BOUSSOLE Monthly Cruise Report

Cruise 64
May 17 - 19, 2007

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

Science Personnel: Guislain Bécu, Dominique Tailliez, Grigor Obolenski, Pierre Gernez, Victorino Martinez, David Luquet, Yves Lamblard and one of his colleague (Luc).

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Fig 1. The WETLabs© ECO FLNTUS fluorometer and turbidity meter, installed on the buoy since February 2007.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

May 23, 2007

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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

The glider has been deployed from Villefranche-sur-Mer just before the BOUSSOLE cruise, but has been recovered from the Tethys-II during the first day of the cruise, as a water intrusion has been detected.

Cruise Summary

This cruise was very realized with rather good weather conditions (especially a blue sky for the second and third day). The connection with the buoy to retrieve its data was not successful on the first attempt, and was very slow on the second attempt (both the first day). The glider had to be retrieved in the middle of the transect between the BOUSSOLE sote and the port of Nice, as a problem of water intrusion was detected.

Thursday 17 May 2007

The departure from Nice harbour was at quite usual time, i.e. 07h30 local time. It was a standard cruise first day, ie with the CTD casts along the transect between the BOUSSOLE site and the Port of Nice, except that this transect was interrupted after station 4, in order to retrieve the glider at BOUSSOLE site, as a light flood was detected. So, measurements performed this day were 7 CTD casts (among which 1 at the BOUSSOLE site and 6 along the transect) and 1 Secchi disk. The electric contacts of the buoy ARGOS beacon were also cleaned.

Friday 18 May 2007

Operations at sea for this day were 10 SPMR profiles, 4 CIMEL atmospheric measurements, 2 Secchi disk measurements, as well as 2 CTD casts.

Satirday 19 May 2007

Divers went onboard for this BOUSSOLE cruise day, and took some pictures before and after the sensor cleaning. Others operations performed at sea this day were 9 SPMR profiles, 3 x 100 meters plankton net profiles, 1 Secchi disk measurement, 1 CTD casts and 8 CIMEL atmospheric measurements.

Cruise Report

17 May 2007 (UTC)

0530 Departure from the port of Nice.
0840 Arrival at the BOUSSOLE site.
0845 ARGOS beacon contacts and MVD surface cleaning.
0915 Buoy data retrieval: unsuccessful.
0930 Secchi disk 01.
1015 Buoy data retrieval: successful, whereas very slow, especially at the beginning of the connection.
1051 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.
1157 CTD 02 at station 1 (43°25'N 07°48'E).
1253 CTD 03 at station 2 (43°28'N 07°42'E).
1349 CTD 04 at station 3 (43°31'N 07°37'E).
1446 CTD 05 at station 4 (43°34'N 07°31'E).
1530 Back to the BOUSSOLE site to recover the glider.
1730 Glider recovering.
2002 CTD 06 at station 5 (43°37'N 07°25'E).
2047 CTD 07 at station 6 (43°39'N 07°21'E).
2130 Arrival at the port of Nice, the glider is brought back to the LOV, Victorino Martinez is boarding and the Tethys-2 leaves for the BOUSSOLE site for the night.

18 May 2007

0630 SPMR profiles 01, 02, 03, 04 and 05.
0810 Secchi disk 02.
0815 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.
0849 CIMEL 01, close to the buoy.
1027 SPMR profiles 06, 07, 08, 09 and 10.
1038 CIMEL 02, close to the buoy.
1127 CIMEL 02, close to the buoy.
1141 CTD 09, 400 m, close to the buoy, with water sampling at 5 and 10 meters for triplicate HPLC and for TSM.
1150 Secchi disk 03.
1258 CIMEL 04, en route (43°27.935N, 7°43.400E).
1530 Arrival to the Port of Nice.

19 May 2007

0410 Departure from the port of Nice.
0740 Divers at Sea.
0829 CIMEL 05, close to the buoy.
0845 Plankton net profiles (3x100 m, close to the buoy).
0945 Secchi disk 04.
0954 CIMEL 06, close to the buoy.
1006 SPMR profiles 11, 12, 13, 14 and 15.
1026 CIMEL 07, close to the buoy.
1113 CIMEL 08, close to the buoy.
1118 CTD 10, 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.
1141 CIMEL 09, close to the buoy.
1205 Rosette at Sea to sample water at 5 meters for TSM.
1216 SPMR profiles 16, 17, 18 and 19.
1245 CIMEL 10, close to the buoy.
1315 Buoy data retrieval: unsuccessful…
1320 Departure from the BOUSSOLE site.
1329 CIMEL 11, en route (43°22.889N, 7°50.780E).

1426 CIMEL 12, en route (43°28.000N, 7°41.525E).
1520 CIMEL 13, en route (43°33.438N, 7°31.545E).
1700 Arrival to the port of Nice.

Calculated Swath paths for the MERIS Sensor (ESOV Software)

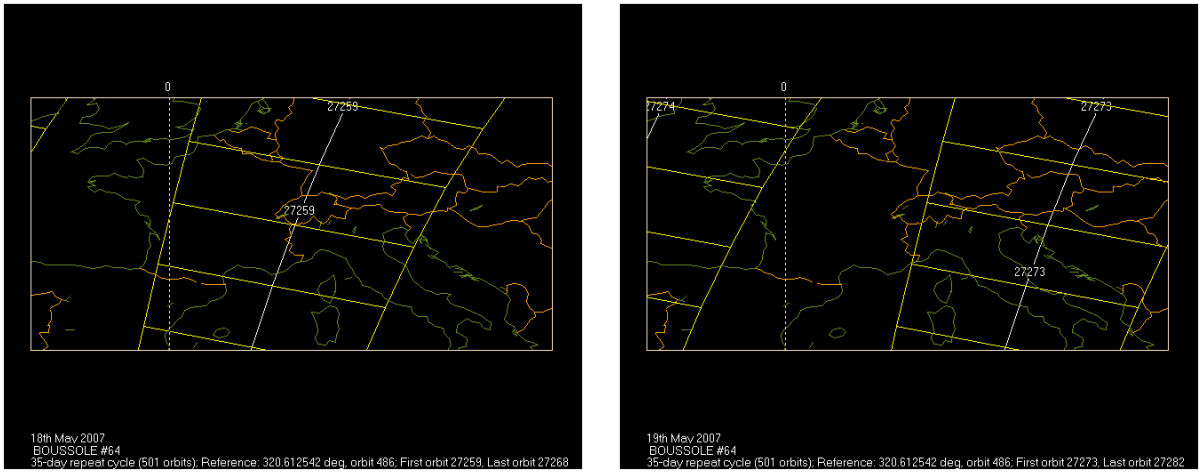
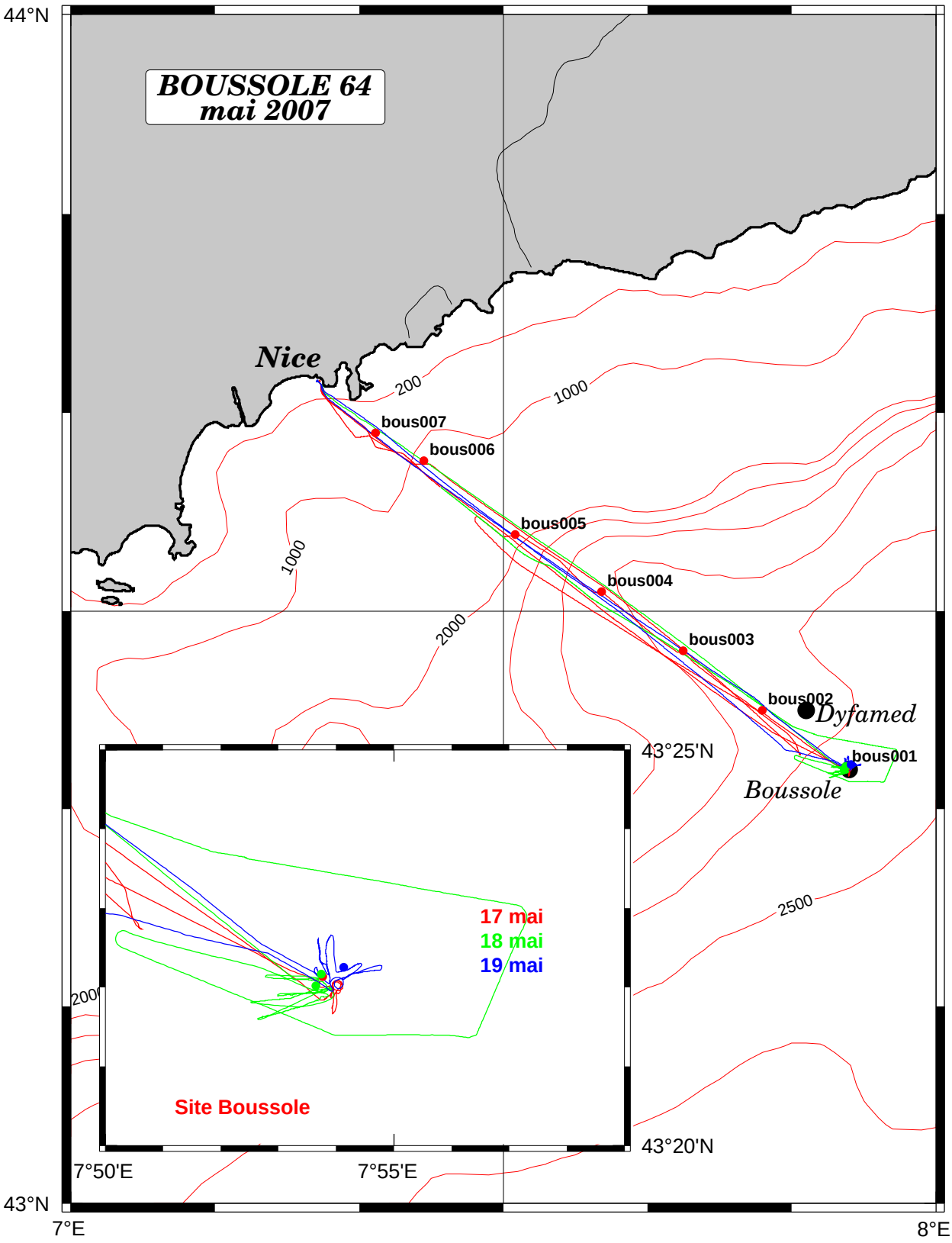


Figure 2. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for May 18 and 19, 2007.

