BOUSSOLE Monthly Cruise Report

Cruise 63
April 15 - 18, 2007

Duty Chief: Guislain Bécu (guislain.becu@obs-vlfr.fr)
Vessel: R/V Téthys II
(Captain: Rémi Lafond)

Science Personnel: Guislain Bécu, Dominique Tailliez, Grigor Obolenski, Lars Stemmann, David Luquet, Yves Lamblard and Christophe Lamoureux.

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Fig 1. Divers Yves Lamblard and Christophe Lamoureux cleaning and checking the buoy instrumentation.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

April 23, 2007

Contents

Cruise Objectives

Routine operations

Multiple SPMR profiles are to occur within 1 hour of satellite overhead passes of MERIS around solar noon, under optimal conditions: clear blue skies and flat, calm sea surface. If the sky is clear and sea conditions are reasonably calm (no whitecaps or large swell), hand held CIMEL sun photometer measurements are to be performed consecutively where possible with SPMR profiles. If sea conditions are poor but sky is good, hand held CIMEL sun photometer measurements can be made at intervals throughout the day to measure atmospheric optical thickness. A floating platform is to be used to support the SPMR Eu sensor approximately 20cm below the surface for up to 3 minutes of stable light field before a release mechanism triggers the release of the profiler to start a descent as normal. Multiple descents ideally will be started in this way and the data will be used to assess near-surface Eu extrapolation model calculations. CTD deployments are required at the start and end of the SPMR profiling day and around noon in the longer summer days or when there is a high possibility of a satellite matchup. In addition to the depth profile from the CTD, CDOM fluorometer, Chl fluorometer and AC9, seawater samples are to be collected, filtered and stored in N_2 for HPLC pigment and particule absorption spectrophotometric filter analysis in the lab. A gimbled PAR sensor positioned on the foredeck and operated from the CTD computer serves as a light field stability indicator during SPMR profiling.

For one day of each cruise, at the end of the optics measurements on site, there will be one ctd transect between the Boussole site and the Port of Nice. This transect consists of four fixed locations on-route from Boussole and a final two station positions to be decided during the transect in order to sample on both sides of the main frontal structure between the coastal waters and Ligurian Sea. The time of day of this transect should be similar for each cruise, if possible to minimise influence of diurnal variability.

Additional operations

There was a bug in the daily ARGOS messages editing. Indeed, there was no CTD depth logged into the messages, and the CTD temperature value was always constant. Furthermore, the buoy stopped to send the daily messages on April 12, 2007. Satlantic sent a new “nodeman.jar” node configuration file to fix the problem of depth and temperature. Once at sea, it was seen that the halt in the messages sending was only due to the beacon oxidized electronic contacts, and a connection to the node from the ship was realizable. So the node was upgraded to fix the depth and temperature bug.
Lars Stemmann was onboard for one day to perform a 1000m profile with the PVM at the BOUSSOLE site.

Cruise Summary

Sea conditions were good for the last three days of the cruise, but not so easy for the beginning of the first day.
A connection to the buoy was performed from the ship, which allowed upgrading the node configuration files in order to fix the ARGOS messages editing bug (no CTD depth and temperature in the daily messages). The connection to the node refuted a possible buoy system halt, as the ARGOS daily messages were not sent from April 12, 2007. A cleaning of the beacon electronic contacts solved this usual problem.
Lars Stemmann was onboard on Wednesday 18th April to perform a 1000m PVM profile at the BOUSSOLE site.

Sunday 15 April 2007

Sea conditions were rather rude the previous day, and some swell was still present at the BOUSSOLE site in the early hours of April 15, so the departure was delayed by a few hours. Operations this day was 7 CTD casts, among which 6 were performed on the transect between the site and the port of Nice, as well as the buoy node upgrade and its data retrieval. It is to be noted that 2 successive connection attempts failed after the buoy node upgrade.

Monday 16 April2007

The connection attempt between the node and the ship was successful this day, and the data could have been downloaded. 3 Divers went also at sea to clean the sensors (which were very clean as for the divers), check the general state of the buoy under the surface and to take some pictures. Finally, 2 CTD casts as well as 5 SPMR/SMSR profiles and a Secchi disk measurement were performed this day.

Tuesday 17 April 2007

This day was a standard BOUSSOLE day, with 2 CTD casts, 10 SPMR/SMSR profiles (among which 4 performed with the floating structure) and 3 CIMEL atmospheric measurements realized.

Wednesday 18 April 2007

For this last cruise day, 2 CTD casts, 4 SPMR/SMSR profiles, 1 PVM profile and 3 plankton net profiles were achieved.

Cruise Report

15 April 2007 (UTC)

0830 Departure from the port of Nice.
1215 Buoy node upgrade and data retrieval.
1315 Connection with the node attempt to check the upgrade, but unsuccessful.
1327 CTD 01, 400 m, close to the buoy, water sampling at 200, 150, 80, 70, 60, 50, 40, 30, 20, 10 and 5 m for HPLC and Ap.
1415 Second connection attempt, again unsuccessful!
1457 CTD 02 at station 1 (43°25'N 07°48'E).
1557 CTD 03 at station 2 (43°28'N 07°42'E).
1701 CTD 04 at station 3 (43°31'N 07°37'E).
1808 CTD 05 at station 4 (43°34'N 07°31'E).
1916 CTD 06 at station 5 (43°37'N 07°25'E).
2010 CTD 07 at station 6 (43°39'N 07°21'E).
2105 Arrival at the port of Nice.

16 April 2007

0430 Departure from the port of Nice.
0815 Buoy data retrieval ok…
0830 Diving operations.
0929 CTD 08, 400 m, close to the buoy, with water sampling at 200, 150, 80, 70, 60, 50, 40, 30, 20, 10 and 5 meters for HPLC and Ap.
1120 SPMR 01, 02, 03, 04 and 05.
1229 CTD 09, 400 m, close to the buoy, with water sampling at 5 and 10 m for triplicate HPLC and Ap and for TSM.
1240 Secchi disk 01.
1255 Departure from the BOUSSOLE site.
1615 Arrival to the port of Nice.

17 April 2007

0435 Departure from the port of Nice.
0805 CTD 10, 400 m, close to the buoy, with water sampling at 10 and 5 meters for triplicate HPLC and Ap.
0853 SPMR 06, 07 and 08.
0933 CIMEL 01, close to the buoy.
1128 SPMR 09, 10, 11 and 12 with the floating structure.
1238 SPMR 13, 14 and 15.
1259 CIMEL 02, close to the buoy.
1311 CIMEL 03, close to the buoy.
1326 CTD 11, 400 m, close to the buoy, with water sampling at 5 and 10 m for triplicate HPLC and Ap and for TSM.
1040 Departure from the BOUSSOLE site.
1410 Arrival at Port of Nice.

18 April 2007

0430 Departure from the port of Nice.
0802 CTD 12, 400 m, close to the buoy, with water sampling at 10 and 5 meters for triplicate HPLC and Ap.
0850 PVM 01, 1000 m, close to the buoy.
0939 SPMR 16, 17, 18 and 19.
1034 3 x 100 m plankton net profiles.
1105 PVM 02, 1000 m, close to the buoy.
1228 CTD 13, 400 m, close to the buoy, with water sampling at 5 and 10 m for triplicate HPLC and Ap and for TSM.
1300 Departure from the BOUSSOLE site.
1615 Arrival to the port of Nice.

Calculated Swath paths for the MERIS Sensor (ESOV Software)

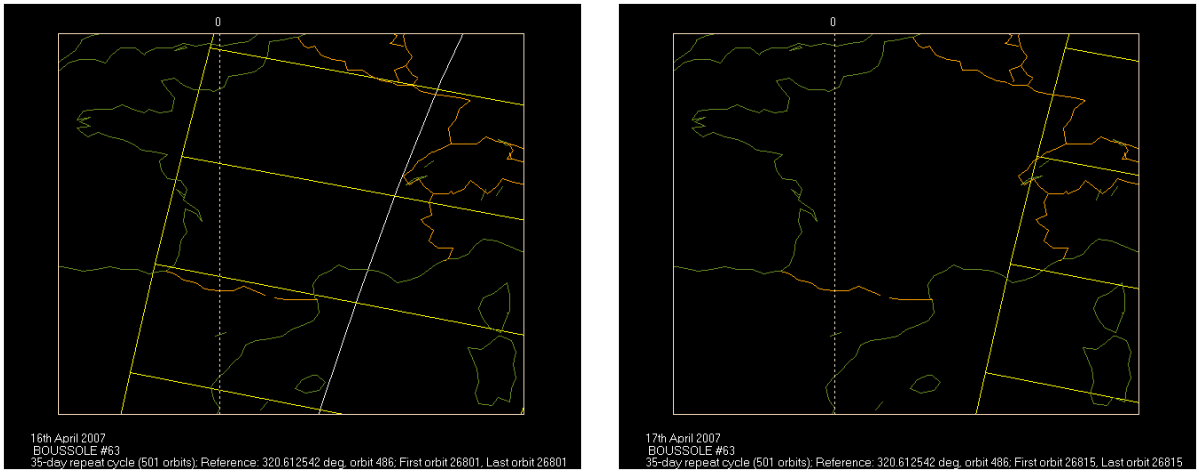
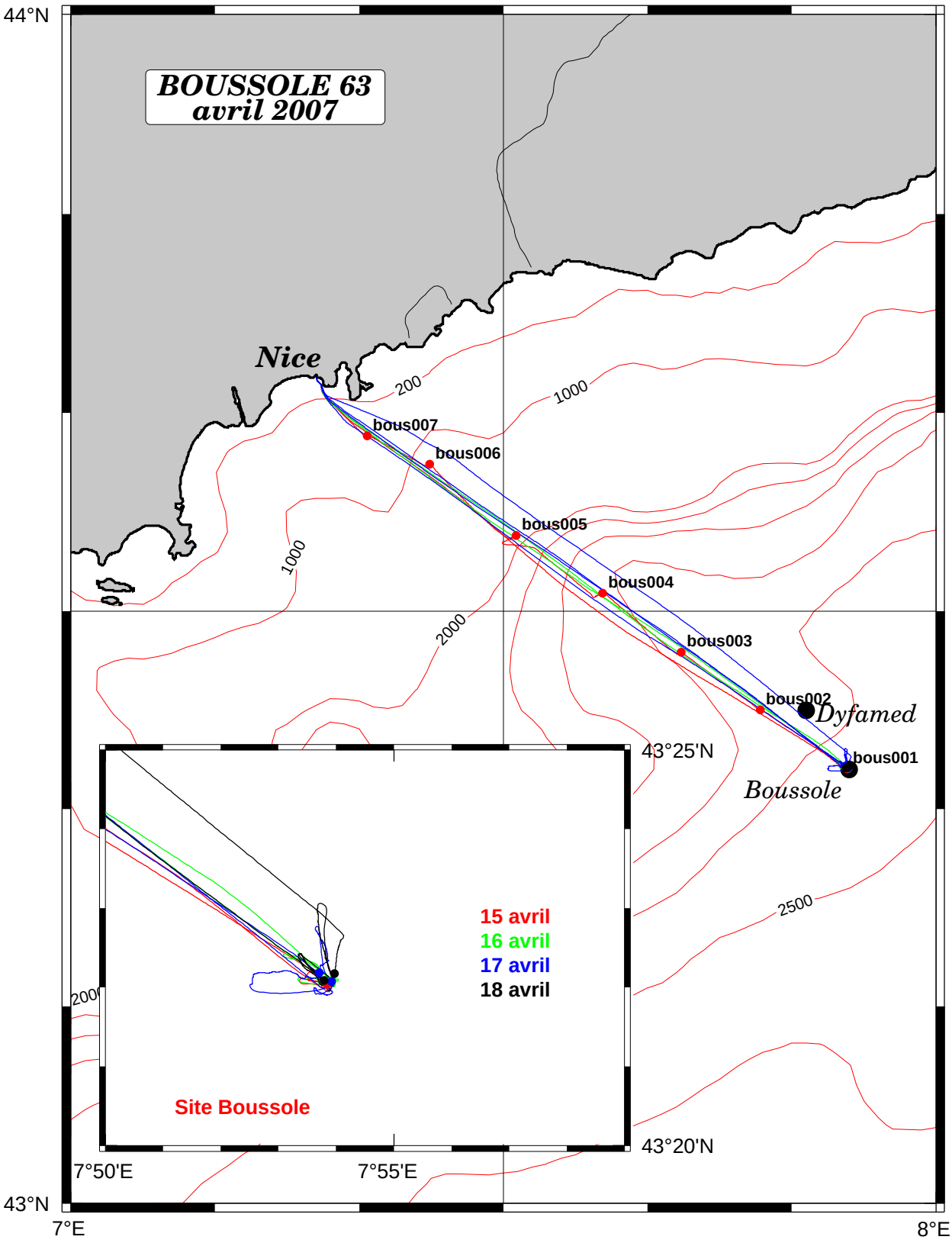


Figure 2. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for April 16 and 17, 2007.

