BOUSSOLE Monthly Cruise Report

Cruise 45
September 05 – 07, 2005

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

Science Personnel: Guislain Bécu, Dominique Tailliez, Fanny Tièche, Edouard Leymarie, David Doxaran and 3 divers (from SAMAR company)

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

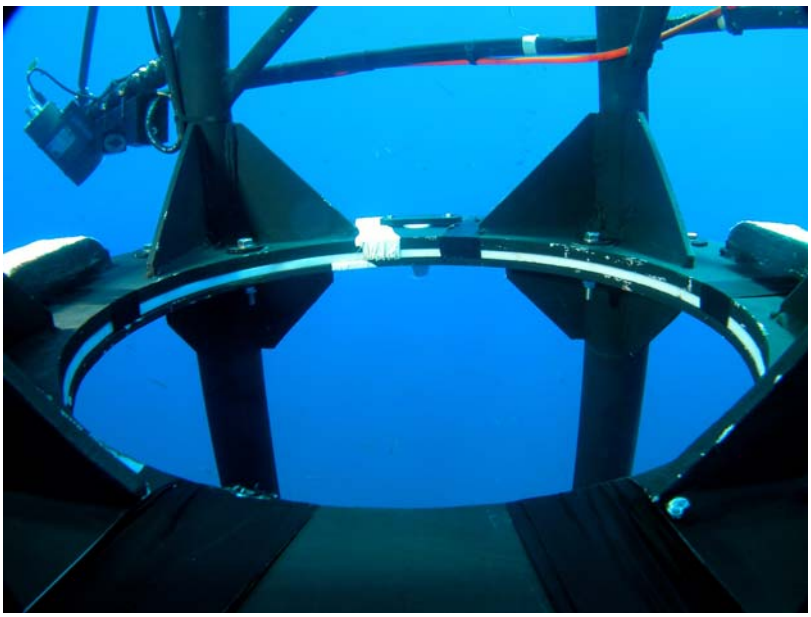


Fig 1. Connection between buoy lower and upper parts, with transmission-meter and backscattering-meter on one of the 9 meters depth arms in background.

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

1. Cruise Objectives
2. Cruise Summary
3. Cruise Report
4. Calculated Swath paths for Meris Sensor

Appendix

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 from SAMAR company will be onboard to check buoy underwater parts, clean sensors from biofouling and take some pictures/videos.

Fanny Tièche will be present on 9 September for the Ultra Path water sampling/filtration and for another set of filtration (Kishino).

David Doxaran and Edouard Leymarie will also be onboard on 9 September to give some help and continue training (for Edouard Leymarie).

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 this time repaired and used to measure depth during SPMR profiling.

Weather conditions were bad for 7 and 8 September and prevented departure from port of Nice. They were better for 9 September, so that N/R Tethys-2 could leave for BOUSSOLE site. Furthermore the cruise period was extended to Saturday 10 as the R/V Tethys-2 was available and free in Nice for that day and as weather conditions were also good.

A recurrent shortcut appeared in the SPMR cable and prevented any measurement. An ancient cable was connected, but this one didn't work as well, so no SPMR profiles were recorded during BOUSSOLE #45 cruise.

Wednesday 07 September 2005

Weather for this day was bad and prevented departure.

Thursday 08 September 2005

Weather for this day was bad and prevented departure.

Friday 09 September 2005

Problem with non CNRS divers certificates delayed departure. The divers even had to stay on dock and couldn't leave for BOUSSOLE site.
As a recurrent shortcut occurred with the SPMR cable, only one CTD, and 2 CIMEL measurements were realized, in addition to the ARGOS beacon exchange.
A little problem with AC9+ connection prevented to follow the sampling state on a PC screen, but not to collect data.

Saturday 10 September 2005

3 others divers (from SAMAR) with legal certificates went on board this day, and could clean buoy sensors and take some video sequences.
An ancient SPMR cable was reconnected, but unsuccessfully.
6 CTD were performed (including transect CTDs), as well as 5 CIMEL atmospheric optical thickness measurements.

Cruise Report

07 September 2005 (UTC)

Stayed in port of Nice.

08 September 2005

Stayed in port of Nice.

09 September 2005

0530 Departure from port of Nice.
0905 CTD 1 with water sampling at 200, 100, 80, 70, 60, 50, 40, 30, 20, 10 and 5 meters.
1200 Unsuccessful SPMR measurement due to a recurrent shortcut.
1330 CIMEL measurement 1.
1335 CIMEL measurement 2.
1338 ARGOS beacon exchange.
1345 Departure for port of Nice.

10 September 2005

0515 Departure from port of Nice.
0850 Divers at sea.
0910 SPMR test with ancient cable, but unsuccessful.
1002 CTD 2 with water sampling at 200, 100, 80, 70, 60, 50, 40, 30, 20, 10 and 5 meters.
1028 CIMEL measurement 3.
1110 CTD 3 at station 1 (43°25'N 07°48'E).
1115 CIMEL measurement 4 at station 1 (43°25'N 07°48'E).
1209 CTD 4 at station 2 (43°28'N 07°42'E).
1210 CIMEL measurement 5 at station 2 (43°28'N 07°42'E).
1302 CTD 5 at station 3 (43°31'N 07°37'E).
1314 CIMEL measurement 6 at station 3 (43°31'N 07°37'E).
1357 CTD 6 at station 4 (43°34'N 07°31'E).
1411 CIMEL measurement 7 at station 4 (43°34'N 07°31'E).
1446 CTD 7 at station 5 (43°37'N 07°25'E).

