

BOUSSOLE Monthly Cruise Report

Cruise 73

March 7 - 11, 2008

Duty Chiefs: Vincenzo Vellucci (enzo@obs-vlfr.fr)

Vessel: R/V *Téthys II*

(Captain: Remy Lafond)

Science Personnel: François Bourrin, Grigor Obolensky, Antoine Poteau, Vincenzo Vellucci.

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Fig 1. Lower part of the buoy, floating 10 km from the BOUSSOLE site, before recovering.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

March 19, 2008



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Cruise Objectives

Routine operations

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 N₂ for HPLC pigment and particle absorption spectrophotometric filter analysis in the lab. Three replicates samples are to be collected at surface for total suspended matter (TSM) weighting in the lab. A gimbed 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 six fixed locations on-route from Boussole. The time of day of this transect should be similar for each cruise, if possible to minimise influence of diurnal variability.

For one day of each cruise, three divers will check the underwater state of the buoy structure and instrumentation, take some pictures for archiving, clean the sensor optical surface, and then take again some pictures after cleaning.

For one day of each cruise, 250 ml of sea water will be sampled at 200, 150, 80, 70, 6, 50, 40, 30, 20, 10 and 5 meters depth. For each sample, 125 ml will be filtered through a 0.2 µm GF/F filter and both total and filtered water samples will be analysed with the UltraPath for CDOM absorption determination.

Additional operations

On March 7th, starting from 1:06 AM, messages from the ARGOS beacon, mounted on the lower part of the buoy, were regularly received, meaning its detachment from the mooring. Thus emergency recoveries of the buoy and of the acoustic releases were organized for this cruise. One of the five days, François Bourrin and Antoine Poteau will be on board to perform some tests for the recovering of the GLIDER.

Cruise Summary

The ship time for this cruise was spent to recover the buoy and for sampling at the BOUSSOLE site. The first and last days the weather conditions did not allow sampling. The second day the sea state was good and the ship time was used to recover the buoy and the mooring cable. The third day was used to sample at the BOUSSOLE site and to complete the transect. The fourth day weather was not good but allowed the recovering of the acoustic releases. The last day weather conditions were still not good for sampling activities.

Friday 07 March 2008

This day weather conditions were non good, with 30 knots of wind and H1/3 2.0 m in the morning. Ship time was then used from François Bourrin and Antoine Poteau to perform some tests for recovering the GLIDER, close to the coast of Nice, with a new built recovery system.

Saturday 08 March 2008

This day the sea state was good and was used to recovery the lower part of the buoy. Thanks to low wind and currents, the buoy was easily found close to the last point retrieved through the ARGOS system (05:17 AM, UTC) before leaving the Nice port. The buoy and the Kevlar cable were taken on board at 43°17.30' N and 7°50.34' E, i.e. about 10 km from the BOUSSOLE site. The buoy was then transported and made fast to the port of Nice.

Sunday 09 March 2008

This day the sea state was good with covered sky. 2 CTD casts and 2 SPMR profiles were made at the BOUSSOLE site. A first SPMR set of profiles was interrupted due to intervened unstable lighting conditions. A second set of profiles was interrupted because of communication problems with the profiler. The transect was also completed on the route to the port of Nice.

Monday 10 March 2008

This day weather conditions were not good for sampling at the BOUSSOLE site. Ship time was spent to recover the acoustic releases anchored to the bottom. The recovery was difficult but sailors managed to get on board the acoustic releases with the buoys. The recovery allowed verifying that the Kevlar cable was cut just at the connection with the chain.

Tuesday 11 March 2008

Bad weather conditions prevented departure from the port of Nice.

Cruise Report

Friday 07 March 2008 (UTC)

1300 Departure from the Nice port.
1420 GLIDER recovery test.
1500 Arrival at the Nice port.

Saturday 08 March 2008

0550 Departure from the Nice port.
0940 Localization and recovery of the buoy with the Kevlar cable. Departure to Nice port.
1400 Arrival at the Nice port.
1620 Anchoring of the buoy at the Nice port.

Sunday 09 March 2008

0530 Departure from the Nice port.
0840 Arrival at the BOUSSOLE site.
0905 CTD 01, 400m, with water sampling at 200, 150, 80, 70, 60, 50, 30, 20, 10 and 5 m for HPLC, Ap, and CDOM.
1020 SPMR01.
1050 CTD 02, 400m, with water sampling at 5 m for TSM.
1150 SPMR 02, problems with the connections.
1300 CTD 03, 400 m, station 01 (43°25'N 07°48'E).
1405 CTD 04, 400 m, station 02 (43°28'N 07°42'E).
1500 CTD 05, 400 m, station 03 (43°31'N 07°37'E).
1600 CTD 06, 400 m, station 04 (43°34'N 07°31'E).
1700 CTD 07, 400 m, station 05 (43°37'N 07°25'E).
1755 CTD 08, 400 m, station 06 (43°39'N 07°21'E).
1830 Arrival at the Nice port.

