BOUSSOLE Monthly Cruise Report

Cruise 78
August 23 - 27, 2008

Duty Chiefs: Vincenzo Vellucci (enzo@obs-vlfr.fr)
Vessel: R/V Téthys II
(Captains: Rémy Lafond)

Science Personnel: Jean De Vaguelas, Eric Graves, Amandine-Marie Labedan, David Luquet, Grigor Obolensky, Myrvline Philistine and Vincenzo Vellucci.

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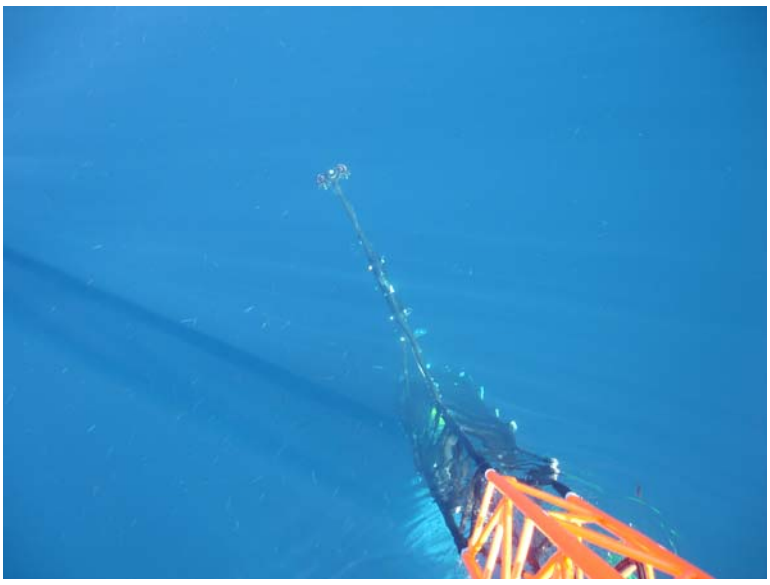


Fig 1. Top view of the Boussole buoy in the clear water of late August populated by some fishes; the whole upper structure is visible.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

August 28, 2008

Contents

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 N_2 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 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 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

One of the five days, a PVM 0-1000 m profile and some plankton net profiles will be collected at the BOUSSOLE site. A second ARGOS beacon (ID 74605) will be installed on the lower part of the buoy under the 12237 program. From the MARE NOSTRUM report of August 04th, it was evident that the bio-shutter of the 9m ECO-FLNTU is blocked from the copper tape added at the sensor head, so the tape will be removed from divers. Starting from August 14th, buoy data from ARGOS messages showed constant values, then troubleshooting with this problem will be a priority of this cruise.

Cruise Summary

The first cruise day was cancelled because of bad weather. Bad sea state avoided sampling also in the morning of the second day, during which 3 CISCO connection were attempted without success. No direct connection was possible too. 1 CTD cast, 3 SPMR and 1 Secchi Disk were performed on this day at the Boussole site. The following days, weather conditions were good. The third day was spent for performing 1 CTD cast, 3 SPMR, 1 Secchi Disk and the transect to the Nice port. The fourth day ship time was reduced because of a problem at the ship crane. 1 CTD cast, 3 SPMR and 1 Secchi Disk were realized close to the buoy before going back to Nice for solving the problem at the crane. The last day was primarily spent for diving on the buoy. Then 1 CTD cast, 3 SPMR, 1 Secchi Disk, 1 PVM and 2 plankton net were collected near the buoy.

Saturday 23 August 2008

This day strong SW wind (23 kn) prevented departure from the nice port; H1/3 up to 1.9 m were recorded at the DYFAMED site.

