BOUSSOLE Monthly Cruise Report

Cruise 130
December 07 - 11, 2012

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Vessel: R/V L'Europe
(Captain: Pierrick)

Science Personnel: Emilie Diamond and Grigor Obolensky.

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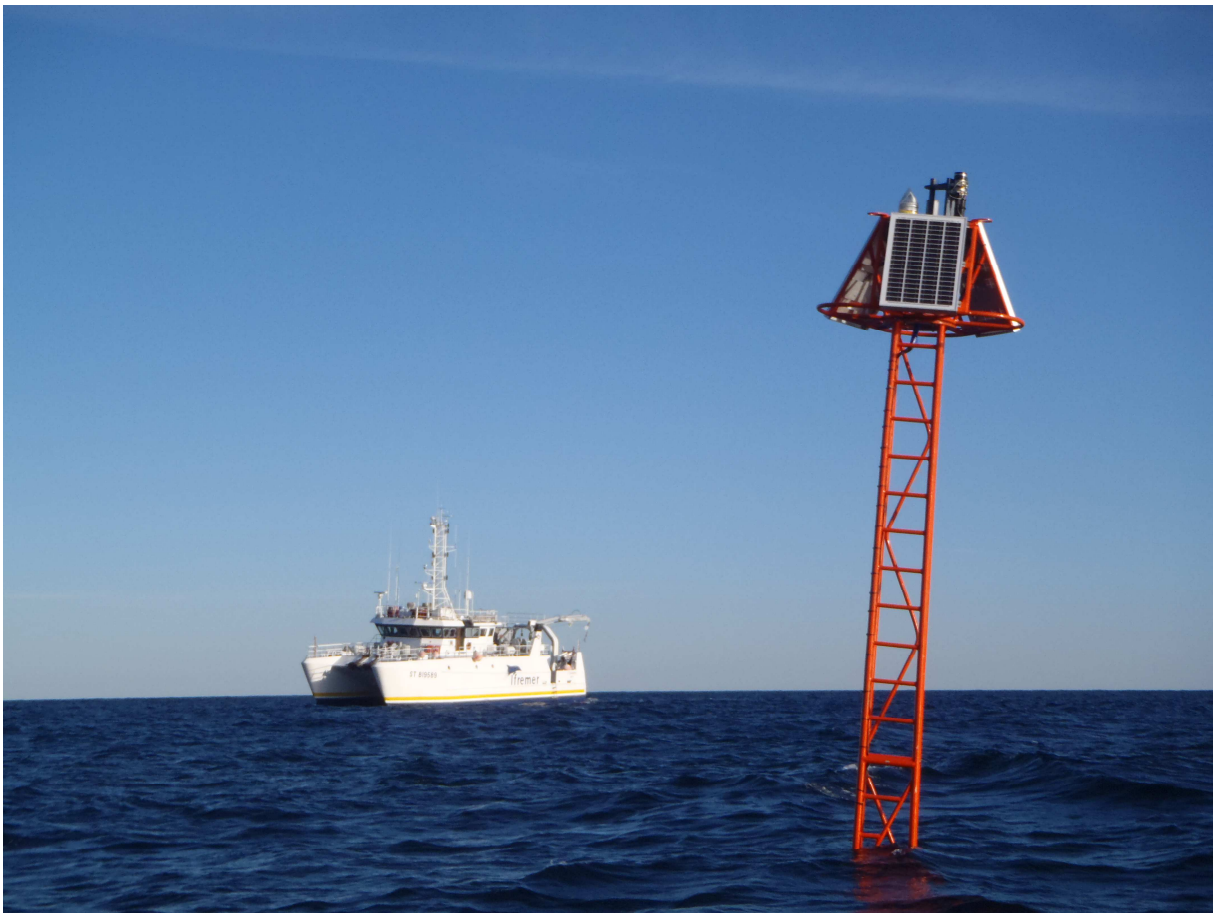
The top of the BOUSSOLE buoy and the R/V *L'Europe* (IFREMER) on the background.

BOUSSOLE project

ESA/ESRIN contract N° 13226/10/I-NB

December 21, 2012

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

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Centre National de la Recherche Scientifique, France

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Cruise Objectives

Routine operations

Multiple Biospherical's C-OPS (Compact Optical Profiling System) radiometric profiles are performed at the BOUSSOLE site 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 C-OPS 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. CTD deployments are required at the start and the end of the C-OPS profiling day and around noon in the longer summer days or when there is a high possibility of a satellite matchup. The CTD package also includes a Wetlabs CDOM fluorometer and a Chl fluorometer, an absorption-attenuation meter (Wetlabs AC9; from July 2002), and a backscattering meter (Wetlabs Eco-BB3, from June 2003). Additional instrumentation for measurement of inherent optical properties has been added from December 2011. The new package includes a hyperspectral absorption meter (Hobilabs a-sphere), a multispectral backscattering meter (Hobilabs Hydroscat-6) and a multispectral beam transmissometer (Hobilabs Gamma-4). The CDOM fluorometer, AC9 and Eco-BB3 have been withdrawn from the CTD package from March 2013.
Seawater samples are to be collected, filtered and stored into liquid nitrogen for subsequent HPLC pigment and particle absorption spectrophotometric filter analysis in the lab. Three replicates samples are to be collected at surface for total suspended matter weighting in the lab.