Calculated Swath paths for MERIS Sensor (ESOV Software)

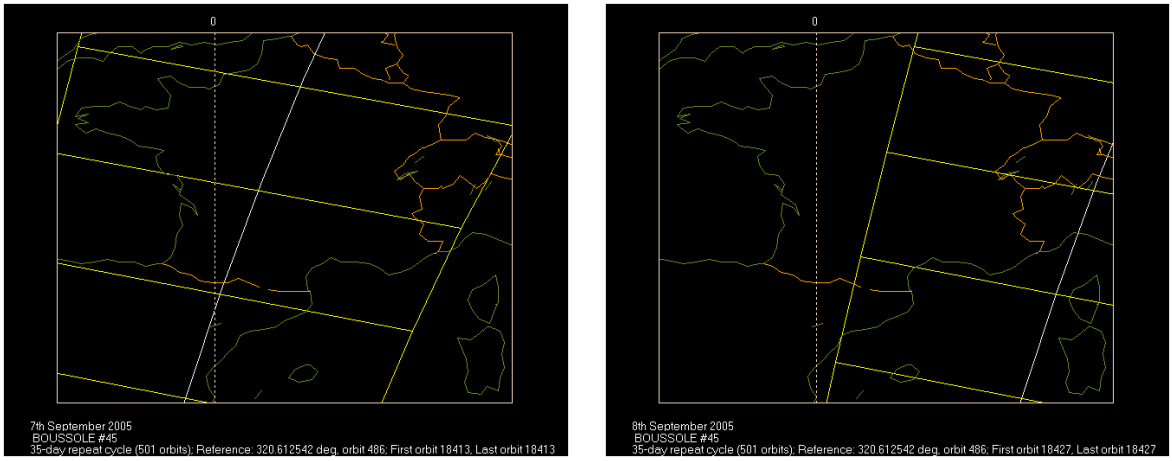
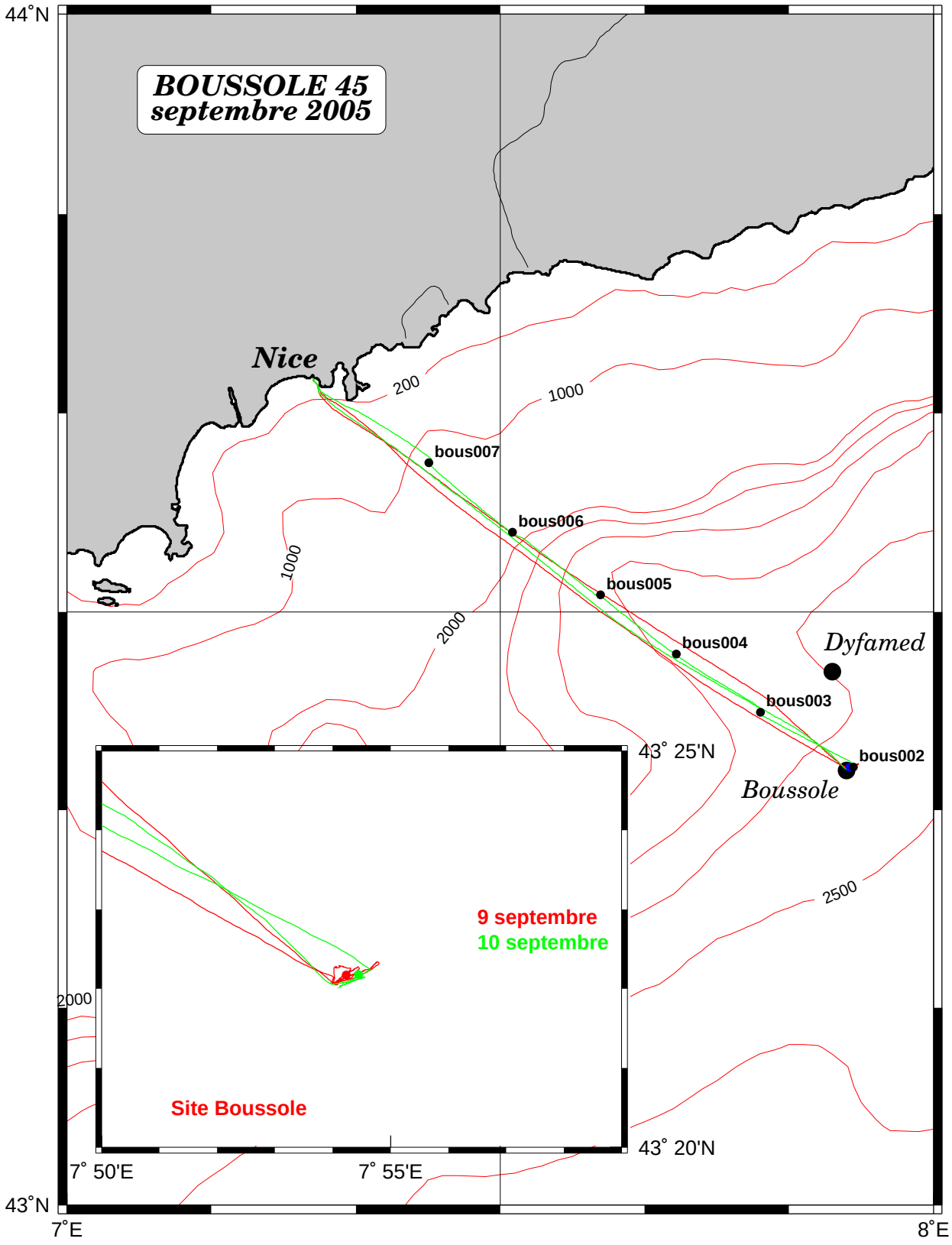


Figure 3. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for 7 and 8 September 2005.

