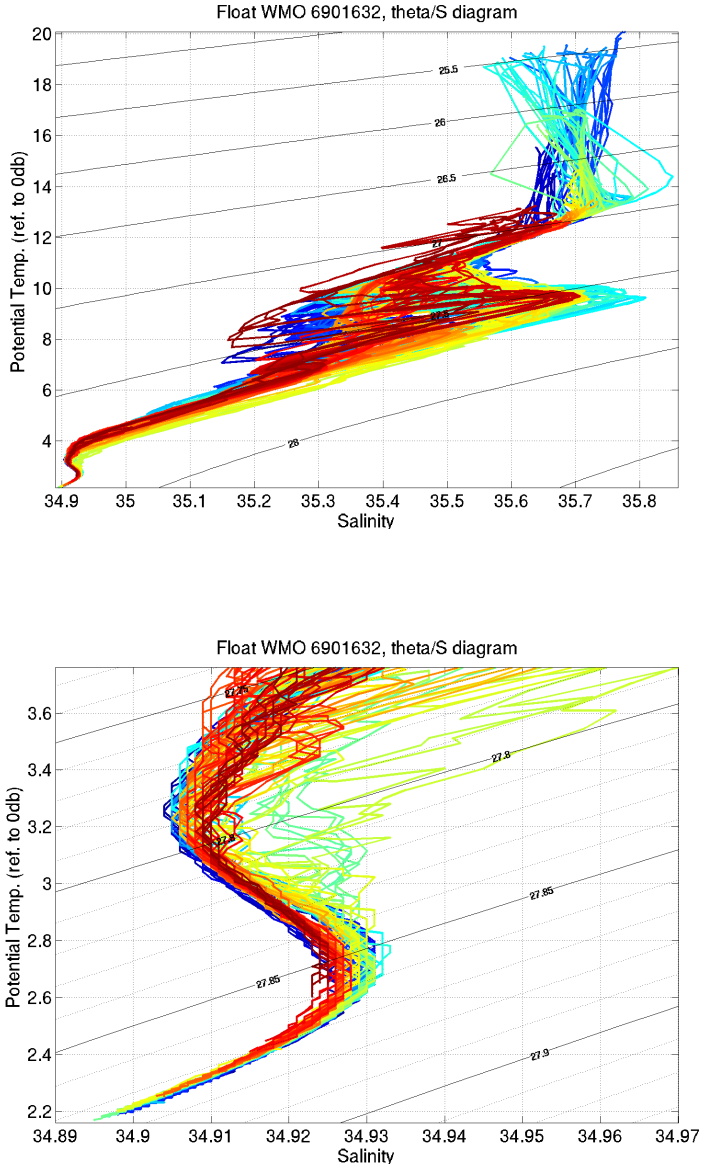


Figure 22: Float 6901632. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

6.4 Comparison with the reference CTD cast

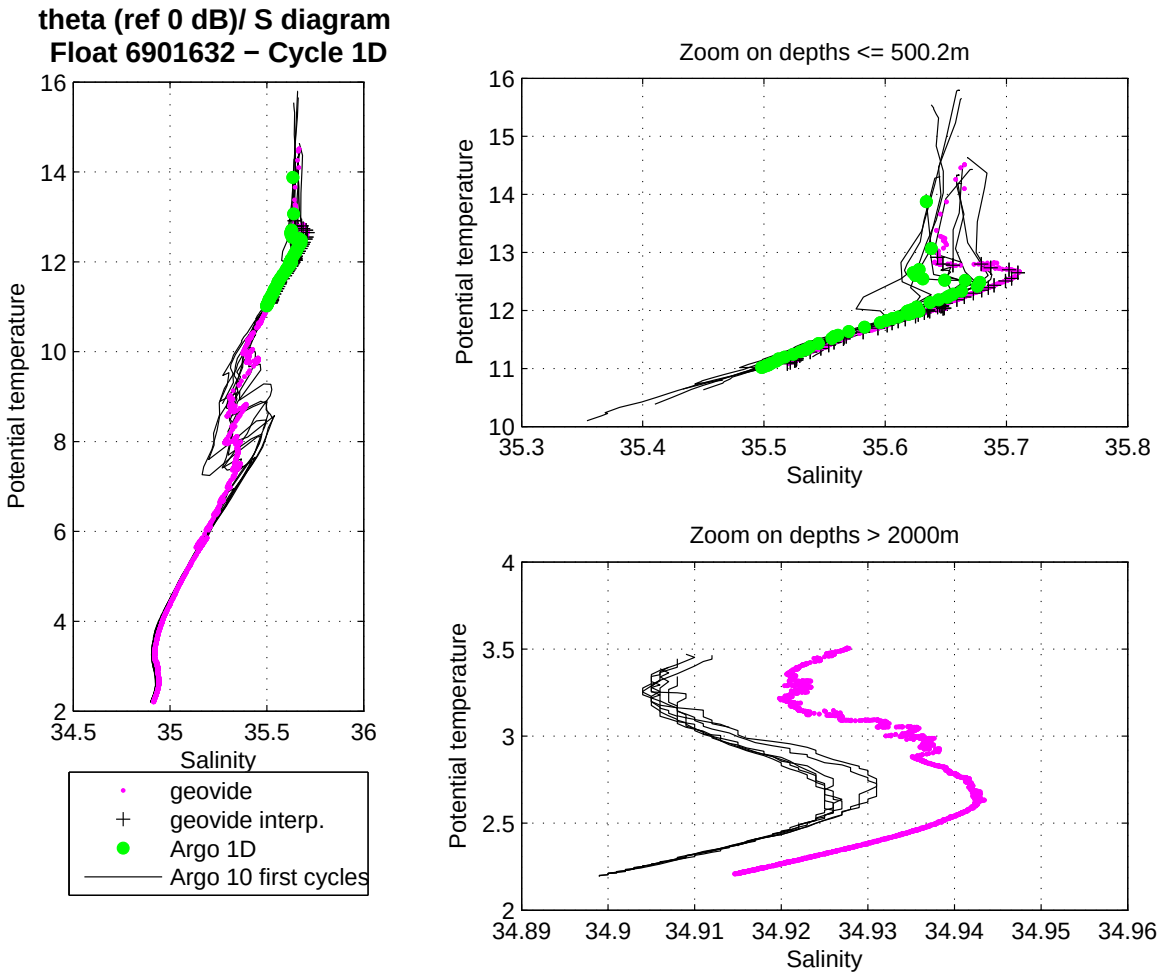


Figure 23: Float 6901632. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

6.5 Results of the OW method

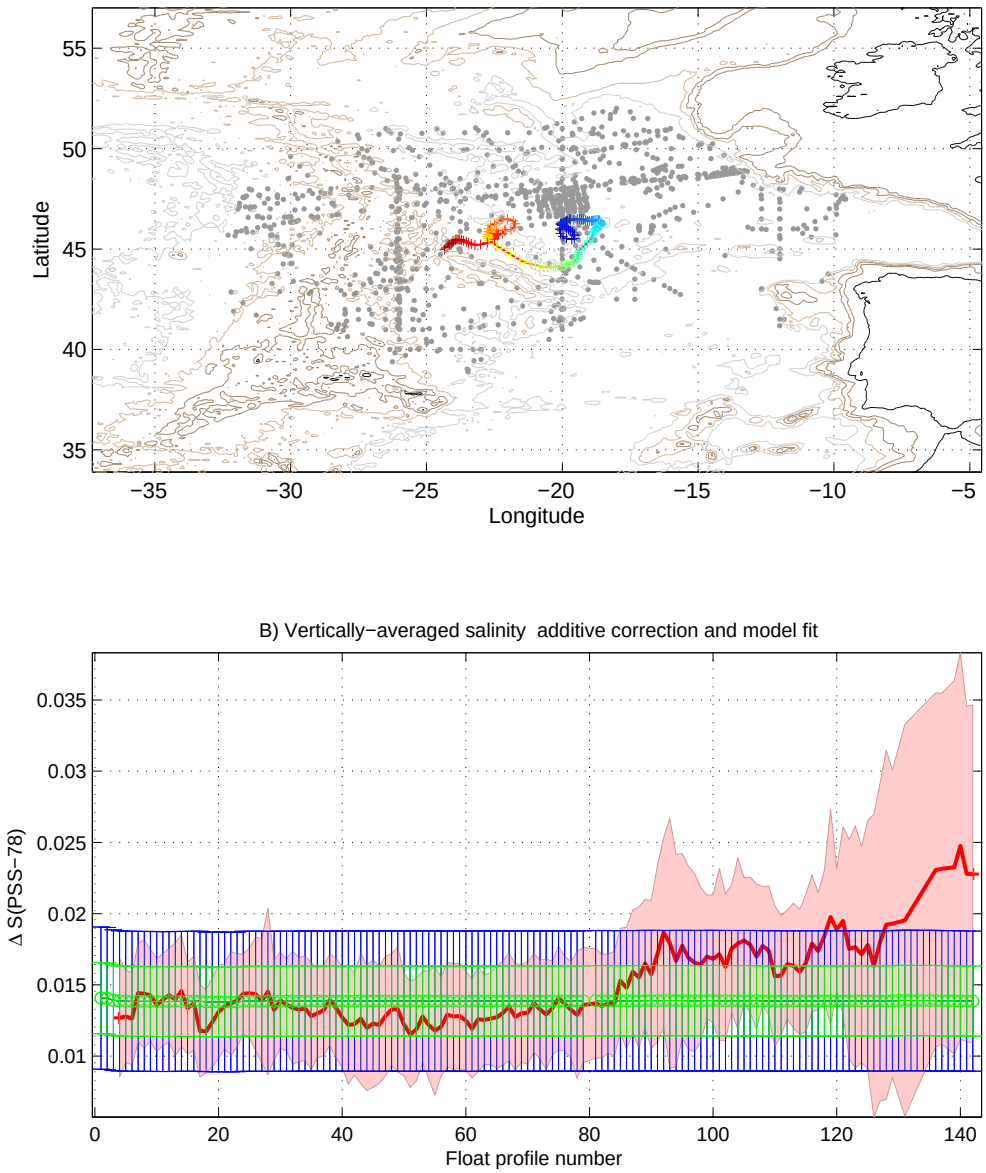
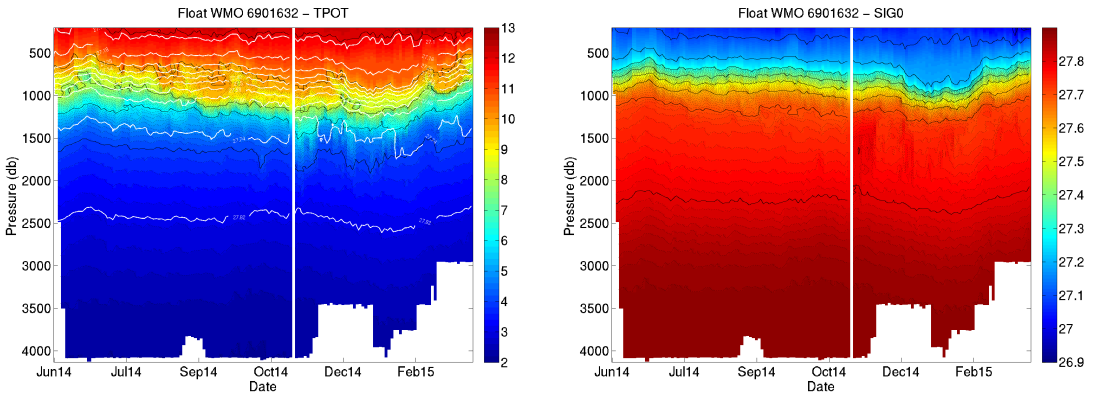


Figure 24: Float 6901632. Results of the OW method (configuration 39). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

6.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offset(0.014)



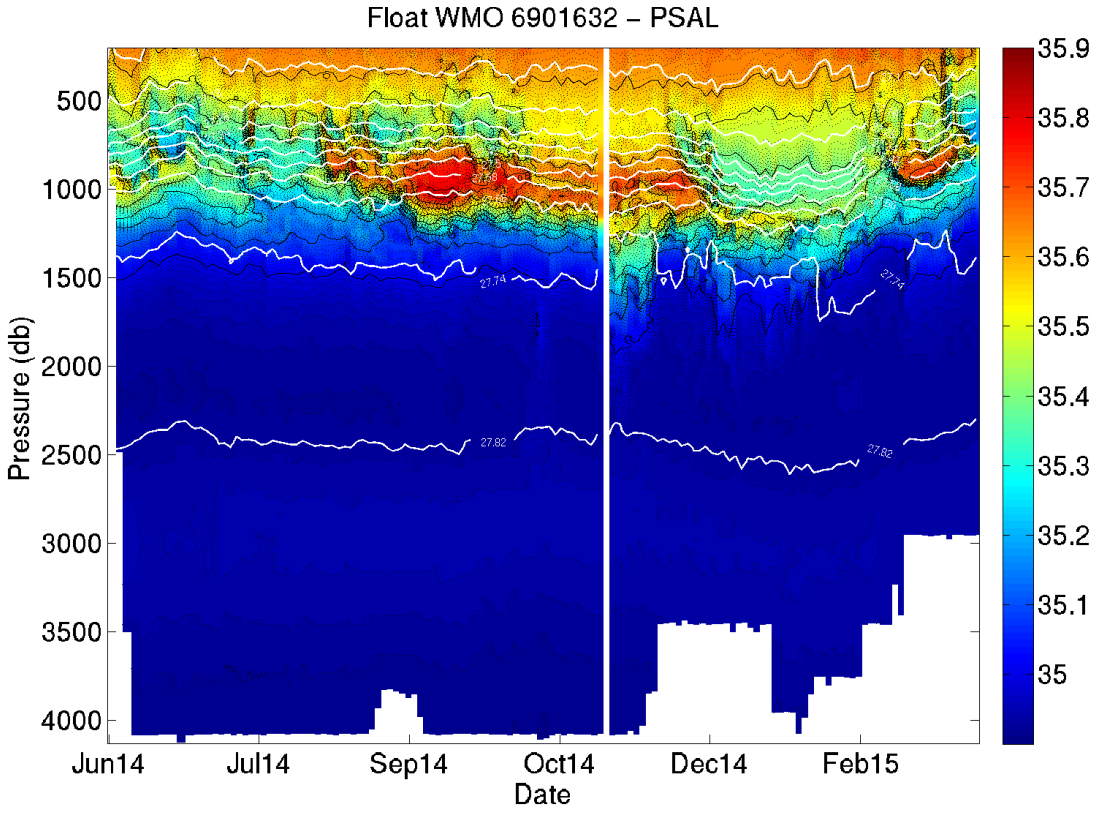


Figure 25: Float 6901632. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

6.7 Theta/S diagrams - adjusted data

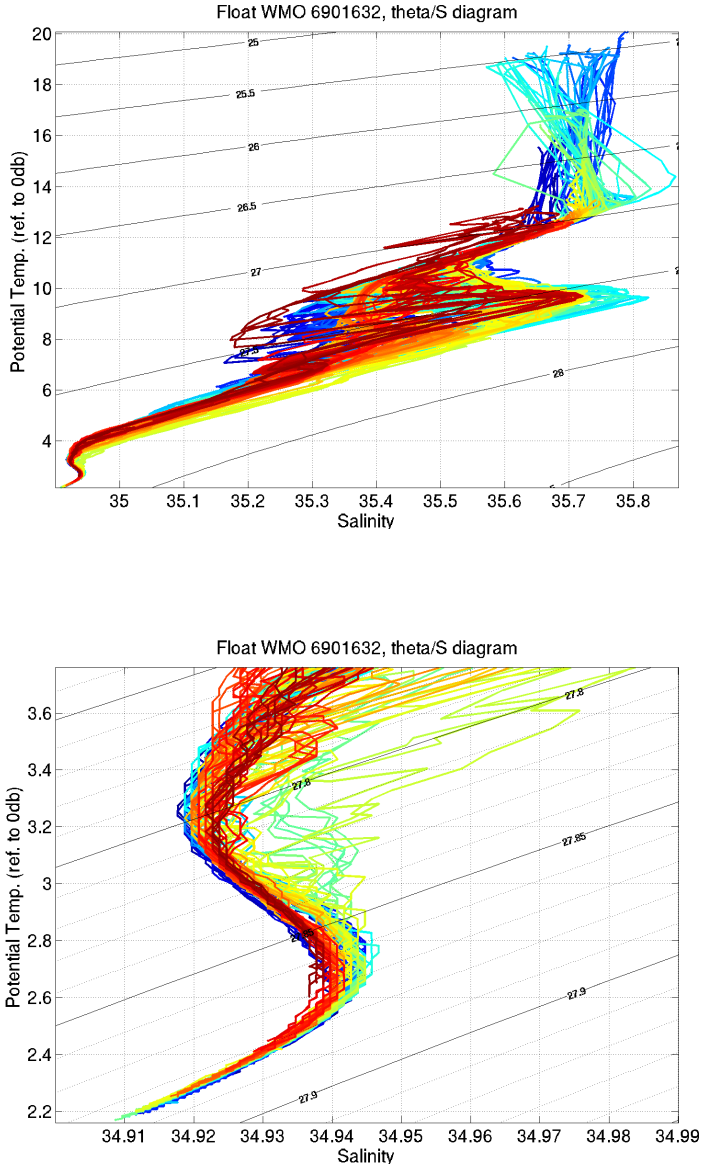
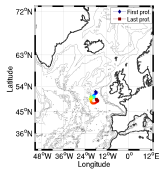


Figure 26: Float 6901632. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

7 Float 6901757

7.1 Trajectory



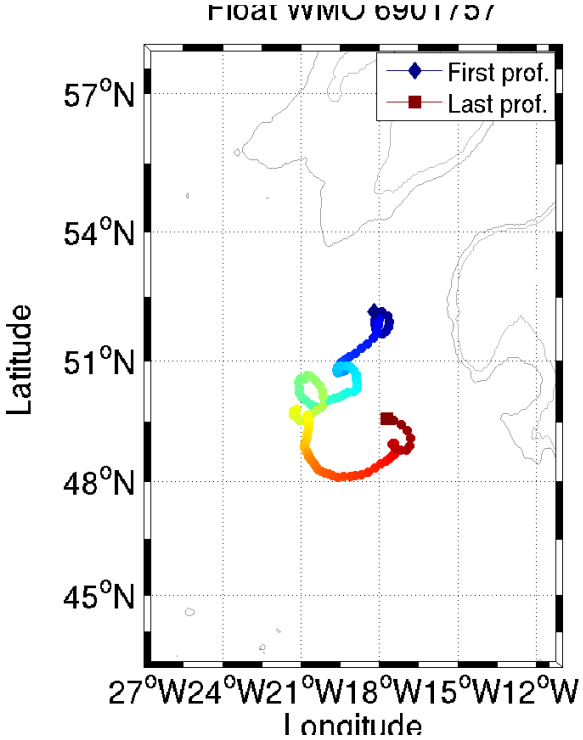


Figure 27: Float 6901757. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

7.2 Sections along the float trajectory - raw data

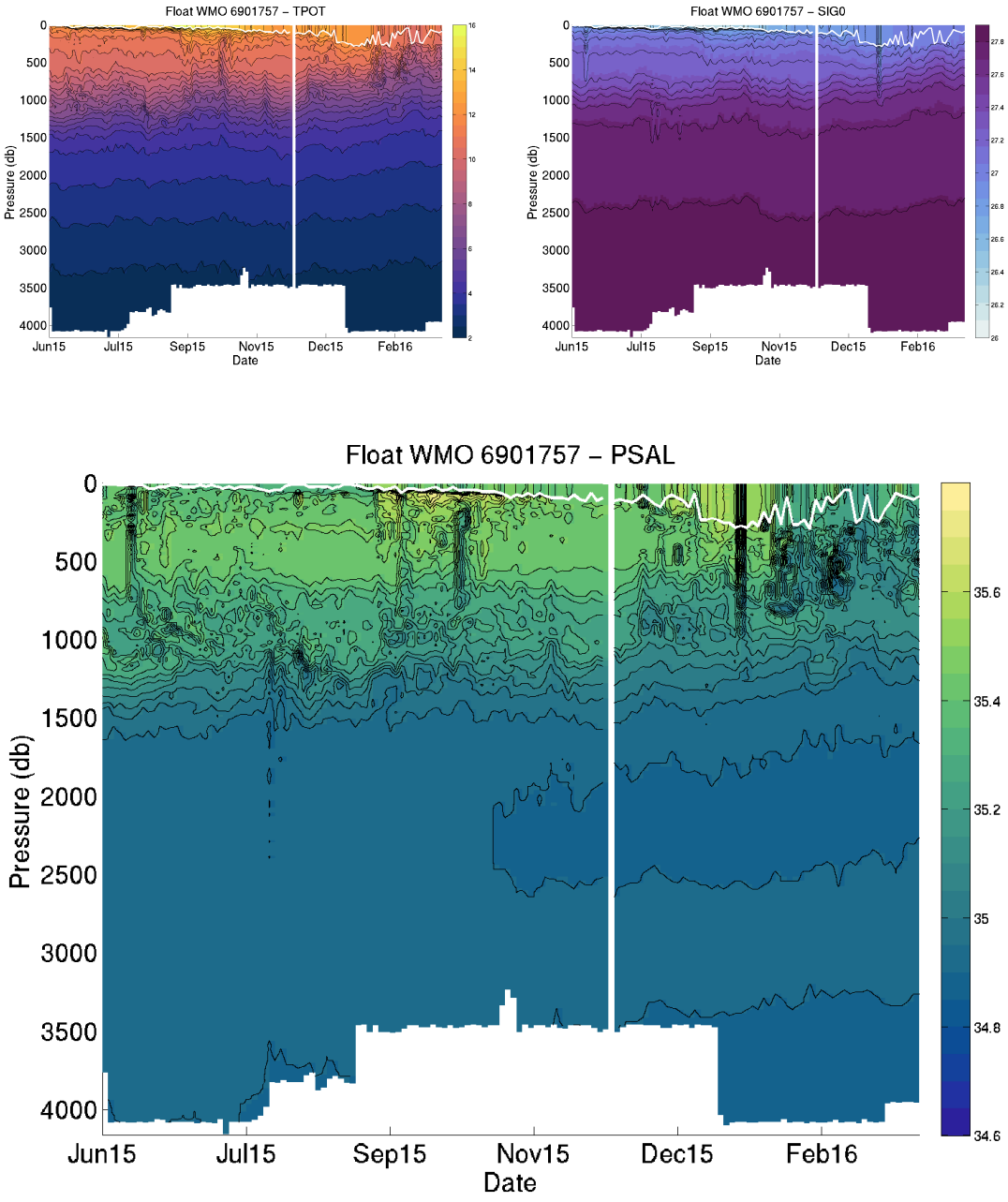


Figure 28: Float 6901757. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

7.3 Theta/S diagrams - raw data

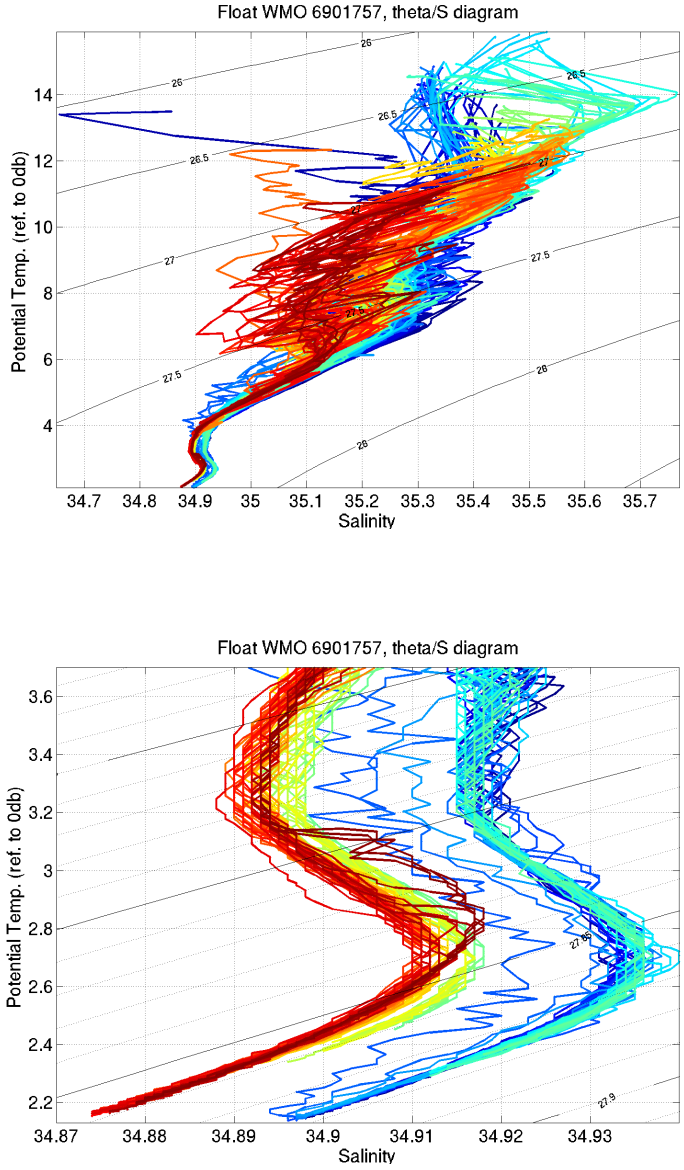


Figure 29: Float 6901757. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

7.4 Comparison with the reference CTD cast

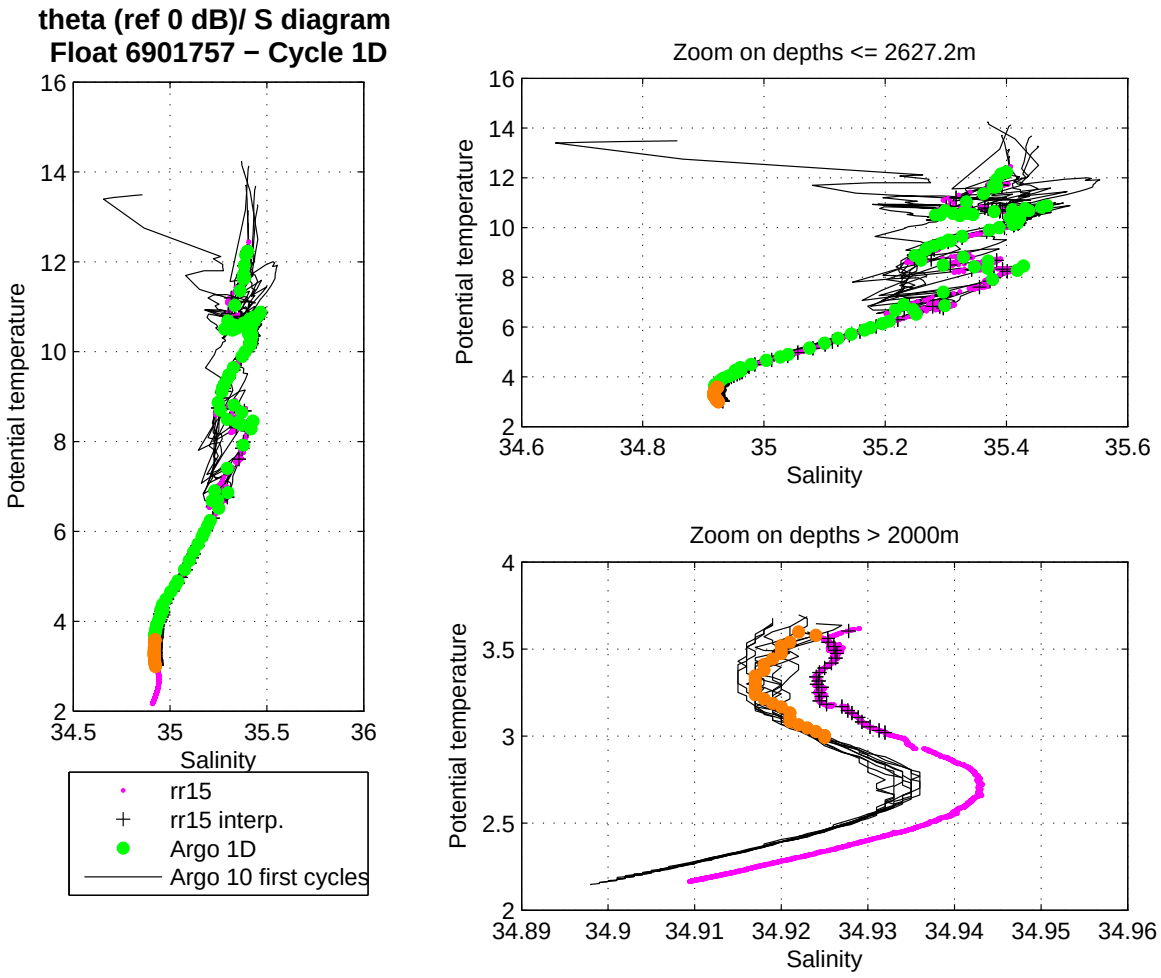


Figure 30: Float 6901757. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

7.5 Results of the OW method

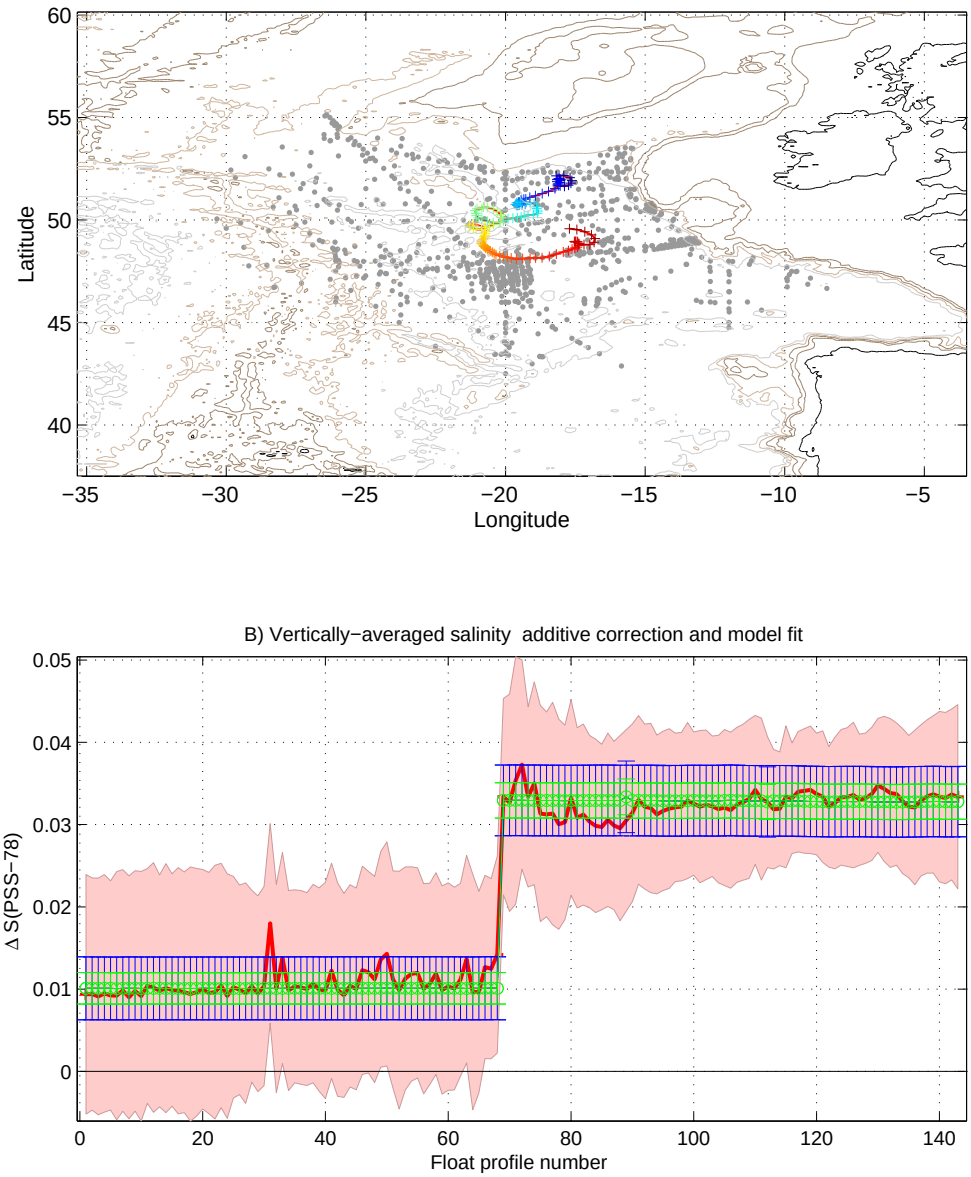


Figure 31: Float 6901757. Results of the OW method (configuration 39). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