Appendix

Cruise Summary Table for Boussole 64

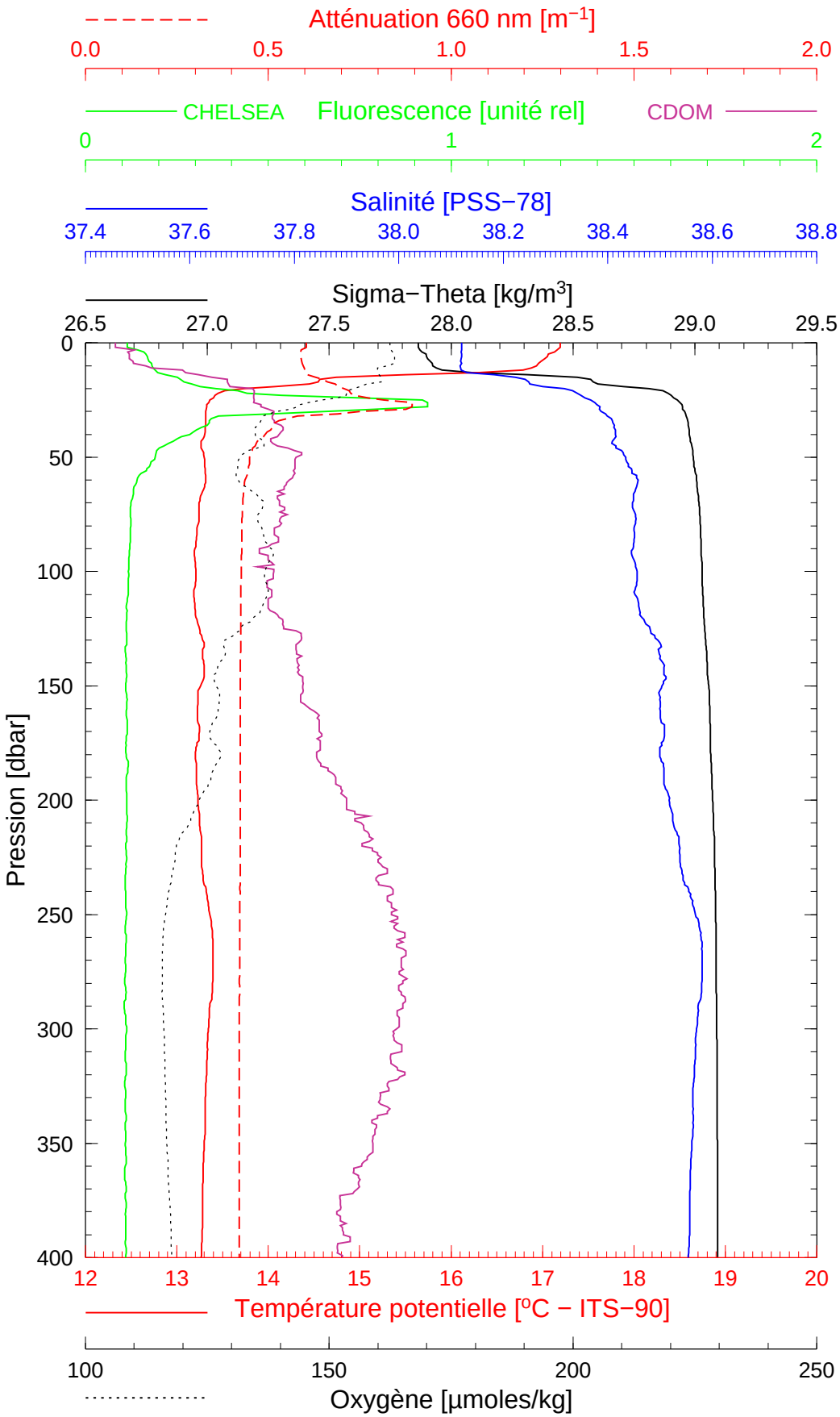
Date	Black names	Profile names	CTD notées /	Start Time	Duration	Depth max	Latitude (N)		longitude		Other sensors	Their cast	Start/Finish				Weather							Sea		
	(file ext: ".raw")	(file extension: ".raw")	satellite overpass	GMT (hour.min)	(min.sec)	(meter)	(Degree)	(Minute)	(Degree)	(Minute)				Sky	Clouds	Quantity (#/8)	Wind speed	Wind dir.	Atm. Pressure	humidity	Visibility	T air	T water	Sea	Swell height	Swell dir.	Whitecaps
				11:30	05:00	14	43	22.000	7	54.000	Secchi disk 01			covered	yes	6											
			CTDBOUS001	10:51	28:00	400	43	22.138	7	53.764				covered	yes	6	2 kn	101	1010.2	77	good	18.5	17.2	choppy	0,9 m		some
			CTDBOUS002	11:57	24:00	400	43	25.003	7	47.948				covered	yes	6	7 kn	143	1009.4	76	good	20.3	17.7	choppy	1,0 m		some
17/05/2007			CTDBOUS003	12:53	22:00	400	43	27.994	7	42.465				covered	yes	6	6 kn	149	1009.0	80	good	17.9	19.1	choppy	0,9 m		some
			CTDBOUS004	13:49	22:00	400	43	30.988	7	36.799				covered	yes	6	11 kn	128	1007.5	78	good	18.0	19.6	choppy	0,9 m		some
			CTDBOUS005	14:46	27:00	400	43	33.867	7	30.818				covered	yes	6	9 kn	113	1007.3	77	good	18.2	19.0	choppy	0,8 m		some
			CTDBOUS006	20.02	24:00	400	43	37.588	7	24.482				night	night	9	18 kn	91	1007.5	83	night	18.2	19.4	choppy	0,8 m		yes
			CTDBOUS007	20:47	22:00	400	43	38.988	7	21.125				night	night	9	11 kn	83	1007.6	80	night	18.6	19.7	choppy	0,8 m		no
	bou180507black1			06:27	03:00																					
		bou180507AA		06:52	04:33	200	43	21.894	7	53.711				blue	partly covered	3	14 kn	76	1011.7	89	excellent	17.5		choppy	1 m		yes
		bou180507AB		07:04	04:19	200	43	21.862	7	53.587				blue	partly covered	3	14 kn	76	1011.7	89	excellent	17.5		choppy	1 m		yes
		bou180507AC		07:15	06:03	200	43	21.806	7	53.398				blue	partly covered	3	14 kn	76	1011.7	89	excellent	17.5		choppy	1 m		yes
		bou180507AD		07:29	-	200	43	21.759	7	53.163				blue	partly covered	3	14 kn	76	1011.7	89	excellent	17.5		choppy	1 m		yes
		bou180507AE		07:40	05:22	200	43	21.709	7	52.918				blue	partly covered	3	14 kn	76	1011.7	89	excellent	17.5		choppy	1 m		yes
	bou180507black2			07:56	03:00																					
				08:10	05:00	14	43	22.000	7	54.000	Secchi disk 02			blue	partly covered	3										
			CTDBOUS008	08:15	28:00	400	43	22.019	7	53.650				some light clds	Cu/Ci	2	13 kn	78	1012.3	91	excellent	17.5	17.0	chopppy	1,0 m		yes
				08:47	02:00		43	22.000	7	54.000	CIMEL 01			blue	no	0			1012.5								
18/05/2007	bou180507black3			10:27	03:00																					
		bou180507AF		10:32	04:18	200	43	22.085	7	53.891				blue	no	0	11 kn	94	1013.5	85	very good	18.1		little bit choppy	0,8 m		some
		bou180507AG		10:43	04:32	200	43	22.143	7	53.728				blue	no	0	11 kn	94	1013.5	85	very good	18.1		little bit choppy	0,8 m		some
		bou180507AH		10:53	04:23	200	43	22.159	7	53.544				blue	no	0	11 kn	94	1013.5	85	very good	18.1		little bit choppy	0,8 m		some
		bou180507AI		11:05	-	200	43	22.168	7	53.306				blue	no	0	11 kn	94	1013.5	85	very good	18.1		little bit choppy	0,8 m		some
		bou180507AJ		11:16	04:25	200	43	22.172	7	53.080				blue	no	0	11 kn	94	1013.5	85	very good	18.1		little bit choppy	0,8 m		some
	bou180507black4			11:30	03:00																					
				10:38	03:00		43	22.000	7	54.000	CIMEL 02			blue	no	0			1012.5								
				11:27	01:00		43	22.000	7	54.000	CIMEL 03			blue	no	0			1013.6								
			CTDBOUS009	11:41	23:00	400	43	22.166	7	53.743				some light clds	Cu/Ci	1	9 kn	97	1013.7	78	excellent	19.3	17.4	little bit choppy	0,7 m		some
				13:50	05:00	16	43	22.000	7	54.000	Secchi disk 03			blue	no	0											
				12:58	02:00		43	27.935	7	43.400	CIMEL 04			blue	no	0			1013.7								
				08:29	02:00		43	22.000	7	54.000	CIMEL 05			blue	no	0			1015.3								
				10:45	3 x 10:00	3 x 100	43	22.000	7	54.000	plankton net (x3)																
				11:45	05:00	16	43	22.000	7	54.000	Secchi disk 04			blue	no	0											
				09:54	02:00		43	22.000	7	54.000	CIMEL 06			blue	no	0			1015.3								
	bou190507black1			09:49	03:00																					
		bou190507AA		10:06	04:49	200	43	22.288	7	53.915				blue	no	0	3 kn	78	1015.2	75	excellent	19.6		calm	0,3 m		no
		bou190507AB		10:20	05:32	250	43	22.445	7	53.898				blue	no	0	3 kn	78	1015.2	75	excellent	19.6		calm	0,3 m		no
		bou190507AC		10:33	04:40	205	43	22.535	7	53.887				blue	no	0	3 kn	78	1015.2	75	excellent	19.6		calm	0,3 m		no
		bou190507AD		10:45	04:12	200	43	22.602	7	53.898				blue	no	0	3 kn	78	1015.2	75	excellent	19.6		calm	0,3 m		no
		bou190507AE		10:55	-	200	43	22.649	7	53.919				blue	no	0	3 kn	78	1015.2	75	excellent	19.6		calm	0,3 m		no
	bou190507black2			11:07	03:00																					
				10:26	03:00		43	22.000	7	54.000	CIMEL 07			blue	no	0			1015.2								
				11:13	03:00		43	22.000	7	54.000	CIMEL 08			blue	no	0			1015.1								
19/05/2007			CTDBOUS010	11:18	27:00	400	43	22.255	7	54.130				blue	no	0	3 kn	123	1015.1	76	excellent	19.5	17.4	calm	0,3 m		no
				11:41	03:00		43	22.000	7	54.000	CIMEL 09			blue	no	0			1015.0								
				12:05		5					water samp.																
	bou190507black3			12:00	03:00																					
		bou190507AF		12:16	05:35	200	43	22.241	7	54.395				blue	Ci far at horz	0	4 kn	173	1015.0	80	excellent	19.4		calm	0,4 m		no
		bou190507AG		12:29	04:17	200	43	22.254	7	54.530				blue	Ci far at horz	0	4 kn	173	1015.0	80	excellent	19.4		calm	0,4 m		no
		bou190507AH		12:39	04:13	200	43	22.260	7	54.611				blue	Ci far at horz	0	4 kn	173	1015.0	80	excellent	19.4		calm	0,4 m		no
		bou190507AI		12:49	-	200	43	22.276	7	54.764				blue	Ci far at horz	0	4 kn	173	1015.0	80	excellent	19.4		calm	0,4 m		no
	bou190507black4			13:02	03:00																					
				12:45	03:00		43	22.000	7	54.000	CIMEL 10			blue	no	0			1014.9								
				13:29	04:00		43	22.881	7	50.730	CIMEL 11			blue	no	0			1014.5								
				14:26	02:00		43	28.000	7	41.525	CIMEL 12			blue	no	0			1014.4								
				15:20	03:00		43	33.438	7	31.545	CIMEL 13			some fine clds	stratus	0 to 1			1014.2								