Operations that have to be performed in each cruise include:
- Collection and filtration of seawater samples for colored dissolved organic matter (from June 2005) and particulate organic carbon (from October 2011) analyses in the lab. Small quantities of seawater are to be fixed with glutaraldehyde for cytometric analysis (from December 2011).

- One CTD transect is performed between the BOUSSOLE site and the Port of Nice. This transect consists of six fixed stations on-route from BOUSSOLE (see map in appendix). Whenever feasible, this transect should be performed at a similar time for each cruise, in order to minimise the influence of possible diurnal variability.

- Divers check the underwater state of the buoy structure and instrumentation, take pictures for archiving, clean the sensor optical surfaces, and then take again some pictures after cleaning. Divers also put a neoprene cap on the backscattering meter and on the transmissometers for acquiring dark measurements (started in April 2009).

Further details about these operations and the protocols are to be found in:
Antoine, D. M. Chami, H. Claustre, F. D'Ortenzio, A. Morel, G. Bécu, B. Gentili, F. Louis, J. Ras, E. Roussier, A.J. Scott, D. Tailliez, S. B. Hooker, P. Guevel, J.-F. Desté, C. Dempsey and D. Adams. 2006, BOUSSOLE: a joint CNRS-INSU, ESA, CNES and NASA Ocean Color Calibration And Validation Activity. NASA Technical memorandum N° 2006 - 214147, 61 pp.
(http://www.obs-vlfr.fr/Boussole/html/publications/pubs/BOUSSOLE_TM_214147.pdf)

Additional operations

No additional operations.

Cruise Summary

The first day was used for a CTD cast with water sampling and for a Secchi disk at the BOUSSOLE site. The second day, bad weather prevented the departure from the Nice harbour. The third day was used for CTD casts with water sampling, for optical profiles, for cleaning surface sensors and for the CTD transect. The fourth day, bad weather prevented the departure from the Nice harbour. The last day was programmed for DYFAMED cruise but this day was also used for downloading data from the BOUSSOLE buoy.

Friday 07 December 2012

This day, the sea state was slight with a moderate breeze. 1 CTD cast with water sampling and 1 Secchi disk were performed at the BOUSSOLE site. C-OPS profiles could not be performed because of the bad weather: too much waves and whitecaps. A wireless CISCO connection with the buoy was attempted. It succeed at first but the connection stopped during the data downloading.

Saturday 08 December 2012

Bad weather prevented departure from the Nice harbour.

Sunday 09 December 2012

This day, the sea state was slight with a light breeze. A CTD cast with water sampling and 3 C-OPS profiles were performed at the BOUSSOLE site. Then surface sensors, solar panels, CISCO and ARGOS connectors on the top of the buoy were cleaned. The CTD transect was performed partially: the CTD at station 04 was skipped due to the lack of time.

Monday 10 December 2012

Bad weather prevented the departure from the Nice harbour.

Tuesday 11 December 2012

This day was programmed for the DYFAMED operations. A CISCO connection with the buoy was attempted and succeed. So buoy data were downloaded.

Cruise Report

Friday 07 December 2012 (UTC)

People on board: Emilie Diamond and Grigor Obolensky.

0625 Departure from the Nice harbour.
1000 Arrival at the BOUSSOLE site.
1005 CTD 01, 400 m with water sampling at 200, 150, 80, 70, 60, 50, 40, 30, 20, 10 and 5 m for HPLC and a_p and TSM.
1100 Filtrations.
1130 No C-OPS: bad weather.
1200 Attempt of CISCO connection: failed.
1215 Secchi 01, 13m.
1220 Departure to the Nice harbour.
1530 Arrival at the Nice harbour.

Saturday 08 December 2012

Bad weather prevented departure from the Nice harbour.

Sunday 09 December 2012 (UTC)

People on board: Emilie Diamond and Grigor Obolensky.

0805 Departure from the Nice harbour.
1135 Arrival at the BOUSSOLE site.
1150 CTD 02, 400 m with water sampling at 400, 150, 80, 70, 60, 50, 40, 30, 20, 10 and 5 m for HPLC and a_p, CDOM, PC, Cytometry and TSM.
1245 C-OPS 01, 02, 03.
1350 Cleaning of surface sensors, solar panels, ARGOS and CISCO connectors on the top of the buoy.
1430 Departure to the first transect station.
1500 CTD 03, 400 m, station 01 (43°25'N 07°48'E).

1610 CTD 04, 400 m, station 02 (43°28’N 07°42’E).
1715 CTD 05, 400 m, station 03 (43°31’N 07°37’E).
1840 CTD 06, 400 m, station 05 (43°37’N 07°25’E).
1955 CTD 07, 400 m, station 06 (43°39’N 07°21’E).
2020 Departure to the Nice harbour.
2050 Arrival at the Nice harbour.

Monday 10 December 2012

Bad weather prevented the departure from the Nice harbour.

Tuesday 11 December 2012

People on board: Emilie Diamond and Grigor Obolensky.

