BOUSSOLE Monthly Cruise Report

Cruise 42
May 25 – 27, 2005

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

Science Personnel: Guislain Bécu, Dominique Tailliez, Edouard Leymarie, Floriane Girard and 3 divers (David Luquet, Laurent Giletta and Mathieu Macusat)

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

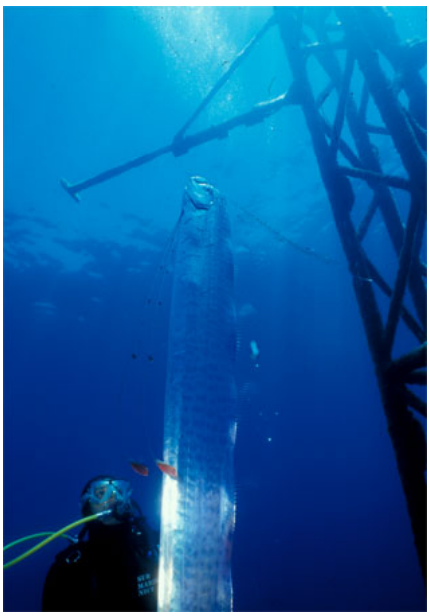


Fig 1. A king of herings fish (also called regalec or oarfish) seen at the BOUSSOLE site, close to the buoy.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

December 2, 2005

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 CNRS divers (David Luquet, Laurent Giletta and Matthieu Macusat from OOV) will be onboard on 26 May 2005 to take some pictures/movies and clean and check the buoy structure under the sea surface.

Edouard Leymarie will be present on 25 May to keep on training with all the operations and installations.

Floriane Girard from LOV (DYFAMED team) will be onboard on 26 May to see help with all BOUSSOLE operations.

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.

Cruise Summary

The PAROSCIENTIFIC pressure sensor was still unavailable (cf. BOUSSOLE #36 report); depth was again measured with a SBE39 hand held CTD fixed onto the SPMR body.

On 25 May, the ship motor was emitting weird black fume. A U-turn was decided before reaching BOUSSOLE site (return was realized at moderate speed). It was found that a turbo compressor was out of order.

The CTD electric cable was flooded and shortcuts appeared. The Dominique Tailliez had to reconnect it twice.

Wednesday 25 May 2005

The weather conditions were good for this day. The ship left the port of Nice at 06:45 am, and had to make a U-Turn 30 minutes before reaching the BOUSSOLE site, due to a motor problem. The way back was realized at moderate speed (about 6 knots), and the arrival at Nice was at 02:40 pm.
3 CIMEL measurements were still realized en route.

Thursday 26 May 2005

Weather conditions were good for this day. Departure from port of Nice was at 06:40 am. 2 diving operations were performed, in order to take some pictures with and without great angle focus. 2 CTD profiles, 1 series of 3 SPMR/SMSR profiles (with pyramid), 4 CIMEL and 1 Secchi disk measurements were realized before beginning the radial between BOUSSOLE site and port of Nice. The radial had to be stopped after the third station, as a shortcut appeared again in the CTD electric cable splice .

Friday 27 May 2005

Weather conditions were good again for this day. 2series of 3 SPMR/SMSR profiles (with pyramid), 5 CTD (end f radial that was not finished the previous day), 1 Secchi disk and 5 CIMEL measurements were performed.

Cruise Report

25 May 2005 (UTC)

0445 Departure from port of Nice.
0740 Almost arrival at BOUSSOLE site. U-turn decided after weird black fume exhausted from the ship.
0740 CIMEL measurement 1 on site.
0834 CIMEL measurement 2 en route.
0904 CIMEL measurement 3 en route.
1240 Arrival at port of Nice for a ship motor repair.

26 May 2005

0440 Departure from port of nice.
0755 Arrival at BOUSSOLE site.
0810 Diving operation 1.
0817 CIMEL measurement 1.
0830 Secchi disk measurement 1.
0851 CIMEL measurement 2.
1010 CTD profile 1. Pb at 89 m (fuse burned).
1100 Diving operation 2.
1208 CIMEL measurement 3.
1230 Buoy data upload.
1243 CTD profile 2. Station 1 (43°25’N 7°48’E).
1320 SPMR/SMSR profiles 1, 2, 3.
1531 CIMEL measurement 4.
1534 CTD profile 3. Station 2 (43°28’N 7°42’E).
1623 CTD profile 4. Station 3 (43°31’N 7°37’E). Pb connection (CTD electric cable splice).
1900 Arrival to port of Nice.

27 May 2005

0440 Departure from port of Nice.
0745 Arrival at BOUSSOLE site.
0755 SPMR profiles 4, 5, 6.
0855 CTD profile 5.
0857 CIMEL measurement 5.
0955 Secchi disk measurement 2.
1000 CIMEL measurement 6.
1005 SPMR profiles 7, 8, 9.
1228 CTD profile 6. Station 3 (43°30’N 7°37’E).
1232 CIMEL measurement 6 at station 3.
1325 CTD profile 7. Station 4 (43°34’N 7°31’E).
1332 CIMEL measurement 7 at station 4.
1425 CTD profile 8. Station 5 (43°37’N 7°25’E).
1430 CIMEL measurement 8 at station 5.
1545 Arrival at port of Nice.

Calculated Swath paths for MERIS Sensor (ESOV Software)