Monday 10 March 2008

1030 Departure from the Nice port.
1345 Arrival at the BOUSSOLE site and recovery of the acoustic releases.
1515 Departure from the BOUSSOLE site.
1830 Arrival at the Nice port

Tuesday 11 March 2008

Bad weather prevented departure from the port of Nice.

Calculated Swath paths for the MERIS Sensor (ESOV Software)

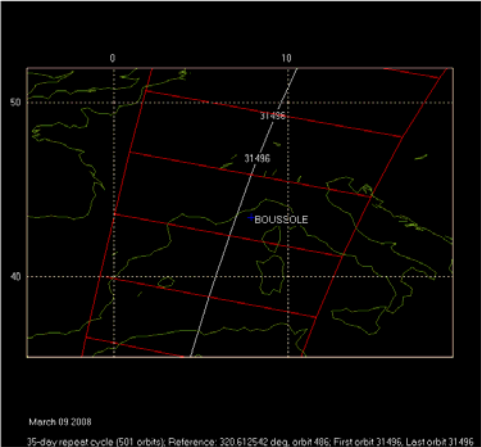


Figure 2. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for March 9 2008.

Appendix

Cruise Summary Table for Boussole 73

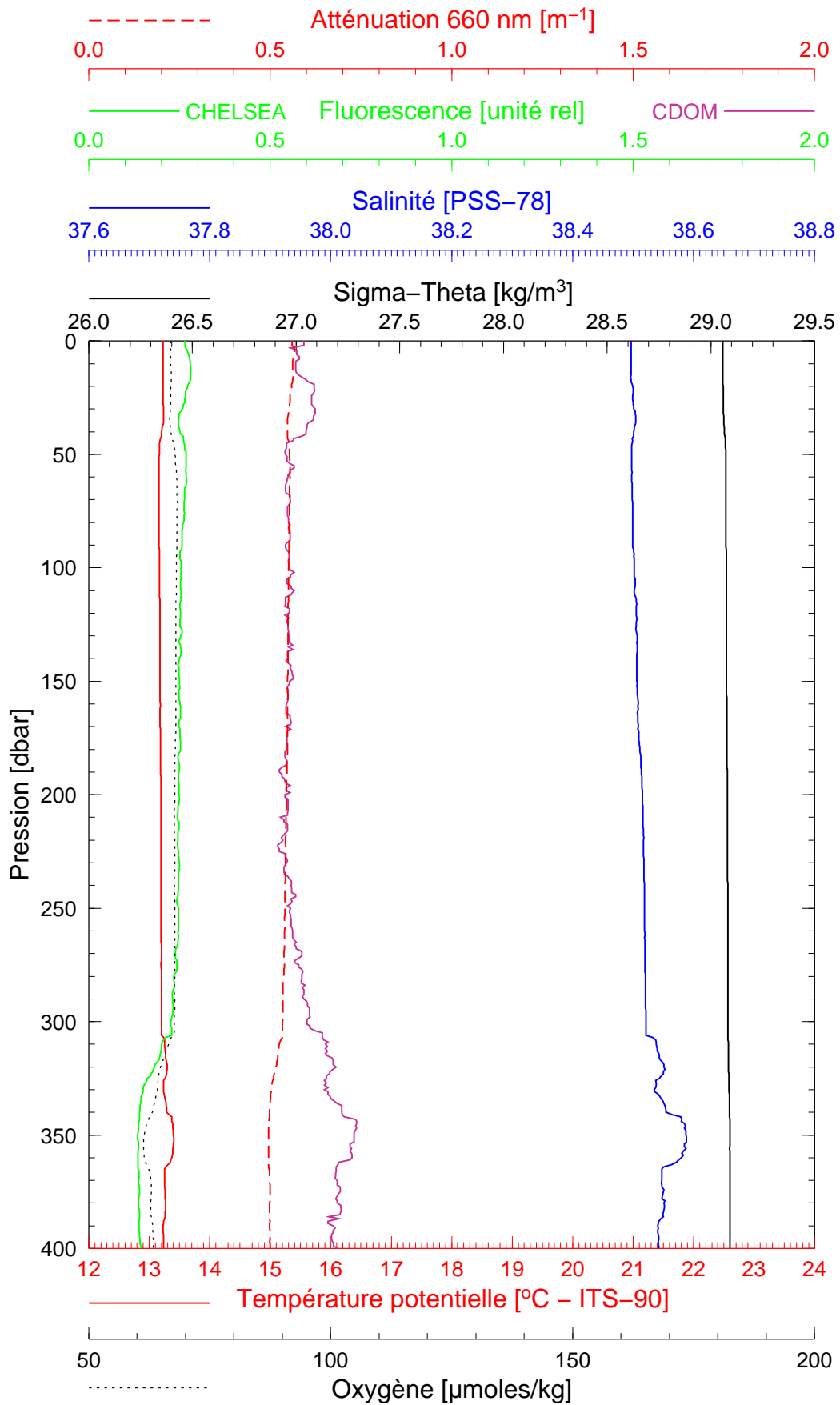
Date	Black names (file ext: ".raw")	Profile names (file extension: ".raw")	CTD notes / satellite overpass	Other sensors	Start Time GMT (hour:min)	Duration (min:sec)	Depth max (meter)	Latitude (N) (Degree) (Minute)	Longitude (Degree) (Minute)	Sky	Clouds	Quantity (#/8)	Weather Wind sp. (kn)	Wind dir.	Atm. Pressure (hPa)	Humidity (%)	Visibility	T air	T water	Sea	Sea Swell H (m)	Swell dir.	Whitecaps		
07/03/08	Bad weather																								
08/03/08	Recovering of the buoy																								
09/03/08			CTDBOUS001	wat. samp. CDOM	09:11	27:00	400	43 22.084	7 53.885			8	0	0					13.2	calm					
	Bou090308black1				10:21	3:00																			
		Bou090308AA			10:28	4:52	200	43 21.969	7 53.900	covered	Cu	7								good		calm	0.2	no	
	Bou090308black2				10:46	3:00																			
			CTDBOUS002	wat. samp. TSM	10:55	26:00	400	43 21.774	7 53.750				8	0	0							calm			
	Bou090308black3				11:57	3:00																			
		Bou090308AE			12:09	0:33	16	43 22	7 54	covered	Cu	8									good		calm	0.2	no
	Bou090308black4																								
			CTDBOUS003			13:08	25:00	400	43 25.012	7 47.971			8	0	0								calm		
			CTDBOUS004			14:14	22:00	400	43 28.065	7 42.046			8	0	0								calm		
		CTDBOUS005			15:08	26:00	400	43 31.053	7 36.827			7	2									calm			
		CTDBOUS006			16:07	25:00	400	43 34.013	7 30.931			7	4									slightly moved			
		CTDBOUS007			17:05	26:00	400	43 37.062	7 24.907			7	5									slightly moved			
		CTDBOUS008			17:58	25:00	400	43 39.133	7 24.907			9	5									slightly moved			
10/03/08	Recovery of the acoustic release																								