GMT 2007 May 31 18:44:50

Boussole 64 **17/05/2007** **BOUS070517_01**

BOUS001

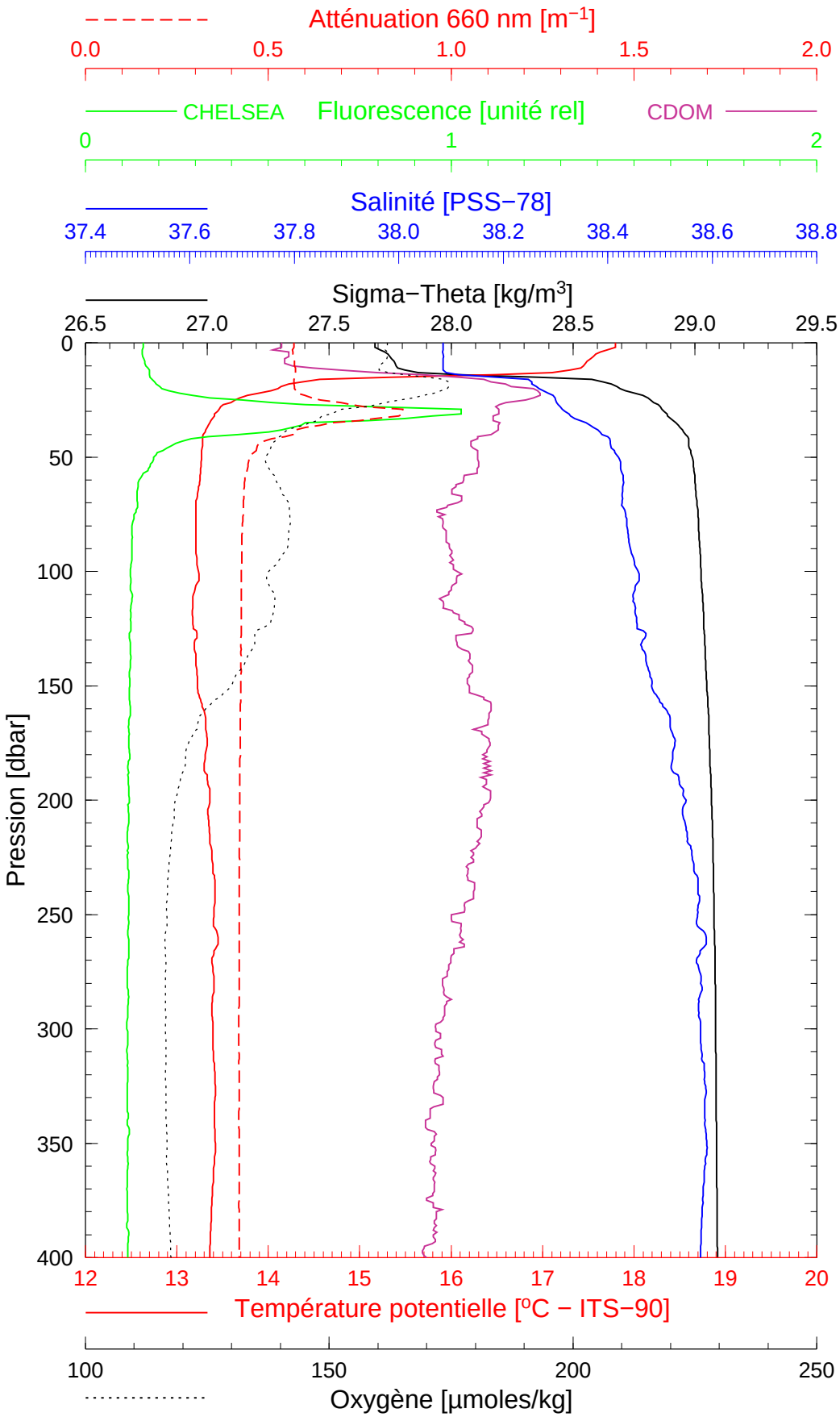


Date *17/05/2007* *Latitude* *43°22.138 N*

Heure déb *10h 51min [TU]* *Longitude* *07°53.764 E*

Boussole 64 **17/05/2007** **BOUS070517_02**

BOUS002

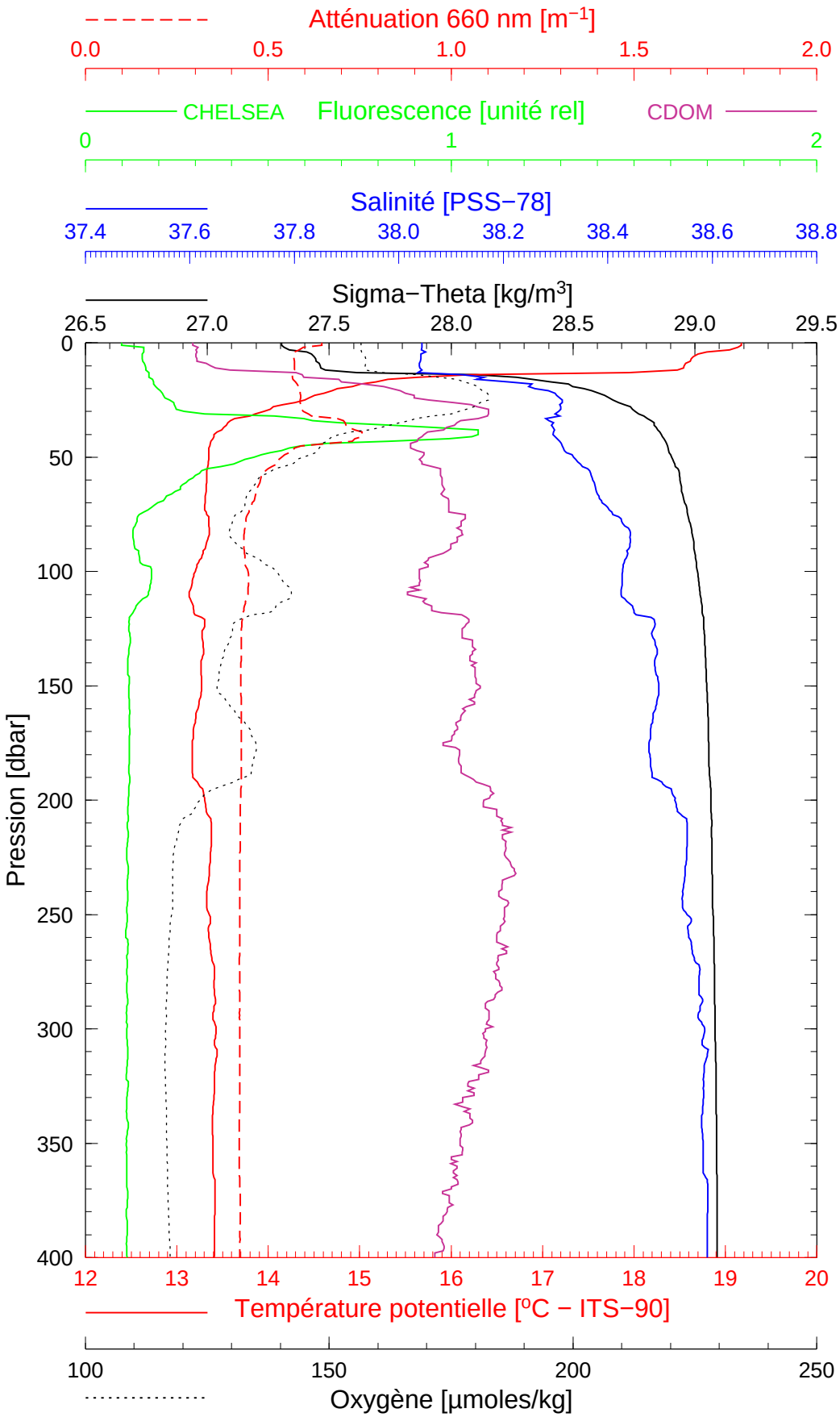


Date *17/05/2007* *Latitude* *43°25.003 N*

Heure déb *11h 57min [TU]* *Longitude* *07°47.948 E*