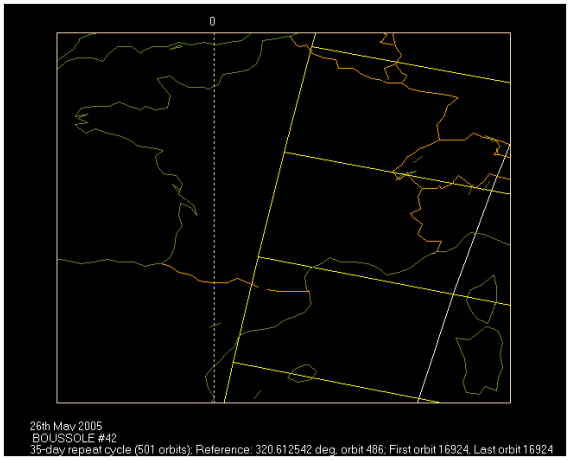
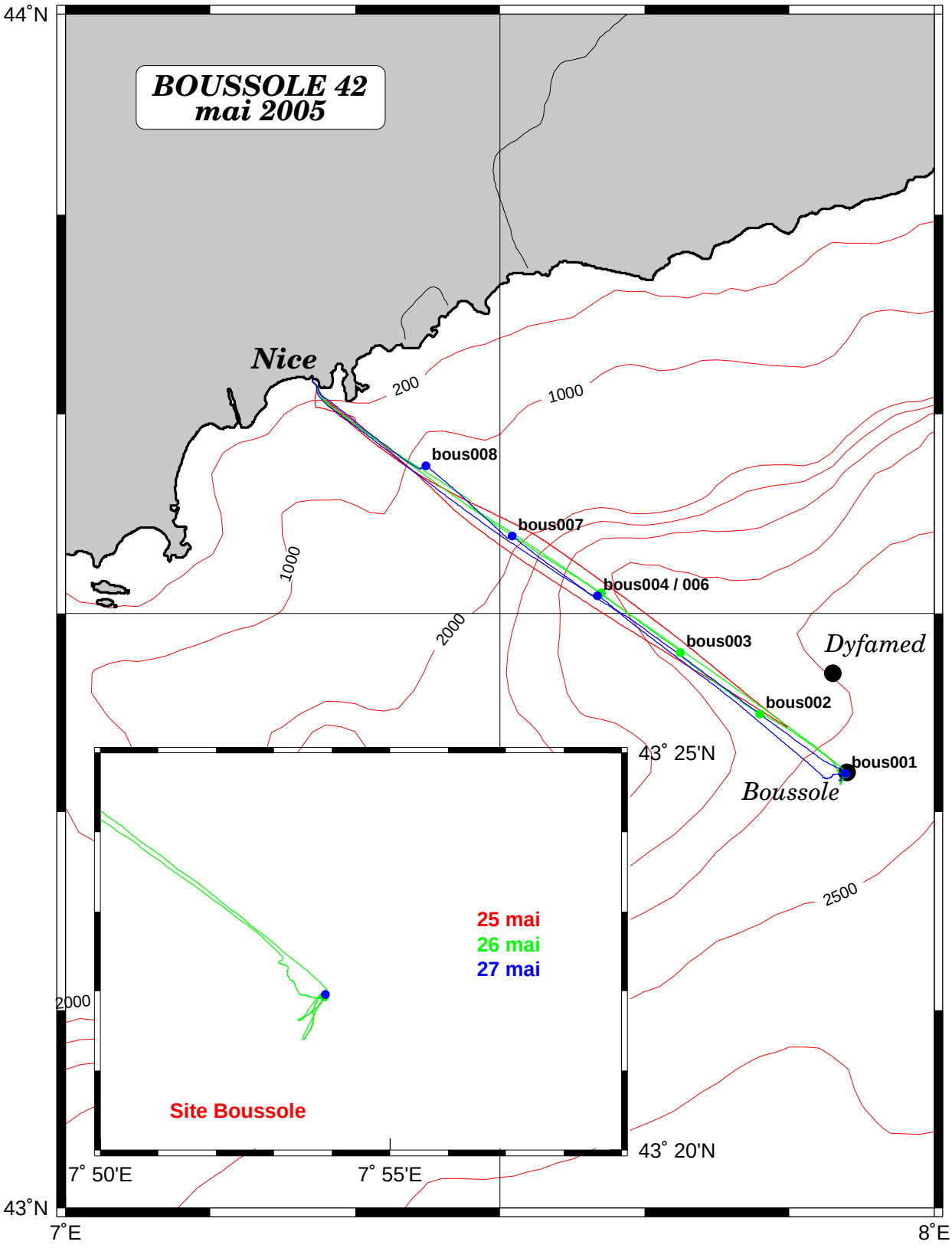


Figure 3. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for 26 May 2005.

