BOUSSOLE Monthly Cruise Report

Cruise 53
May 02 - 04, 2006

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

Science Personnel: Guislain Bécu, Dominique Tailliez, Fanny Tièche, 3 divers (David Luquet, Laurent Gilletta, Pierre-Alain Manoni)

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

Fig 1. View of Villefranche and the LOV from the Tethys-2 anchored in the Villefranche bay on 4th May, 2006.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

April 12, 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.

3 divers (David Luquet, Laurent Giletta and Pierre-Alain Manoni) will be onboard on 2nd May 2006 to take some pictures and clean and check the buoy structure under the sea surface.

CIMEL hand held photometer broke down after the 4th measurement.

Cruise Summary

The Sea was calm during first day of the mission, but was choppy for the 2 others days, and did not allow to go to BOUSSOLE site. The 3rd day was used to realize some CTD profiles and Secchi disk measurements in the bay of Villefranche-sur-mer. Indeed, even during the spring bloom conditions at BOUSSOLE site, CTD profiles from first day on transect revealed very clear waters near the cost.

Monday 02 May 2006

Departure was slightly delayed as the ship and the truck were not available on Sunday 1st May. Departure was at 0705 local time, installing all instruments onboard. 5 SPMR/SMSR profiles with floating system as well as 8 CTD profiles were realized, among these 6 were realized on the transect between BOUSSOLE site and Port of Nice. 4 CIMEL atmospheric measurements and 1 Secchi disk measurement were also performed, revealing a 7 meters visibility.

Tuesday 03 May 2006

Stayed in port of Nice, due to strong winds on Ligurian Sea.

Wednesday 04 May 2006

Some CTD profiles were realized in the bay of Villefranche-sur-mer, in order to confirm the coastal flat profiles from the first day. 2 Secchi disk measurements were also performed.

Cruise Report

02 May 2006 (UTC)

0505 Departure from port of Nice.
0830 Divers at sea.
1000 Guislain Bécu on buoy head to clean ARGOS beacon contacts and MVD surface.
1035 CIMEL 01.
1037 CTD 01 at buoy, with water sampling at 200, 100, 80, 70, 60, 50, 40, 30, 20, 10 and 5 meters for HPLC/Ap, CDOM, flux cytometry and Kishino measurements.
1050 Secchi disk 01 (7 m).
1137 SPMR profiles 1, 2, 3, 4 and 5 with floating system.
1240 CIMEL 02.
1315 CIMEL 03.
1322 CTD 02 at buoy with water sampling at 5 and 10 meters for triplicate HPLC/Ap and dry weights.
1355 3 x 100 m plankton net profiles.
1432 CIMEL 04 between buoy site and station 1.
1448 CTD 03 at station 1 (43°25'N 07°48'E).
1543 CTD 04 at station 2 (43°28'N 07°42'E).
1642 CTD 05 at station 3 (43°31'N 07°37'E).
1740 CTD 06 at station 4 (43°34'N 07°31'E).
1839 CTD 07 at station 5 (43°37'N 07°25'E).
1934 CTD 08 at station 6 (43°39'N 07°21'E).
2030 Arrival to port of Nice.

03 May 2006

Stayed in port of Nice, due to bad weather conditions.

04 May 2006

0725 Departure from port of Nice.
0816 CTD 09 at "point C" (43°40.546N 7°18.505E) without water sampling.
0830 Secchi disk 02 (17 m) at "point C".
0855 CTD 10 at "point B+" (43°40.948N 7°18.810E) without water sampling.
0905 Secchi disk 03 (22 m) at "point B+".
1030 Arrival at port of Nice.

Calculated Swath paths for MERIS Sensor (ESOV Software)

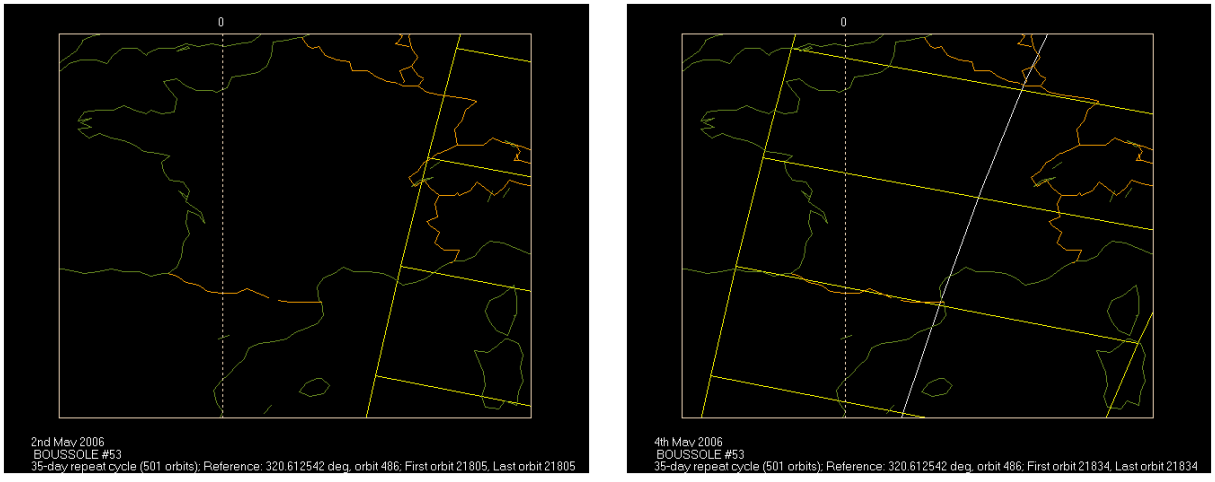
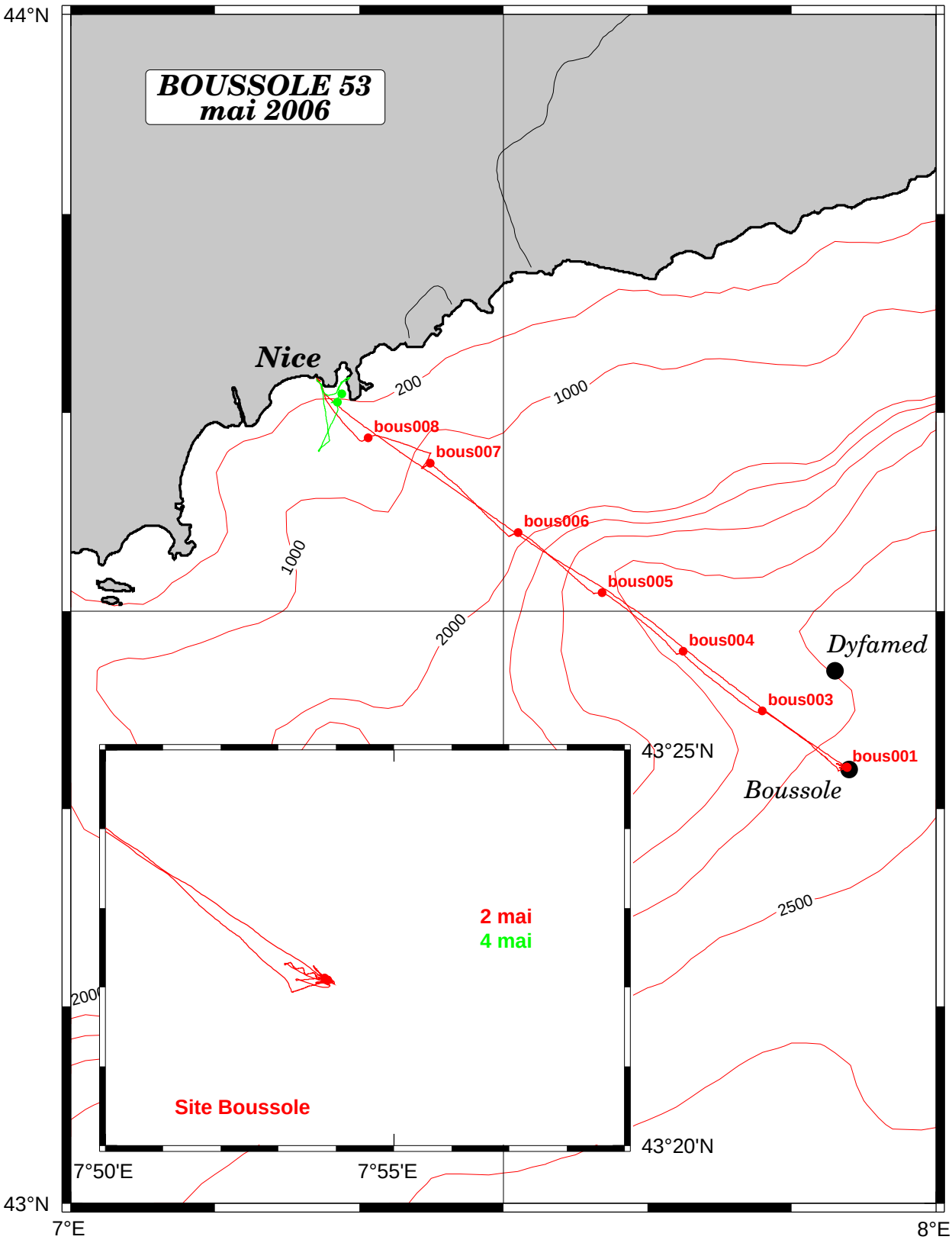