7.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offsets (0.011 cy.1-69 and 0.036 cy.69-143)

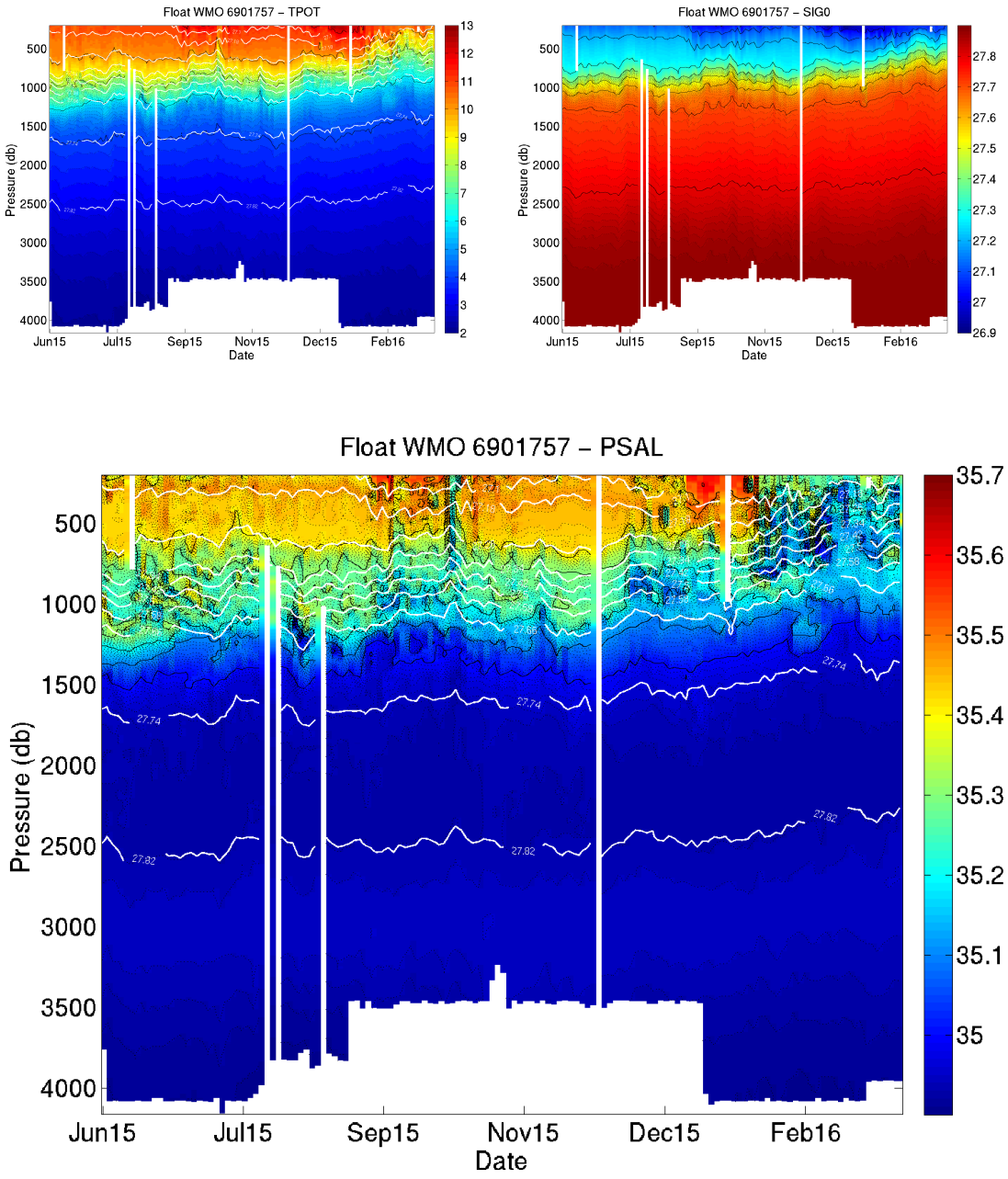


Figure 32: Float 6901757. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

7.7 Theta/S diagrams - adjusted data

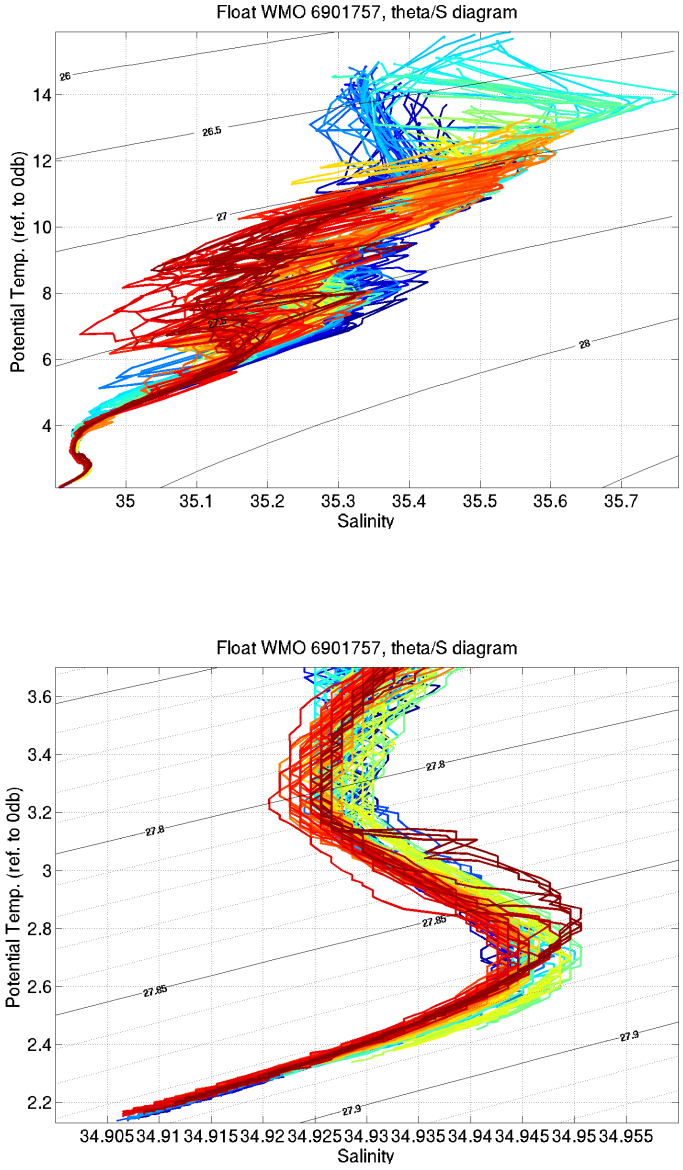


Figure 33: Float 6901757. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

8 Float 6901759

8.1 Trajectory

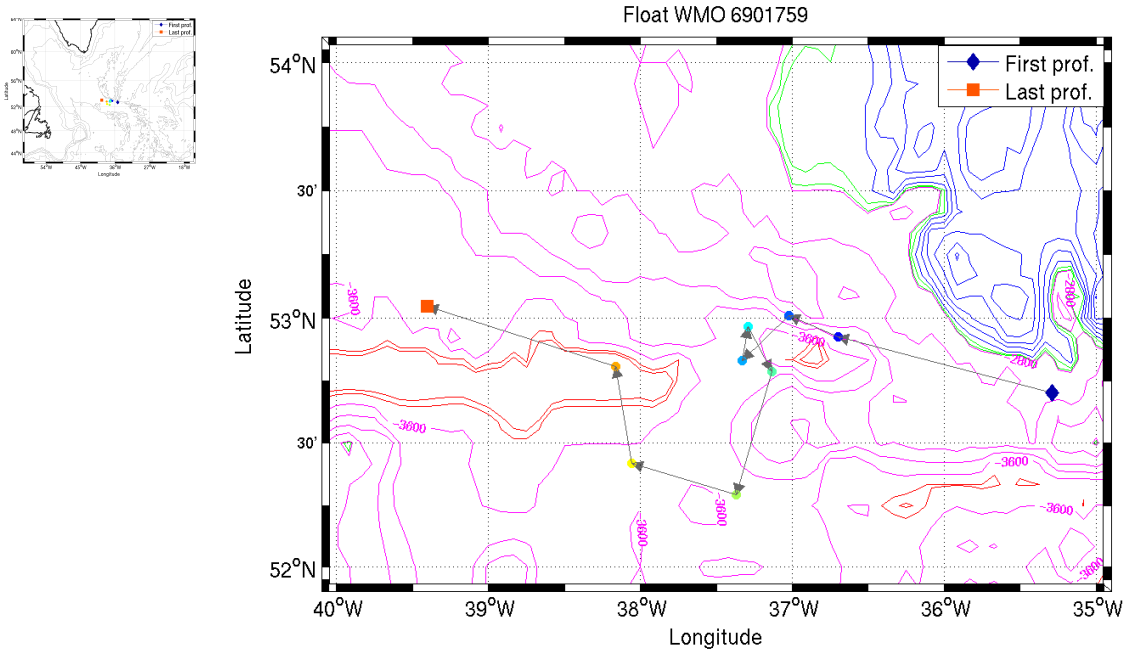


Figure 34: Float 6901759. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

8.2 Sections along the float trajectory - raw data

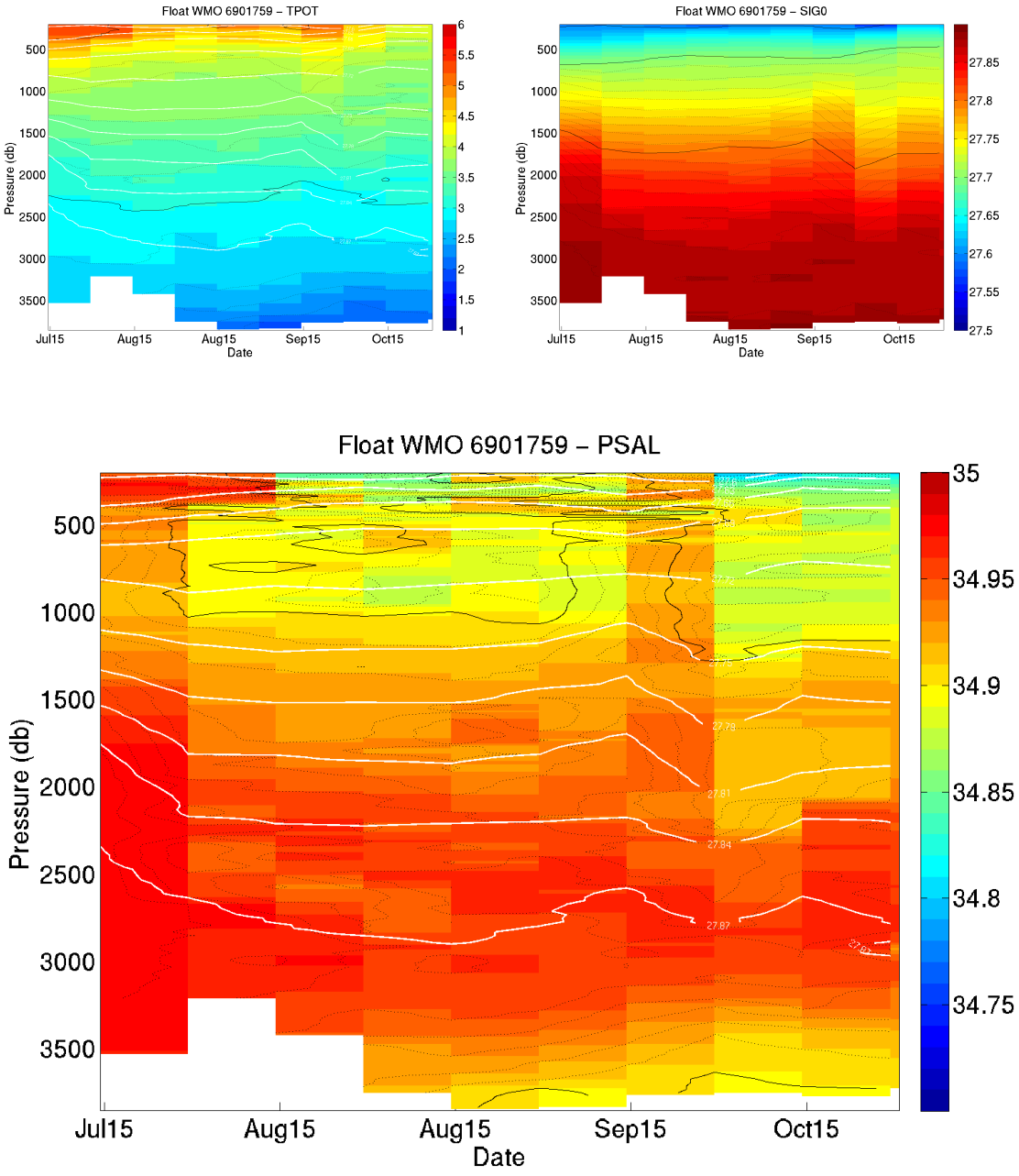


Figure 35: Float 6901759. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

8.3 Theta/S diagrams - raw data

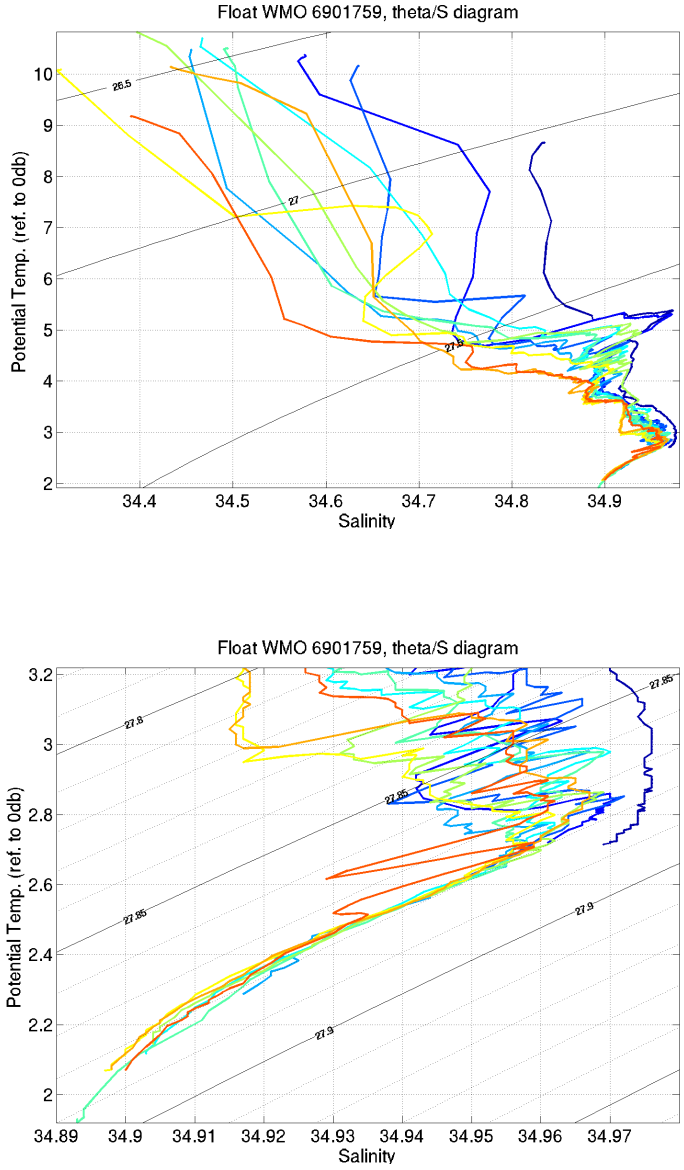


Figure 36: Float 6901759. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

8.4 Comparison with the reference CTD cast

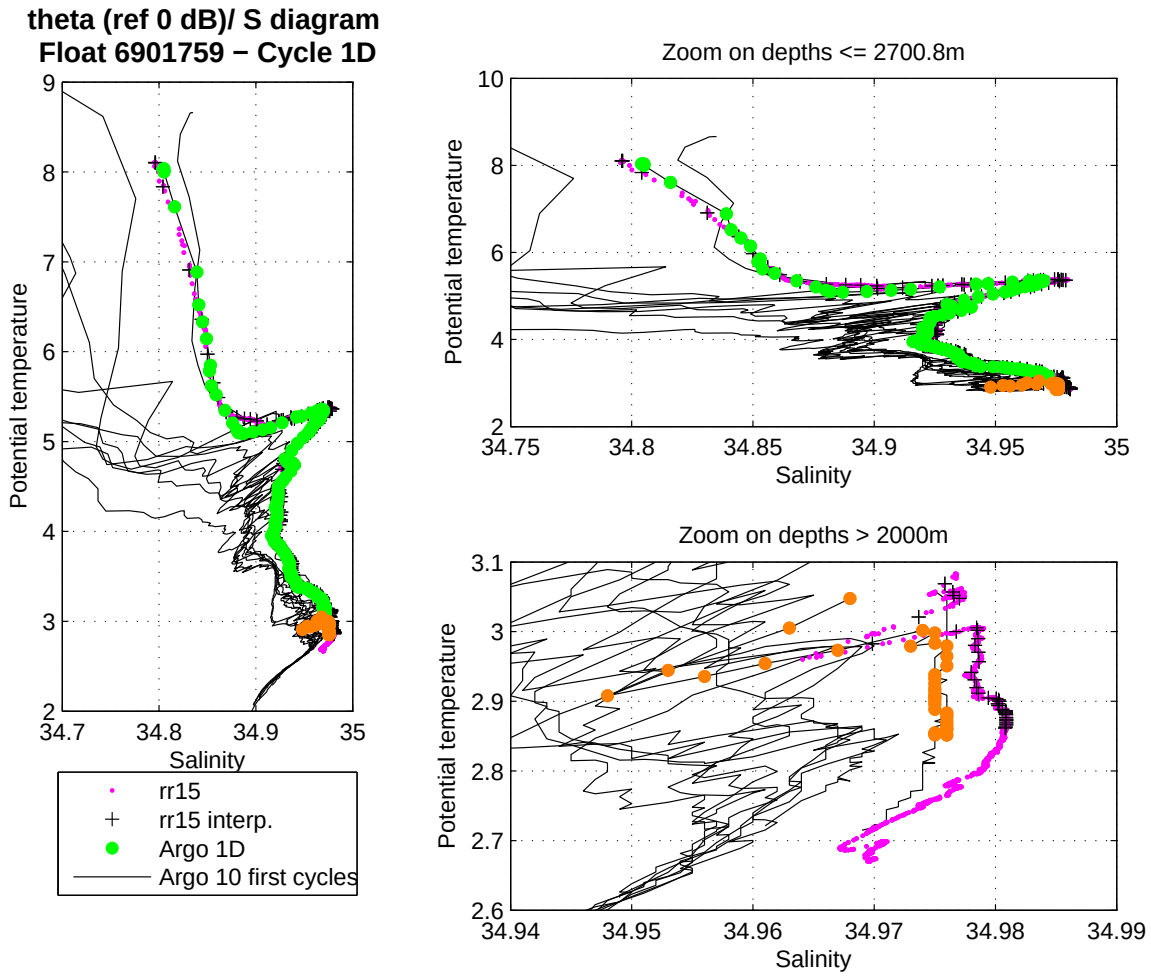


Figure 37: Float 6901759. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

8.5 Results of the OW method

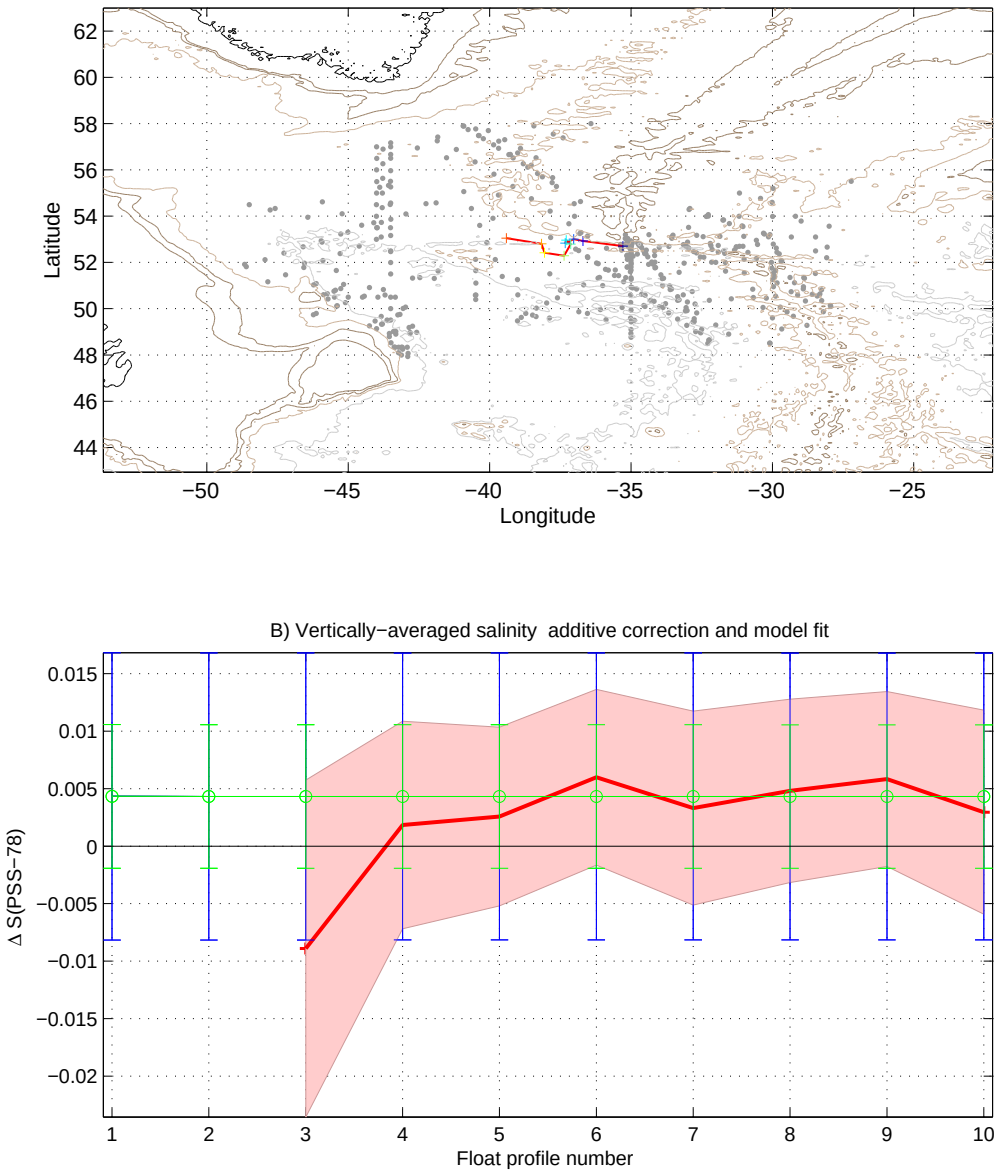


Figure 38: Float 6901759. Results of the OW method (configuration 39). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

8.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offset(0.003)