Appendix

Cruise Summary Table for Boussole 42

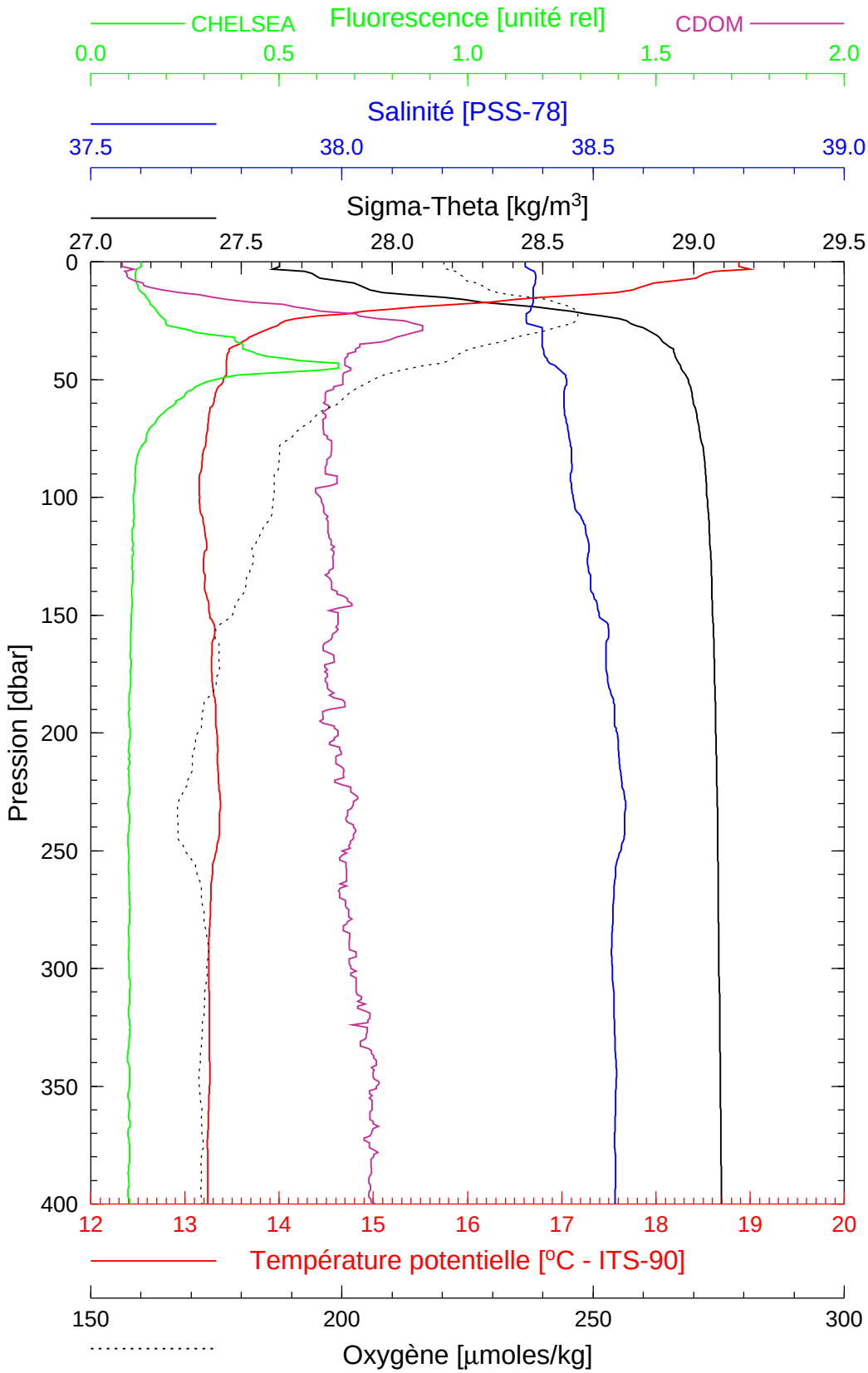
Date	Black names	Profile names	CTD notées /	Start Time	Duration	Depth max	Latitude (N)		longitude		Other sensors	Their cast	Start/Finish			Weather							Sea		
	(file ext: *.raw*)	(file extension: *.raw*)	satellite overpass	GMT (hour.min)	(min.sec)	(meter)	(Degree)	(Minute)	(Degree)	(Minute)				Sky	Clouds	Quantity (#/8)	Wind speed	Wind dir.	Atm. Pressure	humidity	Visibility	T air	T water	Sea	Swell height	Swell dir.	White horses
25/05/2005				07:48	05:00		43	25.080	7	48.500	CIMEL 1	Tau atmos.		milky	Ci	2											
				08:34	05:00		43	28.284	7	43.260	CIMEL 2	Tau atmos.		milky	Ci	2											
				09:04	05:00		43	30.067	7	39.929	CIMEL 3	Tau atmos.		milky	Ci	4											
26/05/2005				08:17	05:00		43	22.000	7	54.000	CIMEL 4	Tau atmos.		blue	no	0											
				08:30	05:00	18.5	43	22.000	7	54.000	Secchi disk			blue	no	0											
				08:51	05:00		43	22.000	7	54.000	CIMEL 5	Tau atmos.		blue	no	0											
				12:08	05:00		43	22.000	7	54.000	CIMEL 6	Tau atmos.		blue	no	0											
			CTDBOUS001	12:10	30:00	400	43	21.926	7	53.870				blue	no	1	5 kn	54	1021.8	66	excellent	21.6	20.1	flat	0,3 m		
	bou260505black1			13:19	03:00																						
		bou260505spmratsurfaceA		13:31	07:30	200	43	22.057	7	53.383				blue	no	0	3 kn	10	1021.3	51	excellent	22.9		flat	0,3 m		no
		bou260505spmratsurfaceB		13:49	06:45	180	43	22.270	7	53.248				blue	no	0	3 kn	10	1021.3	51	excellent	22.9		flat	0,3 m		no
	bou260505black2			14:25	03:00																						
			CTDBOUS002	14:43	18:00	400	43	24.950	7	47.942				blue	no	0	1 kn	9	1021.0	42	excellent	28.8	18.6	flat	0,3 m		
				15:32	05:00		43	28.026	7	42.474	CIMEL 7	Tau atmos.		blue	no	0											
			CTDBOUS003	15:34	18:00	400	43	28.034	7	42.474				blue	no	0	2 kn	9	1020.7	45	excellent	24.0	19.8	flat	0,3 m		
			CTDBOUS004	16:23	22:00	400	43	31.047	7	37.010				blue	no	0	1 kn	281	1020.4	43	excellent	24.1	19.9	flat	0,3 m		
27/05/2005	bou270505black1			07:38	03:00																						
		bou270505spmratsurfaceA		07:55	06:55	190	43	21.906	7	53.815				blue	no	0	9 kn	85	1019.9	71	excellent	21.5		calm	0,5 m		no
		bou270505spmratsurfaceB		08:11	06:45	180	43	21.877	7	53.693				blue	no	0	9 kn	85	1019.9	71	excellent	21.5		calm	0,5 m		no
		bou270505spmratsurfaceC		08:34	06:45	180	43	21.595	7	53.570				blue	no	0	9 kn	85	1019.9	71	excellent	21.5		calm	0,5 m		no
	bou270505black2			08:53	03:00																						
				08:59	05:00		43	22.000	7	54.000	CIMEL 8	Tau atmos.		blue	no	0											
			CTDBOUS005	09:04	29:00	400	43	21.960	7	53.886				blue	no	0	9 kn	94	1019.8	74	excellent	21.6	20.3	calm	0,5 m		
				09:55	05:00	18.5	43	22.000	7	54.000	Secchi disk			blue	no	0											
				09:58	05:00		43	22.000	7	54.000	CIMEL 9	Tau atmos.		blue	no	0											
	bou270505black3			10:04	03:00																						
		bou270505spmratsurfaceD		10:13	07:30	210	43	21.714	7	52.821				blue	no	0	5 kn	97	1019.8	71	excellent	22.2		calm	0,5 m		no
		bou270505spmratsurfaceE		10:32	07:00	200	43	21.726	7	52.440				blue	no	0	5 kn	97	1019.8	71	excellent	22.2		calm	0,5 m		no
		bou270505spmratsurfaceF		10:49	06:30	170	43	21.860	7	52.282				blue	no	0	5 kn	97	1019.8	71	excellent	22.2		calm	0,5 m		no
	bou270505black4			11:02	03:00																						
			CTDBOUS006	12:28	22:00	400	43	30.901	7	36.745				blue	no	0	9 kn	94	1019.8	74	excellent	21.6	20.3	calm	0,5 m		
				12:40	05:00		43	30.850	7	36.689	CIMEL 10	Tau atmos.		blue	no	0											
				13:24	05:00		43	33.896	7	30.848	CIMEL 11	Tau atmos.		blue	no	0											
			CTDBOUS007	13:25	24:00	400	43	33.893	7	30.840				blue	no	1	1 kn	30	1019.4	59	excellent	23.8	19.9	flat	0,3 m		
			CTDBOUS008	14:25	23:00	400	43	37.418	7	24.901				blue	no	0	1 kn	121	1019.3	54	excellent	24.1	19.7	flat	0,3 m		
				14:27	05:00		43	37.471	7	24.940	CIMEL 12	Tau atmos.		blue	no	0											