Appendix

Cruise Summary Table for Boussole 45

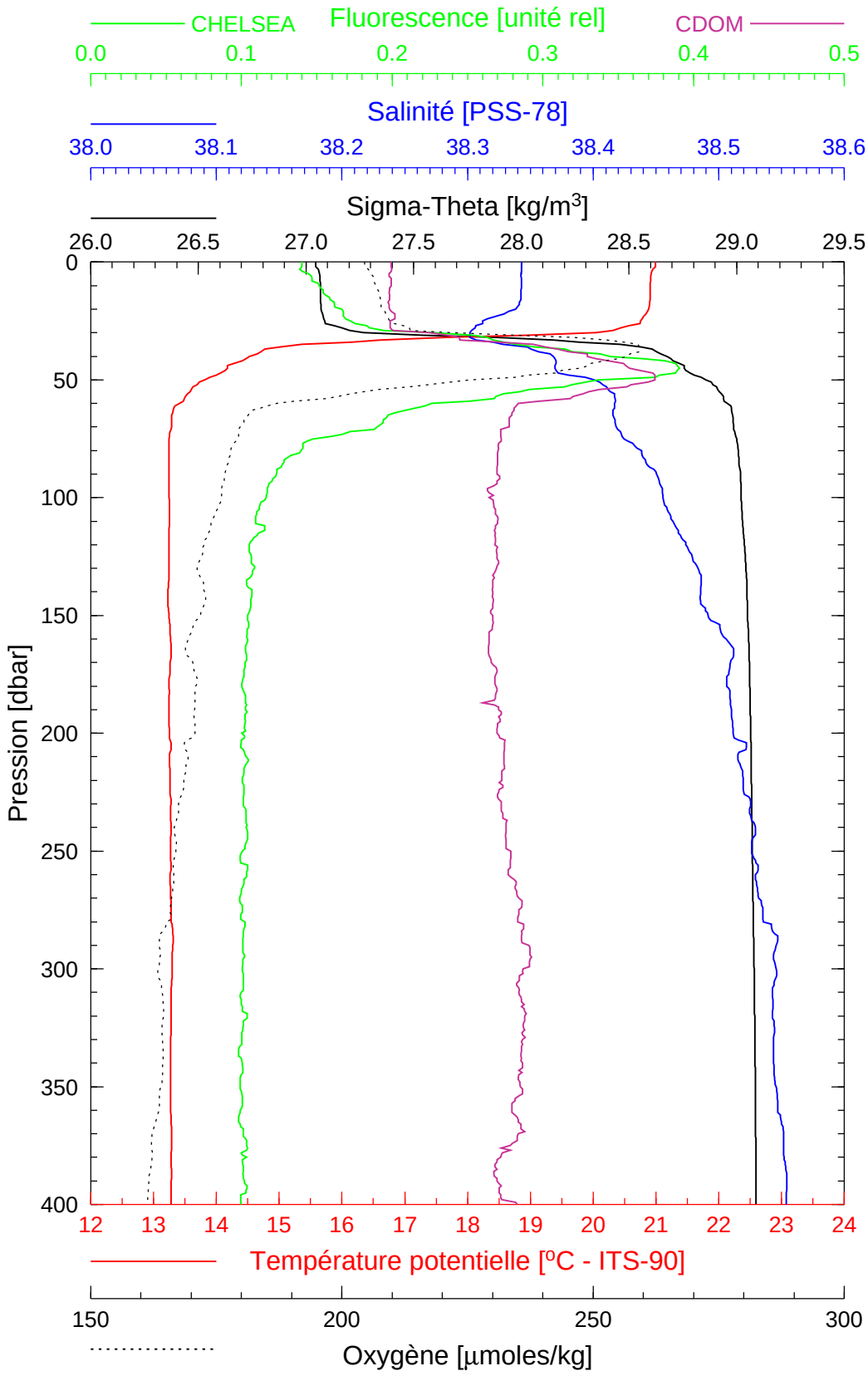
Date	Black names	Profile names	CTD notées /	Start Time	Duration	Depth max	Latitude (N)		longitude		Other sensors	Their cast	Start/Finish				Weather							Sea		
	(file ext: ".raw")	(file extension: ".raw")	satellite overpass	GMT (hour.min)	(min.sec)	(meter)	(Degree)	(Minute)	(Degree)	(Minute)				Sky	Clouds	Quantity (#/8)	Wind speed	Wind dir.	Atm. Pressure	humidity	Visibility	T air	T water	Sea	Swell height	Swell dir.	White horses
09/09/2005			CTDBOUS001	09:05	28:00	400	43	22.175	7	54.230				cloudy	stormy	4	3 kn	269	1014.2	83	good	20.7	20.9	choppy	0.8 m		yes
				12:30	02:00		43	22.000	7	54.000	CIMEL 1	Tau atmos.		far clouds	Cu	3			1014.0								
				12:35	02:00		43	22.000	7	54.000	CIMEL 2	Tau atmos.		far clouds	Cu	3			1014.0								
10/09/2005			CTDBOUS002	10:02	28:00	400	43	22.178	7	54.442				some far clouds	Cu	3	12 kn	192	1013.8	87	good	20.8	20.95	choppy	0.8 m		some
					02:00		43	22.178	7	54.442	CIMEL 3	Tau atmos.		some far clouds	Cu	2			1013.8								
			CTDBOUS003	11:10	25:00	400	43	24.934	7	48.032				some far clouds	Cu	2	12 kn	185	1013.4	86	good	20.7	22.2	choppy	0.8 m		some
					02:00		43	24.934	7	48.032	CIMEL 4	Tau atmos.		some far clouds	Cu	2			1013.4								
			CTDBOUS004	12:09	22:00	400	43	27.886	7	42.211				some far clouds	Cu	2	14 kn	182	1013.0	83	good	20.9	22.9	choppy	0.8 m		some
					02:00		43	27.886	7	42.211	CIMEL 5	Tau atmos.		some far clouds	Cu	2			1013.0								
			CTDBOUS005	13:02	28:00	400	43	30.877	7	36.954				some far clouds	Cu	2	11 kn	241	1012.7	76	very good	21.5	23.6	choppy	0.7 m		some
					02:00		43	30.877	7	36.954	CIMEL 6	Tau atmos.		some far clouds	Cu	2			1012.7								
			CTDBOUS006	13:57	25:00	400	43	34.012	7	30.864				some far clouds	Cu	3	10 kn	192	1012.5	82	good	21.6	23.5	choppy	0.7 m		some
					02:00		43	34.012	7	30.864	CIMEL 7	Tau atmos.		some far clouds	Cu	3			1012.7								
			CTDBOUS007	14:46	22:00	400	43	37.514	7	25.076				some far clouds	Cu/Ci	5	7 kn	197	1012.3	81	good	21.7	23.6	choppy	0.7 m		some



