BOUSSOLE Monthly Cruise Report

Cruise 49
February 01 – 04, 2006

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

Science Personnel: Guislain Bécu, Dominique Tailliez, Pierre Gernez, Fabrizio D'Ortenzio, Vincent Dutreuil (DT-INSU) and 3 divers (Laurent Giletta, Jean de Vaugelas and David Luquet)

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

Fig 1. 4 meters arms are clearly visible from the head if the buoy with February clear waters.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

February 8, 2006

Foreword

This report is part of the technical report series that is being established by the BOUSSOLE project.

BOUSSOLE is funded and supported by the following Agencies and Institutions

European Space Agency

Centre National d'Etudes Spatiales, France

National Aeronautics and Space Administration of the USA

Centre National de la Recherche Scientifique, France

Institut National des Sciences de l'Univers, France

Université Pierre & Marie Curie, France

Observatoire Océanologique de Villefranche sur mer, France

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 Jean de Vaugelas) will be onboard on 2 February 2006 to take some pictures and clean and check the buoy structure under the sea surface.

Other activities will also be performed on the buoy to download the data off the buoy and verify that everything is as expected above the waterline.

Vincent Dutreuil, newly arrived at DT-INSU will be onboard 2 days to be aware of typical operations during a Boussole cruise.

Cruise Summary

The weather was not so favourable for the beginning of the mission. The first day was even used to realize some CTD troubleshooting in the Bay of Villefranche-sur-mer (point B, C).
The hand held CIMEL sun photometer was found to be out of order for the cruise.
A total of 6 SPMR profiles and 9 CTD profiles were performed.
The buoy connection was again impossible to establish the first days of the cruise with the CISCO Ethernet bridge from the ship. Even a direct connection from the buoy head did not success. Diver David Luquet had to operate a manual switch while Guislain Becu was on top of the buoy with a laptop to force the buoy to connect. It was found that the buoy clock had reset to January 01, 1970 midnight on November 12, 2005 midday, so that not only the date was wrong, but also the node time was lagged from about 12 hours. It is so normal that the buoy did not connect to the laptop, as it is configured to try to connect only during the day.

Wednesday 01 February 2006

Due to bad weather, only some CTD profiles were performed in the bay of Villefranche to troubleshoot some pb.

Thursday 02 February 2006

Weather was little bit more convenient than the previous day ; 3 SPMR profiles as well as 2 CTD profiles with filtration to the site and 5 CTD profiles of the transect to port of Nice were realized. Connection to the buoy failed.

Friday 03 February 2006

Divers went at sea at morning. One CTD profile was performed for filtration including dry weights. This day, the connection to the buoy was successful with the help of the diver operating a manual switch (AK port).

Saturday 04 February 2006

One CTD profile was realized when arriving to the site, for triplicate HPLC filtration as well as for dry weights. 3 SPMR profiles were also performed, but there was quite a lot of swell and whitehorses.

Cruise Report

01 February 2006 (UTC)

1130 Departure from port of Nice.
1200 CTD test 1 at 43°20.613'N 07°18.239'E (point C).
1255 CTD test 2 at 43°39.572'N 07°17.878'E.
1343 CTD test 3 at 43°39.684'N 07°17.494'E.
1451 CTD test 4 at 43°40.995'N 07°18.769'E (point B).
1600 Arrival at port of Nice.

02 February 2006

0530 Departure from port of Nice.
0927 CTD 1 with water sampling at 200, 100, 80, 70, 60, 50, 40, 30, 20, 10 and 5 meters.
1026 CTD 2 for triplicate at 5 and 10 meters.
1136 SPMR profiles 1, 2, 3.
1352 CTD 3 at station 1 (43°25'N 07°48'E).
1458 CTD 4 at station 2 (43°28'N 07°42'E).
1555 CTD 5 at station 3 (43°31'N 07°37'E).
1658 CTD 6 at station 4 (43°34'N 07°31'E).
1756 CTD 7 at station 5 (43°37'N 07°25'E).
1910 Arrival to port of Nice.

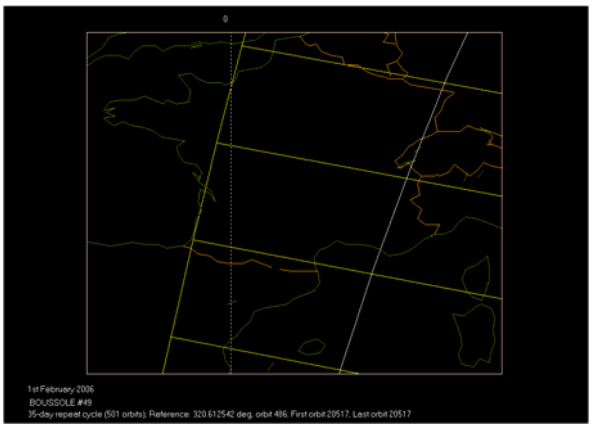
03 February 2006

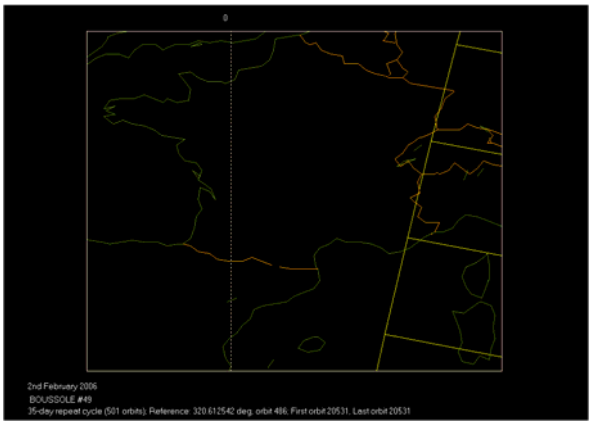
0530 Departure from port of Nice.
0910 Divers at sea to check, clean and take pictures of the buoy underwater structure.
0230 Secchi disk 1.
1200 Buoy connection attempts with final success with manual switch with diver.
1351 CTD 8 with water sampling at 200, 100, 80, 70, 60, 50, 40, 30, 20, 10 and 5 meters for HPLC, Ap and dry weights.
1750 Arrival at port of Nice.

04 February 2006

0530 Departure from port of Nice.
0900 CTD 9 with water sampling at 10 and 5 meters for HPLC, Ap and dry weights.
0942 SPMR profiles 4, 5 and 6.
1500 Arrival at port of Nice.

Calculated Swath paths for MERIS Sensor (ESOV Software)





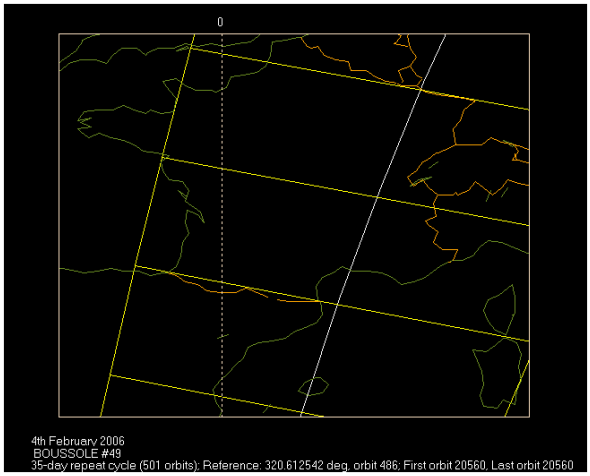
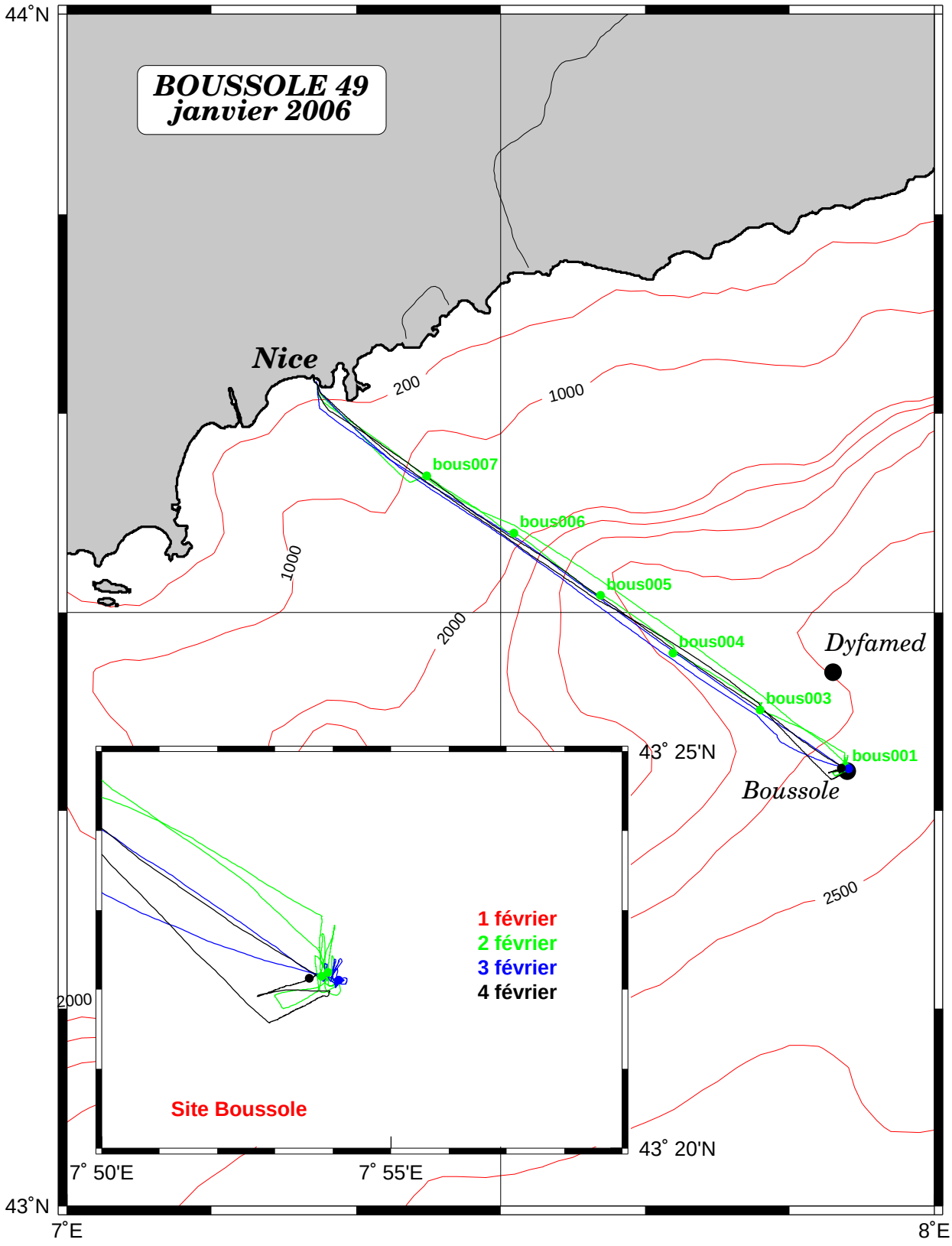