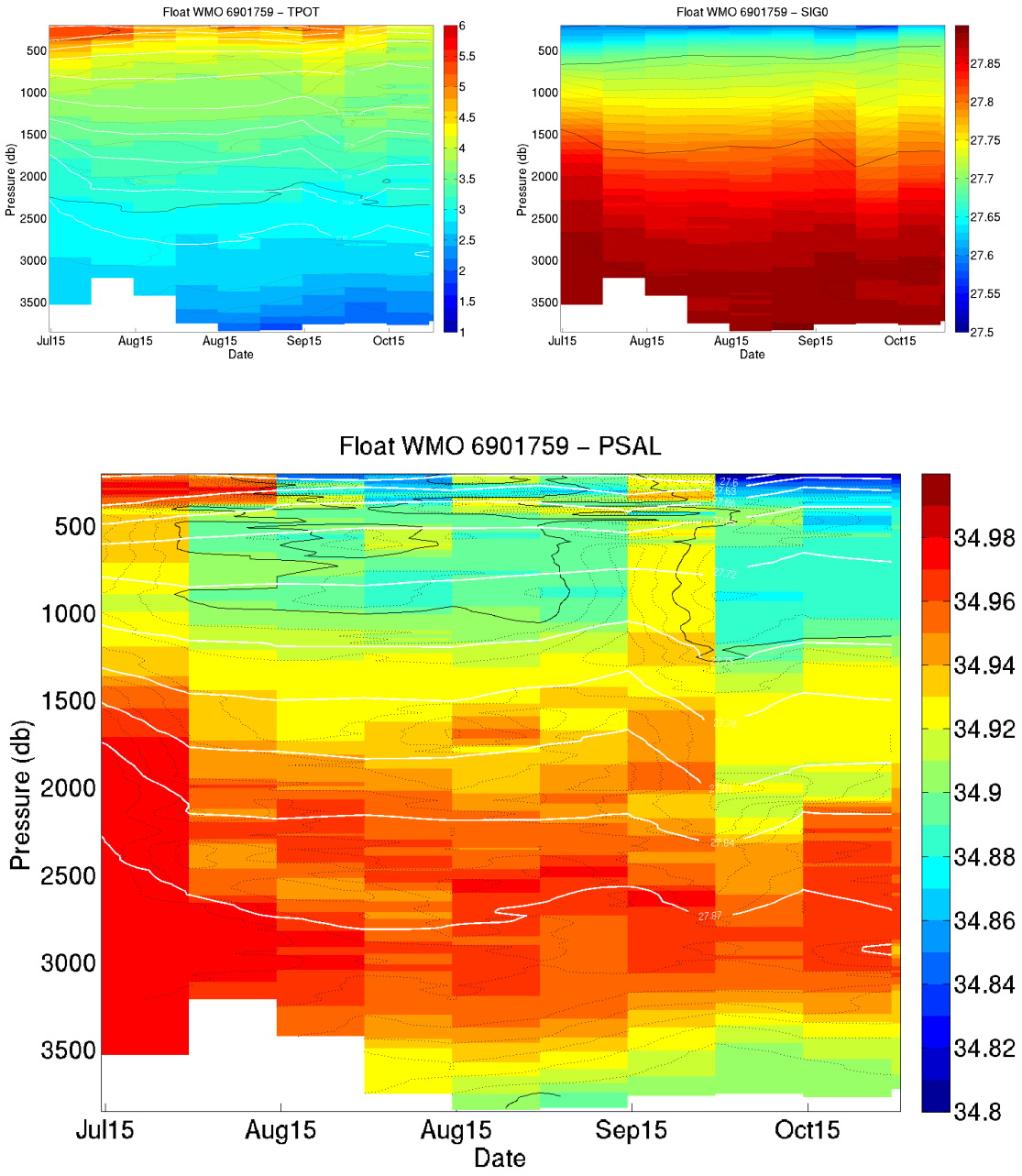


Figure 39: Float 6901759. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

8.7 Theta/S diagrams - adjusted data

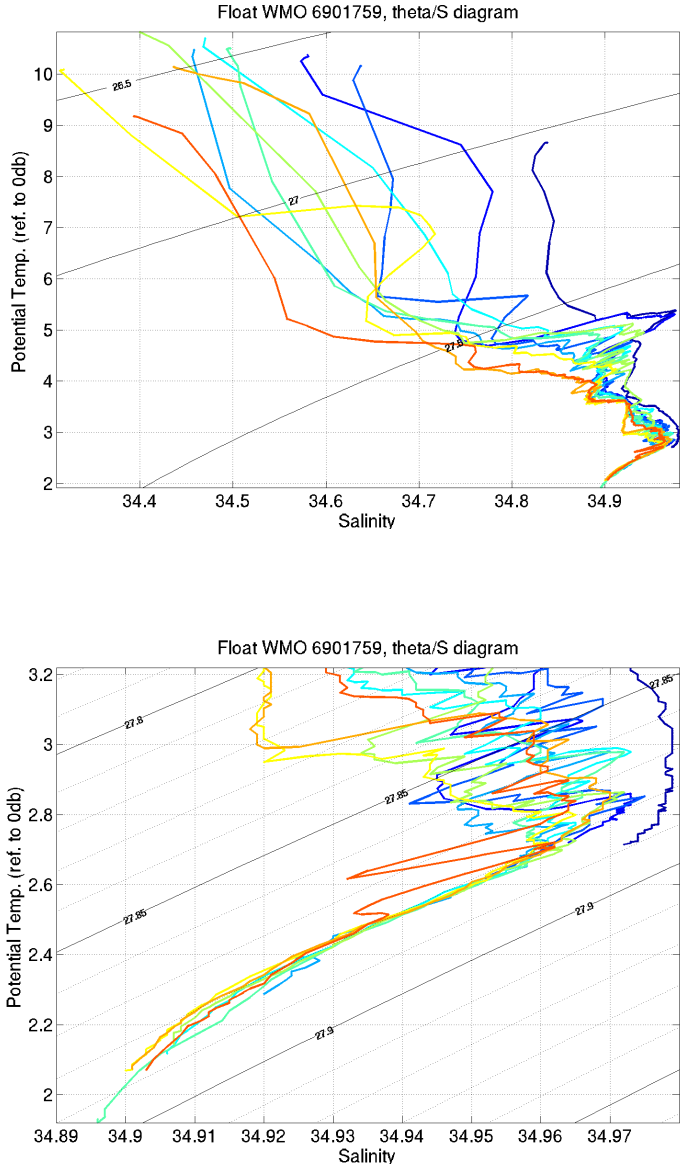


Figure 40: Float 6901759. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

9 Float 6901758

9.1 Trajectory

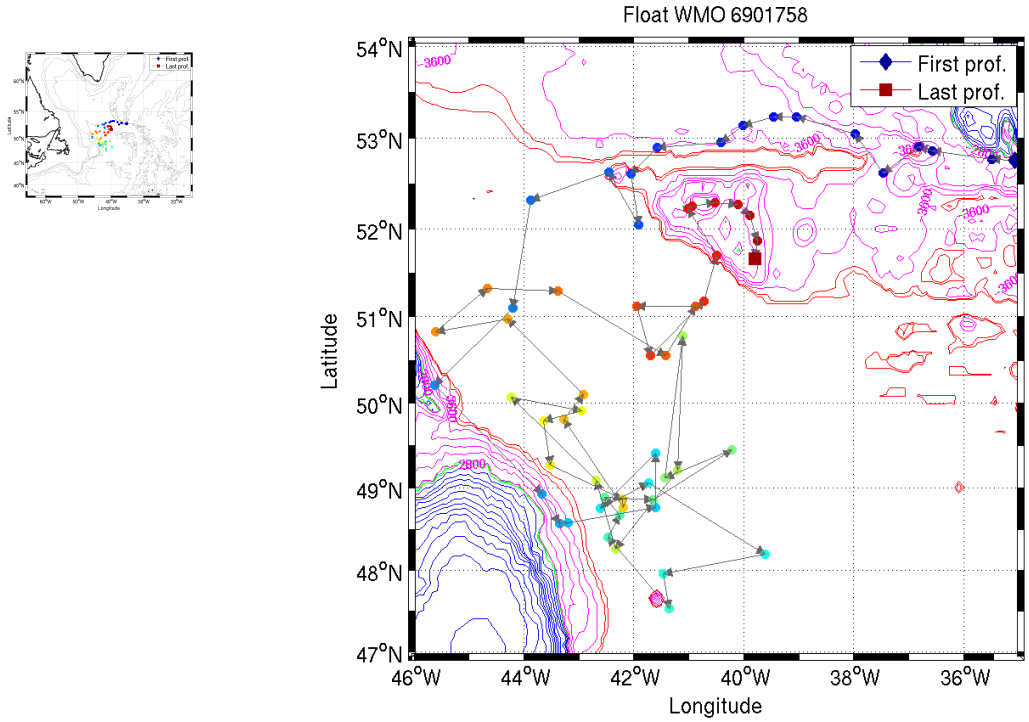


Figure 41: Float 6901758. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

9.2 Sections along the float trajectory - raw data

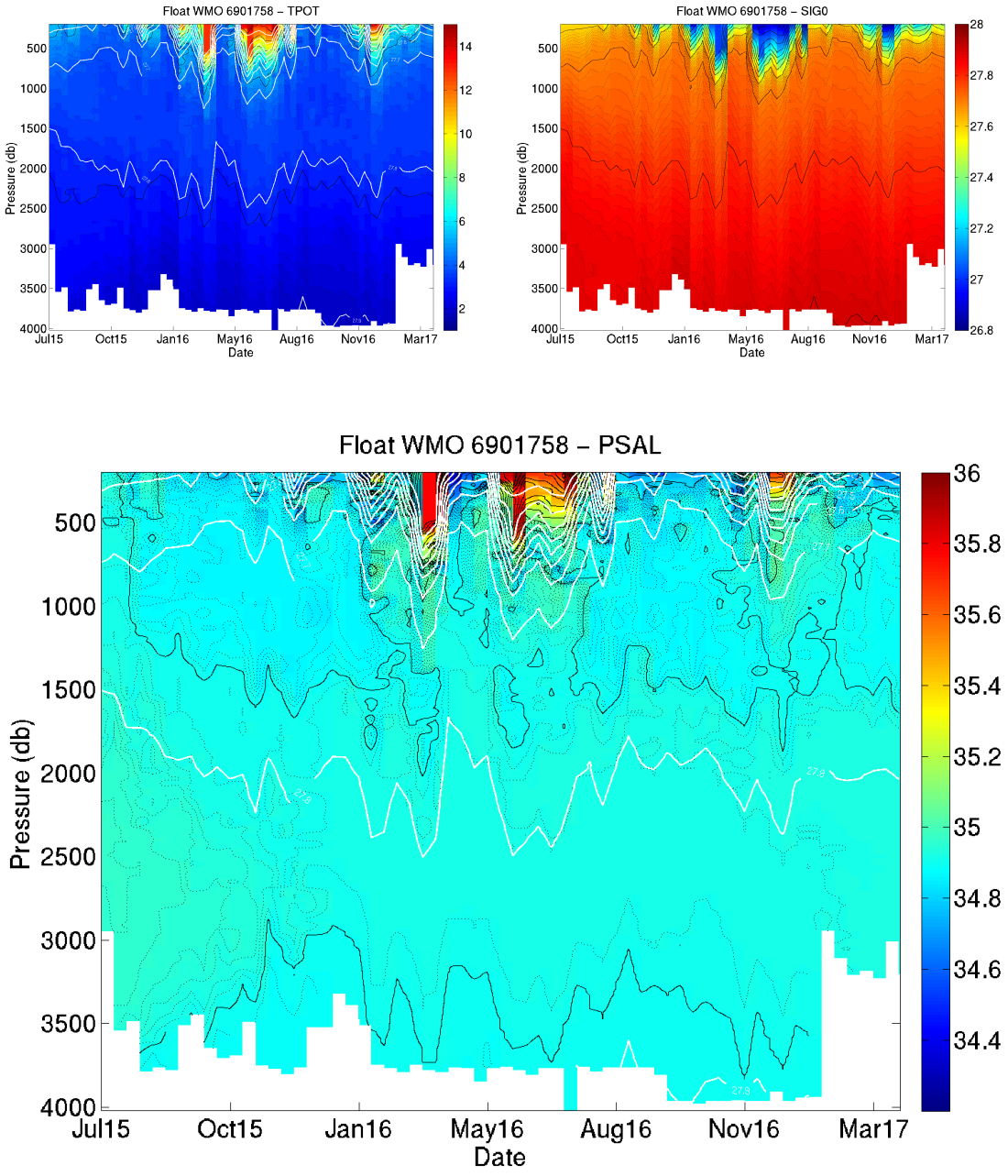


Figure 42: Float 6901758. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

9.3 Theta/S diagrams - raw data

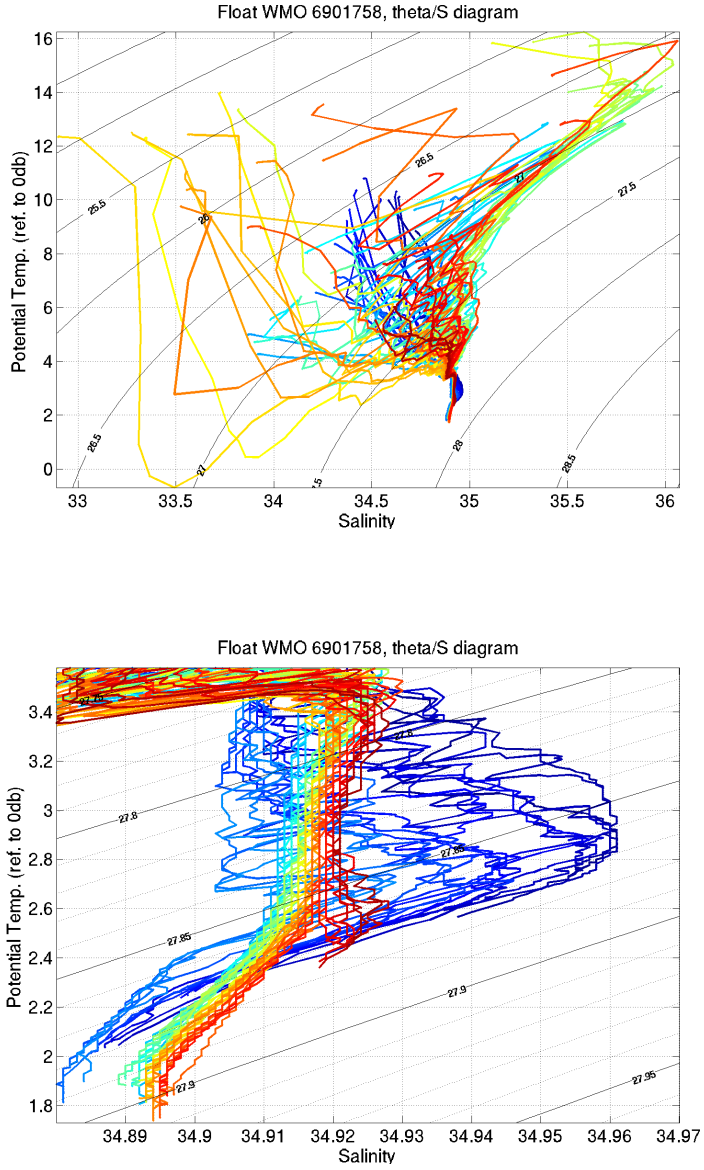


Figure 43: Float 6901758. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

9.4 Comparison with the reference CTD cast

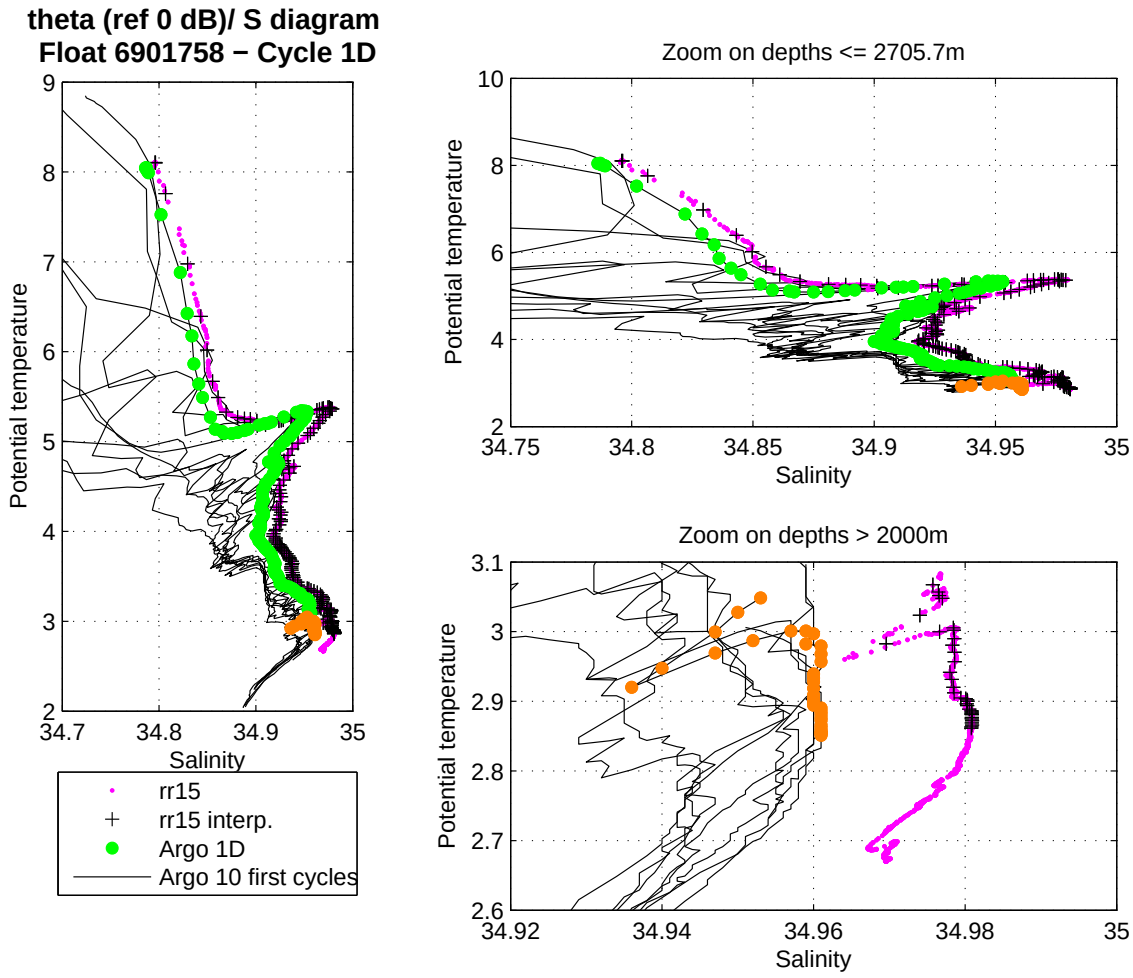


Figure 44: Float 6901758. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

9.5 Results of the OW method

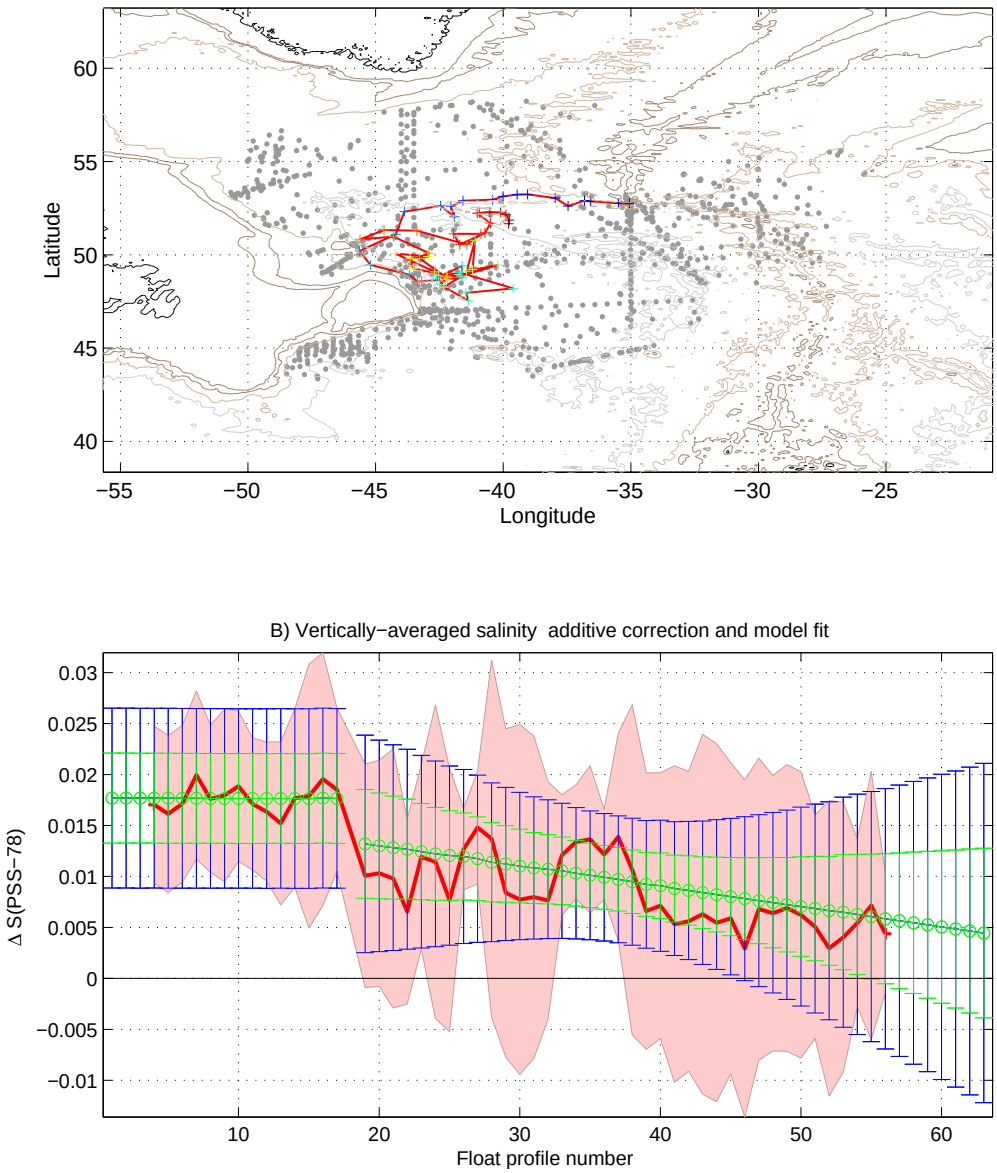


Figure 45: Float 6901758. Results of the OW method (configuration 392). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

9.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offsets (0.017 cy.1-18 and linear drift after)

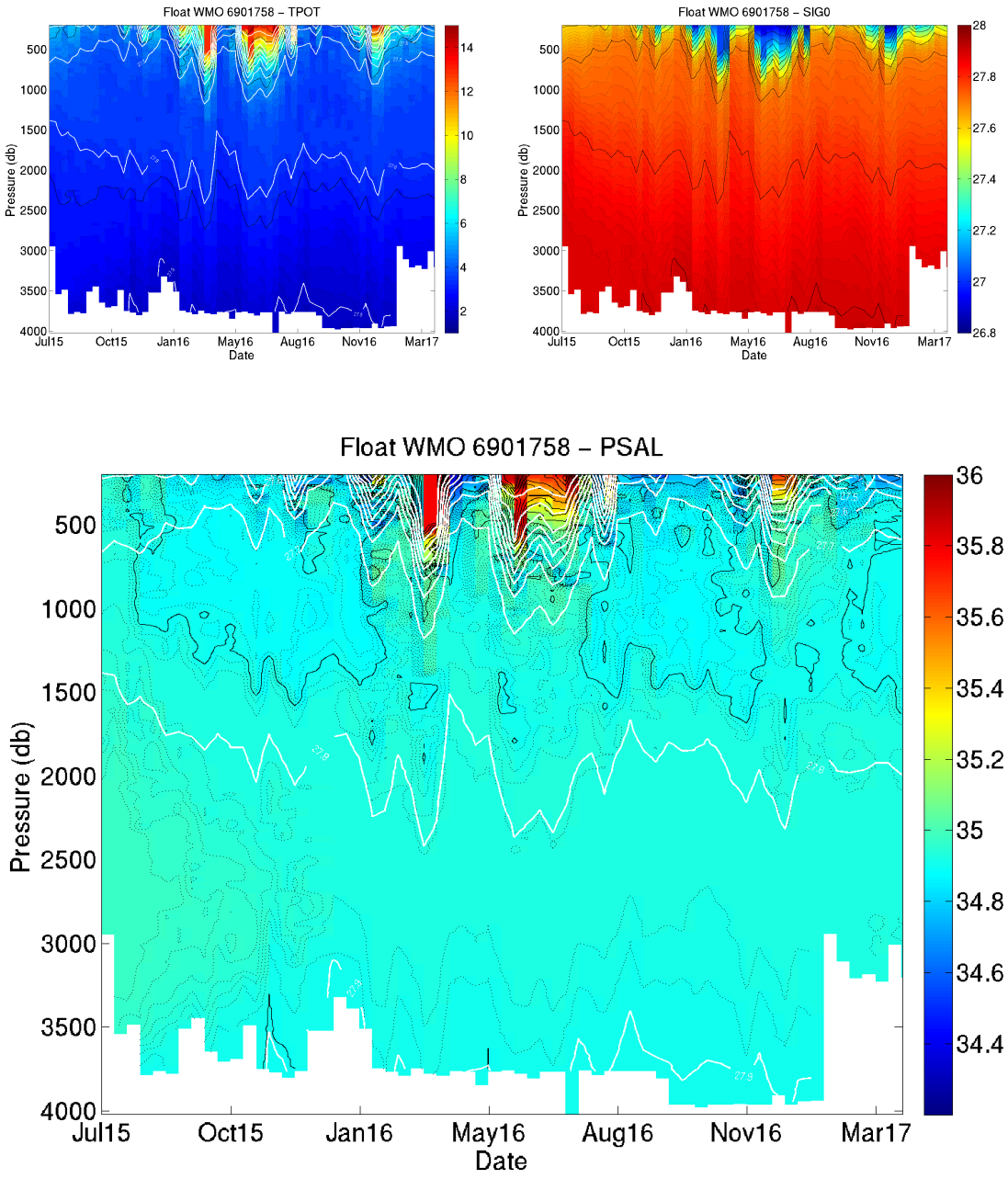


Figure 46: Float 6901758. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

9.7 Theta/S diagrams - adjusted data

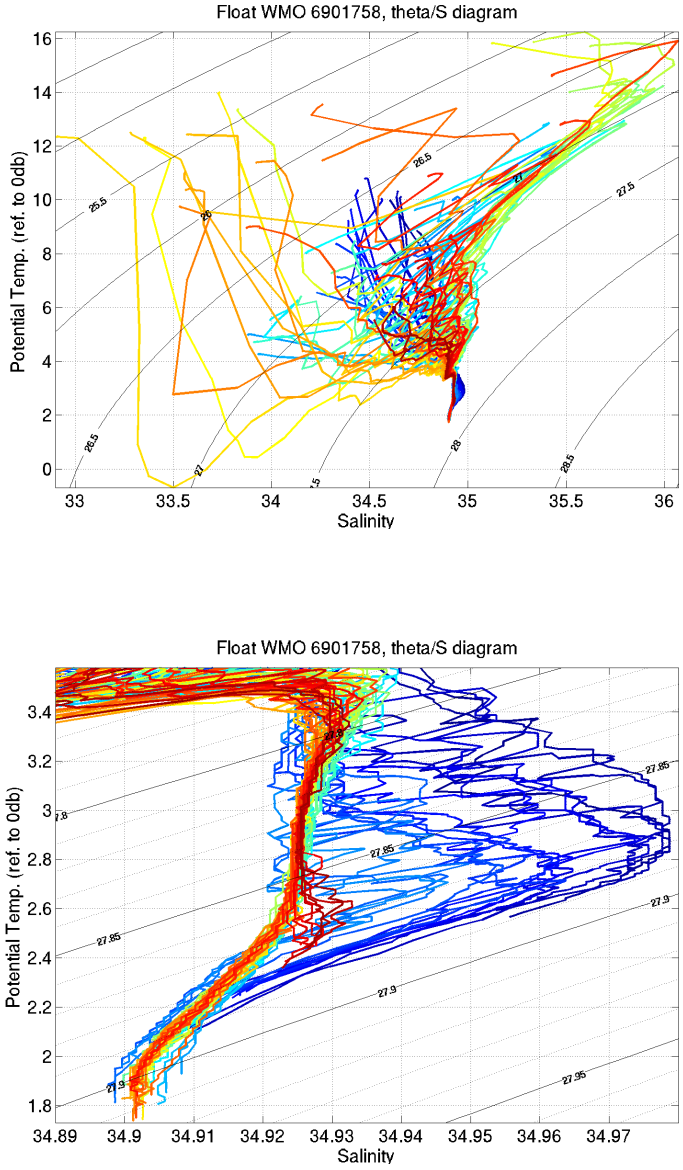
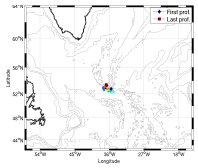


