BOUSSOLE Monthly Cruise Report

Cruise 60
January 31 - February 02, 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 Obolensky, Katarzyna Niewiadomska, Antoine Poteau, David Luquet, Laurent Gilletta, Yves Lamblart.

Laboratoire d'Océanographique de Villefranche (LOV), 06238 Villefranche sur mer cedex, FRANCE

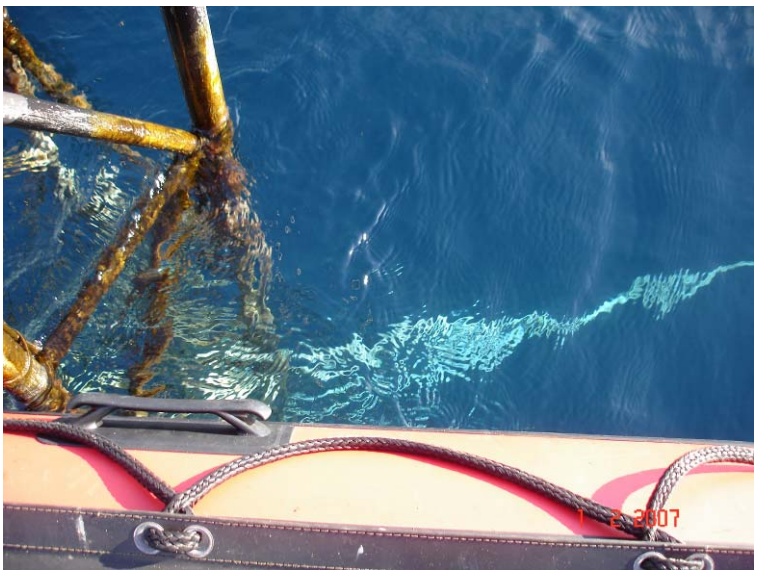


Fig 1. The buoy structure antifouling paint needs to be replaced.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

January 7, 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

Grigor Obolensky was onboard for the entire mission to train with the CTD with Dominique Tailliez. He also supported Katarzyna Niewiadomska and Antoine Poteau for glider operations.

Cruise Summary

Sea conditions were rather good for the entire cruise but the last day. The Departure from Port of Nice was delayed by a couple of hours on the first day, as some geosciences equipment was carried from La Seyne-sur-mer to Nice and unloaded from the ship this morning.

Tuesday 30 January 2007

The departure from Nice harbour was delayed due to some equipment handling. 4 SPMR profiles and 7 CTD casts (among which 6 were on the transect between BOUSSOLE site and Nice) were performed. ARGOS beacon contact and MVD collectors were also cleaned up.

Wednesday 31 January 2007

Divers went at sea. They found the buoy antifouling paint worn, and also that the big anode beneath the floating sphere should be replaced. Otherwise, it was a optimal optics day, with 5 SPMR profiles, 2 CTD casts, 1 Secchi disk measurement, 3 TSM filtration and 2 CIMEL measurements performed.

Thursday 01 February 2007

This day was a “standard” BOUSSOLE cruise day, i.e. 6 SPMR profiles, 3 CTD casts and 3 CIMEL measurements were performed.

Friday 02 February 2007

Sea conditions became a little bit rough (H1/3 of 0.9 m), but 1 CTD cast and 3 SPMR profiles were performed on site before leaving to recover the glider 3 nmi away from Nice.

Cruise Report

30 January 2007 (UTC)

0900 Departure from the port of Nice.
1300 ARGOS beacon contact and MVD collectors cleaning.
1345 SPMR profiles 01, 02, 03 and 04.
1439 CTD 01, 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.
1548 CTD 02 at station 1 (43°25'N 07°48'E).
1650 CTD 03 at station 2 (43°28'N 07°42'E).
1752 CTD 04 at station 3 (43°31'N 07°37'E).
1859 CTD 05 at station 4 (43°34'N 07°31'E).
2002 CTD 06 at station 5 (43°37'N 07°25'E).
2052 CTD 07 at station 6 (43°39'N 07°21'E).
2155 Arrival at the port of Nice.

31 January 2007

0530 Departure from the port of Nice.
0920 Divers at sea to check the buoy structure, clean the sensors and take some pictures of them.
1139 CTD 08, 400 m, close to the buoy, with water triplicate sampling at 10 and 5 meters for HPLC and Ap.
1218 SPMR 05, 06, 07, 08 and 09.
1226 CIMEL 01 close to the buoy.
1310 CIMEL 02 close to the buoy.
1335 3 plankton net profiles (100 m) close to the buoy.
1340 Secchi disk 01 (26.5 m).
1415 Water sampling at 5 meters for TSM.
1515 glider recovering for data download and next mission configuration upload.
1609 CTD 09, 400 m, close to the buoy, without water sampling. This cast was performed for glider data inter-comparison.
2015 Arrival at the port of Nice.

01 February 2007

0530 Departure from the port of Nice.
0902 CTD 10, 400 m, close to the buoy, with triplicate water sampling at 10 and 5 meters for HPLC and Ap, as well as TSM.
0914 CIMEL 03 close to the buoy.
1003 SPMR 10, 11 and 12.
1009 CIMEL 04 close to the buoy.
1104 CIMEL 05 close to the buoy.
1225 CIMEL 06 close to the buoy.
1234 SPMR 13, 14 and 15.
1355 CTD 11, 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.
1737 CTD 12, 350, at "point C" (Villefranche bay) after AC9 tubing cleaning.
1830 Arrival at Port of Nice.

02 February 2007

0530 Departure from the port of Nice.
0902 CTD 13, 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.
1031 SPMR 13, 14 and 15.
1430 Glider recovering 3 nmi away from Nice.
1500 Arrival at Port of Nice.

Calculated Swath paths for the MERIS Sensor (ESOV Software)

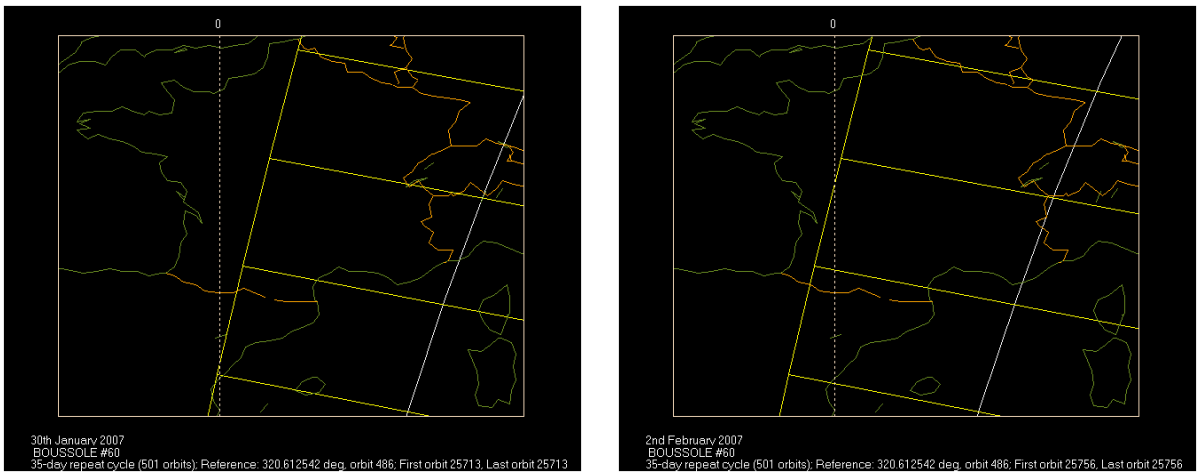
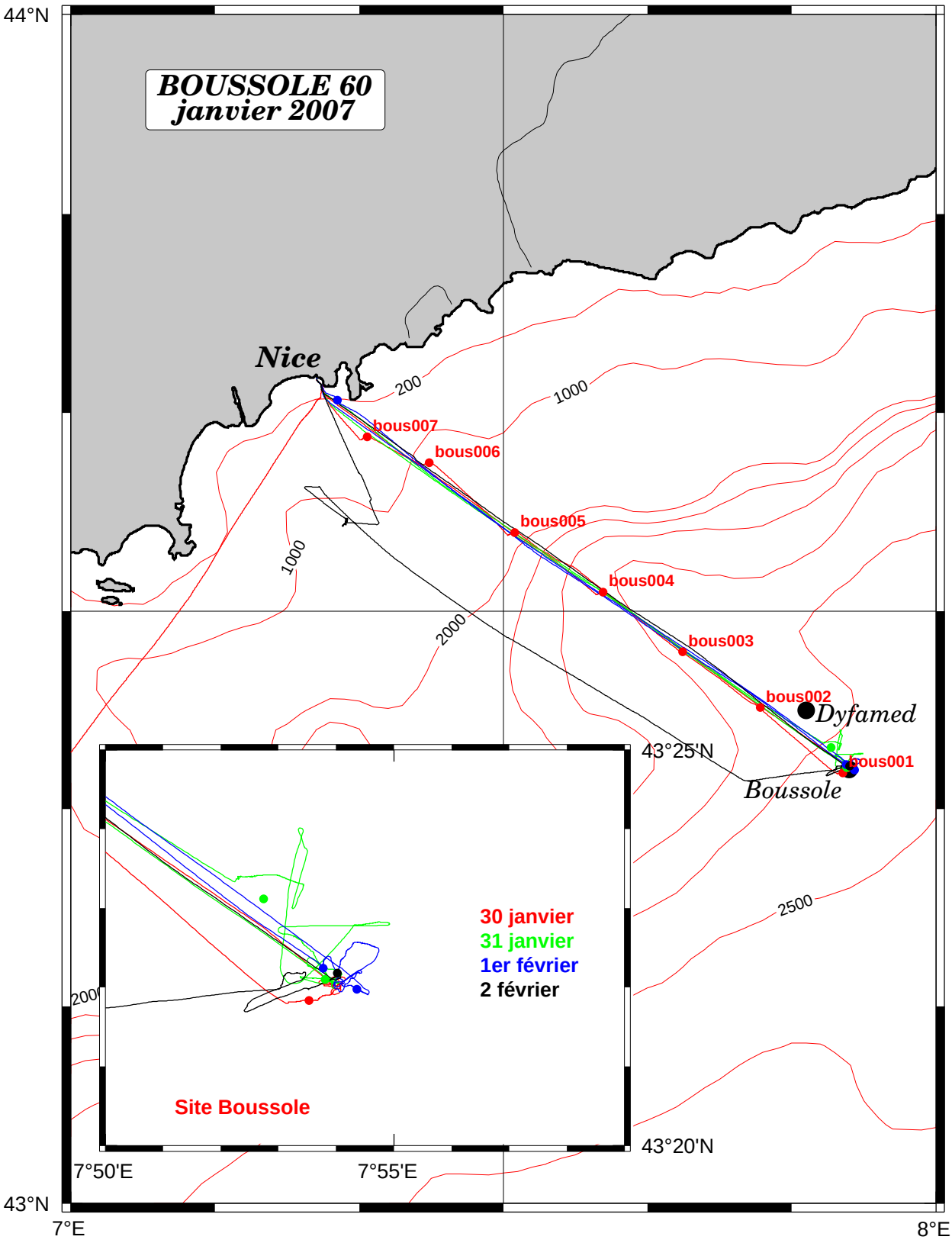


Figure 2. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for January 30 and February 02, 2007.

