BOUSSOLE Monthly Cruise Report

Cruise 57
October 4 - 6, 2006

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

Science Personnel: Guislain Bécu, Dominique Tailliez, David Luquet, Laurent Gilletta, Eric Viano.

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

Fig 1. A ray seen close to the buoy.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

October 16, 2006

Contents

Cruise Objectives

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.

Cruise Summary

Cruise dates were modified (4 to 7 October, instead of 1 to 4 October) just after some people had booked their plane to go to the Ocean Optics XVIII conference (Montreal, Canada, 9-13 October, 2006). Guislain Bécu was therefore not onboard on 6 and 7 October, and Dominique Tailliez was not onboard on 7 October. One ship day was lost (7 October).

For the last day of the cruise, Sea conditions were not too bad to get on site with divers and to perform the CTD/AC9 transect.

Wednesday 04 October 2006

Sea conditions were very poor for the October 4, so that Dominique Tailliez went to B and C stations (Villefranche bay) for 2 CTD tests. One Niskin bottle was kept closed and empty during the descent of the carousel, and then imploded. 3 other bottles also imploded with the propagation of the wave front.

Thursday 05 October 2006

Sea conditions went smoother late on October 5, so that the ship left the port of Nice at 11:15 local time. Only 2 SPMR profiles, 1 CTD and 1 CIMEL measurements were performed this day.

Friday 06 October 2006

Sea conditions were rather better for this day, so divers could go at sea to clean the buoy sensors and take some pictures of it, and the transect between BOUSSOLE site and the Port of Nice was also carried out.

Cruise Report

04 October 2006 (UTC)

0800 Departure from port of Nice.
0832 CTD 01 (vlfr bay, 400 m) for some tests. 4 Niskin bottles imploded.
0911 CTD 02 (vlfr bay, 320 m) for some other tests.
1000 arrival at port of Nice.

05 October 2006

0915 Departure from port of Nice.
1236 SPMR profiles 1 and 2.
1309 CIMEL 01.
1339 CTD 03, 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.
1415 Departure from BOUSSOLE site (bad sea conditions).
1745 arrival at port of Nice.

06 October 2006

0430 Departure from port of Nice.
0800 Divers at Sea to check the under water structure, take some pictures and clean the sensors.
0926 CTD 04, 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.
1203 CTD 05 at station 1 (43°25'N 07°48'E).
1326 CTD 06 at station 2 (43°28'N 07°42'E).
1426 CTD 07 at station 3 (43°31'N 07°37'E).
1531 CTD 08 at station 4 (43°34'N 07°31'E).
1634 CTD 09 at station 5 (43°37'N 07°25'E).
1723 CTD 10 at station 6 (43°39'N 07°21'E).
1750 departure from BOUSSOLE site.
2123 arrival at Port of Nice.

Calculated Swath paths for the MERIS Sensor (ESOV Software)

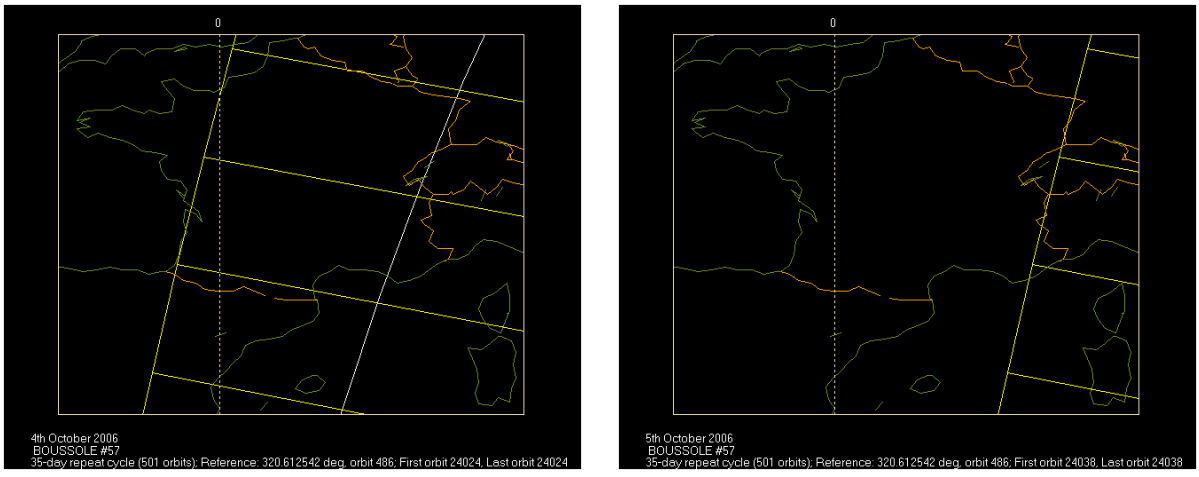
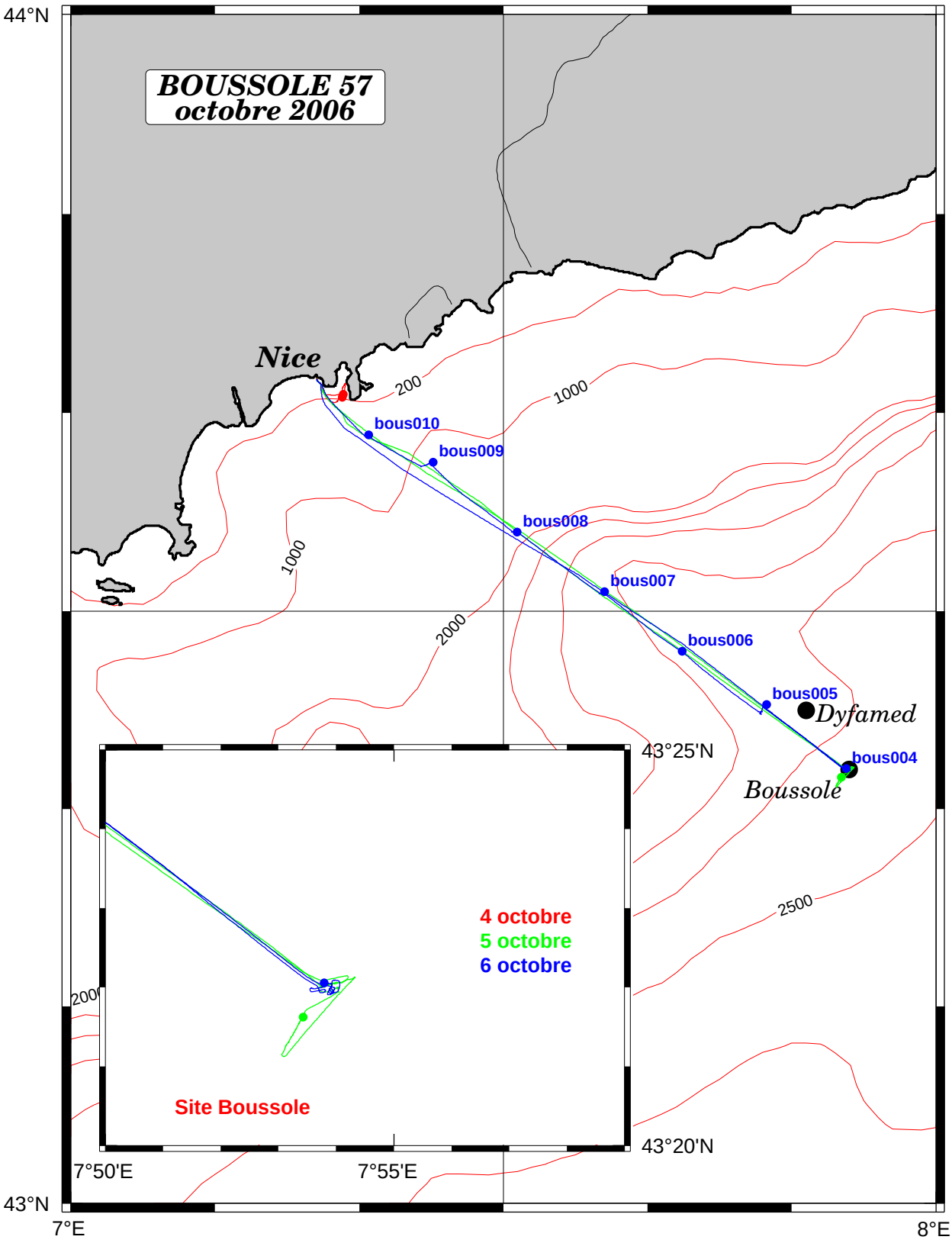


Figure 2. Calculated swath paths for MERIS (Esov software) above the BOUSSOLE site for October 4 and 5, 2006.