Figure 3. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for 01, 02 and 04 February 2006.

Appendix

Cruise Summary Table for Boussole 49

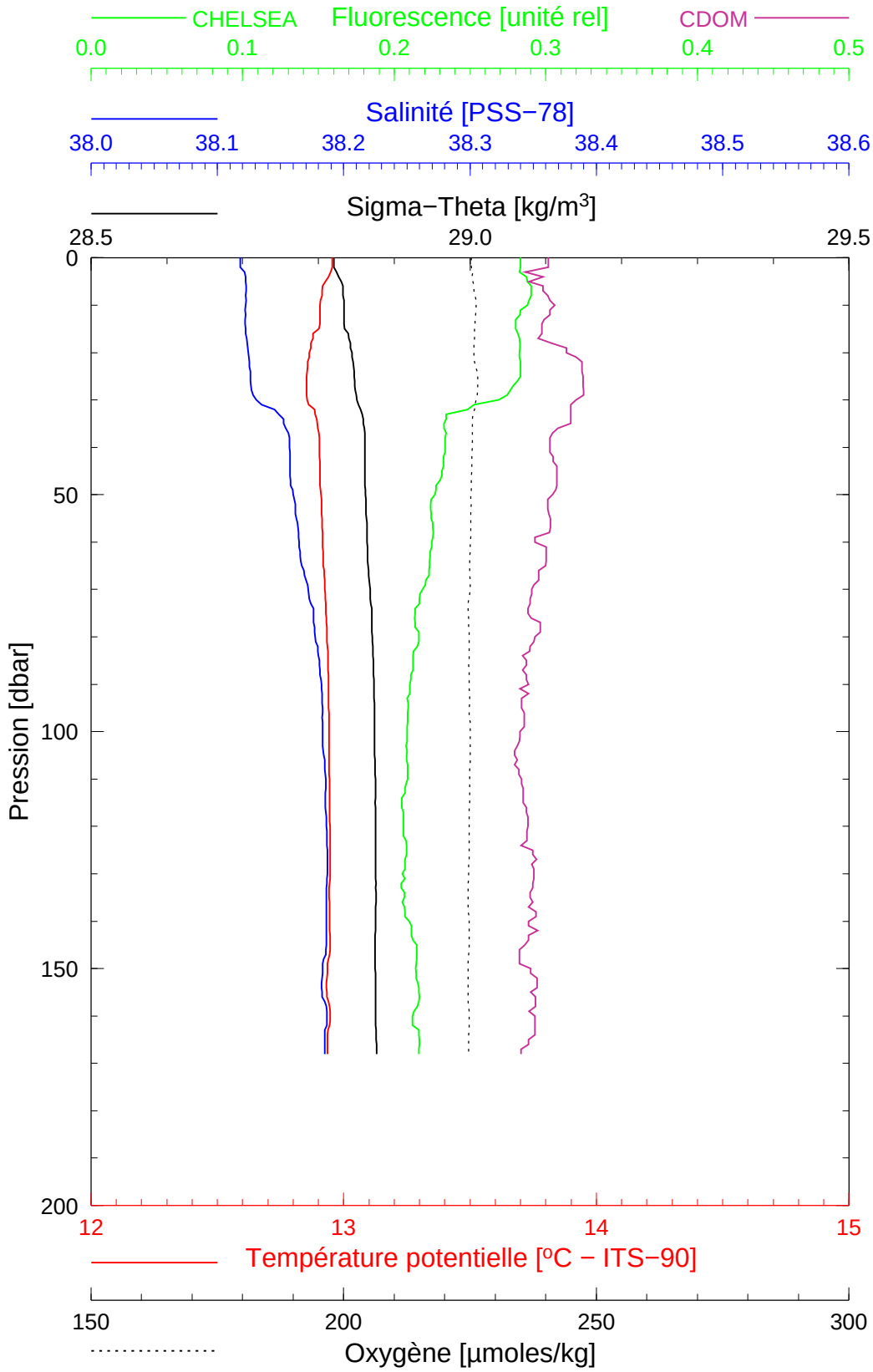
Date	Black names	Profile names	CTD notées /	Start Time	Duration	Depth max	Latitude (N)		longitude		Other sensors	Their cast	Start/Finish			Weather							Sea		
	(file ext: ".raw")	(file extension: ".raw")	satellite overpass	GMT (hour.min)	(min.sec)	(meter)	(Degree)	(Minute)	(Degree)	(Minute)				Sky	Clouds	Quantity (#/8)	Wind speed	Wind dir.	Atm. Pressure	humidity	Visibility	T air	T water	Sea	Swell height	Swell dir.	White horses
02/02/2006			CTDBOUS001	09:27	29:00	400	43	22.215	7	53.910				covered	heter.	5	9 kn	225	1015.0	85	very good	12.1	13.1	choppy	1,1 m		yes
			CTDBOUS002	10:26	26:00	400	43	22.168	7	53.805				covered	heter.	5	6 kn	213	1014.9	83	very good	12.3	13.0	choppy	1,1 m		yes
	bou020206black1			12:29	03:00																						
		bou020206AA		12:36	04:46	200	43	22.458	7	53.854				blue, miky	Ci / haze	1	9 kn	219	1013.7	84	excellent	12.7		calm	0,65 m		some
		bou020206AB		12:46	04:42	200	43	22.595	7	53.846				blue, miky	Ci / haze	1	9 kn	219	1013.7	84	excellent	12.7		calm	0,65 m		some
		bou020206AC		12:56	05:06	185	43	22.726	7	53.855				blue, miky	Ci / haze	1	9 kn	219	1013.7	84	excellent	12.7		calm	0,65 m		some
	bou020206black2			13:09	03:00																						
			CTDBOUS003	13:52	27:00	400	43	25.091	7	47.949				covered	heter.	3	13 kn	258	1013.7	77	very good	12.7	13.2	choppy	0,9 m		yes
			CTDBOUS004	14:58	23:00	400	43	27.958	7	41.926				covered	heter.	3	2 kn	264	1013.7	83	very good	12.8	13.1	calm	0,7 m		yes
			CTDBOUS005	15:55	26:00	400	43	30.867	7	36.919				covered	heter.	5	2 kn	197	1013.7	84	very good	12.4	13.2	calm	0,7 m		yes
			CTDBOUS006	16:58	24:00	400	43	33.997	7	30.929				covered	heter.	6	5 kn	151	1013.9	82	very good	12.3	13.2	calm	0,6 m		some
			CTDBOUS007	17:56	29:00	400	43	36.878	7	24.894				covered	heter.	8	10 kn	85	1014.0	84	very good	12.3	12.9	calm	0,6 m		some
03/02/2006				12:30	03:00	32	43	22.000	7	54.000	Secchi disk																
			CTDBOUS008	13:51	29:00	400	43	22.119	7	54.099				covered	heter.	3	3 kn	317	1013.2	71	very good	12.4	13.3	calm	0,6 m		no
04/02/2006			CTDBOUS009	08:57	34:00	400	43	22.145	7	53.592				covered	heter.	7	14 kn	64	1014.0	79	very good	11.8	13.2	choppy	0,9 m		yes
	bou040206black1			09:42	03:00																						
		bou040206AA		09:57	05:53	200	43	21.978	7	53.919				covered	Ci	4	15 kn	62	1014.3	75	very good	11.9		choppy	0,9 m		yes
		bou040206AB		10:09	05:04	200	43	21.908	7	53.720				covered	Ci	4	15 kn	62	1014.3	75	very good	11.9		choppy	0,9 m		yes
		bou040206AC		10:21	05:14	200	43	21.837	7	53.539				covered	Ci	4	15 kn	62	1014.3	75	very good	11.9		choppy	0,9 m		yes
	bou040206black2			10:39	03:00																						