Appendix

Cruise Summary Table for Boussole 60

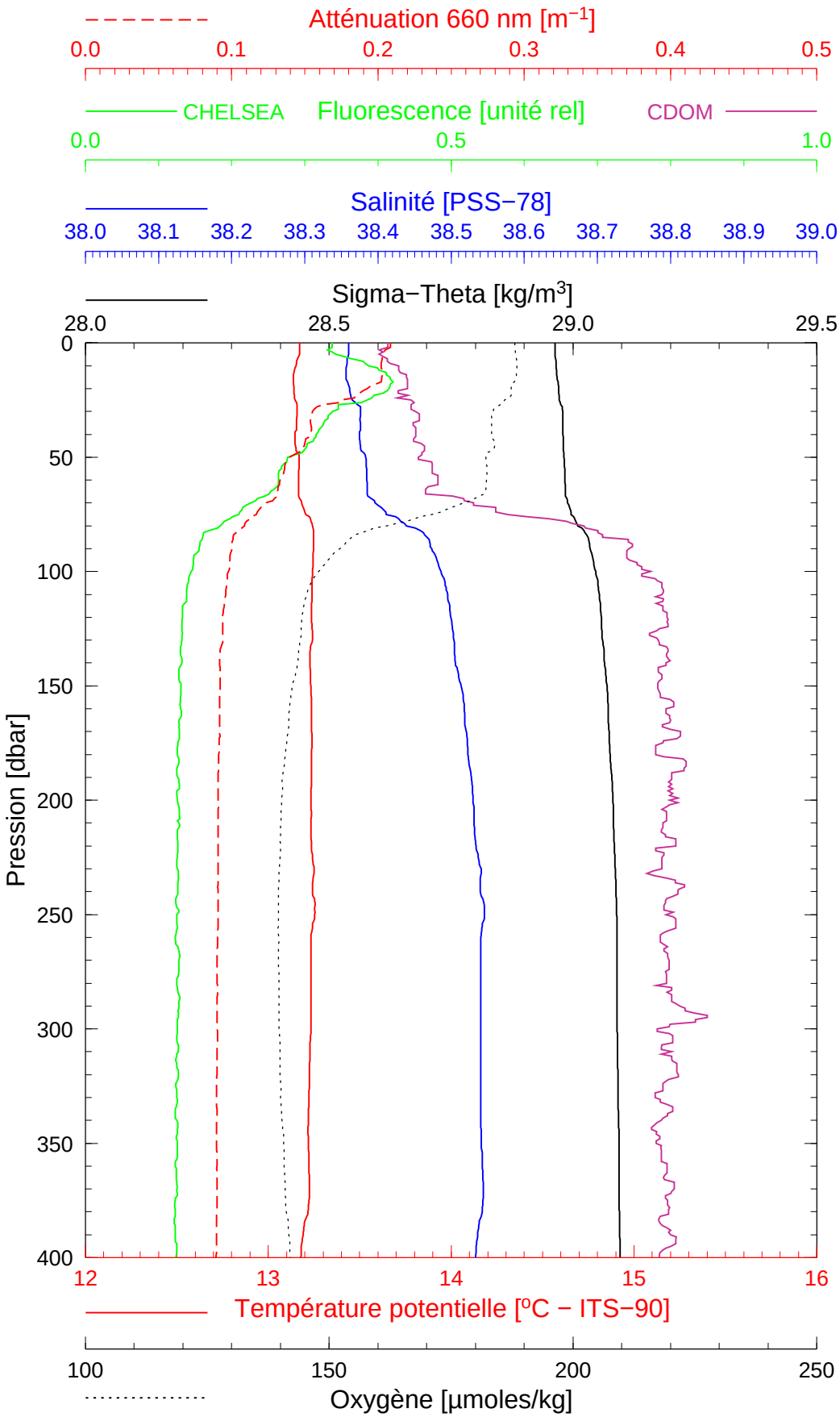
Date	Black names	Profile names	CTD notées /	Start Time	Duration	Depth max	Latitude (N)		longitude		Other sensors	Their cast	Start/Finish				Weather							Sea		
	(file ext: ".raw")	(file extension: ".raw")	satellite overpass	GMT (hour.min)	(min.sec)	(meter)	(Degree)	(Minute)	(Degree)	(Minute)				Sky	Clouds	Quantity (#/8)	Wind speed	Wind dir.	Atm. Pressure	humidity	Visibility	T air	T water	Sea	Swell height	Swell dir.	Whitecaps
	bou300107black1			13:38	03:00																					
		bou300107AA		13:45	04:06	180	43	22.049	7	54.113				blue	null	0	9 kn	19	1021.3	73	excellent	13.3		calm			quite none
		bou300107AB		13:54	04:11	180	43	21.980	7	54.005				blue	null	0	9 kn	19	1021.3	73	excellent	13.3		calm			quite none
		bou300107AC		14:04	04:07	180	43	21.980	7	53.911				blue	null	0	9 kn	19	1021.3	73	excellent	13.3		calm			quite none
		bou300107AD		14:14	04:00	180	43	21.900	7	53.811				blue	null	0	9 kn	19	1021.3	73	excellent	13.3		calm			quite none
	bou300107black2			14:27	03:00																					
30/01/2007			CTDBOUS001	14:39	31:00	400	43	21.838	7	53.533				blue	null	0	8 kn (ap)	268 (ap)	1021.3	71	excellent	12.8	13.1	calm			yes
			CTDBOUS002	15:48	27:00	400	43	25.138	7	47.825				blue	far Cu	1	6 kn (ap)	67 (ap)	1021.5	76	excellent	13.3	12.5	calm			yes
			CTDBOUS003	16:50	27:00	400	43	27.953	7	42.421				night	night	9	4 kn (ap)	79 (ap)	1021.7	77	night	12.0	13.2	calm			yes
			CTDBOUS004	17:52	28:00	400	43	30.958	7	36.918				night	night	9	7 kn (ap)	105 (ap)	1022.1	76	night	12.2	13.6	calm			yes
			CTDBOUS005	18.59	27:00	400	43	33.963	7	30.785				night	night	9	4 kn (ap)	280 (ap)	1022.7	73	night	12.5	14.7	calm			yes
			CTDBOUS006	20:02	26:00	400	43	37.486	7	24.860				night	night	9	3 kn (ap)	75 (ap)	1022.8	72	night	12.5	14.9	calm			yes
			CTDBOUS007	20:52	24:00	400	43	38.794	7	20.558				night	night	9	3 kn (ap)	104 (ap)	1023.0	71	night	12.4	14.8	calm			yes
			CTDBOUS008	10:39	26:00	400	43	22.102	7	53.811				white haze	some Str-Cu	7	9 kn	103	1023.3	84	very good	13.0	13.2	calm			yes
	bou310107black1			12:02	03:00																					
		bou310107AA		12:18	05:08	200	43	22.083	7	53.926				some clouds	Cu	2	4 kn	-	1022.5	76	very good	13.6		calm			no
		bou310107AB		12:29	04:46	200	43	22.247	7	53.778				some clouds	Cu	2	4 kn	-	1022.5	76	very good	13.6		calm			no
		bou310107AC		12:40	05:02	200	43	22.431	7	53.612				some clouds	Cu	2	4 kn	-	1022.5	76	very good	13.6		calm			no
31/01/2007		bou310107AD		12:51	04:36	200	43	22.578	7	53.407				some clouds	Cu	3	4 kn	-	1022.5	76	very good	13.6		calm			no
		bou310107AE		13:02	04:24	200	43	22.634	7	53.309				some clouds	Cu	3	4 kn	-	1022.5	76	very good	13.6		calm			no
	bou310107black2			14:07	03:00																					
				12:26	02:00		43	22.000	7	54.000	CIMEL 01			some clouds	Cu.	2			1022.5								
				13:10	02:00		43	22.000	7	54.000	CIMEL 02			some clouds	Cu.	2			1022.2								
				13:40	05:00	26	43	36.000	7	54.000	Secchi disk 01			blue	far Cu	1	4 kn										
			CTDBOUS009	16:09	26:00	400	43	23.421	7	52.740				quite covered	Cu.	5	9 kn	125	1021.9	81	very good	12.9	13.5	calm			yes
			CTDBOUS010	09:02	28:00	400	43	22.242	7	53.773				blue	far Cu	1	3 kn	48	1021.1	76	excellent	12.7	13.1	calm			yes
				09:14	02:00		43	22.000	7	54.000	CIMEL 03			blue	far Cu	1			1021.1								
	bou010207black1			09:48	03:00																					
		bou010207AA		10:03	04:36	200	43	22.288	7	54.070				blue	far Cu	1	5 kn	66	1021.2	79	excellent	13.2		calm			no
		bou010207AB		10:18	04:34	200	43	22.411	7	54.164				blue	far Cu	1	5 kn	66	1021.2	79	excellent	13.2		calm			no
		bou010207AC		10:31	04:37	200	43	22.513	7	54.266				blue	far Cu	1	5 kn	66	1021.2	79	excellent	13.2		calm			no
	bou010207black2			10:52	03:00																					
				10:09	02:00		43	22.000	7	54.000	CIMEL 04			blue	far Cu	1			1021.2								
01/02/2007				11:01	02:00		43	22.000	7	54.000	CIMEL 05			blue	far Cu	1			1021.1								
				12:25	02:00		43	22.000	7	54.000	CIMEL 06			blue, some cld	Ci	3			1020.8								
	bou010207black3			12:24	03:00																					
		bou010207AD		12:34	04:32	200	43	22.008	7	54.145				blue, some cld	Ci	3	6 kn	-	1020.6	76	excellent	13.0		calm			no
		bou010207AE		12:47	04:32	200	43	22.083	7	54.238				blue, some cld	Ci	3	6 kn	-	1020.6	76	excellent	13.0		calm			no
		bou010207AF		12:59	04:33	200	43	22.145	7	54.340				blue, some cld	Ci	3	6 kn	-	1020.6	76	excellent	13.0		calm			no
	bou010207black4			13:13	03:00																					
			CTDBOUS011	13:55	29:00	400	43	21.978	7	54.358				blue, some cld	Ci	4	5 kn	305	1020.3	73	excellent	13.9	13.2	calm			yes
			CTDBOUS012	17:38	20:00	350	43	40.649	7	18.507				night	night	9	6 kn	256	1020.8	79	night	13.4	14.9	calm			yes
			CTDBOUS013	09:25	31:00	400	43	22.182	7	54.021				blue, some cld	Ci	4	13 kn	345	1028.5	79	very good	12.7	13.1	choppy			yes
	bou020207black1			10:00	03:00																					
02/02/2007		bou020207AA		10:31	03:32	150	43	22.182	7	53.471				blue, some cld	Ci	4	13 kn	356	1028.5	79	very good	12.7		choppy			yes
		bou020207AB		10:40	03:31	150	43	22.184	7	53.334				blue, some cld	Ci	4	13 kn	356	1028.5	79	very good	12.7		choppy			yes
		bou020207AC		10:49	03:37	150	43	22.183	7	53.143				blue, some cld	Ci	4	13 kn	356	1028.5	79	very good	12.7		choppy			yes
	bou020207black2			11:01	03:00																					