GMT 2005 Jun 8 18:27:59

Boussole 42 **26/05/2005** **BOUS050526_01**

BOUS001

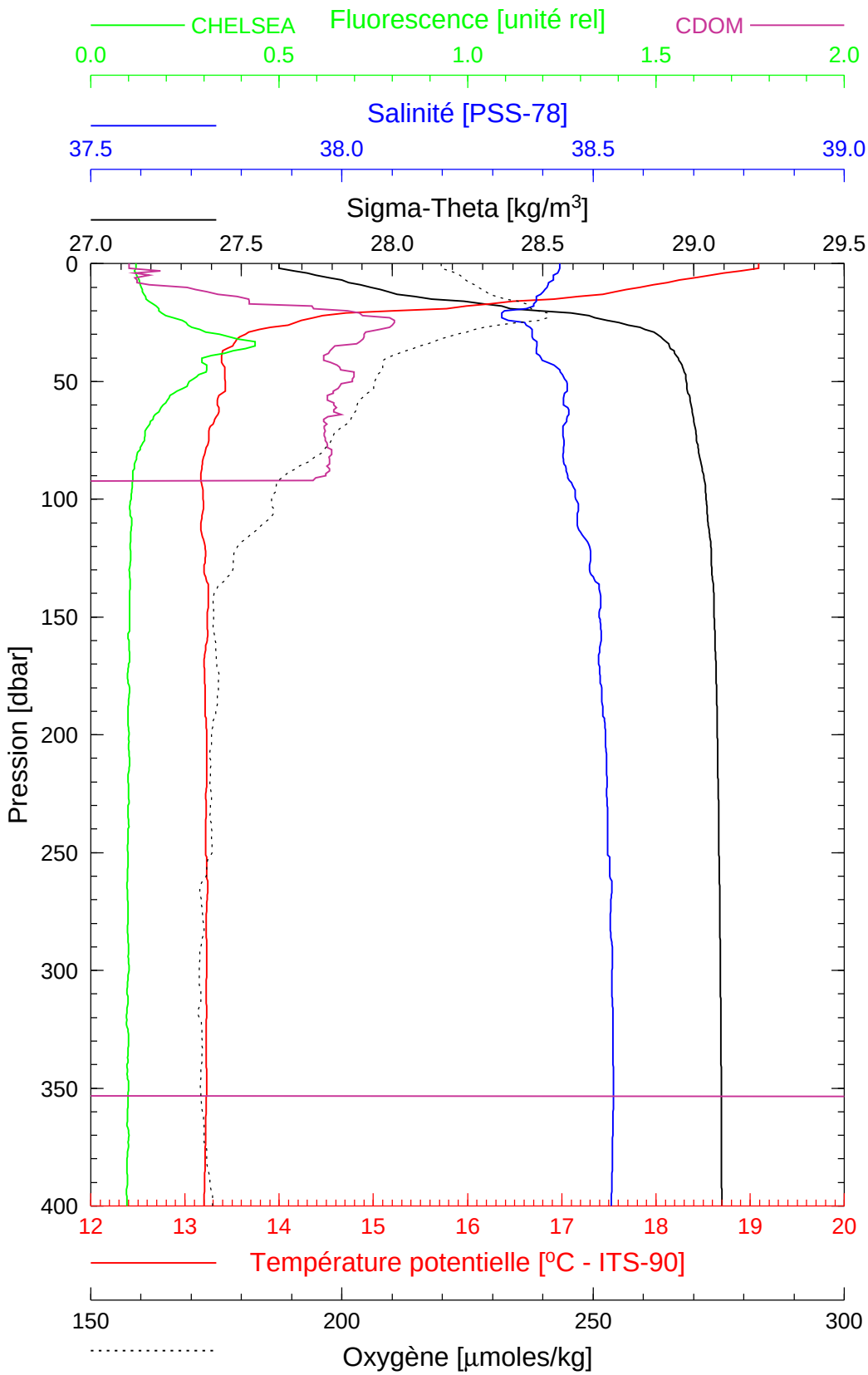


Date *26/05/2005* *Latitude* *43º21.926 N*

Heure déb *12h 10min [TU]* *Longitude* *07º53.870 E*

Boussole 42 **26/05/2005** **BOUS050526_02**

BOUS002

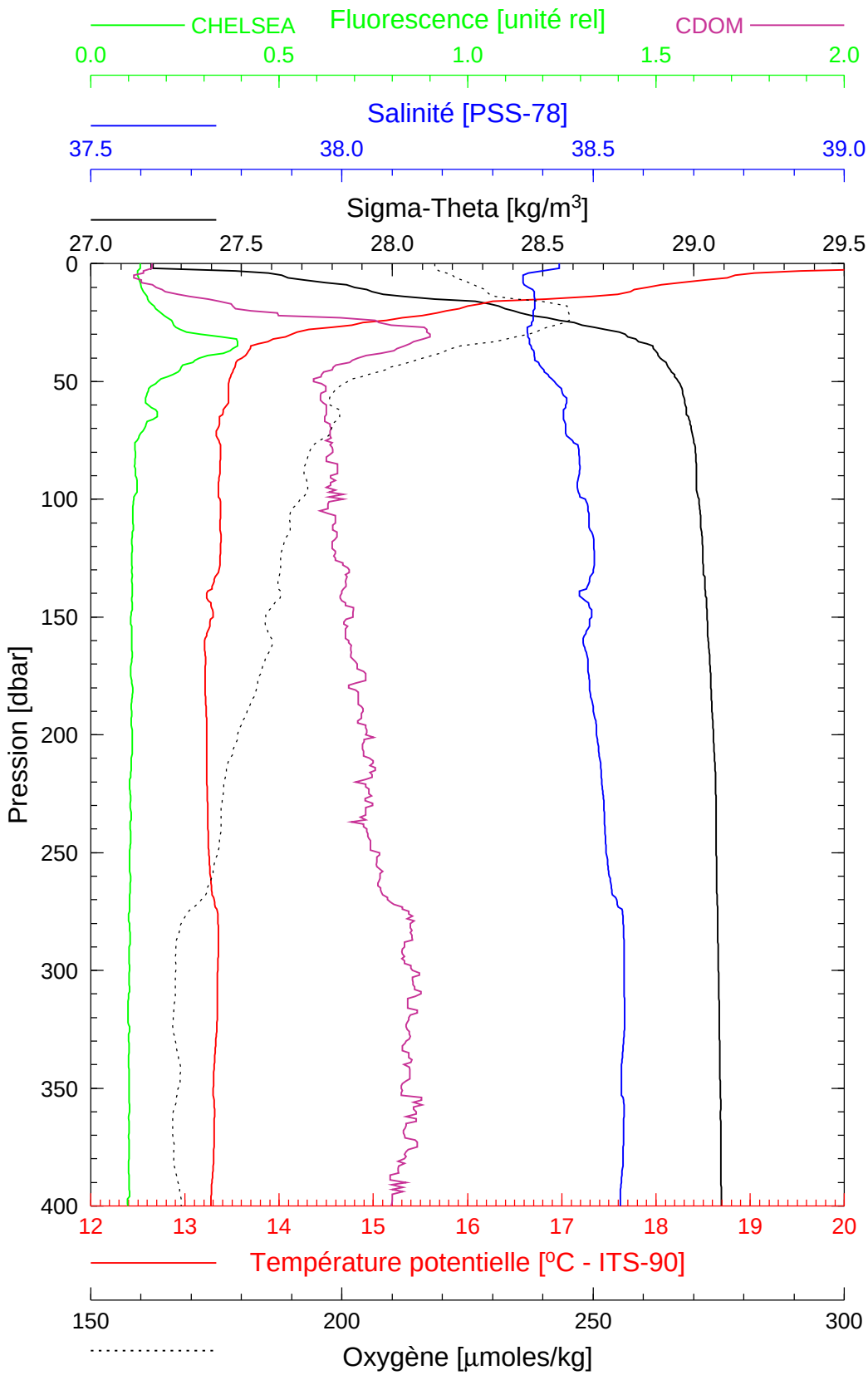


Date *26/05/2005* *Latitude* *43º24.950 N*