Sunday 24 August 2008

The second cruise day the sea state was still not good during the morning (H1/3 > 1.5 m), and worst than forecasted. So, once on site, we had to wait for better conditions before starting with sampling. Sky conditions were instead optimal all day long. During this period 3 CISCO connections with the buoy were attempted unsuccessfully. The AC9 was not communicating and it was not possible to acquire data with it for all cruise long. 1 CTD cast, 3 SPMR and 1 Secchi Disk were performed close to the buoy. A direct connection with the buoy was attempted unsuccessfully too. No voltage going out from the CISCO cable was recorded, whereas 20.1 V were recorded at the Junction Box exit. CISCO and ARGOS connections were cleaned as well as Es sensors.

Monday 25 August 2008

This day the sea state was excellent (H1/3 0.1 m) with no or very low wind blowing; sky was blue with some cirrus. 1 CTD casts, 3 SPMR profiles and 1 Secchi Disk were performed at BOUSSOLE. Samples for TSM were also collected. The transect on the route to Nice was also performed this day.

Tuesday 26 May 2008

Also for this day, weather condition was excellent. During PVM charge, one of the flexible tubes of the crane hydraulic circuit was broken, so we were obliged to shorten the cruise day to be back at Nice for finding the spare. Nonetheless 1 CTD casts, 3 SPMR profiles and 1 Secchi Disk were performed at the Boussole site. Samples for TSM were also collected.

Wednesday 27 May 2008

Good weather persisted at the BOUSSOLE site. When on site, divers went at sea for cleaning and inspection of the buoy that was found in good conditions except one of the anodes in the lowest part of the aluminium structure seems not to work. The second emergency ARGOS beacon has been installed on the buoy. The copper tape that blocked the bio-shutter of the ECO-FLNTU 9m was removed. A direct connection with the buoy was successfully attempted by forcing the DACNET start-up through AK connector. Data download was interrupted because of rapid discharging of laptop battery. Download was later completed through CISCO connection. Data files will result to be empty in the period between the 14 August and the restart of the DACNET. Data collected between the DACNET restart and CISCO connection were instead good. 1 CTD casts, 3 SPMR profiles and 1 Secchi Disk were performed at the Boussole site, and samples for TSM were collected. 1 PVM 0-1000 m and 2 plankton net profiles were realized too.

Cruise Report

Saturday 23 August 2008 (UTC)

Bad weather.

Sunday 24 August 2008

People on board: Amandine-Marie, Mirvlyne, Grigor Obolensky, Vincenzo Vellucci.

0500 Departure from the Nice port.
0820 Arrival at the BOUSSOLE site: bad sea state.
0915 Attemped CISCO connection with the Buoy: unsuccessful.
1015 Attemped CISCO connection with the Buoy: unsuccessful.
1115 Attemped CISCO connection with the Buoy: unsuccessful.
1145 CTD 01, , 400 m with water sampling at 200, 150, 80, 70, 60, 50, 30, 20, 10 and 5 m for HPLC, Ap.
1225 SPMR 01, 02, 03.
1320 Secchi Disk 01 (14 m).
1345 Zodiac at sea for climbing on the buoy. Es sensors, CISCO and ARGOS connections cleaned.
1415 Attemped direct connection with the Buoy: unsuccessful.
1440 Departure to the Nice port.
1750 Arrival at the Nice port.

Monday 25 August 2008

People on board: Amandine-Marie, Mirvlyne, Grigor Obolensky, Vincenzo Vellucci.

0430 Departure delayed for a ferry entering the Nice port.
0455 Departure from the Nice port.
0810 Arrival at the BOUSSOLE site.

0820 CTD 02, 400 m with water sampling at 200, 150, 80, 70, 60, 50, 30, 20, 10 and 5 m for HPLC, Ap and TSM
0845 SPMR: waiting for better sky conditions.
0855 Secchi Disk 02 (19 m).
0905 SPMR 04, 05, 06.
0945 Departure to the Nice port
1015 CTD 03, 400 m, station 01 (43°25'N 07°48'E).
1115 CTD 04, 400 m, station 02 (43°28'N 07°42'E).
1210 CTD 05, 400 m, station 03 (43°31'N 07°37'E).
1315 CTD 06, 400 m, station 04 (43°34'N 07°31'E).
1415 CTD 07, 400 m, station 05 (43°37'N 07°25'E).
1500 CTD 08, 400 m, station 06 (43°39'N 07°21'E).
1600 Arrival at the Nice port