Figure 2. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for 02 and 04 May 2006.

Appendix

Cruise Summary Table for Boussole 53

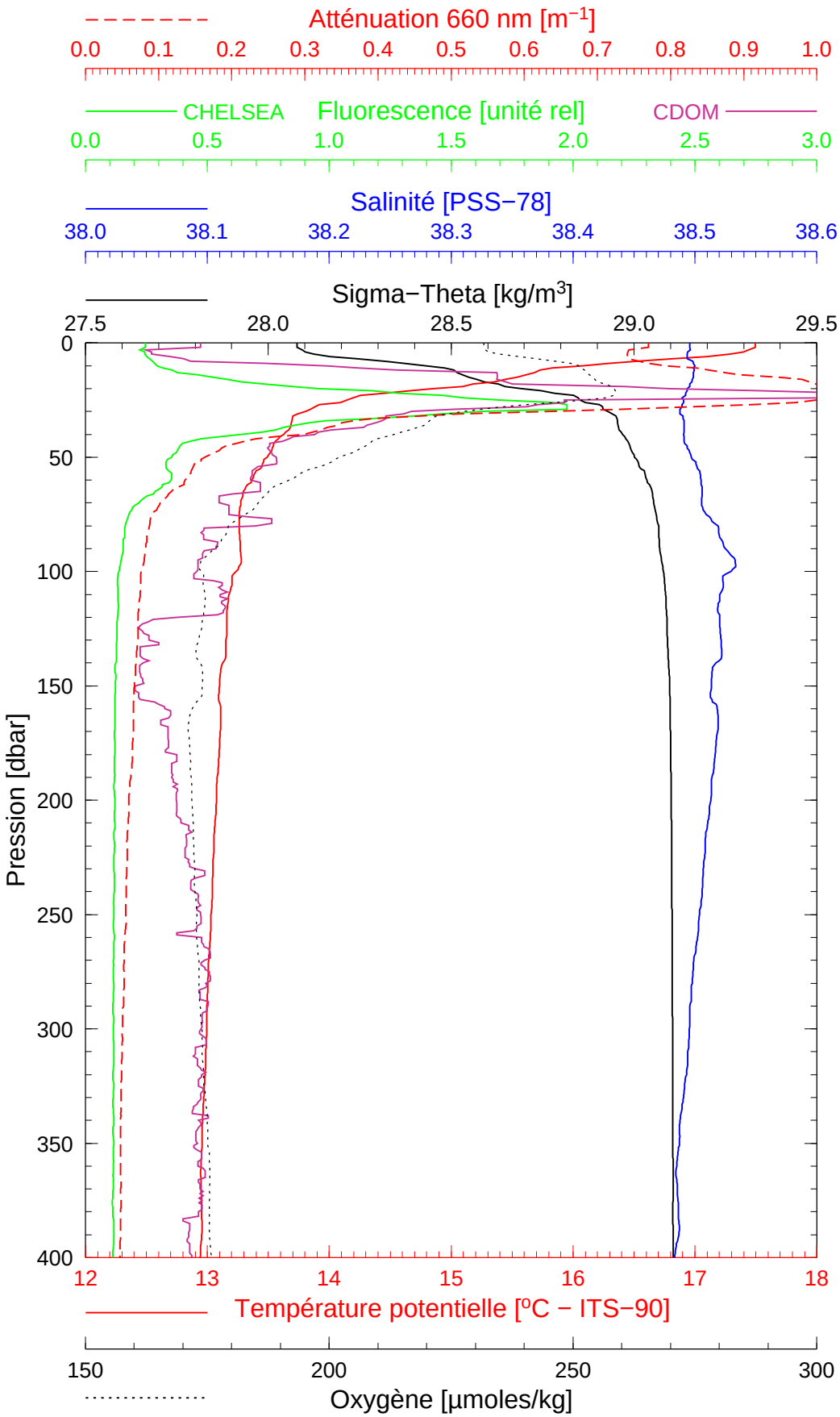
Date	Black names	Profile names	CTD notées /	Start Time	Duration	Depth max	Latitude (N)		longitude		Other sensors	Their cast	Start/Finish			Weather							Sea		
	(file ext: ".raw")	(file extension: ".raw")	satellite overpass	GMT (hour.min)	(min.sec)	(meter)	(Degree)	(Minute)	(Degree)	(Minute)				Sky	Clouds	Quantity (#/8)	Wind speed	Wind dir.	Atm. Pressure	humidity	Visibility	T air	T water	Sea	Swell height	Swell dir.	Whitecaps
02/05/2006				10:35	03:00		43	22.000	7	54.000	CIMEL 01			slight. covered	1 Ci in front of	2			1019.2		very good						
			CTDBOUS001	10:37	27:00	400	43	22.120	7	53.805				slight. covered	some fog	2	9 kn	77	1019.2	75	very good	16.5	17.5	calm	0,5 m		some
				10:50	05:00	7	43	22.000	7	54.000	Secchi disk 1			slight. covered	some fog	2					very good			calm	0,5 m		some
	bou020506black1			11:17	03:00																						
		bou020506spmratsurfaceAA		11:37	09:23	205	43	22.070	7	53.900				fog / Ci	Ci	4	12 kn	83	1019.2	82	very good	17.1		calm	0,5 m		some
		bou020506spmratsurfaceAB		11:58	07:31	190	43	22.110	7	53.810				fog / Ci	Ci	4	12 kn	83	1019.2	82	very good	17.1		calm	0,5 m		some
		bou020506spmratsurfaceAC		12:16	07:34	185	43	22.125	7	53.660				fog / Ci	Ci	4	12 kn	83	1019.2	82	very good	17.1		calm	0,5 m		some
		bou020506spmratsurfaceAD		12:36	07:57	185	43	22.181	7	53.455				fog / Ci	Ci	4	12 kn	83	1019.2	82	very good	17.1		calm	0,5 m		some
		bou020506spmratsurfaceAE		12:54	07:36	185	43	22.258	7	53.271				fog / Ci	Ci	4	12 kn	83	1019.2	82	very good	17.1		calm	0,5 m		some
	bou020506black2			13:10	03:00																						
				12:40	02:00		43	22.000	7	54.000	CIMEL 02			fog / Ci	Ci	3			1019.1		very good						
				13:15	02:00		43	22.000	7	54.000	CIMEL 03			fog / Ci	Ci	4			1019.1		very good						
			CTDBOUS002	13:22	28:00	400	43	22.094	7	53.856				fog / Ci	Ci	2	11 kn	79	1018.9	80	very good	17.1	17.6	calm	0,5 m		some
				14:31	03:00		43	22.000	7	54.000	CIMEL 04			fog / Ci	Ci	2			1018.8		very good						
			CTDBOUS003	14:48	22:00	400	43	24.966	7	47.956				slight. Covered	Ci	2	11 kn	75	1018.7	81	very good	17.3	17.5	calm	0,5 m		some
			CTDBOUS004	15.43	26:00	400	43	27.972	7	42.469				slight. Covered	Ci	2	11 kn	80	1018.7	80	very good	17.4	17.5	calm	0,5 m		some
			CTDBOUS005	16:42	41:00	400	43	30.948	7	36.863				covered	Ci	3	12 kn	89	1018.4	83	very good	17.1	17.5	calm	0,5 m		some
			CTDBOUS006	17:40	23:00	400	43	33.966	7	31.021				covered	Ci	4	10 kn	90	1018.7	80	very good	17.3	17.5	calm	0,5 m		rare
			CTDBOUS007	18:39	23:00	400	43	37.466	7	24.924				twilight	-	5	7 kn	75	1019.0	83	twilight	17.1	17.5	calm	0,5 m		no
			CTDBOUS008	19:34	27:00	400	43	38.742	7	20.641				night	-	9	7 kn	53	1019.4	86	night	16.6	16.6	calm	0,5 m		no
04/05/2006			CTDBOUS009	08:16	26:00	400	43	40.546	7	18.505				blue	far Cu	1	19 kn	256	1004.9	71	very good	13.2	13.8	choppy	0,8 m		some
				08:30	05:00	17	43	40.546	7	18.505	Secchi disk 2			blue	far Cu	1	19 kn				very good			choppy	0,8 m		some
			CTDBOUS010	08:55	10:00	140	43	40.948	7	18.810				blue	far Cu	1	19 kn	256	1004.9	71	very good	13.2	13.8	calm	0,3 m		no
				09:05	05:00	22	43	40.948	7	18.810	Secchi disk 3			blue	far Cu	1	19 kn				very good			calm	0,3 m		no