GMT 2006 Feb 8 18:16:15

Boussole 49 **01/02/2006** **BOUS060201_01**

Point B

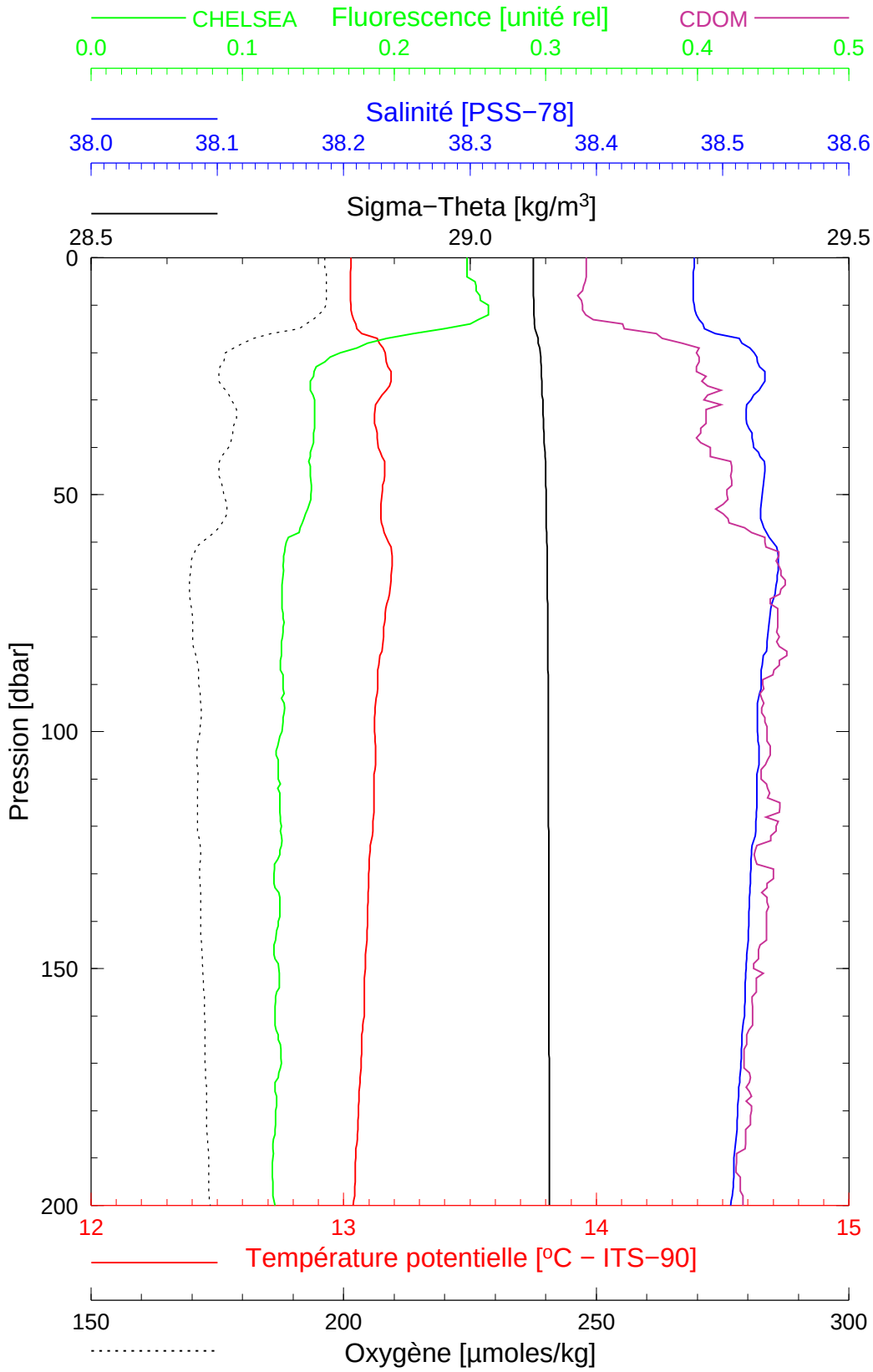


Date *01/02/2006* *Latitude* *43º40.995 N*

Heure déb *15h 51min [TU]* *Longitude* *07º18.769 E*

Boussole 49 **02/02/2006** **BOUS060202_01**

BOUS001

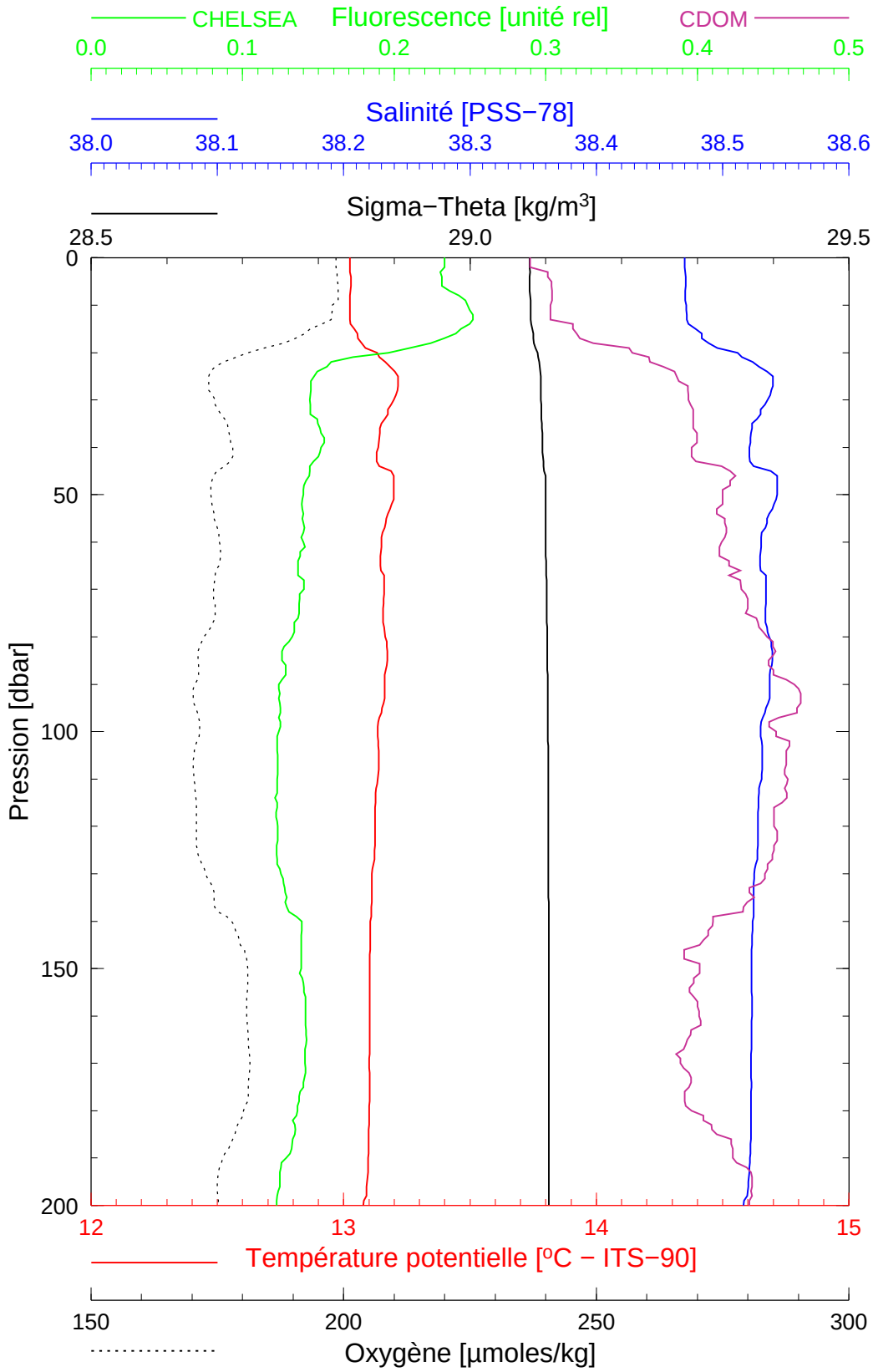


Date *02/02/2006* *Latitude* *43º22.215 N*

Heure déb *09h 27min [TU]* *Longitude* *07º53.910 E*