Boussole 73

09/03/2008

BOUS080309_01

BOUS001



Date 09/03/2008

Latitude 43°22.084 N

Heure déb 09h 11min [TU]

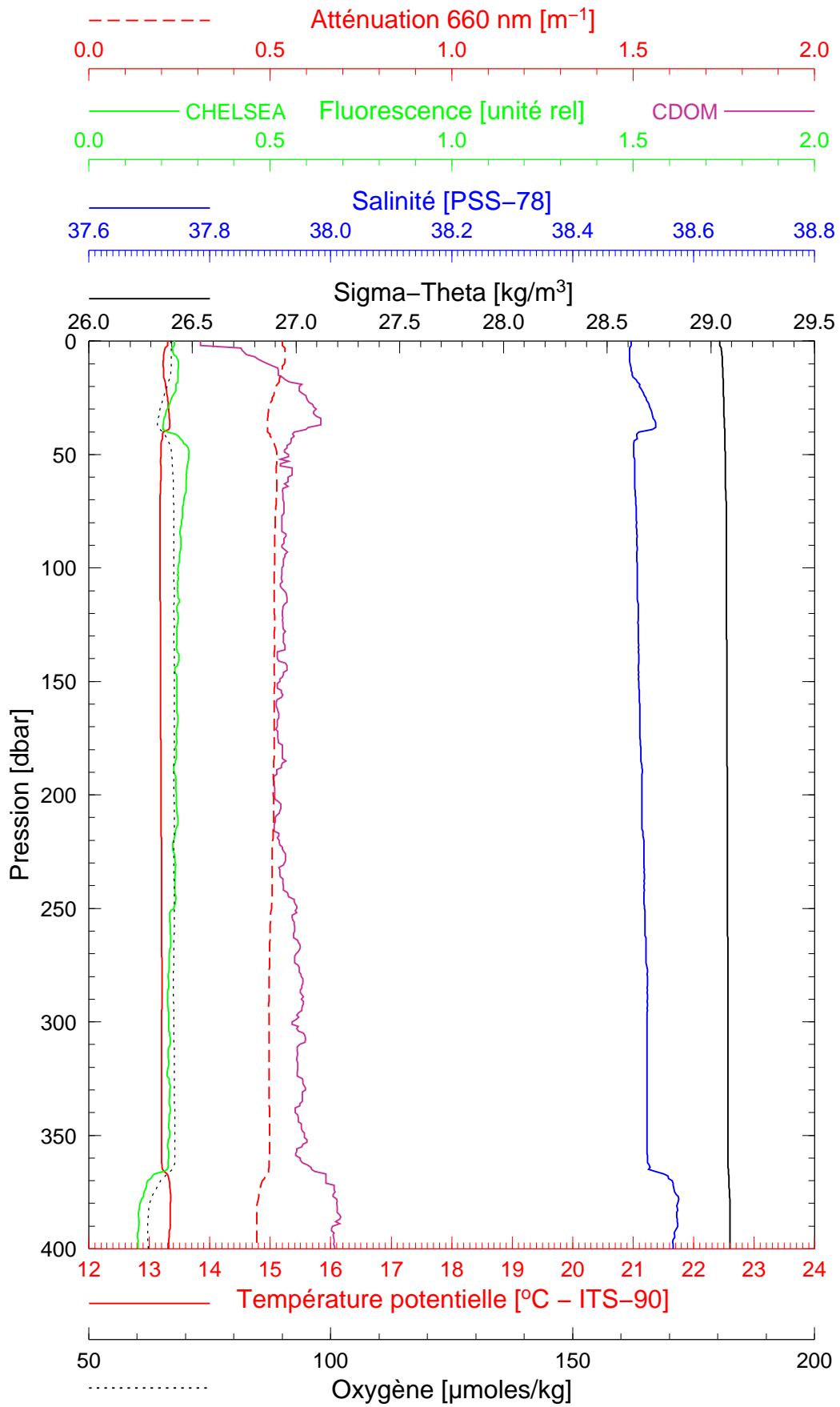
Longitude 07°53.885 E

Boussole 73

09/03/2008

BOUS080309_02