GMT 2006 May 24 10:16:43

Boussole 53 **02/05/2006** **BOUS060502_01**

BOUS001

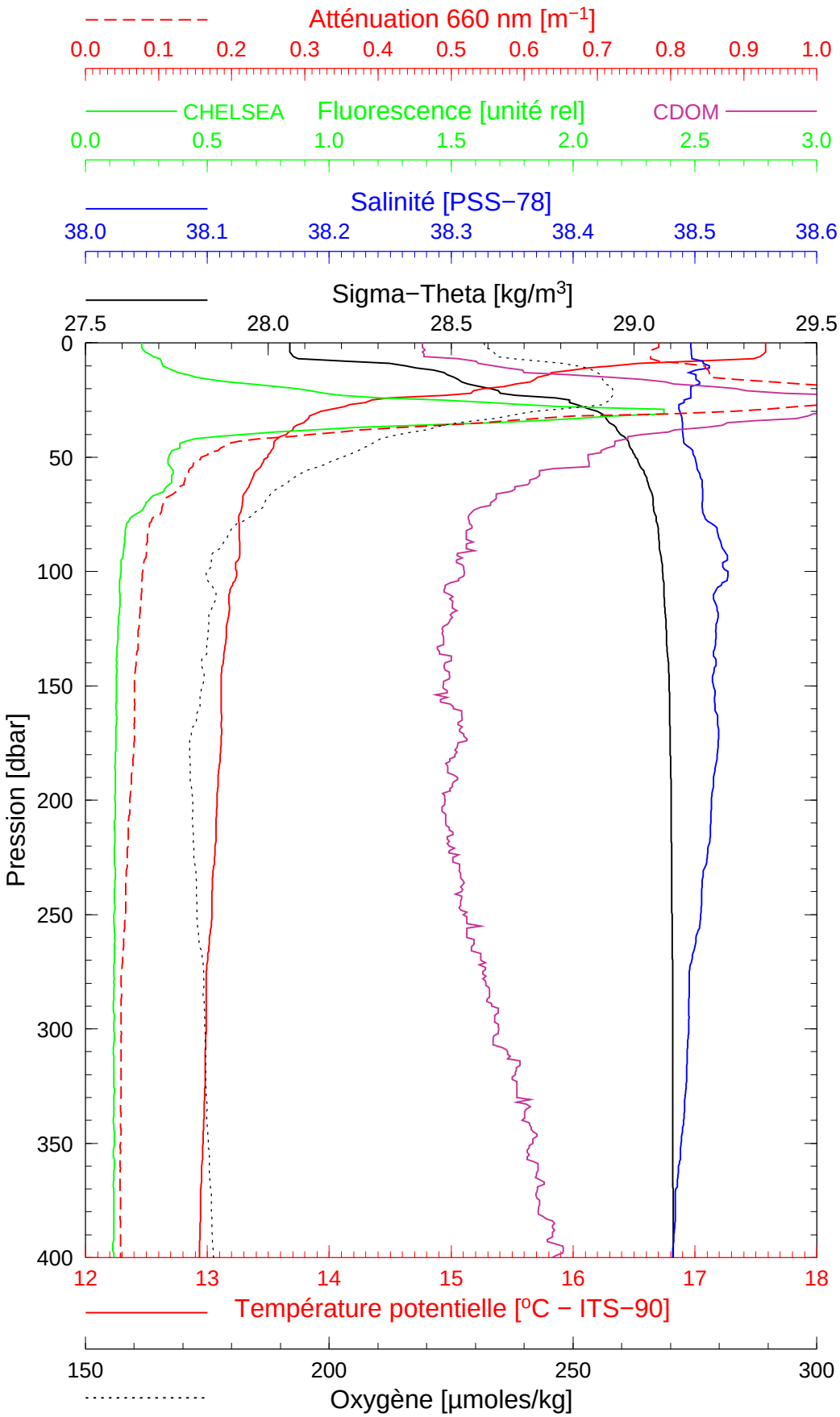


Date *02/05/2006* *Latitude* *43°22.120 N*

Heure déb *10h 37min [TU]* *Longitude* *07°53.805 E*

Boussole 53 **02/05/2006** **BOUS060502_02**

BOUS002

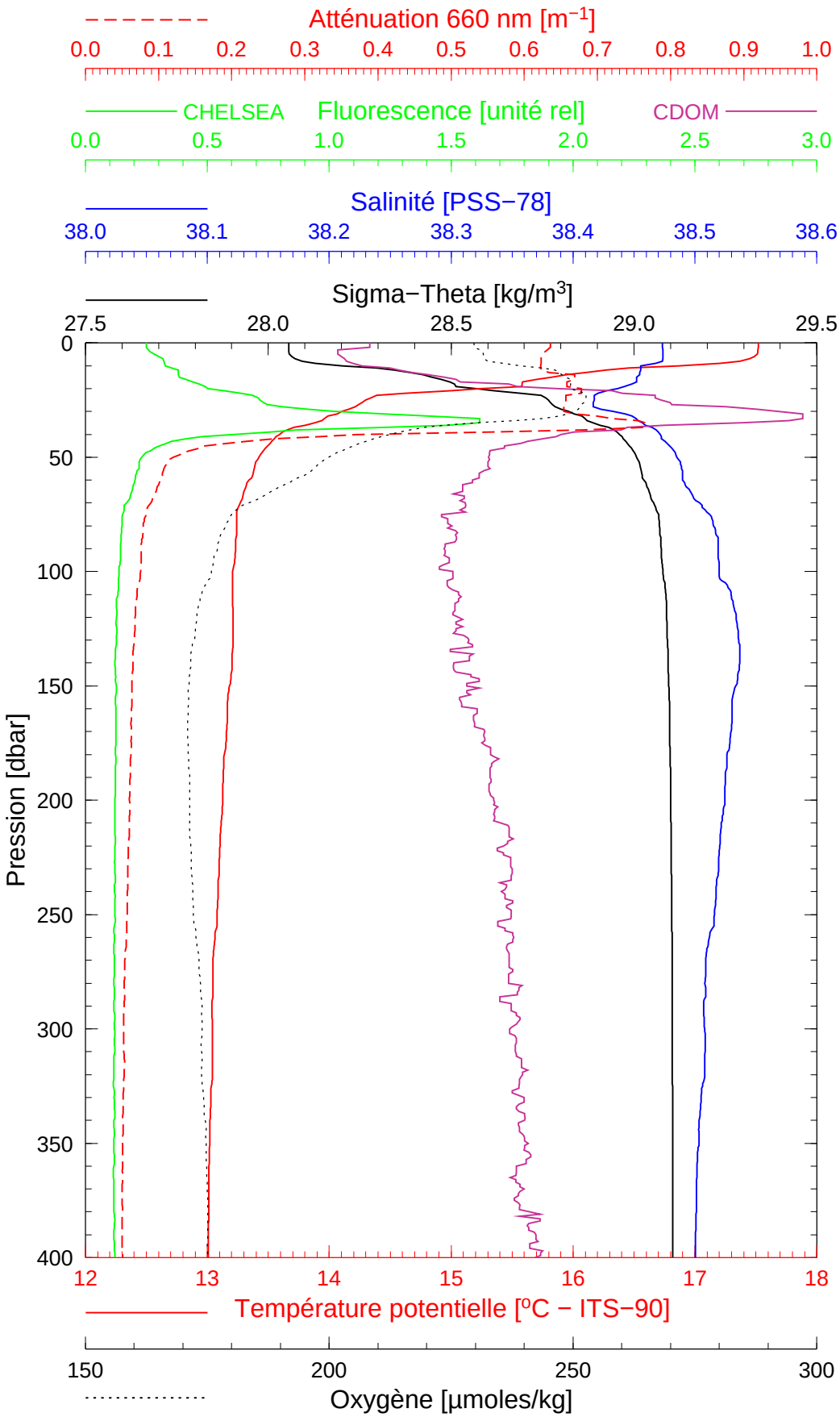


Date *02/05/2006* *Latitude* *43°22.094 N*

Heure déb *13h 22min [TU]* *Longitude* *07°53.856 E*

Boussole 53 **02/05/2006** **BOUS060502_03**