Appendix

Cruise Summary Table for Boussole 63

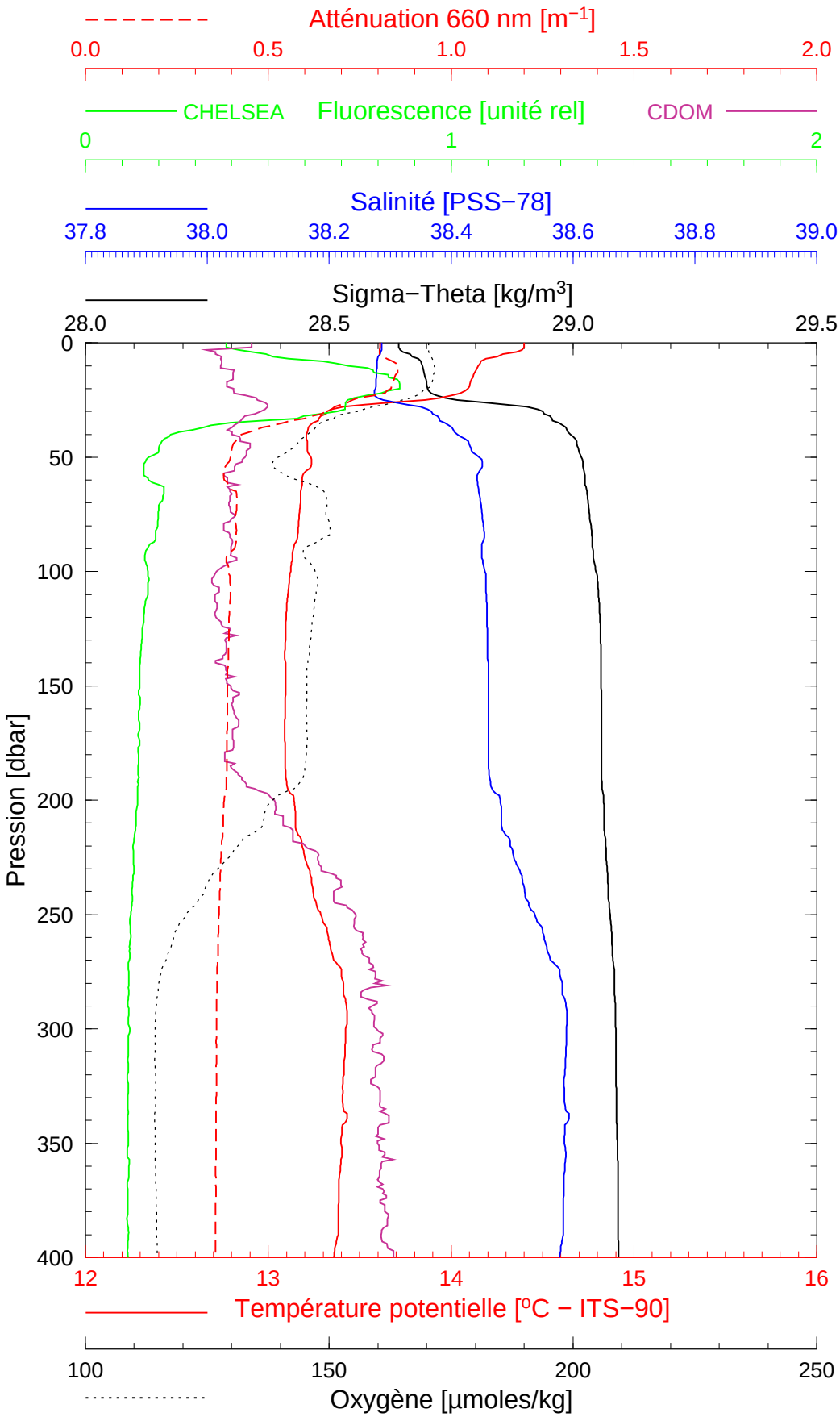
Date	Black names	Profile names	CTD notées /	Start Time	Duration	Depth max	Latitude (N)		longitude		Other sensors	Their cast	Start/Finish			Weather							Sea		
	(file ext: ".raw")	(file extension:".raw")	satellite overpass	GMT (hour.min)	(min.sec)	(meter)	(Degree)	(Minute)	(Degree)	(Minute)				Sky	Clouds	Quantity (#/8)	Wind speed	Wind dir.	Atm. Pressure	humidity	Visibility	T air	T water	Sea	Swell height	Swell dir.	Whitecaps
			CTDBOUS001	13:27	26:00	400	43	22.039	7	53.840				covered	Cu + Ci	7	12 kn	123	1018.0	73	very good	16.4	14.4	calm	0,4 m		no
			CTDBOUS002	14:57	26:00	400	43	25.030	7	47.818				covered	Cu + Ci	8	14 kn	115	1017.7	64	very good	16.9	14.4	calm	0,4 m		no
			CTDBOUS003	15:57	27:00	400	43	27.921	7	42.323				covered	Cu + Ci	5	5 kn	18	1018.8	55	very good	18.2	14.5	calm	0,4 m		no
15/04/2007			CTDBOUS004	17.01	25:00	400	43	30.923	7	36.879				covered	Cu + Ci	4	5 kn	343	1018.0	72	very good	17.3	15.0	calm	0,4 m		no
			CTDBOUS005	18:08	29:00	400	43	33.830	7	30.898				covered	Cu + Ci	4	4 kn	327	1018.2	54	very good	18.6	15.5	calm	0,4 m		no
			CTDBOUS006	19:16	24:00	400	43	37.413	7	24.889				covered	night	9	5 kn	325	1019.0	51	night	18.4	15.9	calm	0,3 m		no
			CTDBOUS007	20:10	26:00	400	43	38.838	7	20.553				covered	night	9	7 kn	301	1018.5	64	night	17.8	15.2	calm	0,3 m		no
			CTDBOUS008	09:29	39:00	400	43	22.088	7	53.932				part. covered	Ci	4	5 kn	356	1018.5	73	very good	17.6	14.6	calm	0,4 m		no
	bou160407black1			11:08	03:00																						
		bou160407AA		11:20	04:36	200	43	22.126	7	53.752				part. covered	Ci	4	2 kn	100	1017.6	69	very good	19.6		calm	0,4 m		no
		bou160407AB		11:33	04:12	200	43	22.287	7	53.661				part. covered	Ci	4	2 kn	100	1017.6	69	very good	19.6		calm	0,4 m		no
16/04/2007		bou160407AC		11:43	04:16	200	43	22.349	7	53.480				part. covered	Ci	4	2 kn	100	1017.6	69	very good	19.6		calm	0,4 m		no
		bou160407AD		11:54	04:17	205	43	22.352	7	53.454				part. covered	Ci	4	2 kn	100	1017.6	69	very good	19.6		calm	0,4 m		no
		bou160407AE		12:04	04:18	200	43	22.359	7	53.280				part. covered	Ci	4	2 kn	100	1017.6	69	very good	19.6		calm	0,4 m		no
	bou160407black2			12:18	03:00																						
			CTDBOUS009	12:29	24:00	400	43	22.083	7	53.925				part. covered	Ci	3	3 kn	147	1017.4	64	very good	19.2	14.5	calm	0,4 m		no
				12:40	05:00	11 m	43	22.000	7	54.000	Secchi disk 01			blue	no	0											
			CTDBOUS010	08:05	25:00	400	43	22.186	7	53.708				little bit milky	Ci ?	3	6 kn	39	1018.4	70	good	19.0	14.8	calm	0,4 m		no
	bou170407black1			08:41	03:00																						
		bou170407AA		08:53	04:10	200	43	22.124	7	53.372				little bit milky	no	0	-	-	-	93	good	11.5		calm	0,4 m		no
		bou170407AB		09:06	04:14	200	43	22.193	7	53.236				little bit milky	no	0	-	-	-	93	good	11.5		calm	0,4 m		no
		bou170407AC		09:18	04:26	200	43	22.195	7	53.091				little bit milky	no	0	-	-	-	93	good	11.5		calm	0,4 m		no
				09:31	02:00		43	22.000	7	54.000	CIMEL 01			little bit milky	Ci ?	3			1018.1								
	bou170407black2			11:12	03:00																						
		bou170407spmratsurfaceAD		11:28	03:52	0	43	22.000	7	54.000				little bit milky	no	0	-	-	-	-	good	-		calm	0,4 m		no
17/04/2007		bou170407spmratsurfaceAE		11:41	07:14	200	43	21.590	7	53.390				little bit milky	no	0	-	-	-	-	good	-		calm	0,4 m		no
		bou170407spmratsurfaceAF		12:03	08:20	200	43	21.937	7	53.938				little bit milky	no	0	-	-	-	-	good	-		calm	0,4 m		no
		bou170407spmratsurfaceAG		12:24	07:26	200	43	22.246	7	53.728				little bit milky	no	0	-	-	-	-	good	-		calm	0,4 m		no
		bou170407AH		12:38	04:28	200	43	22.329	7	53.854				little bit milky	no	0	-	-	-	-	good	-		calm	0,4 m		no
		bou170407AI		12:49	04:30	200	43	22.000	7	54.000				little bit milky	no	0	-	-	-	-	good	-		calm	0,4 m		no
		bou170407AJ		13:00	04:23	200	43	22.603	7	53.740				little bit milky	no	0	-	-	-	-	good	-		calm	0,4 m		no
				12:57	02:00		43	22.000	7	54.000	CIMEL 02			little bit milky	Ci ?	3			1017.6								
				13:09	02:00		43	22.000	7	54.000	CIMEL 03			little bit milky	Ci ?	3			1017.5								
			CTDBOUS011	13:26	27:00	400	43	22.076	7	53.918				little bit milky	Ci ?	0	5 kn	93	1017.4	70	good	18.6	15.0	calm	0,4 m		no
			CTDBOUS012	08:02	27:00	400	43	22.089	7	53.794				blue	no	1	8 kn	185	1017.2	93	good	15.8	15.8	calm	0,4 m		no
				08:50	45:00	1000	43	22.241	7	53.571	PVM 01																
	bou180407black1			09:30	03:00																						
		bou180407AA		09:39	03:16	150	43	22.005	7	53.816				fog	fog	8	7 kn	210	1017.5	96	100 m	14.1		calm	0,4 m		no
		bou180407AB		09:47	03:12	150	43	22.081	7	53.701				fog	fog	8	7 kn	210	1017.5	96	100 m	14.1		calm	0,4 m		no
18/04/2007		bou180407AC		09:56	03:20	150	43	22.176	7	53.596				fog	fog	8	7 kn	210	1017.5	96	100 m	14.1		calm	0,4 m		no
		bou180407AD		10:05	04:12	180	43	22.255	7	53.447				fog	fog	8	7 kn	210	1017.5	96	100 m	14.1		calm	0,4 m		no
	bou180407black2			10:20	03:00																						
				10:34	3 x 10:00	3 x 100	43	22.142	7	53.935	plankton net (x3)																
				11:05	45:00	1000	43	22.800	7	53.000	PVM 02																
			CTDBOUS013	12:28	28:00	400	43	22.172	7	53.975				fog	fog	8	7 kn	206	1017.4	97	100 m	14.3	15.9	calm	0,4 m		no