Boussole 49 **02/02/2006** **BOUS060202_02**

BOUS002

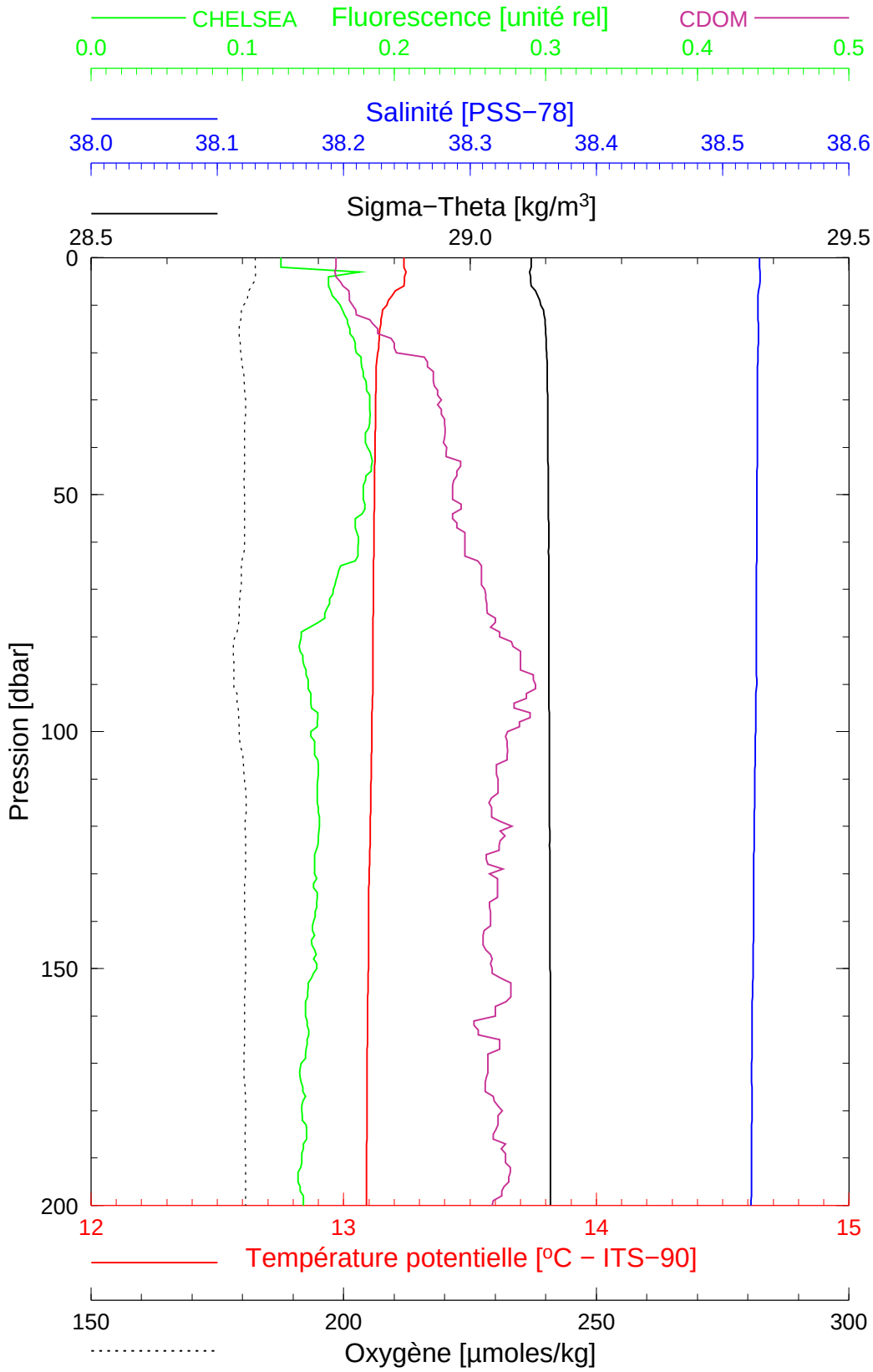


Date *02/02/2006* *Latitude* *43º22.168 N*

Heure déb *10h 26min [TU]* *Longitude* *07º53.805 E*

Boussole 49 **02/02/2006** **BOUS060202_03**

BOUS003

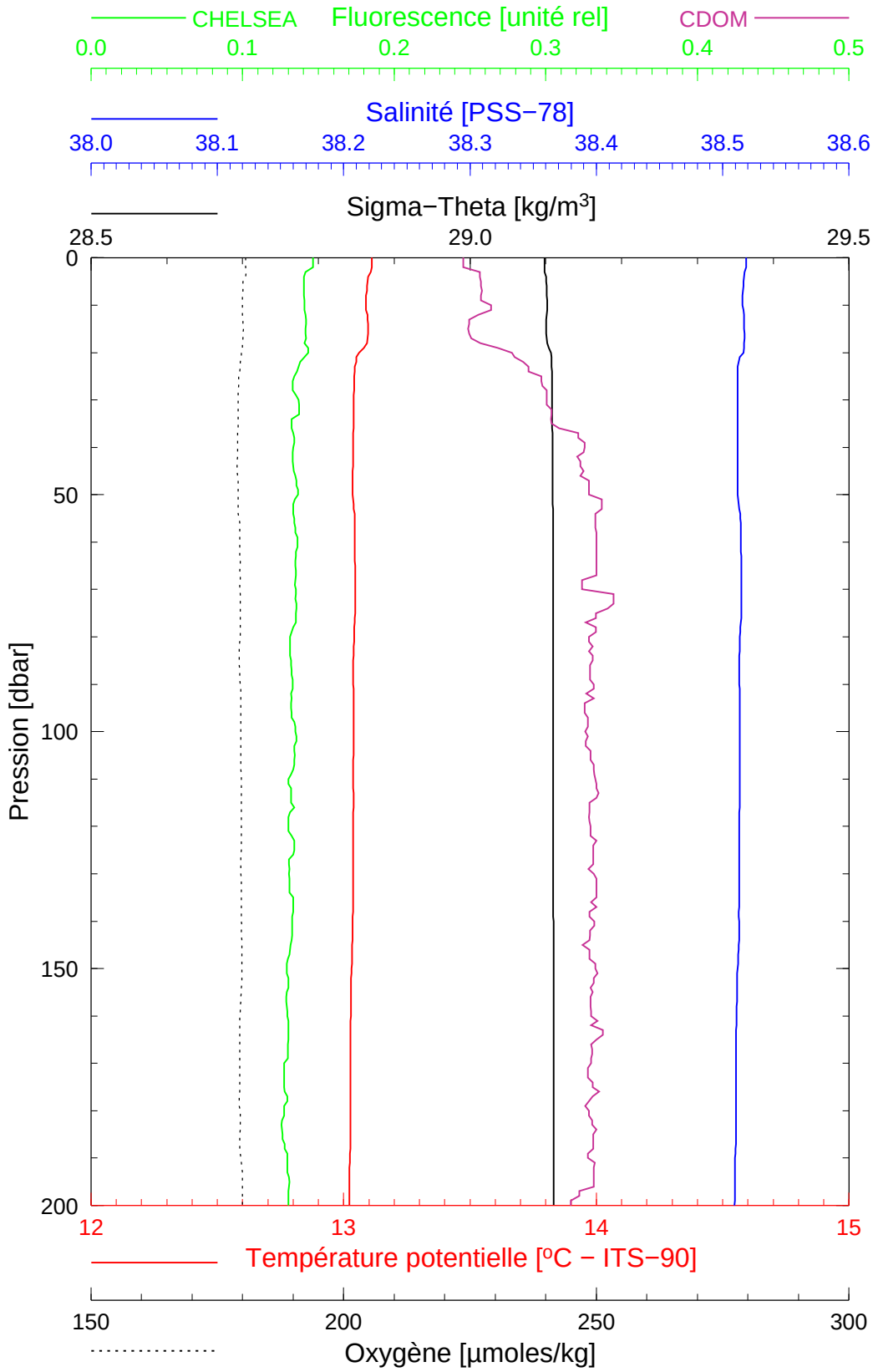


Date *02/02/2006* *Latitude* *43º25.091 N*

Heure déb *13h 52min [TU]* *Longitude* *07º47.949 E*

Boussole 49 **02/02/2006** **BOUS060202_04**