Appendix

Cruise Summary Table for Boussole 57

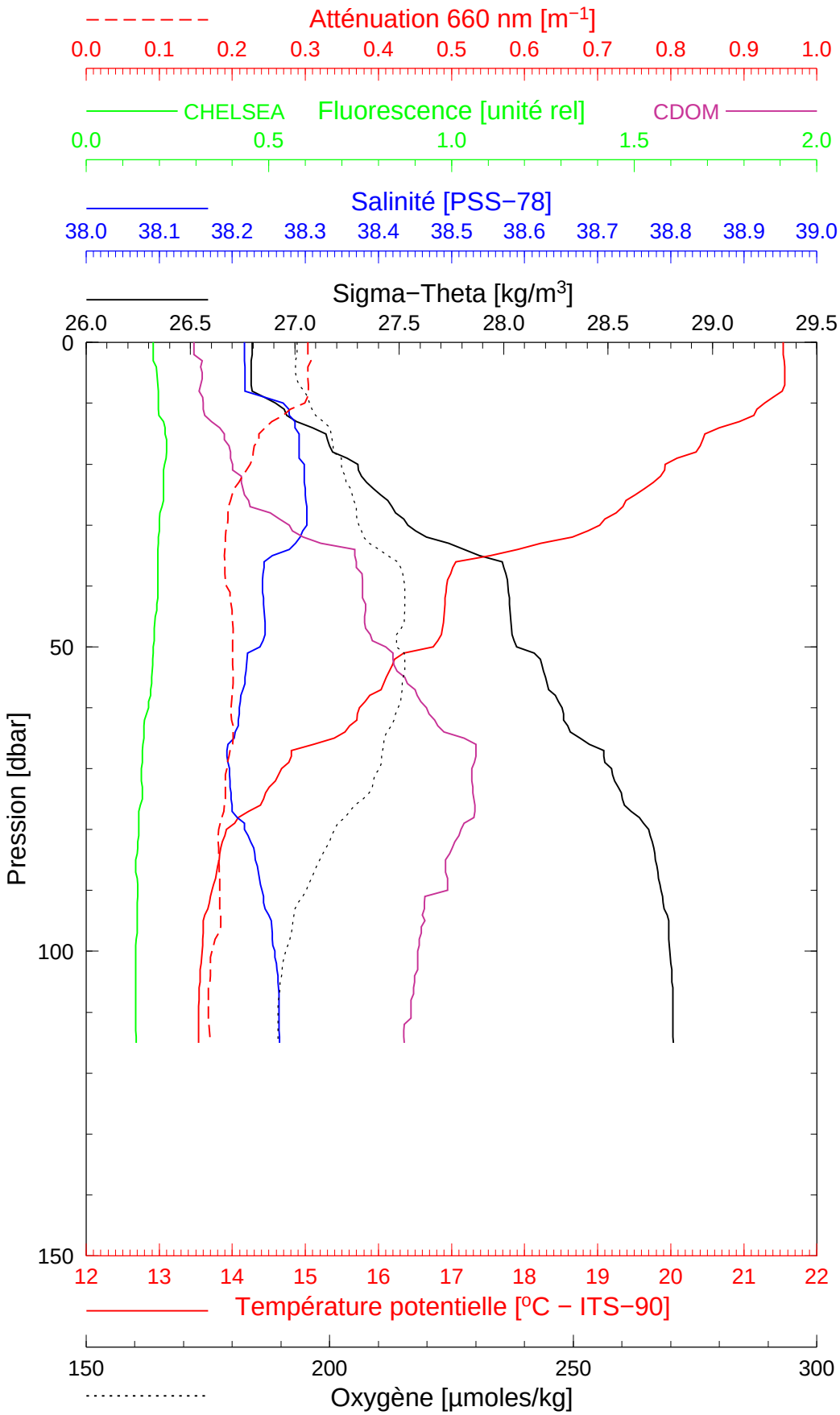
Date	Black names	Profile names	CTD notées /	Start Time	Duration	Depth max	Latitude (N)		longitude		Other sensors	Their cast	Start/Finish			Weather							Sea		
	(file ext: ".raw")	(file extension: ".raw")	satellite overpass	GMT (hour.min)	(min.sec)	(meter)	(Degree)	(Minute)	(Degree)	(Minute)				Sky	Clouds	Quantity (#/8)	Wind speed	Wind dir.	Atm. Pressure	humidity	Visibility	T air	T water	Sea	Swell height	Swell dir.	Whitecaps
04/10/2006			CTDBOUS001	08:32	07:00	400	43	40.941	7	18.904				covered	heterog.	4	3 kn	237	1007.0	46	excellent	20.3	21.6	calm - flat	vlfr bay		no
			CTDBOUS002	09:11	14:00	320	43	40.774	7	18.839				covered	heterog.	4	3 kn	234	1007.1	48	excellent	20.5	21.6	calm - flat	vlfr bay		no
05/10/2006	bou051006black1			12:14	03:00																					
		bou051006AA		12:36	03:17	150	43	22.190	7	54.390				quite blue	Cu at horiz.	2	9 kn	78	1017.7	72	excellent	20.3		choppy	1,2 m		yes
		bou051006AB		12:42	03:24	150	43	22.141	7	54.210				quite blue	Cu at horiz.	2	9 kn	78	1017.7	72	excellent	20.3		choppy	1,2 m		yes
	bou051006black2			12:54	03:00																					
				13:09	02:00		43	22.000	7	54.000	CIMEL 01			blue	far Cu	1			1017.1								
			CTDBOUS003	13:39	33:00	400	43	21.624	7	53.428				quite blue	Cu at horiz.	1	15 kn	67	1017.4	71	very good	20.3	21.3	choppy	1 m		yes
06/10/2006			CTDBOUS004	09:26	29:00	400	43	22.058	7	53.795				quite blue	Cu at horiz.	1	3 kn	74	1022.2	68	very good	20.5	20.1	little bit chop.	0,8 m		yes
			CTDBOUS005	12:03	26:00	400	43	25.304	7	48.266				quite blue	Cu at horiz.	1	3 kn	164	1021.4	66	very good	20.5	20.4	little bit chop.	0,8 m		yes
			CTDBOUS006	13:26	26:00	400	43	27.972	7	42.410				quite blue	Cu at horiz.	1	5 kn	202	1020.4	65	very good	21.2	20.5	little bit chop.	0,9 m		yes
			CTDBOUS007	14.26	28:00	400	43	30.982	7	37.000				quite blue	Cu at horiz.	1	5 kn	197	1019.9	69	very good	20.5	21.3	choppy	1 m		yes
			CTDBOUS008	15:31	25:00	400	43	33.992	7	30.954				quite blue	Cu at horiz.	1	7 kn	195	1019.3	66	very good	20.6	21.4	choppy	1 m		yes
			CTDBOUS009	16:34	25:00	400	43	37.519	7	25.124				covered	Cu	3	7 kn	225	1019.2	71	very good	20.4	22.0	choppy	1 m		yes
			CTDBOUS010	17:23	22:00	400	43	38.901	7	20.664				covered	Cu	4	7 kn	225	1019.0	67	very good	19.7	22.0	choppy	1 m		yes