GMT 2007 Apr 18 18:22:06

Boussole 63 **15/04/2007** **BOUS070415_01**

BOUS001

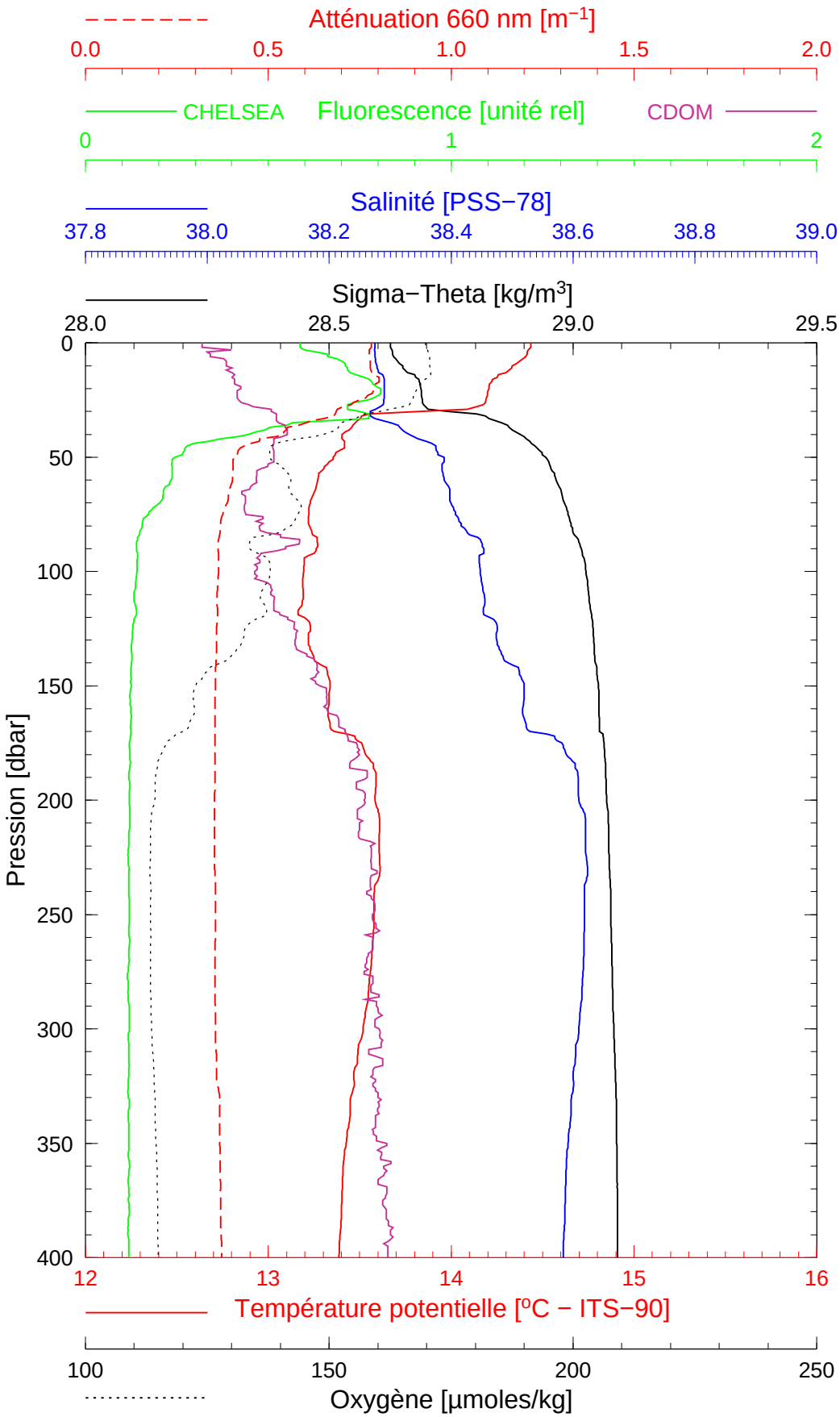


Date *15/04/2007* *Latitude* *43°22.039 N*

Heure déb *13h 27min [TU]* *Longitude* *07°53.840 E*

Boussole 63 **15/04/2007** **BOUS070415_02**

BOUS002

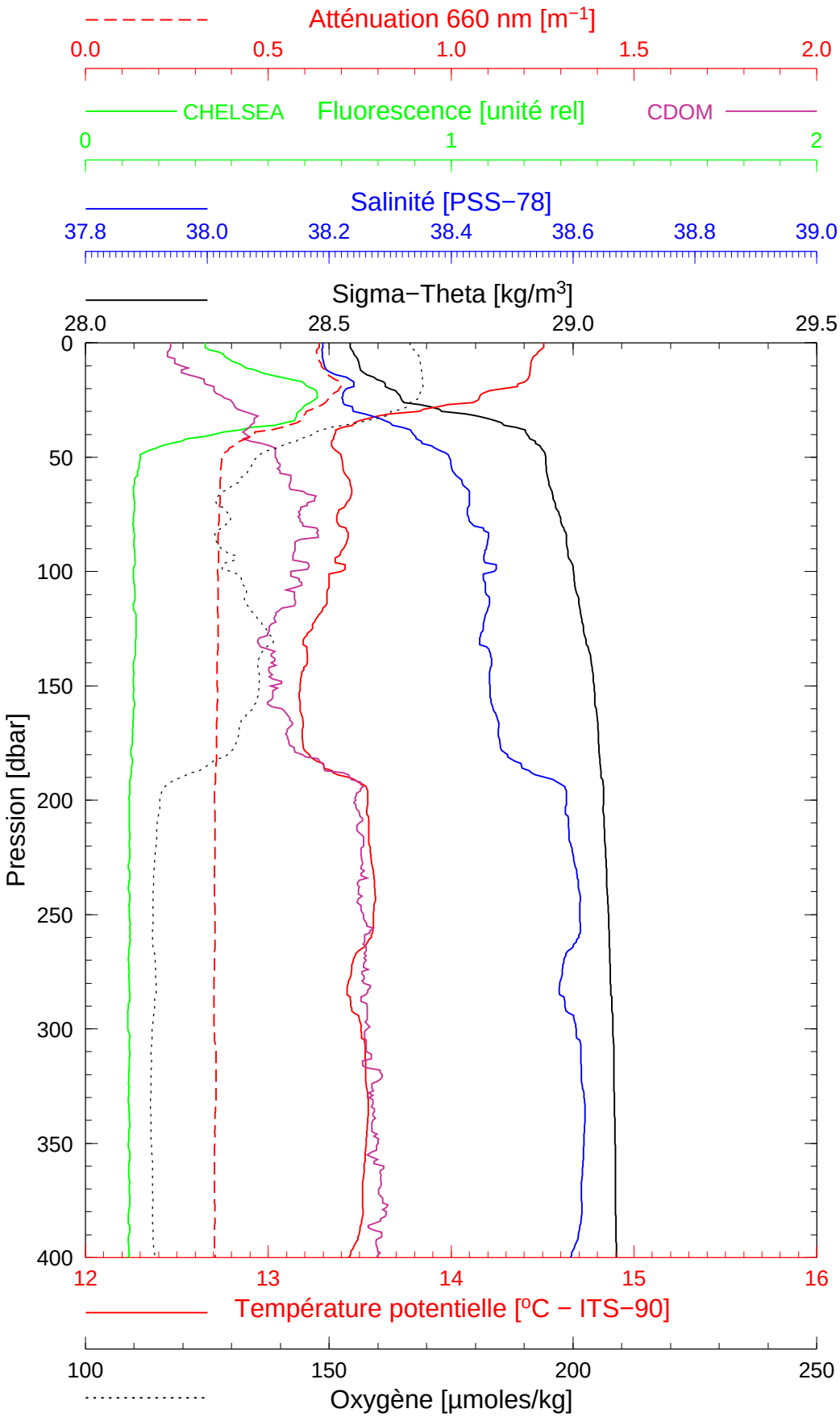


Date *15/04/2007* *Latitude* *43°25.030 N*

Heure déb *14h 57min [TU]* *Longitude* *07°47.818 E*

Boussole 63 **15/04/2007** **BOUS070415_03**

BOUS003



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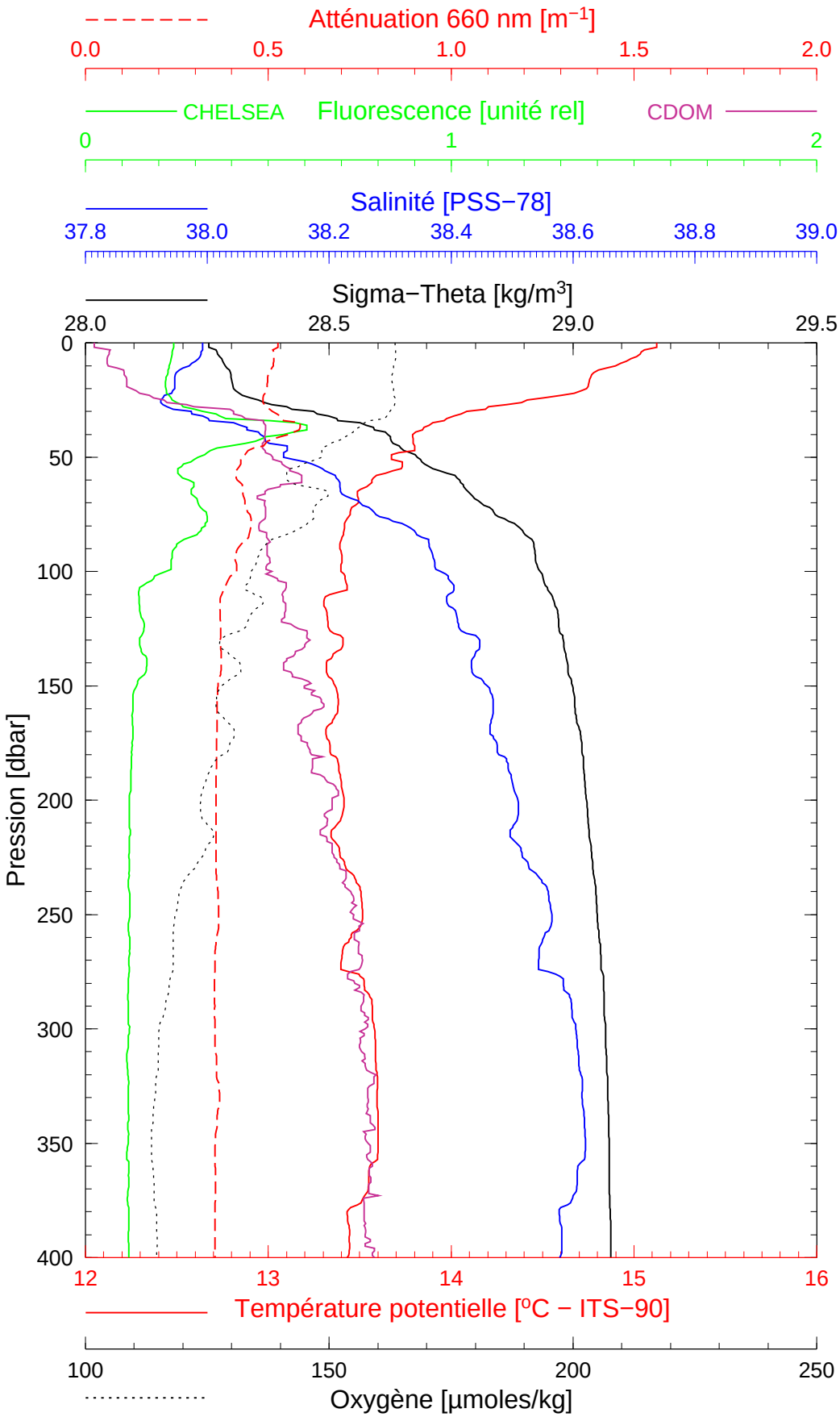
Heure déb *15h 57min [TU]* *Longitude* *07°42.323 E*