GMT 2005 Oct 12 18:38:45

Boussole 45 **09/09/2005** **BOUS050909_01**

BOUS001

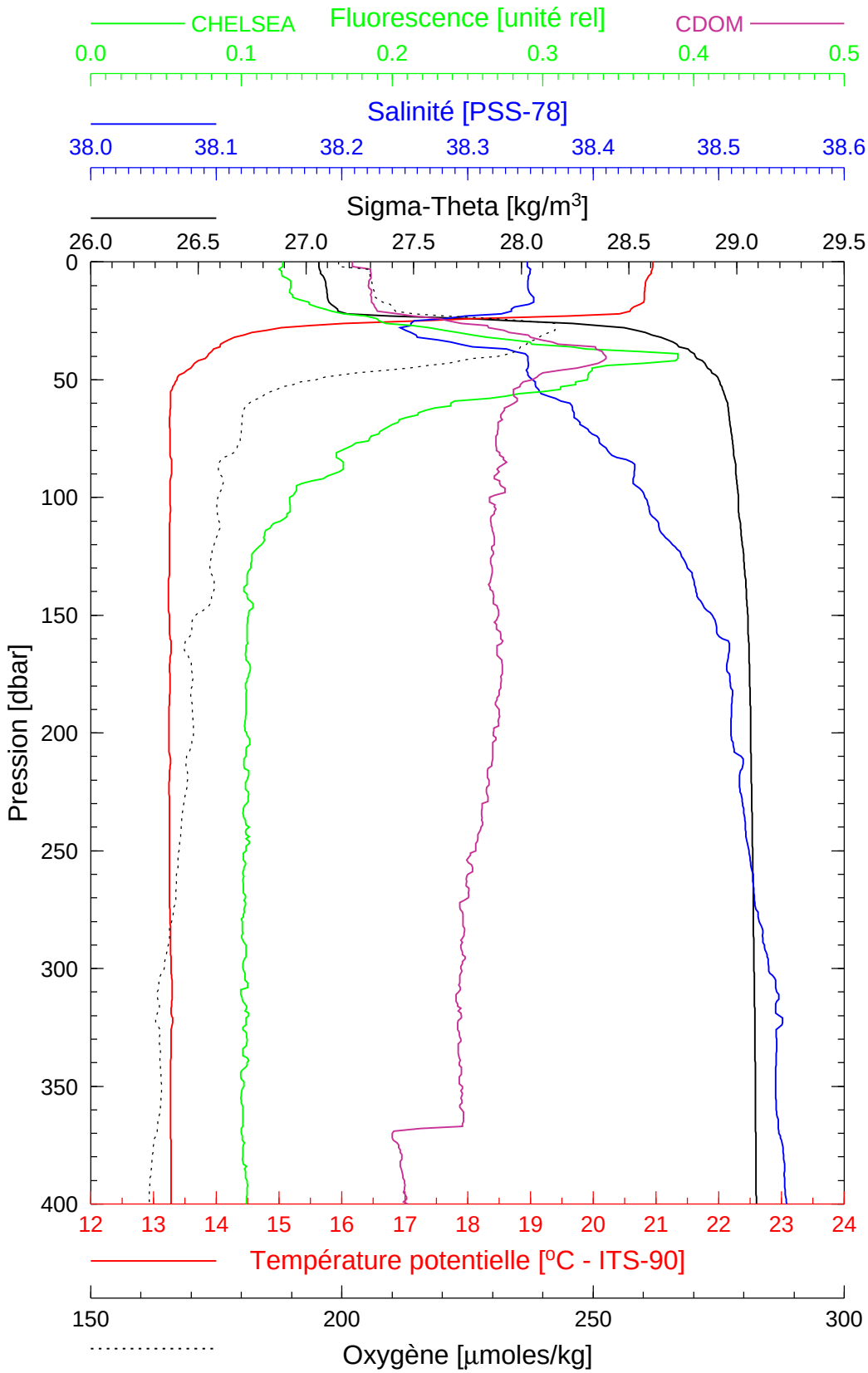


Date *09/09/2005* *Latitude* *43º22.175 N*

Heure déb *09h 04min [TU]* *Longitude* *07º54.230 E*

Boussole 45 **10/09/2005** **BOUS050910_01**