BOUS002



Date 09/03/2008
Heure déb 10h 55min [TU]

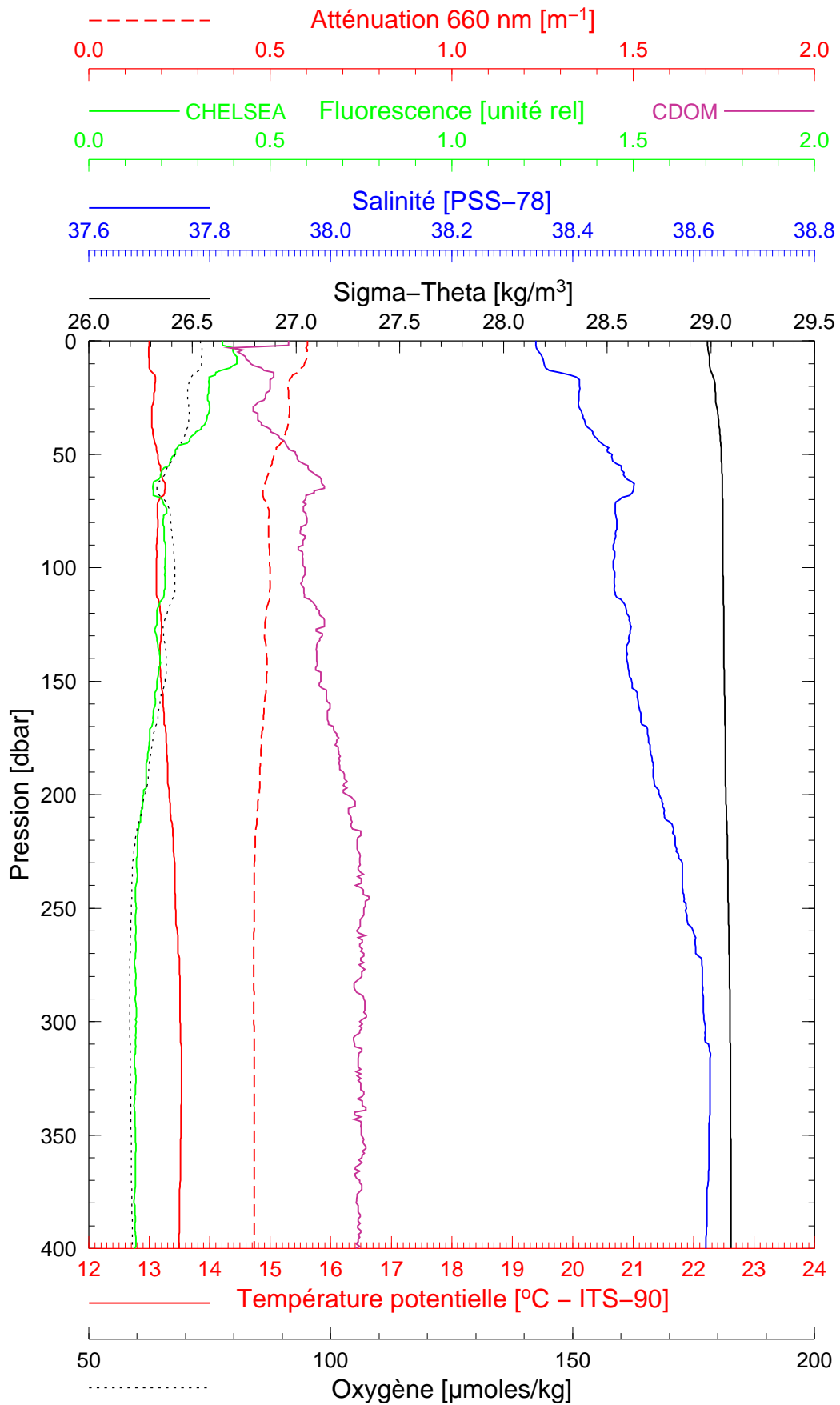
Latitude 43°21.774 N
Longitude 07°53.750 E

Boussole 73

09/03/2008

BOUS080309_03

BOUS003



Date 09/03/2008
Heure déb 13h 08min [TU]