Boussole 64 **17/05/2007** **BOUS070517_03**

BOUS003

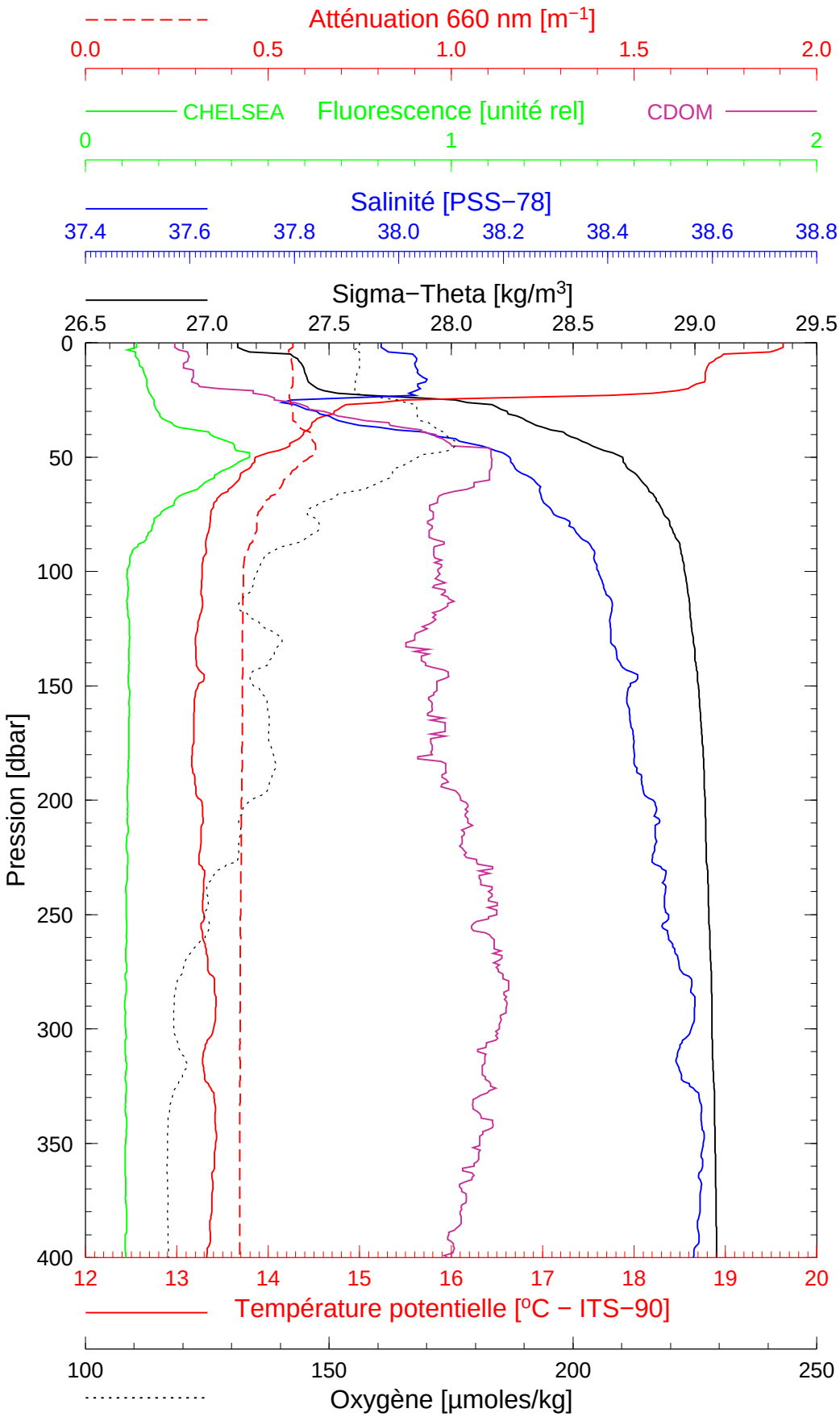


Date *17/05/2007* *Latitude* *43°27.994 N*

Heure déb *12h 53min [TU]* *Longitude* *07°42.465 E*

Boussole 64 **17/05/2007** **BOUS070517_04**

BOUS004

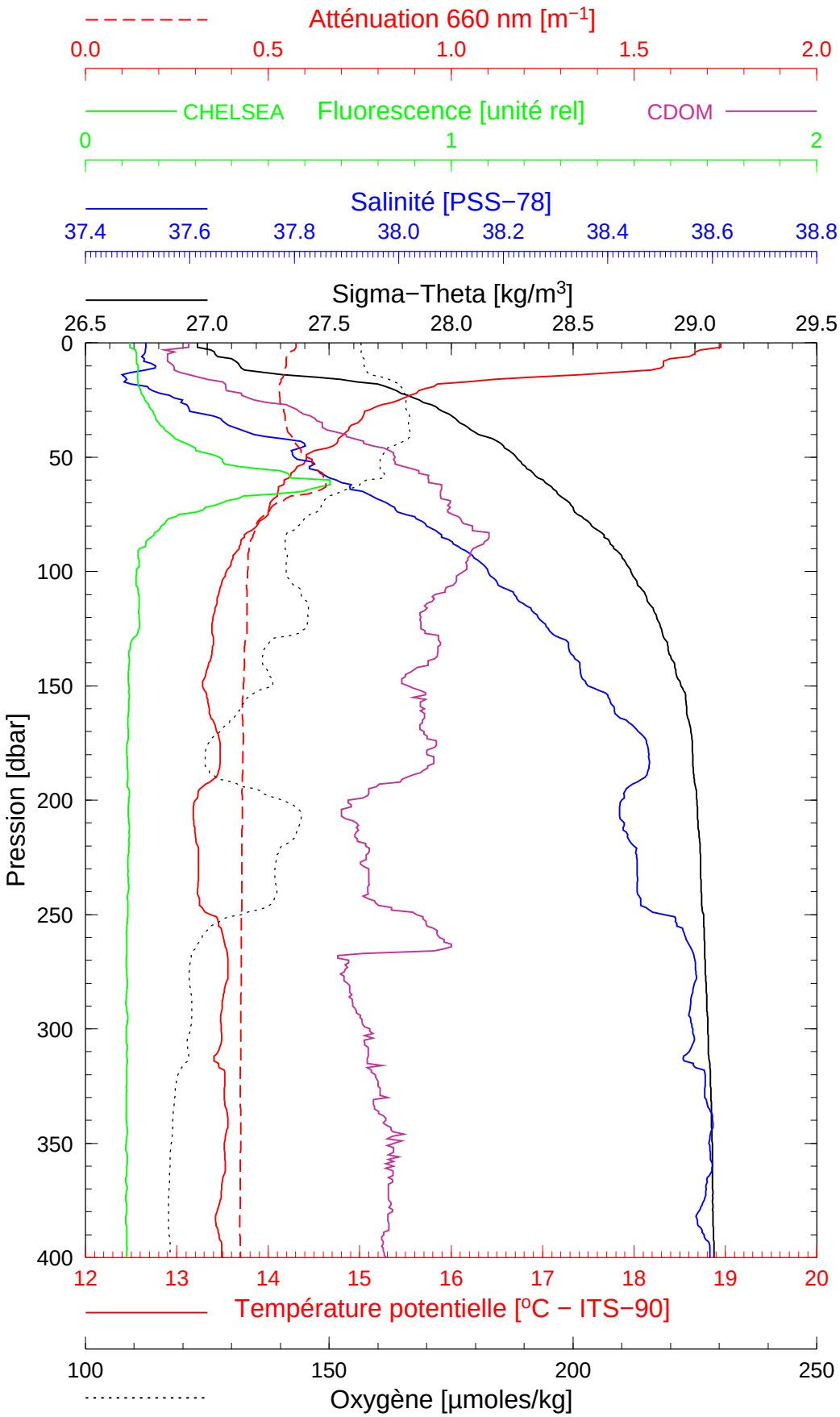


Date *17/05/2007* *Latitude* *43°30.988 N*

Heure déb *13h 49min [TU]* *Longitude* *07°36.799 E*

Boussole 64 **17/05/2007** **BOUS070517_05**