BOUS003

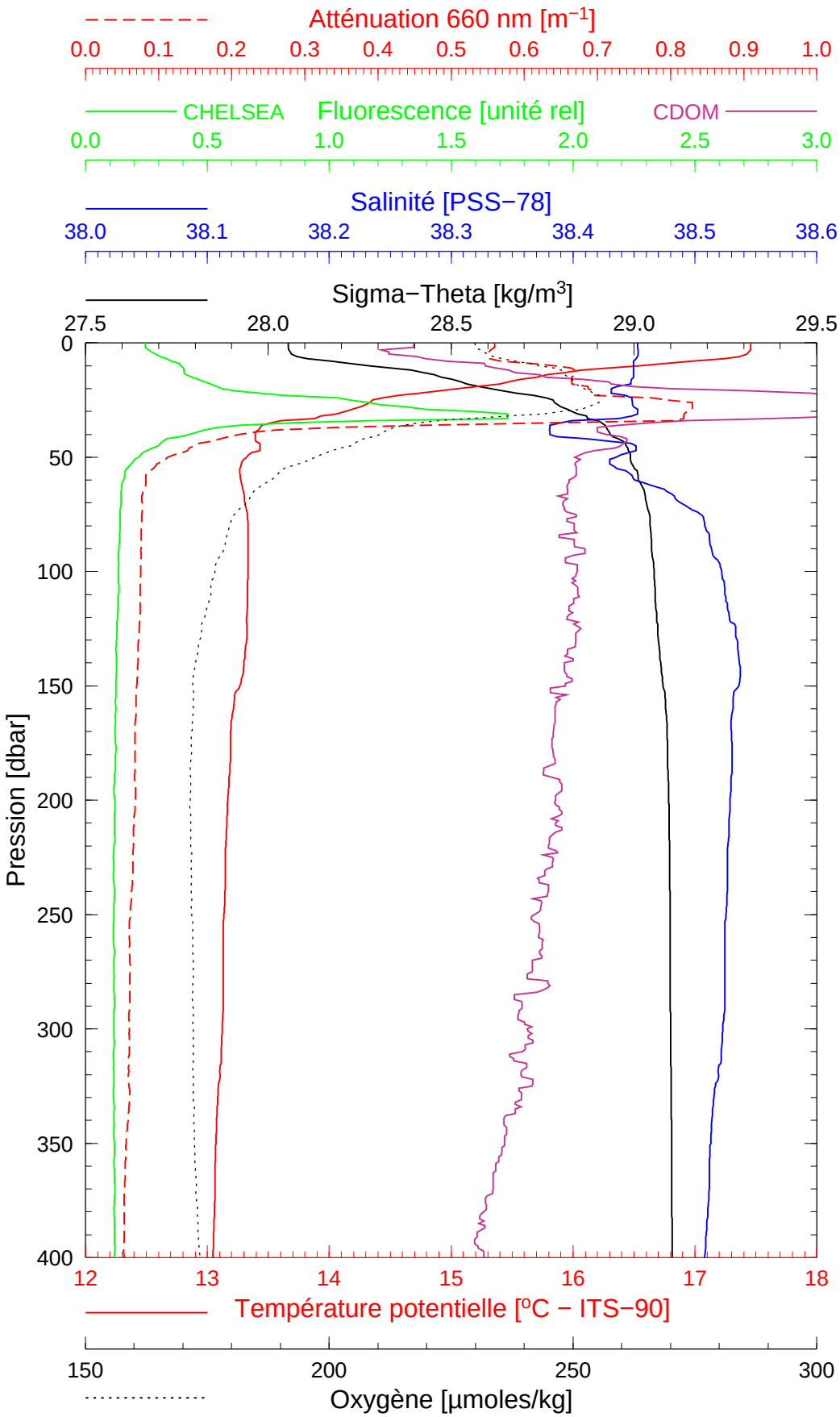


Date *02/05/2006* *Latitude* *43°24.966 N*

Heure déb *14h 48min [TU]* *Longitude* *07°47.956 E*

Boussole 53 **02/05/2006** **BOUS060502_04**

BOUS004

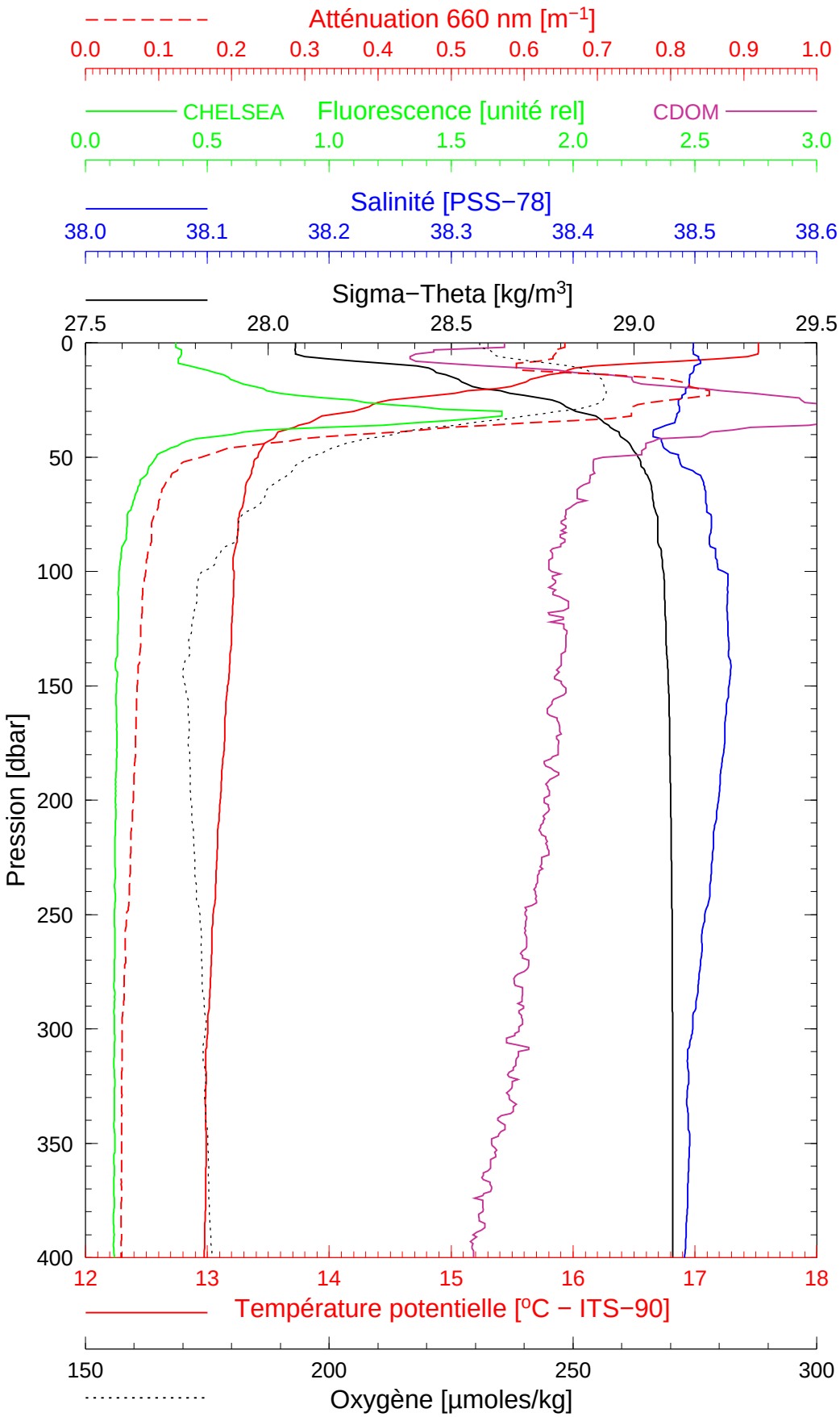


Date *02/05/2006* *Latitude* *43°27.972 N*

Heure déb *15h 43min [TU]* *Longitude* *07°42.469 E*

Boussole 53 **02/05/2006** **BOUS060502_05**

BOUS005