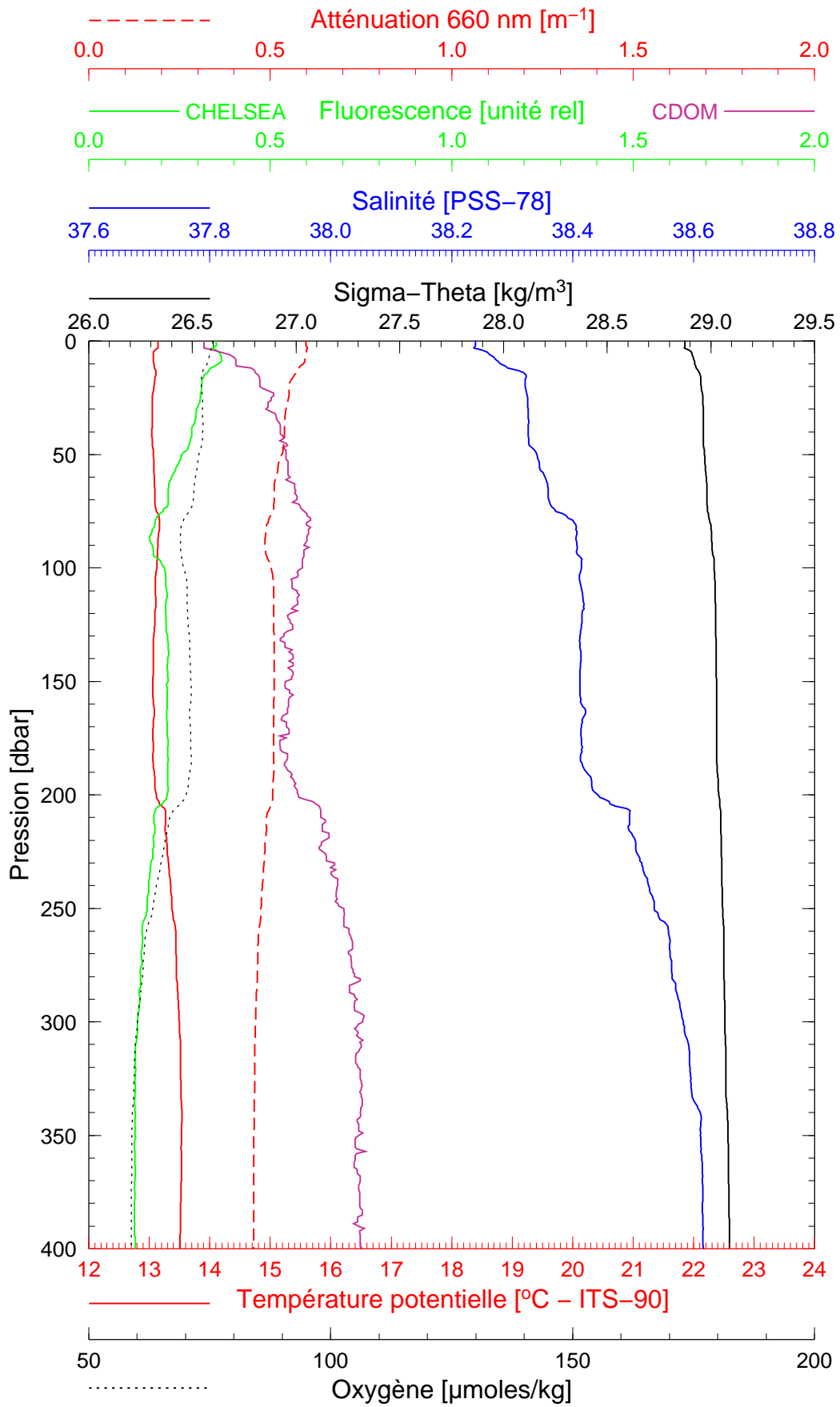
Latitude 43°25.022 N
Longitude 07°47.971 E

Boussole 73

09/03/2008

BOUS080309_04

BOUS004



Date 09/03/2008
Heure déb 14h 11min [TU]