BOUS005

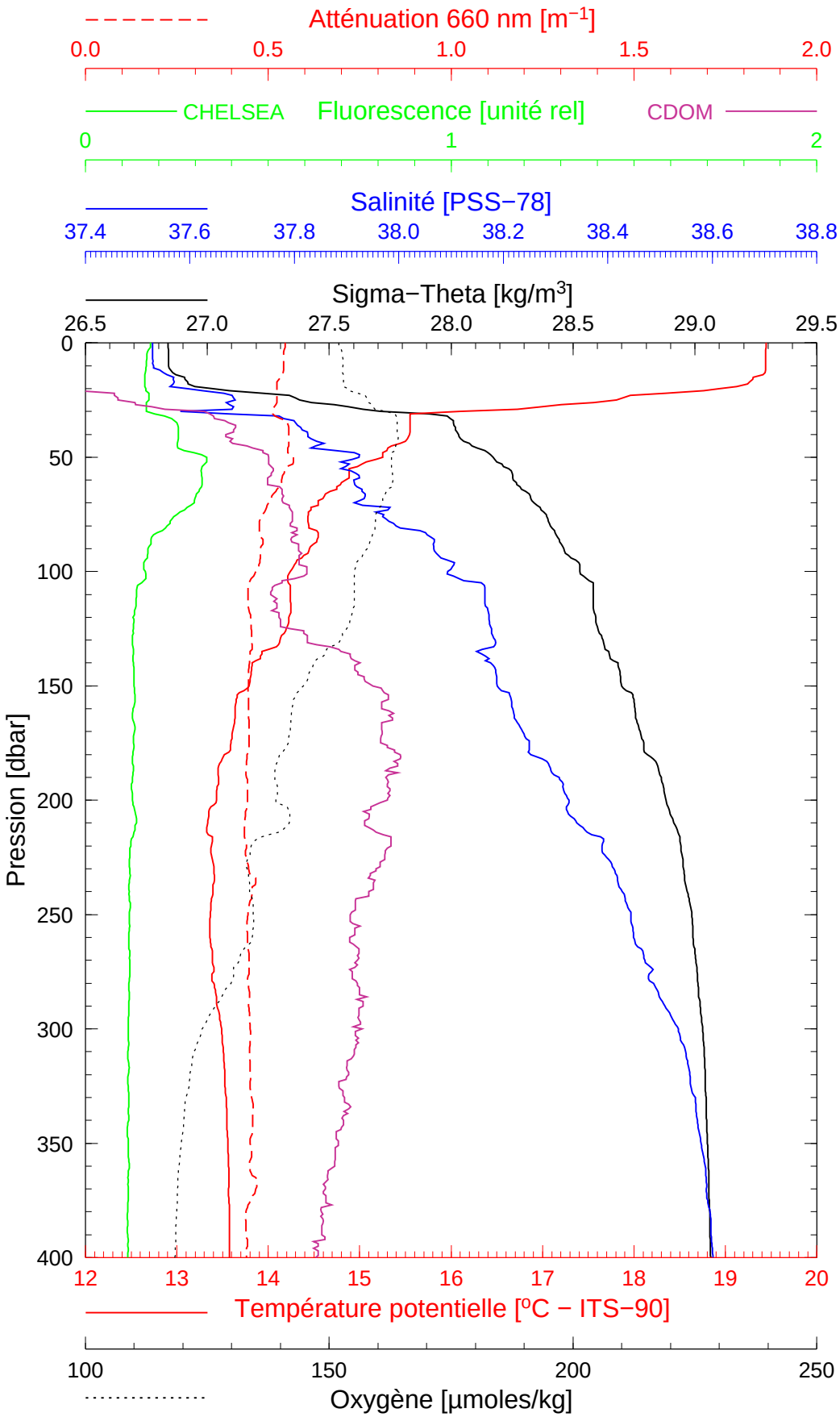


Date *17/05/2007* *Latitude* *43°33.867 N*

Heure déb *14h 46min [TU]* *Longitude* *07°30.818 E*

Boussole 64 **17/05/2007** **BOUS070517_06**

BOUS006

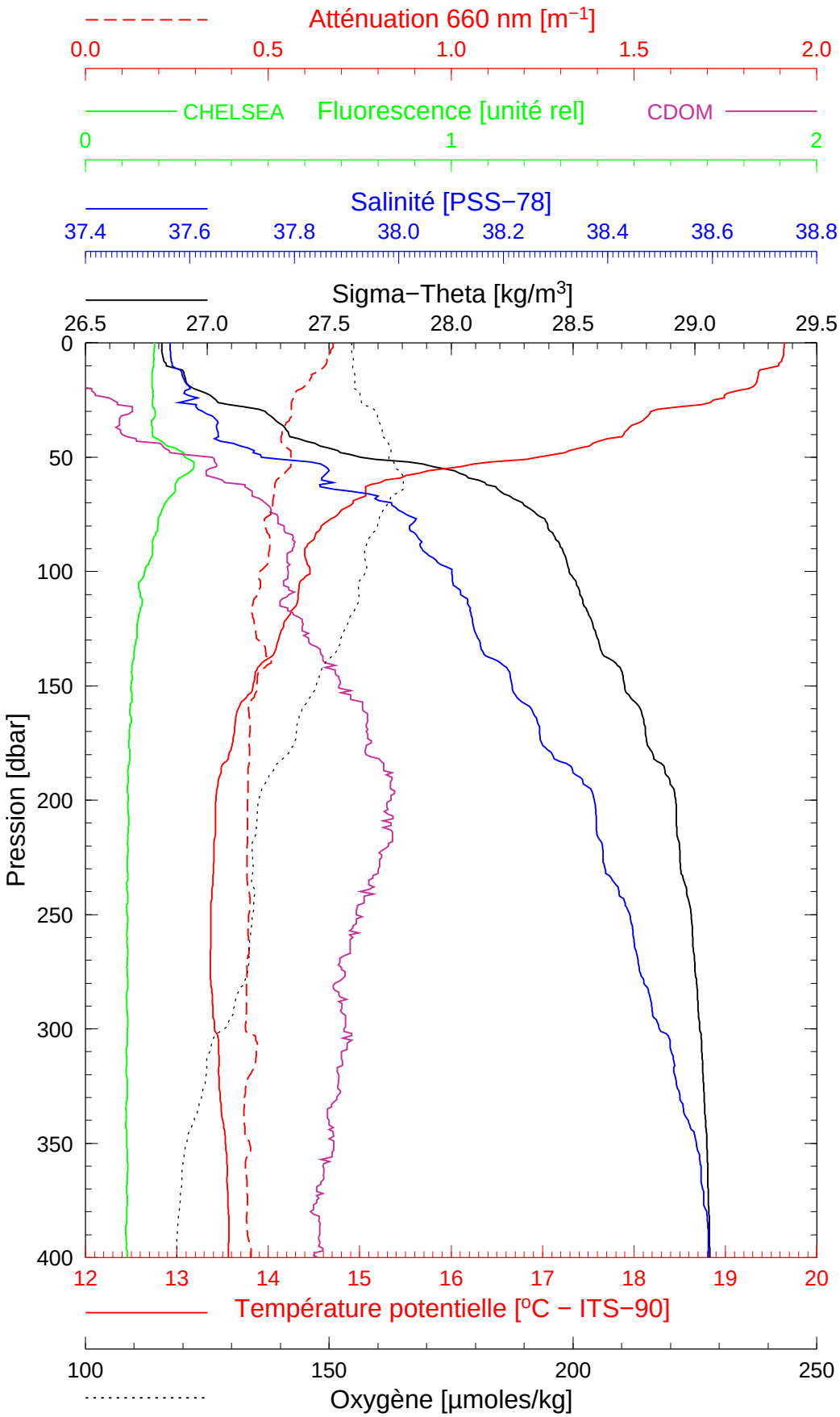


Date *17/05/2007* *Latitude* *43°37.588 N*

Heure déb *20h 02min [TU]* *Longitude* *07°24.482 E*

Boussole 64 **17/05/2007** **BOUS070517_07**

BOUS007