GMT 2006 Oct 16 16:11:47

Boussole 57 **04/10/2006** **BOUS061004_01**

BOUS001 / point B

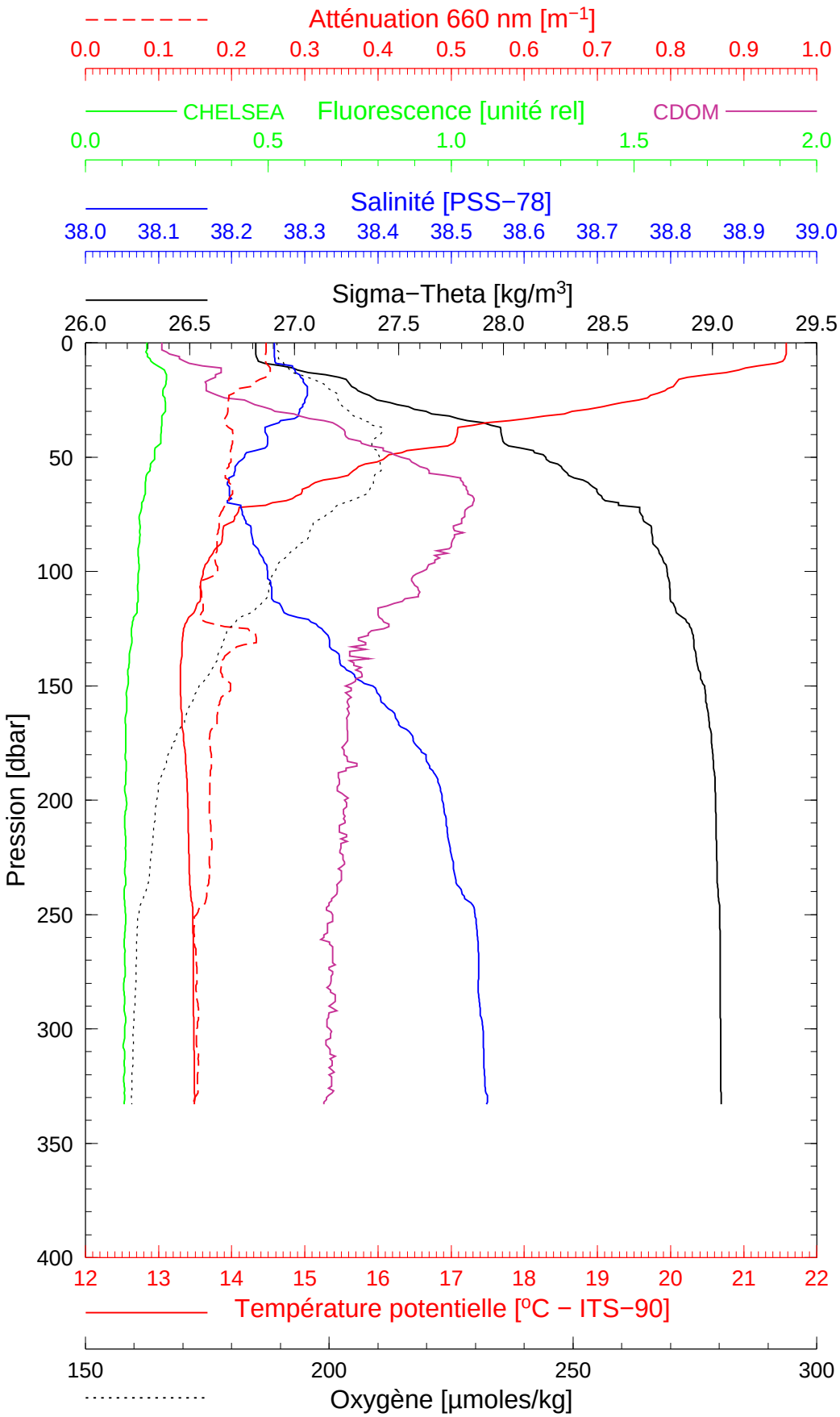


Date *04/10/2006* *Latitude* *43°40.941 N*

Heure déb *08h 32min [TU]* *Longitude* *07°18.904 E*

Boussole 57 **04/10/2006** **BOUS061004_02**

BOUS002 / point C

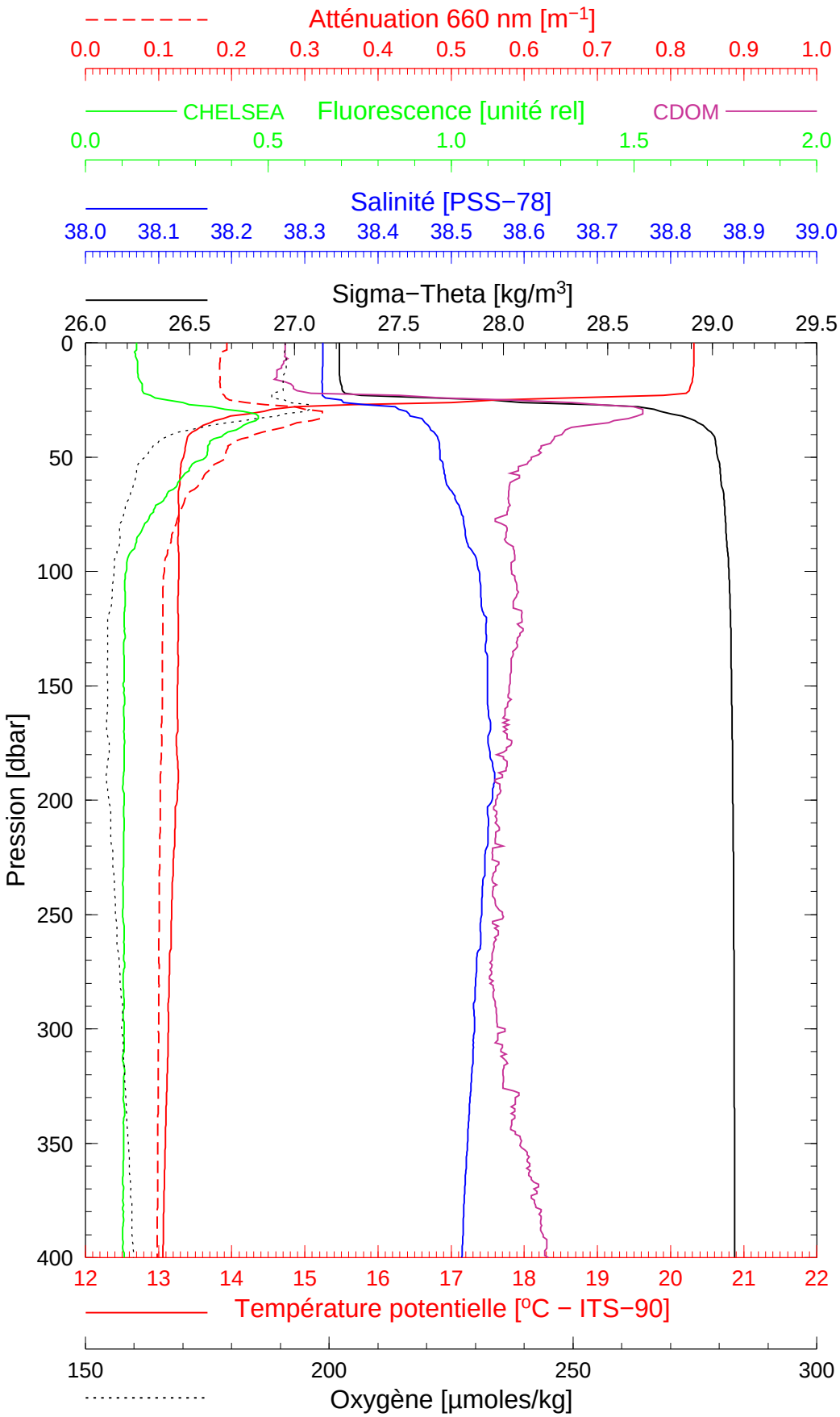


Date *04/10/2006* *Latitude* *43°40.774 N*