Boussole 63 **15/04/2007** **BOUS070415_04**

BOUS004

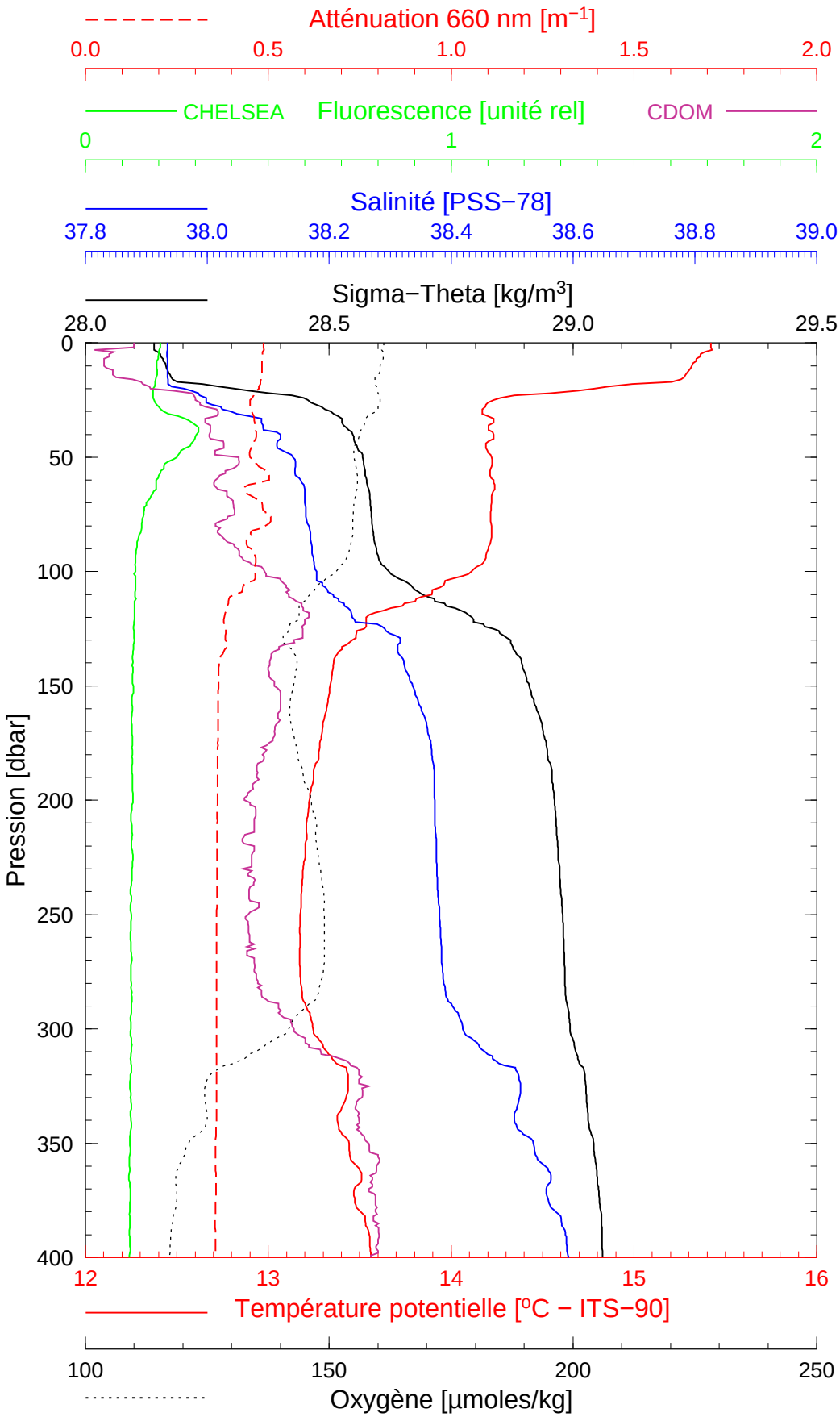


Date *15/04/2007* *Latitude* *43°30.923 N*

Heure déb *17h 01min [TU]* *Longitude* *07°36.879 E*

Boussole 63 **15/04/2007** **BOUS070415_05**

BOUS005

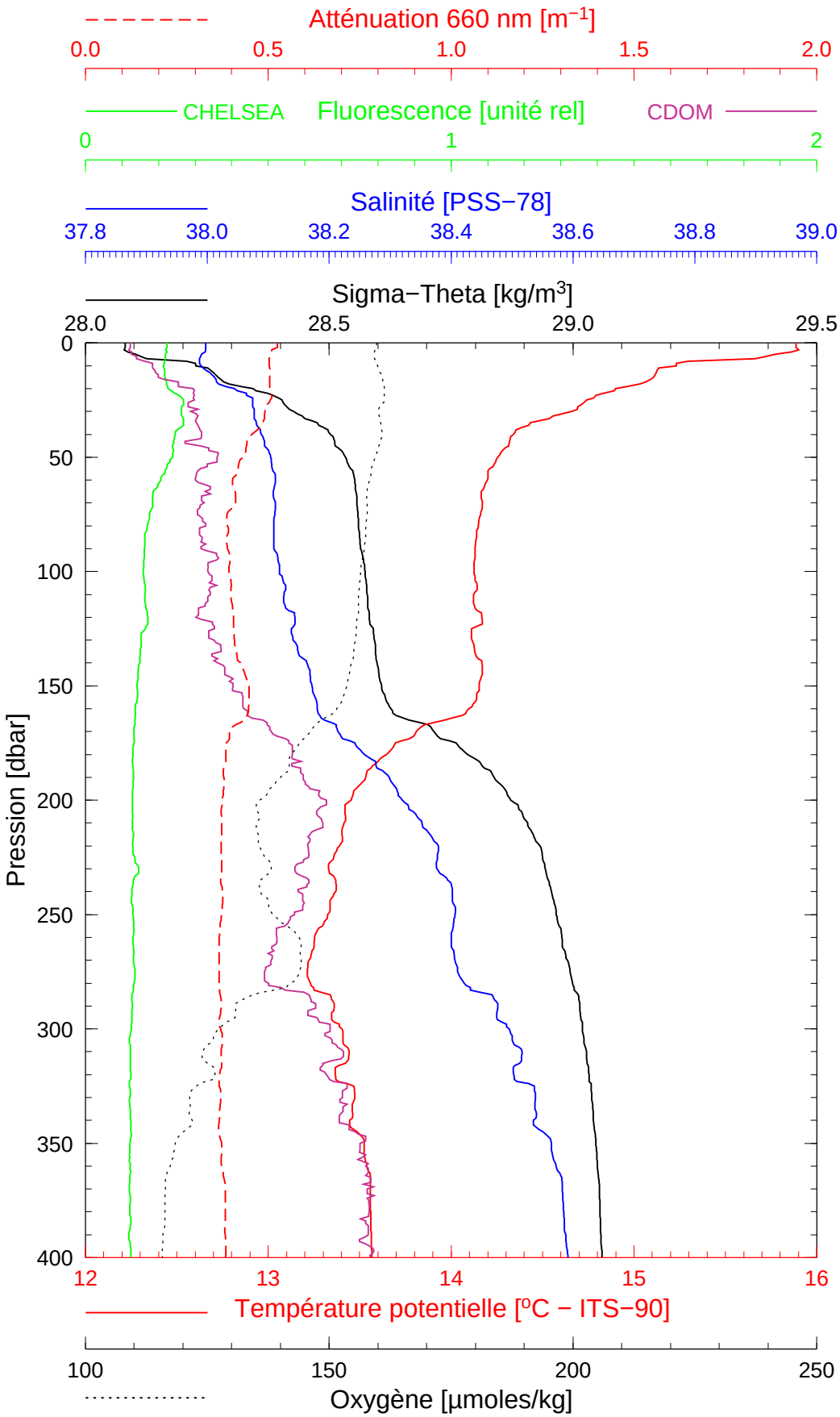


Date *15/04/2007* *Latitude* *43°33.830 N*

Heure déb *18h 08min [TU]* *Longitude* *07°30.898 E*

Boussole 63 **15/04/2007** **BOUS070415_06**

BOUS006

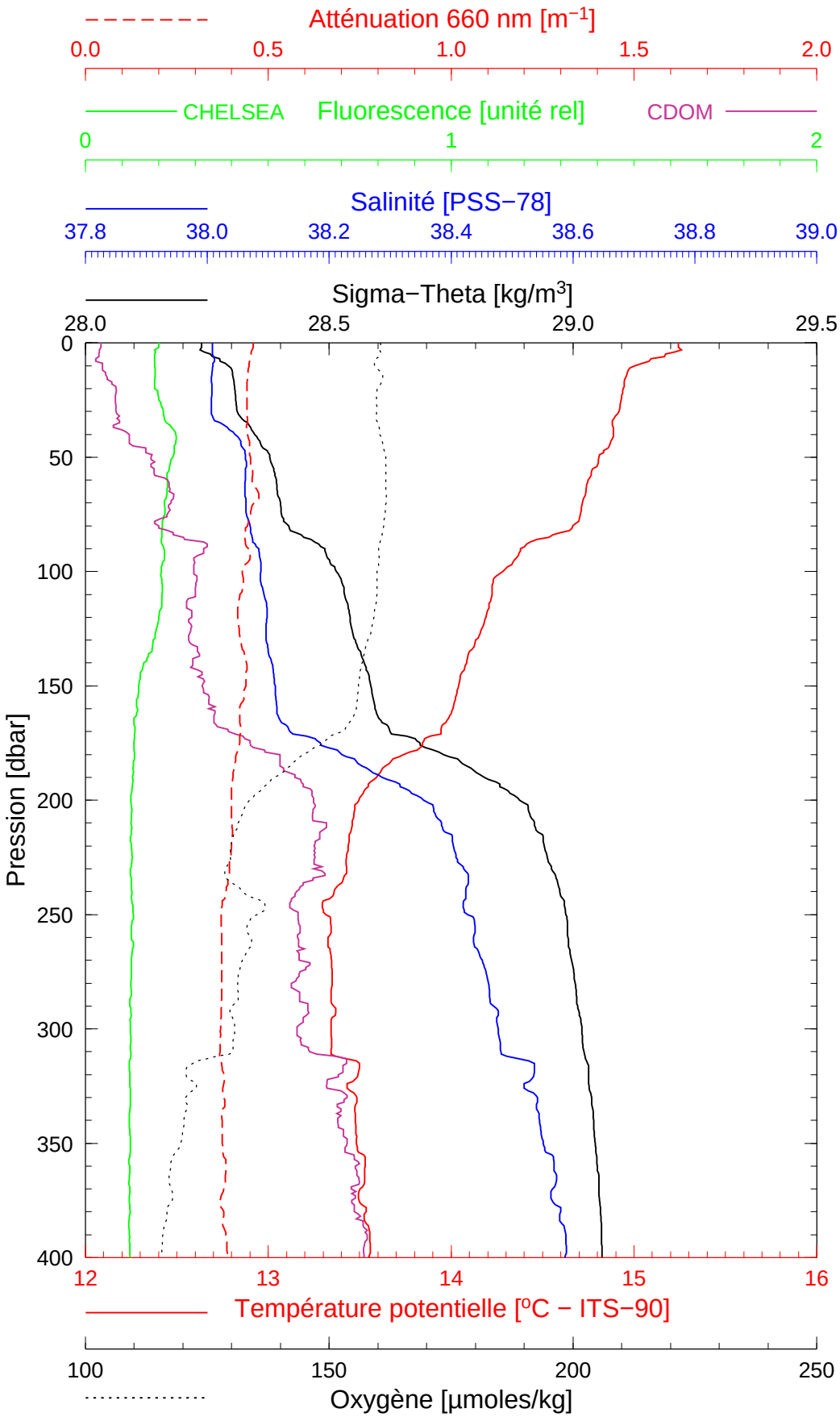


Date *15/04/2007* *Latitude* *43°37.413 N*