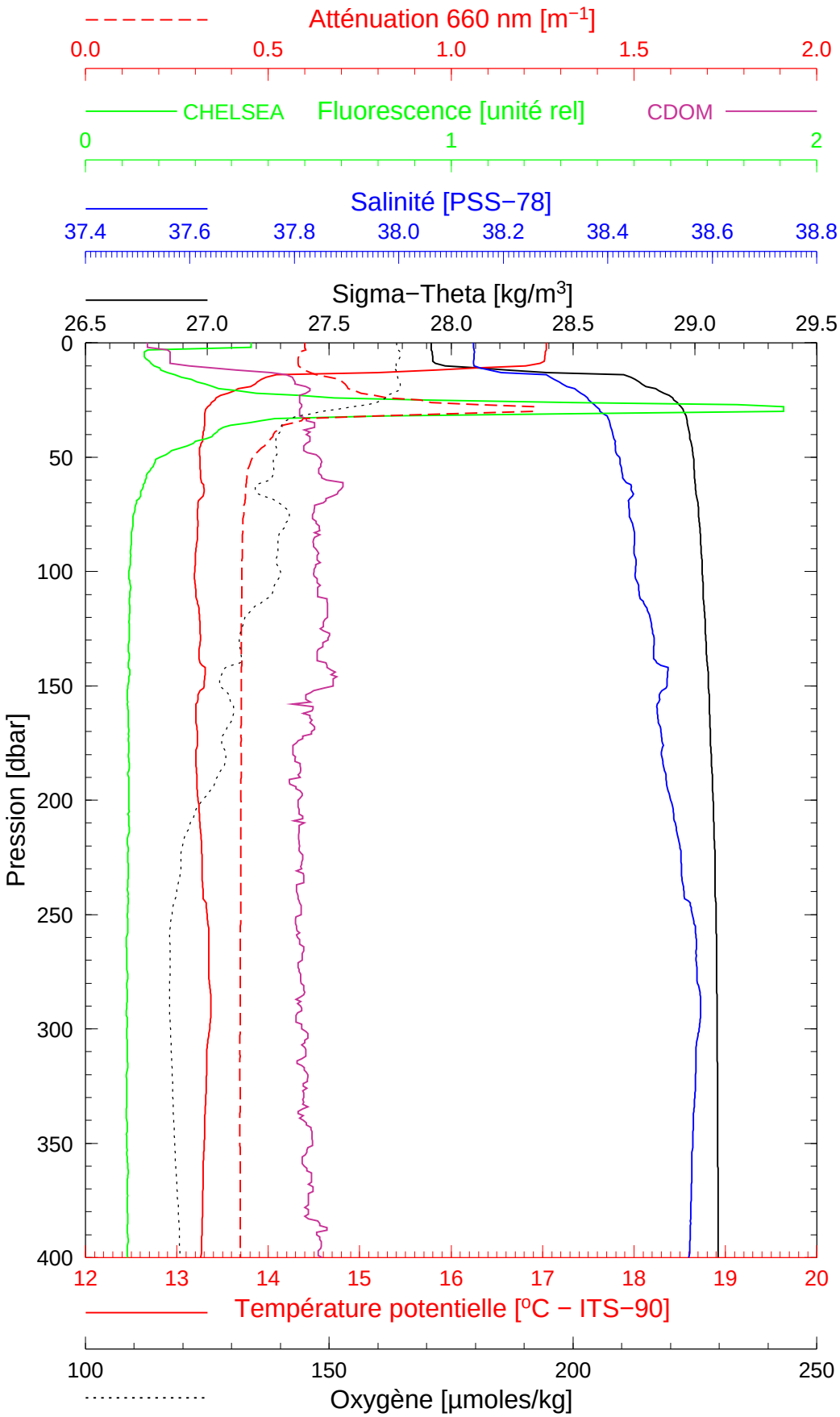


Date *17/05/2007* *Latitude* *43°38.988 N*

Heure déb *20h 47min [TU]* *Longitude* *07°21.125 E*

Boussole 64 **18/05/2007** **BOUS070518_01**

BOUS008

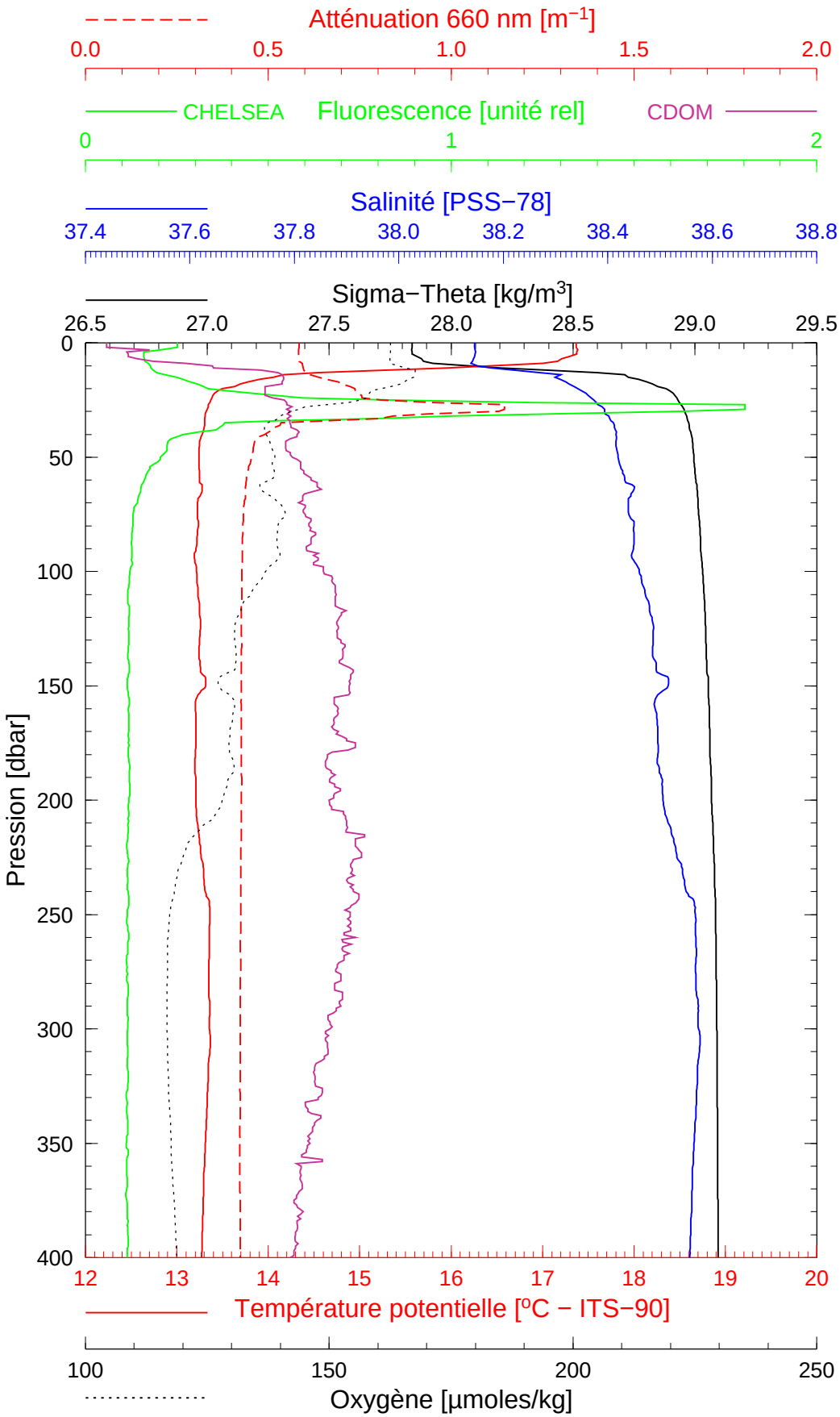


Date *18/05/2007* *Latitude* *43°22.019 N*

Heure déb *08h 15min [TU]* *Longitude* *07°53.650 E*

Boussole 64 **18/05/2007** **BOUS070518_02**

BOUS009



Date *18/05/2007* *Latitude* *43°22.166 N*