Tuesday 26 August 2008

People on board: Amandine-Marie, Mirvlyne, Grigor Obolensky, Vincenzo Vellucci.
0510 Departure from the Nice port.
0825 Arrival at the BOUSSOLE site.
0840 CTD 09, 400 m, with water sampling at 200, 150, 80, 70, 60, 50, 30, 20, 10 and 5 m for HPLC, Ap, TSM and CDOM
0925 SPMR 07, 08 and 09.
1010 Secchi Disk 03 (17 m)
1015 Departure to the Nice port.
1520 Arrival at the Nice port.

Wednesday 27 August 2008

People on board: Jean De Vaguelas Eric Graves and David Luquet, Grigor Obolensky and Vincenzo Vellucci.
0445 Departure from the Nice port.
0800 Arrival at the BOUSSOLE site.
0815 Divers at Sea for buoy cleaning and inspection. Installed ARGOS beacon. Removed copper tape from ECO-FLNTU 9m. Restarted DACNET with AK connector and successful connection with the buoy.
0925 CTD 10, 400 m, with water sampling at 200, 150, 80, 70, 60, 50, 30, 20, 10 and 5 m for HPLC, Ap and TSM.
1015 Attempted CISCO connection with the buoy: successful.
1110 PVM 0-1000 m.
1150 Secchi Disk 04 (18 m)
1230 SPMR 10, 11 and 12.
1215 2 x 0-100 m Plankton net.
1335 Departure to the Nice port.
1700 Arrival at the Nice port.

Calculated Swath paths for the MERIS Sensor (ESOV Software)

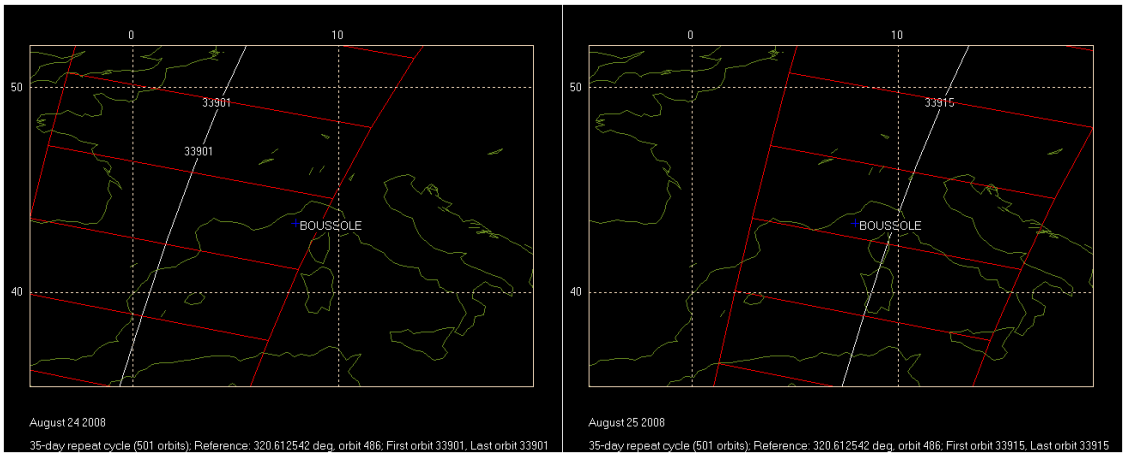


Figure 2. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for August 24 and 25 2008.