BOUS002

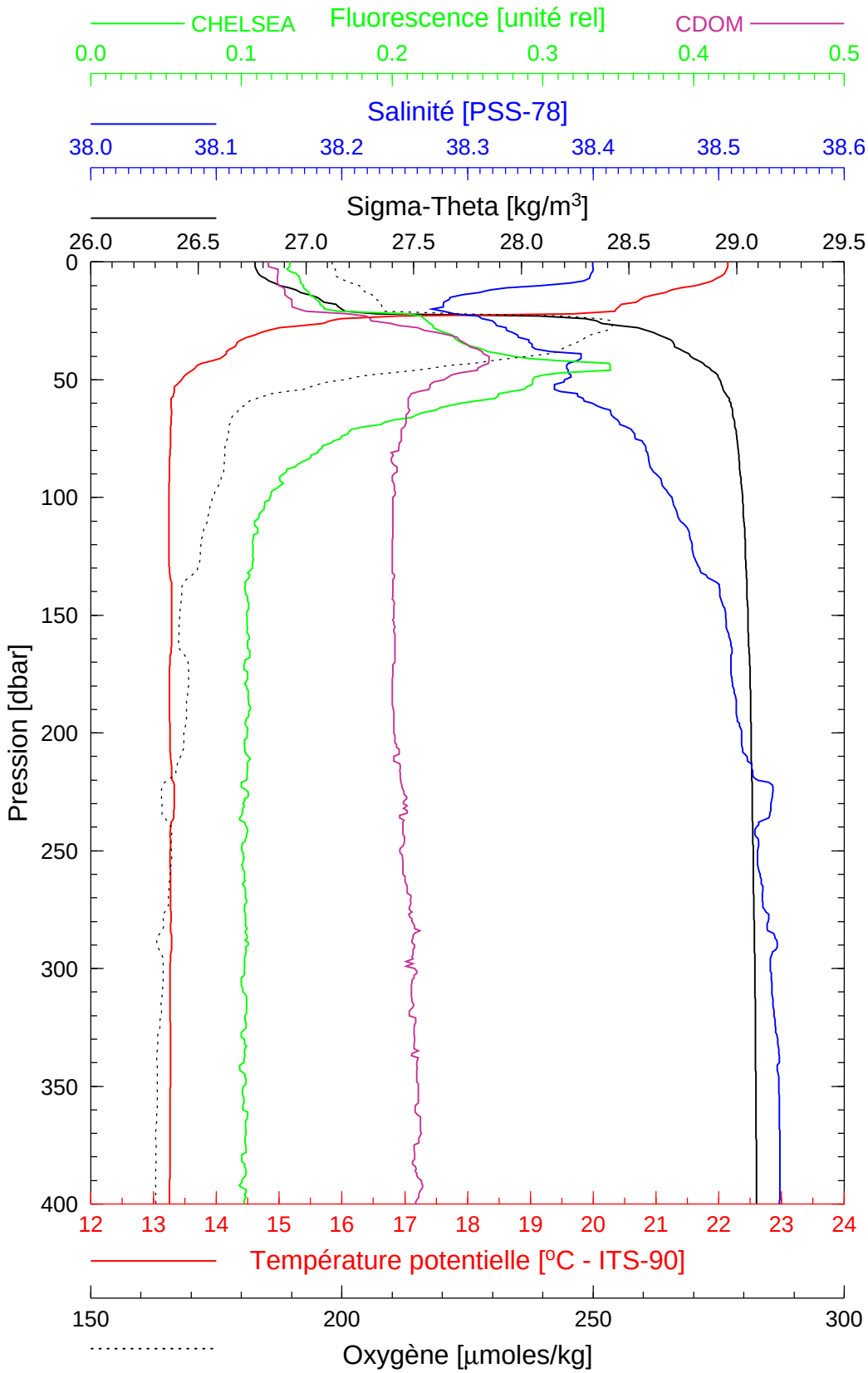


Date *10/09/2005* *Latitude* *43º22.178 N*

Heure déb *10h 02min [TU]* *Longitude* *07º54.442 E*

Boussole 45 **10/09/2005** **BOUS050910_02**

BOUS003

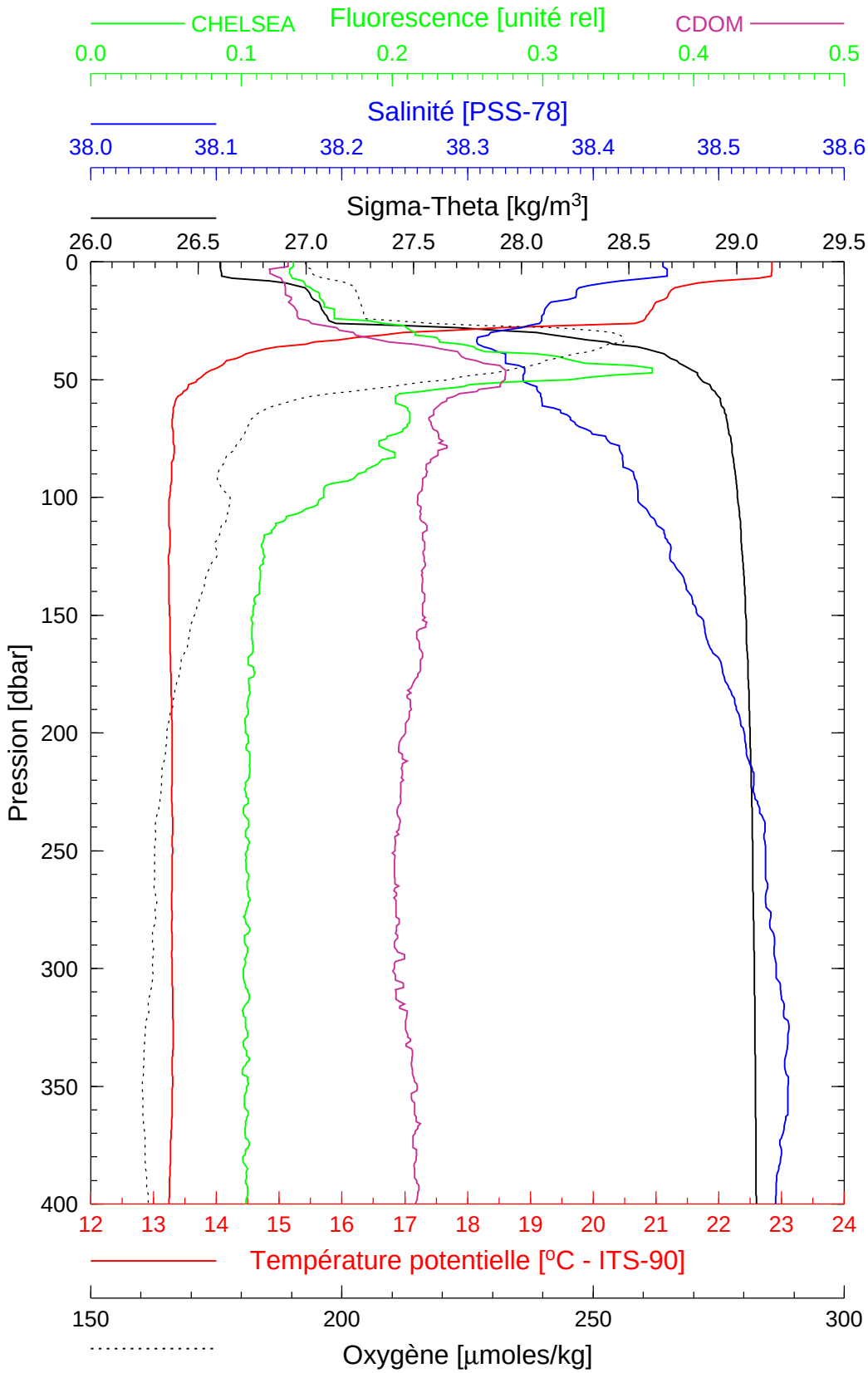


Date *10/09/2005* *Latitude* *43º24.934 N*