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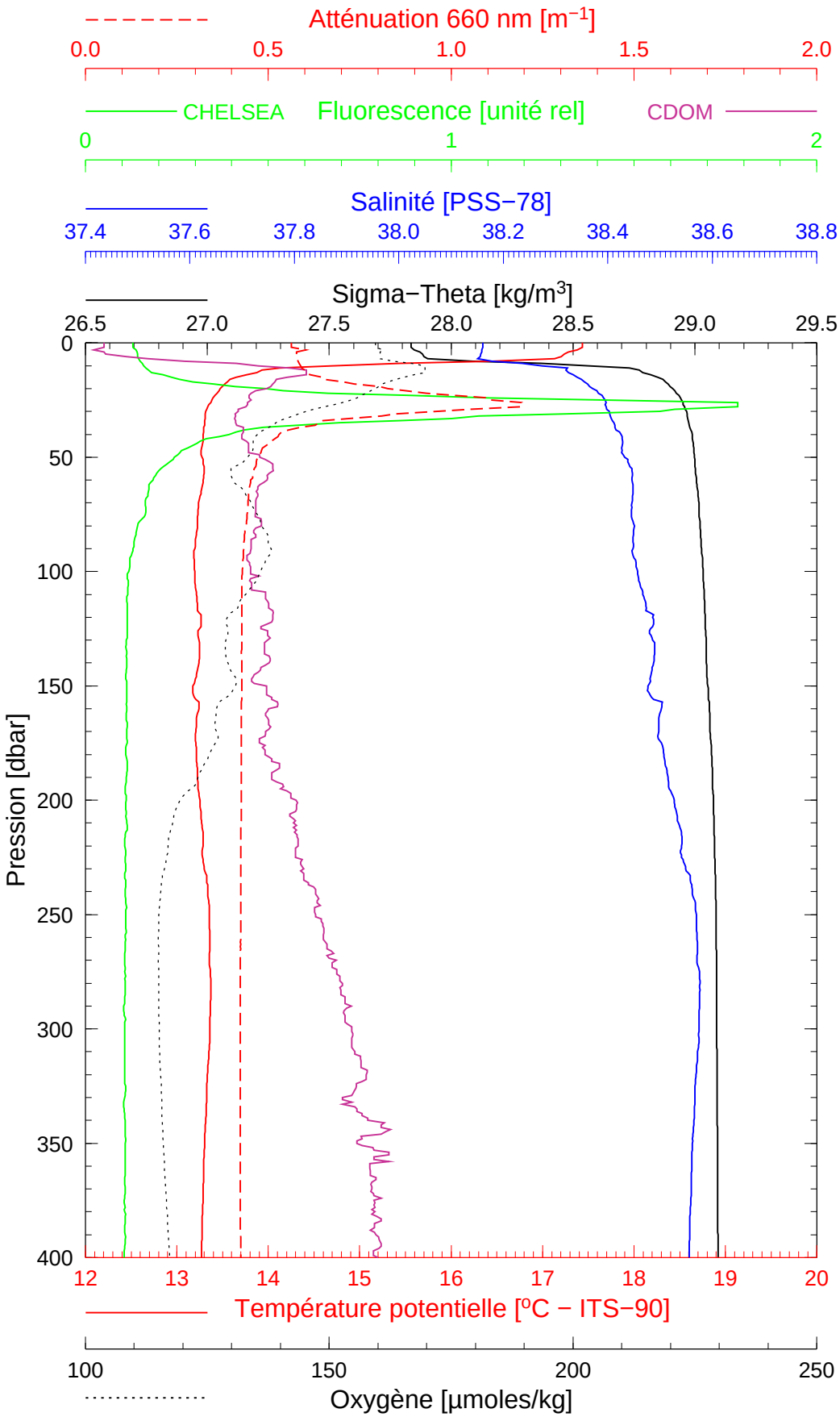
Boussole 64 **19/05/2007** **BOUS070519_01**

BOUS010



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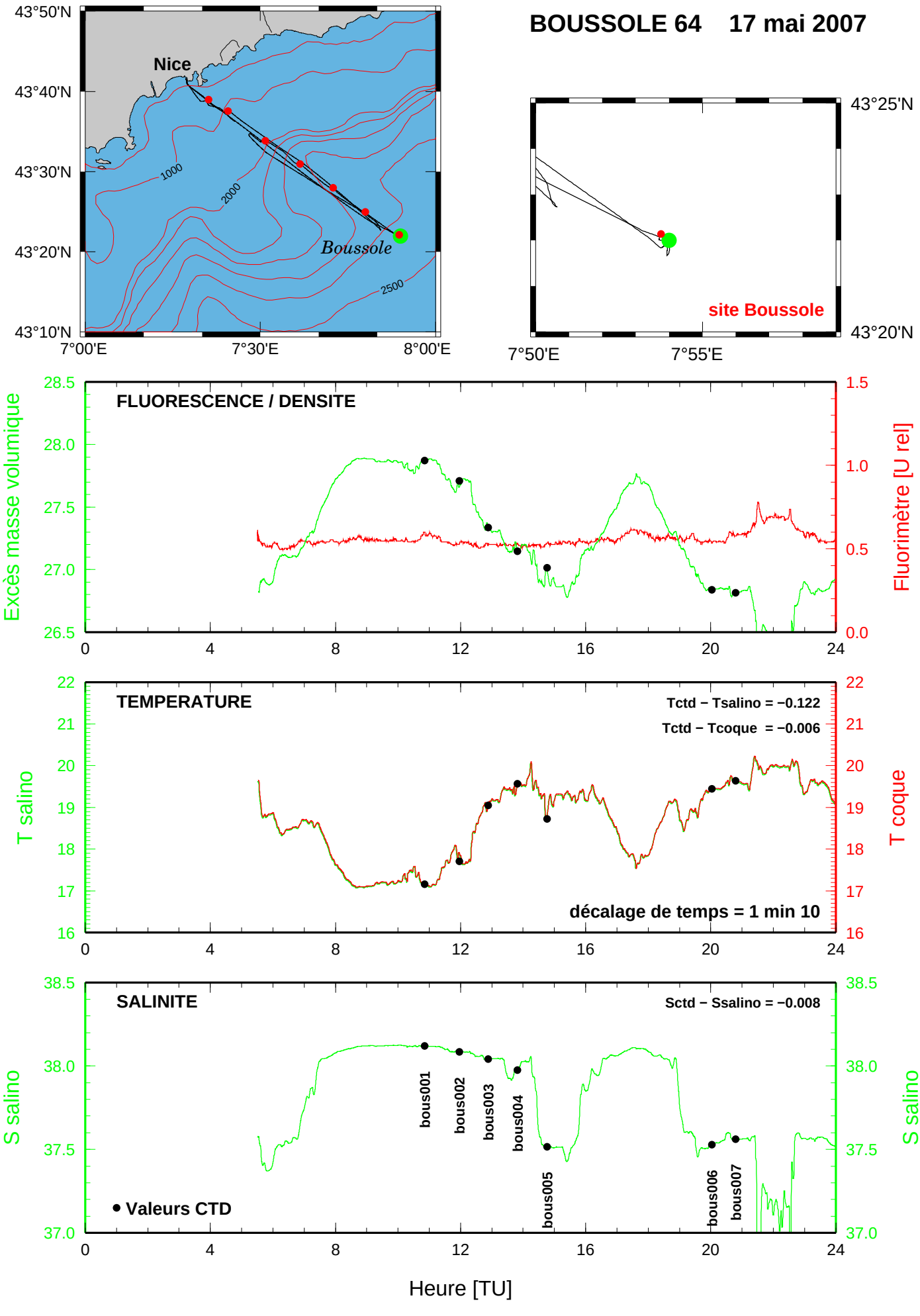
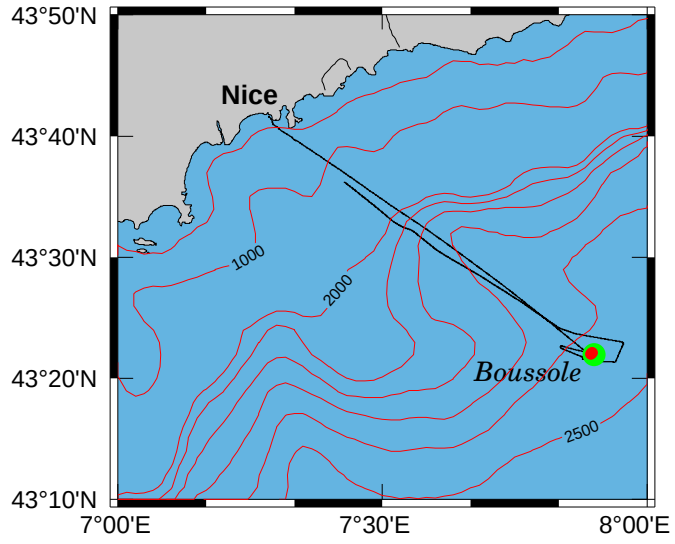
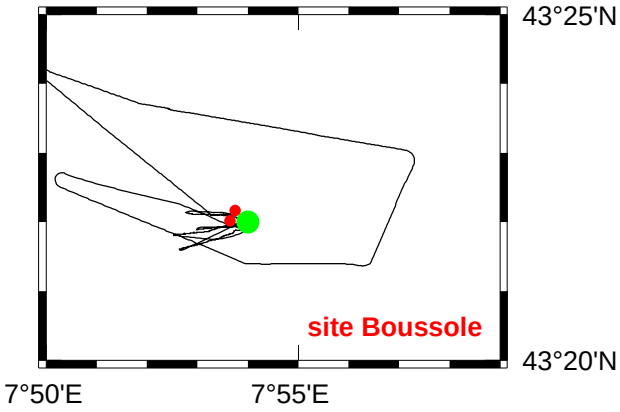
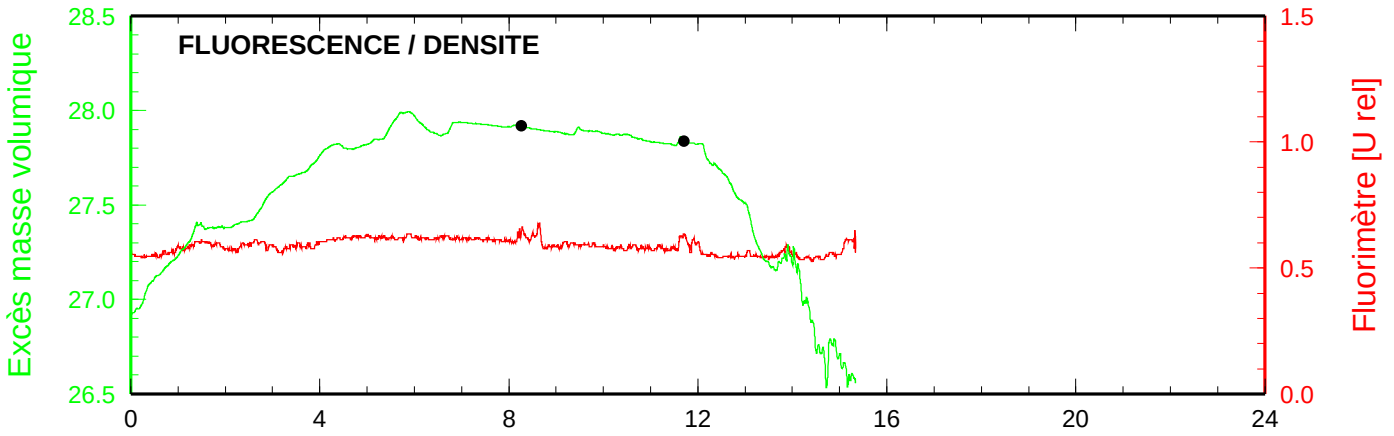
Heure déb *11h 18min [TU]* *Longitude* *07°54.130 E*