GMT 2007 Feb 5 17:44:57

Boussole 60 **30/01/2007** **BOUS070130_01**

BOUS001

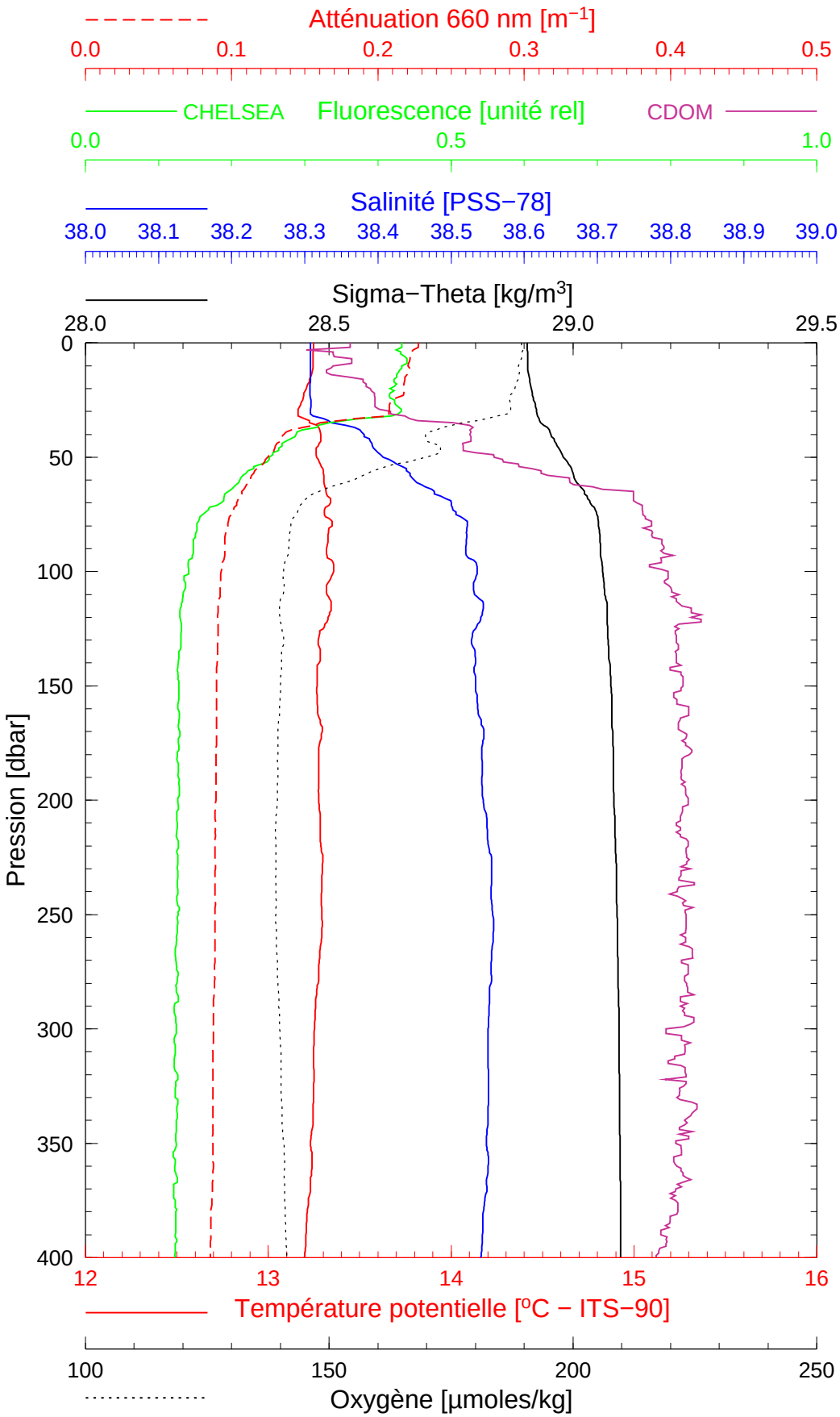


Date *30/01/2007* *Latitude* *43°21.838 N*

Heure déb *14h 39min [TU]* *Longitude* *07°53.533 E*

Boussole 60 **30/01/2007** **BOUS070130_02**

BOUS002



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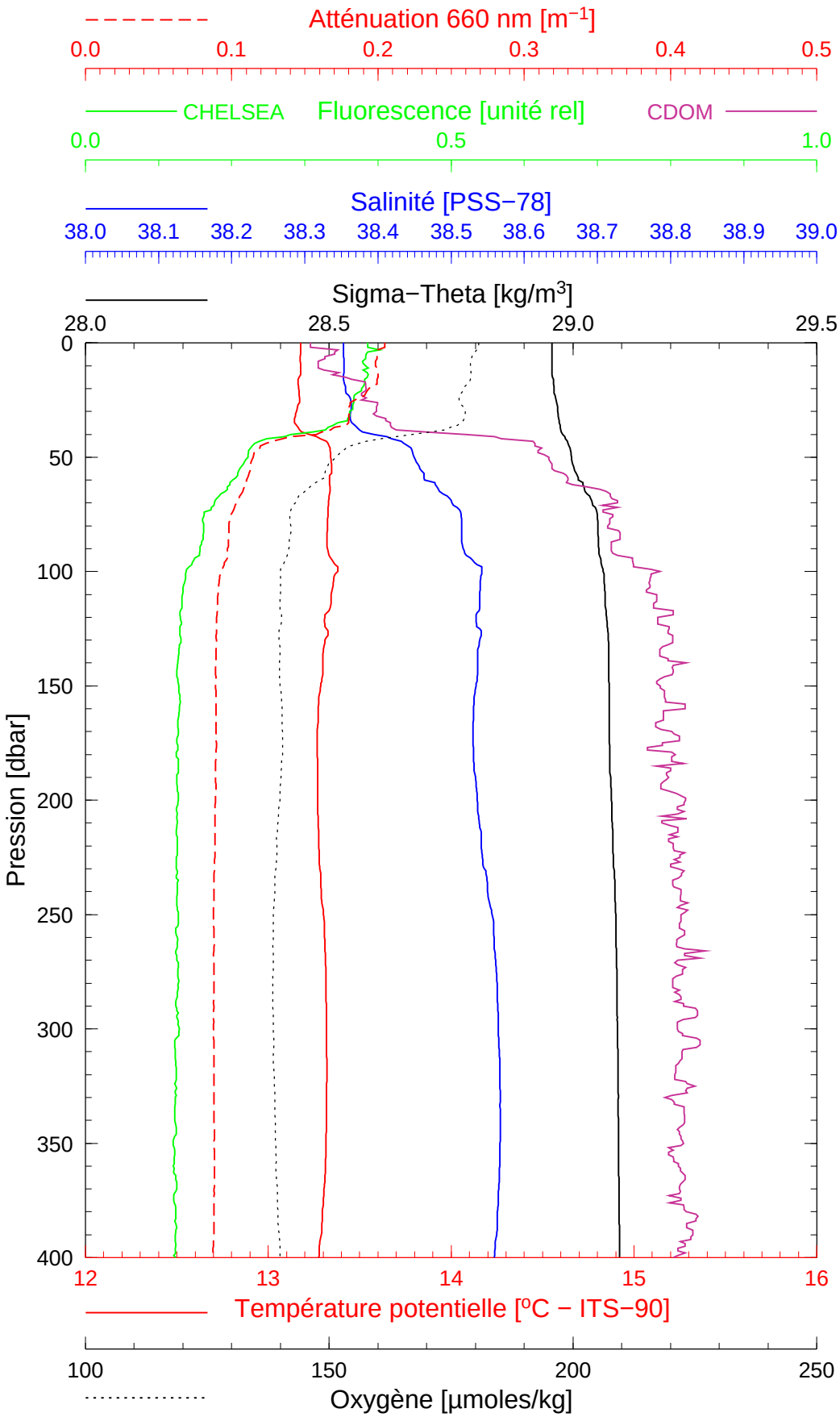
BOUS003



Date *30/01/2007* *Latitude* *43º27.953 N*

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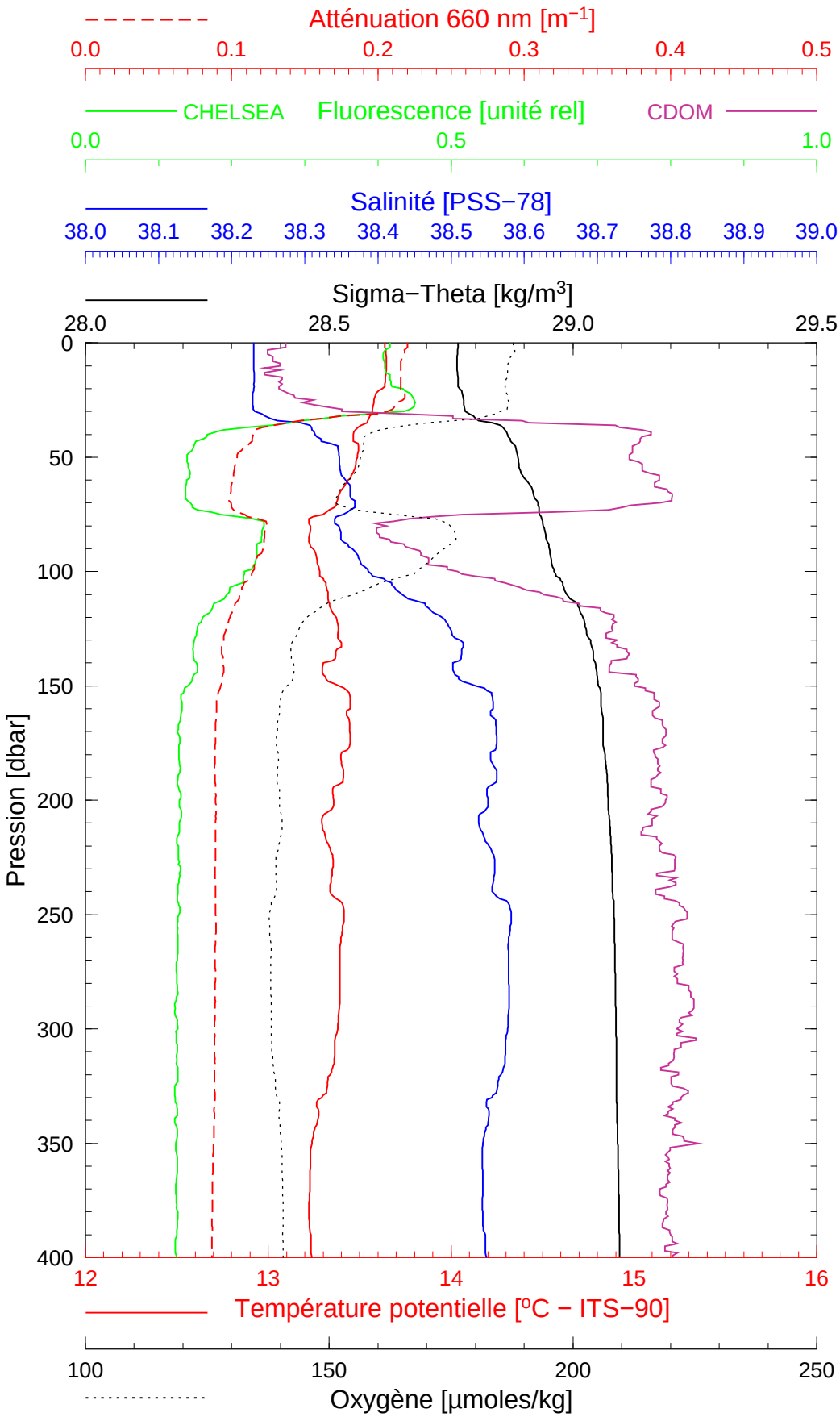
Boussole 60 **30/01/2007** **BOUS070130_04**