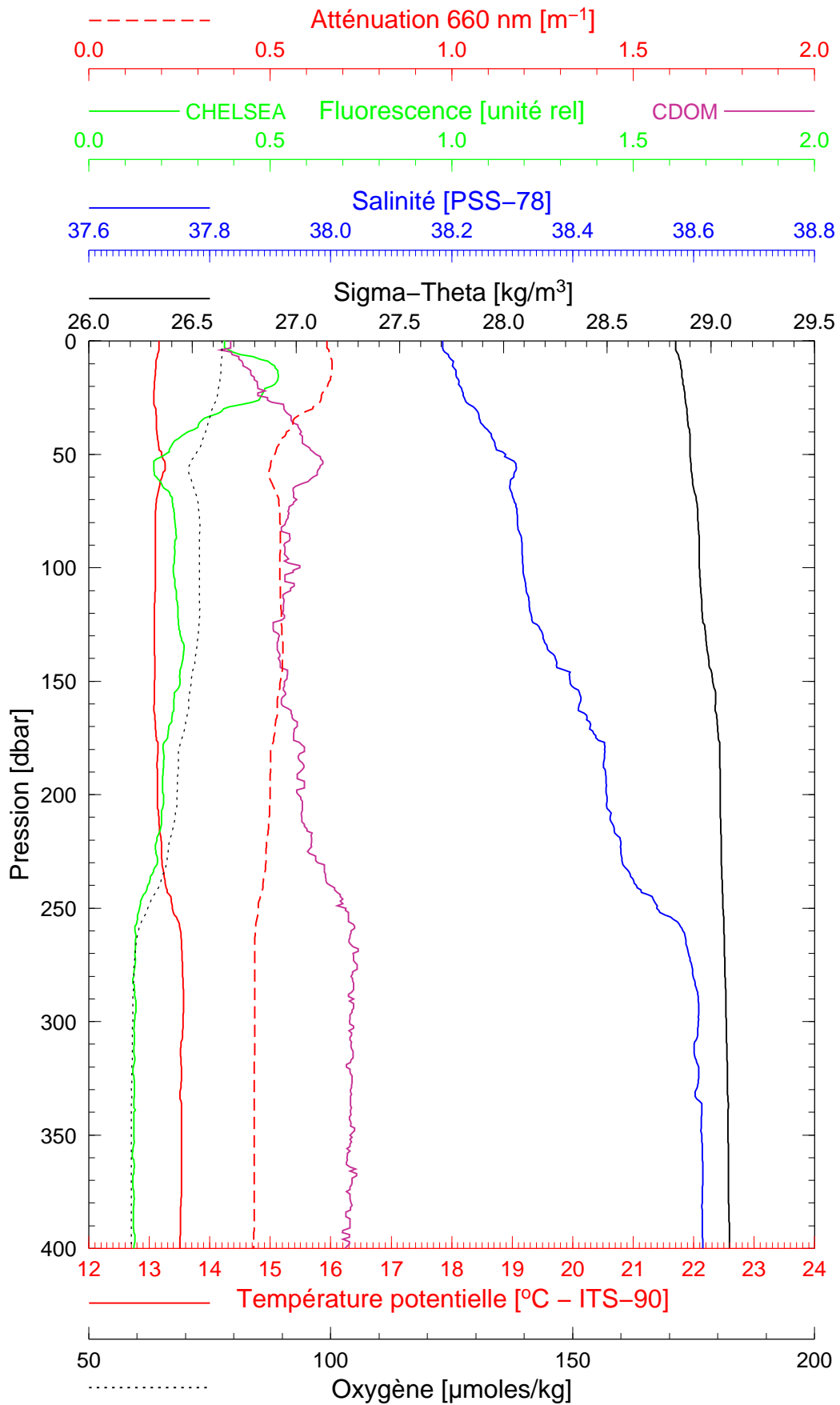
Latitude 43°28.065 N
Longitude 07°42.046 E

Boussole 73

09/03/2008

BOUS080309_05

BOUS005



Date 09/03/2008

Latitude 43°31.053 N

Heure déb 15h 08min [TU]