Figure 47: Float 6901758. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

10 Float 6901602

10.1 Trajectory



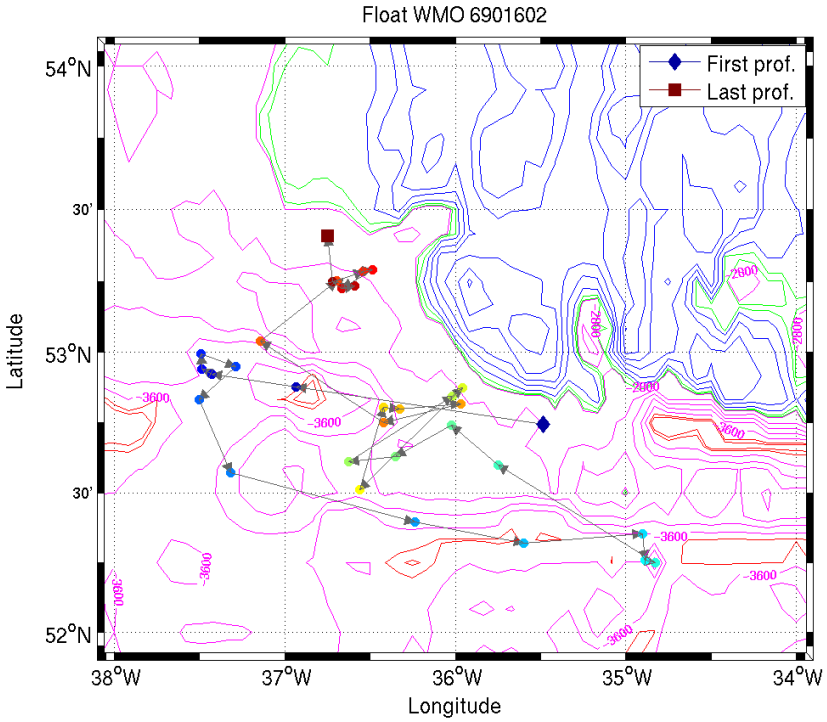


Figure 48: Float 6901602. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

10.2 Sections along the float trajectory - raw data

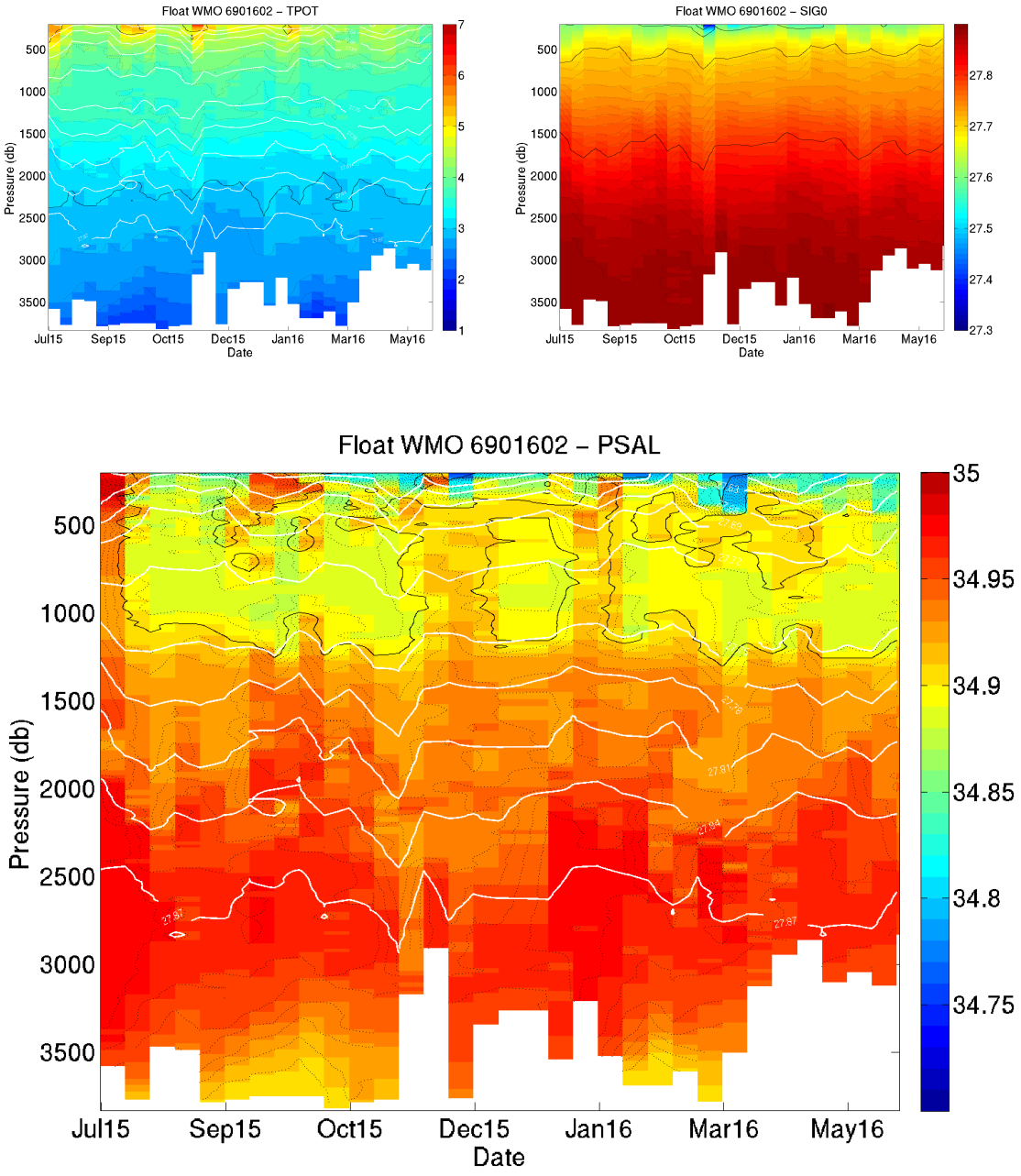


Figure 49: Float 6901602. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

10.3 Theta/S diagrams - raw data

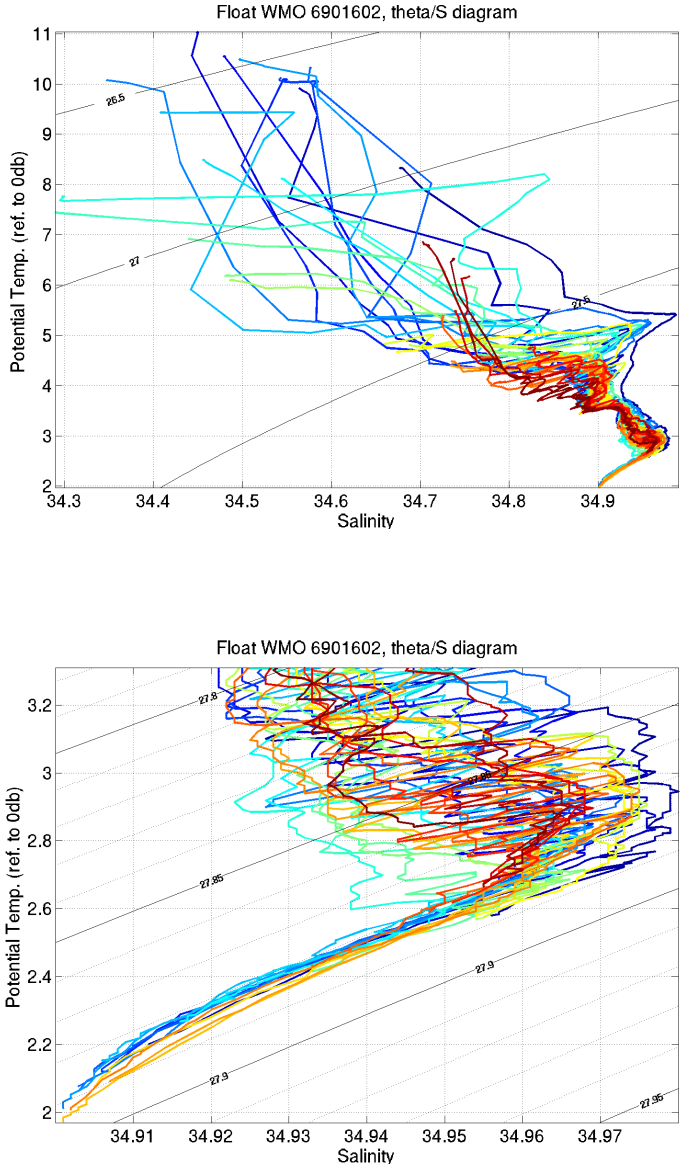


Figure 50: Float 6901602. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

10.4 Comparison with the reference CTD cast

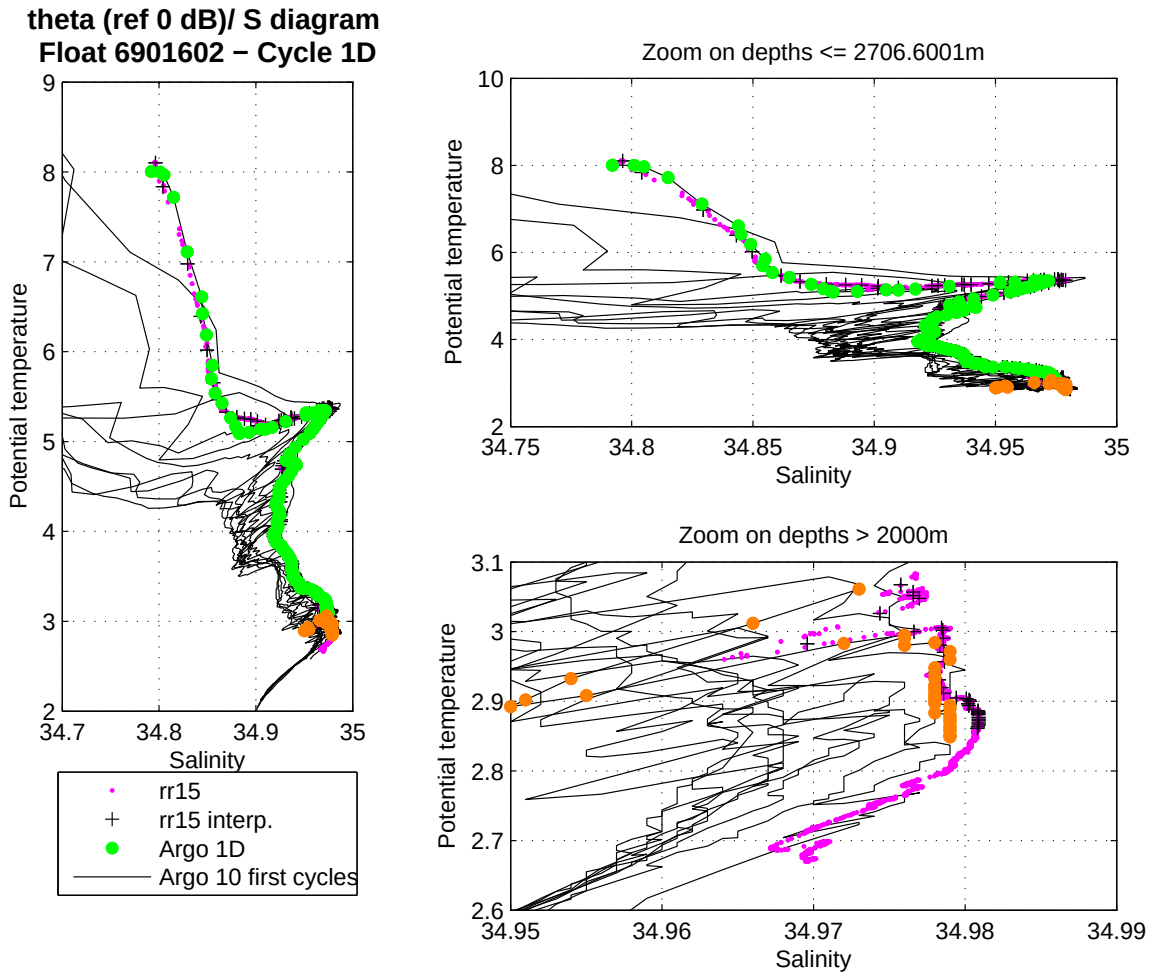


Figure 51: Float 6901602. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

10.5 Results of the OW method

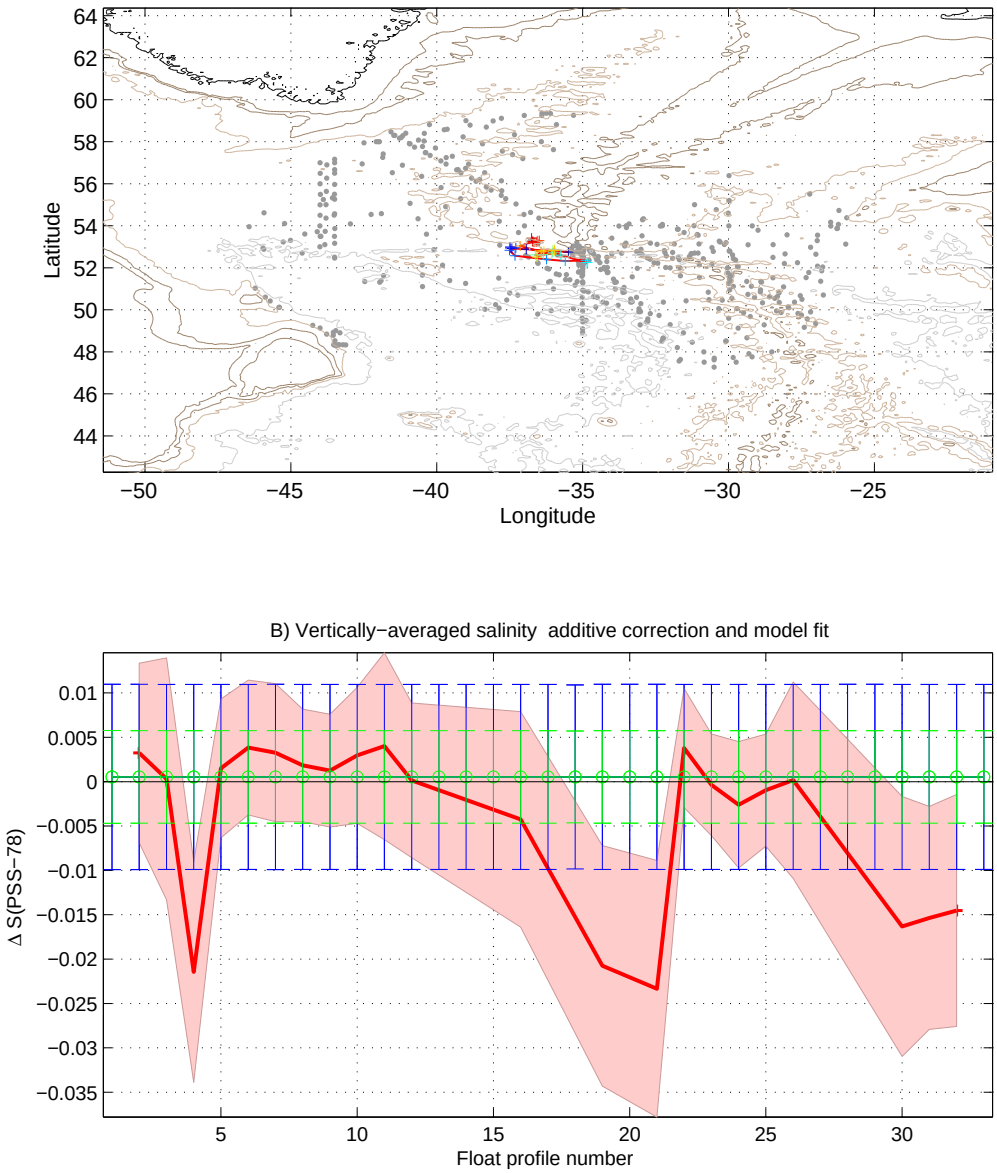


Figure 52: Float 6901602. Results of the OW method (configuration 39). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