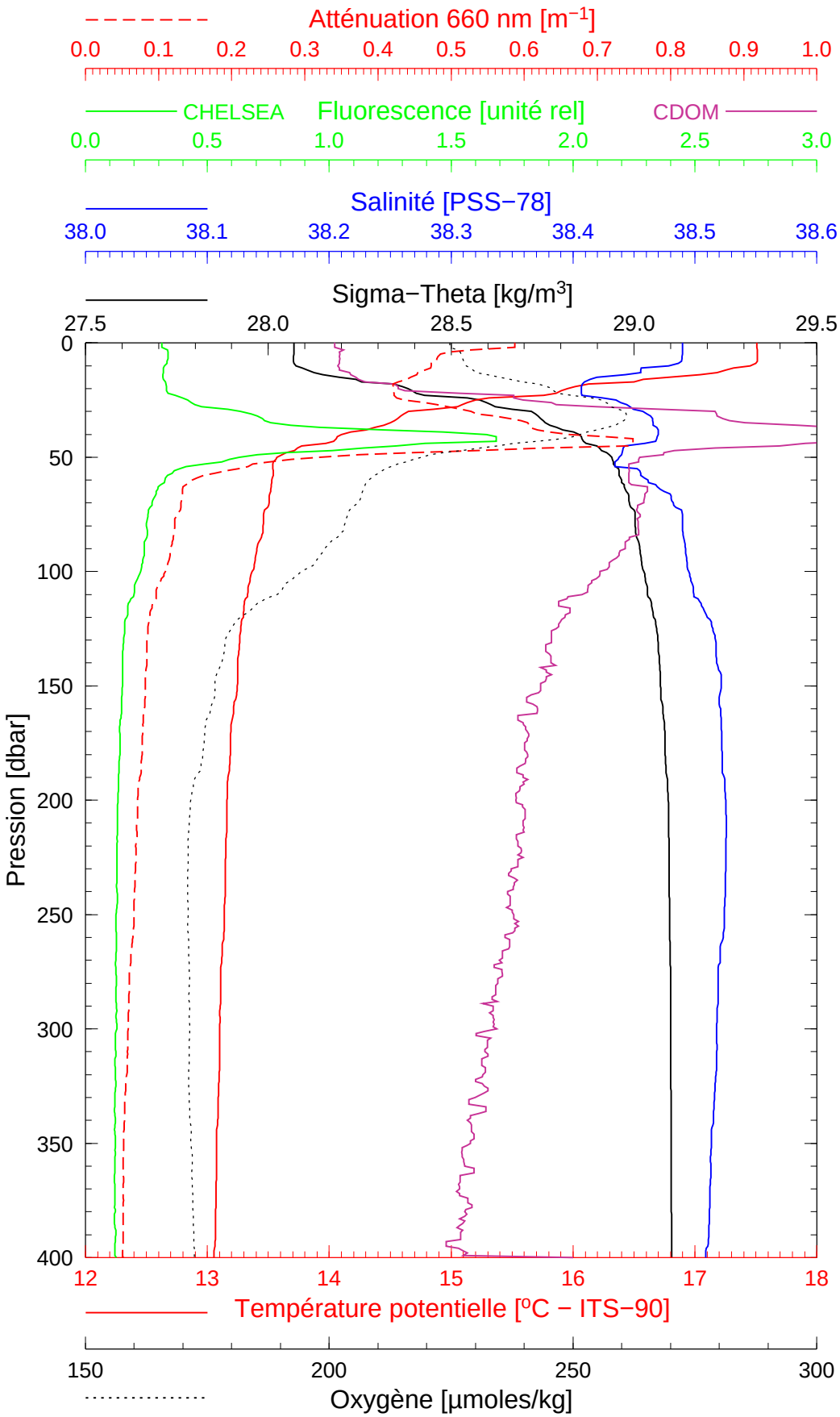


Date *02/05/2006* *Latitude* *43°30.948 N*

Heure déb *16h 42min [TU]* *Longitude* *07°36.863 E*

Boussole 53 **02/05/2006** **BOUS060502_06**

BOUS006

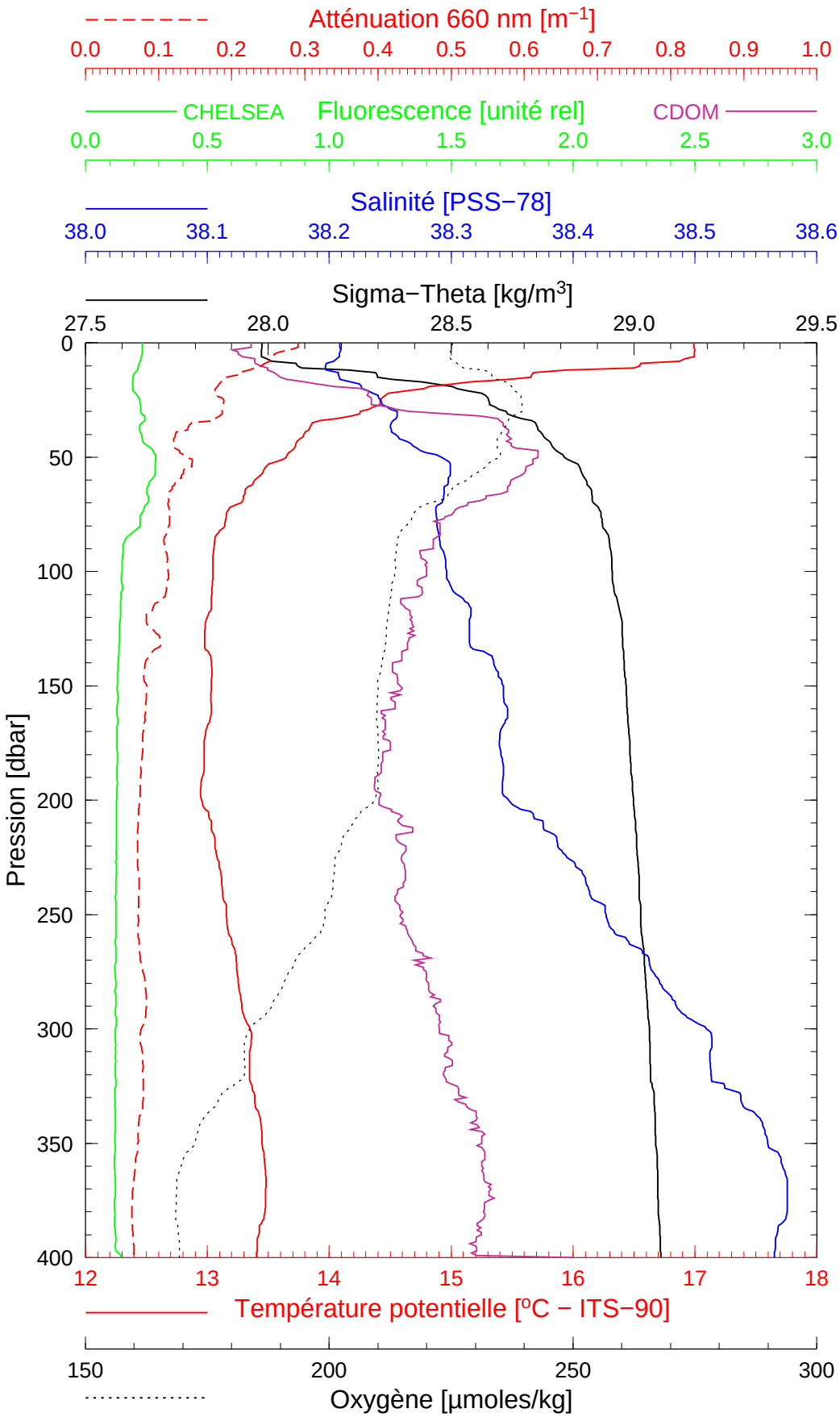


Date *02/05/2006* *Latitude* *43°33.966 N*

Heure déb *17h 40min [TU]* *Longitude* *07°31.021 E*

Boussole 53 **02/05/2006** **BOUS060502_07**

BOUS007

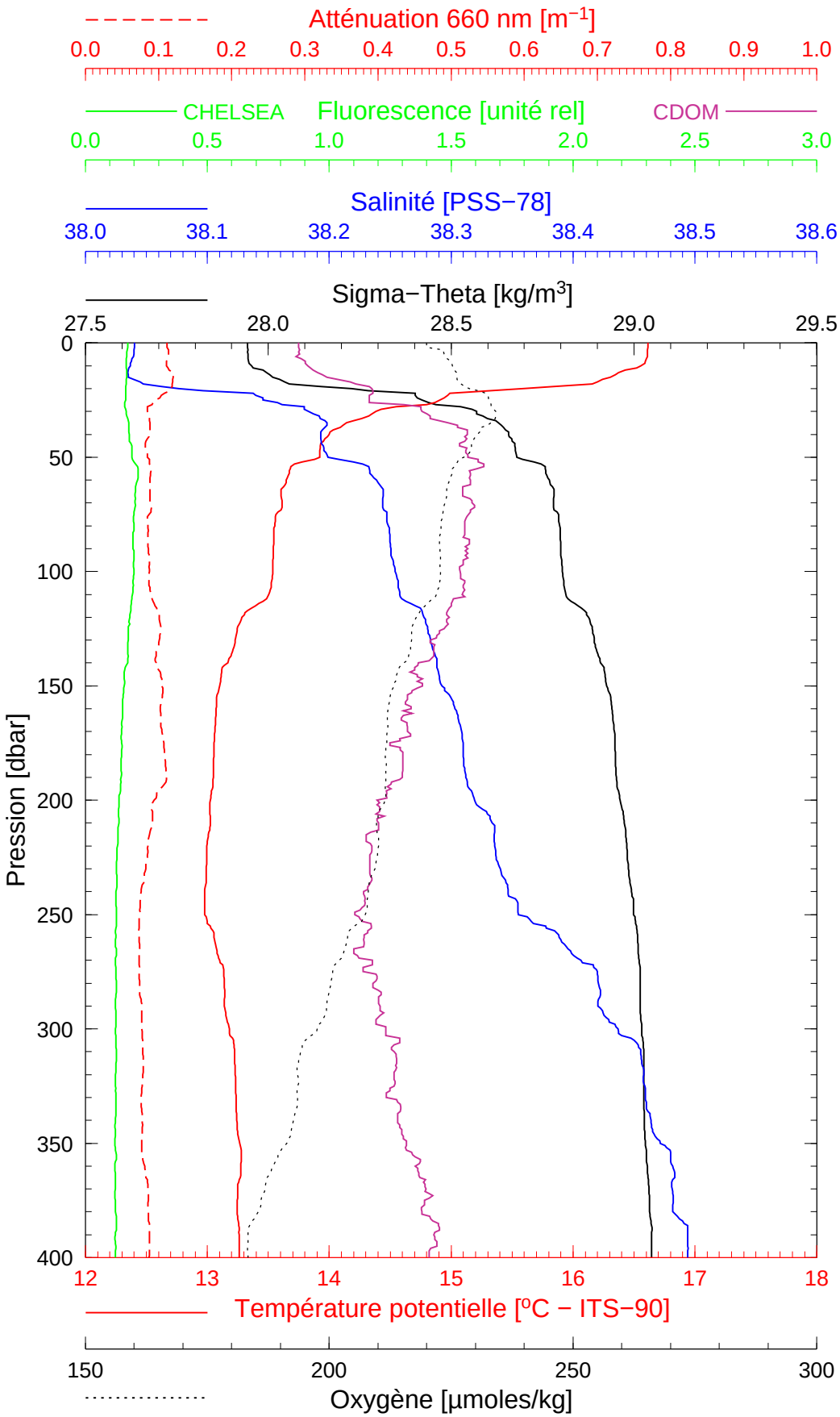


Date *02/05/2006* *Latitude* *43°37.466 N*