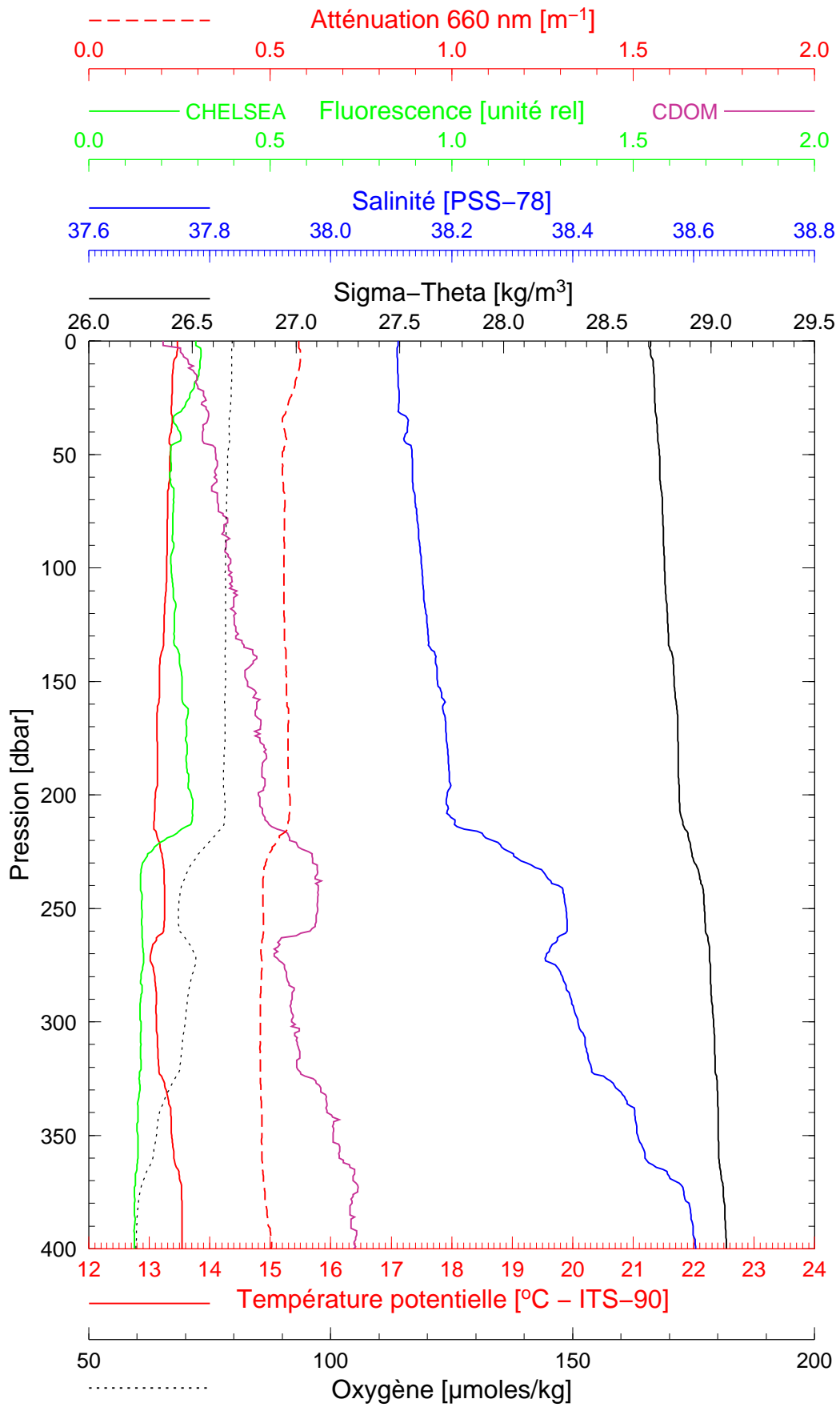
Longitude 07°36.827 E

Boussole 73

09/03/2008

BOUS080309_06

BOUS006



Date 09/03/2008

Latitude 43°34.013 N

Heure déb 16h 07min [TU]