10.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: No correction

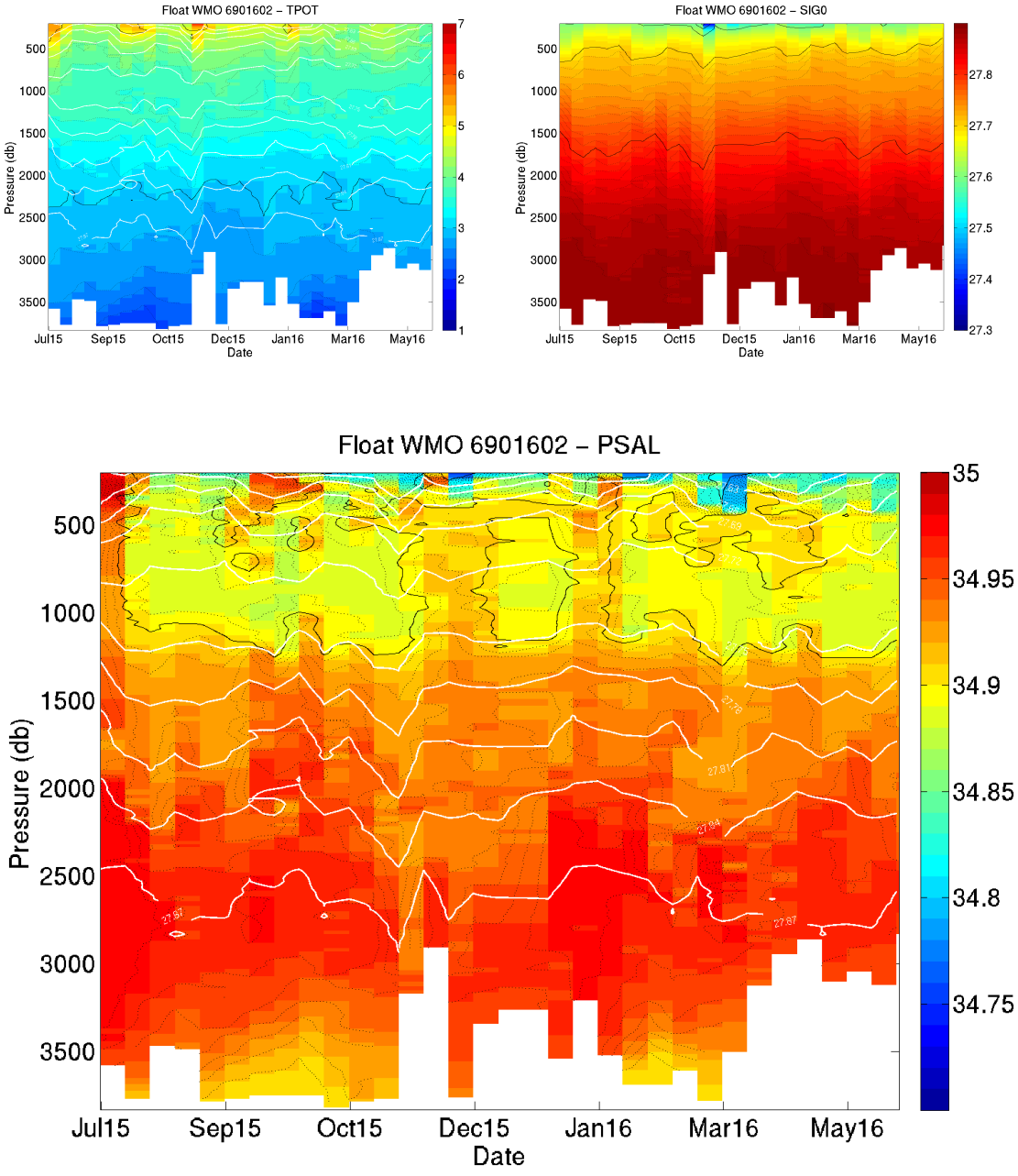


Figure 53: Float 6901602. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

10.7 Theta/S diagrams - adjusted data

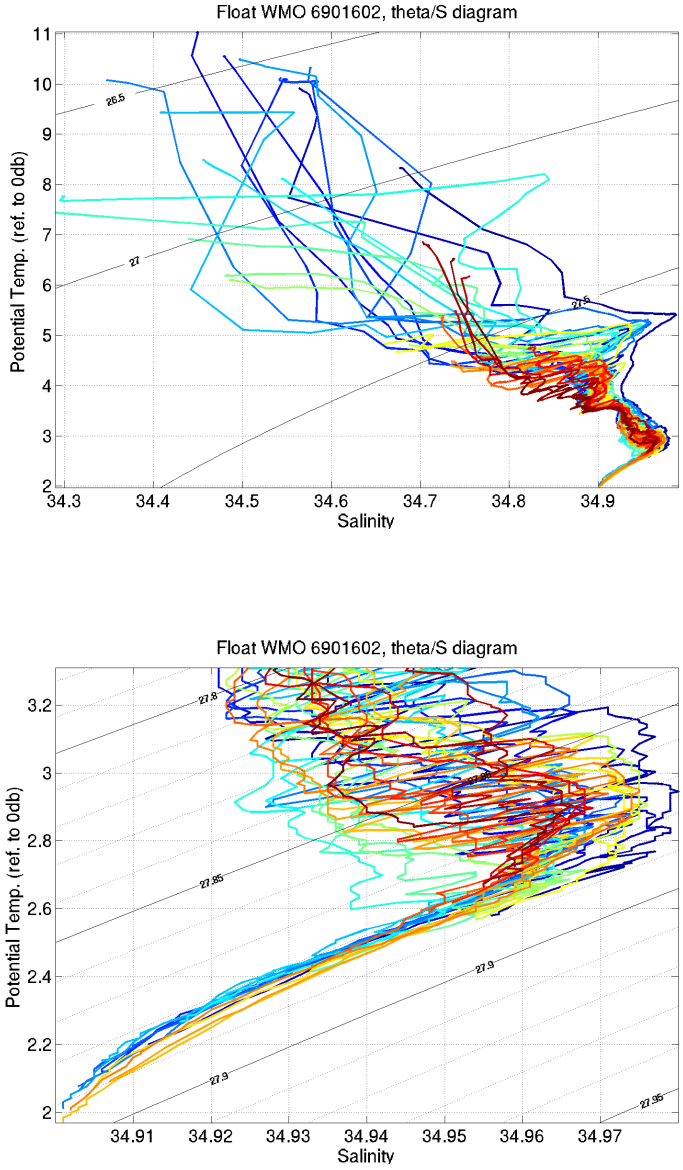


Figure 54: Float 6901602. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

11 Float 6901760

11.1 Trajectory

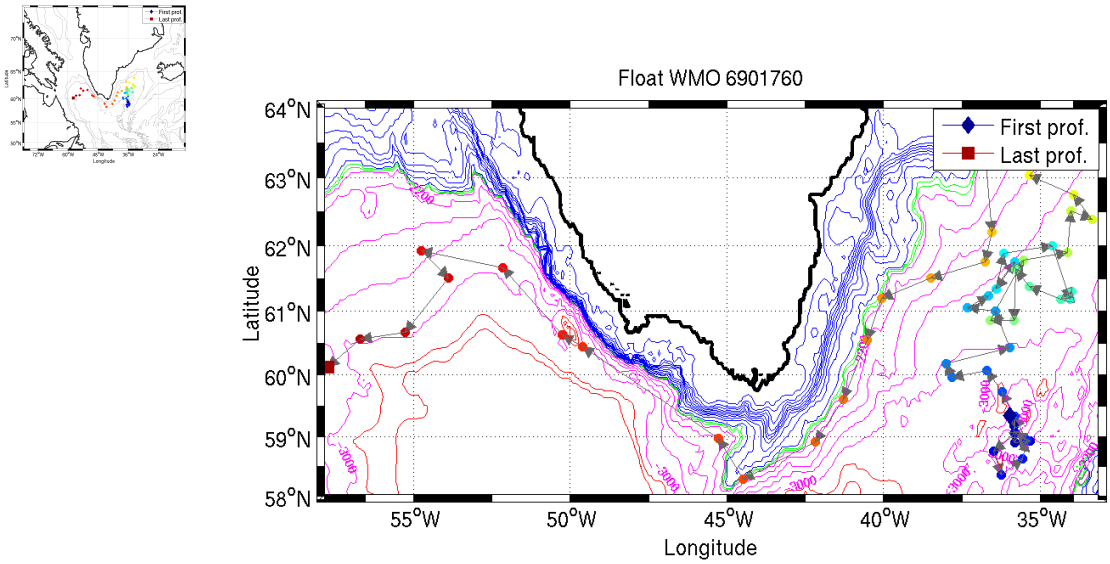


Figure 55: Float 6901760. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

11.2 Sections along the float trajectory - raw data

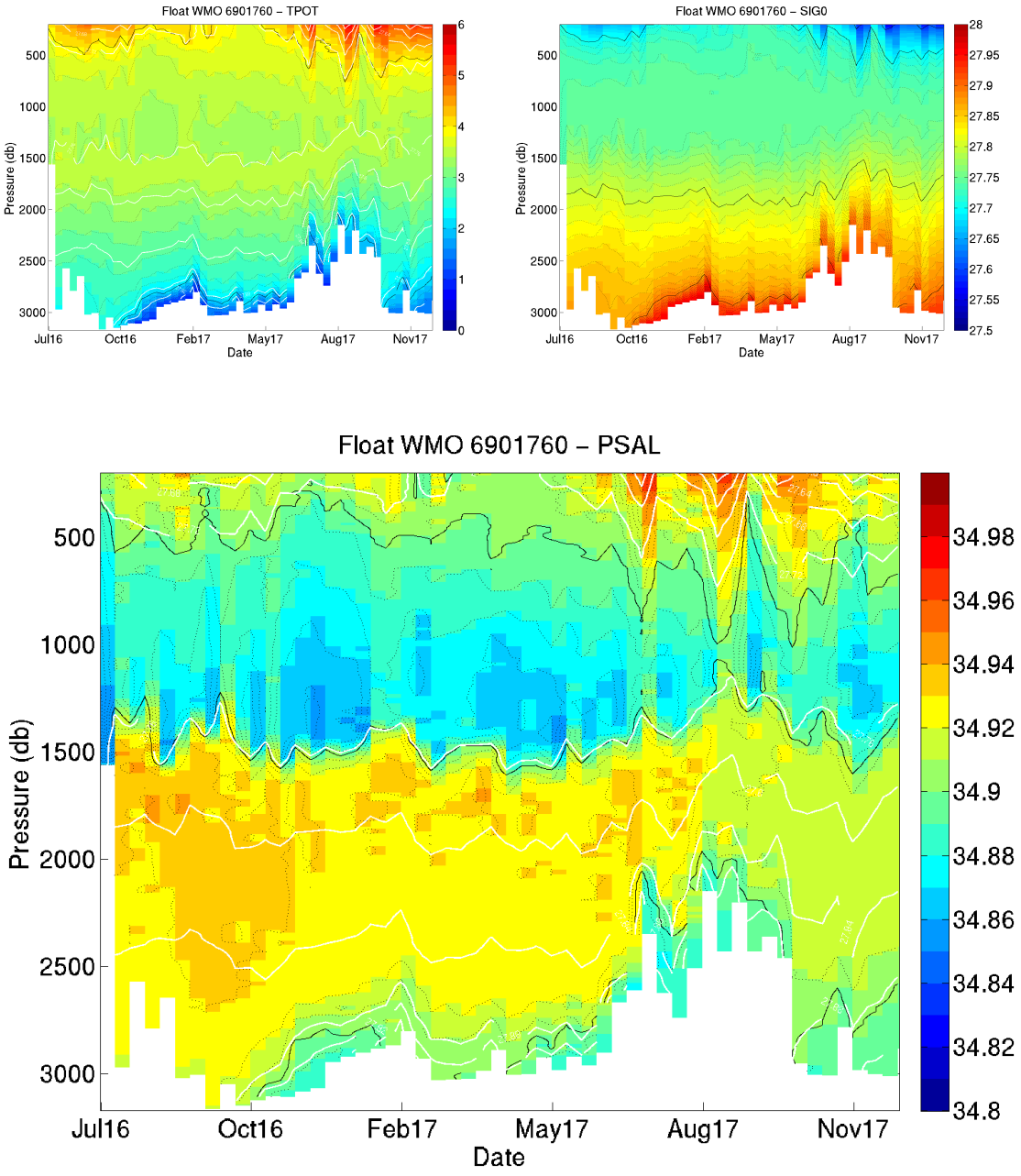


Figure 56: Float 6901760. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

11.3 Theta/S diagrams - raw data

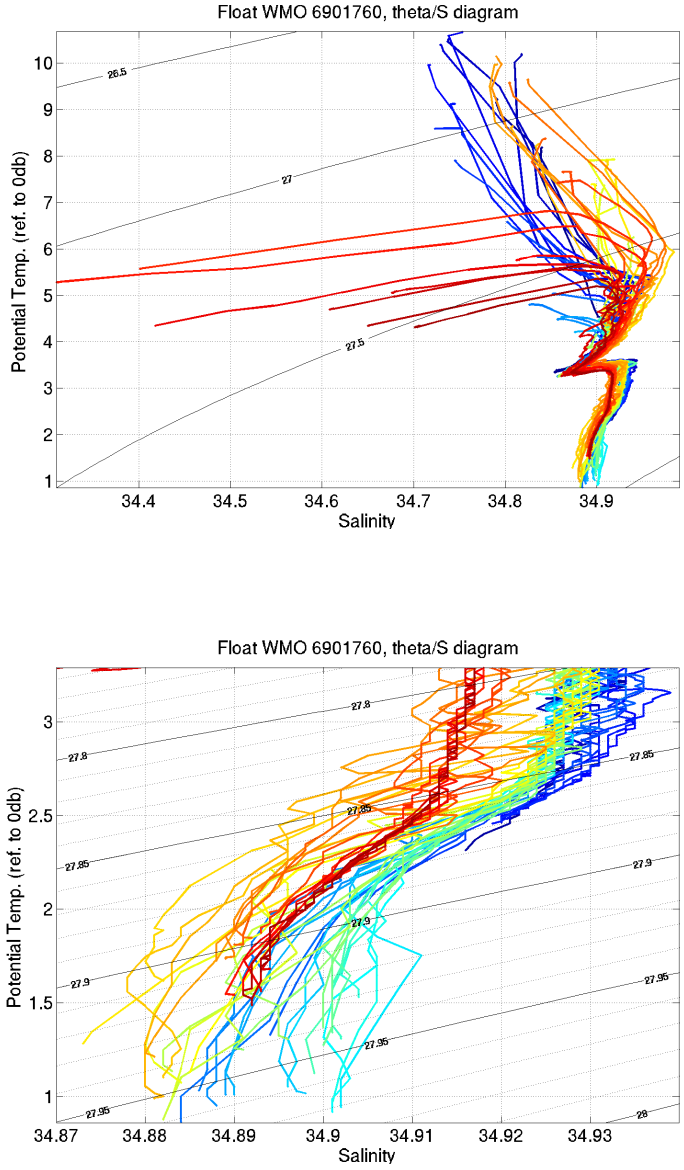


Figure 57: Float 6901760. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

11.4 Comparison with the reference CTD cast

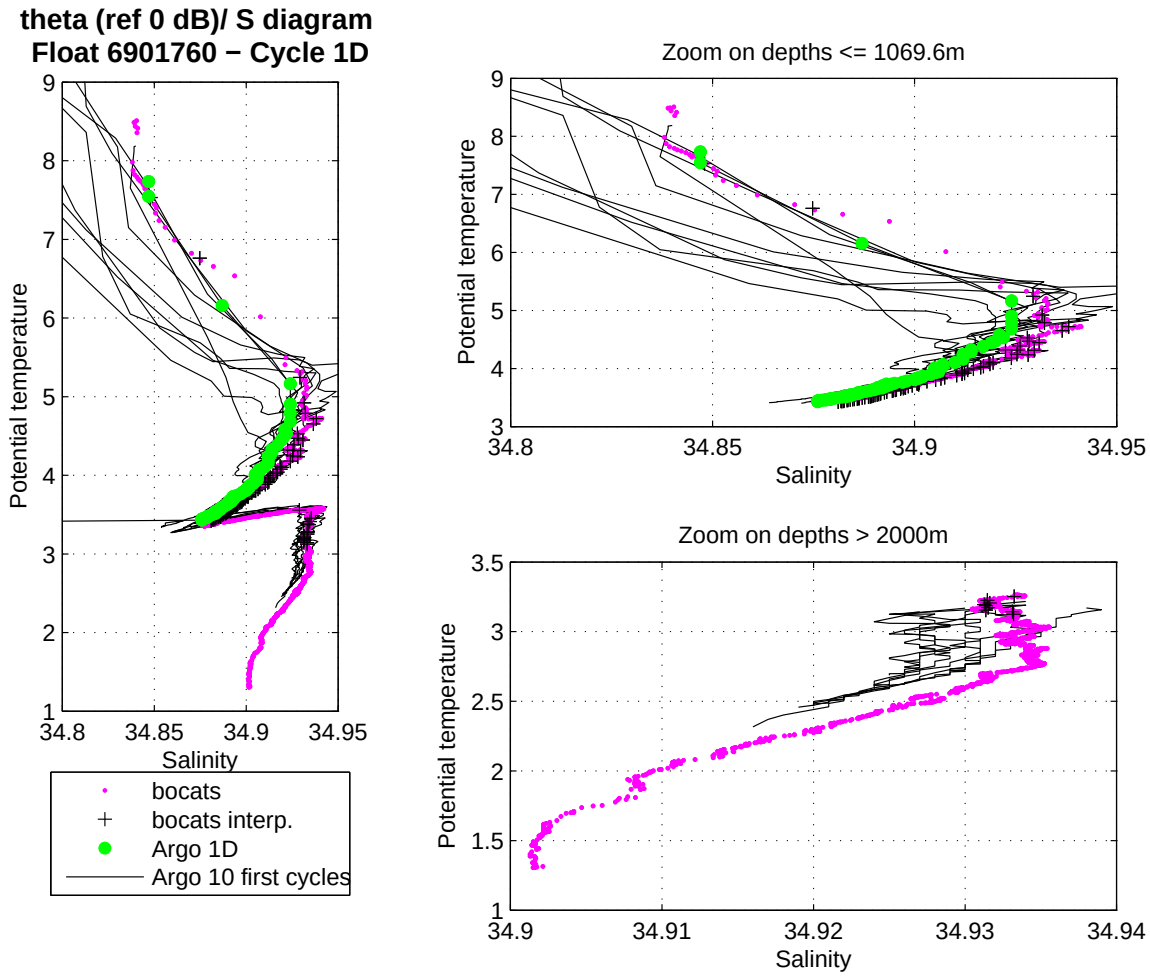


Figure 58: Float 6901760. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

11.5 Results of the OW method

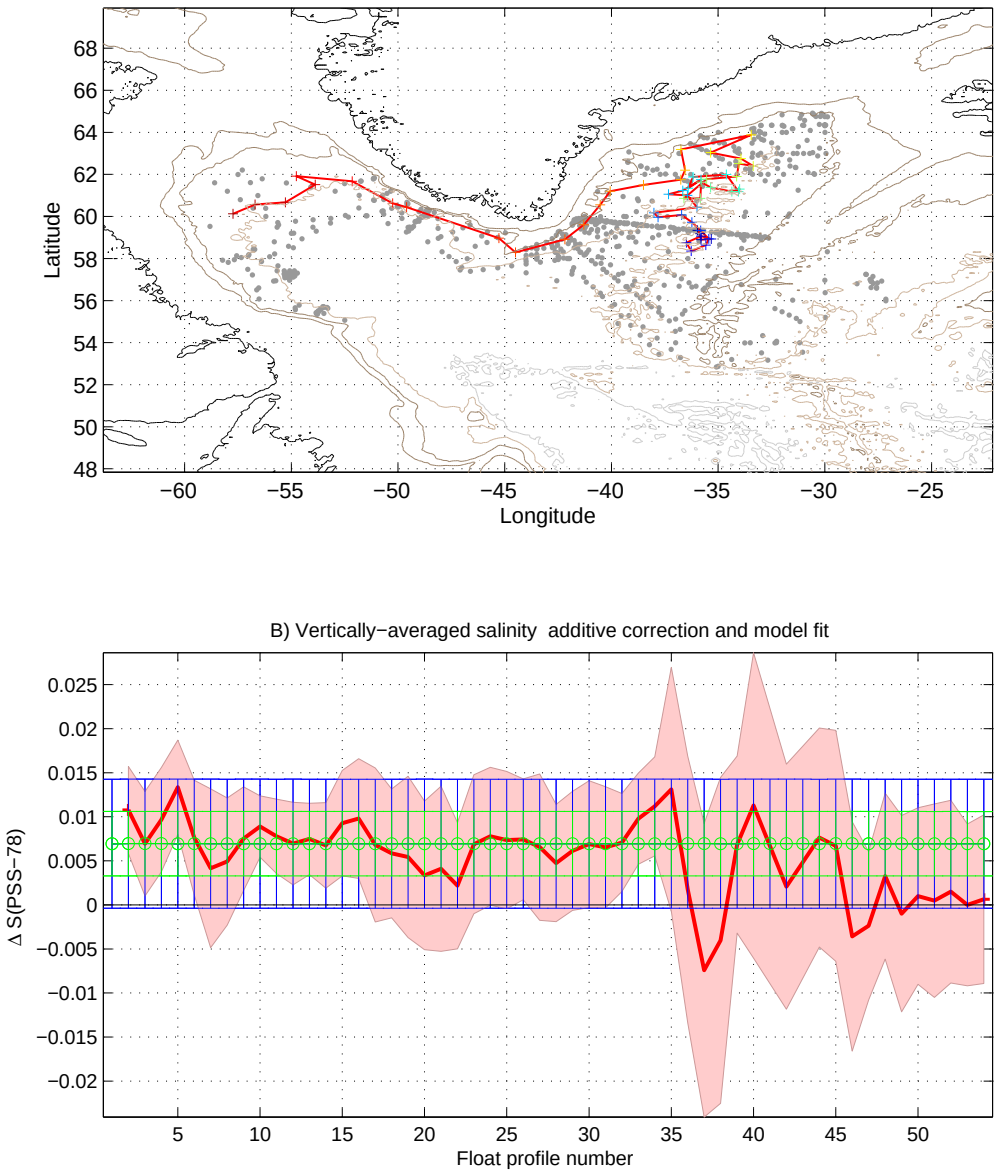


Figure 59: Float 6901760. Results of the OW method (configuration 392). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

11.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offset(0.006)

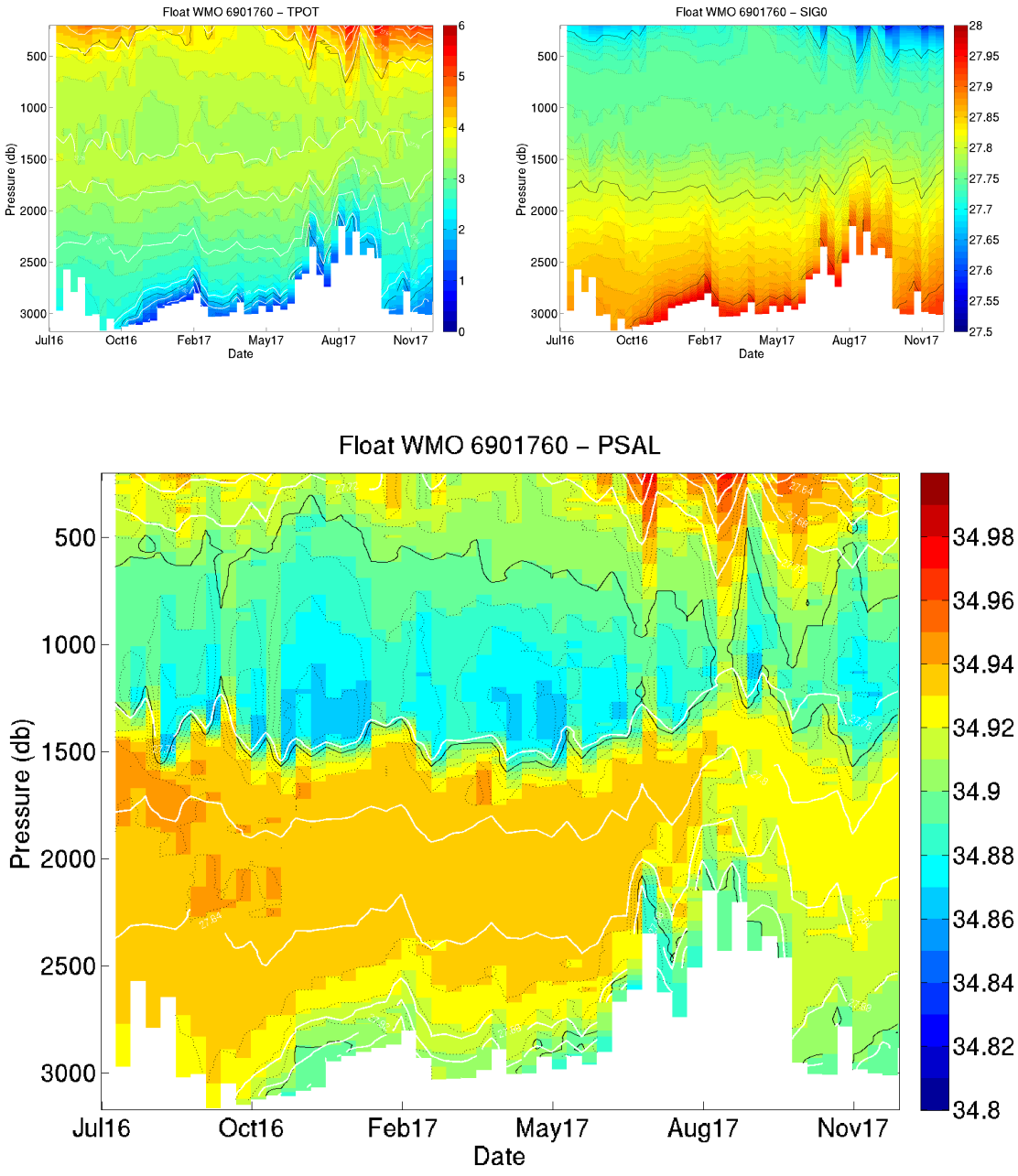


Figure 60: Float 6901760. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

11.7 Theta/S diagrams - adjusted data

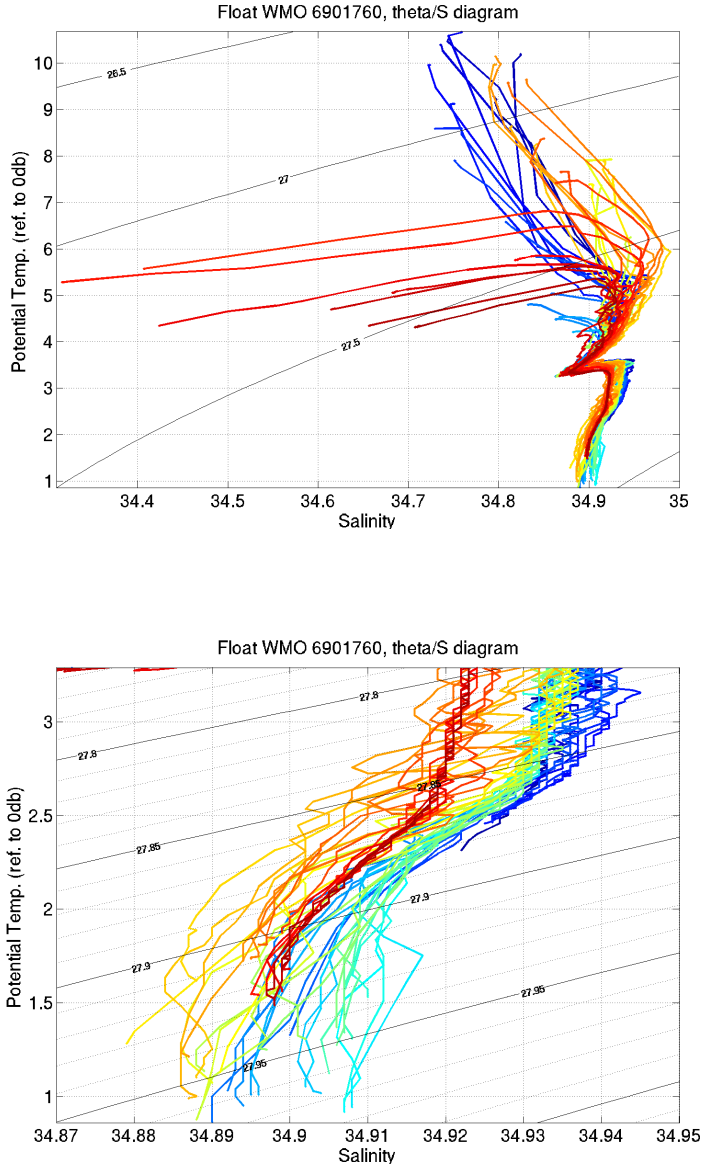
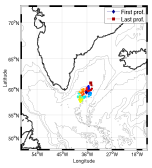


Figure 61: Float 6901760. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

12 Float 6901762

12.1 Trajectory



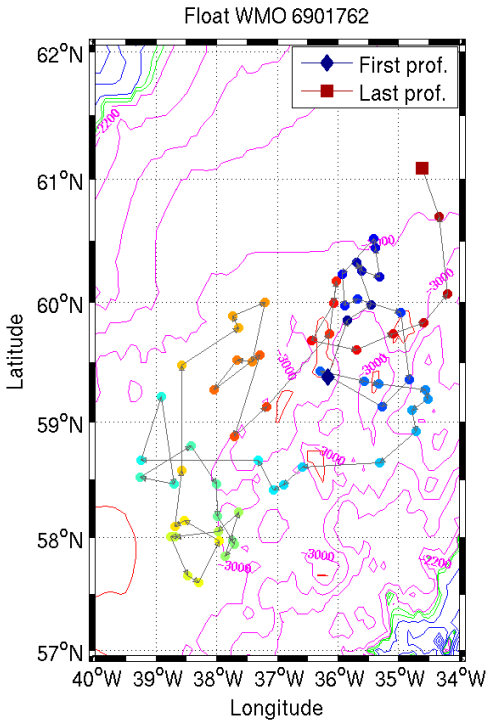


Figure 62: Float 6901762. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

12.2 Sections along the float trajectory - raw data

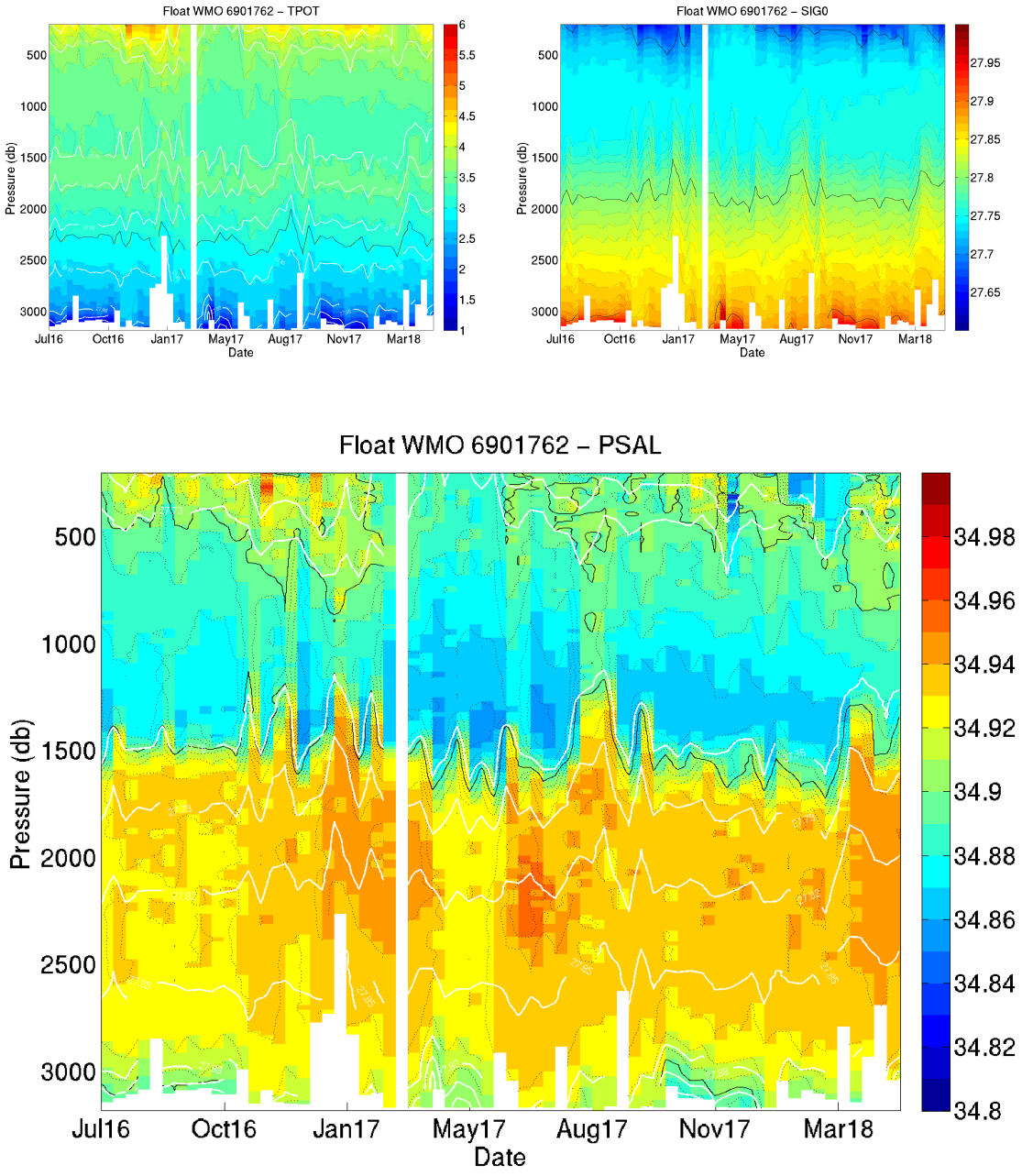


Figure 63: Float 6901762. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

12.3 Theta/S diagrams - raw data

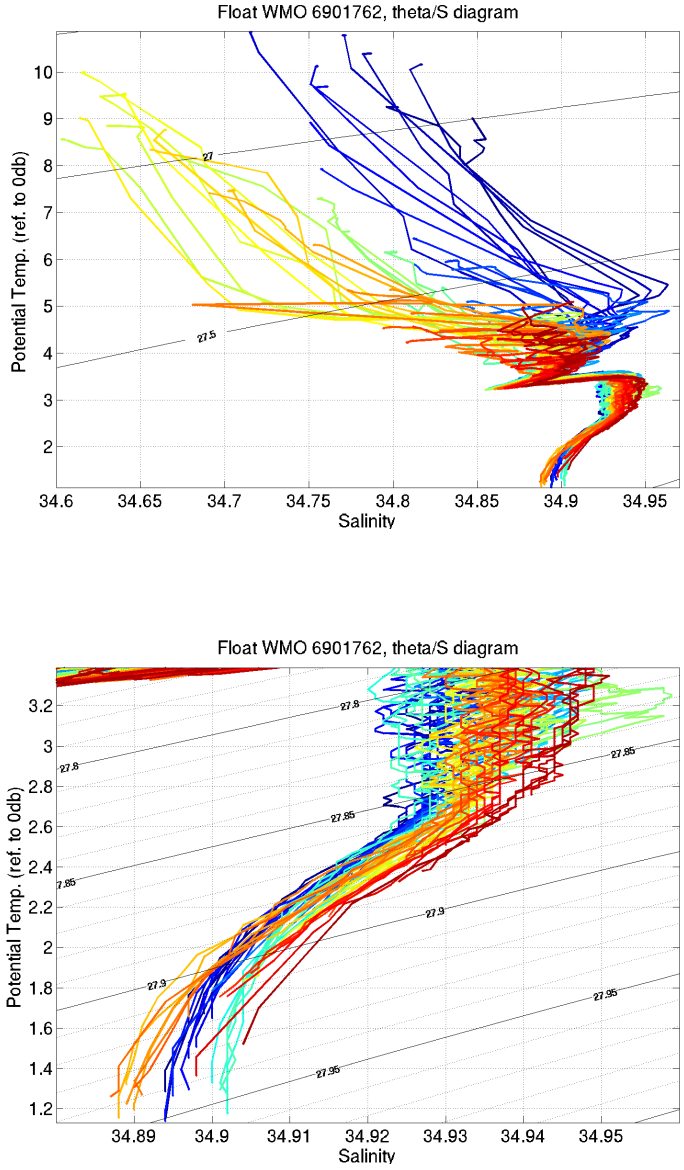


Figure 64: Float 6901762. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

12.4 Comparison with the reference CTD cast

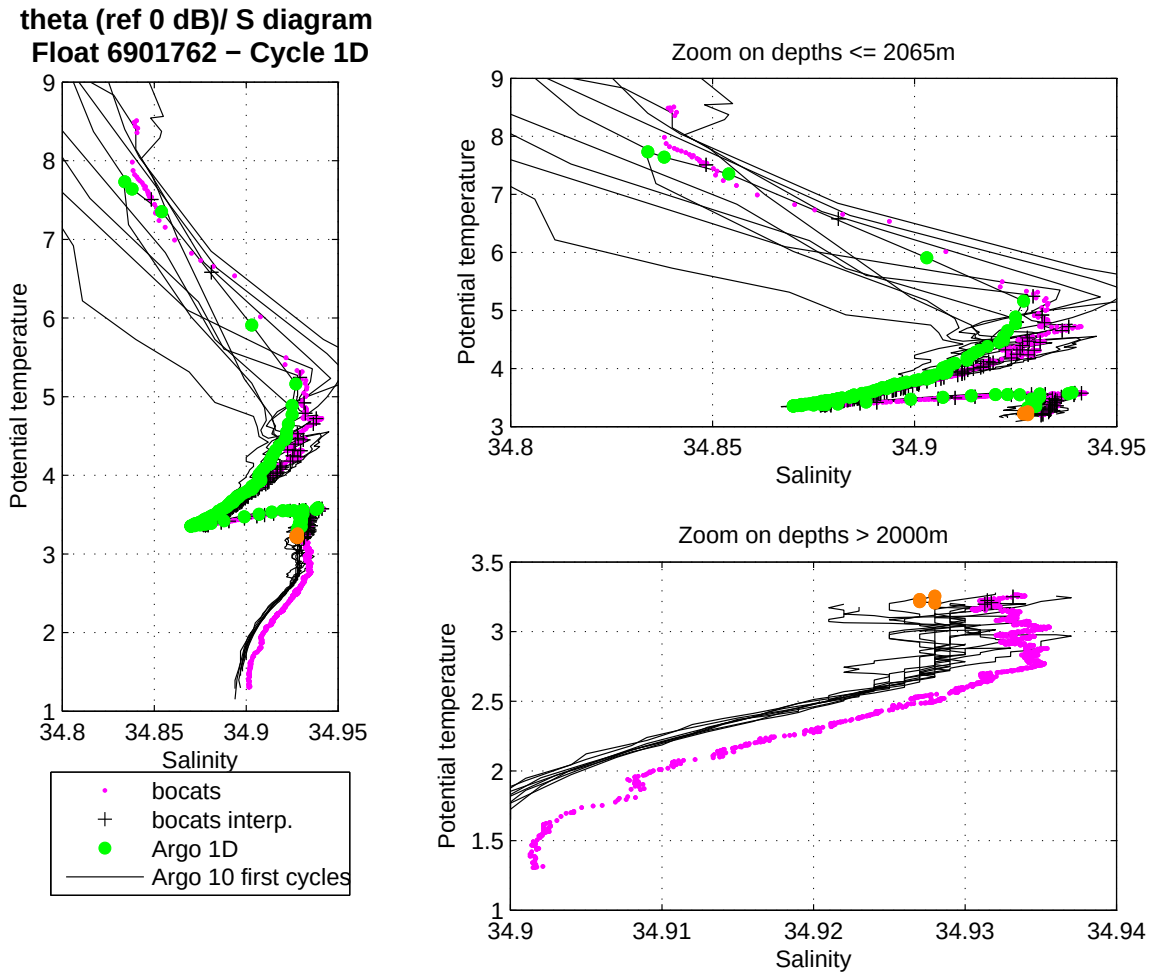


Figure 65: Float 6901762. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

12.5 Results of the OW method

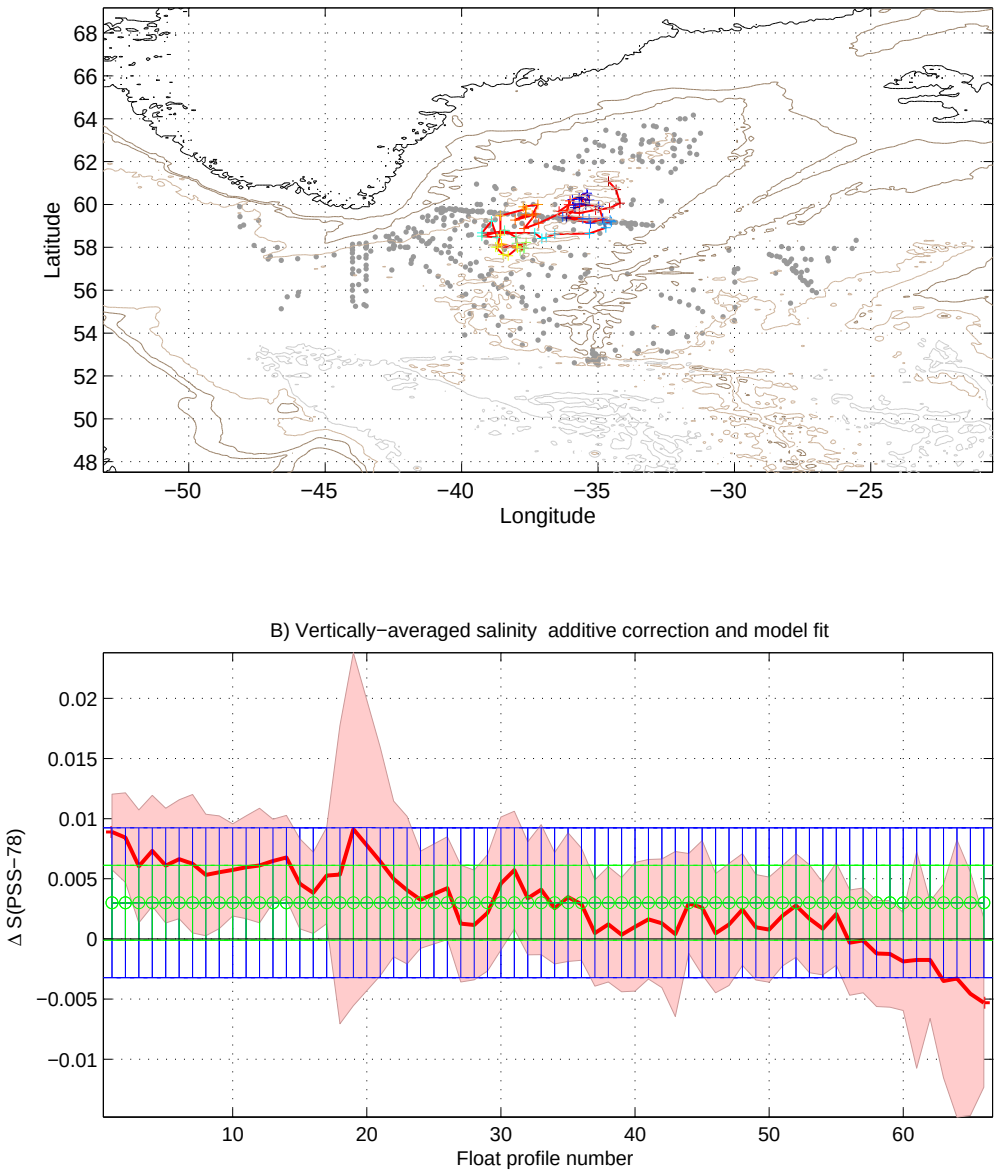


Figure 66: Float 6901762. Results of the OW method (configuration 392). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

12.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offset(0.005)