BOUS004



Date *30/01/2007* *Latitude* *43°30.958 N*

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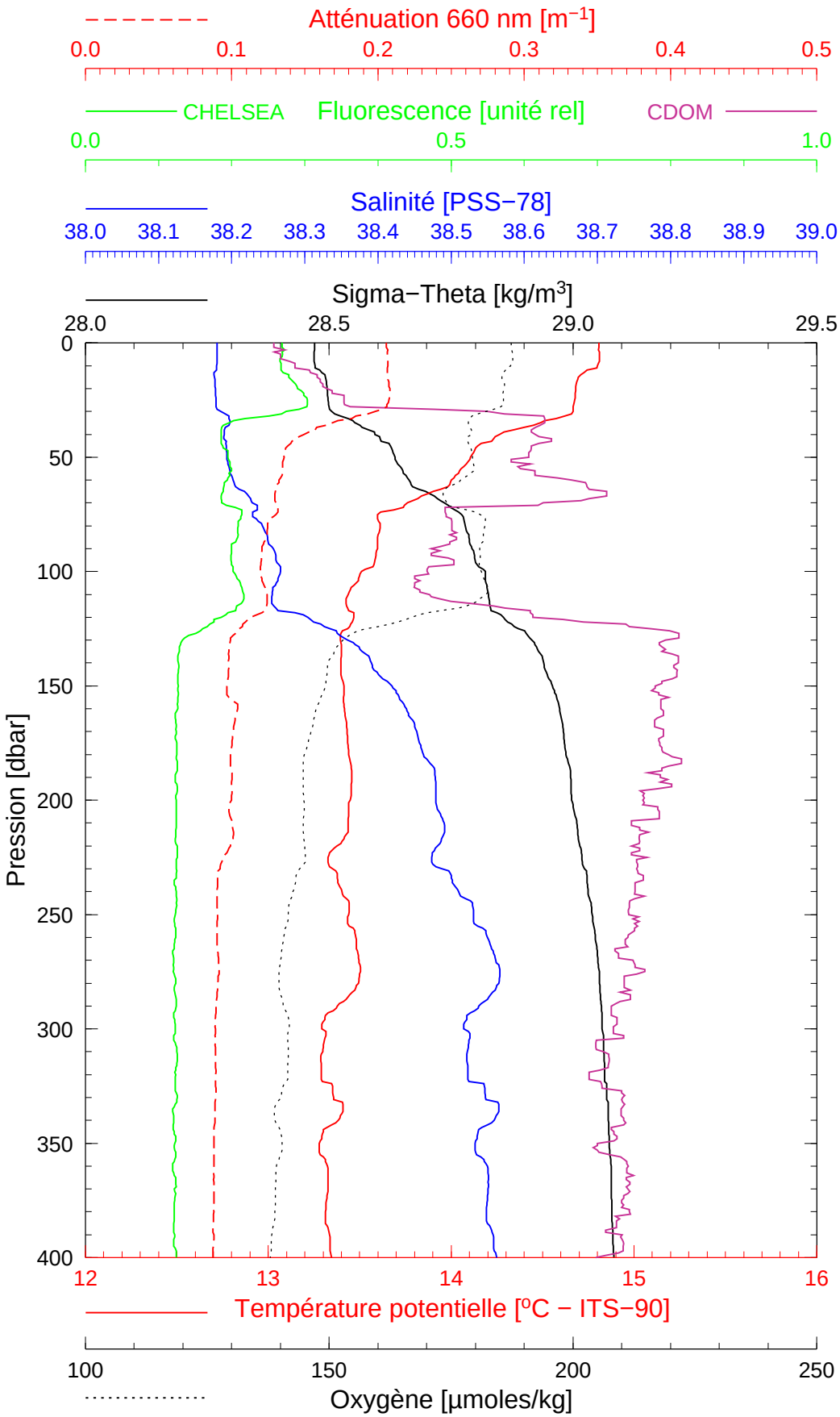
Boussole 60 **30/01/2007** **BOUS070130_05**