Heure déb *18h 39min [TU]* *Longitude* *07°24.924 E*

Boussole 53 **02/05/2006** **BOUS060502_08**

BOUS008

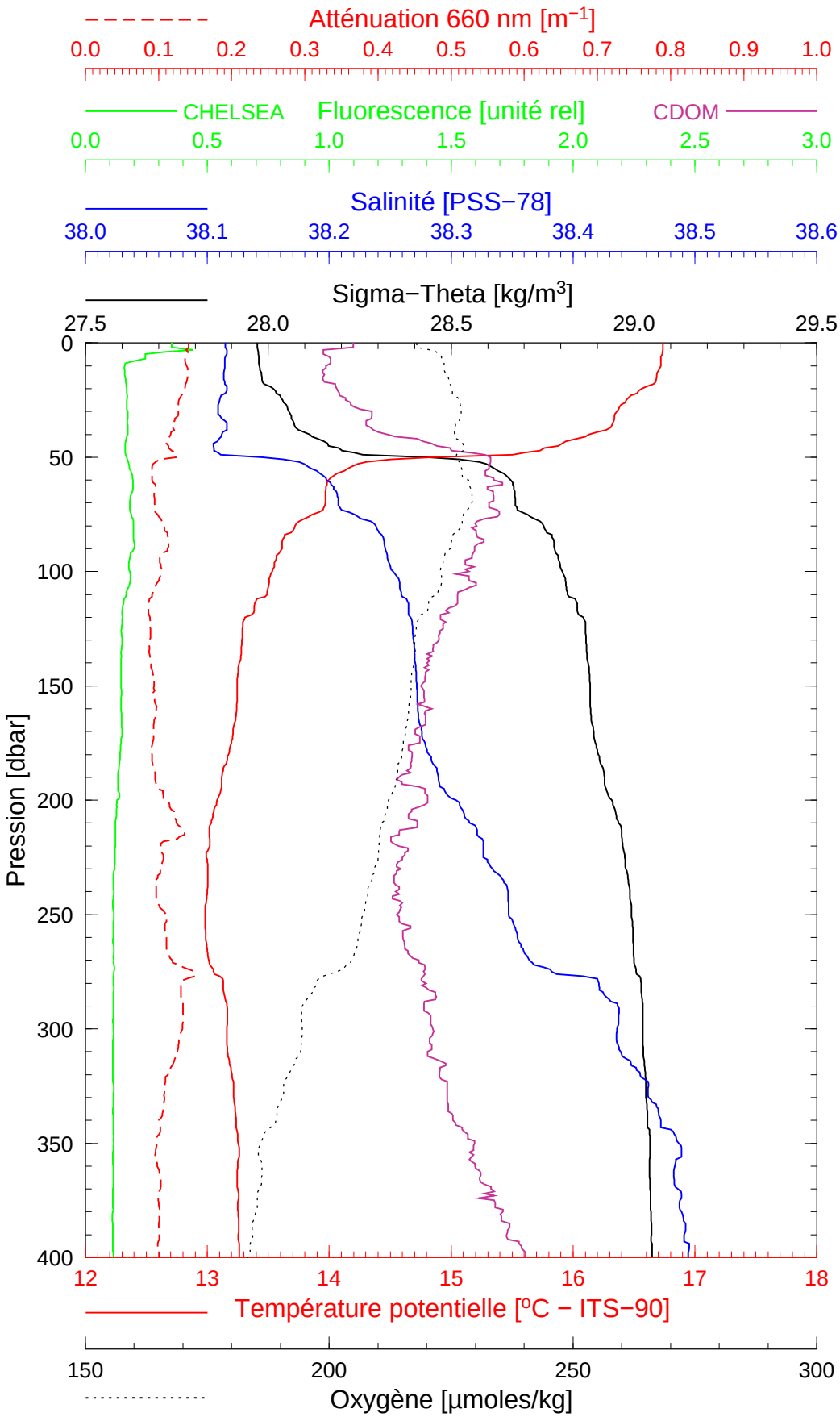


Date *02/05/2006* *Latitude* *43°38.742 N*

Heure déb *19h 34min [TU]* *Longitude* *07°20.641 E*

Boussole 53 **04/05/2006** **BOUS060504_01**

point C

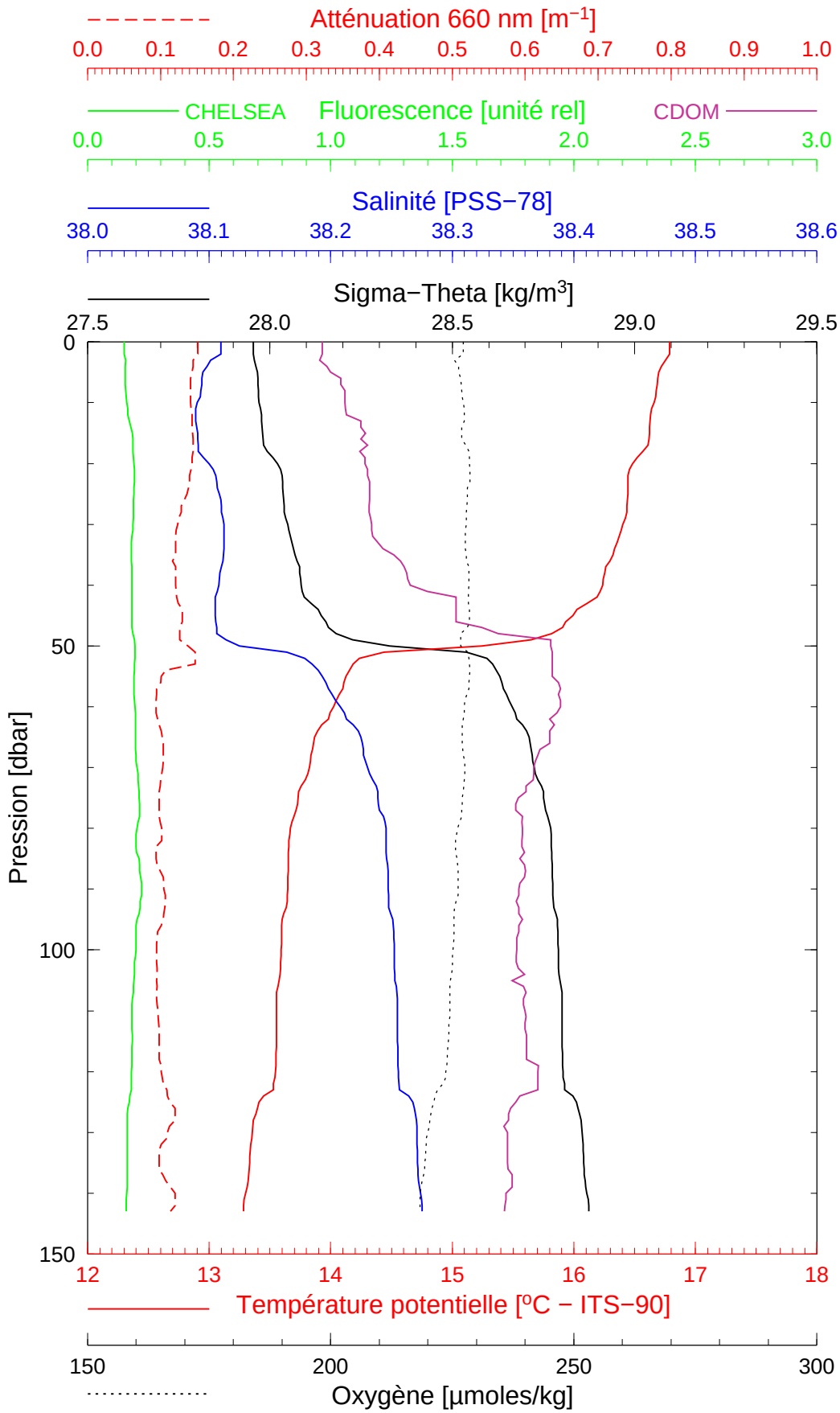


Date *04/05/2006* *Latitude* *43°40.546 N*

Heure déb *08h 16min [TU]* *Longitude* *07°18.505 E*