BOUS004

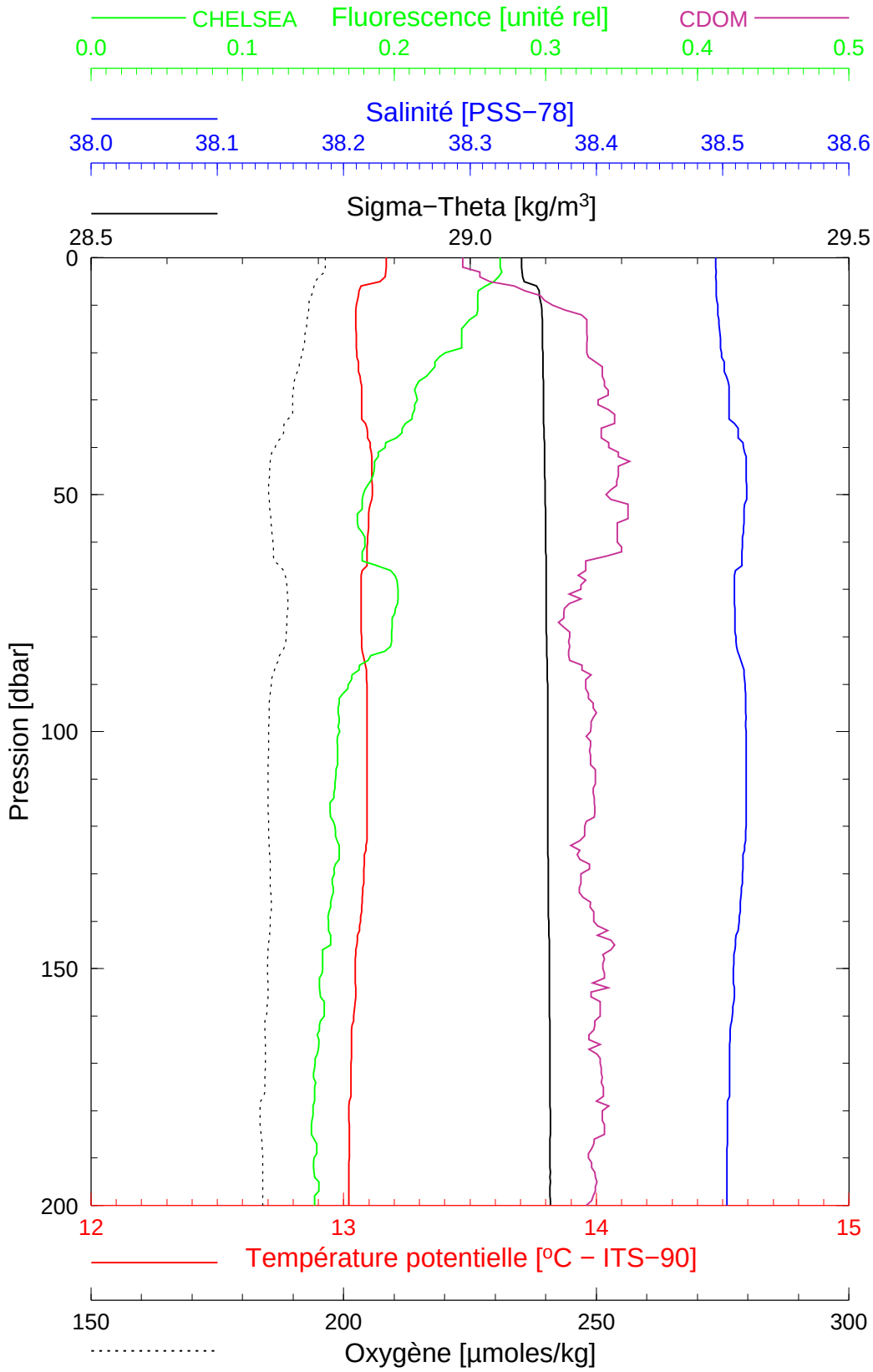


Date *02/02/2006* *Latitude* *43º27.958 N*

Heure déb *14h 58min [TU]* *Longitude* *07º41.926 E*

Boussole 49 **02/02/2006** **BOUS060202_05**

BOUS005

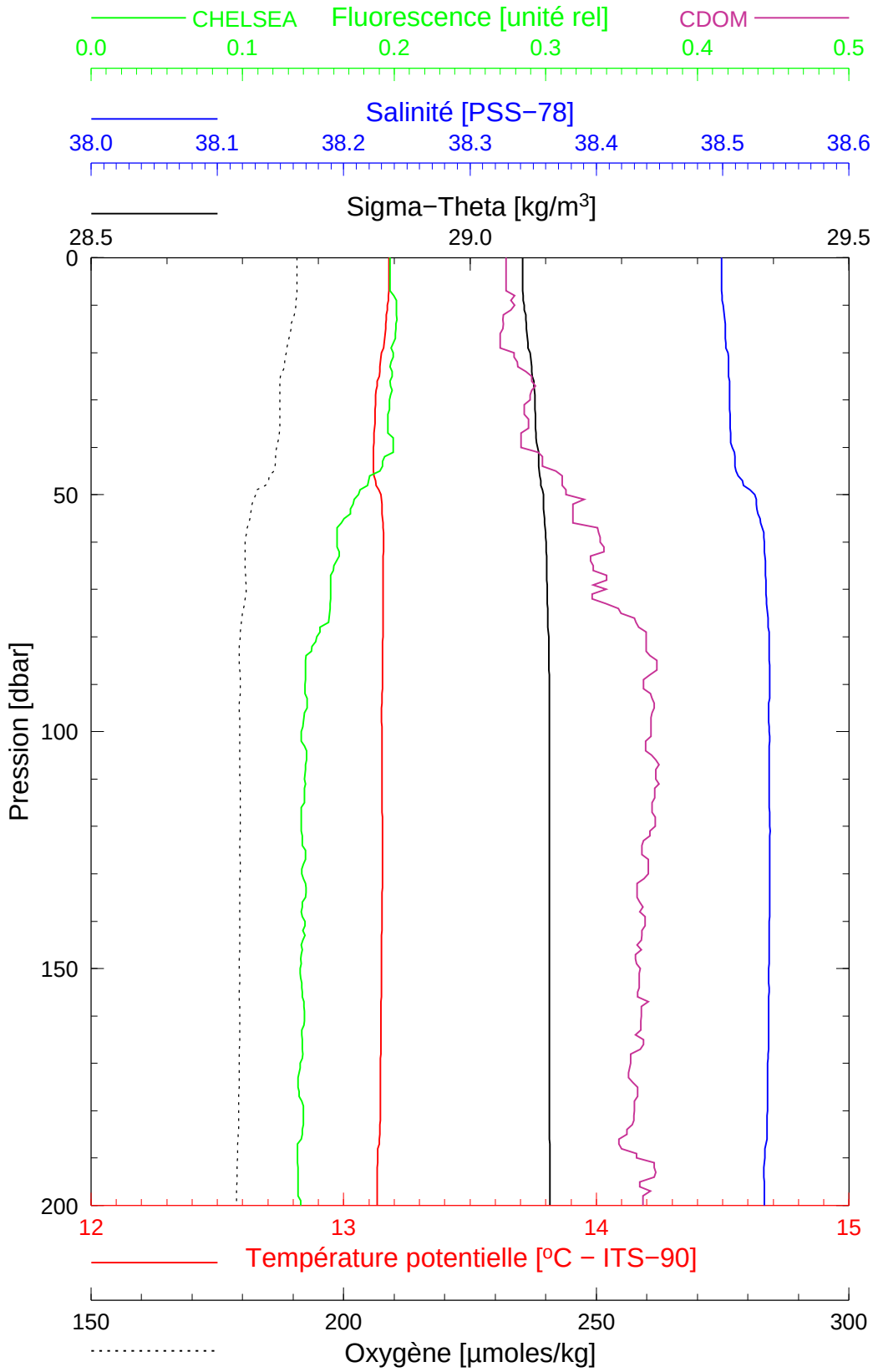


Date *02/02/2006* *Latitude* *43º30.867 N*

Heure déb *15h 55min [TU]* *Longitude* *07º36.919 E*

Boussole 49 **02/02/2006** **BOUS060202_06**

BOUS006