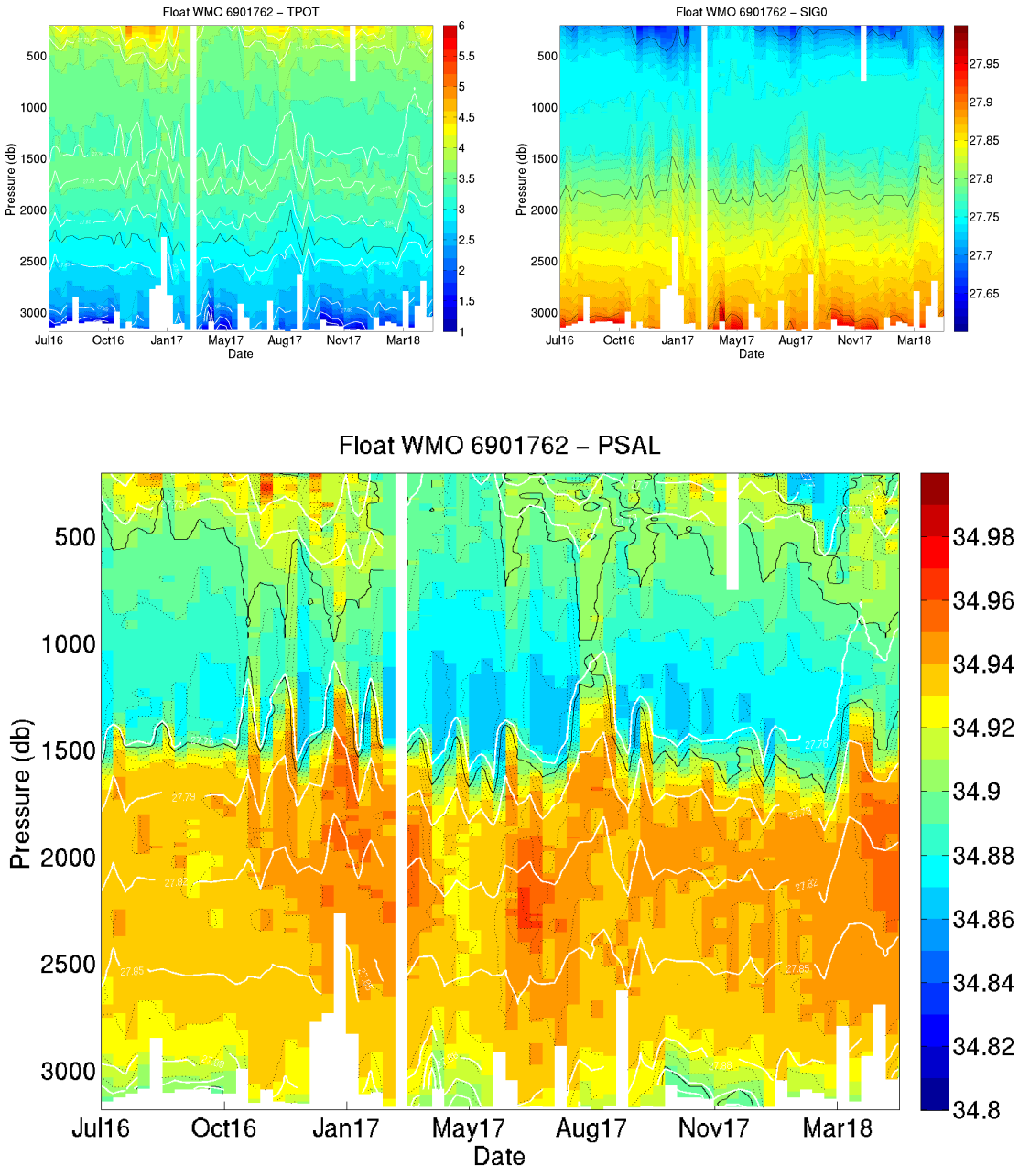


Figure 67: Float 6901762. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

12.7 Theta/S diagrams - adjusted data

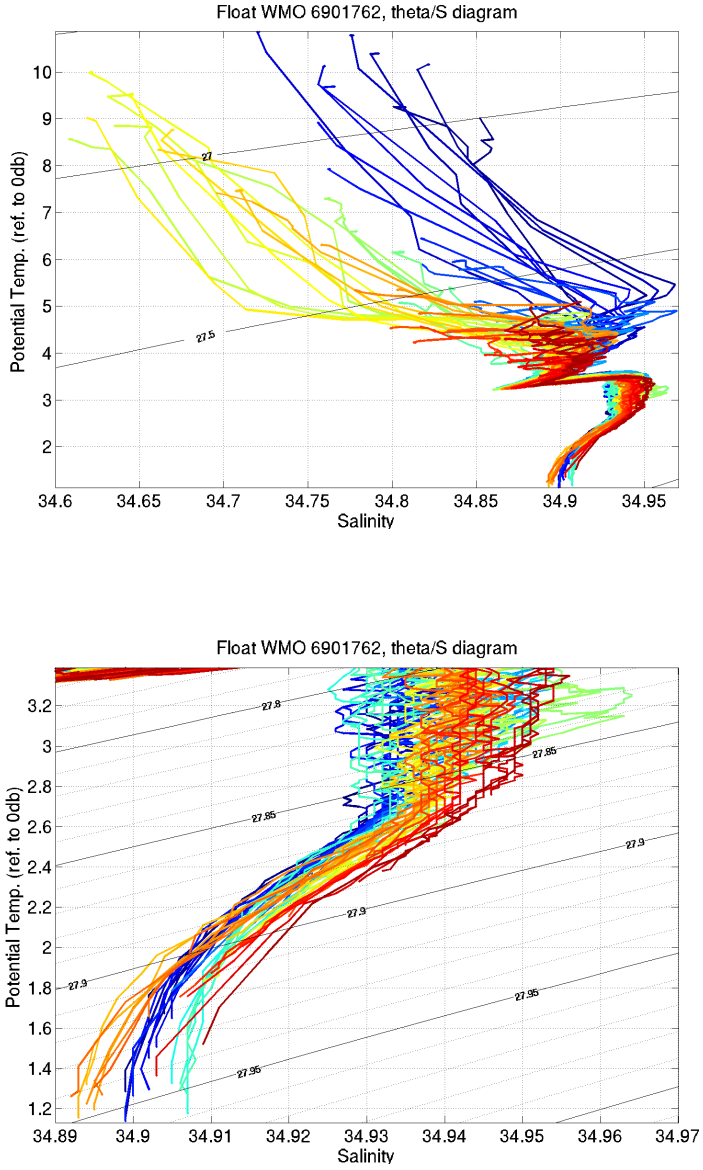
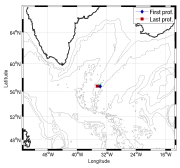


Figure 68: Float 6901762. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

13 Float 6901603

13.1 Trajectory



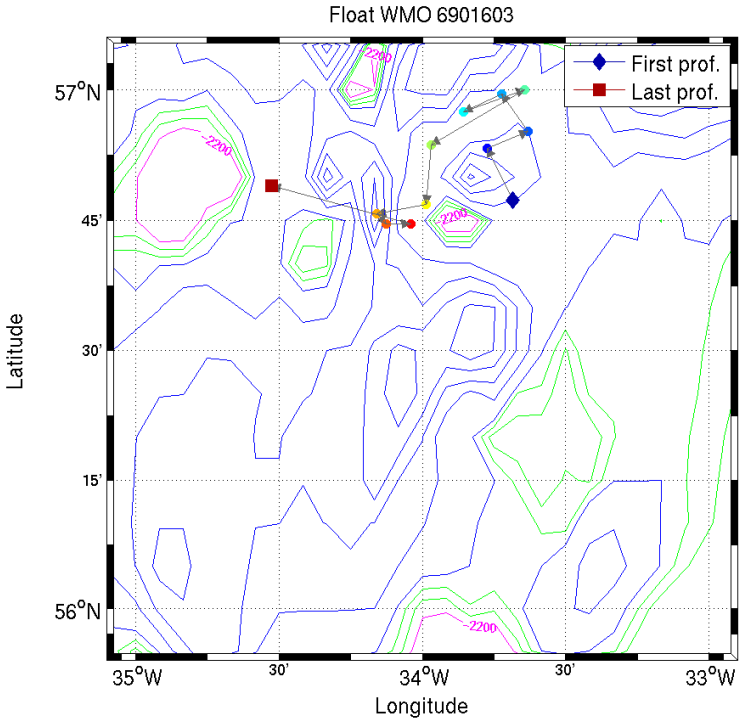


Figure 69: Float 6901603. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

13.2 Sections along the float trajectory - raw data

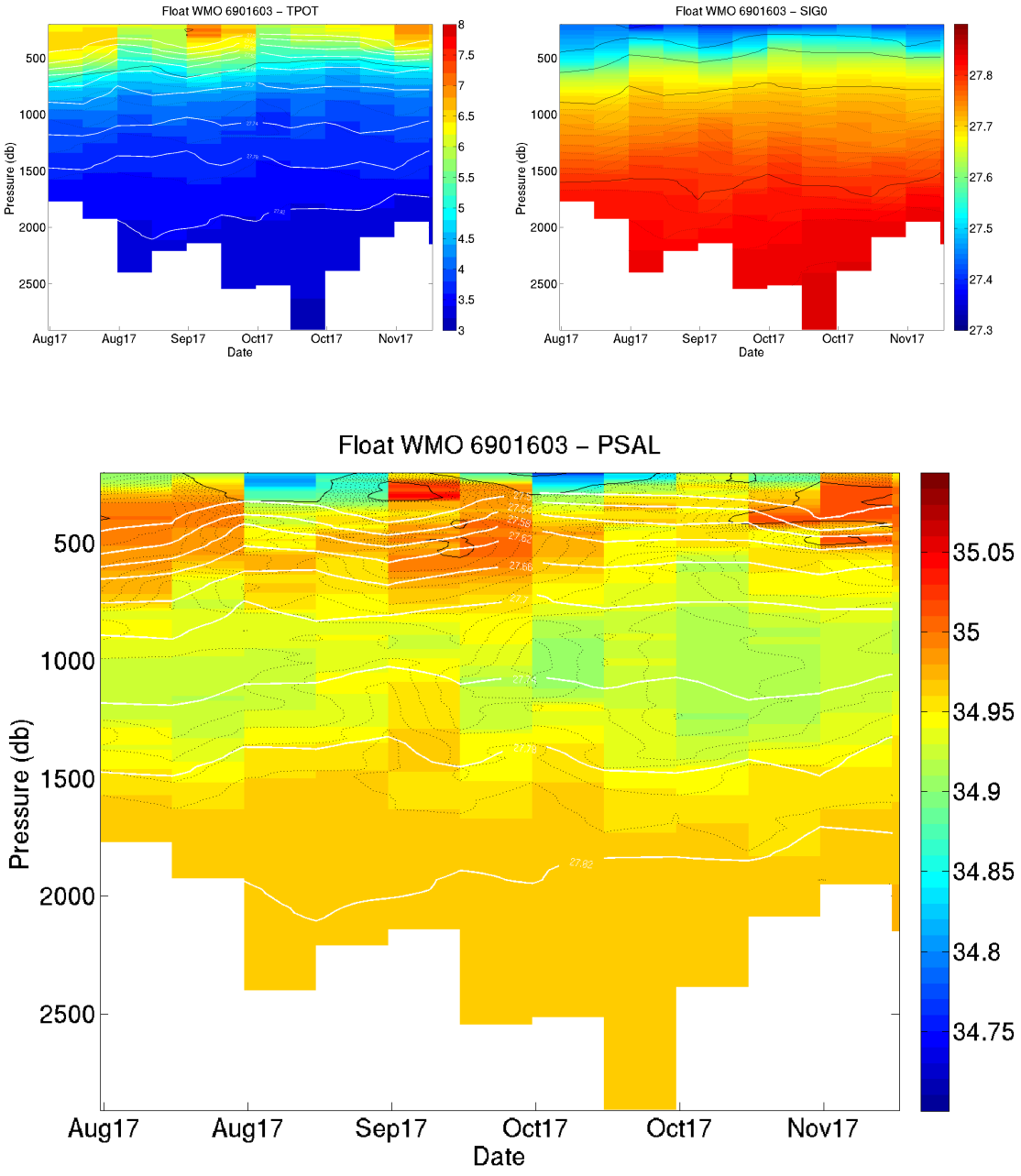


Figure 70: Float 6901603. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

13.3 Theta/S diagrams - raw data

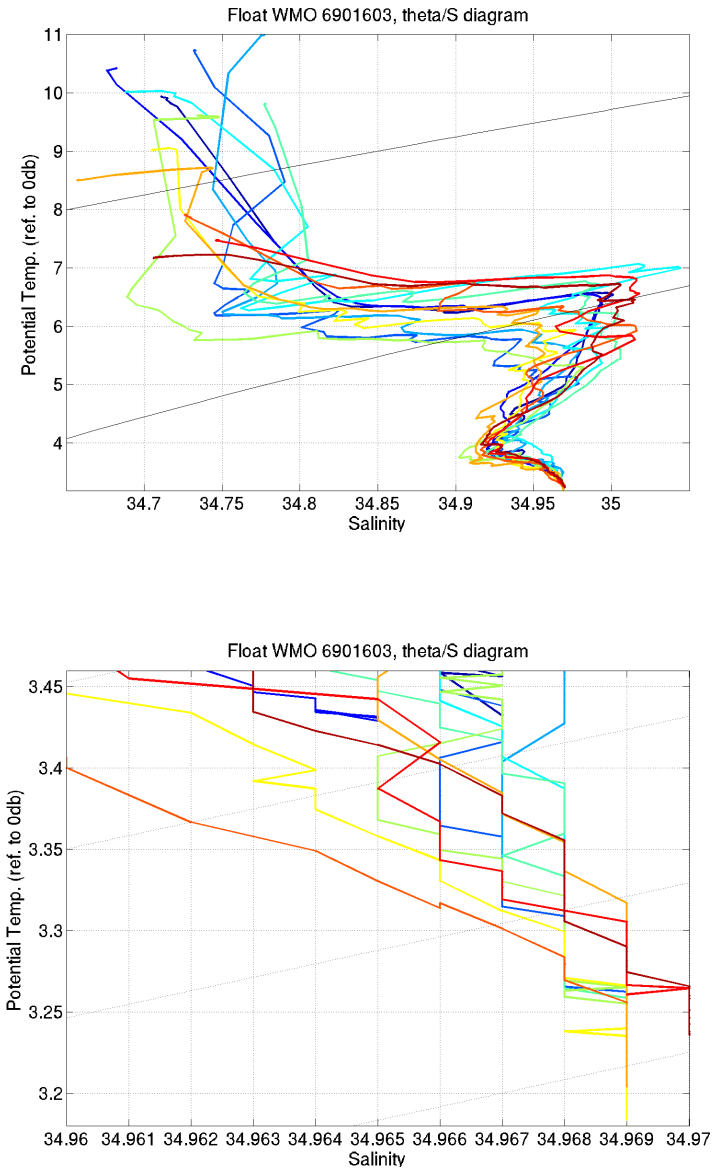


Figure 71: Float 6901603. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

13.4 Comparison with the reference CTD cast

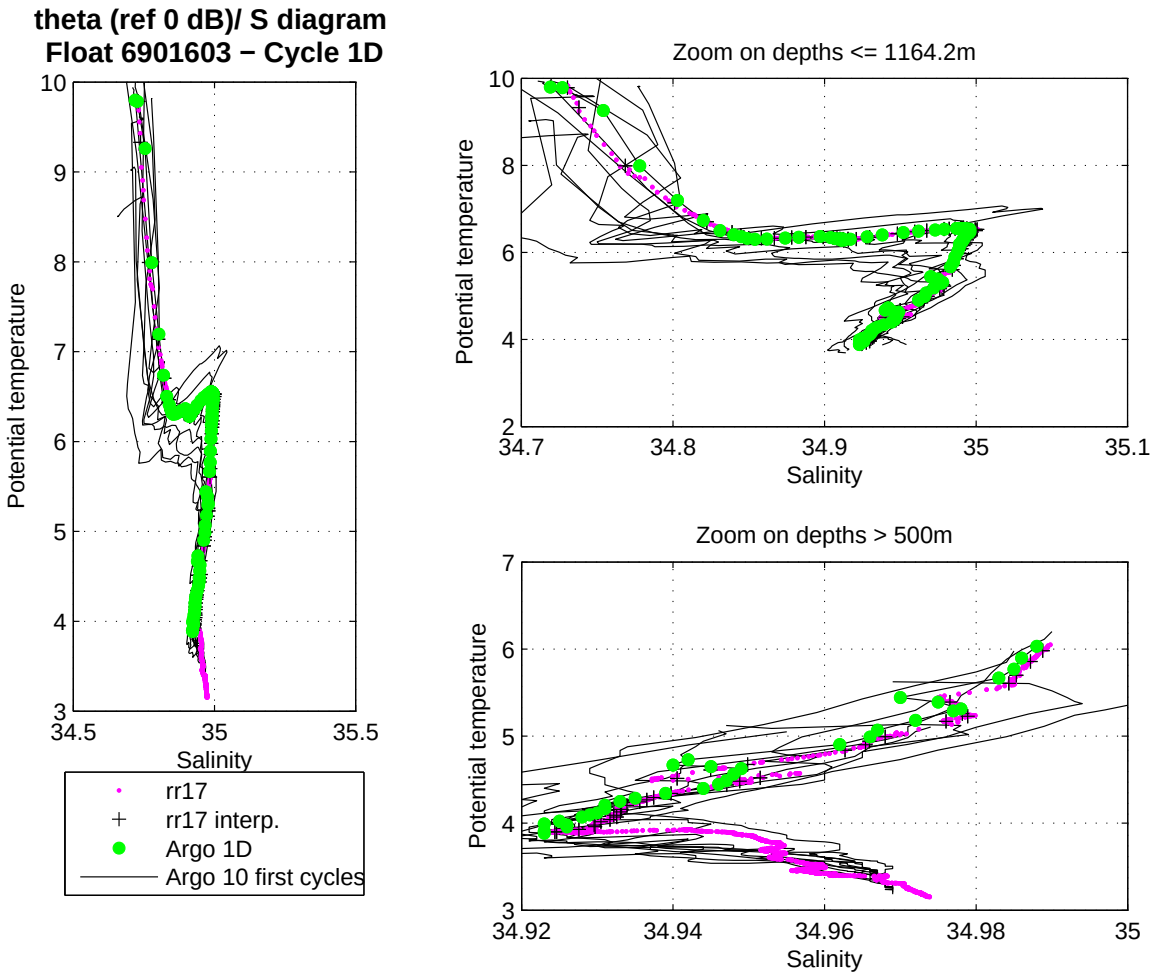


Figure 72: Float 6901603. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

13.5 Results of the OW method

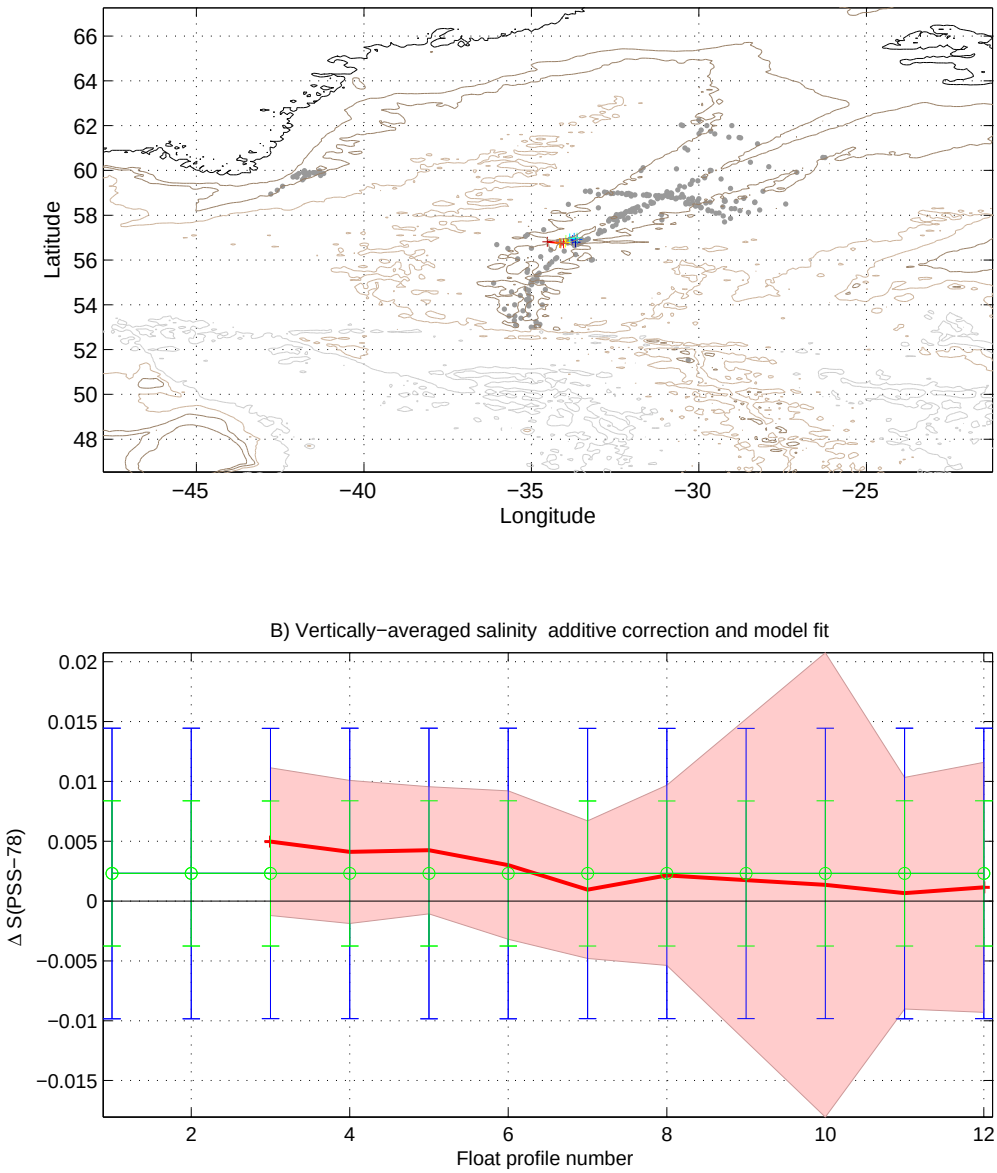


Figure 73: Float 6901603. Results of the OW method (configuration 392). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

13.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offset(0.003)

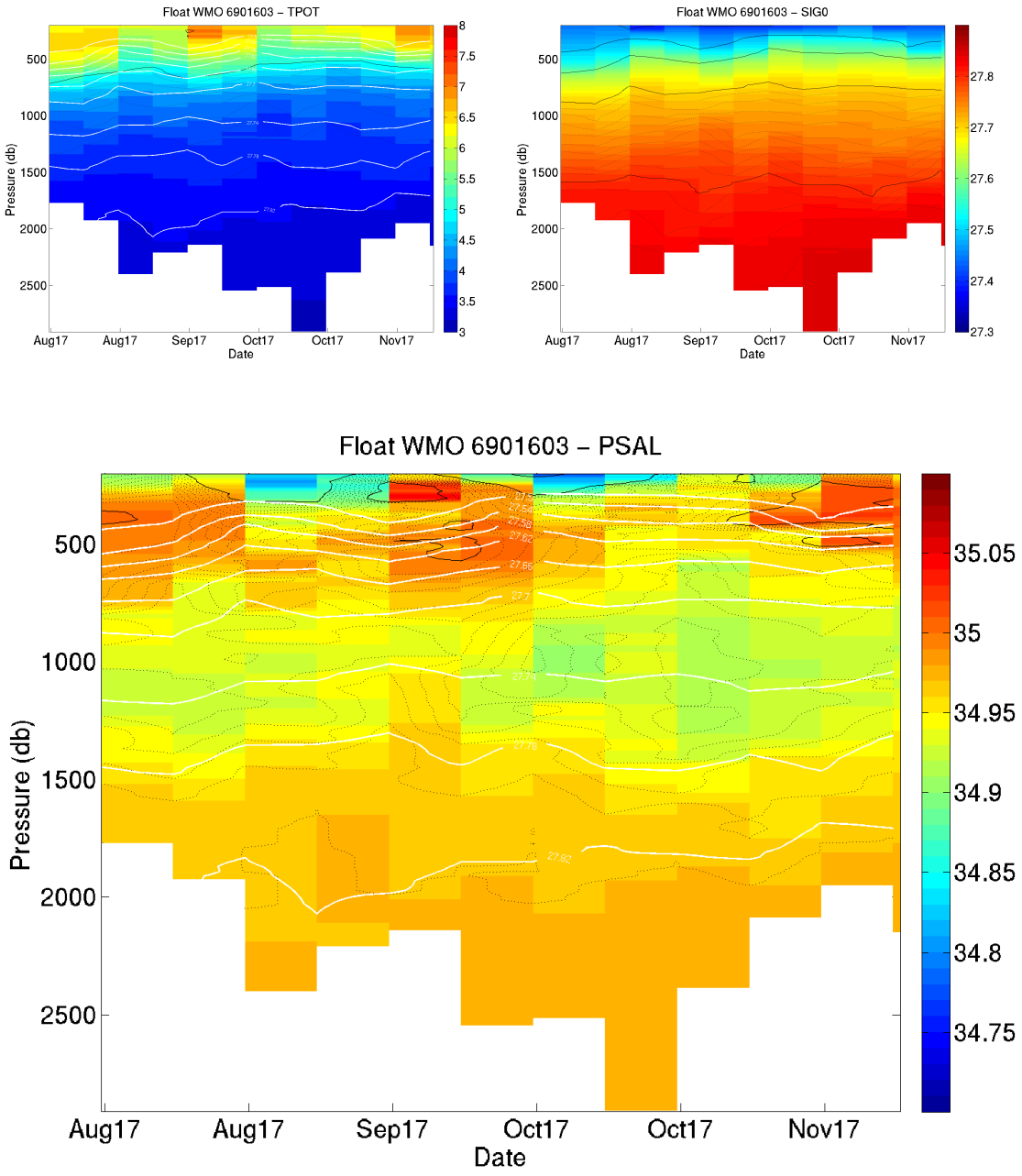


Figure 74: Float 6901603. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

13.7 Theta/S diagrams - adjusted data

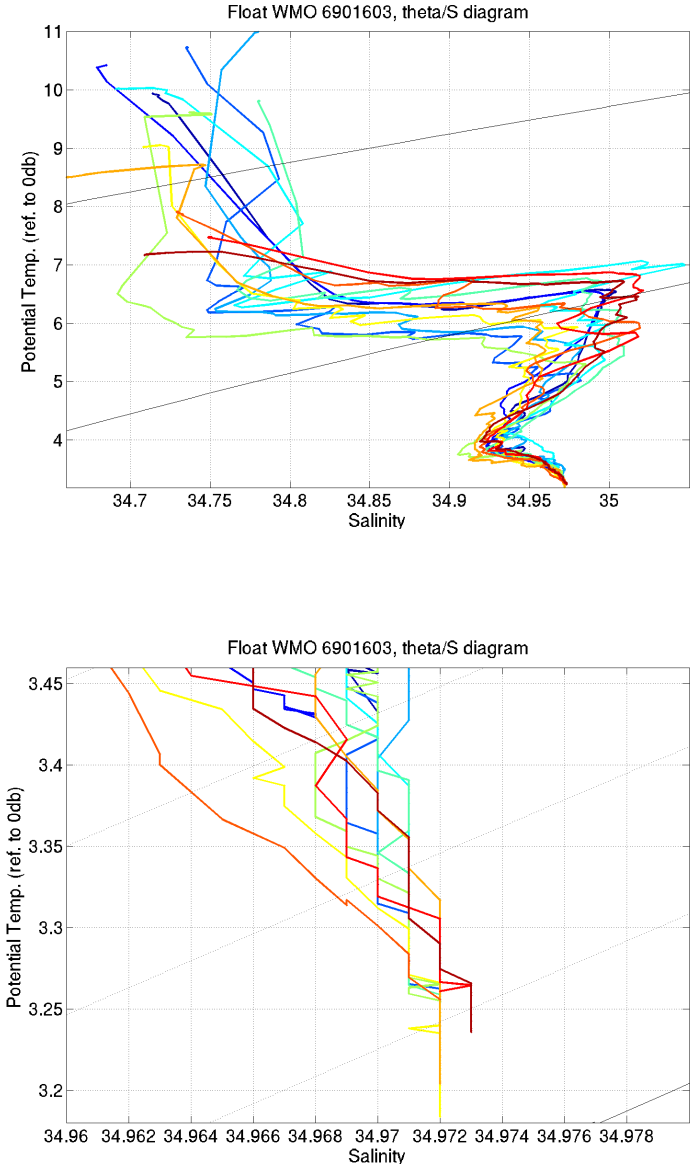
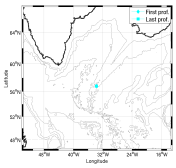