Heure déb *09h 11min [TU]* *Longitude* *07°18.839 E*

Boussole 57 **05/10/2006** **BOUS061005_01**

BOUS003

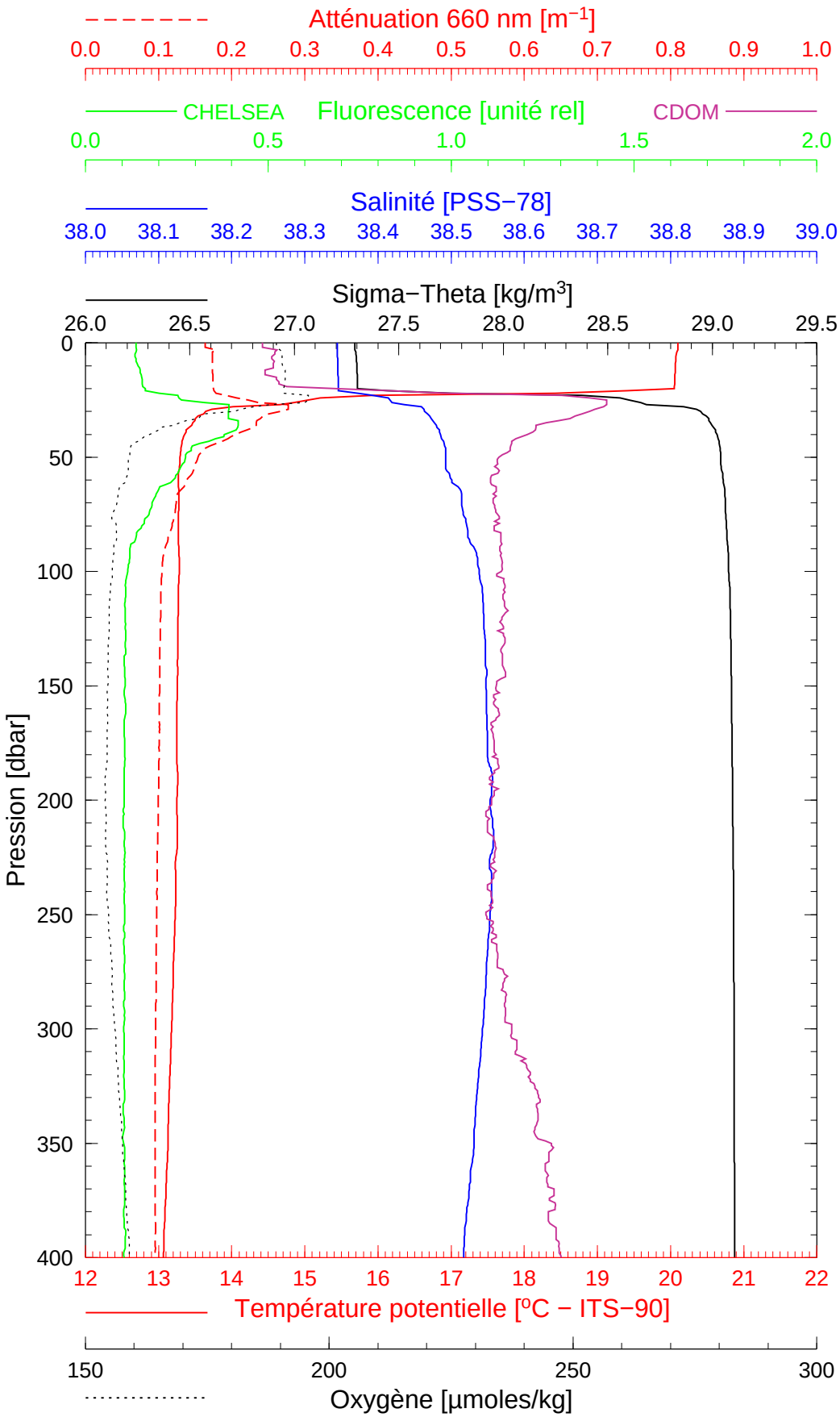


Date *05/10/2006* *Latitude* *43°21.624 N*

Heure déb *13h 39min [TU]* *Longitude* *07°53.428 E*

Boussole 57 **06/10/2006** **BOUS061006_01**

BOUS004

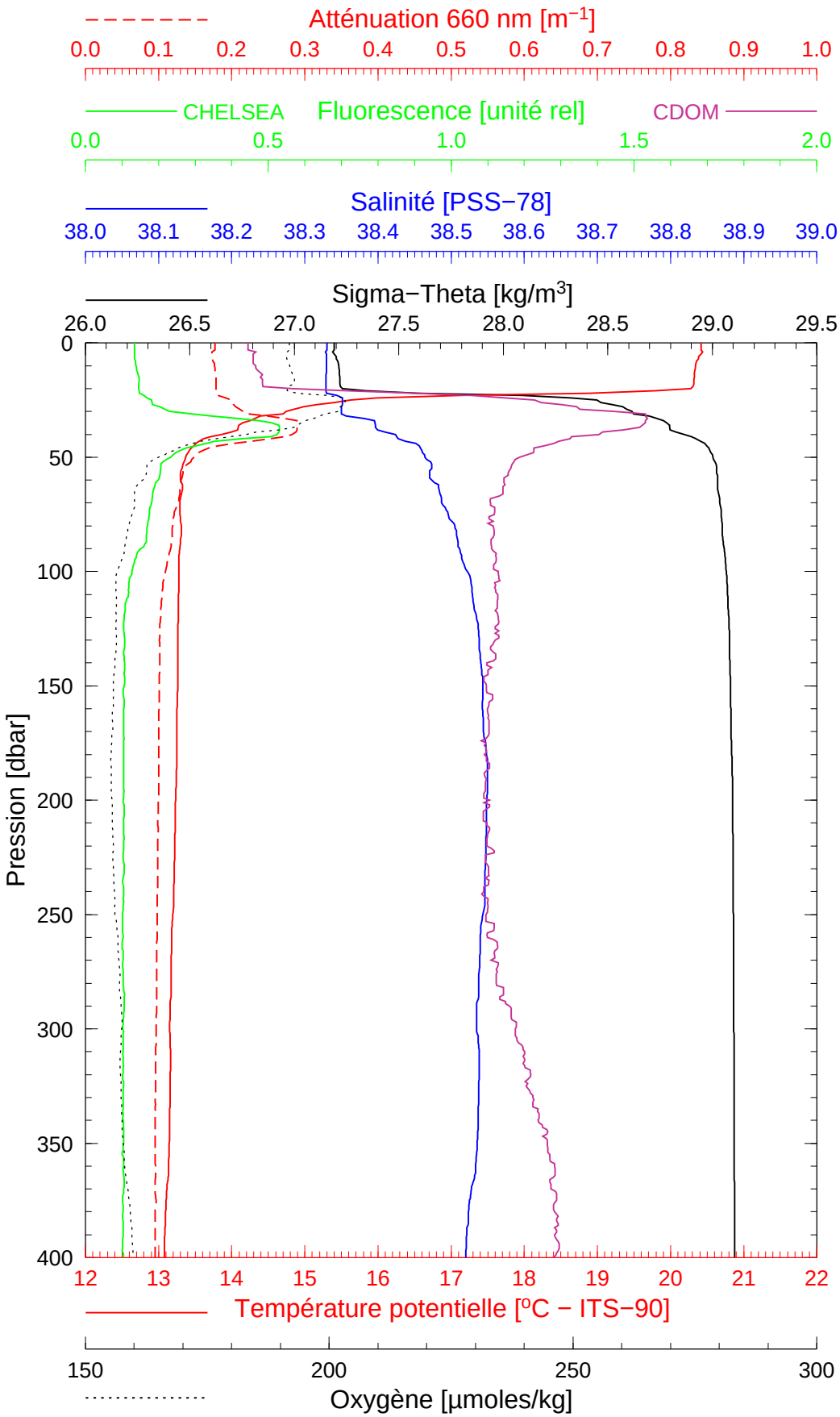


Date *06/10/2006* *Latitude* *43°22.058 N*