Heure déb *11h 10min [TU]* *Longitude* *07º48.032 E*

Boussole 45 **10/09/2005** **BOUS050910_03**

BOUS004

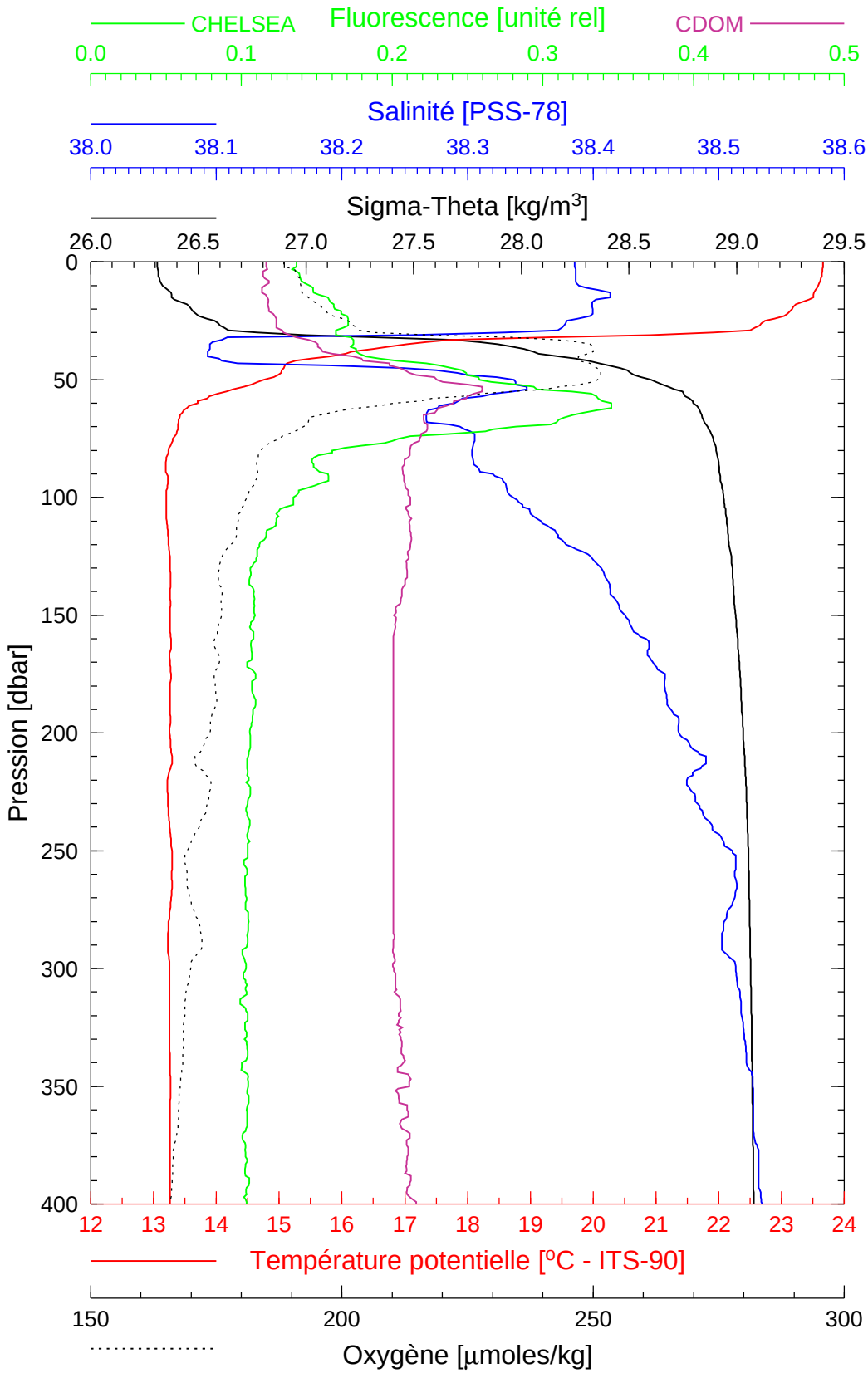


Date *10/09/2005* *Latitude* *43°27.886 N*

Heure déb *12h 09min [TU]* *Longitude* *07°42.211 E*