0640 Departure from the Nice harbour.
1000 Arrival at the BOUSSOLE site.
0930 Deep CTD cast for MOOSE DYFAMED program
1300 CISCO connection with the buoy and downloading data.
1315 Departure to the Nice harbour.
1650 Arrival at the Nice harbour.

Problems identified during the cruise

- The first day, a CISCO wireless connection was attempted from the ship but the connection was interrupted during the data downloading. The last day, a CISCO connection was got with the buoy and data were downloaded but errors messages appears before the telemetry.

- The third day, the CTD transect was not performed totally: the station 04 was skipped due to the lack of time.

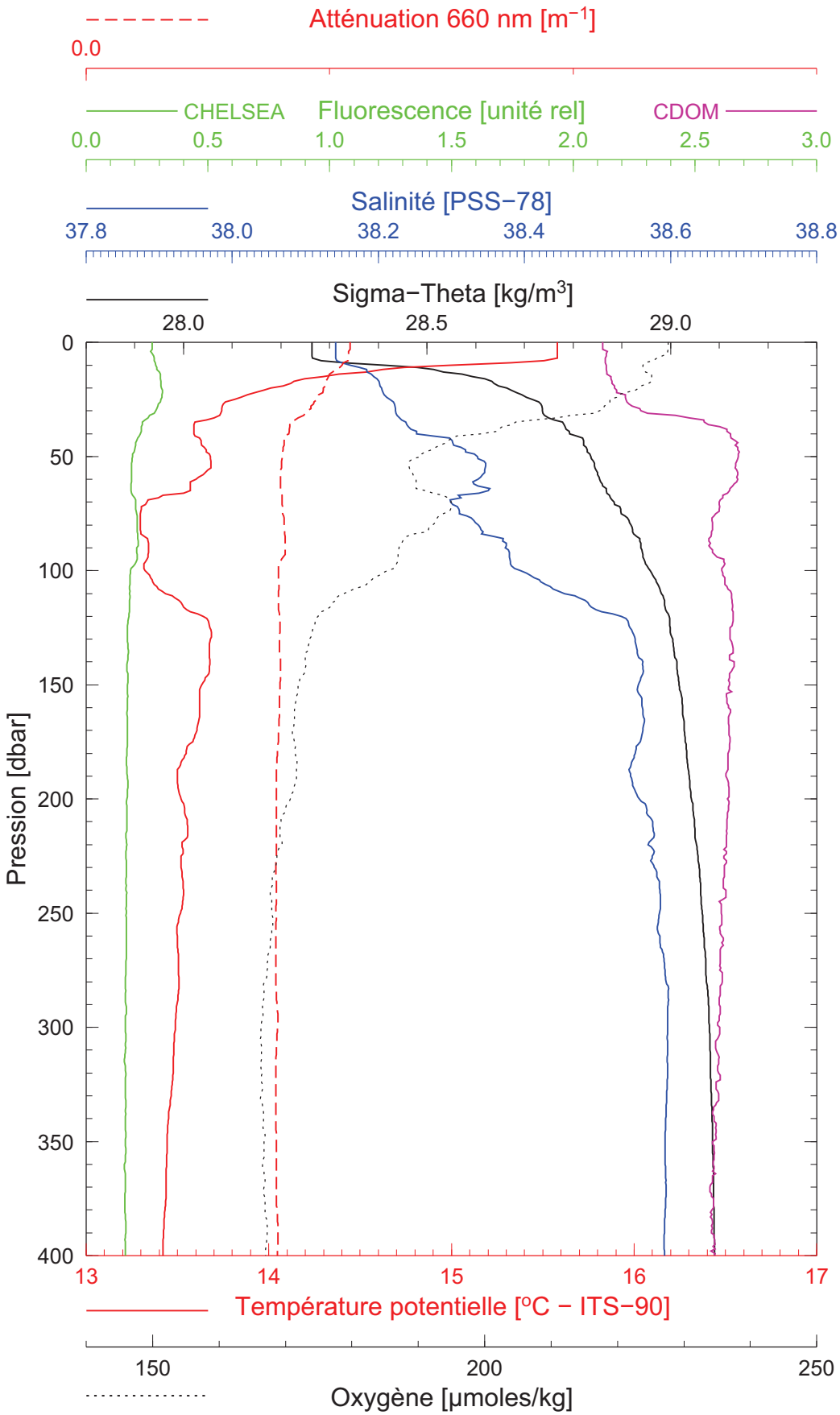
Appendices

Cruise Summary Table for Boussole 130

Date	Black names	Profile names	CTD notées /	Other sensors	Start Time	Duration	Depth max	Latitude (N)		longitude					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 sp. (kn)	Wind dir.	Atm. Pressure (hPa)	Humidity (%)	Visibility	T air	T water	Sea	Swell H (m)	Swell dir.	Whitecaps
07/12/12			CTDBOUS001	HPLC, Ap & TSM	10:06	42:00	400	43	21.824	7	53.717	overcast		7	14	223	1011.0	NA		12.8	15.5	moved			
				Secchi01	12:15	4:00	13	43	22	7	54	overcast		8								moved			
08/12/12	Bad weather																								
09/12/12			CTDBOUS002	HPLC, Ap, TSM, CDOM, POC & Cyto	11:55	33:00	400	43	21.330	7	54.455	blue		1	6	180	1019.0	37		12.2	13.9	calm			
		bou_c-ops_121209_1206_002_data.csv			12:47	3:54	92	43	21.934	7	53.846	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		bou_c-ops_121209_1206_003_data.csv			12:57	4:06	100.0	43	21.852	7	53.626	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		bou_c-ops_121209_1206_004_data.csv			13:06	3:49	92.0	43	21.895	7	53.497	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			CTDBOUS003		15:11	22:00	400	43	25.016	7	47.657	cloudy		4	17	224	1018.9	53		12.6	14.7	calm			
			CTDBOUS004		16:16	24:00	400	43	28.215	7	41.307	night		8	20	290	1018.3	56		11.4	16.6	calm			
			CTDBOUS005		17:18	22:00	400	43	30.996	7	37.251	night		8	19	272	1018.2	NA		NA	16.4	calm			
			CTDBOUS006		18:59	22:00	400	43	36.954	7	24.999	night		8	10	300	1017.4	NA		NA	16.5	calm			
			CTDBOUS007		19:57	21:00	400	43	38.938	7	20.982	night		8	6	258	1016.9	NA		NA	16.5	calm			
10/12/12	Bad weather																								