Heure déb *19h 16min [TU]* *Longitude* *07°24.889 E*

Boussole 63 **15/04/2007** **BOUS070415_07**

BOUS007

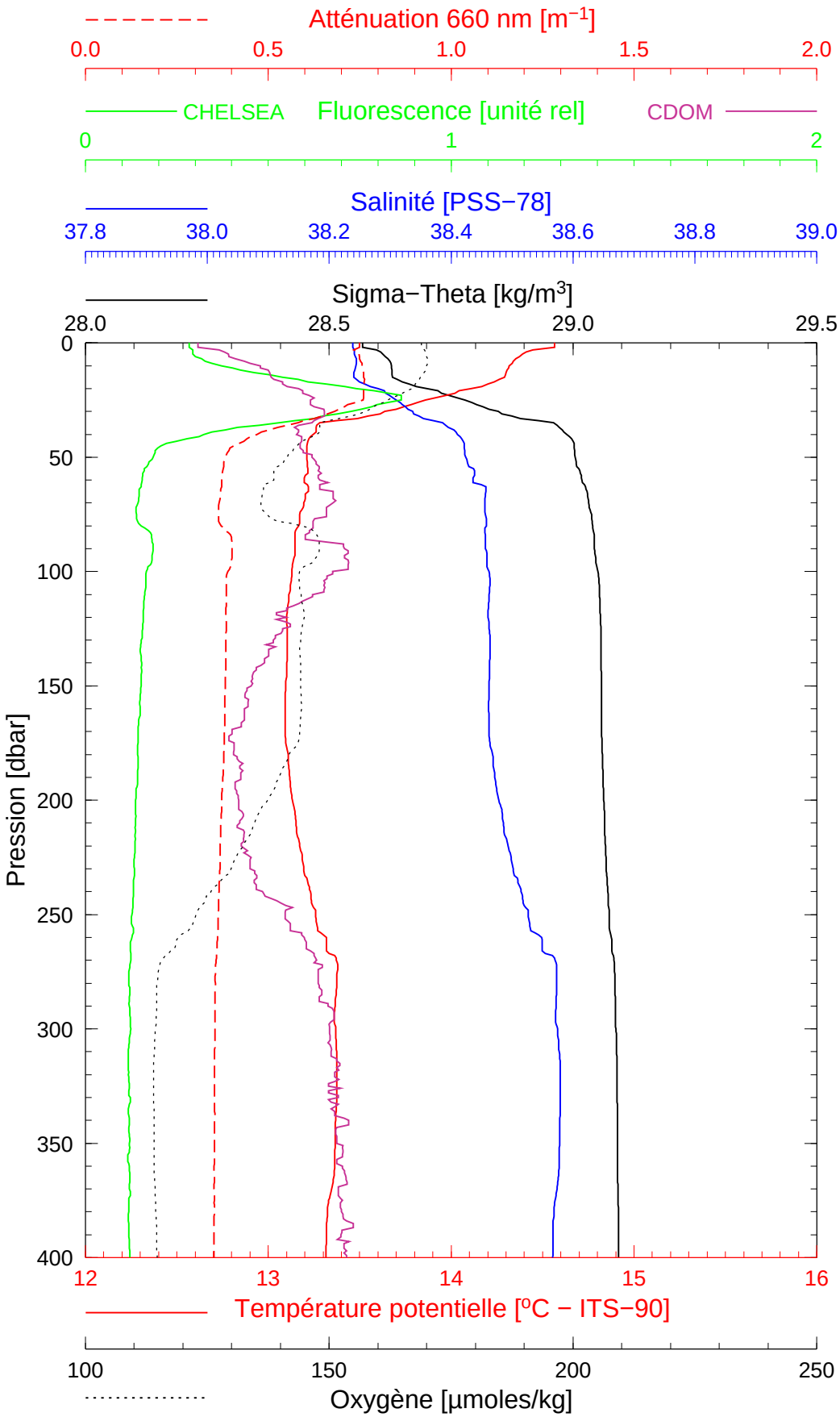


Date *15/04/2007* *Latitude* *43°38.838 N*

Heure déb *20h 10min [TU]* *Longitude* *07°20.553 E*

Boussole 63 **16/04/2007** **BOUS070416_01**

BOUS008

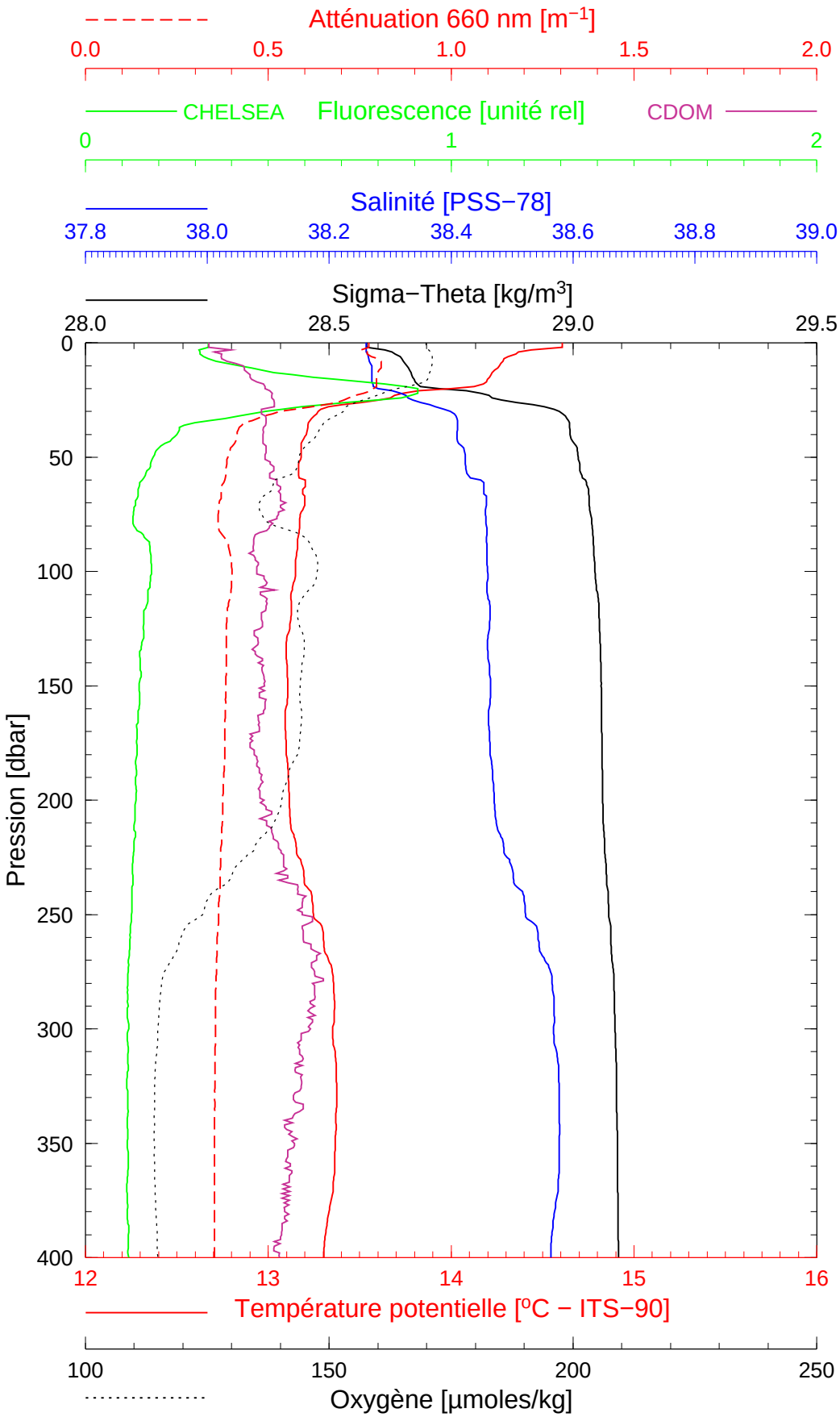


Date *16/04/2007* *Latitude* *43°22.088 N*

Heure déb *09h 29min [TU]* *Longitude* *07°53.932 E*

Boussole 63 **16/04/2007** **BOUS070416_02**

BOUS009

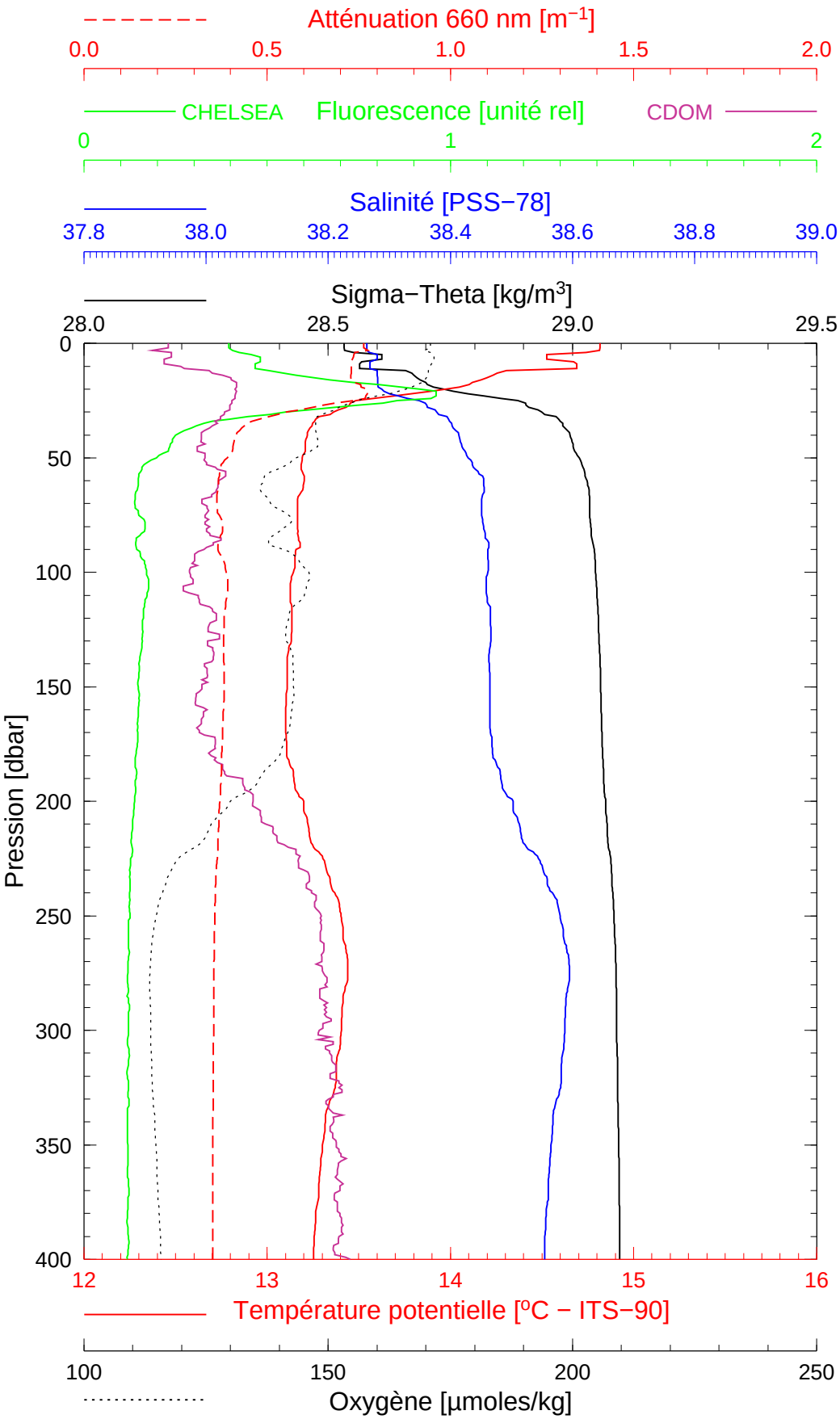


Date *16/04/2007* *Latitude* *43°22.083 N*