BOUS005

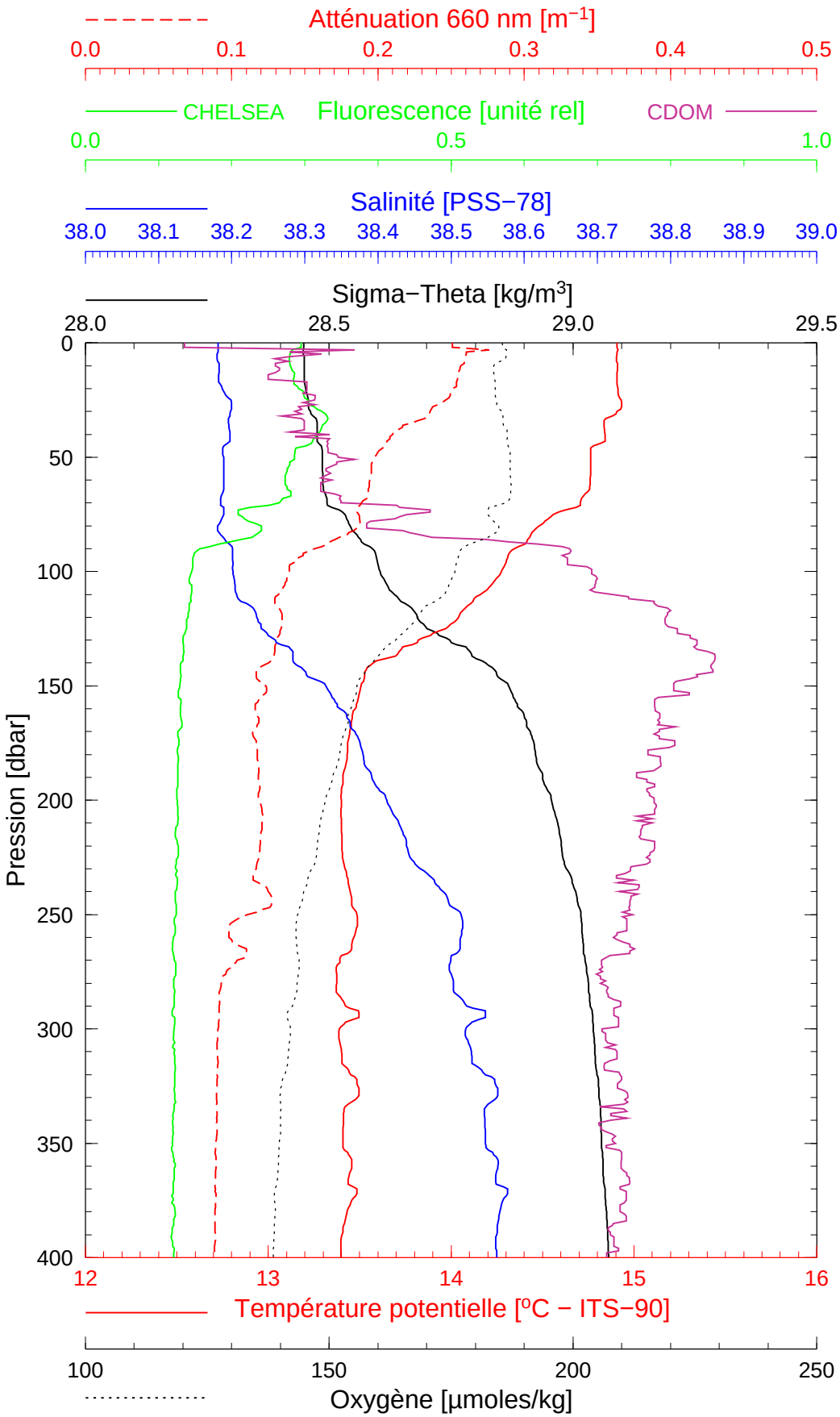


Date *30/01/2007* *Latitude* *43°33.963 N*

Heure déb *18h 59min [TU]* *Longitude* *07°30.785 E*

Boussole 60 **30/01/2007** **BOUS070130_06**

BOUS006



Date *30/01/2007* *Latitude* *43°37.486 N*

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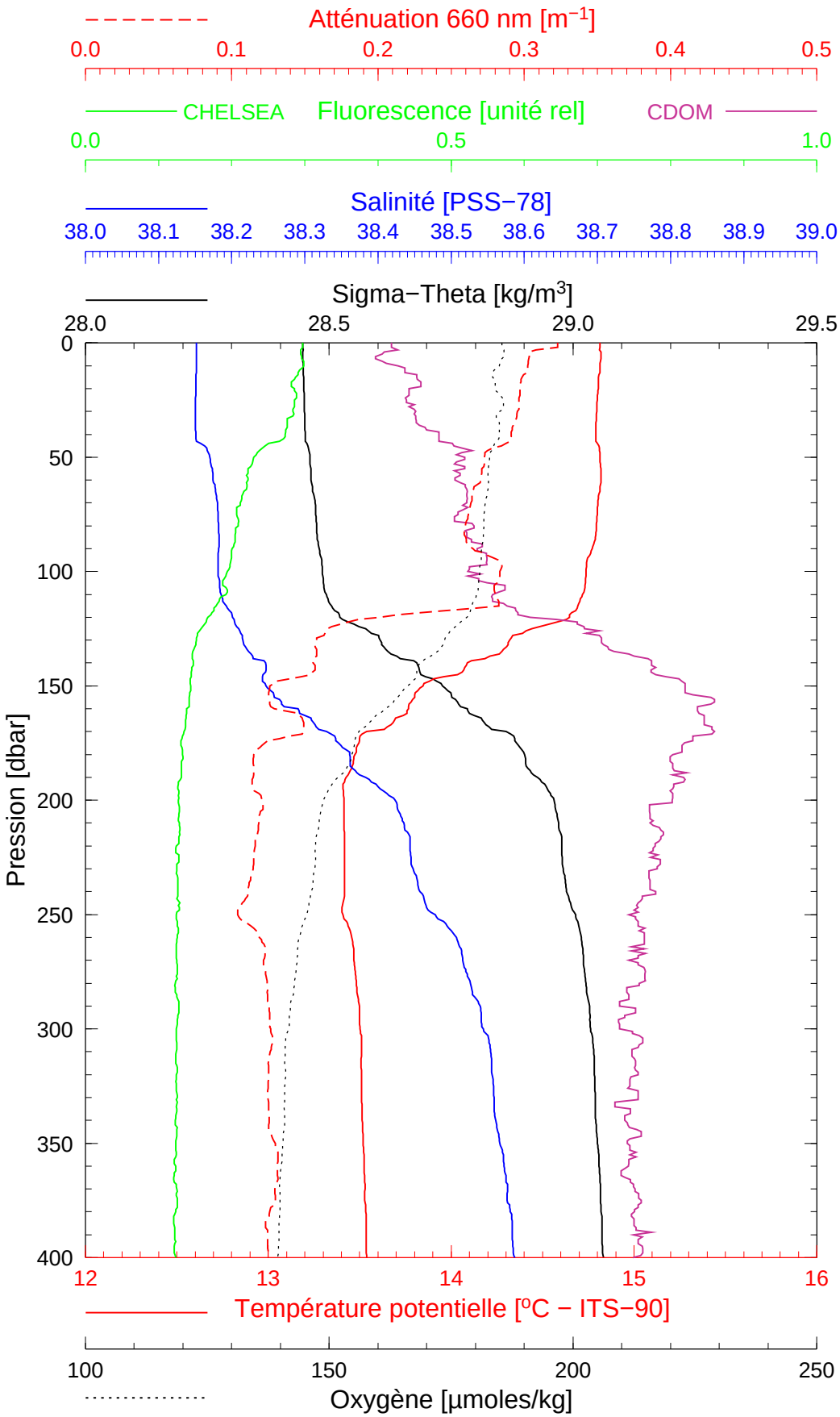
Boussole 60 **30/01/2007** **BOUS070130_07**