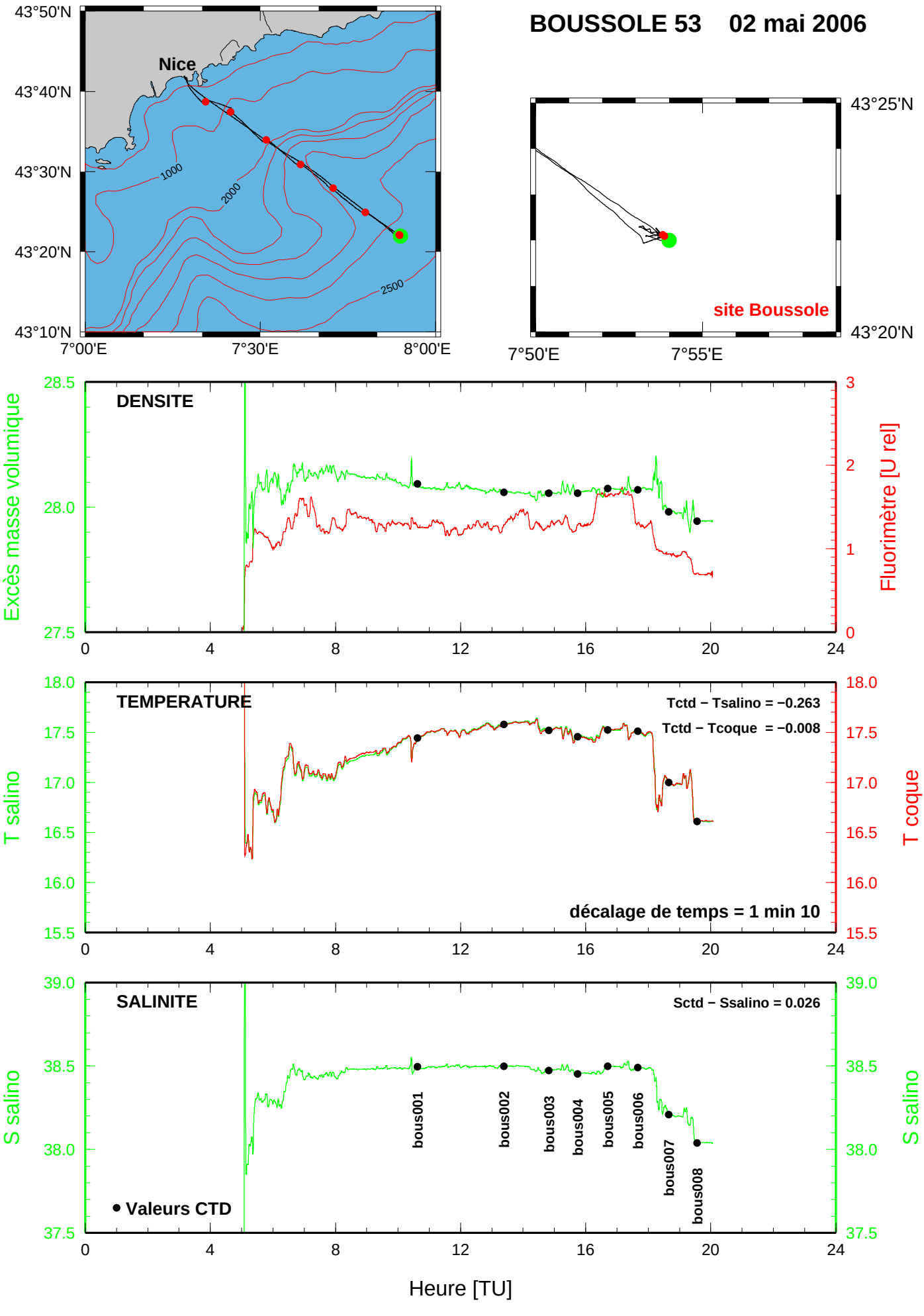
Boussole 53 **04/05/2006** **BOUS060504_02**

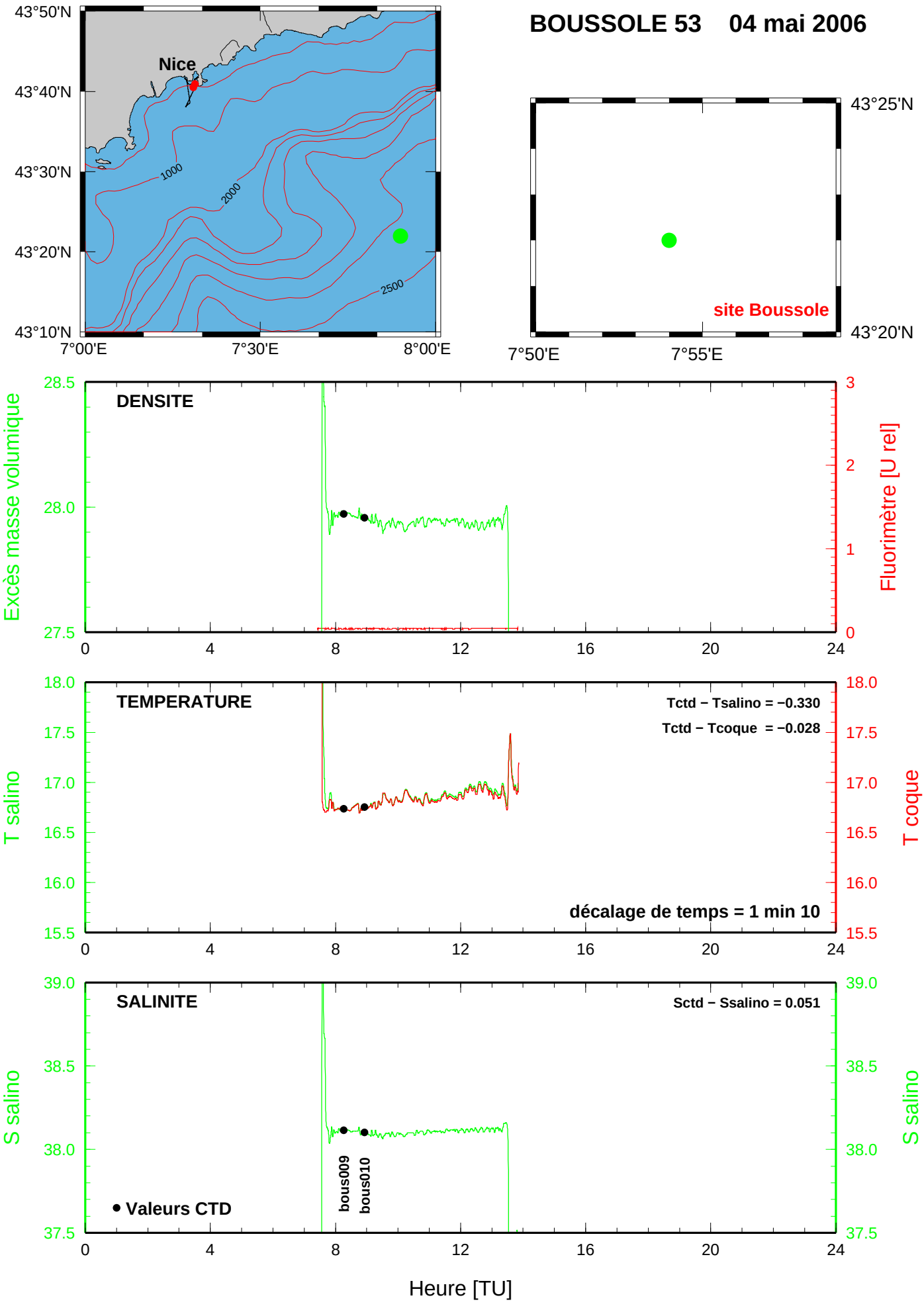
point B



Date *04/05/2006* *Latitude* *43°40.948 N*

Heure déb *08h 55min [TU]* *Longitude* *07°18.810 E*


BOUSSOLE 53 02 mai 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 = −0.263
Tctd − Tcoque = −0.008
décalage de temps = 1 min 10
T salino
T coque
SALINITE
Sctd − Ssalino = 0.026
bous001
bous002
bous003
bous004
bous005
bous006
bous007
bous008
• Valeurs CTD
S salino
Heure [TU]


BOUSSOLE 53 04 mai 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
43°25'N
43°20'N
7°50'E
7°55'E
site Boussole
DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd − Tsalino = −0.330
Tctd − Tcoque = −0.028
décalage de temps = 1 min 10
T salino
T coque
SALINITE
Sctd − Ssalino = 0.051
S salino
bous009
bous010
• Valeurs CTD
Heure [TU]