Heure déb *12h 29min [TU]* *Longitude* *07°53.925 E*

Boussole 63 **17/04/2007** **BOUS070417_01**

BOUS010

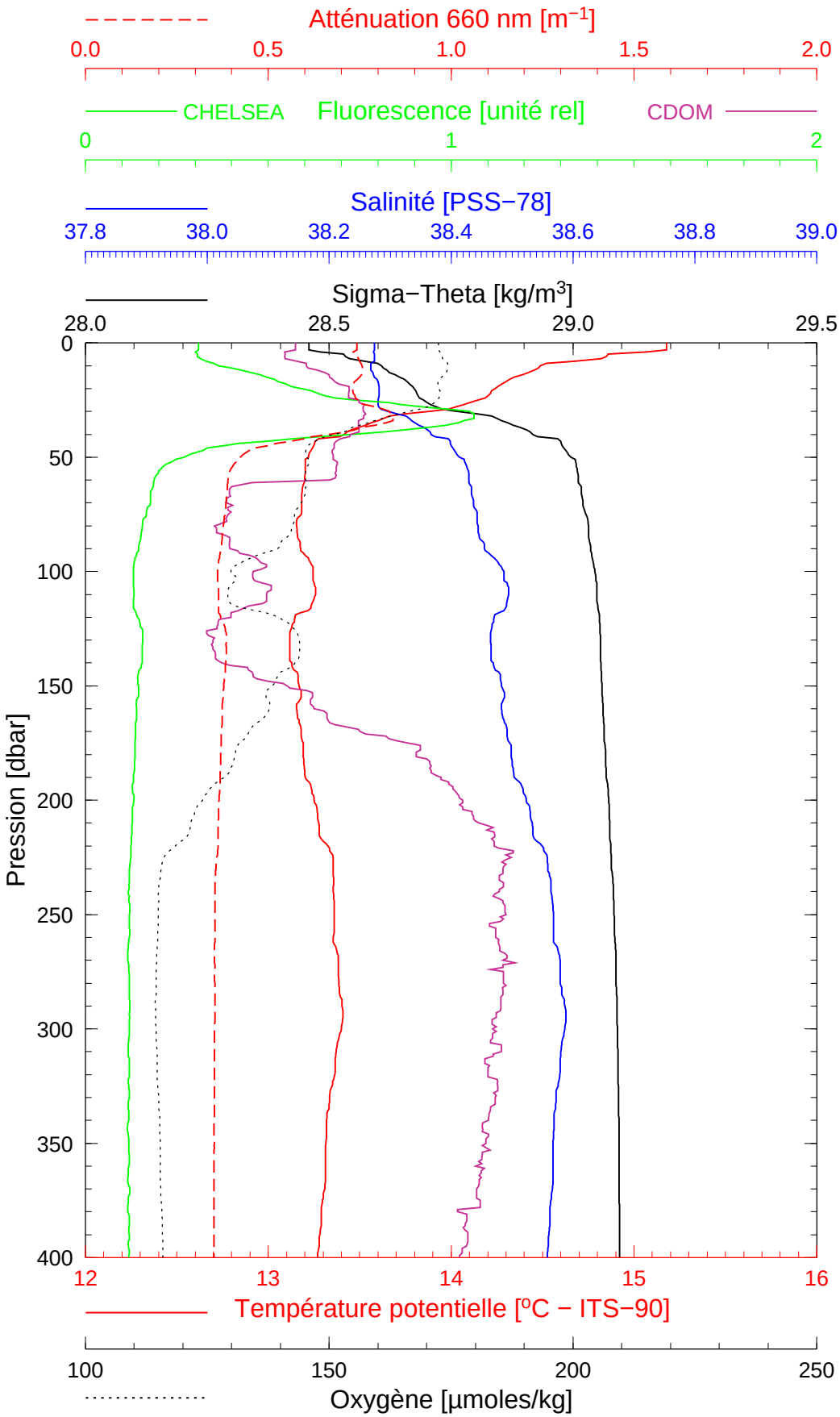


Date *17/04/2007* *Latitude* *43°22.186 N*

Heure déb *08h 05min [TU]* *Longitude* *07°53.708 E*

Boussole 63 **17/04/2007** **BOUS070417_02**

BOUS011

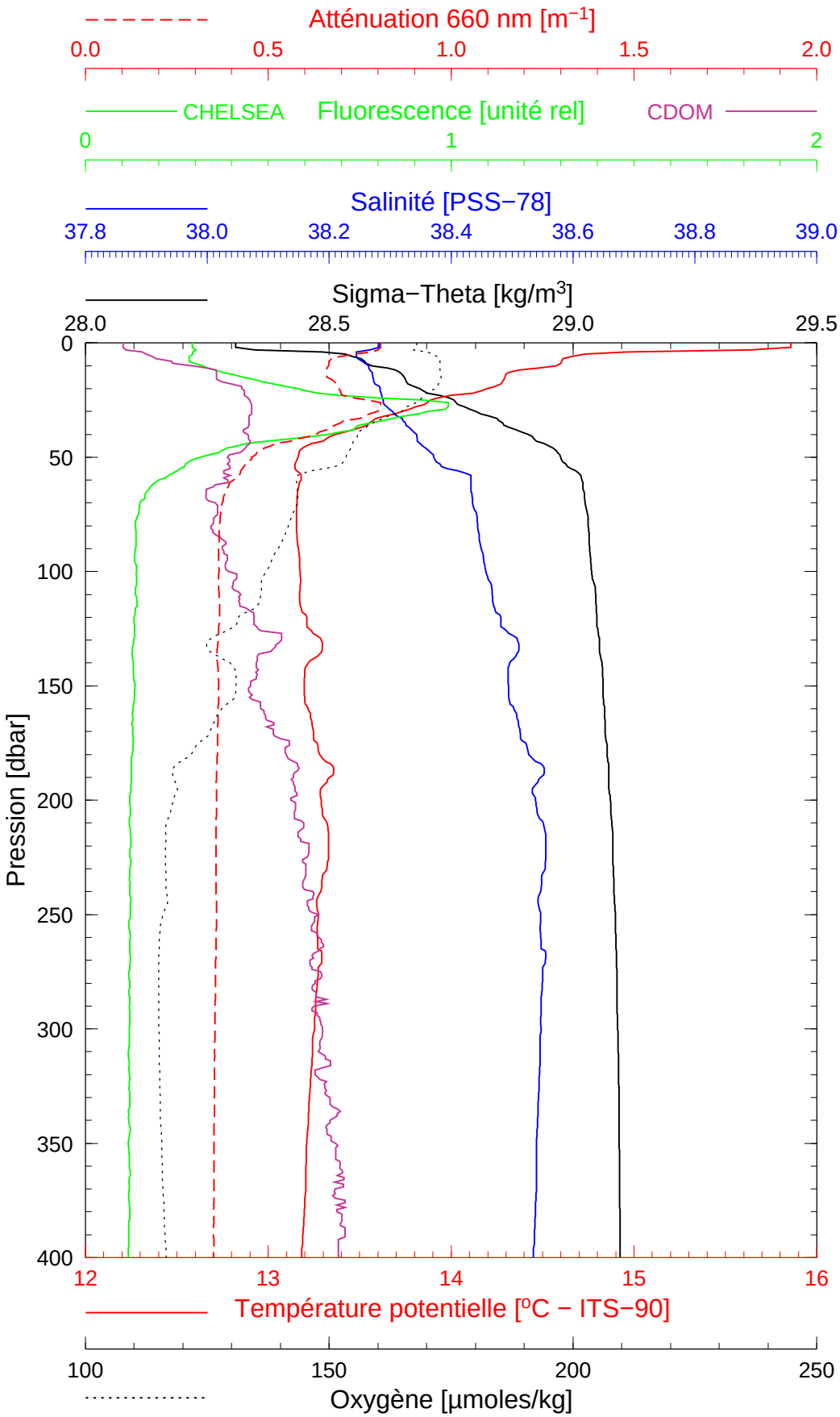


Date *17/04/2007* *Latitude* *43°22.076 N*

Heure déb *13h 26min [TU]* *Longitude* *07°53.918 E*

Boussole 63 **18/04/2007** **BOUS070418_01**

BOUS012

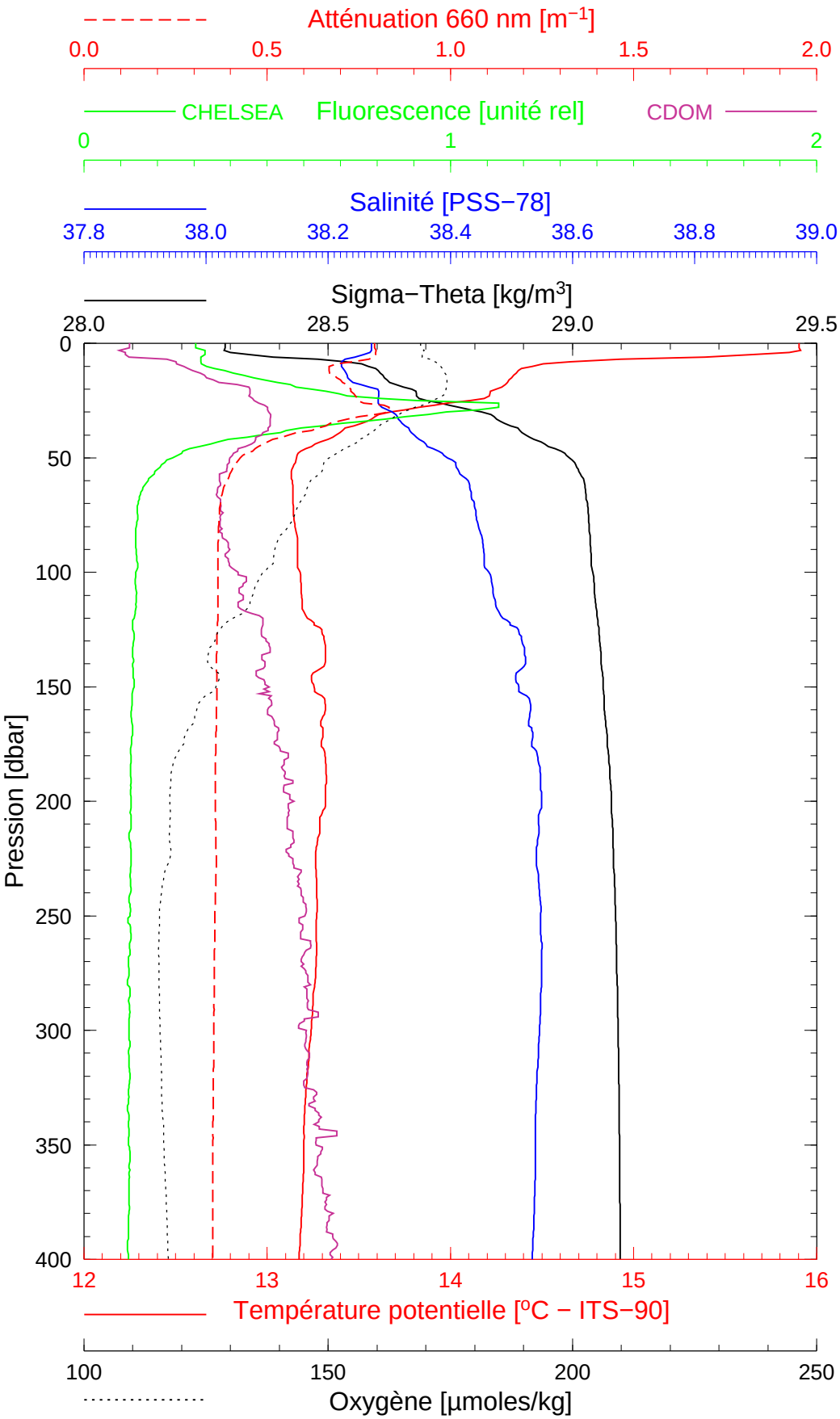