BOUS007

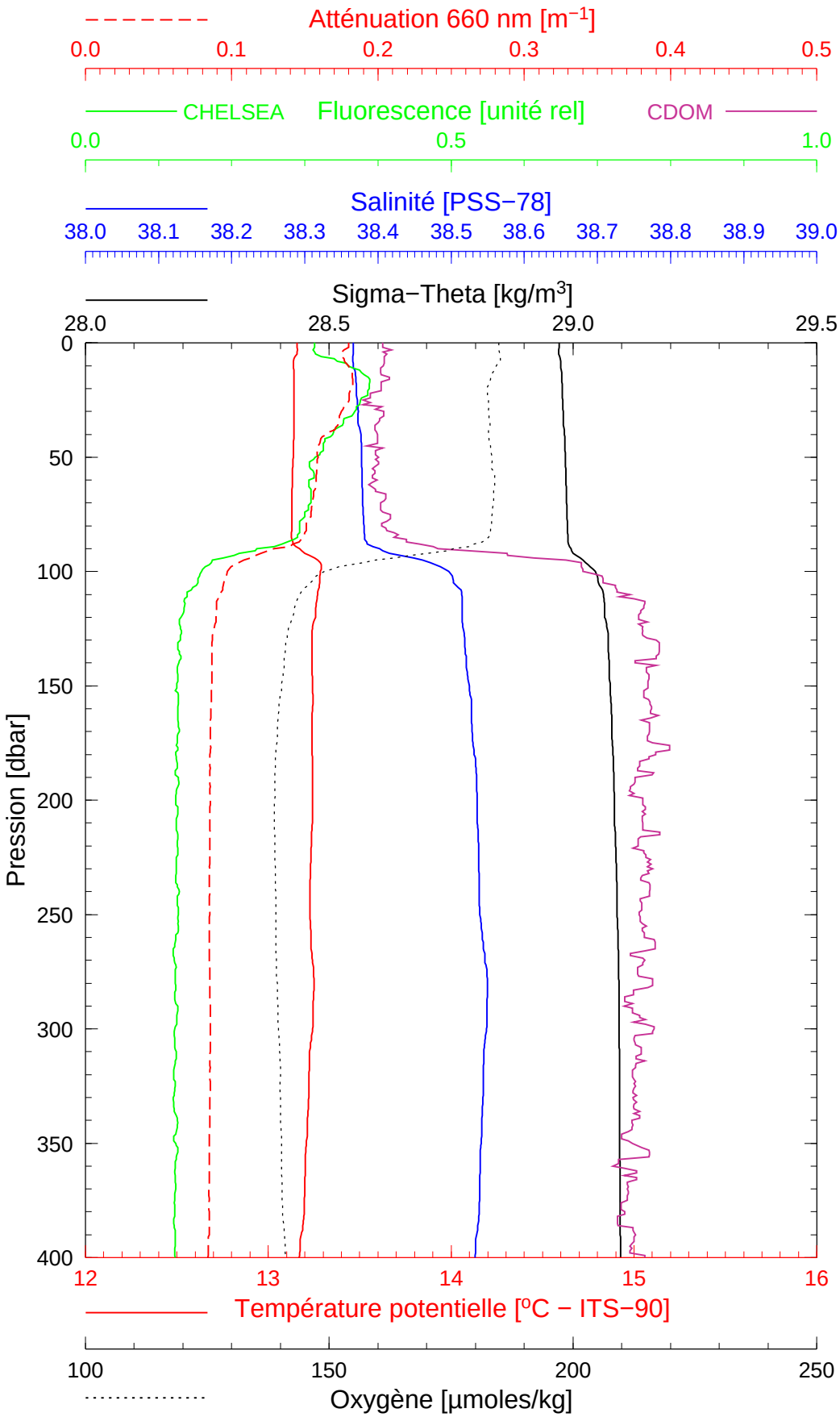


Date *30/01/2007* *Latitude* *43º38.794 N*

Heure déb *20h 52min [TU]* *Longitude* *07º20.558 E*

Boussole 60 **31/01/2007** **BOUS070131_01**

BOUS008

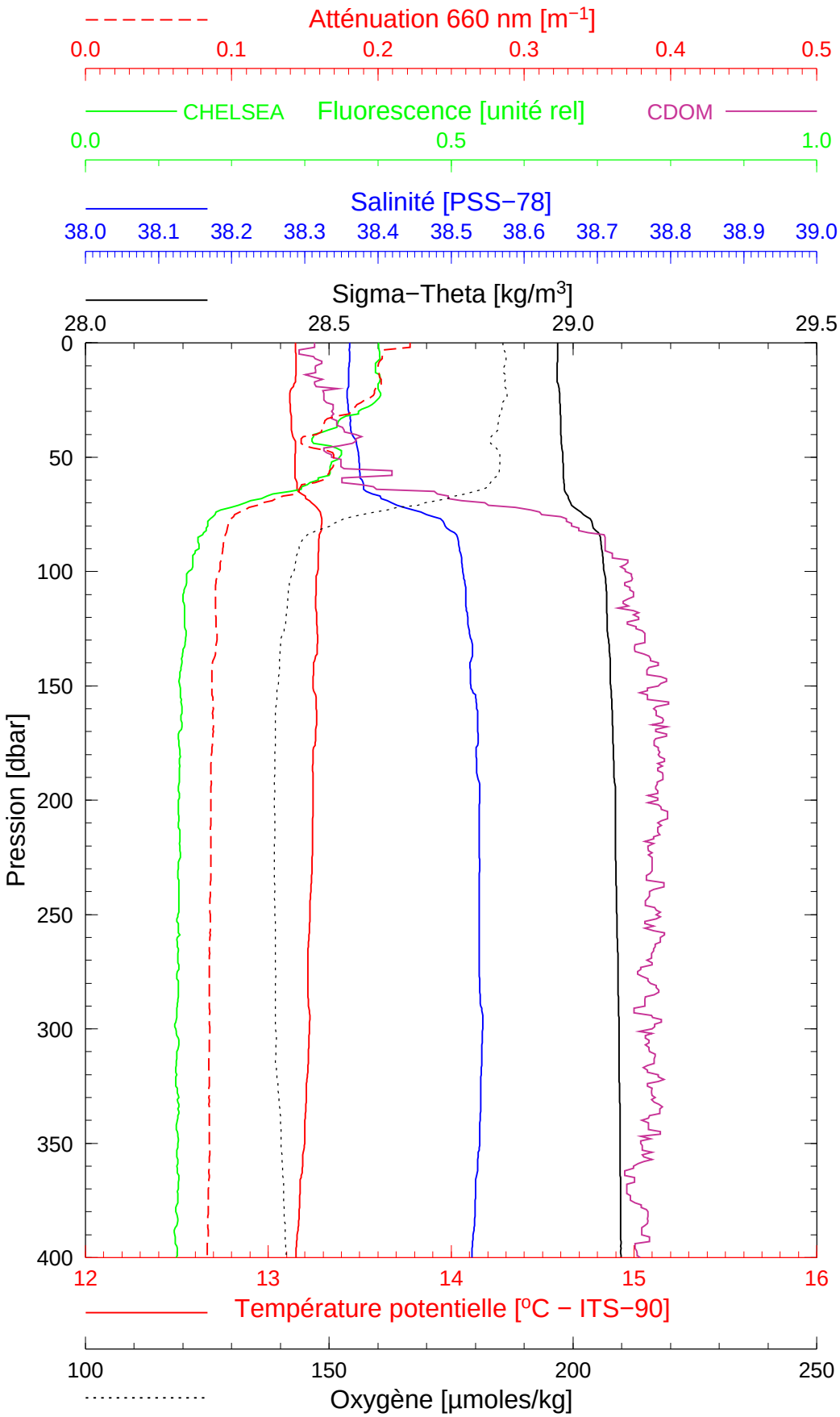


Date *31/01/2007* *Latitude* *43º22.102 N*

Heure déb *10h 39min [TU]* *Longitude* *07º53.811 E*

Boussole 60 **31/01/2007** **BOUS070131_02**

BOUS009

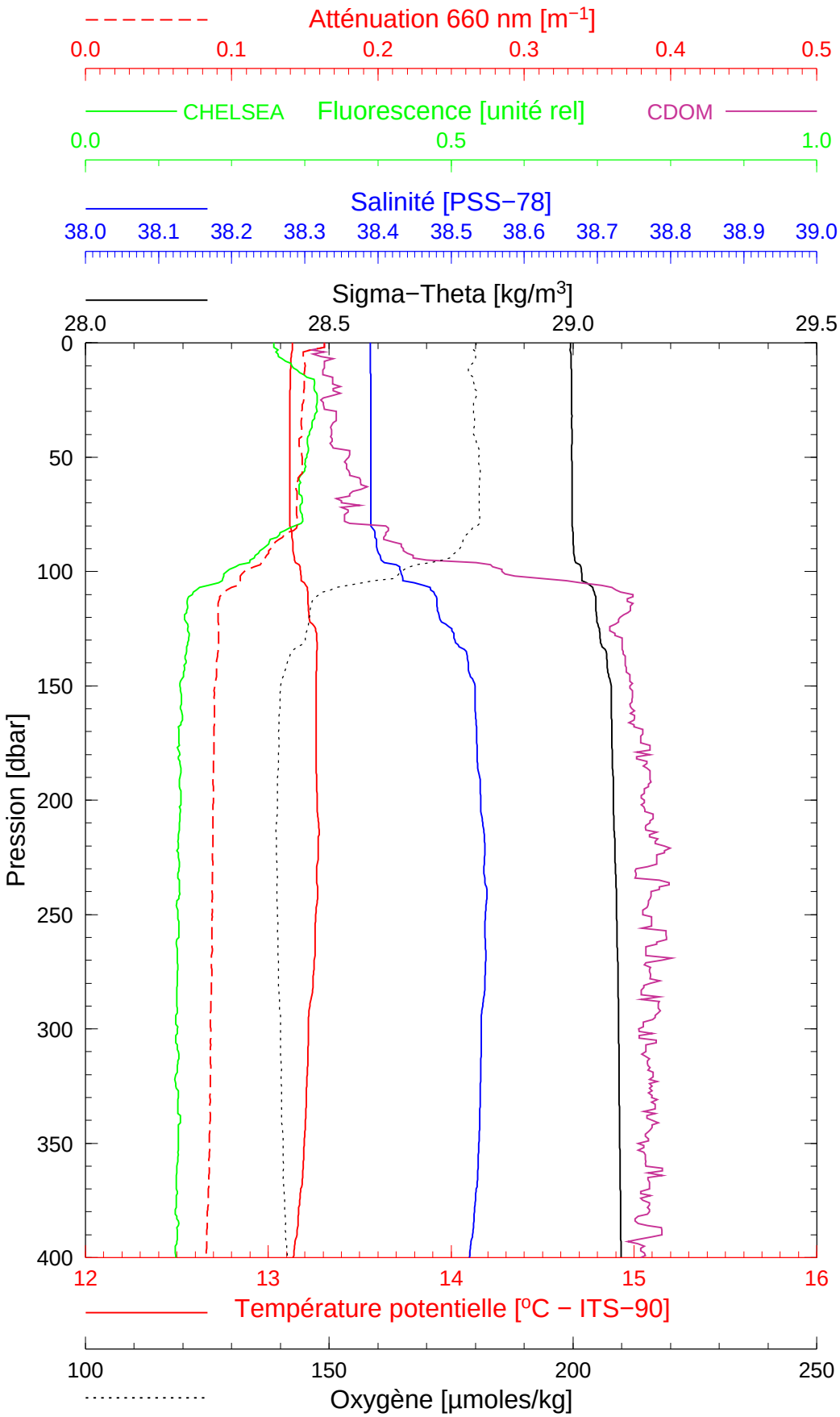


Date *31/01/2007* *Latitude* *43°23.121 N*

Heure déb *16h 09min [TU]* *Longitude* *07°52.740 E*

Boussole 60 **01/02/2007** **BOUS070201_01**

BOUS010

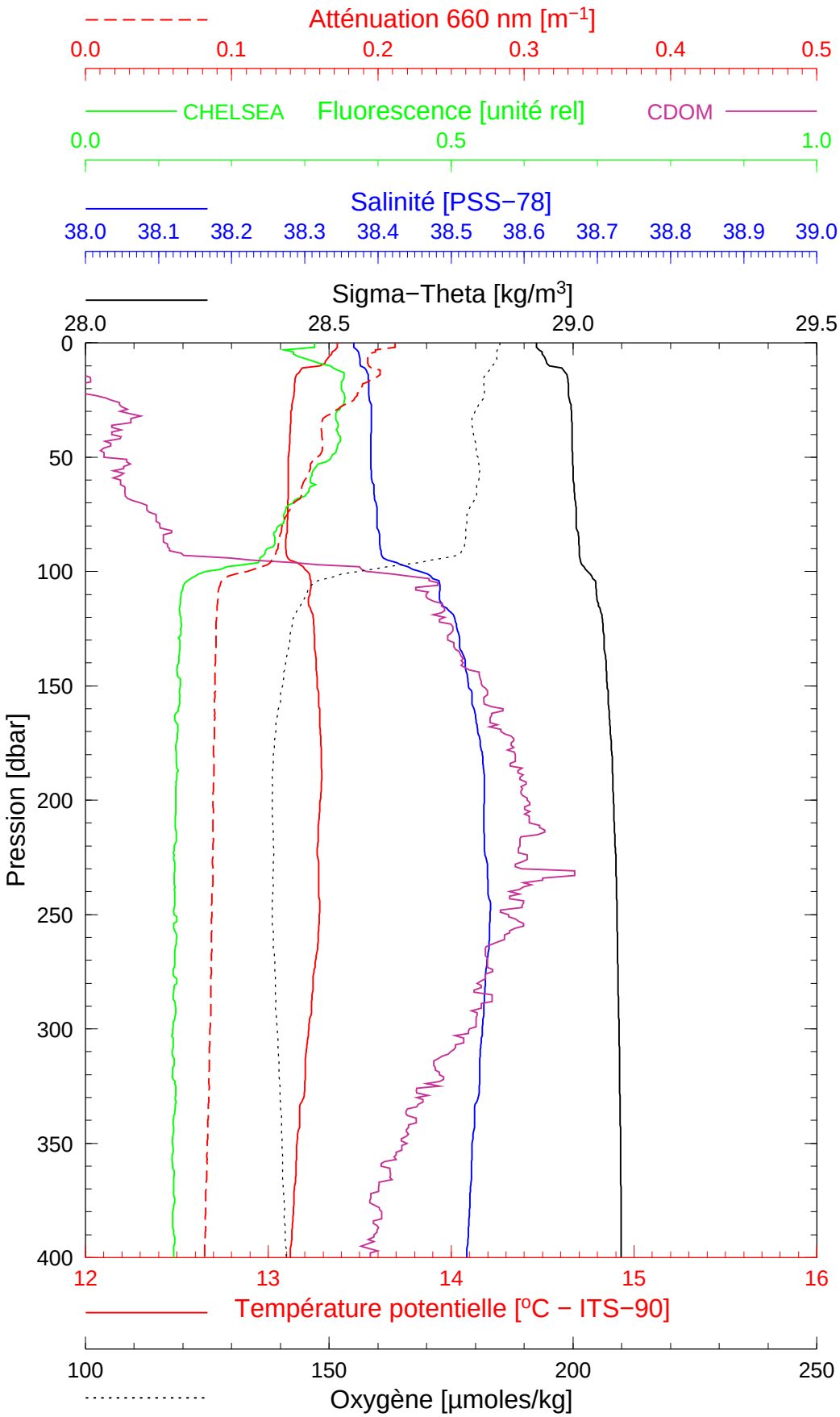


Date *01/02/2007* *Latitude* *43°22.242 N*

Heure déb *09h 02min [TU]* *Longitude* *07°53.773 E*

Boussole 60 **01/02/2007** **BOUS070201_02**

BOUS011

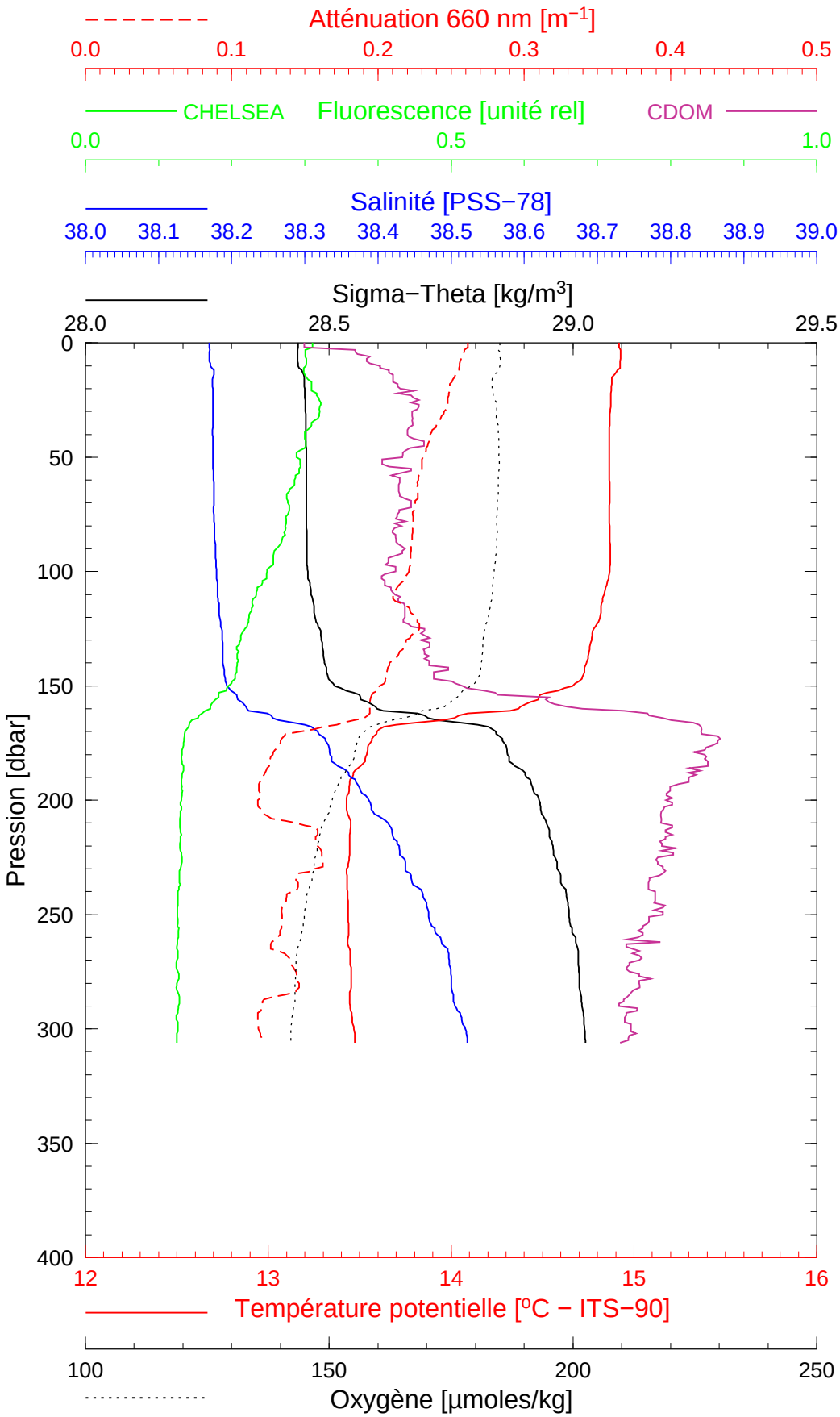


Date *01/02/2007* *Latitude* *43°21.978 N*

Heure déb *13h 55min [TU]* *Longitude* *07°54.358 E*

Boussole 60 **01/02/2007** **BOUS070201_03**

BOUS012 / point C

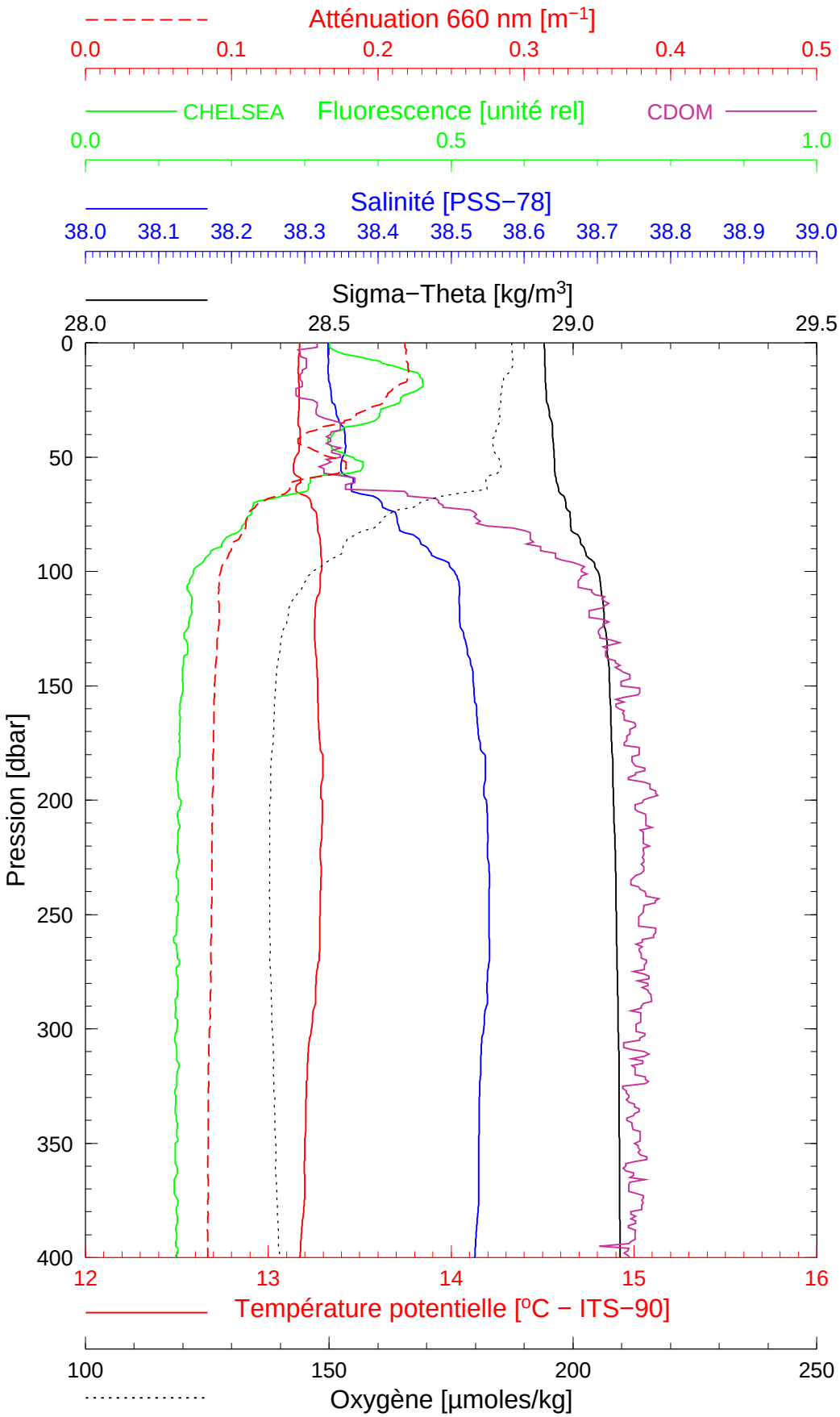