Figure 75: Float 6901603. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

14 Float 6902810

14.1 Trajectory



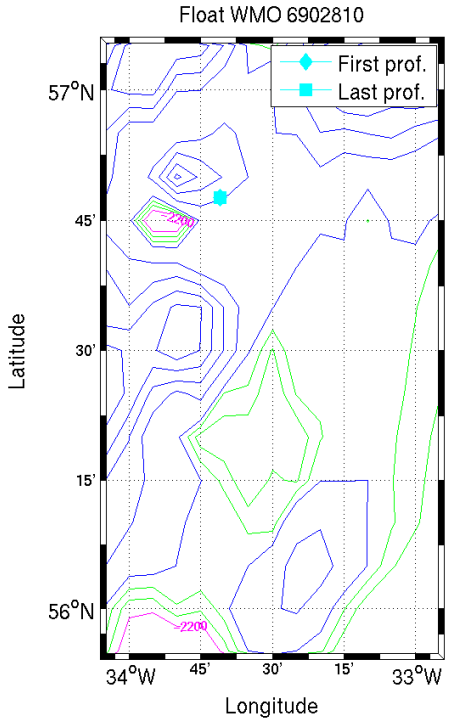


Figure 76: Float 6902810. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

14.2 Sections along the float trajectory - raw data

14.3 Theta/S diagrams - raw data

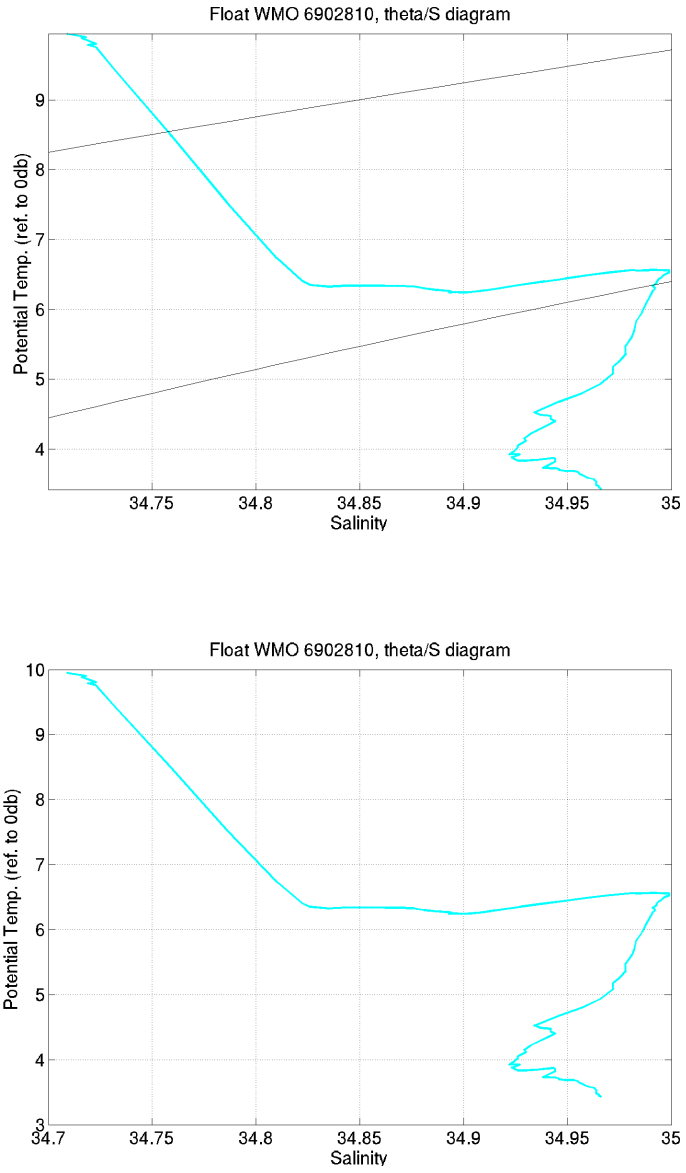


Figure 77: Float 6902810. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

14.4 Comparison with the reference CTD cast

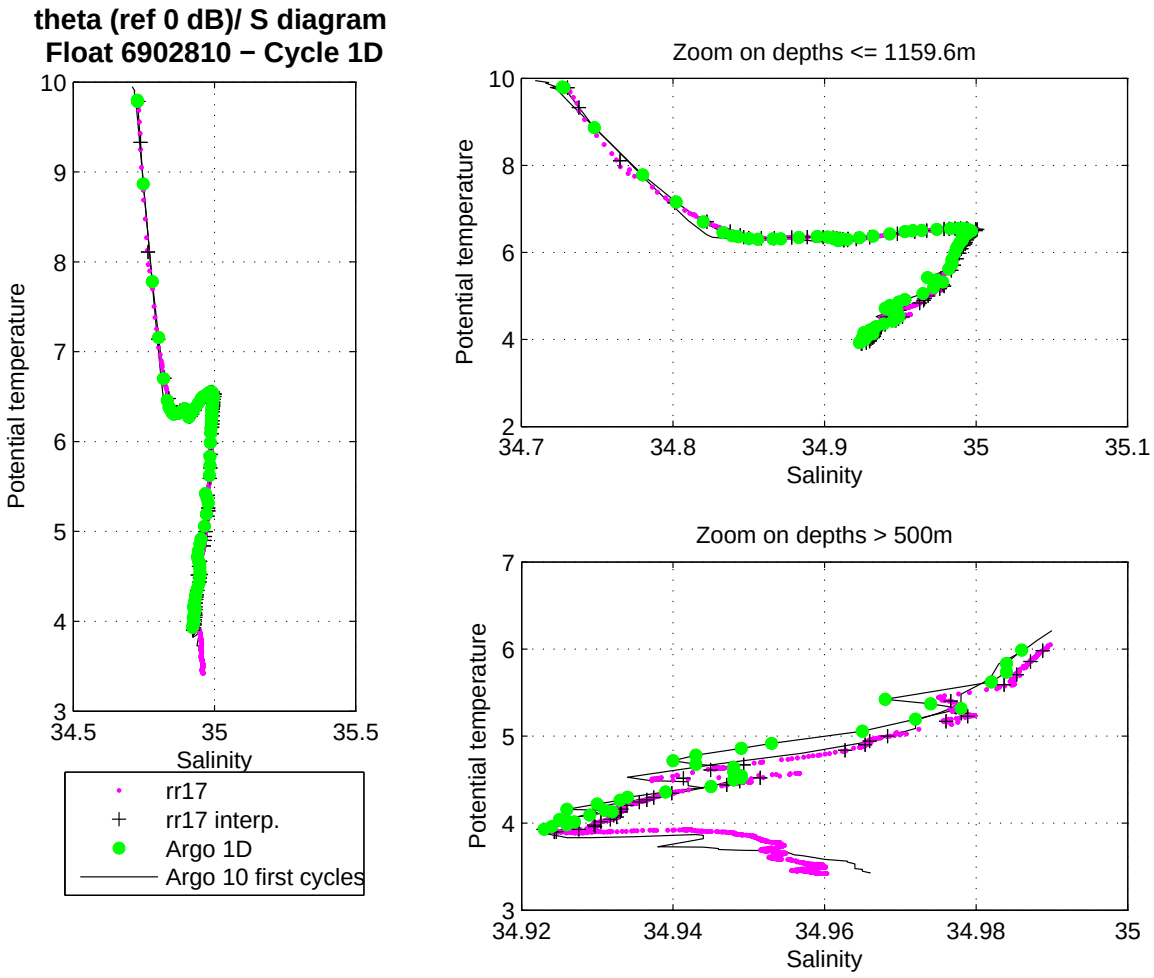


Figure 78: Float 6902810. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

14.5 Results of the OW method

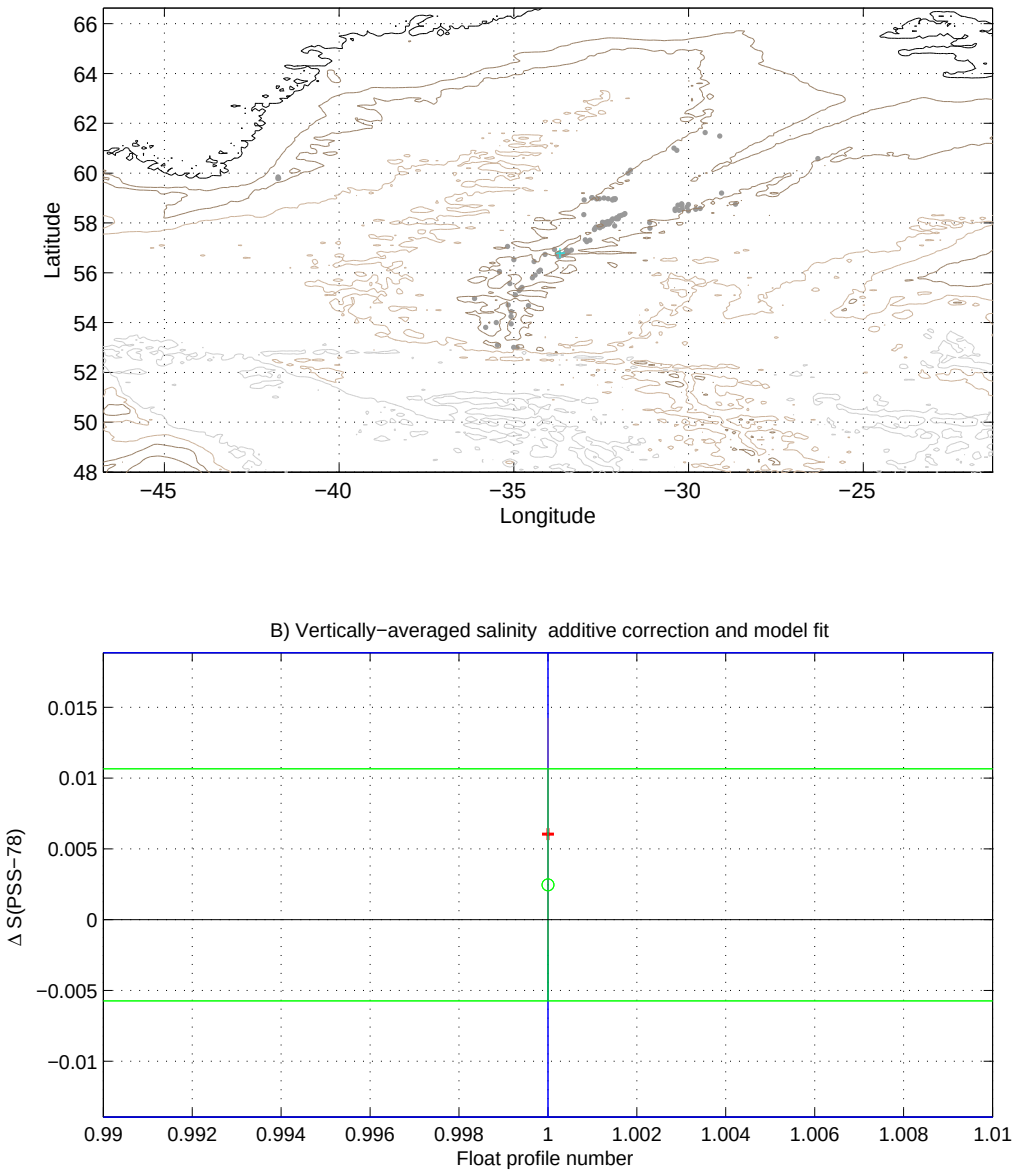


Figure 79: Float 6902810. Results of the OW method (configuration 392). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

14.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offset(0.004)

14.7 Theta/S diagrams - adjusted data

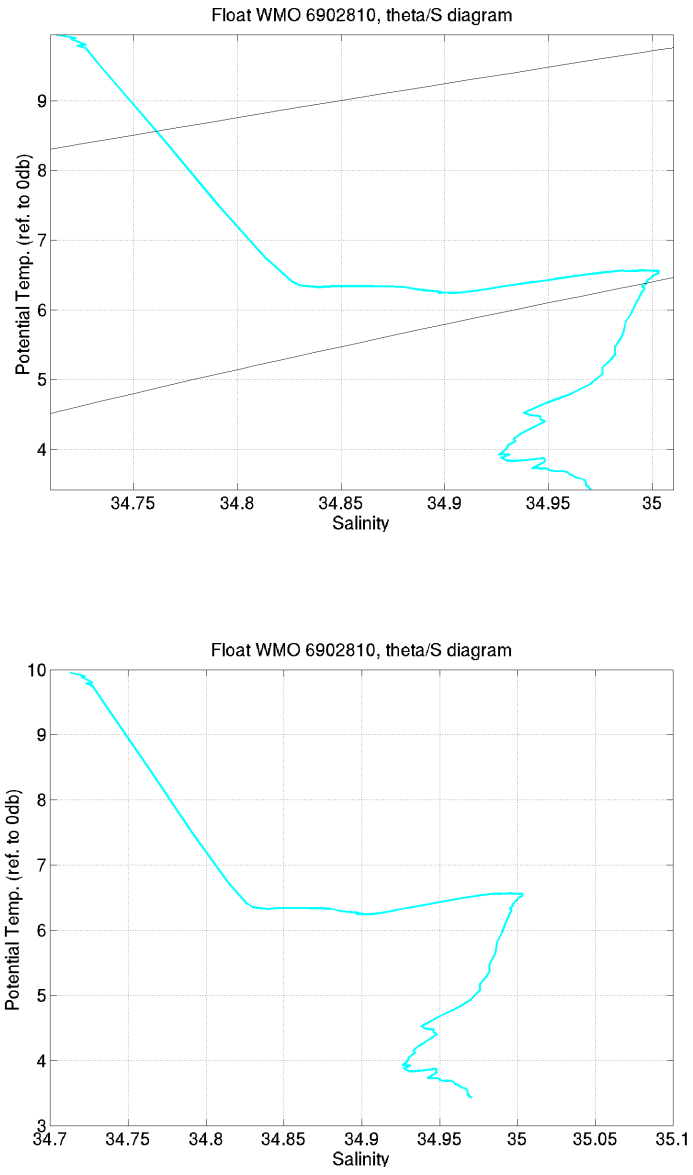


Figure 80: Float 6902810. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

15 Float 6902811

15.1 Trajectory

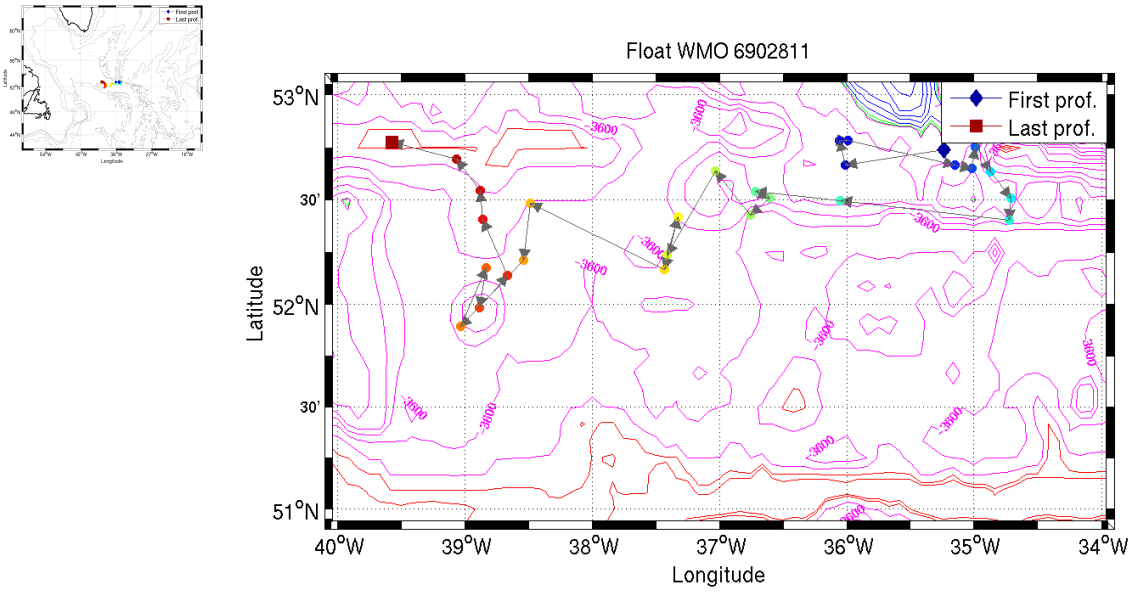


Figure 81: Float 6902811. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

15.2 Sections along the float trajectory - raw data

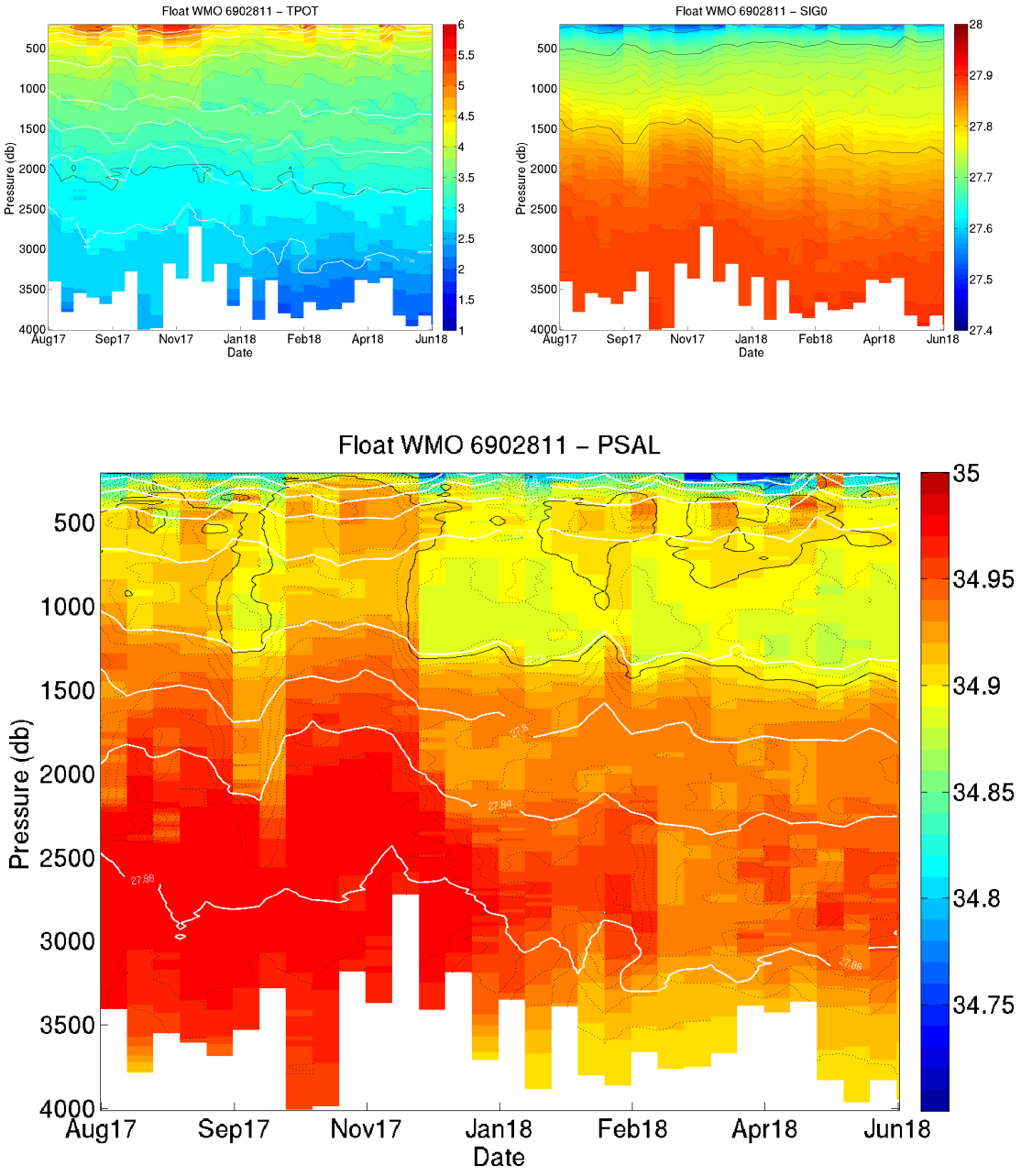


Figure 82: Float 6902811. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

15.3 Theta/S diagrams - raw data

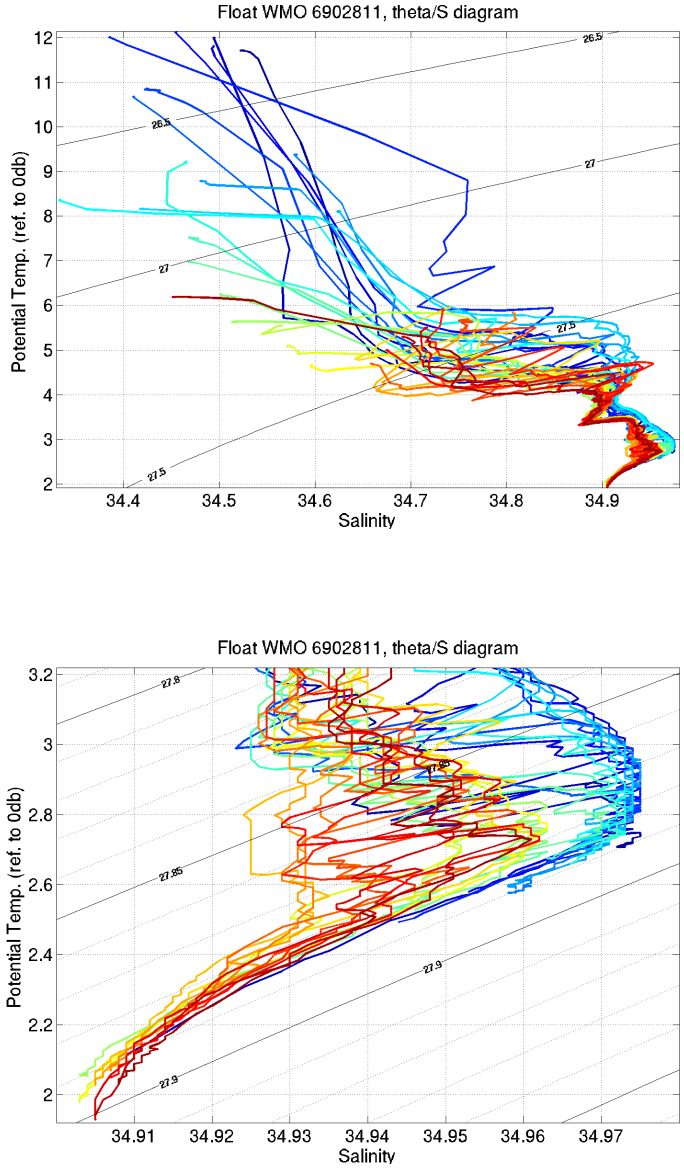


Figure 83: Float 6902811. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

15.4 Comparison with the reference CTD cast

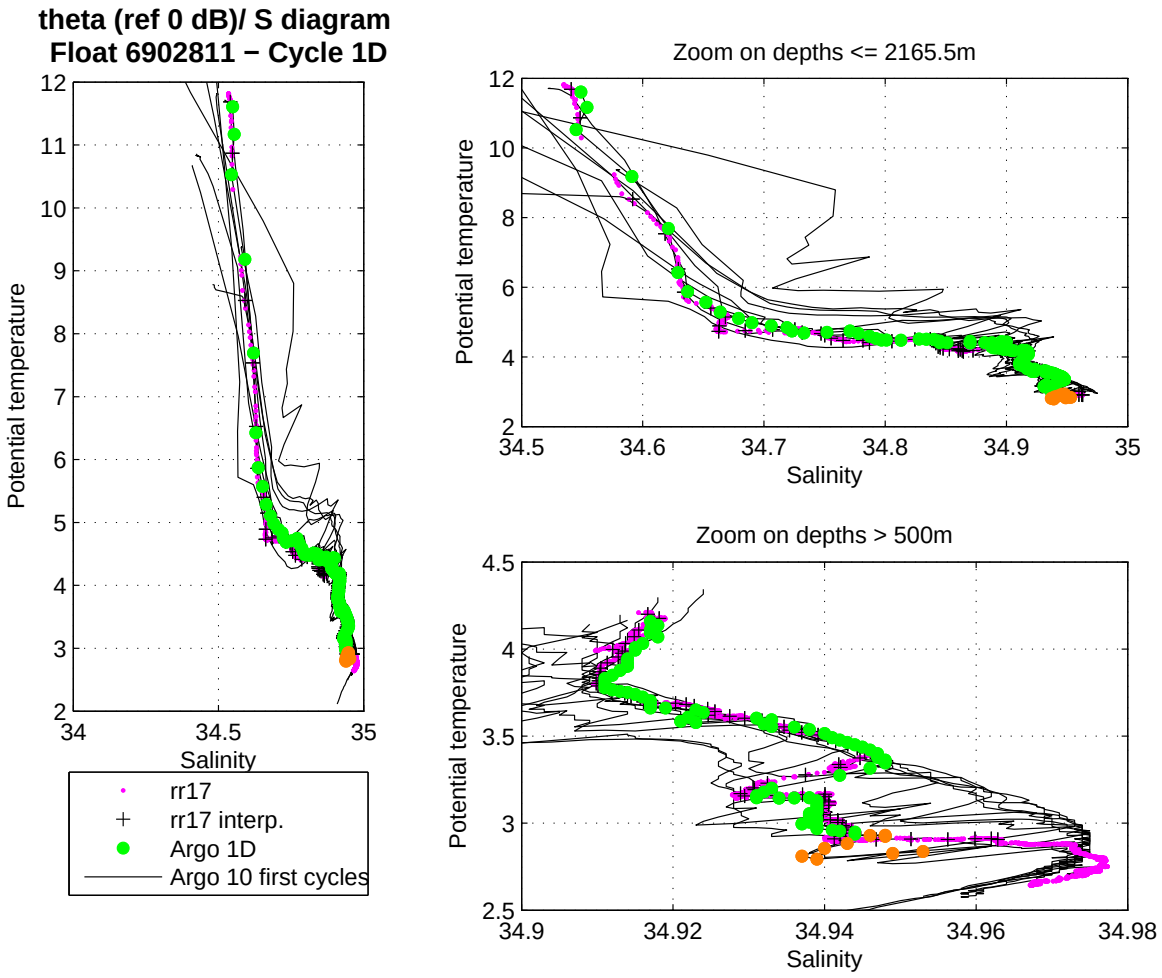


Figure 84: Float 6902811. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

15.5 Results of the OW method

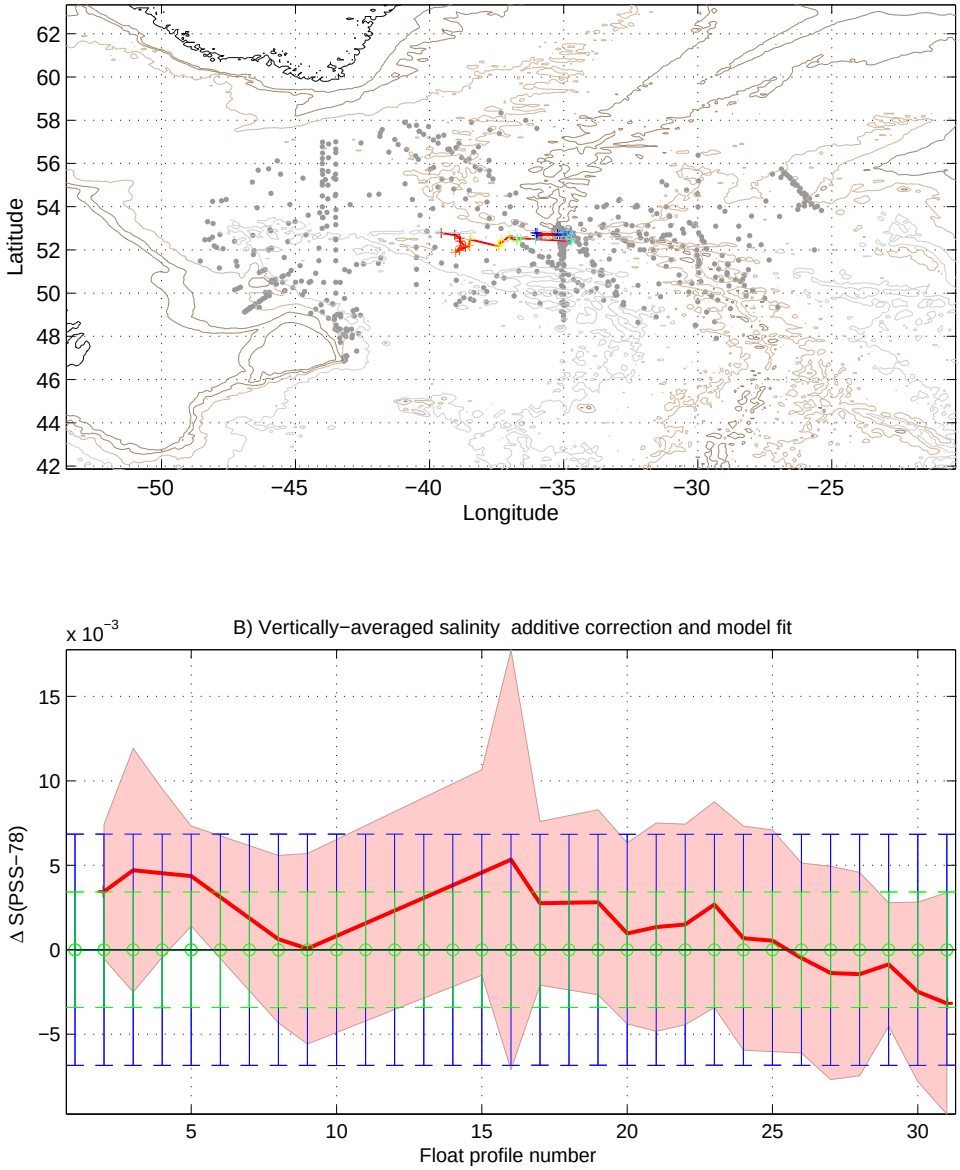


Figure 85: Float 6902811. Results of the OW method (configuration 392). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