Heure déb *09h 26min [TU]* *Longitude* *07°53.795 E*

Boussole 57 **06/10/2006** **BOUS061006_02**

BOUS005

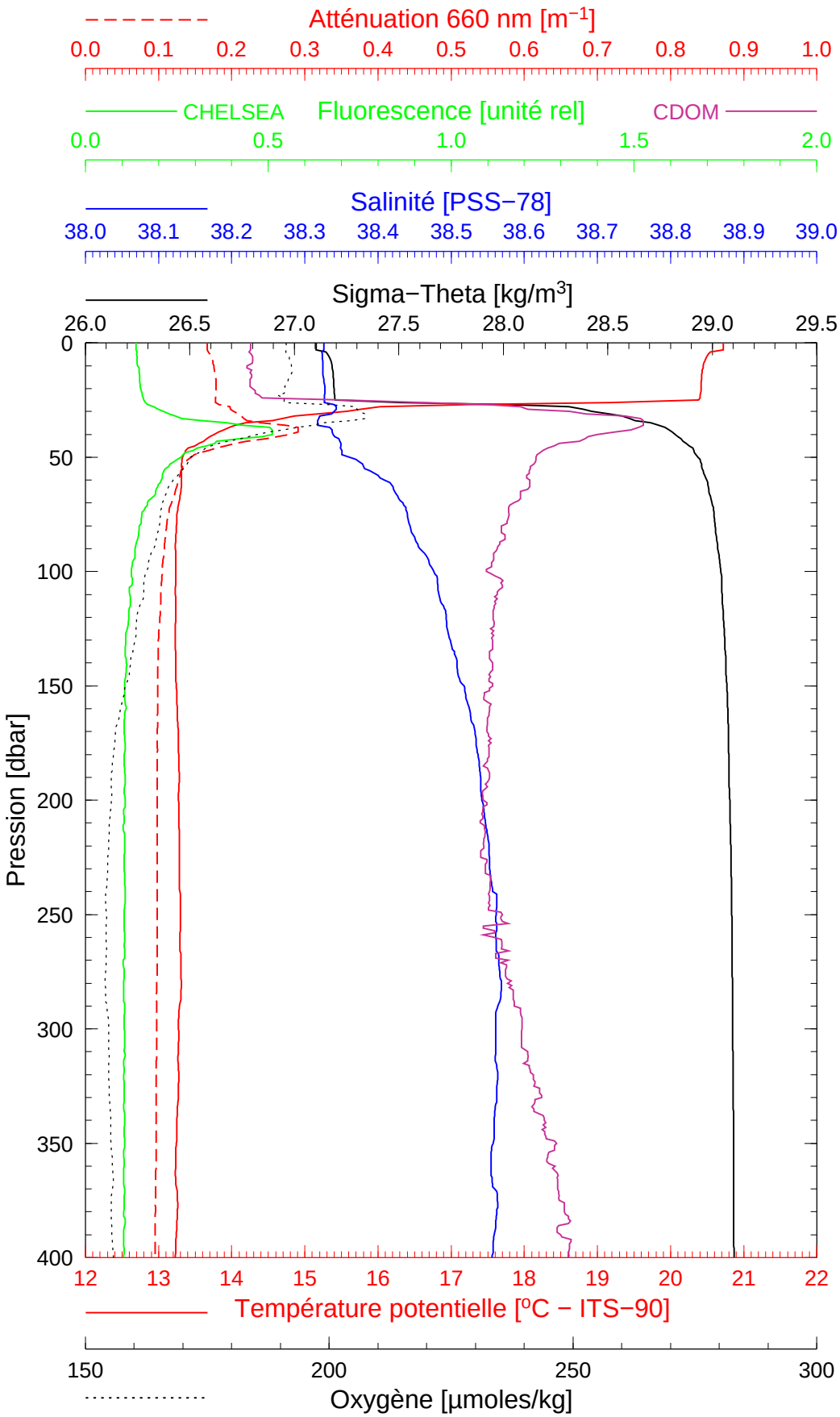


Date *06/10/2006* *Latitude* *43°25.304 N*

Heure déb *12h 03min [TU]* *Longitude* *07°48.266 E*

Boussole 57 **06/10/2006** **BOUS061006_03**

BOUS006

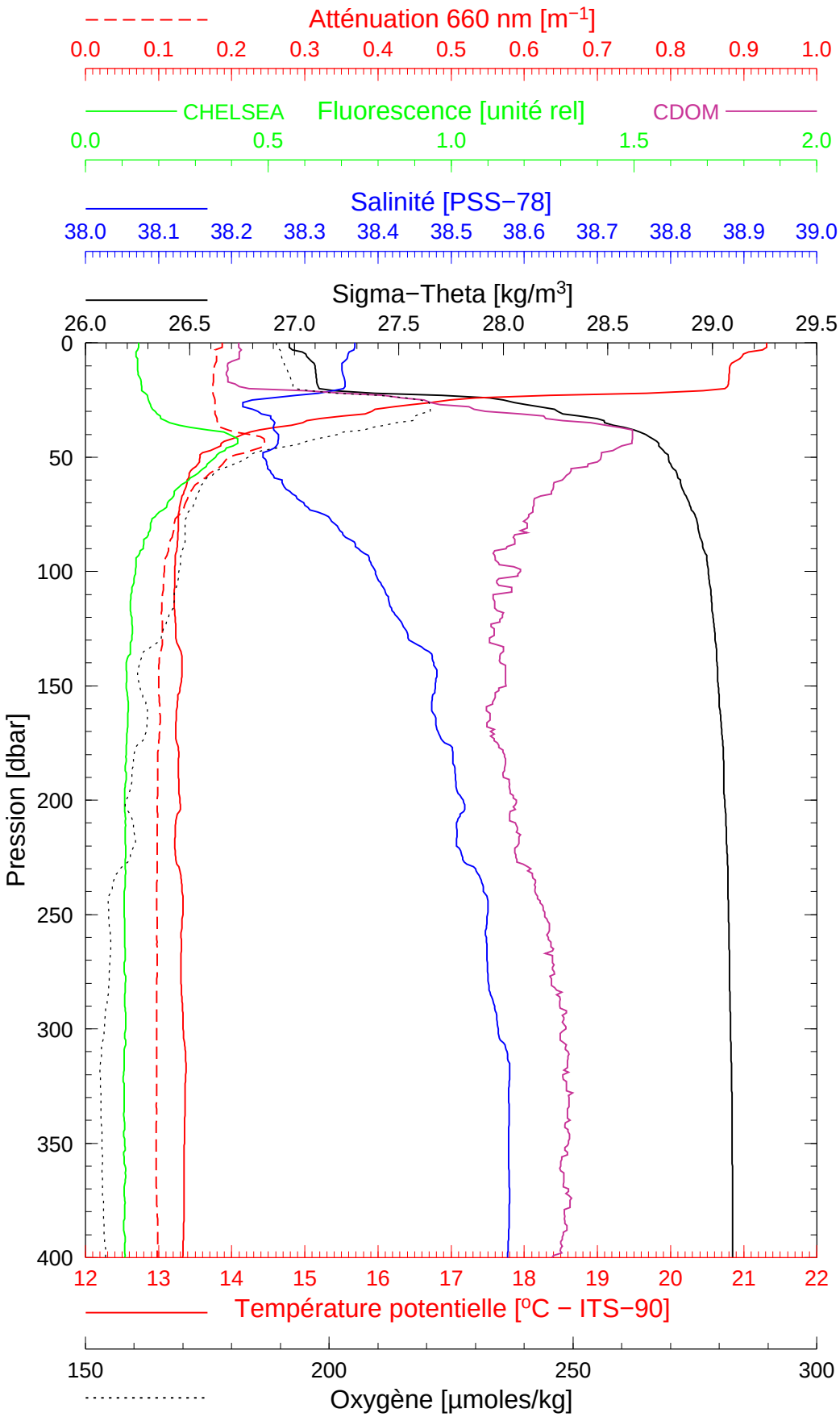