Heure déb *14h 43min [TU]* *Longitude* *07º47.942 E*

Boussole 42 **26/05/2005** **BOUS050526_03**

BOUS003

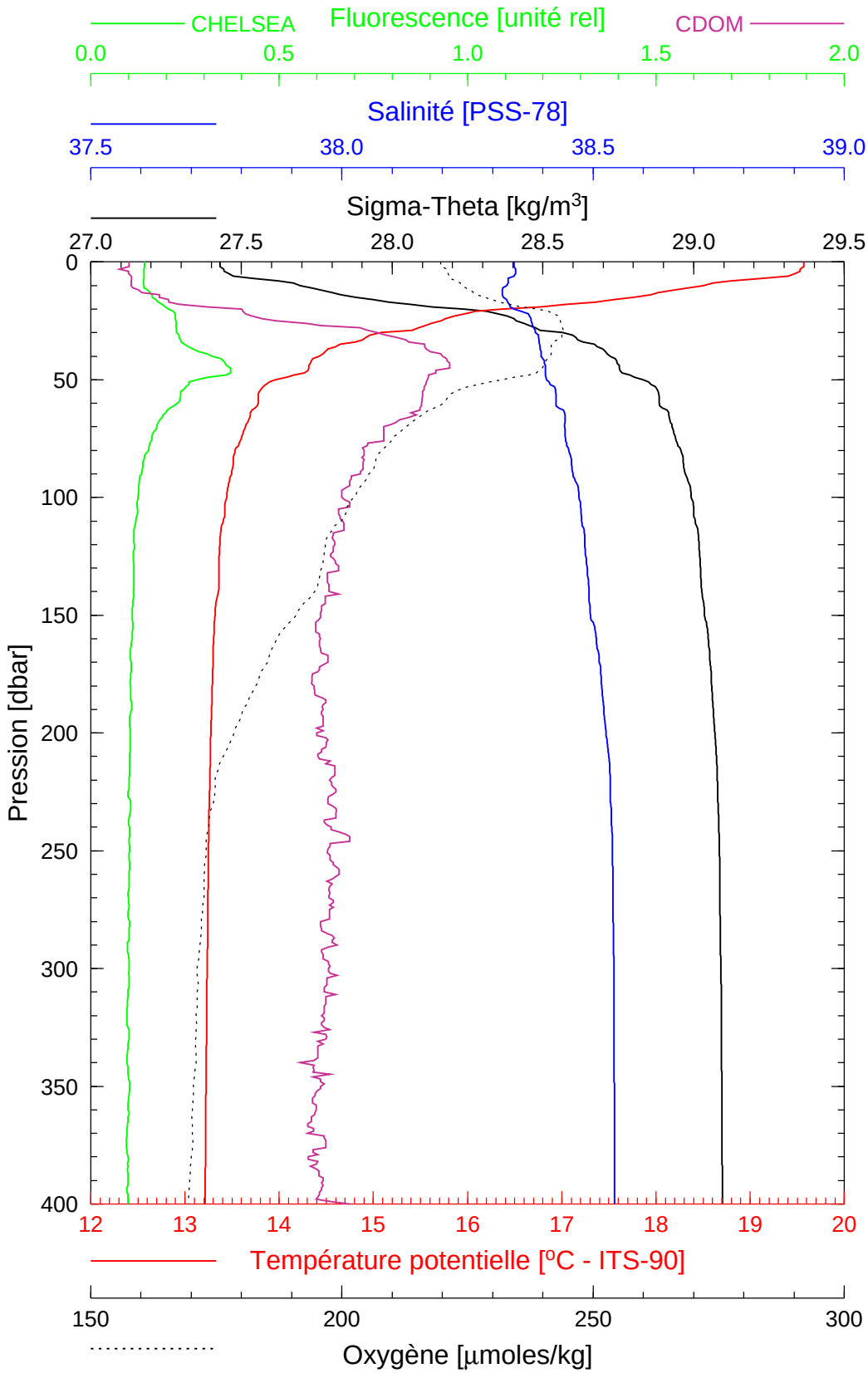


Date *26/05/2005* *Latitude* *43º28.034 N*

Heure déb *15h 34min [TU]* *Longitude* *07º42.474 E*

Boussole 42 **26/05/2005** **BOUS050526_04**

BOUS004

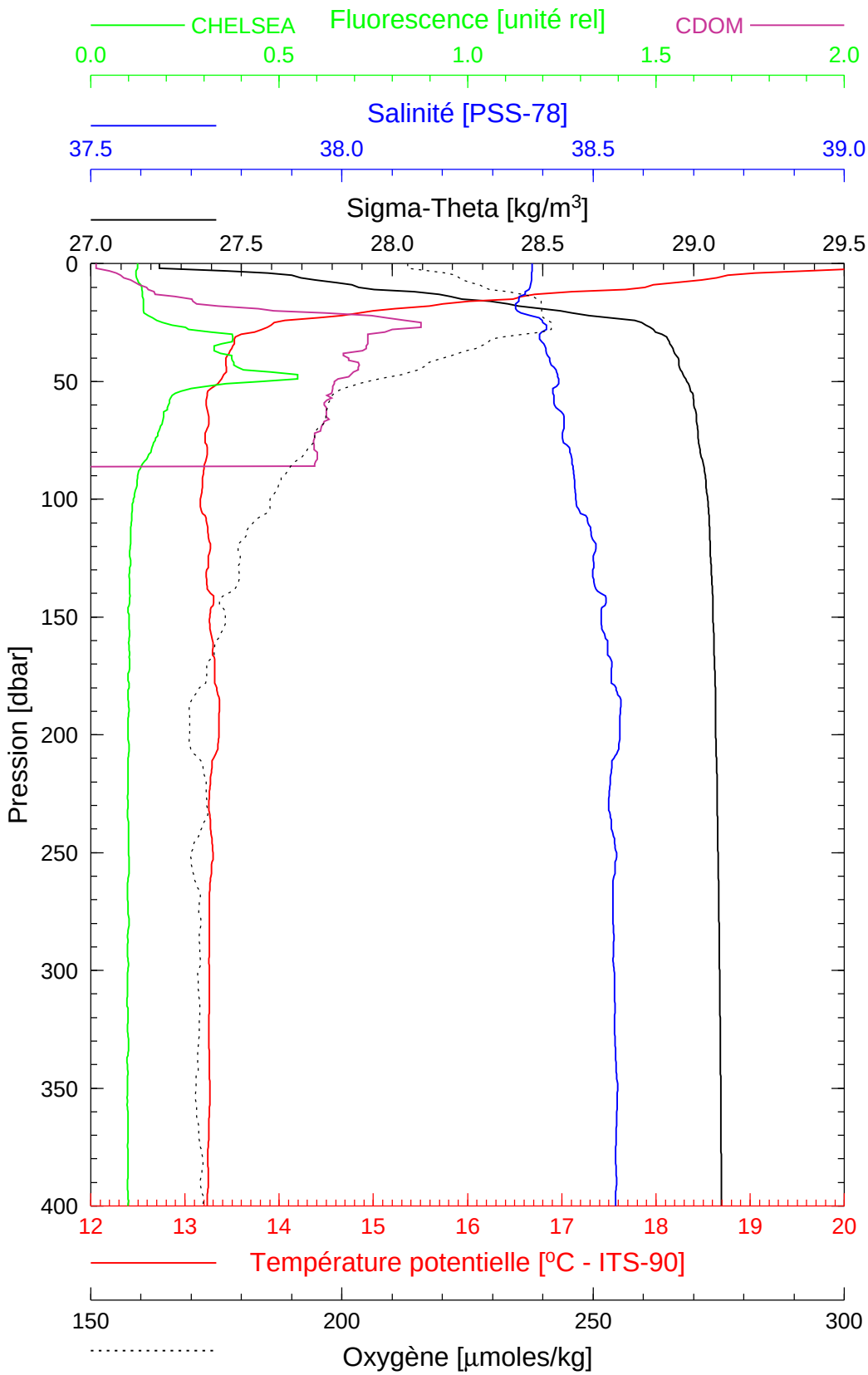