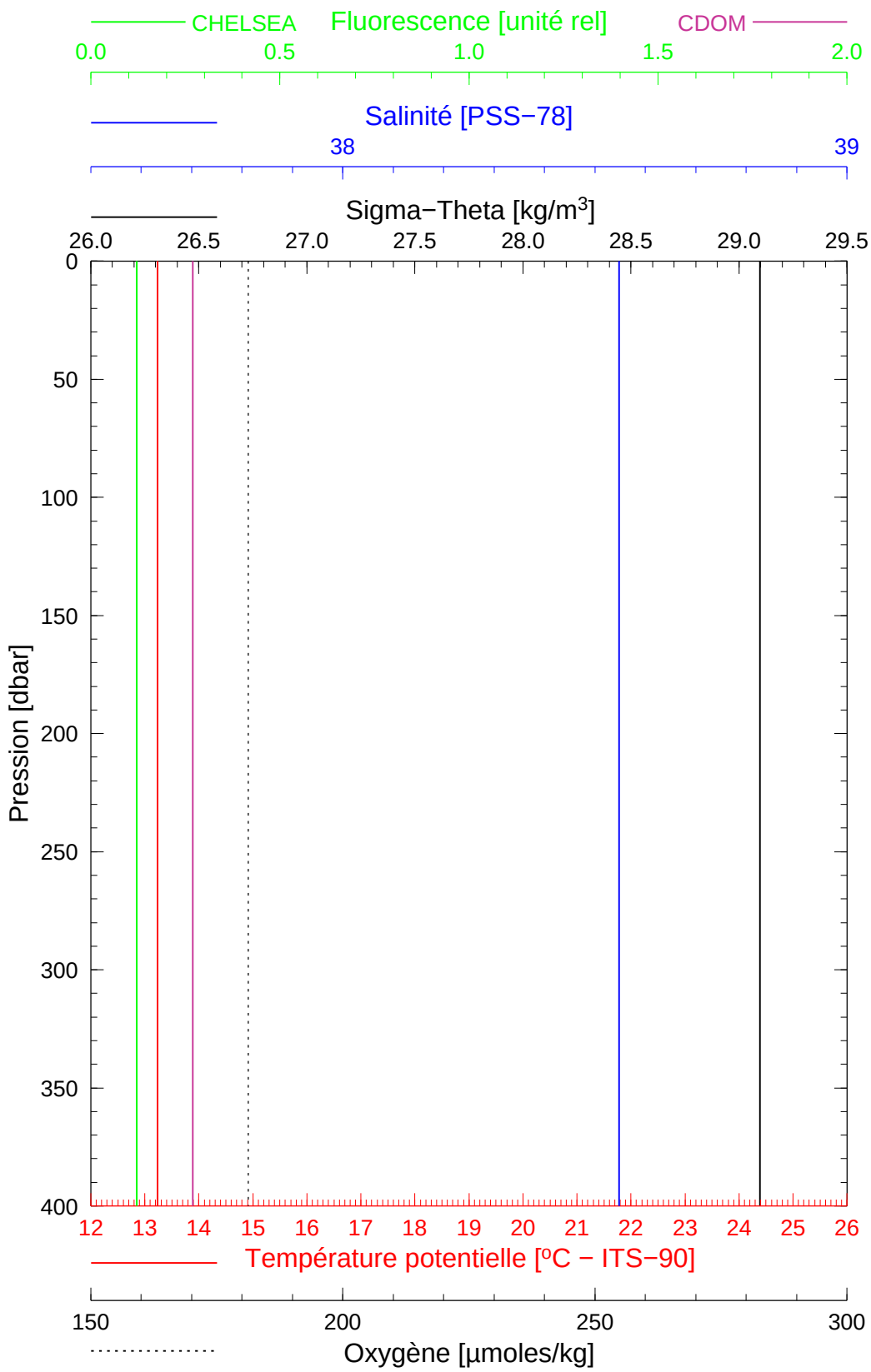
Appendix

Cruise Summary Table for Boussole 78

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
23/08/2008	bad weather																								
			CTDBOUS001		11:50		400	43	21.875	7	53636			2	12	77	1012.4	67		23.2	20.8	moved			
	Bou240808black1				12:25	3:00																			
		Bou240808AA			12:44	4:25	165	43	22.204	7	54.263	blu	Ci	1	8	77	1012.3	67	good	23.3		moved	1.5		few
24/08/08		Bou240808AC			12:55	3:32	165	43	22.199	7	54.157	blu	Ci	1	8	77	1012.3	67	good	23.3		moved	1.5		few
		Bou240808AD			13:03	3:39	165	43	22.171	7	54.036	blu	Ci	1	8	77	1012.3	67	good	23.3		moved	1.5		few
	Bou240808black2				13:18	3:00																			
				Secchi Disk 01	13:18	2:00	14	43	22	7	54	blu	Ci	1								moved			few
			CTDBOUS002	wat. samp.TSM	08:19		400	43	22.129	7	53.861		Ci	3	1	220	1016.2	80		23.1	23.0	calm			
	Bou250808black1				08:45	3:00																			
				Secchi Disk 02	08:55	2:00	19	43	22	7	54		Ci	3					discrete			calm			no
		Bou250808AA			09:08	3:44	170	43	22.093	7	53.741	blu	Ci	3	2	267	1016.2	78	discrete	22.4		calm	0.1		no
		Bou250808AB			09:19	3:39	170	43	22.087	7	53.662	blu	Ci	3	2	267	1016.2	78	discrete	22.4		calm	0.1		no
		Bou250808AC			09:27	3:48	185	43	22.083	7	53.591	blu	Ci	3	2	267	1016.2	78	discrete	22.4		calm	0.1		no
25/08/08	Bou250808black2				10:09	3:00																			
			CTDBOUS003		10:16	25:00	400	43	24.989	7	47.827		Ci	2	1	308	1016.4	78		22.6	22.7	calm			
			CTDBOUS004		11:15	22:00	400	43	28.092	7	41.971		Ci	2	2	210	1016.3	79		22.5	23.1	calm			