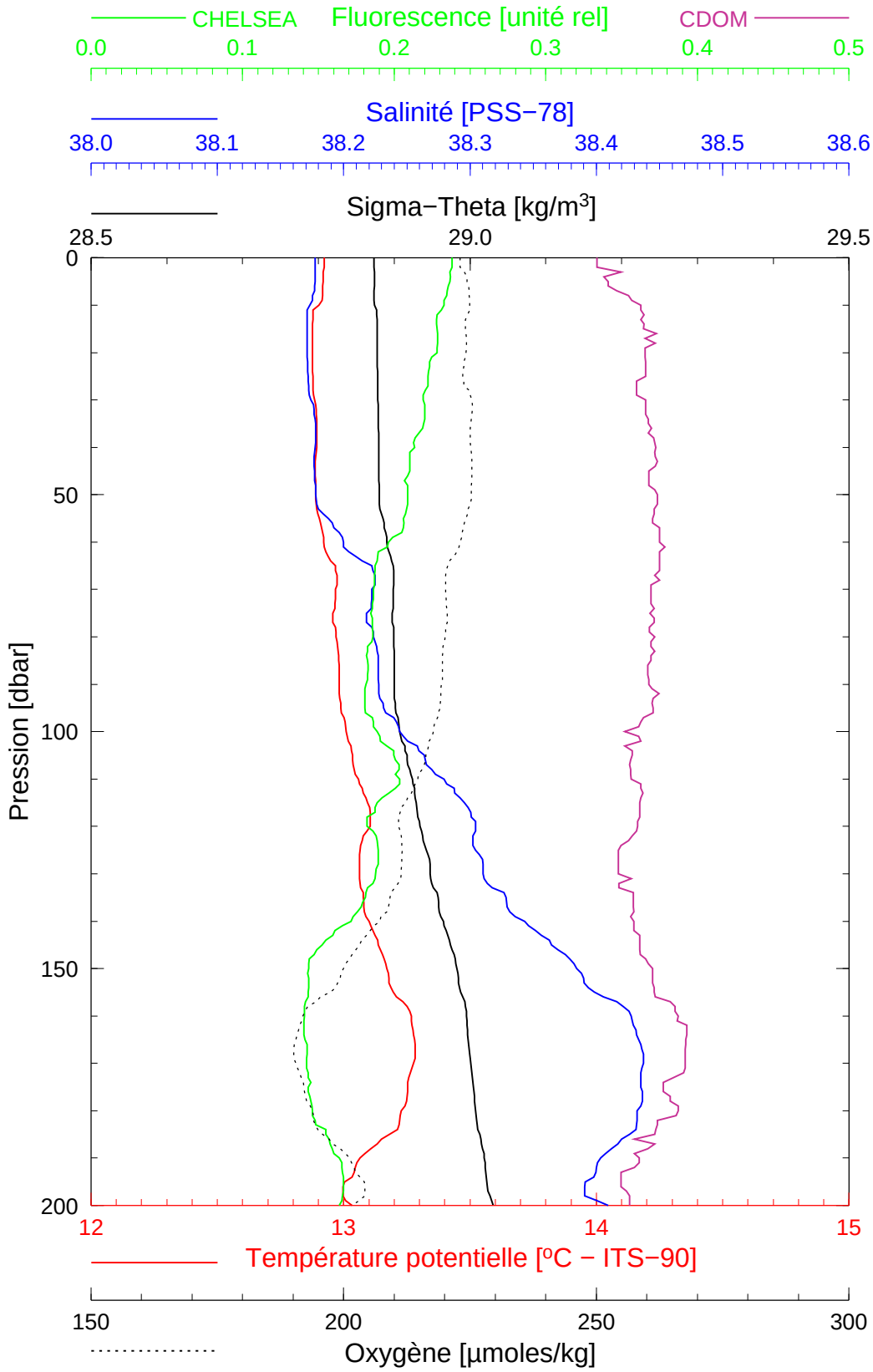


Date *02/02/2006* *Latitude* *43º33.997 N*

Heure déb *16h 58min [TU]* *Longitude* *07º30.929 E*

Boussole 49 **02/02/2006** **BOUS060202_07**

BOUS007

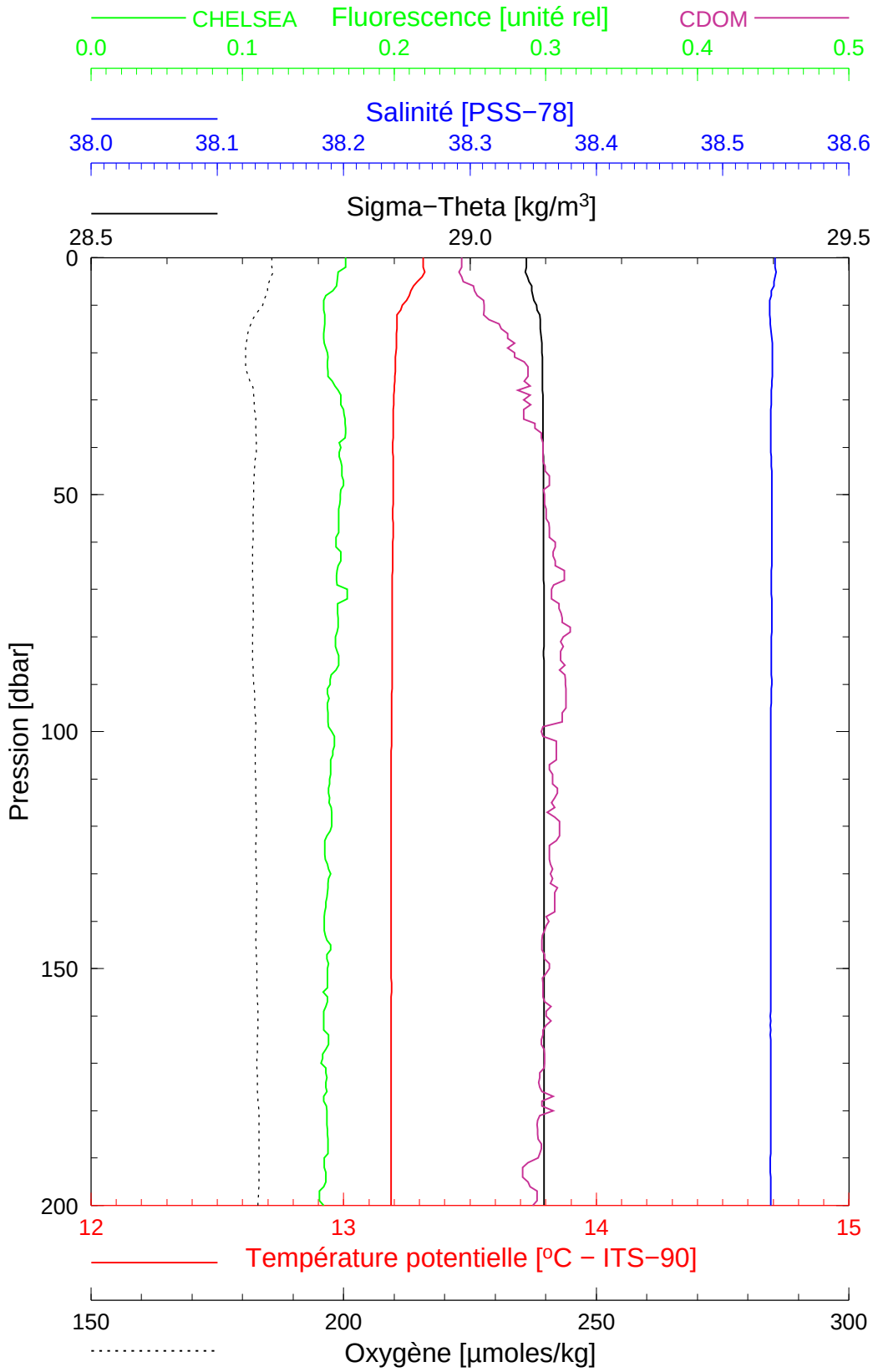


Date *02/02/2006* *Latitude* *43º36.878 N*

Heure déb *17h 56min [TU]* *Longitude* *07º24.894 E*

Boussole 49 **03/02/2006** **BOUS060203_01**

BOUS008

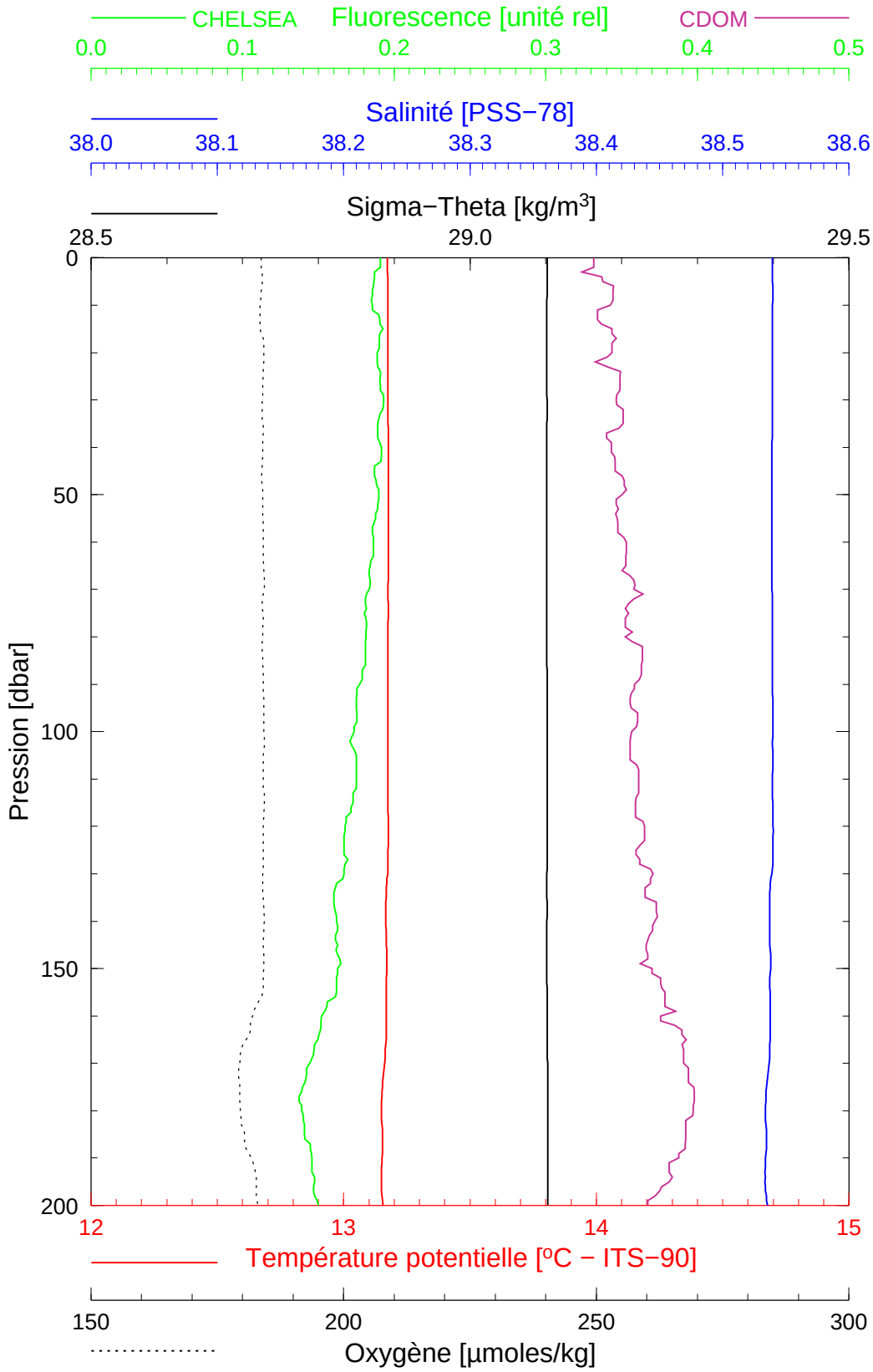