Boussole 45 **10/09/2005** **BOUS050910_04**

BOUS005

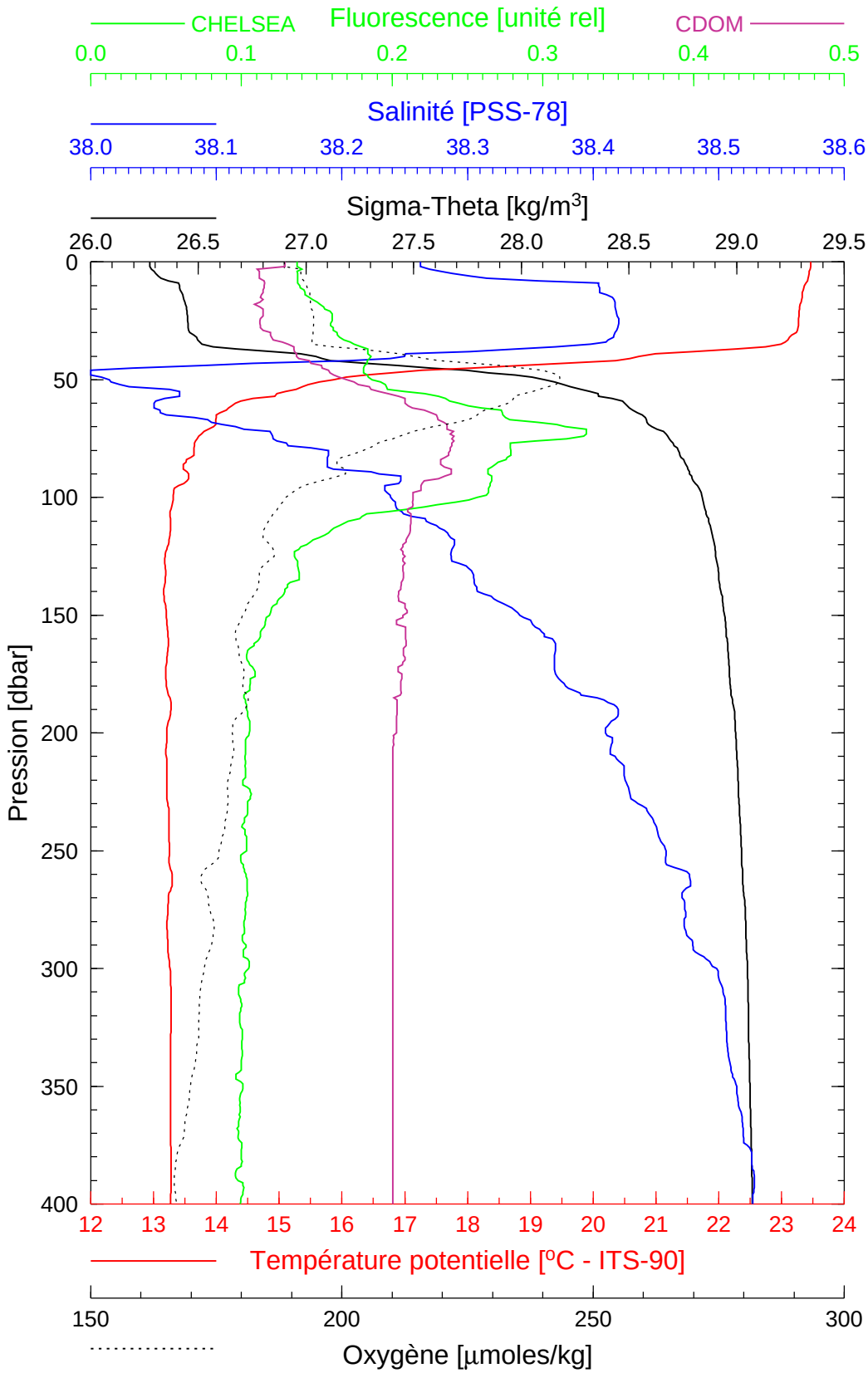


Date *10/09/2005* *Latitude* *43º30.877 N*

Heure déb *13h 02min [TU]* *Longitude* *07º36.954 E*

Boussole 45 **10/09/2005** **BOUS050910_05**

BOUS006

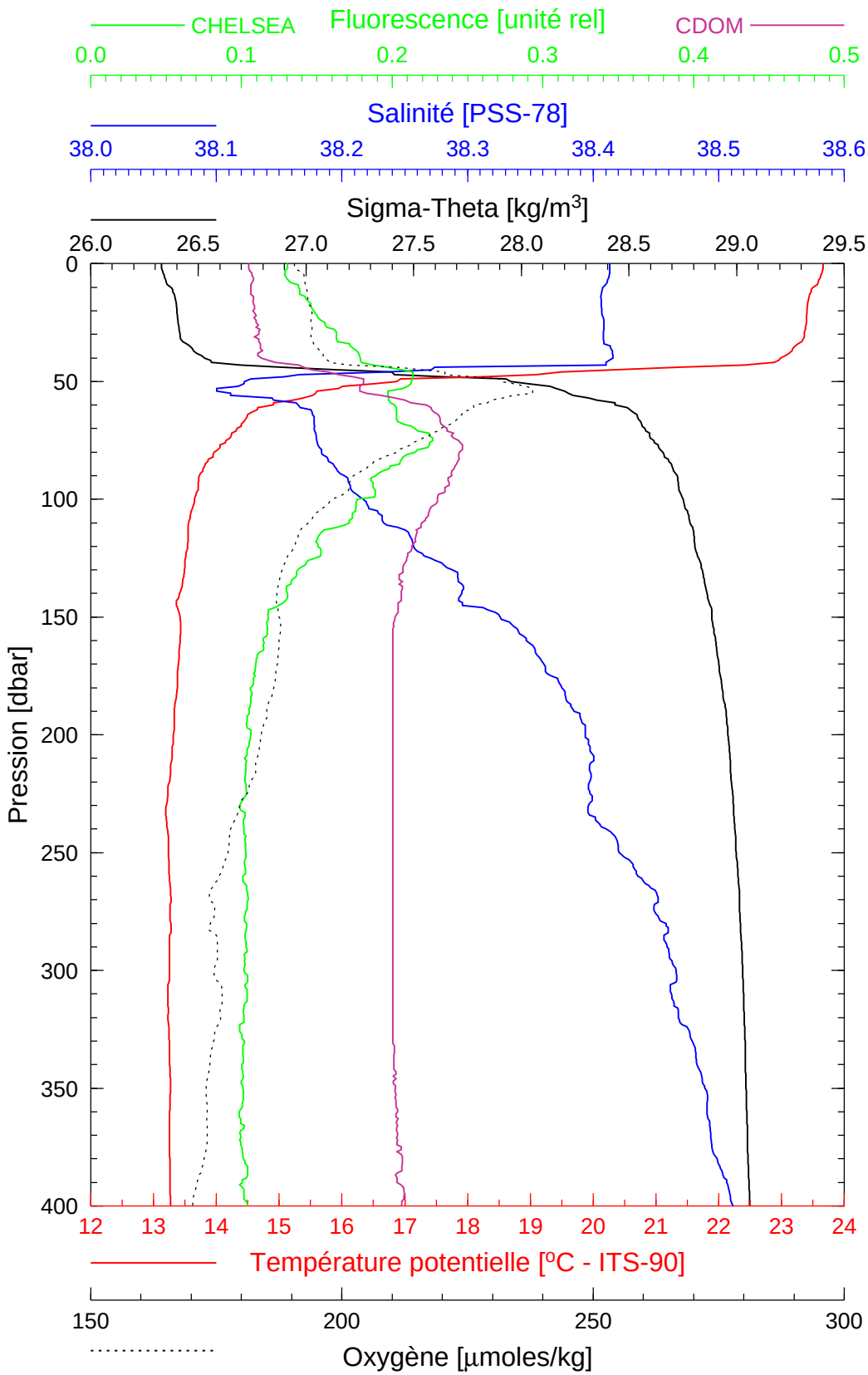


Date *10/09/2005* *Latitude* *43º34.012 N*

Heure déb *13h 56min [TU]* *Longitude* *07º30.864 E*

Boussole 45 **10/09/2005** **BOUS050910_06**

BOUS007



Date *10/09/2005* *Latitude* *43º37.514 N*

Heure déb *14h 46min [TU]* *Longitude* *07º25.076 E*