Date *18/04/2007* *Latitude* *43°22.089 N*

Heure déb *08h 02min [TU]* *Longitude* *07°53.794 E*

Boussole 63 **18/04/2007** **BOUS070418_02**

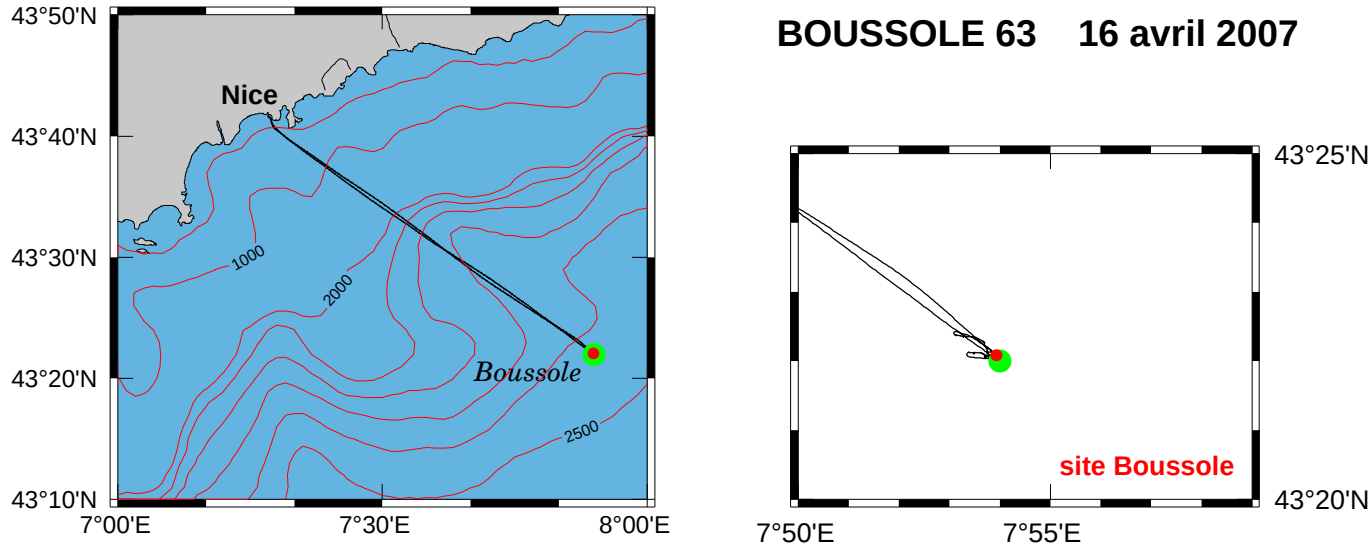
BOUS013

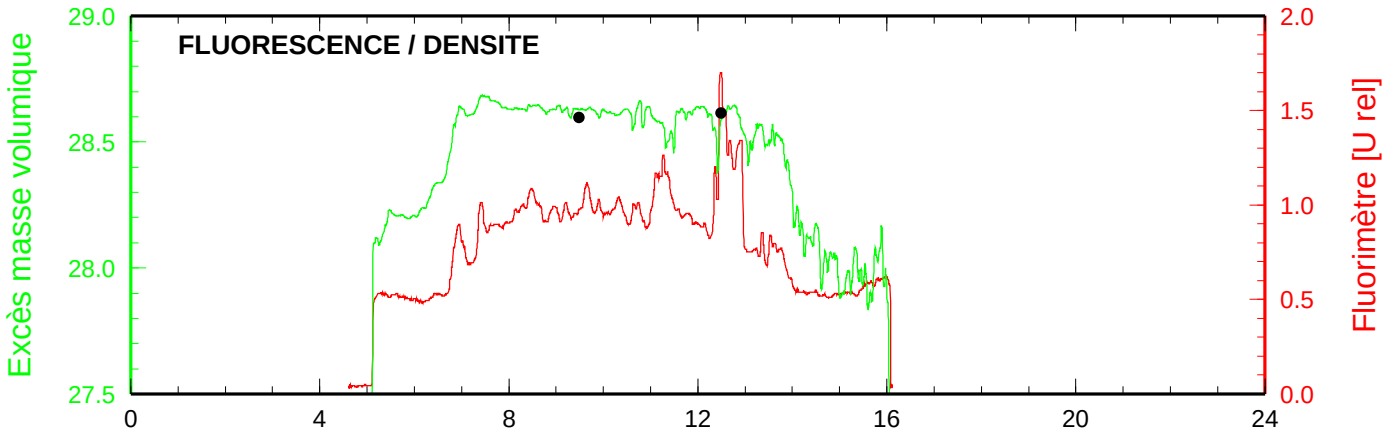


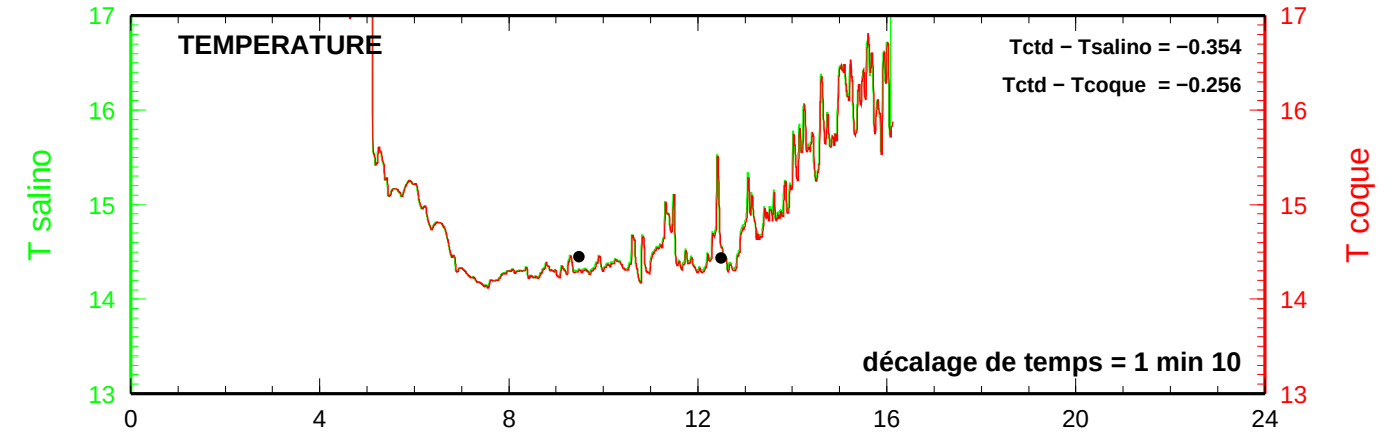
Date *18/04/2007* *Latitude* *43°22.172 N*

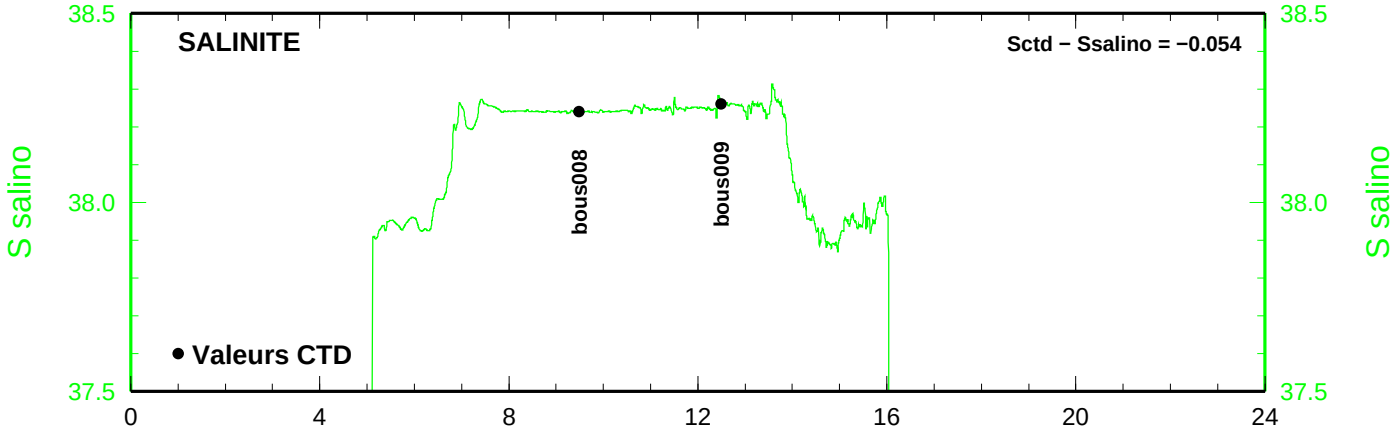
Heure déb *12h 28min [TU]* *Longitude* *07°53.975 E*

BOUSSOLE 63 16 avril 2007









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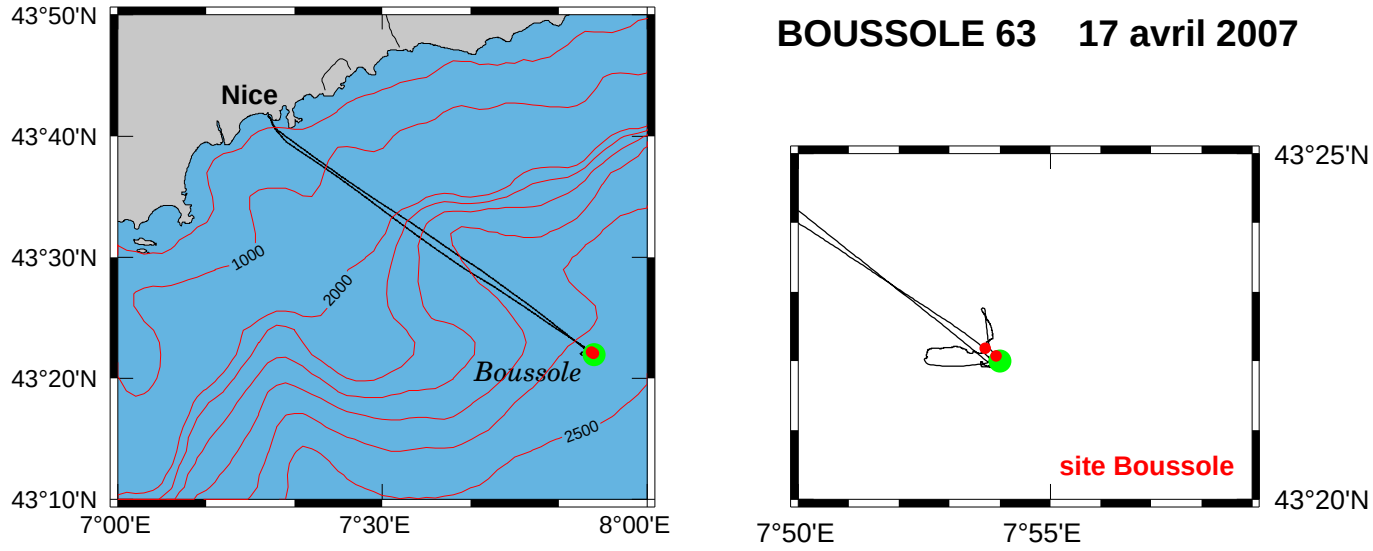