Date *06/10/2006* *Latitude* *43°27.974 N*

Heure déb *13h 26min [TU]* *Longitude* *07°42.410 E*

Boussole 57 **06/10/2006** **BOUS061006_04**

BOUS007

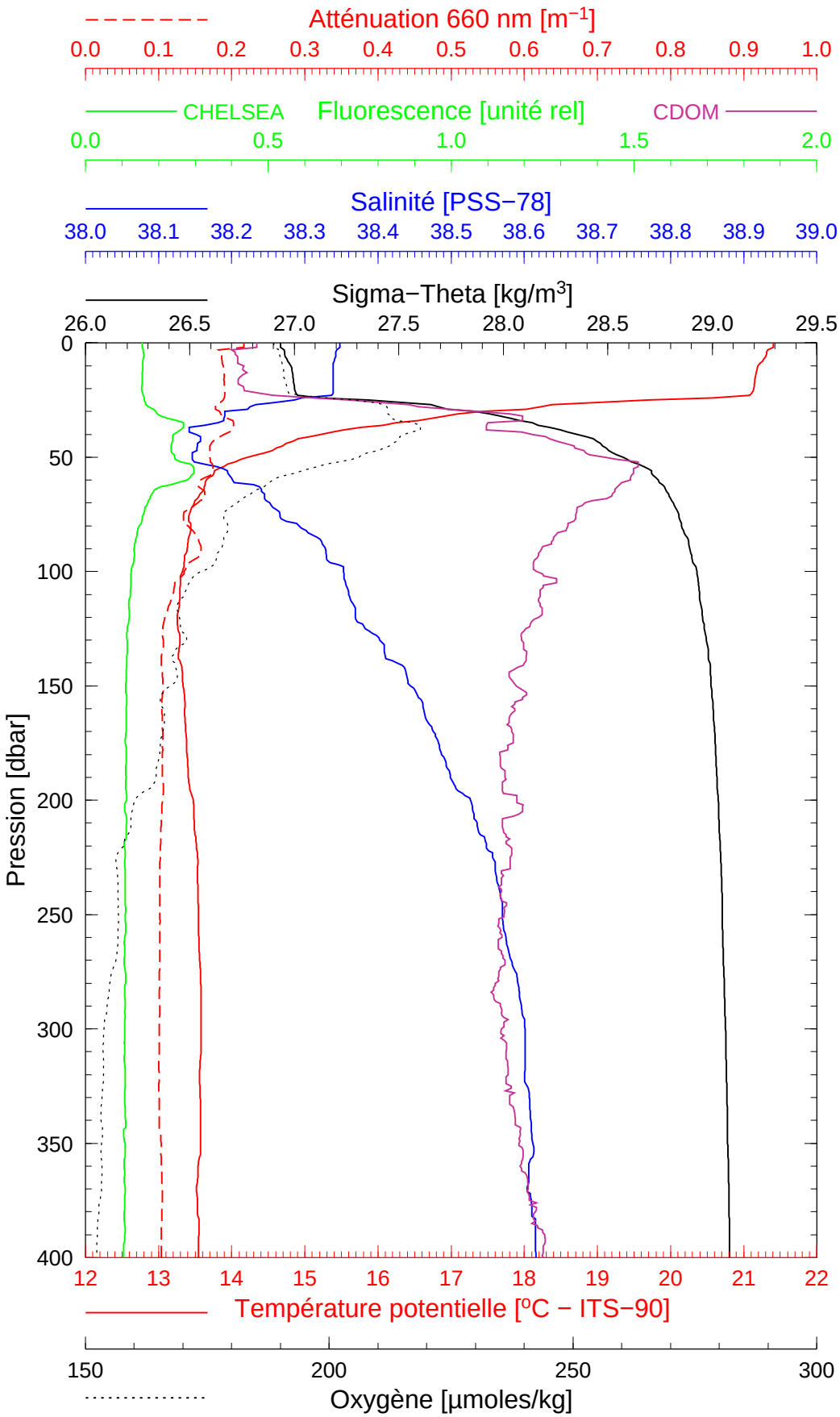


Date *06/10/2006* *Latitude* *43°30.982 N*

Heure déb *14h 26min [TU]* *Longitude* *07°37.000 E*

Boussole 57 **06/10/2006** **BOUS061006_05**

BOUS008

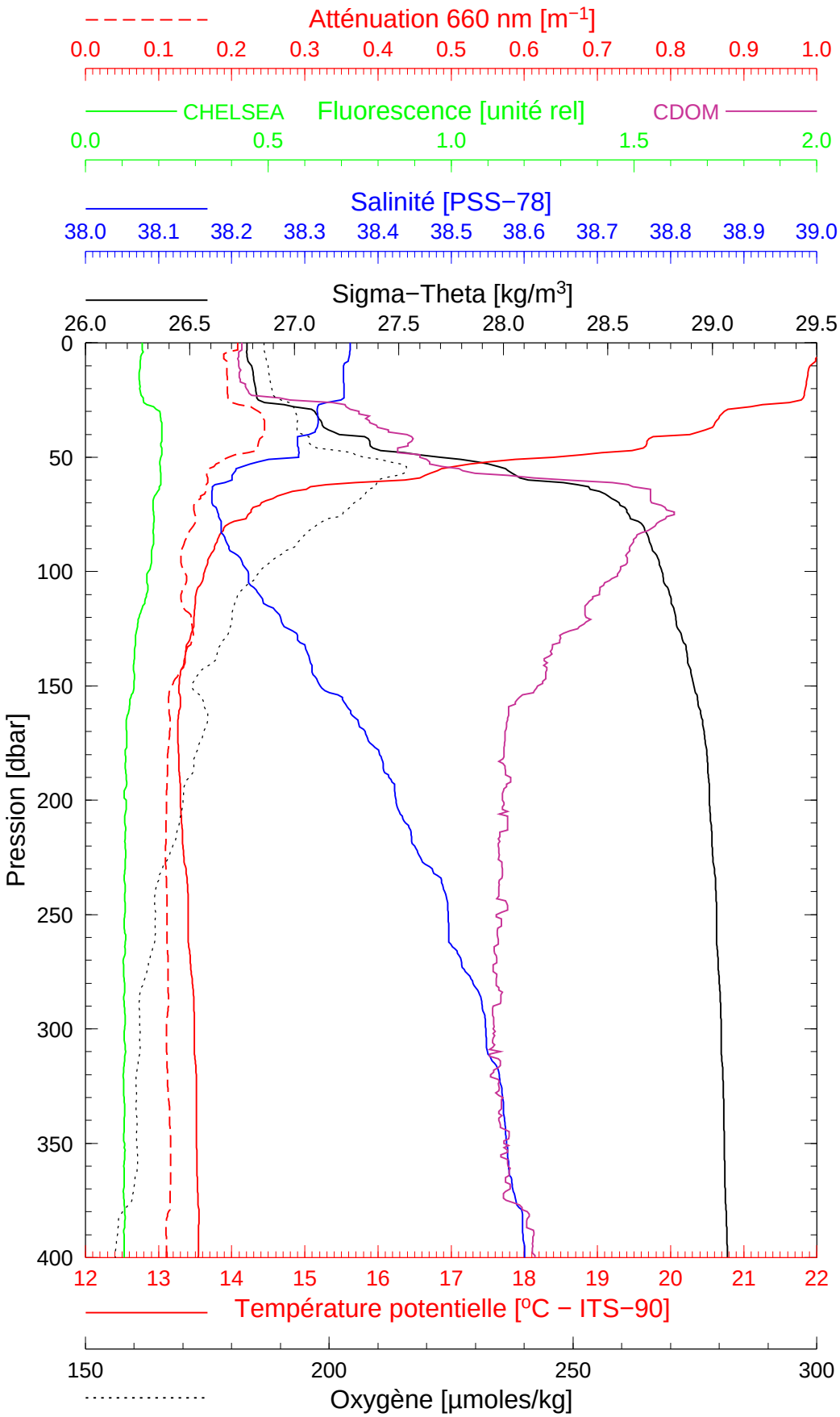