BOUSSOLE 130 **07/12/2012** **BOUS121207_01**

BOUS001

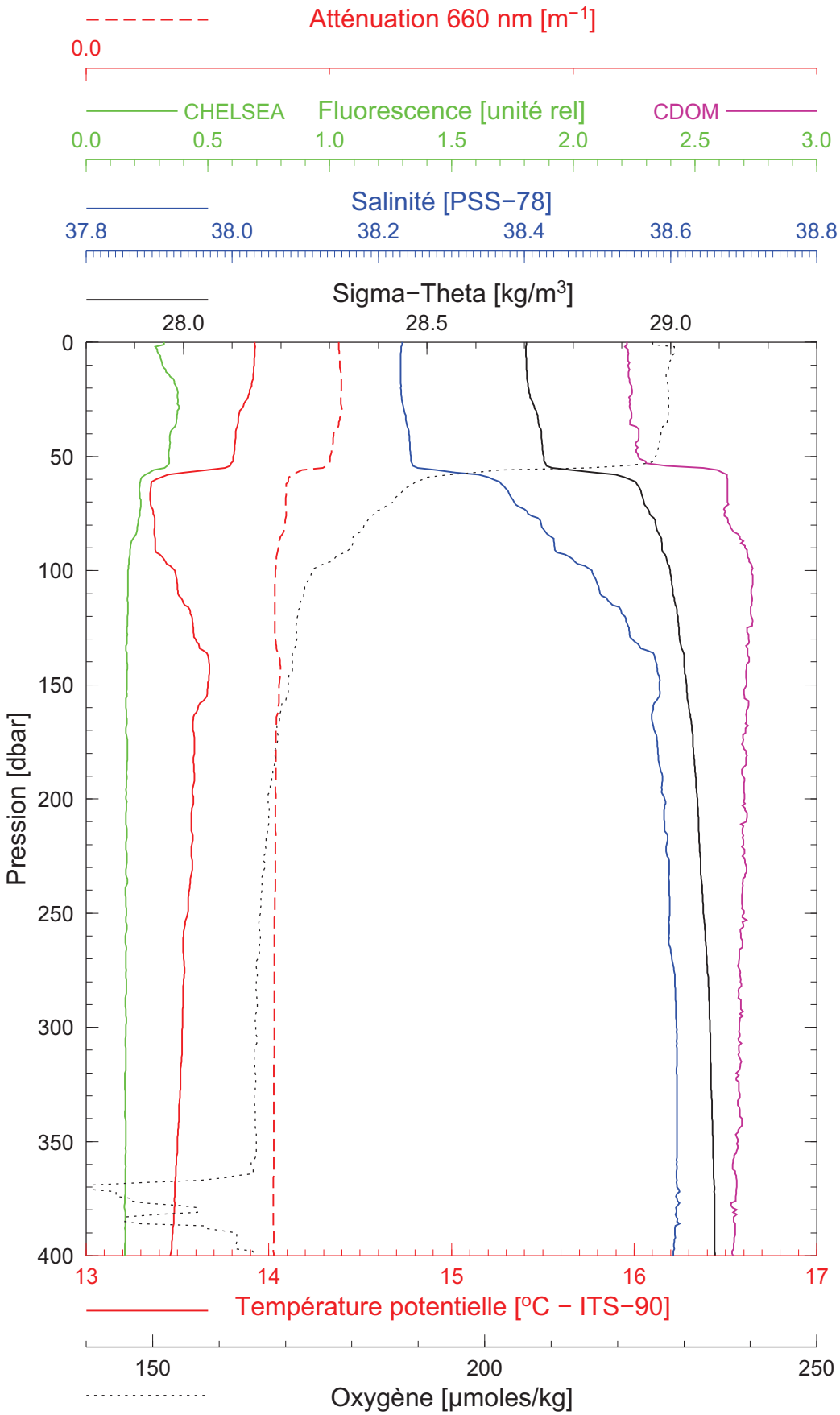


Date *07/12/2012* *Latitude* *43°21.824 N*

Heure déb *10h 06min [TU]* *Longitude* *07°53.717 E*

BOUSSOLE 130 **09/12/2012** **BOUS121209_01**

BOUS002