Date *01/02/2007* *Latitude* *43º40.649 N*

Heure déb *17h 38min [TU]* *Longitude* *07º18.507 E*

Boussole 60 **02/02/2007** **BOUS070202_01**

BOUS013



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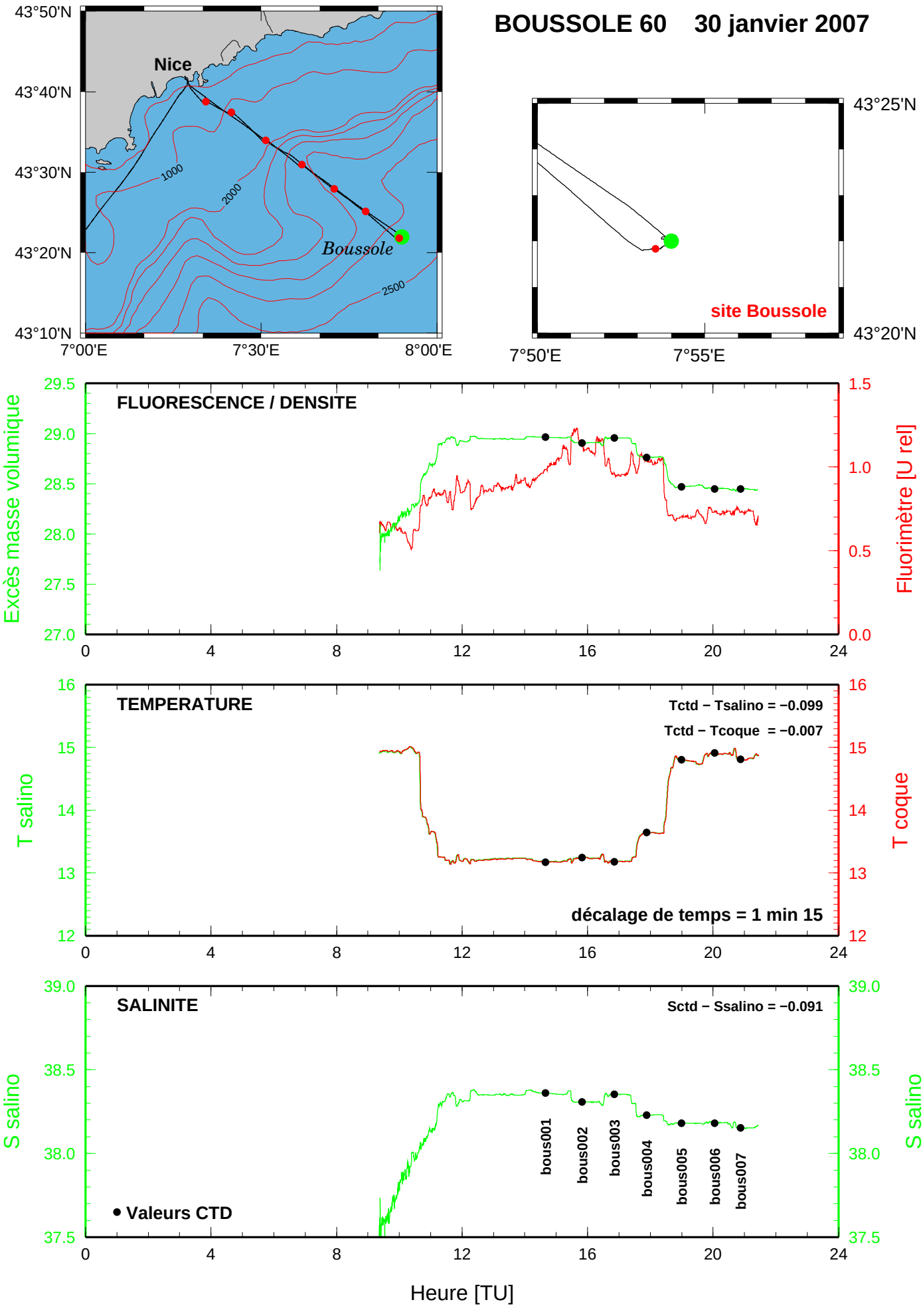
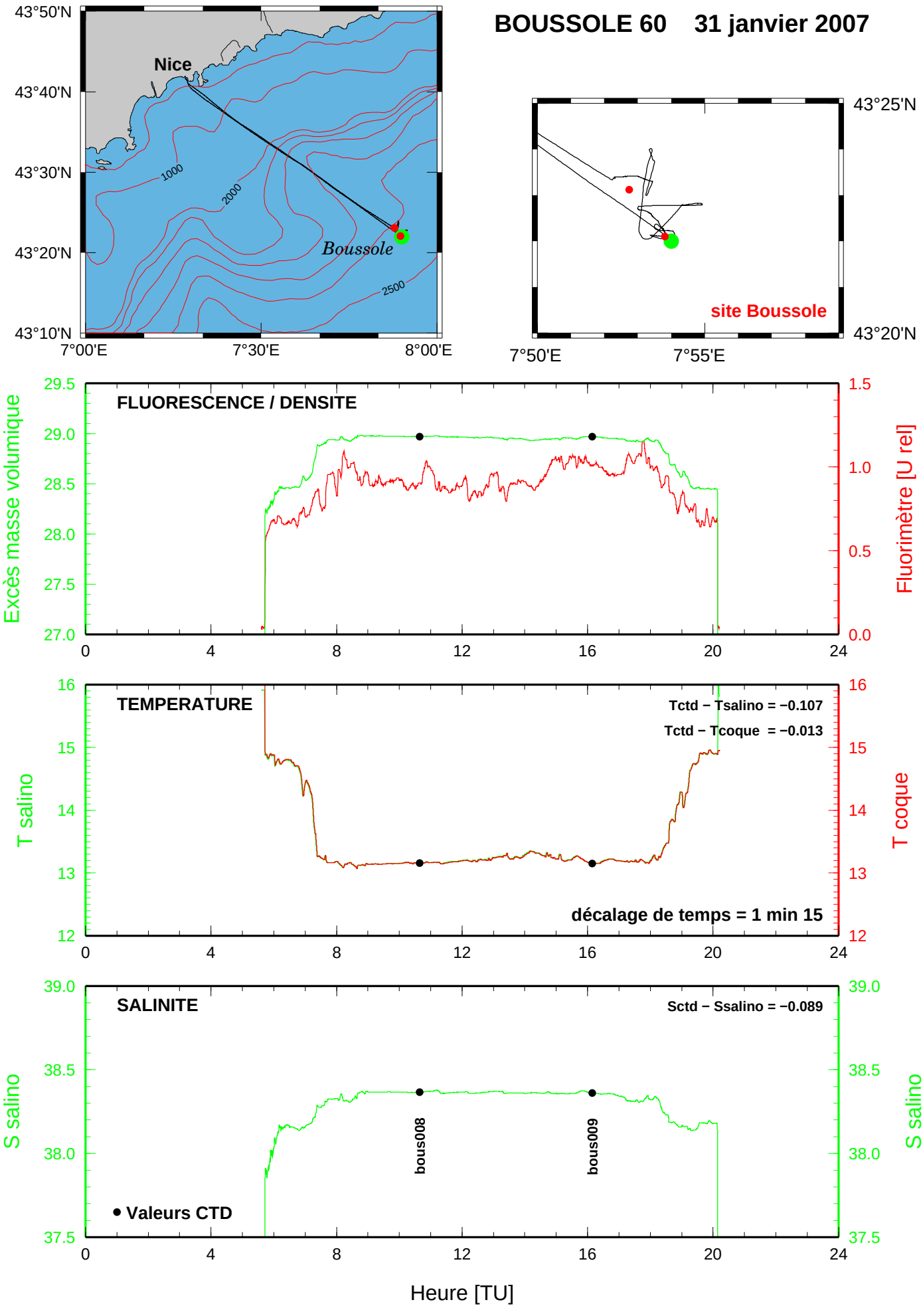
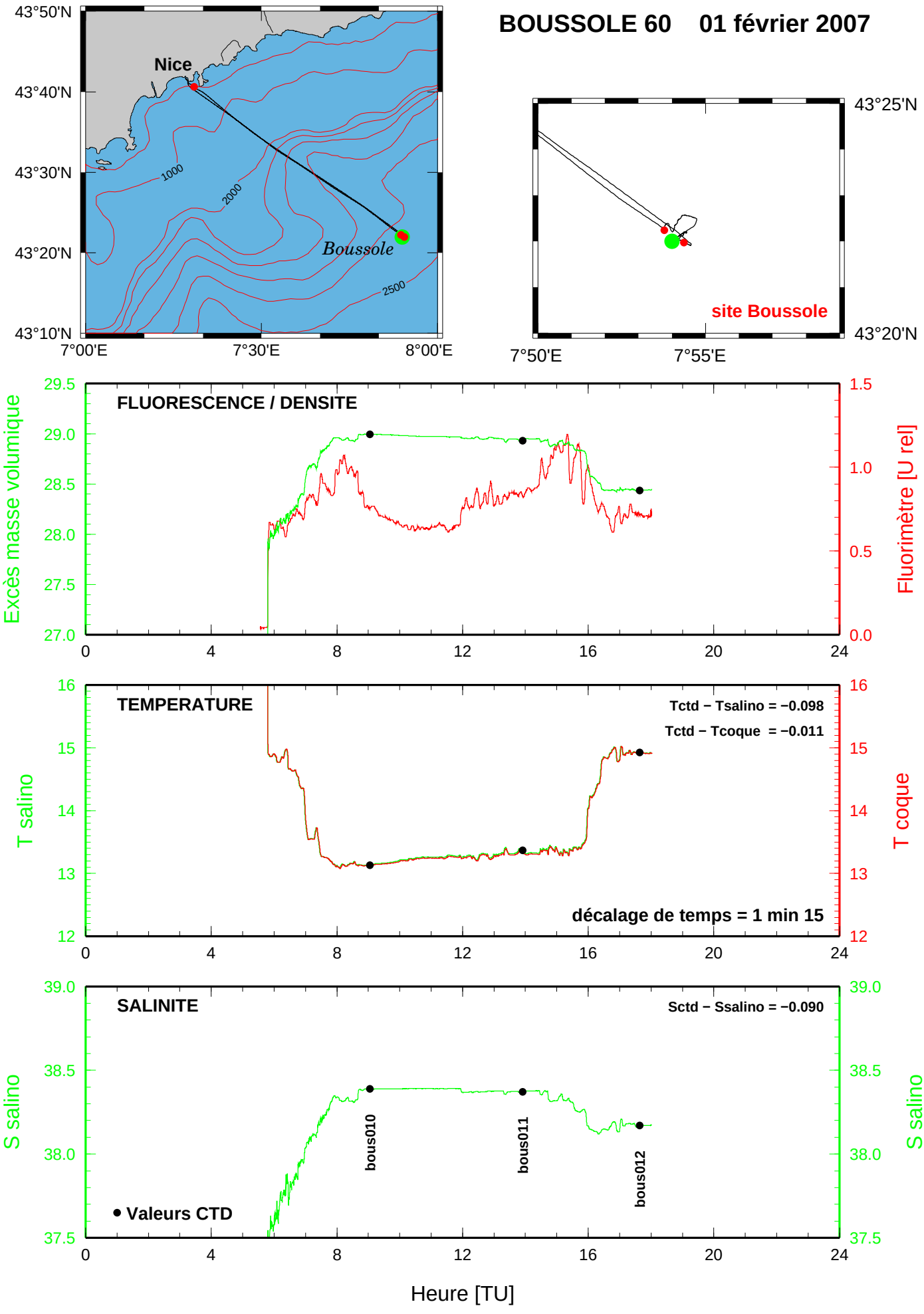
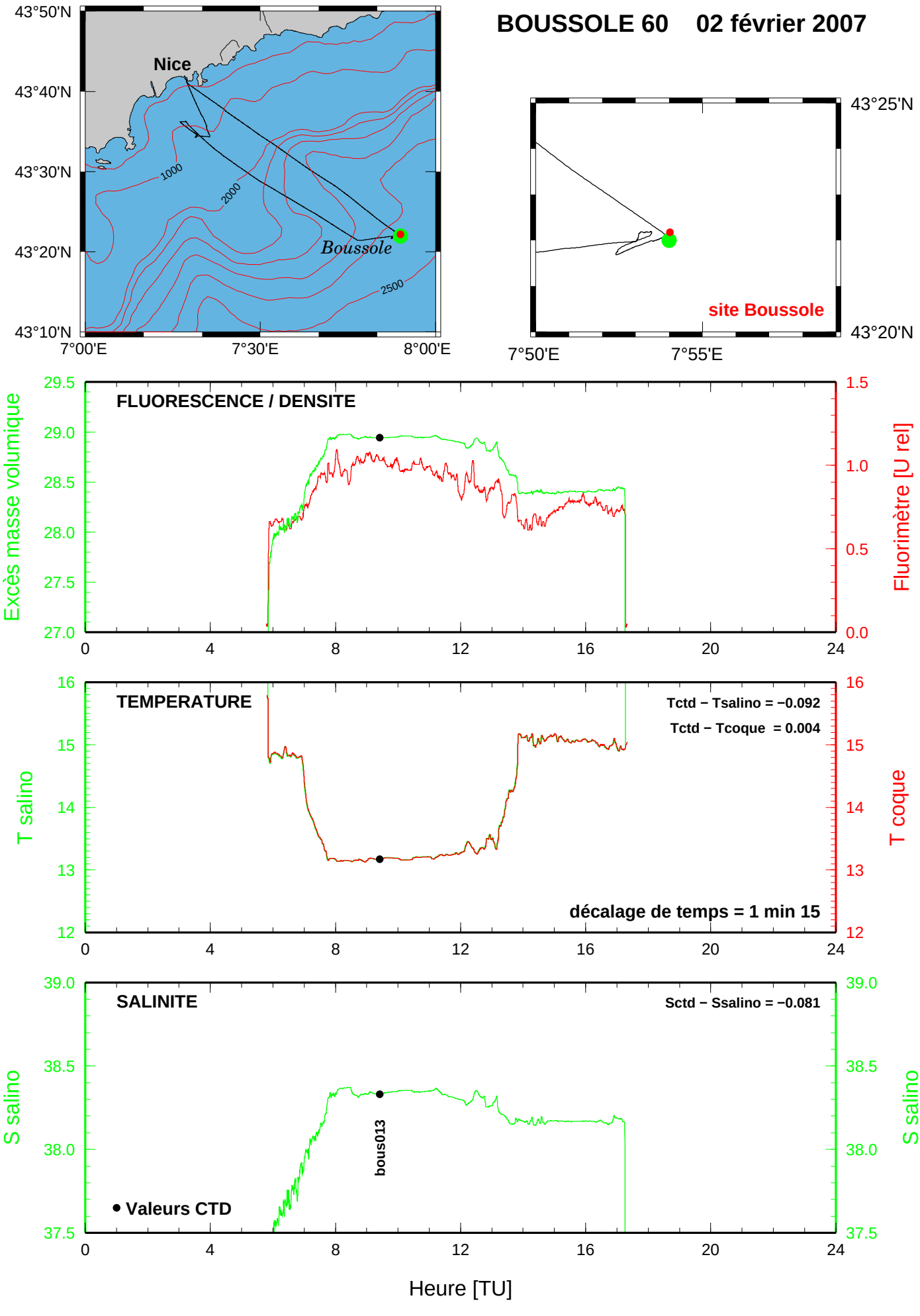
Heure déb *09h 25min [TU]* *Longitude* *07º54.021 E*


BOUSSOLE 60 30 janvier 2007
Nice
Boussole
1000
2000
2500
43°50'N
43°40'N
43°30'N
43°20'N
43°10'N
7°00'E
7°30'E
8°00'E
site Boussole
43°25'N
43°20'N
7°50'E
7°55'E
FLUORESCENCE / DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd − Tsalino = −0.099
Tctd − Tcoque = −0.007
décalage de temps = 1 min 15
T salino
T coque
SALINITE
Sctd − Ssalino = −0.091
bous001
bous002
bous003
bous004
bous005
bous006
bous007
• Valeurs CTD
S salino
Heure [TU]


BOUSSOLE 60 31 janvier 2007
Nice
Boussole
1000
2000
2500
43°50'N
43°40'N
43°30'N
43°20'N
43°10'N
7°00'E
7°30'E
8°00'E
site Boussole
43°25'N
43°20'N
7°50'E
7°55'E