Date *06/10/2006* *Latitude* *43°33.992 N*

Heure déb *15h 31min [TU]* *Longitude* *07°30.954 E*

Boussole 57 **06/10/2006** **BOUS061006_06**

BOUS009

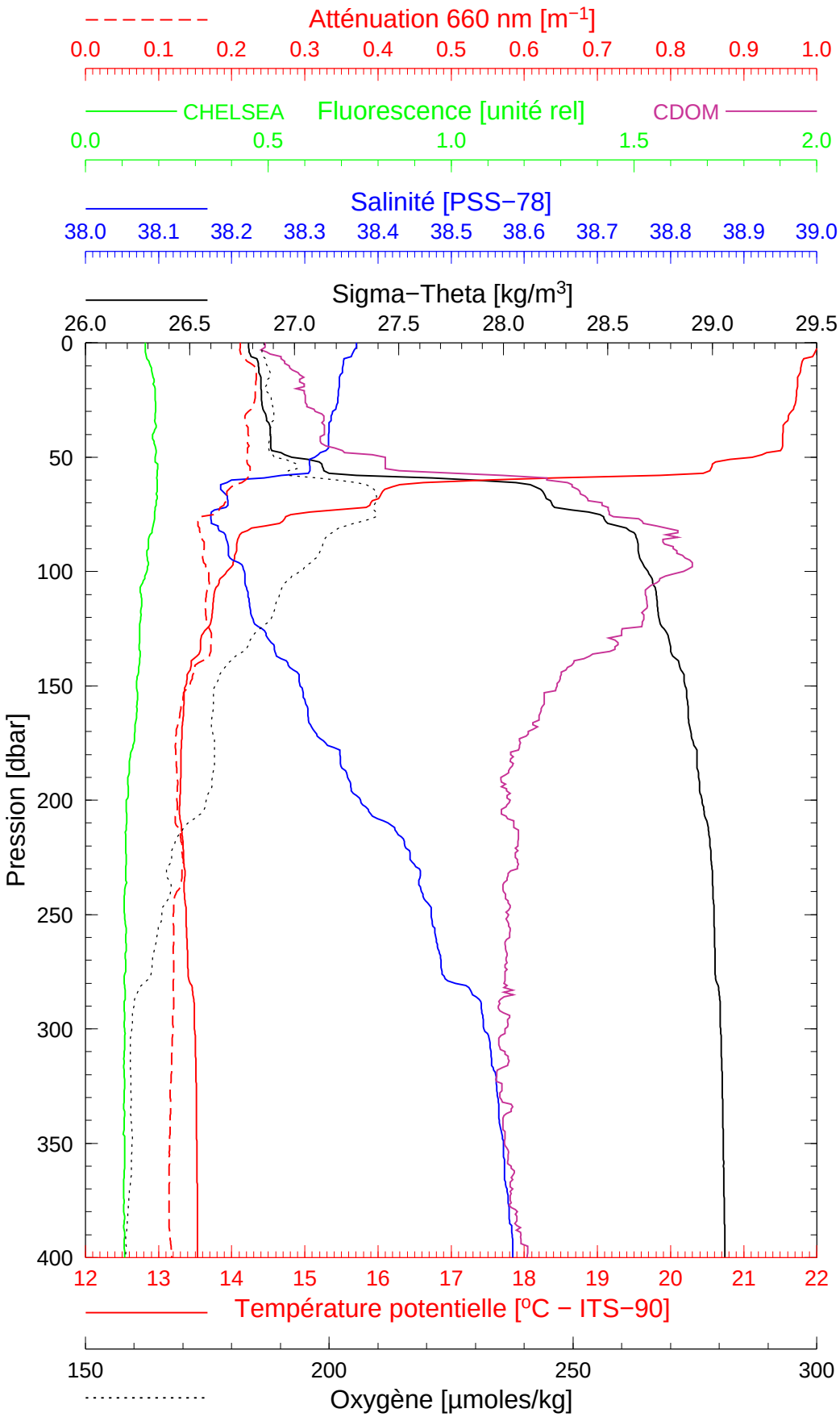


Date *06/10/2006* *Latitude* *43°37.519 N*

Heure déb *16h 34min [TU]* *Longitude* *07°25.124 E*

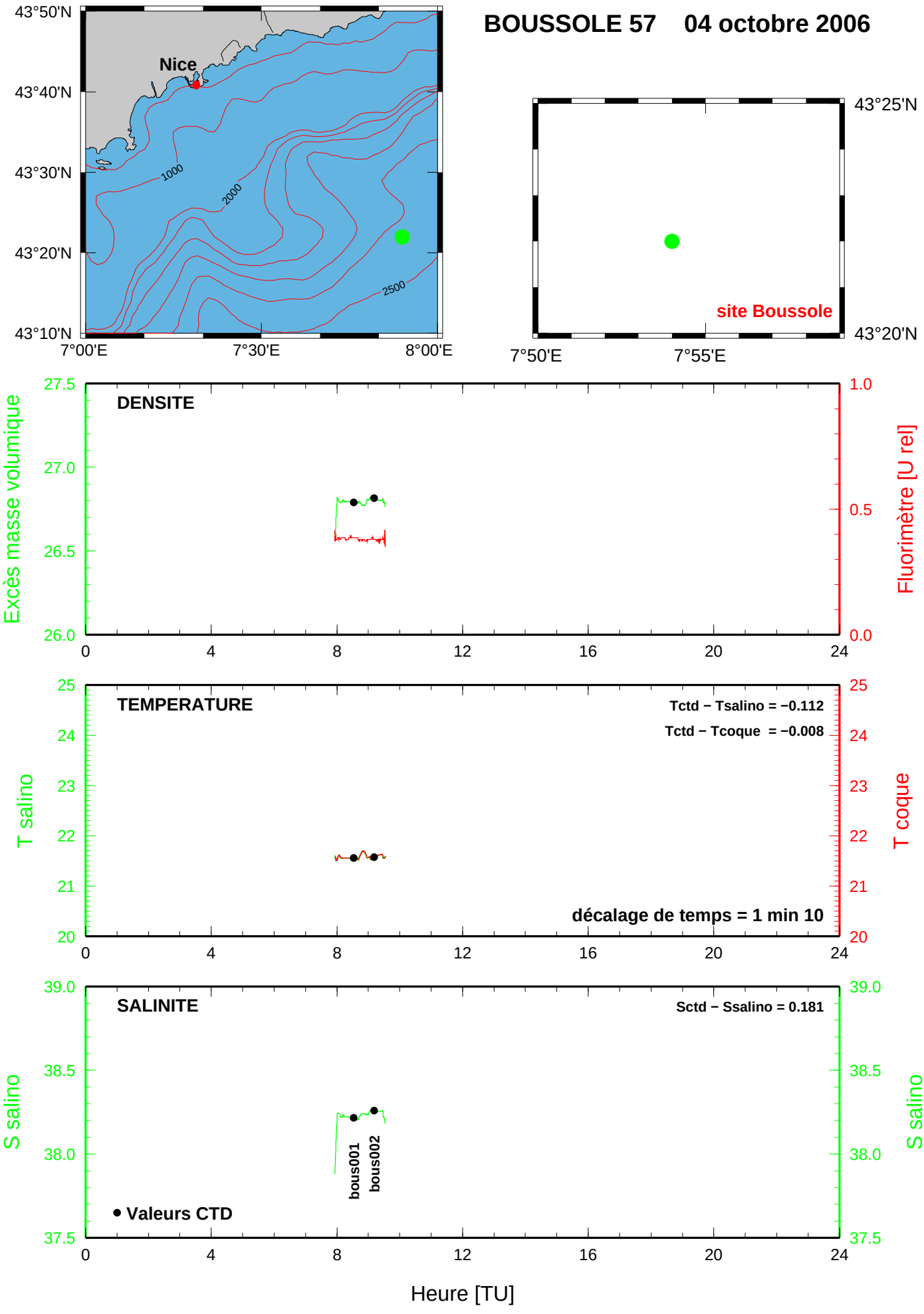
Boussole 57 **06/10/2006** **BOUS061006_07**