Date *26/05/2005* *Latitude* *43º31.047 N*

Heure déb *16h 26min [TU]* *Longitude* *07º37.010 E*

Boussole 42 **27/05/2005** **BOUS050527_01**

BOUS005

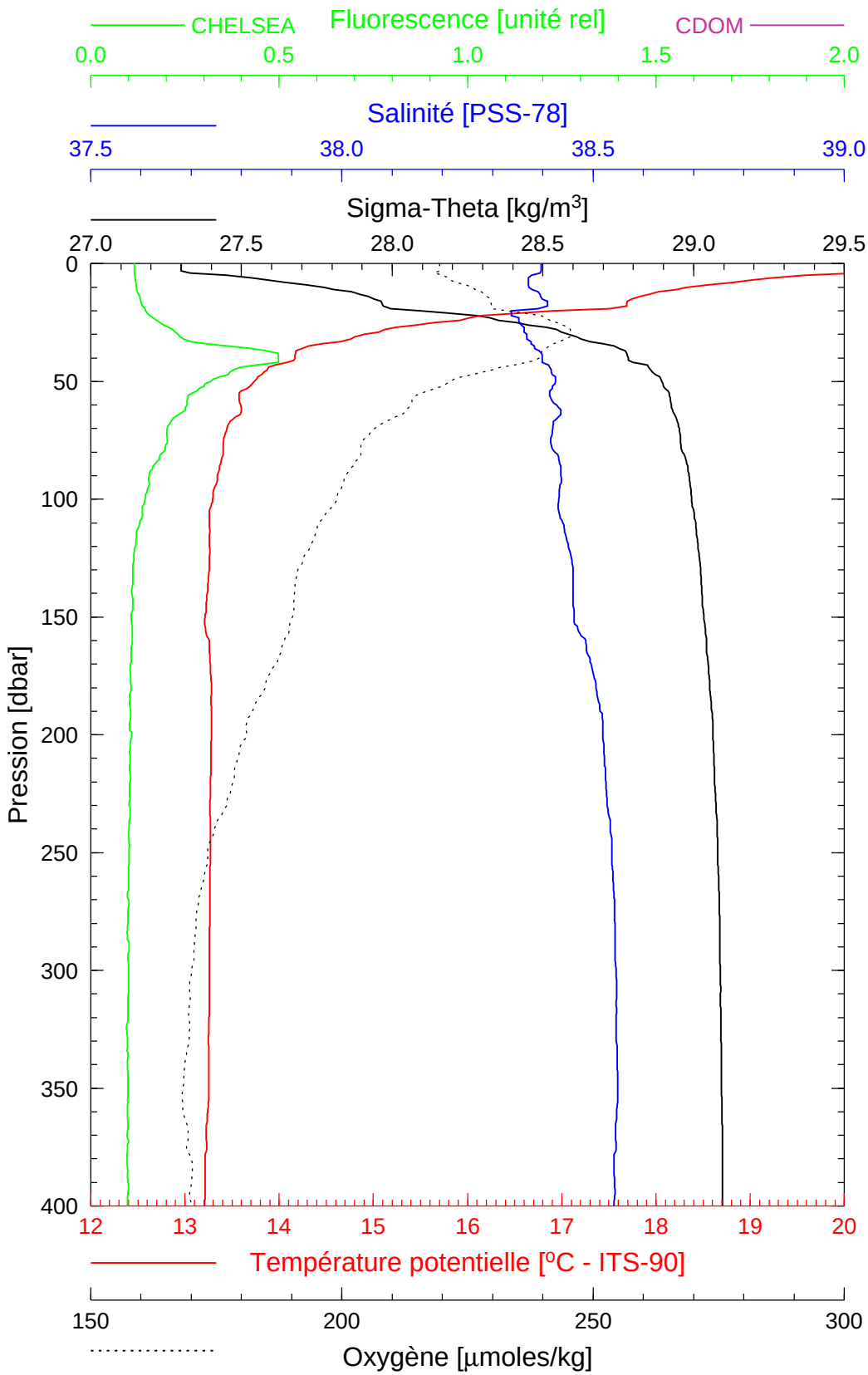


Date *27/05/2005* *Latitude* *43º21.960 N*

Heure déb *09h 04min [TU]* *Longitude* *07º53.886 E*

Boussole 42 **27/05/2005** **BOUS050527_02**

BOUS006

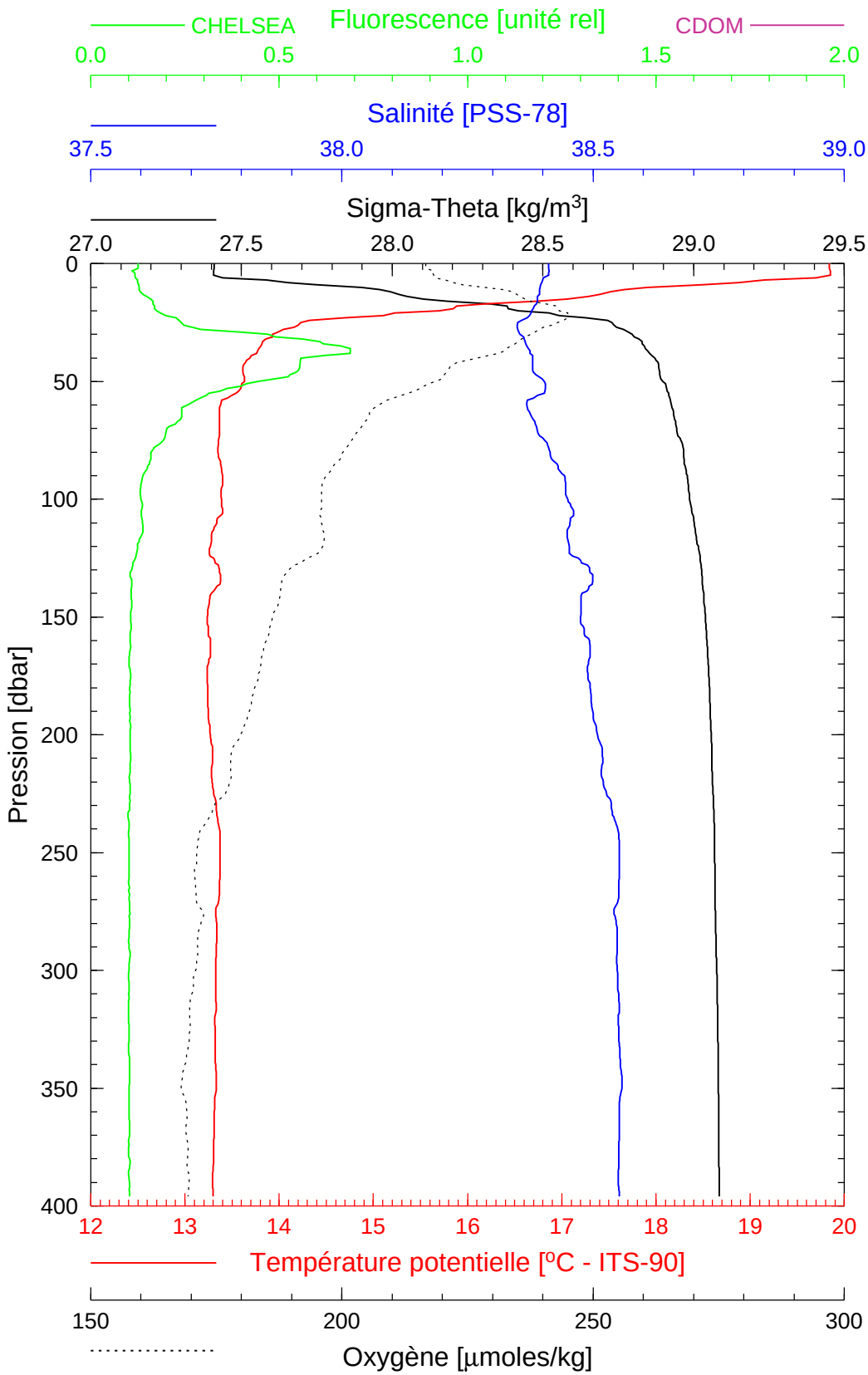