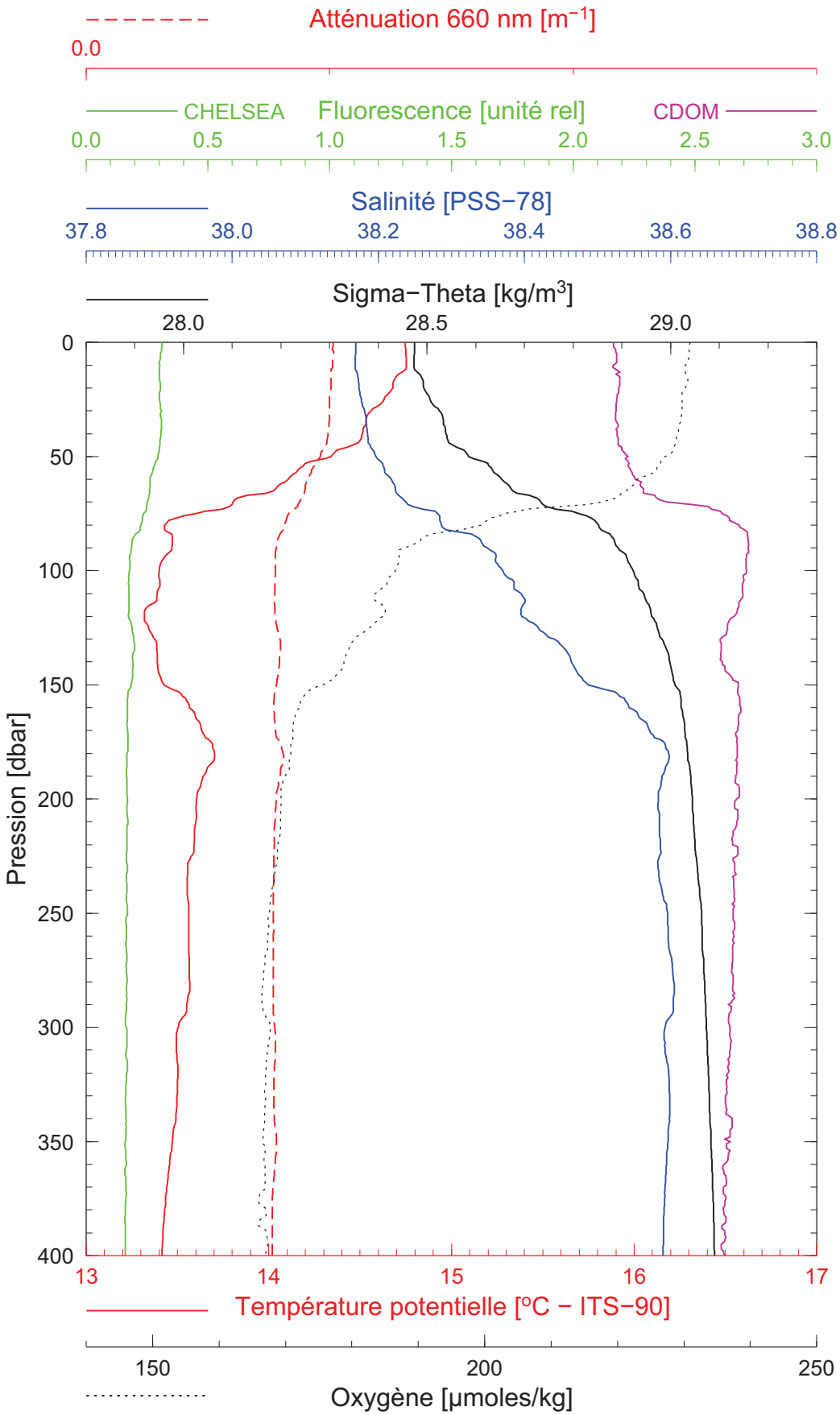


Date *09/12/2012* *Latitude* *43°21.330 N*

Heure déb *11h 55min [TU]* *Longitude* *07°54.455 E*

BOUSSOLE 130 **09/12/2012** **BOUS121209_02**

BOUS003

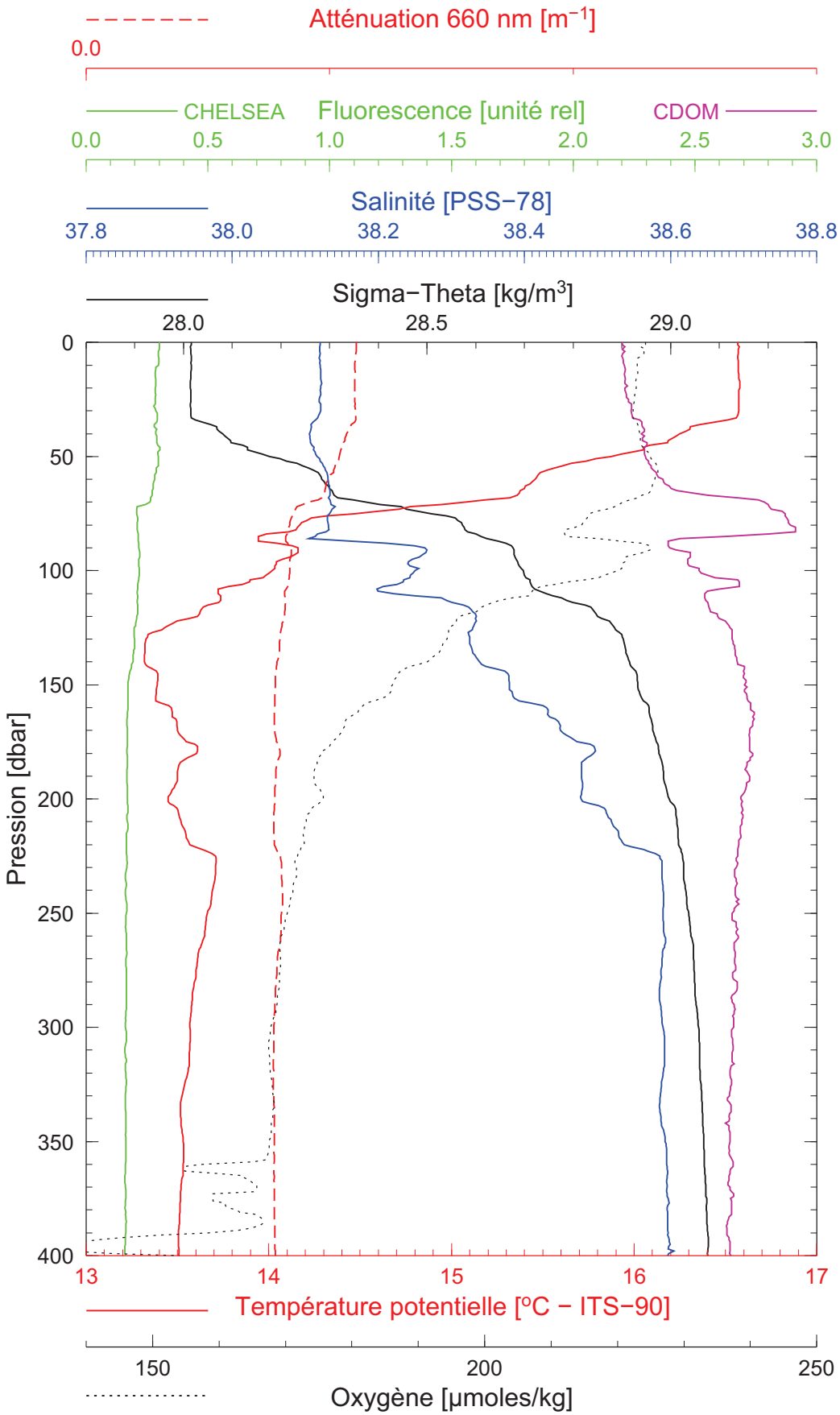


Date *09/12/2012* *Latitude* *43°25.016 N*