BOUS010

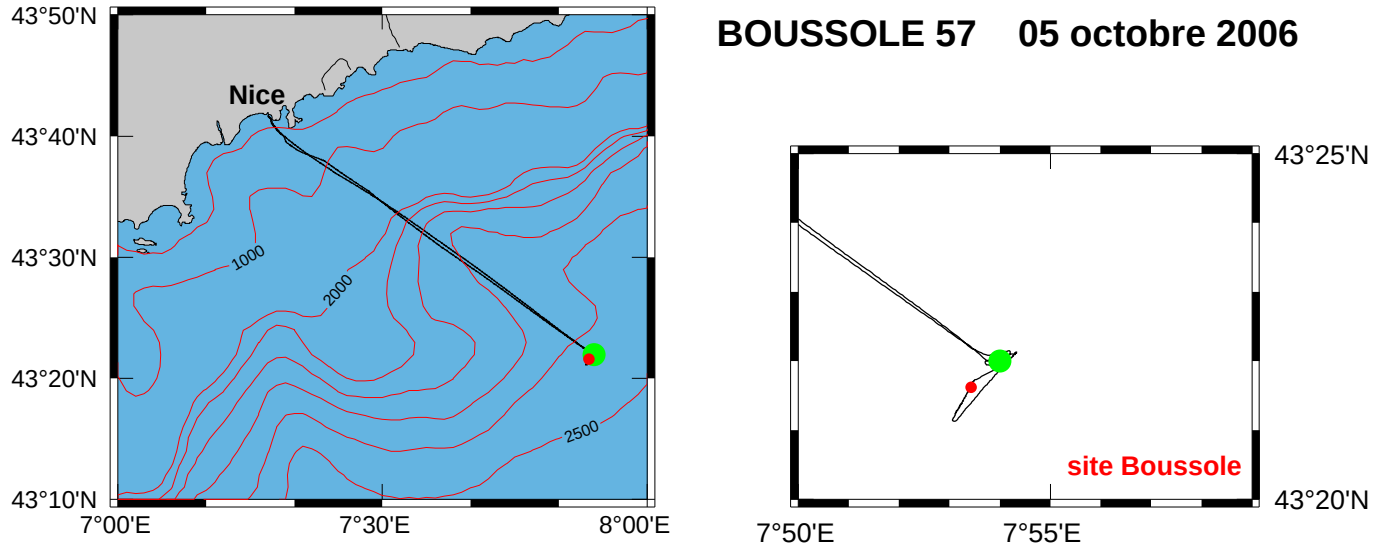


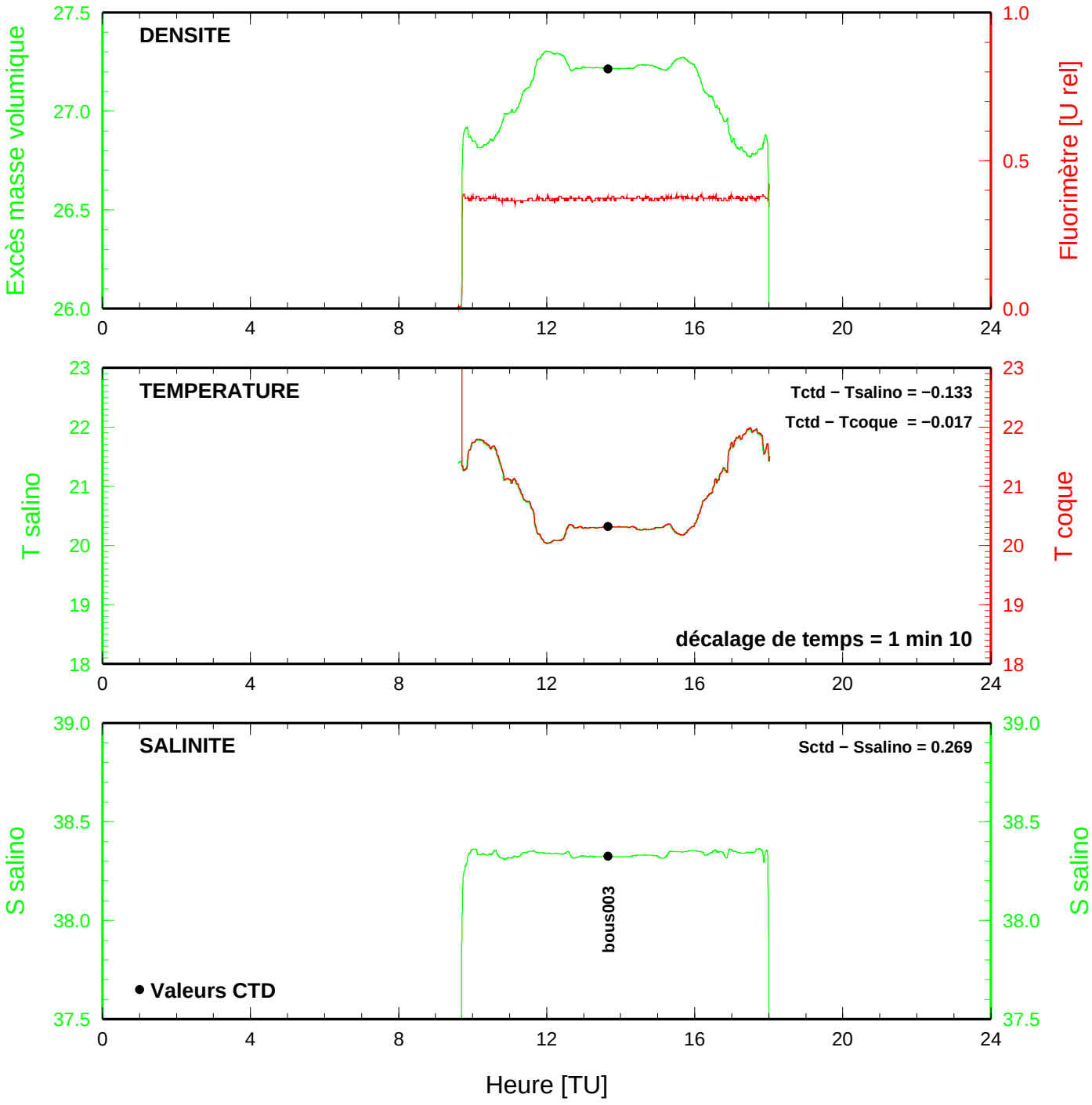
Date *06/10/2006* *Latitude* *43°38.901 N*

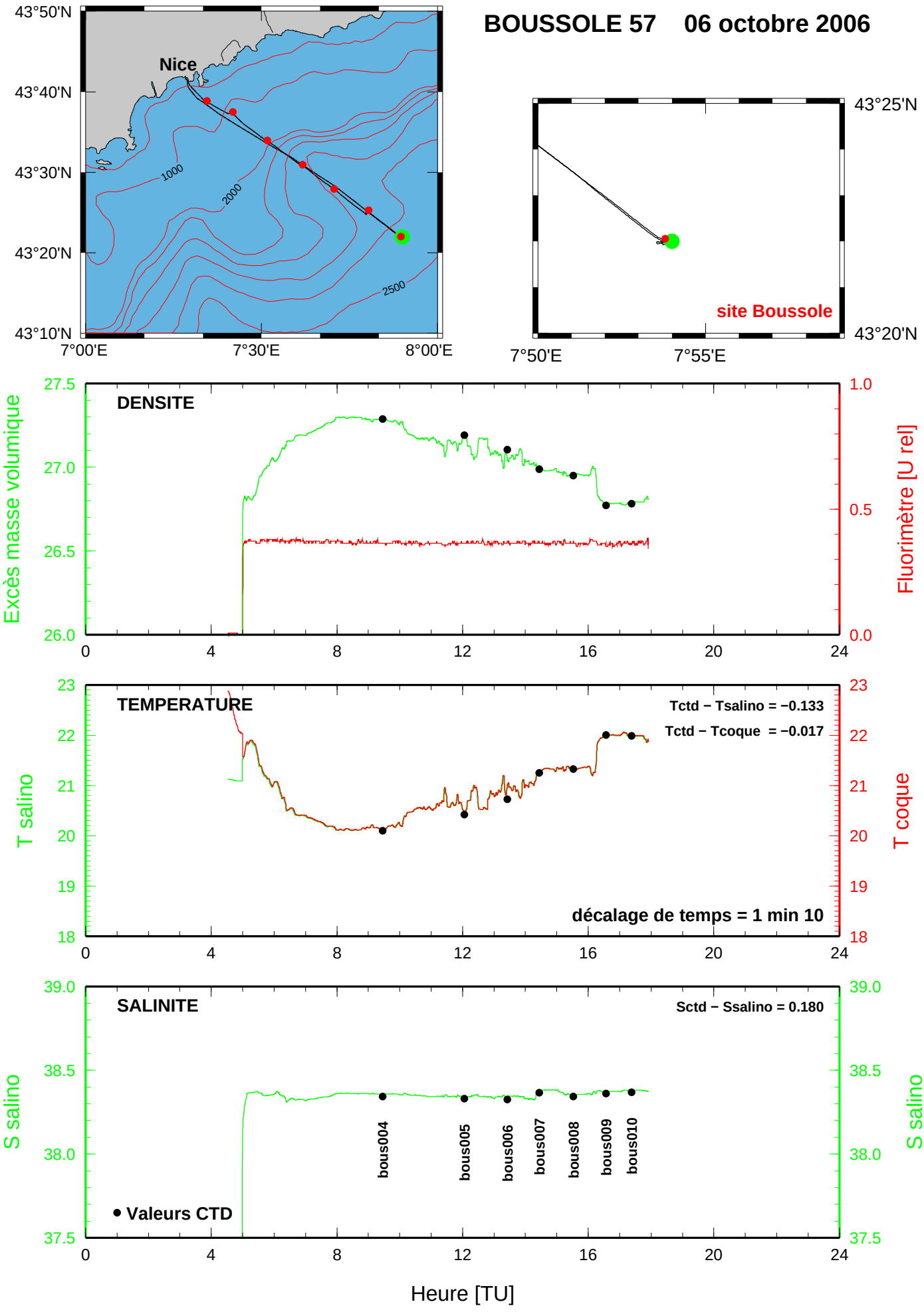
Heure déb *17h 23min [TU]* *Longitude* *07°20.664 E*


BOUSSOLE 57 04 octobre 2006
Nice
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
DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd − Tsalino = −0.112
Tctd − Tcoque = −0.008
décalage de temps = 1 min 10
T salino
T coque
SALINITE
Sctd − Ssalino = 0.181
bous001
bous002
• Valeurs CTD
S salino
Heure [TU]

BOUSSOLE 57 05 octobre 2006






BOUSSOLE 57 06 octobre 2006
Nice
43°50'N
43°40'N
43°30'N
43°20'N
43°10'N
7°00'E
7°30'E
8°00'E
1000
2000
2500
43°25'N
43°20'N
7°50'E
7°55'E
site Boussole
DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd − Tsalino = −0.133
Tctd − Tcoque = −0.017
T salino
T coque
décalage de temps = 1 min 10
SALINITE
Sctd − Ssalino = 0.180
S salino
bous004
bous005
bous006
bous007
bous008
bous009
bous010
• Valeurs CTD
Heure [TU]