Date *27/05/2005* *Latitude* *43º30.901 N*

Heure déb *12h 28min [TU]* *Longitude* *07º36.745 E*

Boussole 42 **27/05/2005** **BOUS050527_03**

BOUS007

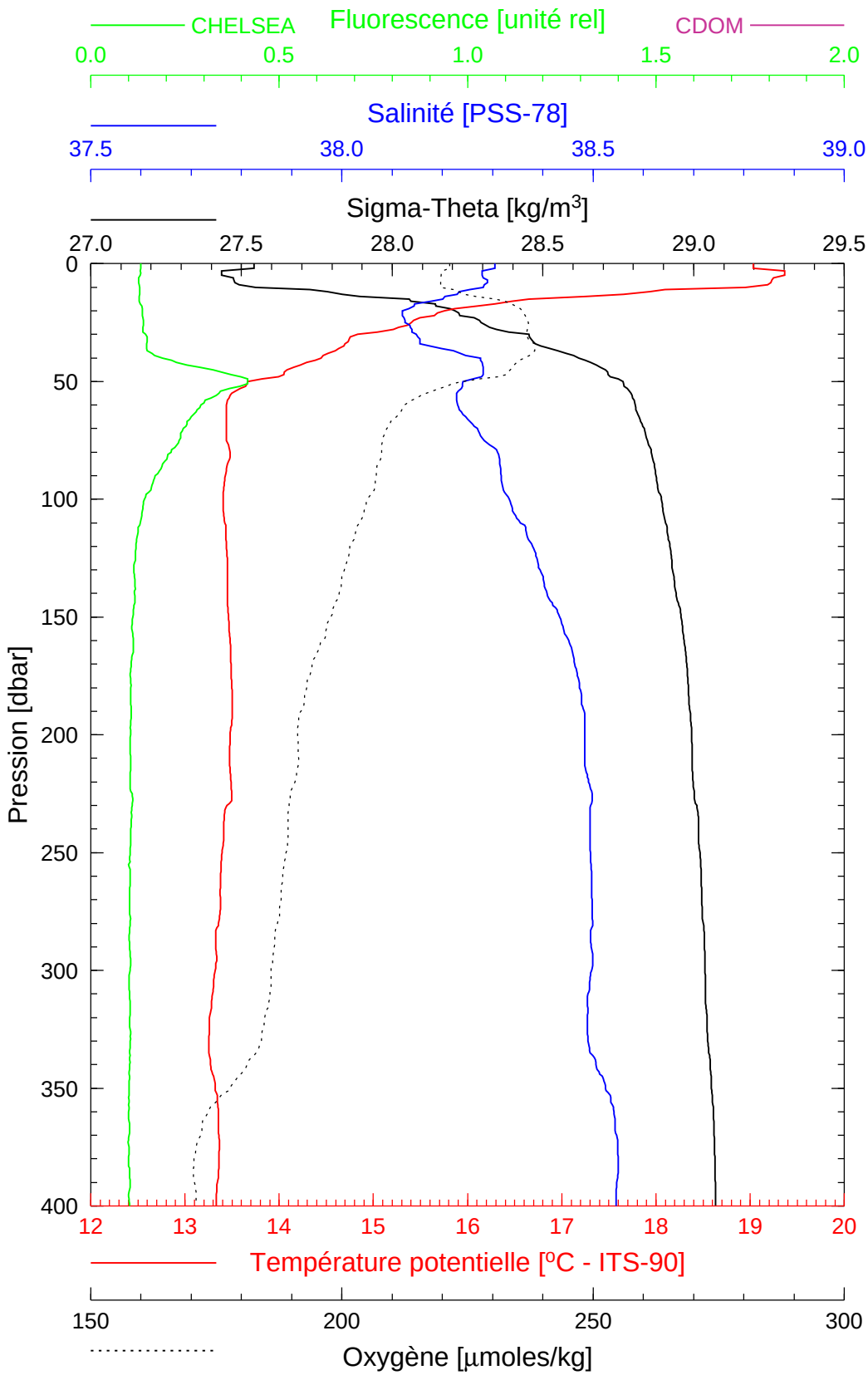


Date *27/05/2005* *Latitude* *43º33.893 N*

Heure déb *13h 25min [TU]* *Longitude* *07º30.840 E*

Boussole 42 **27/05/2005** **BOUS050527_04**