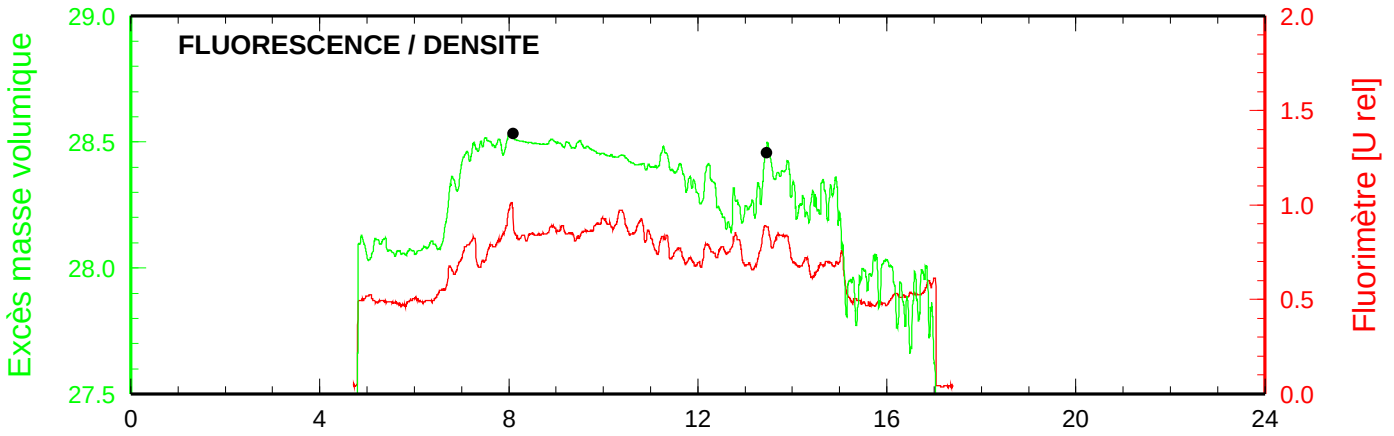

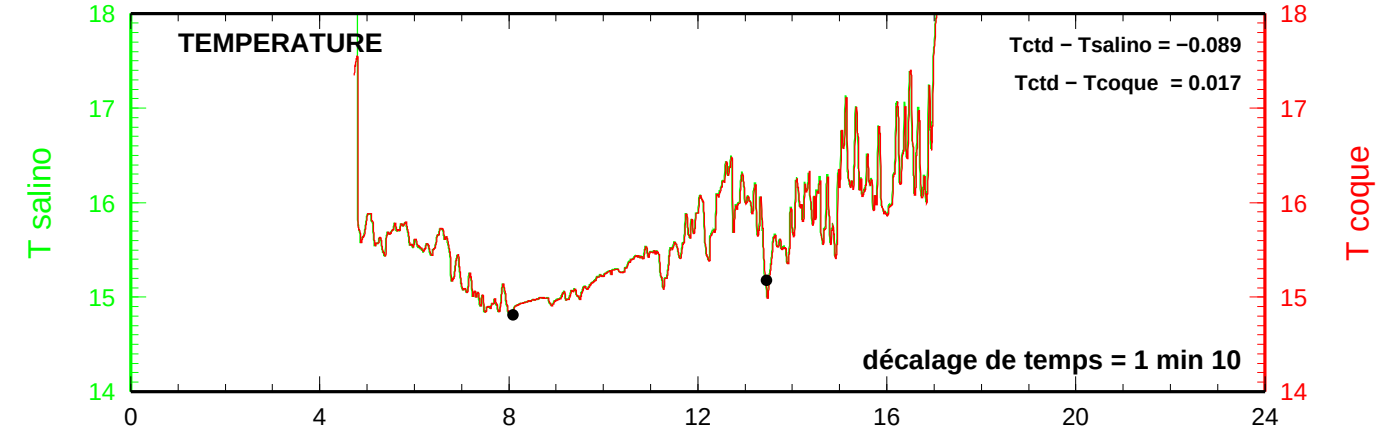

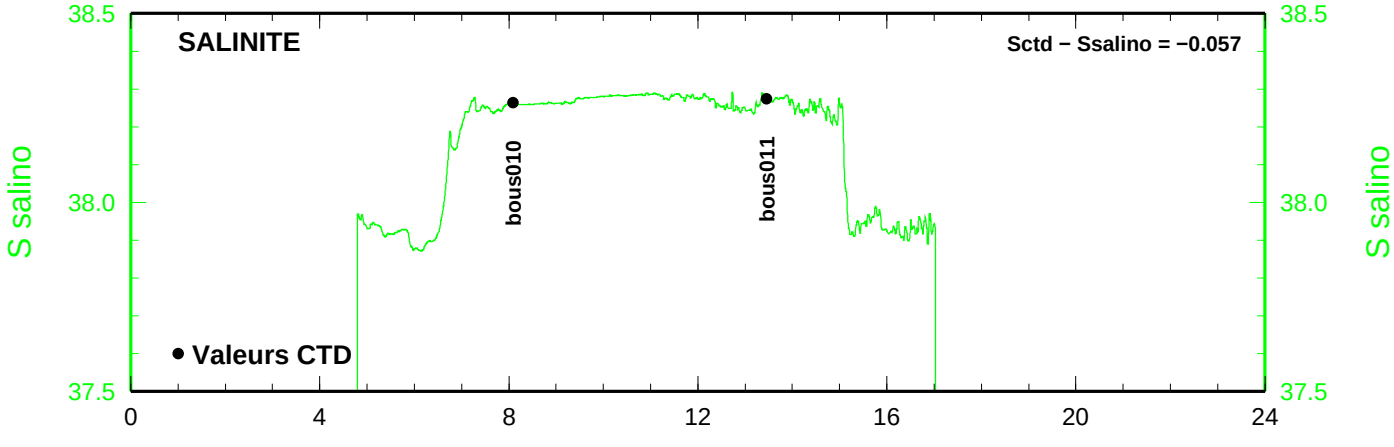

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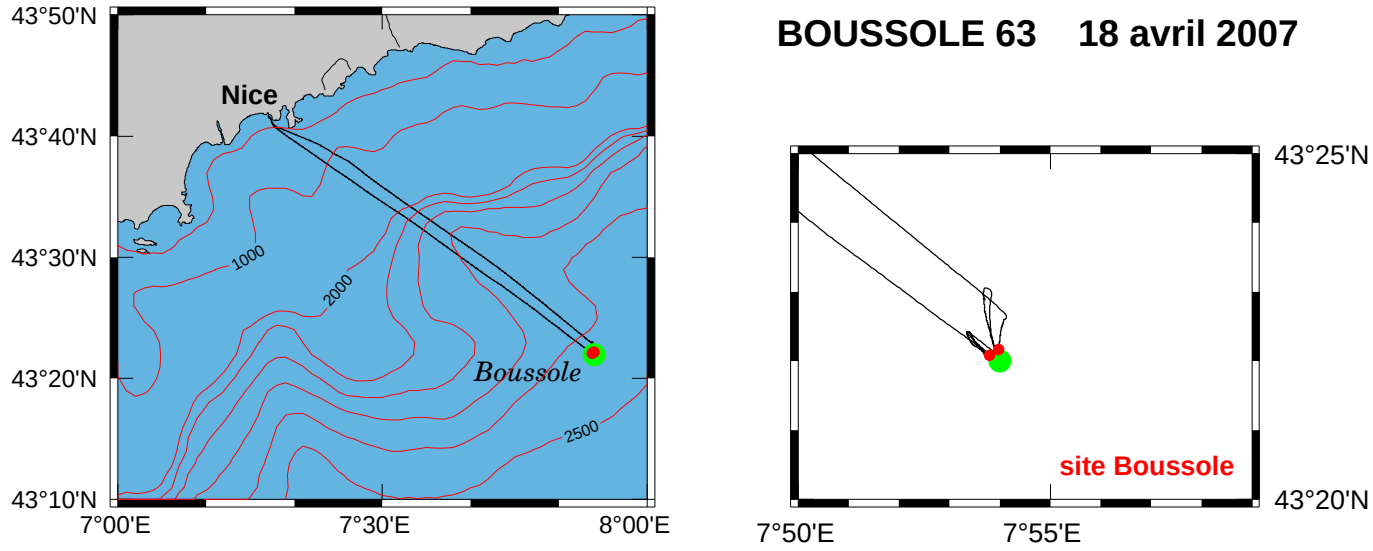

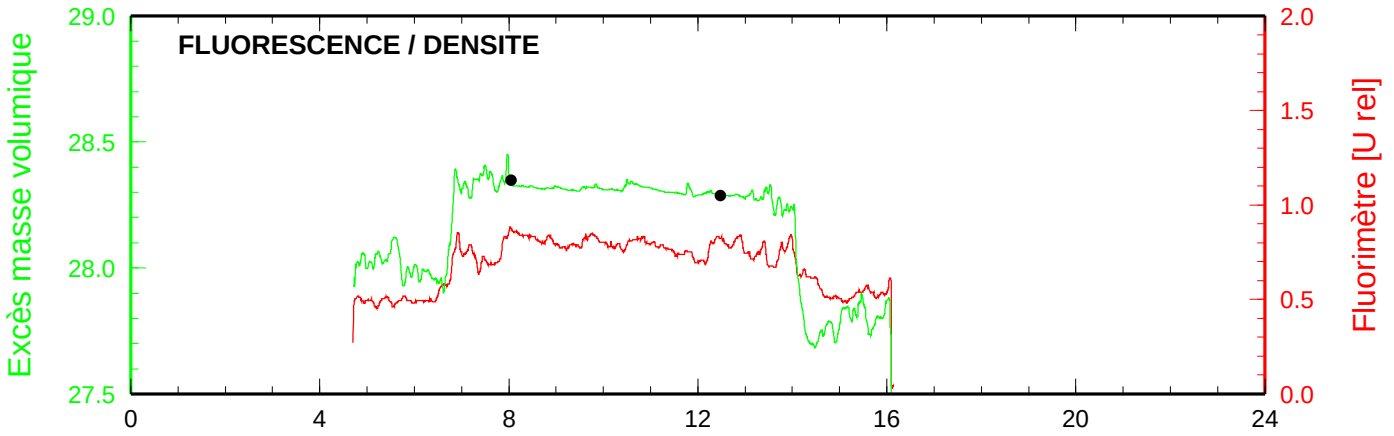

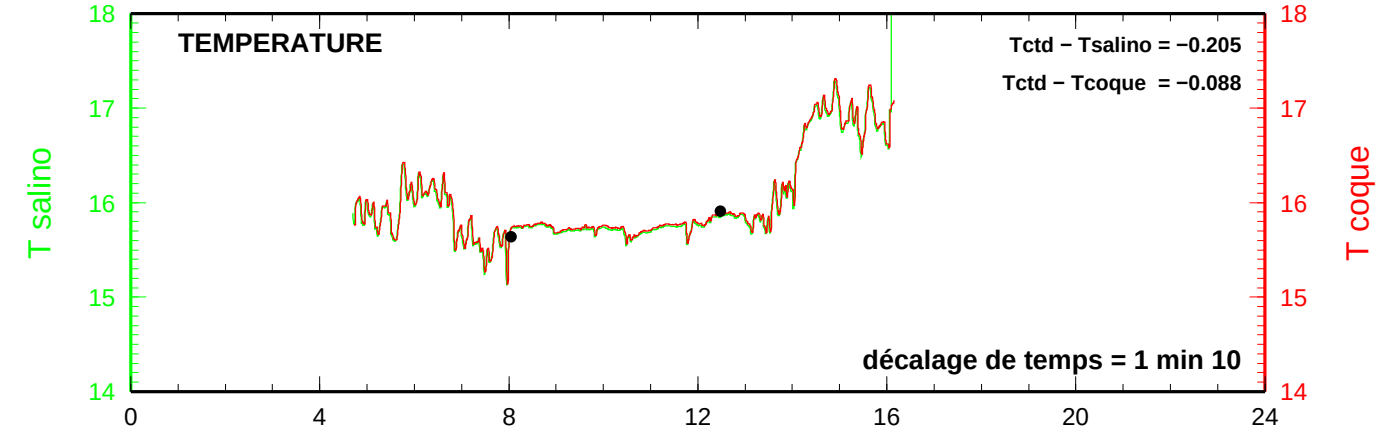

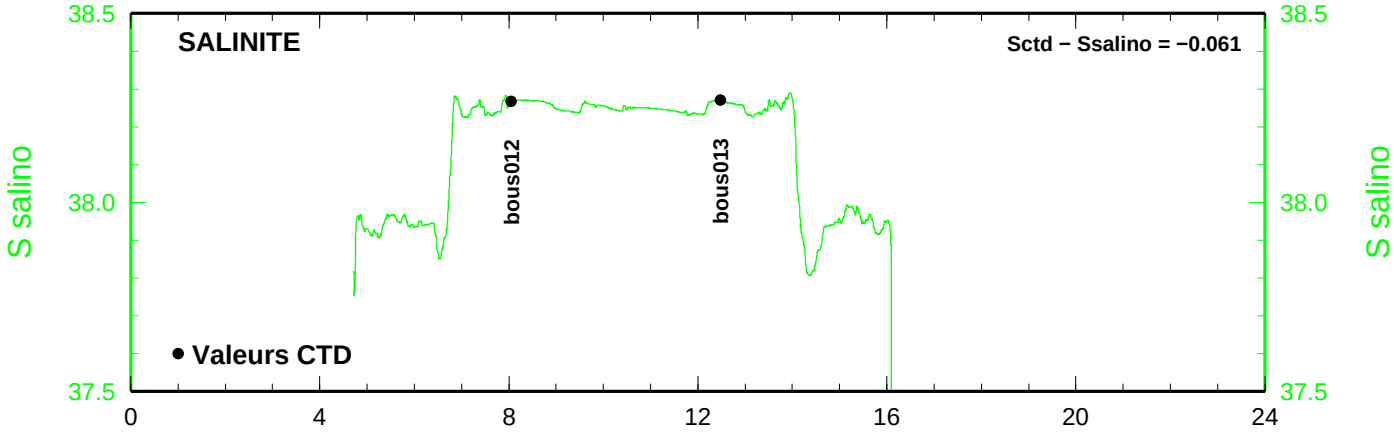

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