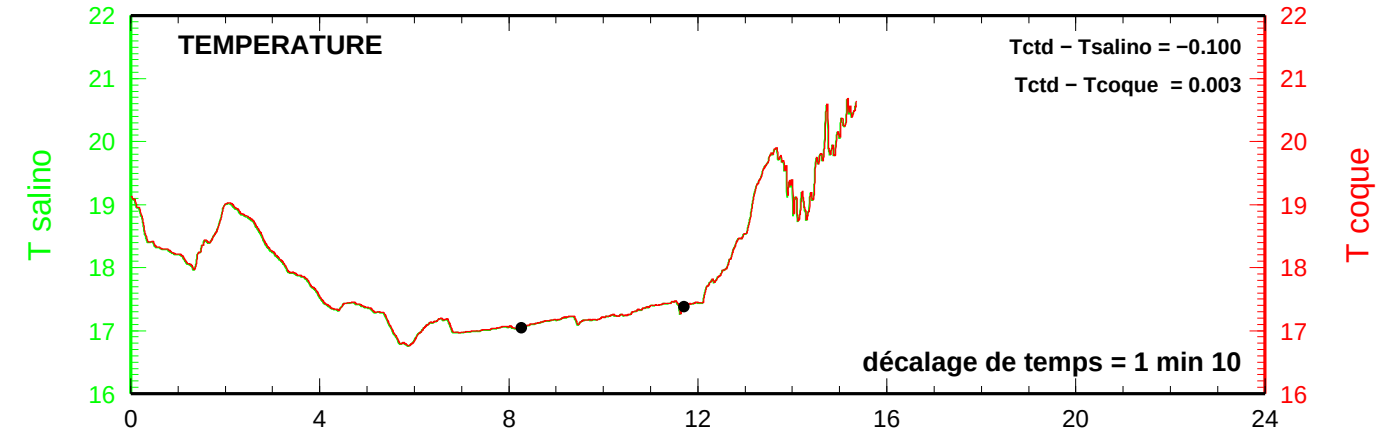

BOUSSOLE 64 17 mai 2007
Nice
Boussole
1000
2000
2500
43°50'N
43°40'N
43°30'N
43°20'N
43°10'N
7°00'E
7°30'E
8°00'E
43°25'N
43°20'N
7°50'E
7°55'E
site Boussole
FLUORESCENCE / DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd − Tsalino = −0.122
Tctd − Tcoque = −0.006
T salino
T coque
décalage de temps = 1 min 10
SALINITE
Sctd − Ssalino = −0.008
S salino
bous001
bous002
bous003
bous004
bous005
bous006
bous007
• Valeurs CTD
Heure [TU]

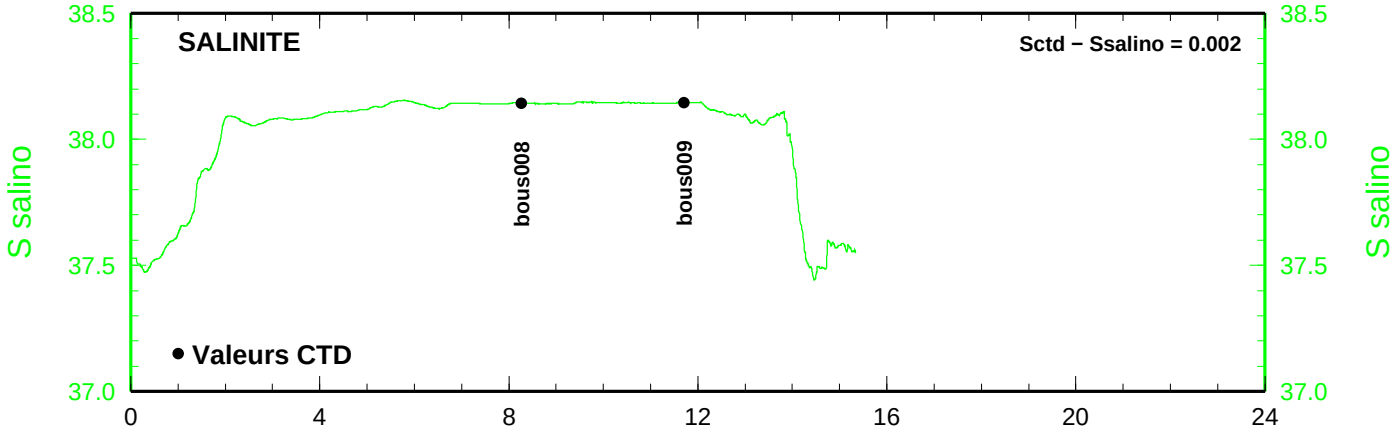
BOUSSOLE 64 18 mai 2007



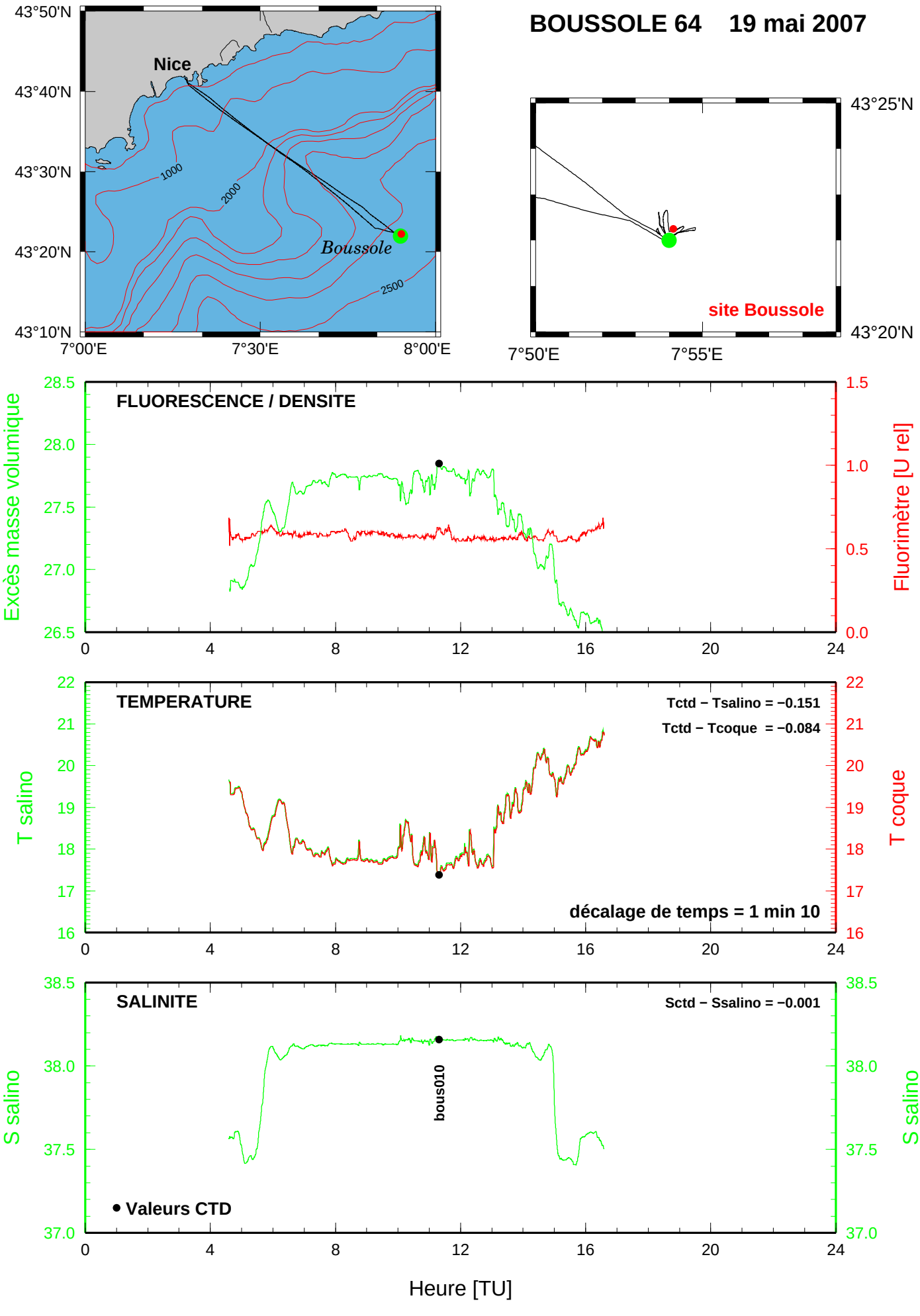








Heure [TU]


BOUSSOLE 64 19 mai 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 = −0.151
Tctd − Tcoque = −0.084
décalage de temps = 1 min 10
T salino
T coque
SALINITE
Sctd − Ssalino = −0.001
bous010
S salino
• Valeurs CTD
Heure [TU]