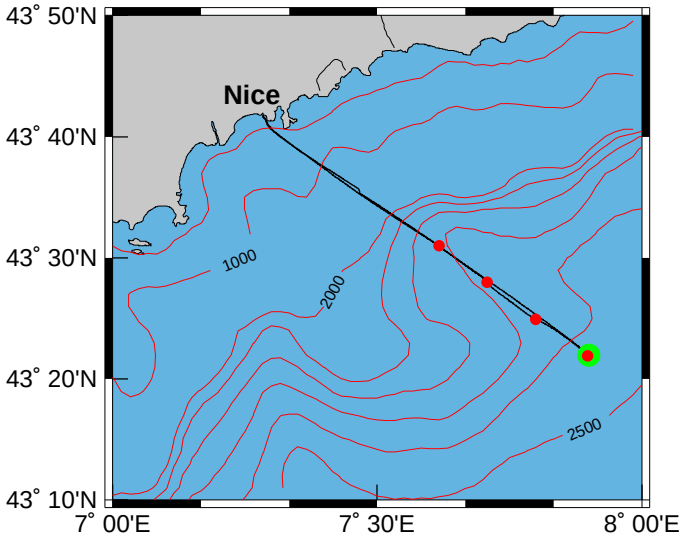
BOUS008

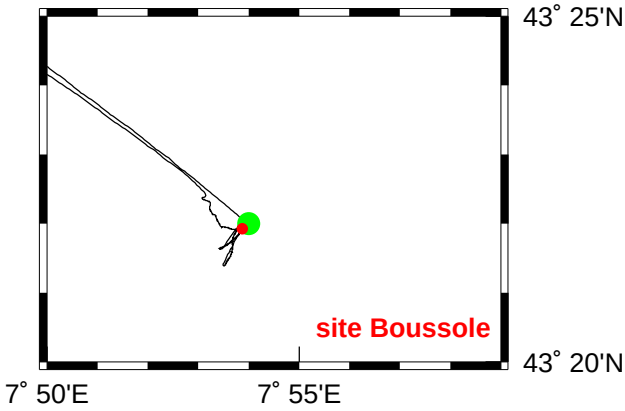


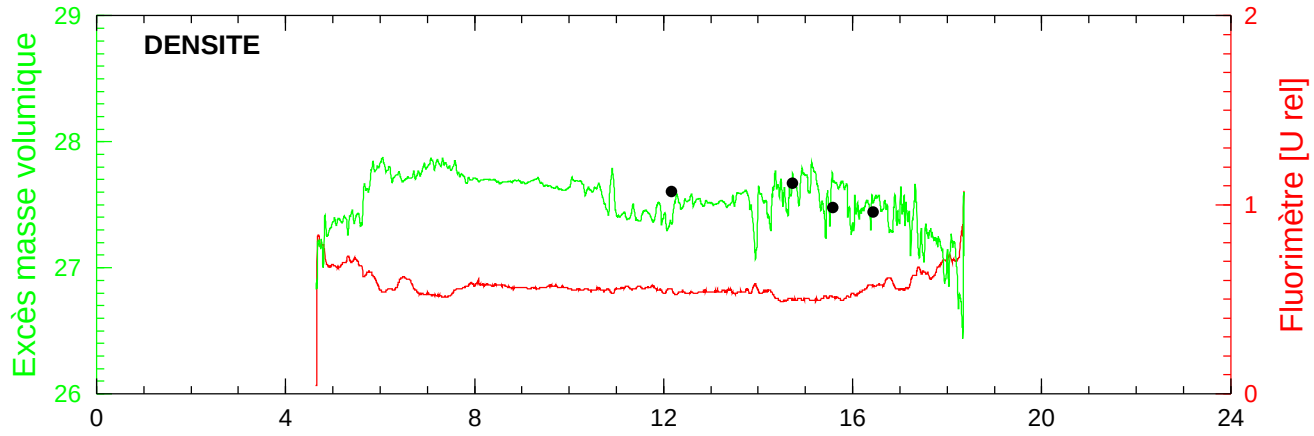
Date *27/05/2005* *Latitude* *43º37.418 N*

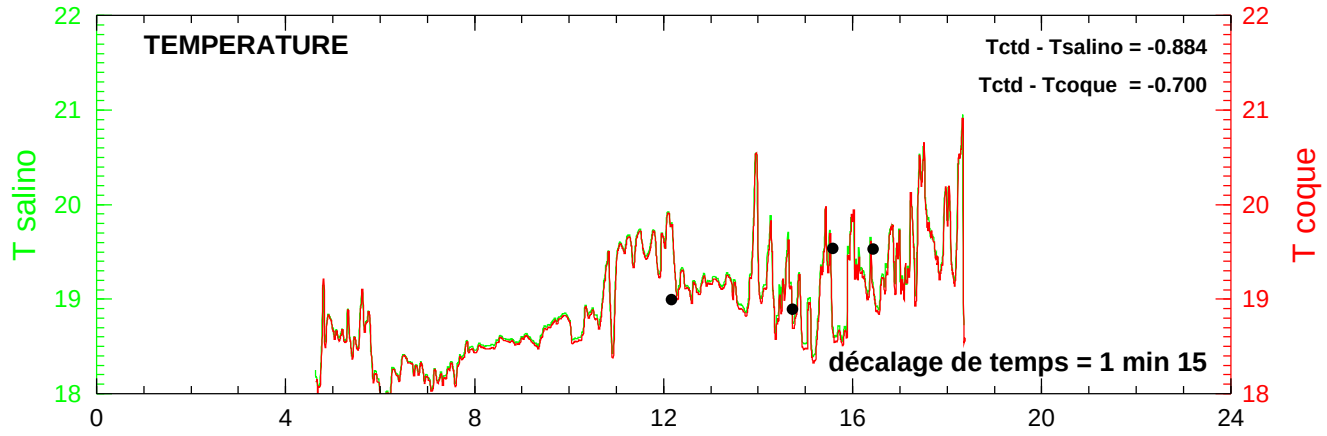
Heure déb *14h 25min [TU]* *Longitude* *07º24.901 E*

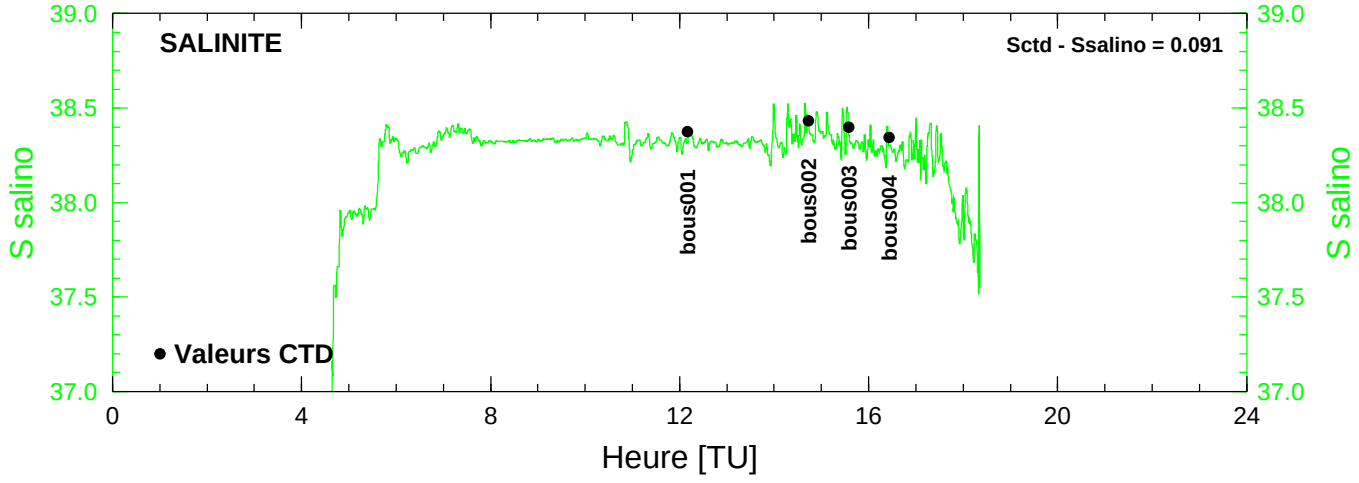
BOUSSOLE 42 26 mai 2005











BOUSSOLE 42 27 mai 2005