Date *03/02/2006* *Latitude* *43º22.119 N*

Heure déb *13h 51min [TU]* *Longitude* *07º54.099 E*

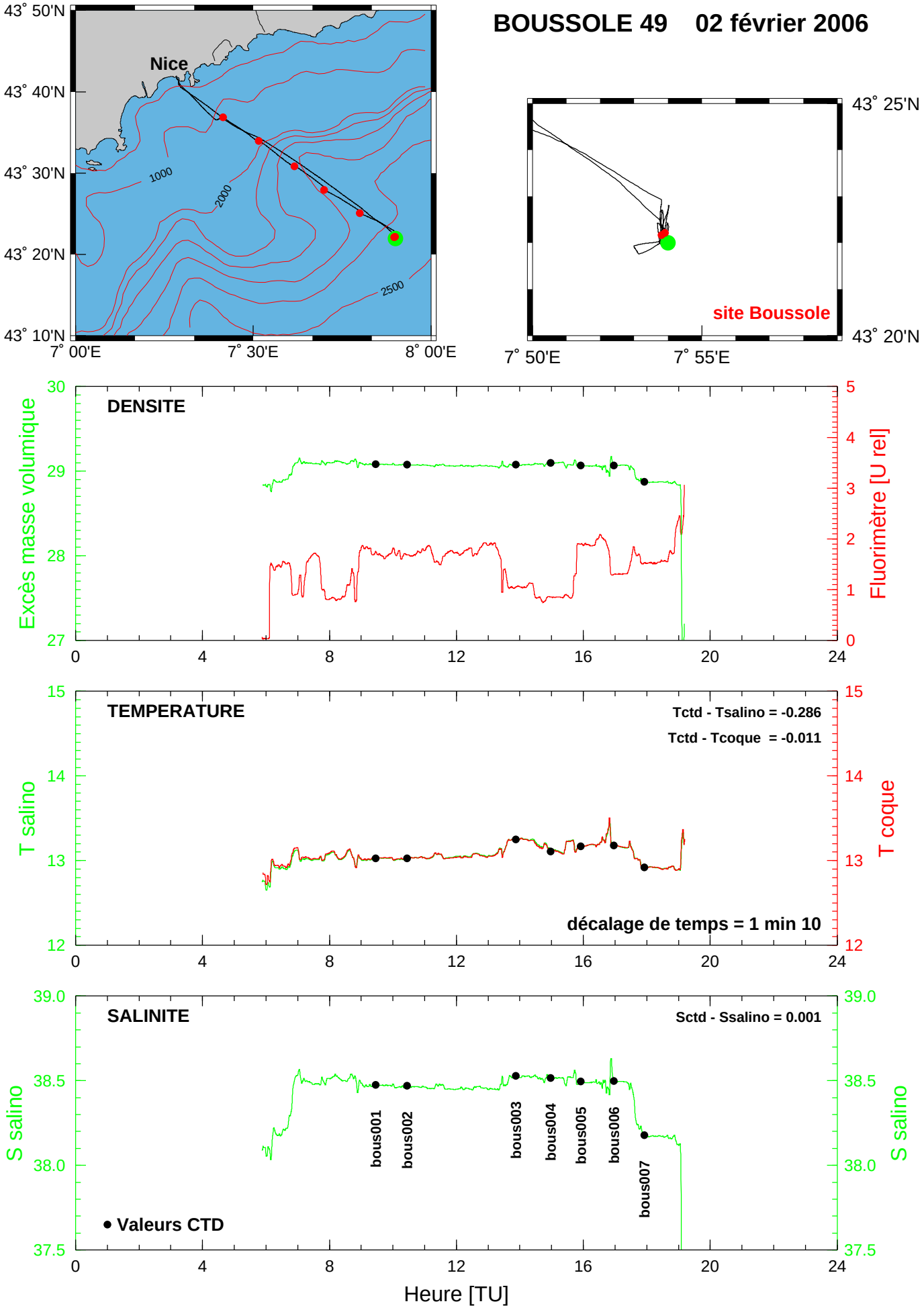
Boussole 49 **04/02/2006** **BOUS060204_01**

BOUS009

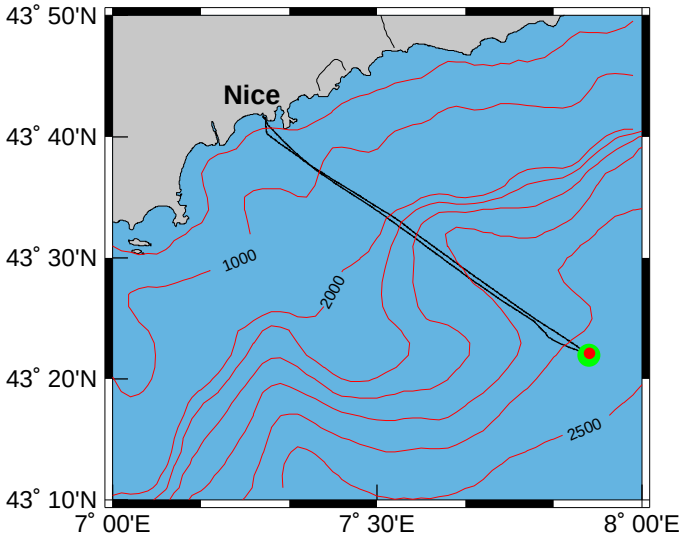


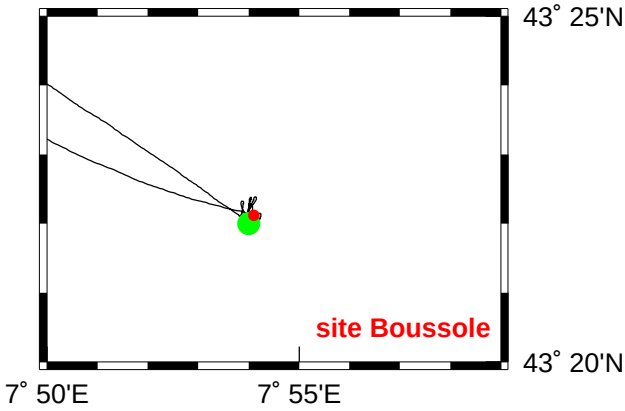
Date *04/02/2006* *Latitude* *43º22.145 N*

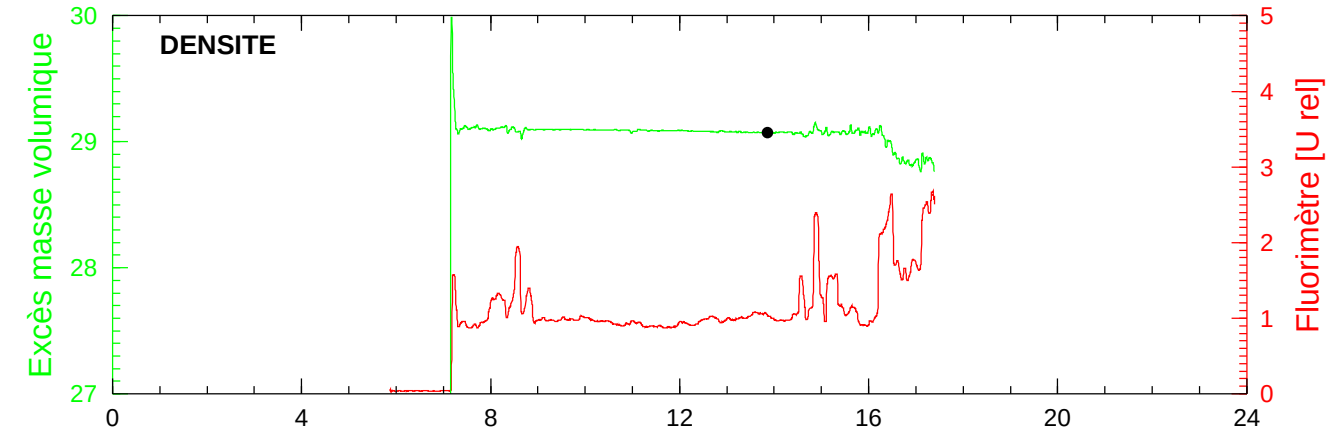
Heure déb *08h 57min [TU]* *Longitude* *07º53.592 E*