Heure déb *15h 11min [TU]* *Longitude* *07°47.657 E*

BOUSSOLE 130 **09/12/2012** **BOUS121209_03**

BOUS004

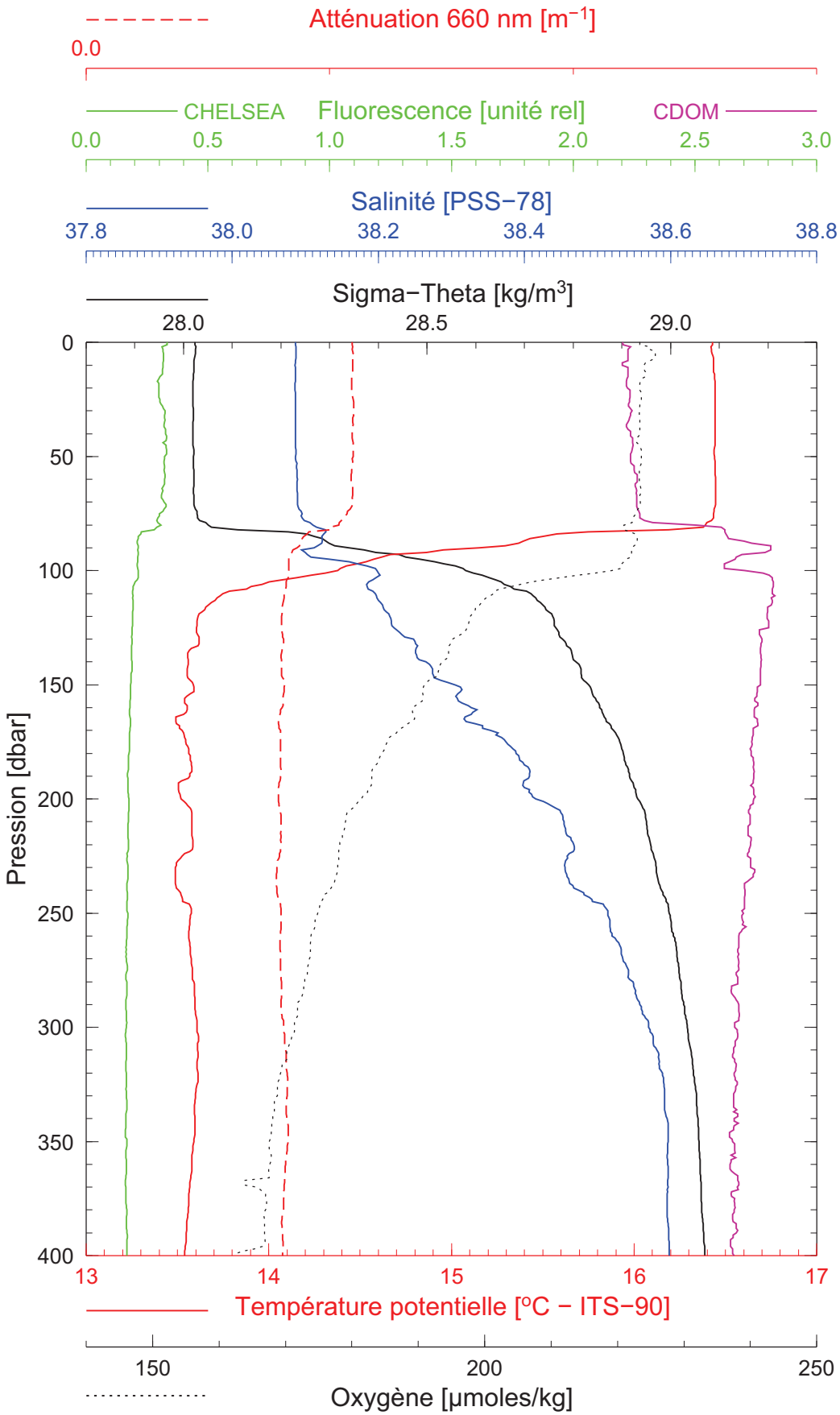


Date *09/12/2012* *Latitude* *43°28.215 N*

Heure déb *16h 16min [TU]* *Longitude* *07°41.307 E*