FLUORESCENCE / DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd − Tsalino = −0.107
Tctd − Tcoque = −0.013
décalage de temps = 1 min 15
T salino
T coque
SALINITE
Sctd − Ssalino = −0.089
bous008
bous009
• Valeurs CTD
S salino
Heure [TU]


BOUSSOLE 60 01 février 2007
Nice
Boussole
1000
2000
2500
43°50'N
43°40'N
43°30'N
43°20'N
43°10'N
7°00'E
7°30'E
8°00'E
43°25'N
43°20'N
7°50'E
7°55'E
site Boussole
FLUORESCENCE / DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd − Tsalino = −0.098
Tctd − Tcoque = −0.011
T salino
T coque
décalage de temps = 1 min 15
SALINITE
Sctd − Ssalino = −0.090
S salino
bous010
bous011
bous012
• Valeurs CTD
Heure [TU]


BOUSSOLE 60 02 février 2007
Nice
Boussole
1000
2000
2500
43°50'N
43°40'N
43°30'N
43°20'N
43°10'N
7°00'E
7°30'E
8°00'E
43°25'N
43°20'N
7°50'E
7°55'E
site Boussole
FLUORESCENCE / DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd − Tsalino = −0.092
Tctd − Tcoque = 0.004
T salino
T coque
décalage de temps = 1 min 15
SALINITE
Sctd − Ssalino = −0.081
S salino
bous013
• Valeurs CTD
Heure [TU]