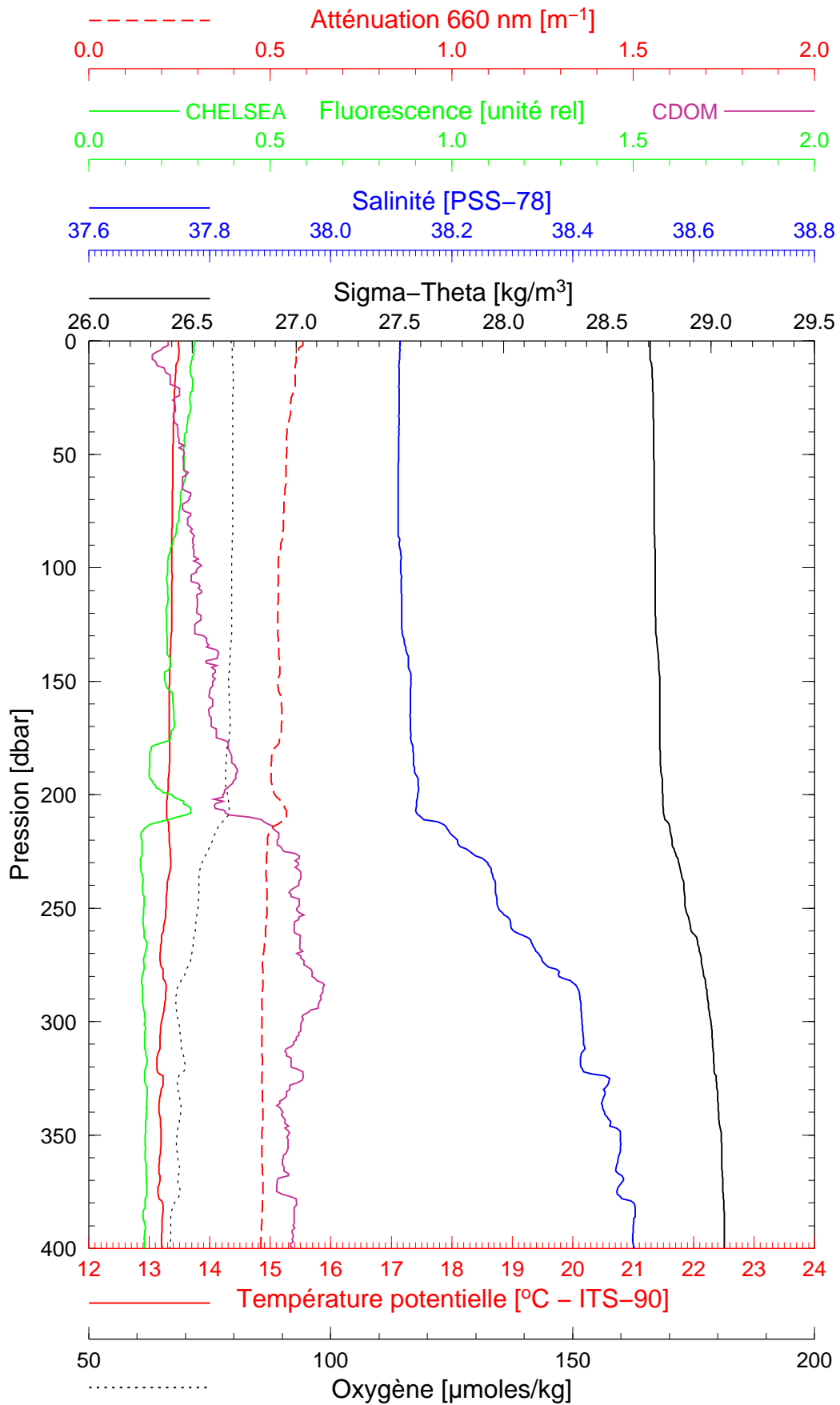
Longitude 07°30.931 E

Boussole 73

09/03/2008

BOUS080309_07

BOUS007



Date 09/03/2008
Heure déb 17h 05min [TU]

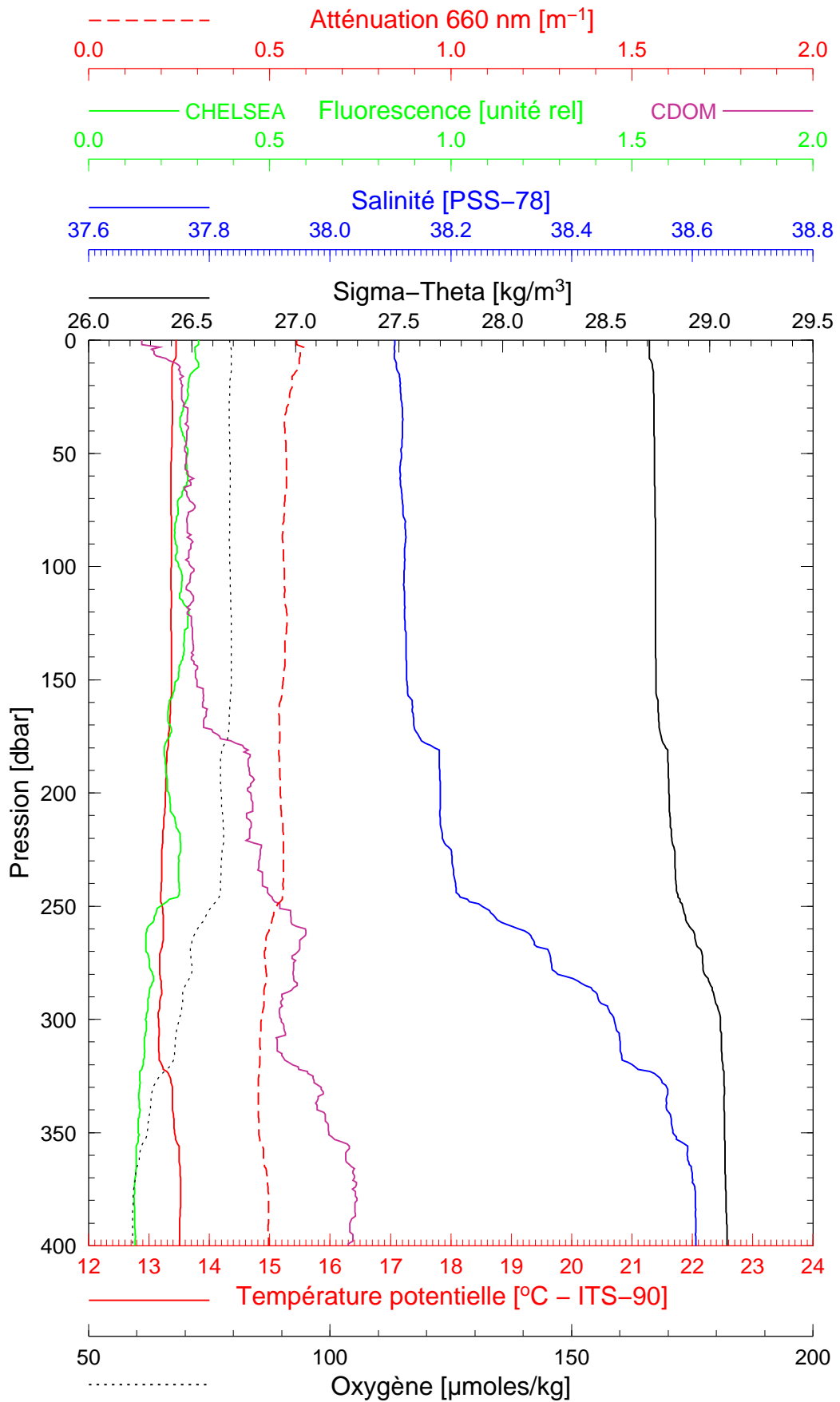
Latitude 43°37.062 N
Longitude 07°24.907 E

Boussole 73

09/03/2008

BOUS080309_08

BOUS008



Date 09/03/2008

Latitude 43°39.133 N

Heure déb 17h 58min [TU]

Longitude 07°21.095 E