BOUSSOLE 130 **09/12/2012** **BOUS121209_04**

BOUS005

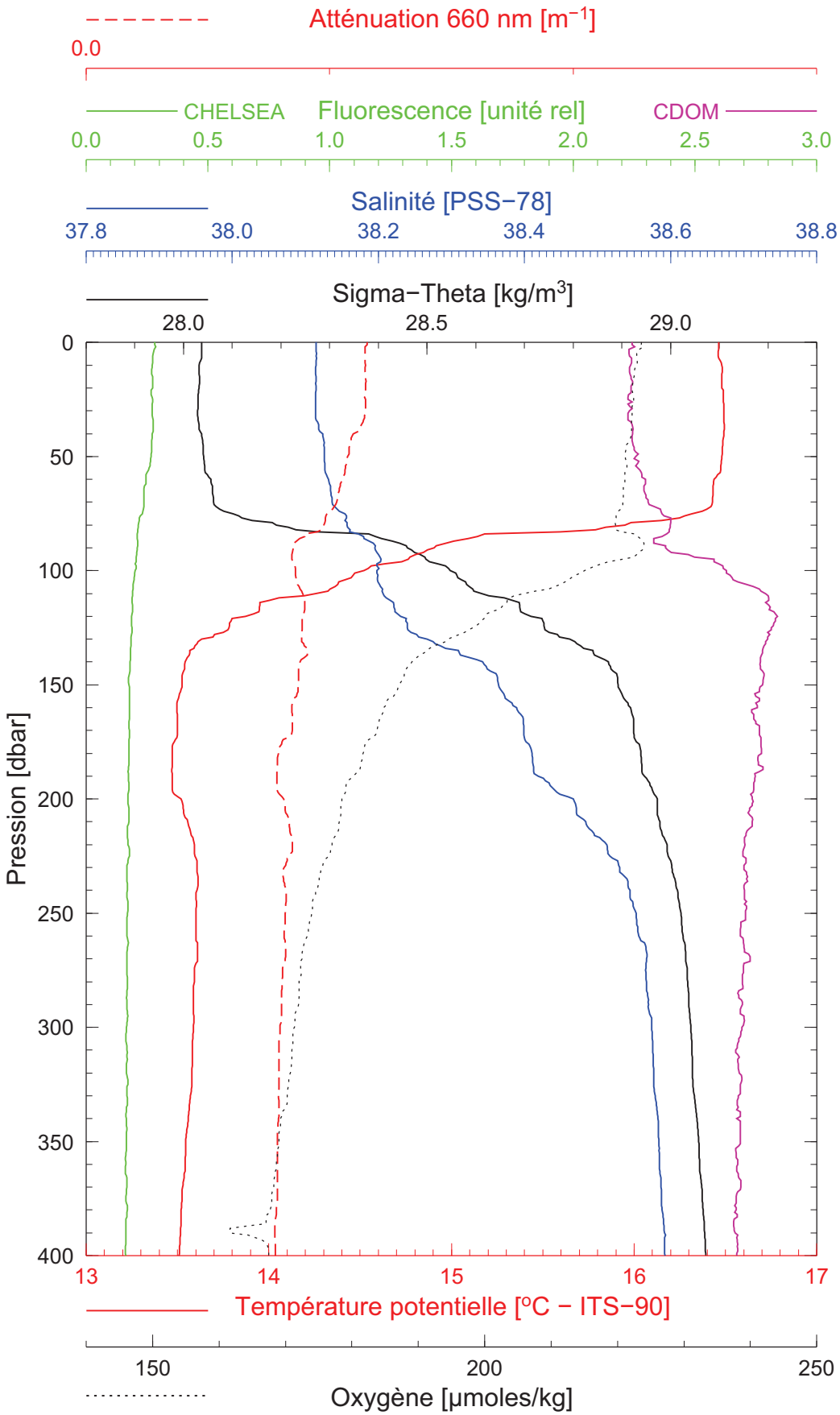


Date *09/12/2012* *Latitude* *43°30.996 N*

Heure déb *17h 18min [TU]* *Longitude* *07°37.251 E*

BOUSSOLE 130 **09/12/2012** **BOUS121209_05**

BOUS006

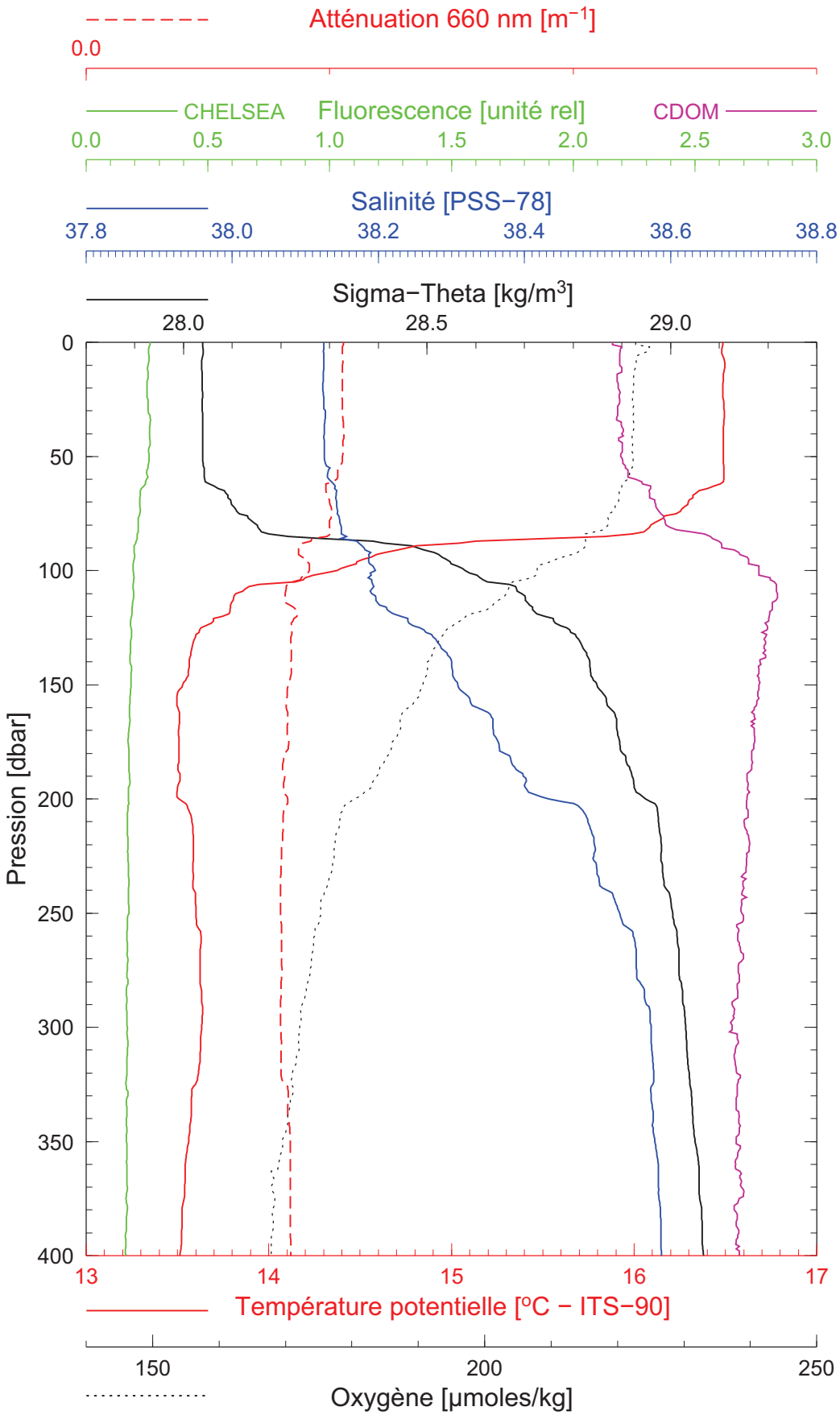


Date *09/12/2012* *Latitude* *43°36.954 N*

Heure déb *18h 59min [TU]* *Longitude* *07°24.999 E*

BOUSSOLE 130 **09/12/2012** **BOUS121209_06**

BOUS007



Date *09/12/2012* *Latitude* *43°38.938 N*

Heure déb *19h 57min [TU]* *Longitude* *07°20.982 E*