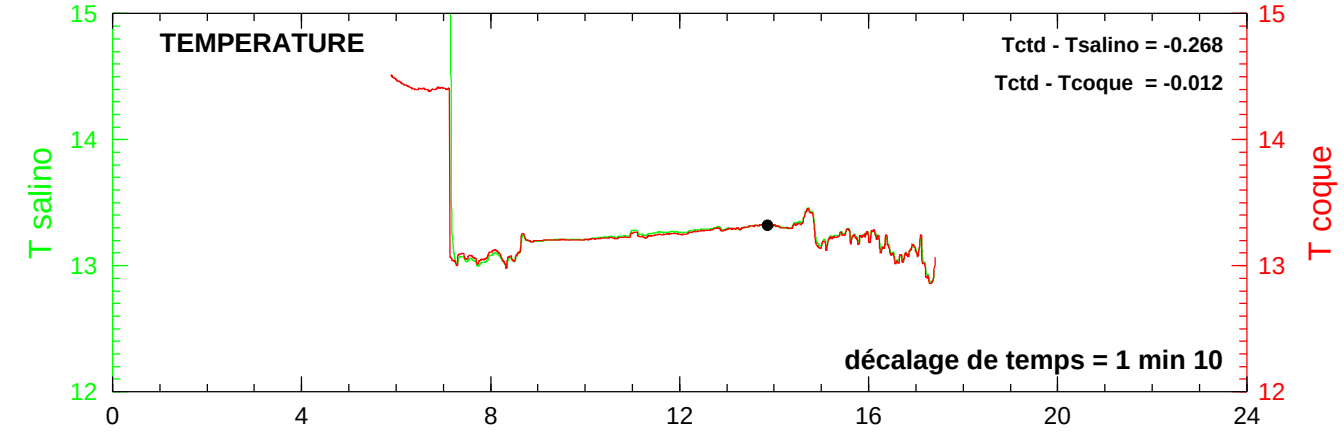

BOUSSOLE 49 02 février 2006
Nice
43° 50'N
43° 40'N
43° 30'N
43° 20'N
43° 10'N
7° 00'E
7° 30'E
8° 00'E
1000
2000
2500
43° 25'N
43° 20'N
7° 50'E
7° 55'E
site Boussole
DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd - Tsalino = -0.286
Tctd - Tcoque = -0.011
T salino
T coque
décalage de temps = 1 min 10
SALINITE
Sctd - Ssalino = 0.001
S salino
bous001
bous002
bous003
bous004
bous005
bous006
bous007
• Valeurs CTD
Heure [TU]

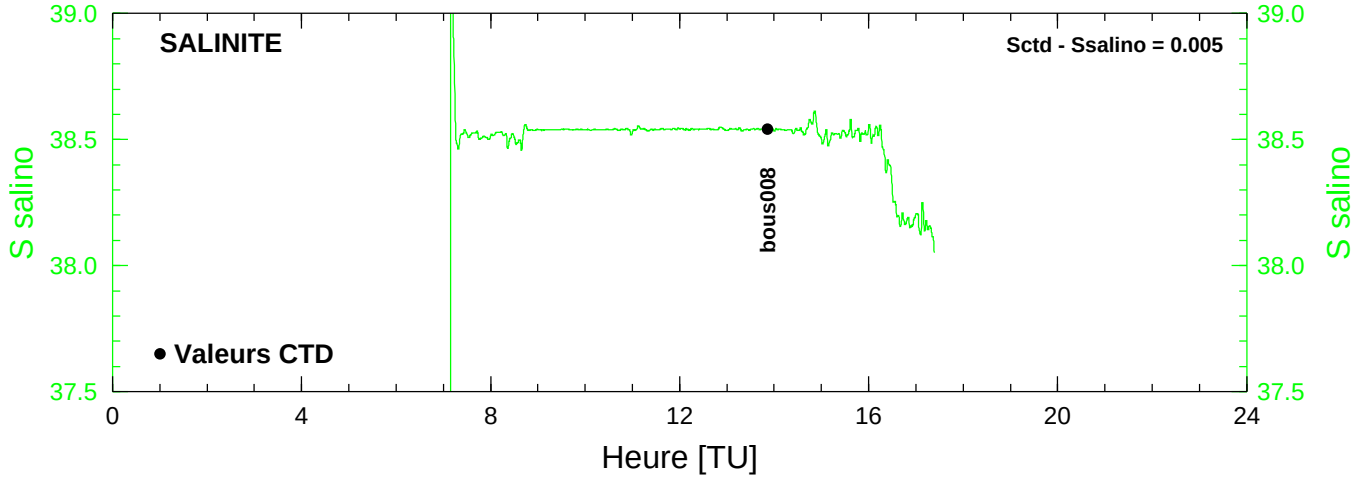
BOUSSOLE 49 03 février 2006

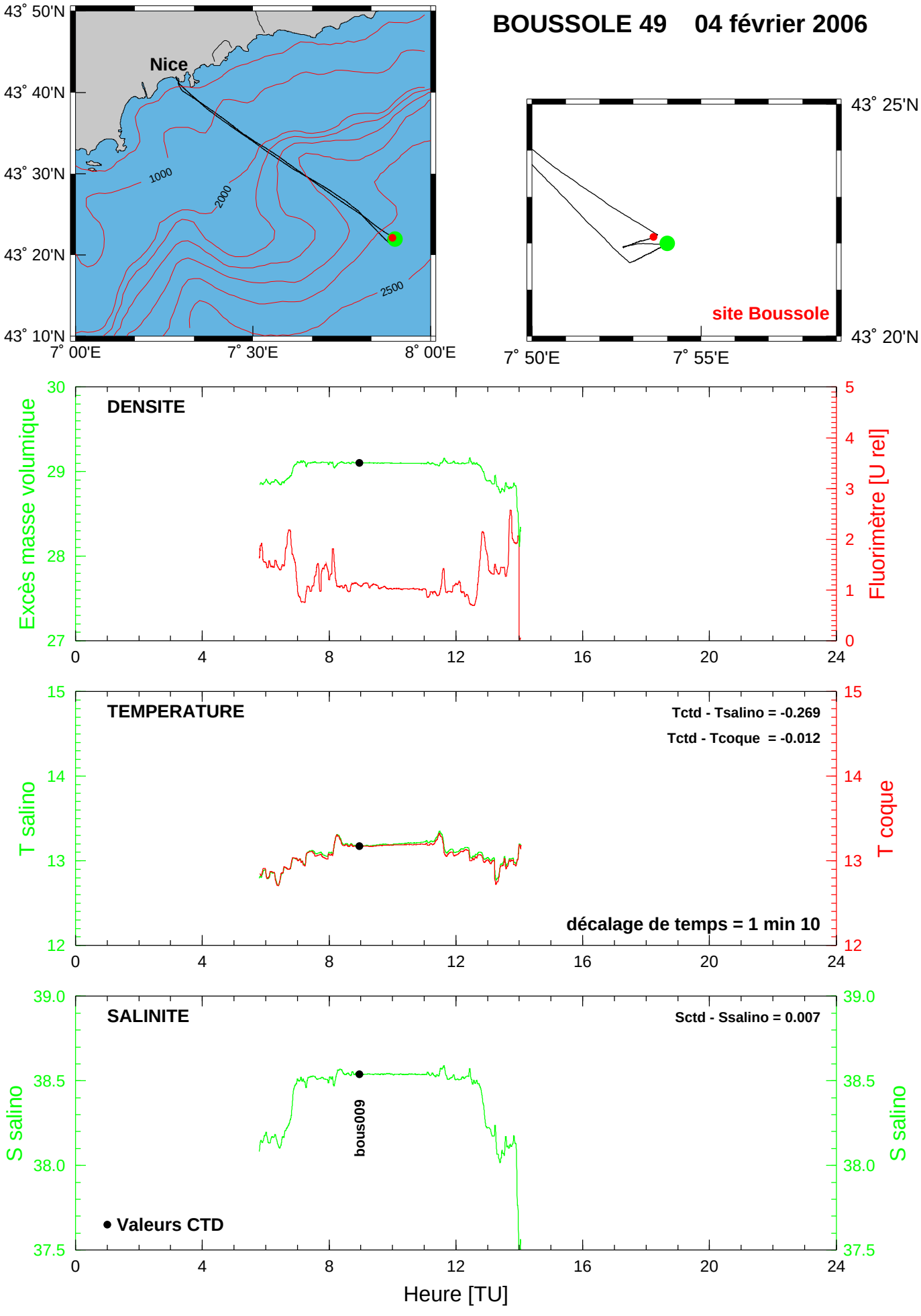











BOUSSOLE 49 04 février 2006
Nice
43° 50'N
43° 40'N
43° 30'N
43° 20'N
43° 10'N
7° 00'E
7° 30'E
8° 00'E
1000
2000
2500
43° 25'N
43° 20'N
7° 50'E
7° 55'E
site Boussole
DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd - Tsalino = -0.269
Tctd - Tcoque = -0.012
T salino
T coque
décalage de temps = 1 min 10
SALINITE
Sctd - Ssalino = 0.007
S salino
bous009
• Valeurs CTD
Heure [TU]