15.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: No correction

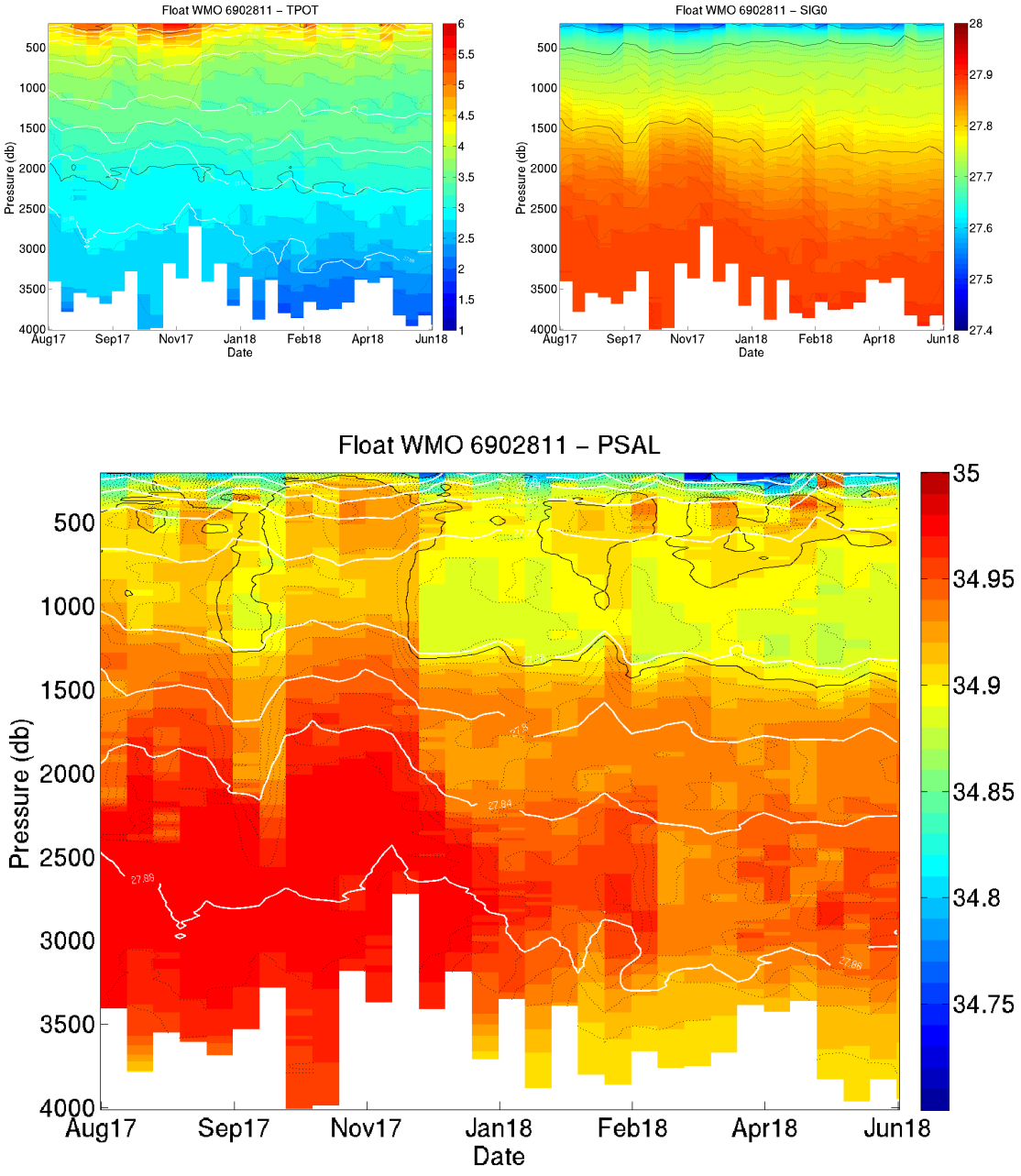


Figure 86: Float 6902811. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

15.7 Theta/S diagrams - adjusted data

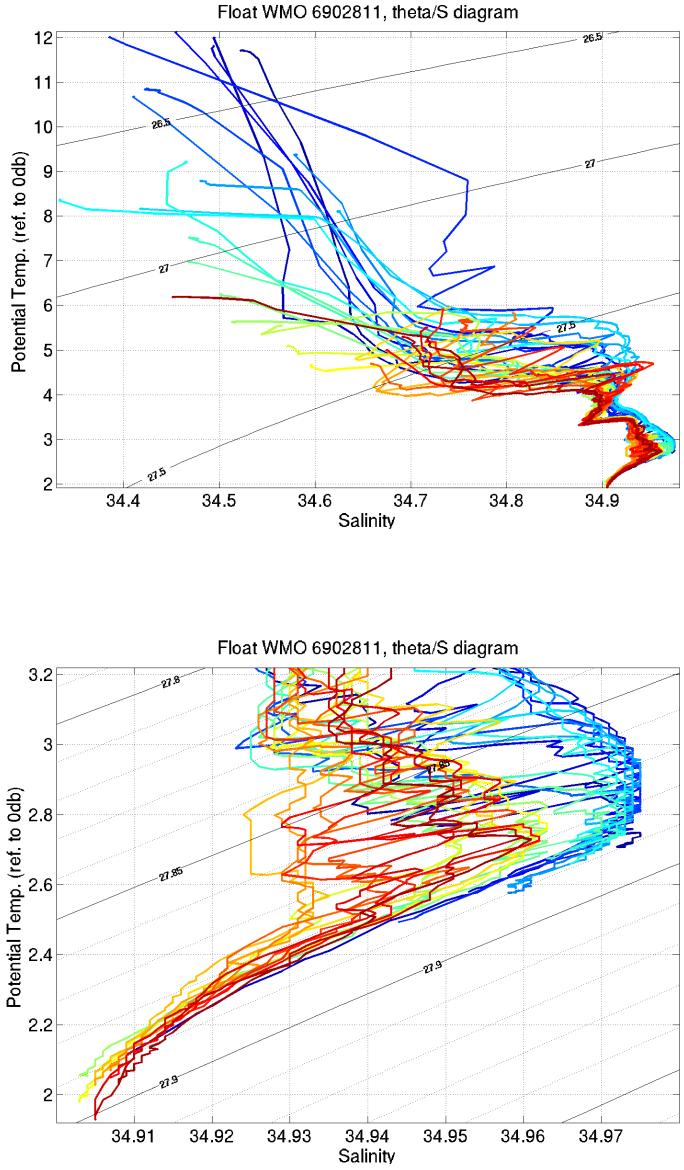
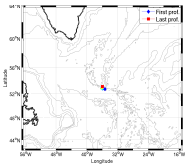


Figure 87: Float 6902811. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used

16 Float 6902812

16.1 Trajectory



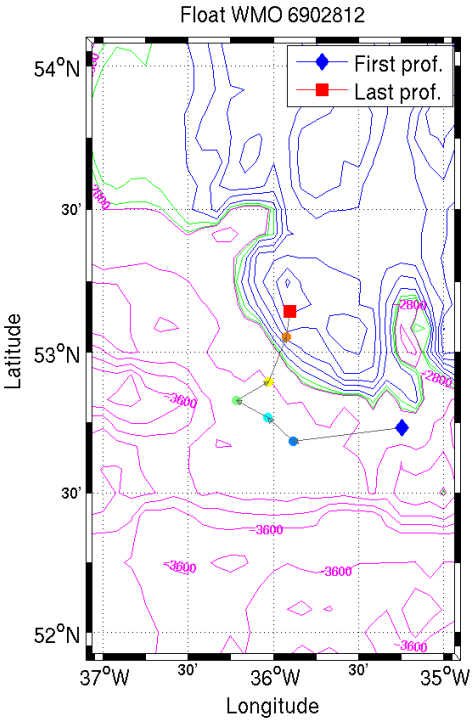


Figure 88: Float 6902812. Trajectory of the float and bathymetry. Parking pressure is: 2750m and profile pressure is: 4000m. Green contours are parking pressure ± 30m, red contours are profile pressure ± 30m, magenta and blue contours are every 200m.

16.2 Sections along the float trajectory - raw data

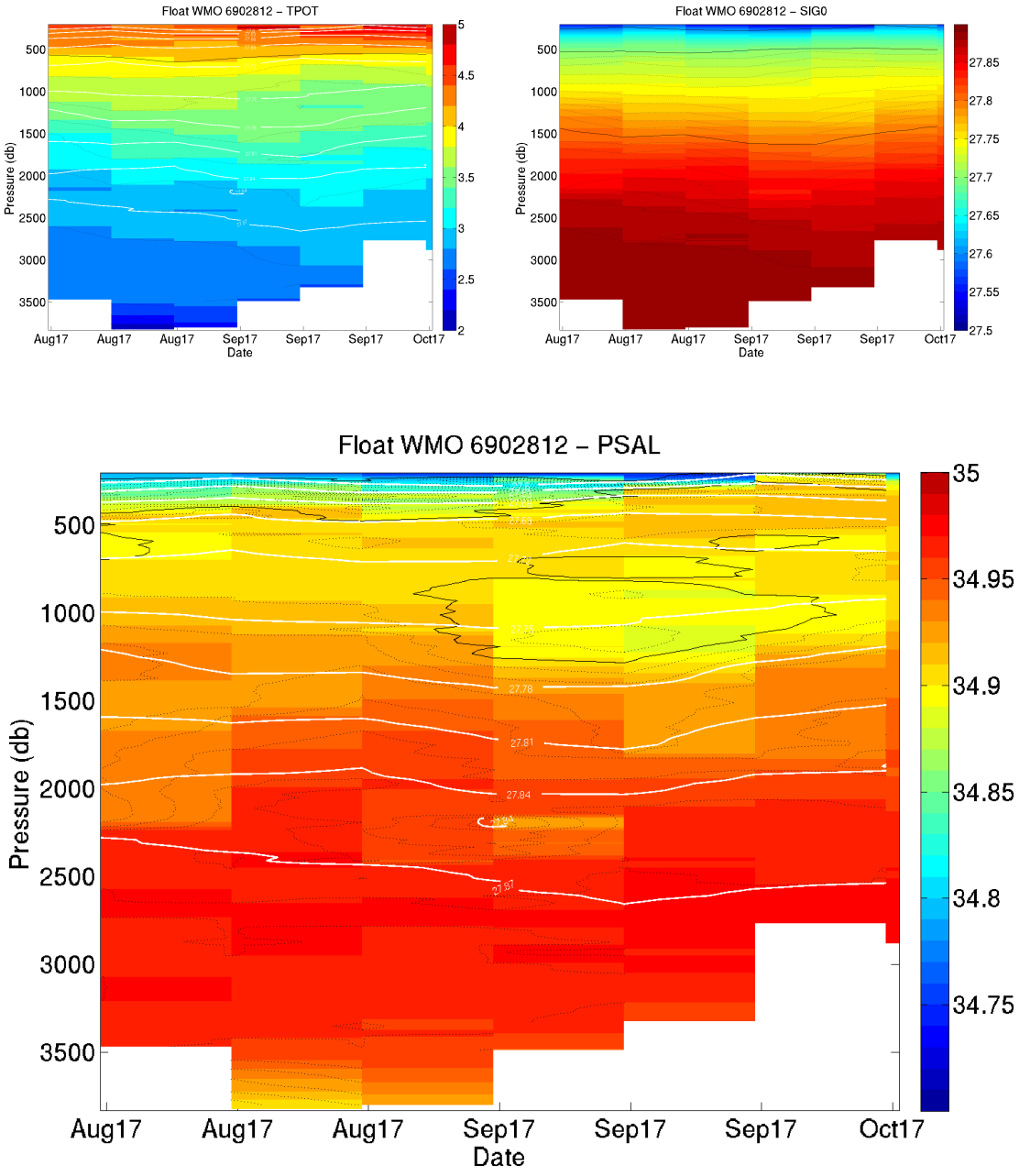


Figure 89: Float 6902812. Potential temperature, Sig0 and salinity sections along the float trajectory (raw data, flags not used)

16.3 Theta/S diagrams - raw data

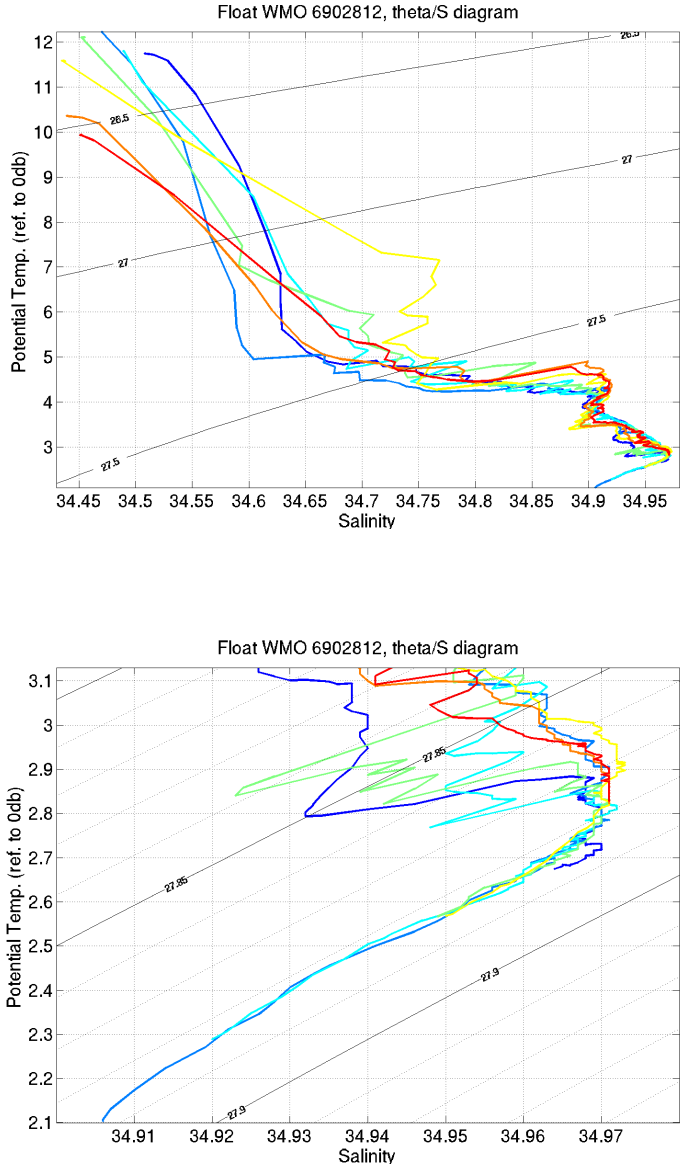


Figure 90: Float 6902812. Theta/S diagrams of the raw data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are not used

16.4 Comparison with the reference CTD cast

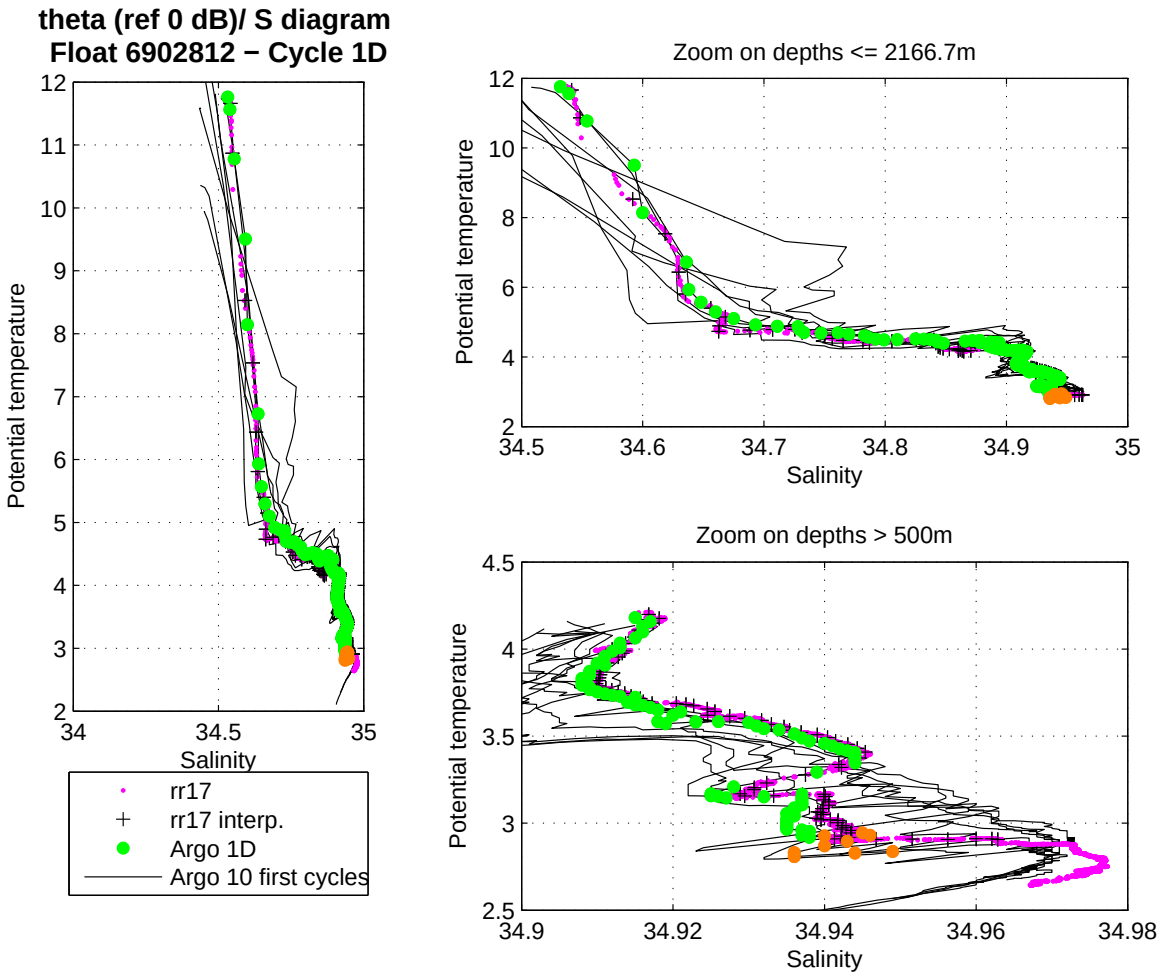


Figure 91: Float 6902812. Comparaison of the first descending argo profile (green) with the first CTD made after float deployement.

16.5 Results of the OW method

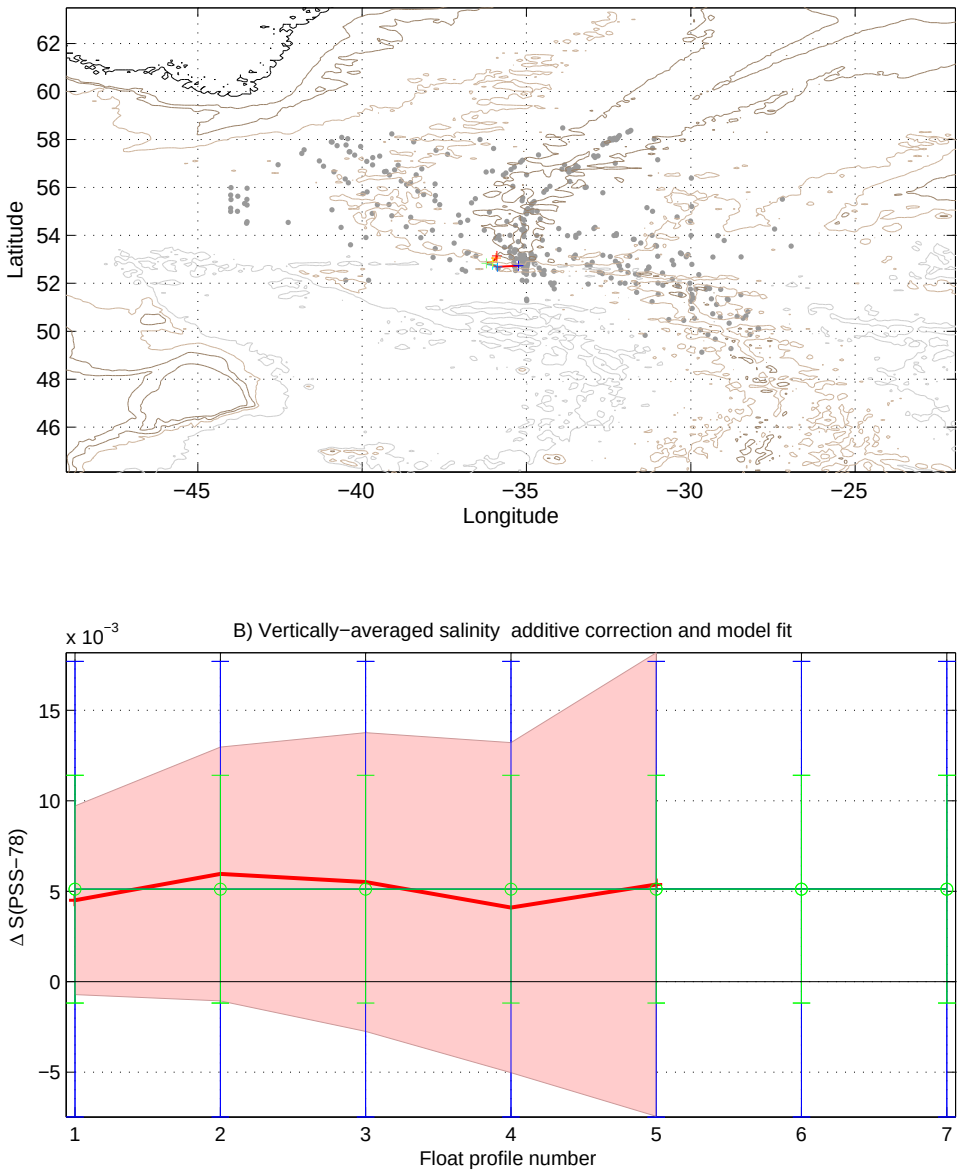
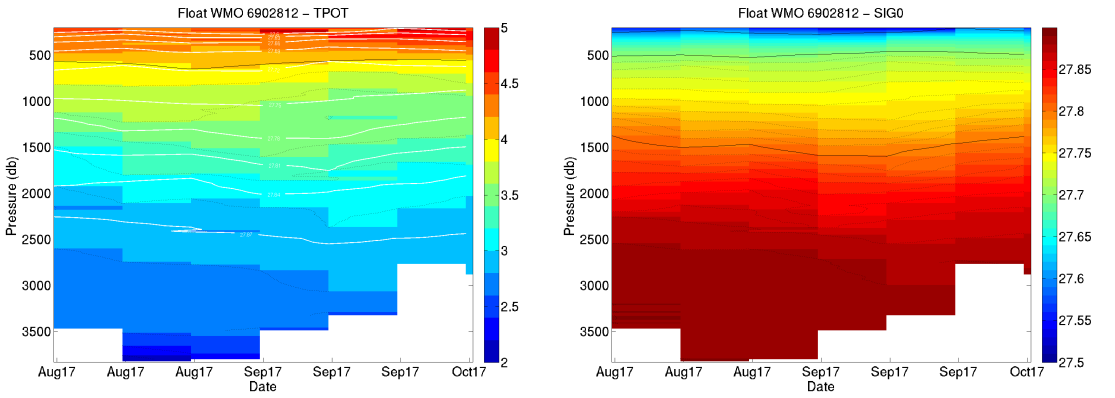


Figure 92: Float 6902812. Results of the OW method (configuration 392). Upper panel: Reference CTD profiles used for the mapping (grey dots) are shown on the map along with the float trajectory. Lower panel: vertically-averaged mapped salinities minus float salinities on 10 θ levels (red) and the computed offset (green).

16.6 Sections along the float trajectory - adjusted data

Salinity Correction applied in DM: offset(0.004)



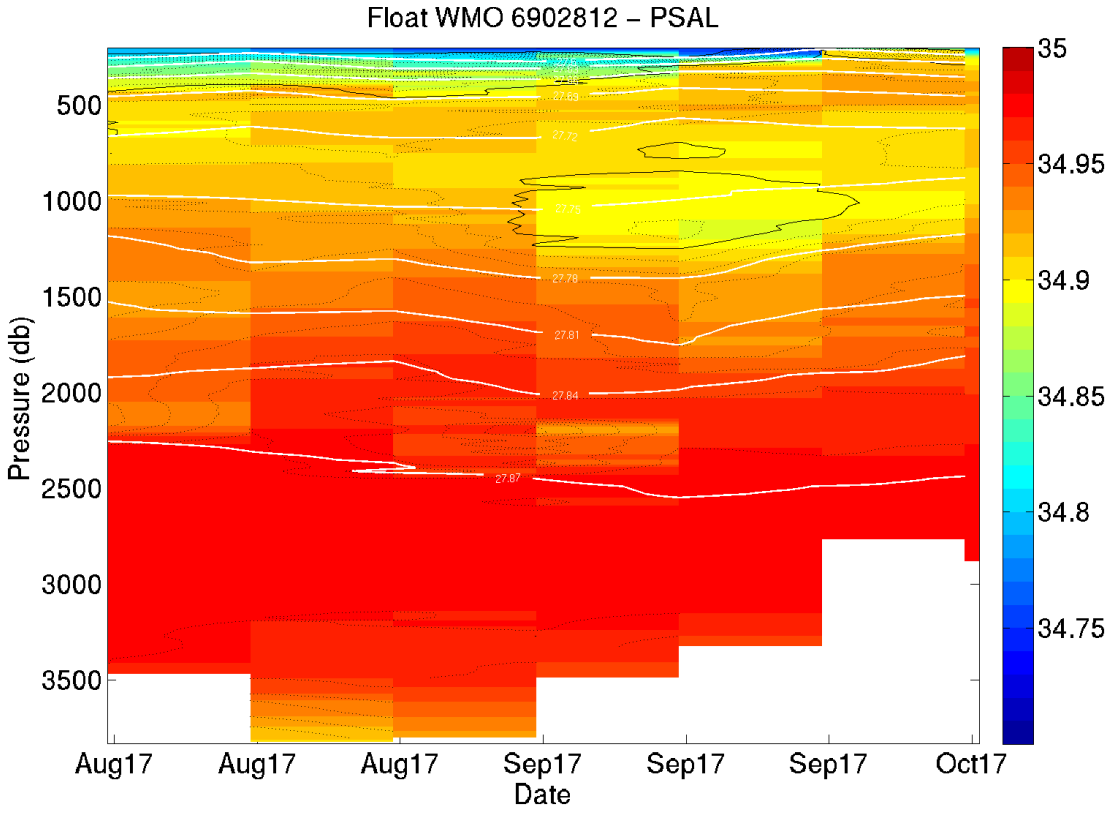


Figure 93: Float 6902812. Potential temperature, salinity and Sig0 sections along the float trajectory (adjusted data, flags used)

16.7 Theta/S diagrams - adjusted data

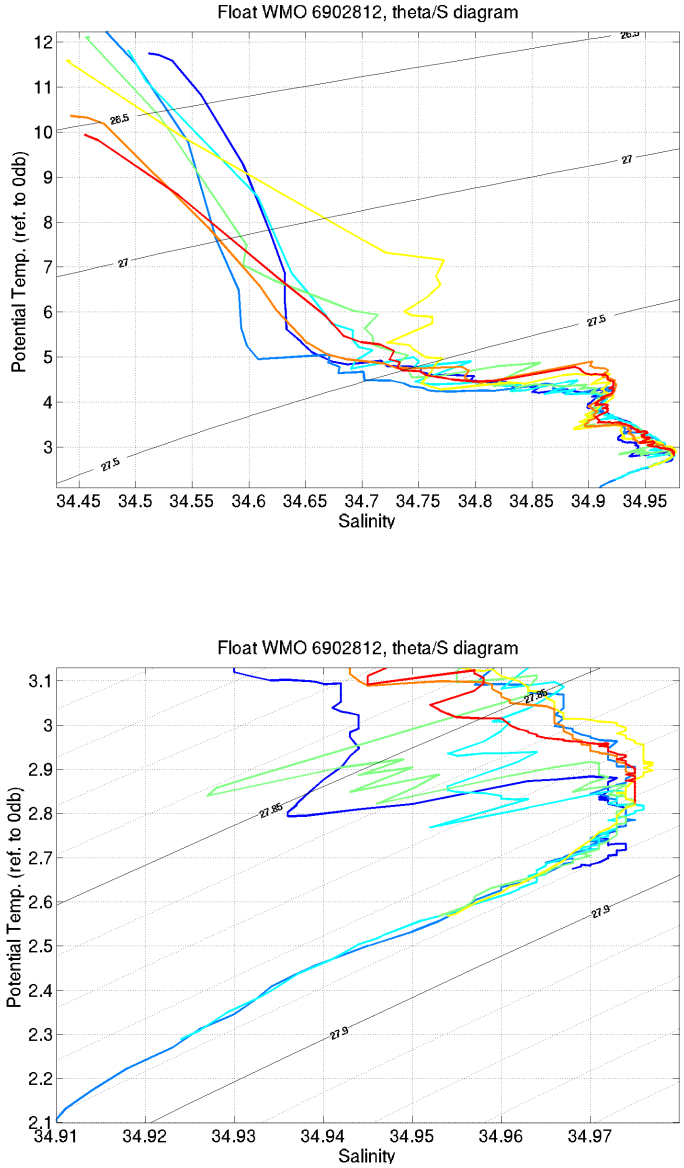


Figure 94: Float 6902812. Theta/S diagrams of the adjusted data, with the potential temperature referenced to 0db. Full profiles (upper panel) and zoom below 2000m (lower panel). Flags are used