			CTDBOUS005		12:11	24:00	400	43	31.012	7	36.976		Ci	3	2	275	1016.0	75		23.6	23.3	calm			
			CTDBOUS006		13:10		400	43	34.044	7	30.918		Ci	3	3	216	1015.8	73		23.6	24.0	calm			
			CTDBOUS007		14:16	22:00	400	43	36.941	7	25.002		Ci	3	3	224	1015.7	75		23.4	24.0	calm			
			CTDBOUS008		15:03		400	43	38.994	7	20.976		Ci								25.6	calm			
			CTDBOUS009	wat. samp.TSM & CDOM	08:40	28:00	400	43	22.114	7	53.616		Ci	0	2	171	1019.9	79		23.8	23.0	calm			
	Bou260808black1				09:26	3:00																			
		Bou260808AA			09:34	3:47	160	43	22.469	7	53.055	blu		0	3	61	1020.1	71	discrete	24.7		calm	0.2		no
26/08/08		Bou260808AB			09:44	3:35	170	43	22.582	7	52.884	blu		0	3	61	1020.1	71	discrete	24.7		calm	0.2		no
		Bou260808AC			09:53	3:40	170	43	22.5	7	52.8	blu		0	3	61	1020.1	71	discrete	24.7		calm	0.2		no
	Bou260808black2				10:03	3:00																			
				Secchi Disk 03	10:10	2:00	17	43	22	7	54								good						no
			CTDBOUS010	wat. samp.TSM	09:25		400	43	21.616	7	53.745		Ci	2	2	7	1020.4	63		26.0	23.4	calm			
				Secchi Disk 04	11:50	2:00	18	43	22	7	54		Ci	1					discrete			calm			no
	Bou260808black1				12:30	3:00																			
27/08/08		Bou260808AA			12:36	3:57	175	43	21.918	7	53.677	blu	Ci	1	3	72	1019.1	66	discrete	25.4		calm	0.4		no
		Bou260808AB			12:46	3:43	176	43	21.843	7	53.485	blu	Ci	1	3	72	1019.1	66	discrete	25.4		calm	0.4		no
		Bou260808AC			12:54	3:55	175	43	21.778	7	53.295	blu	Ci	1	3	72	1019.1	66	discrete	25.4		calm	0.4		no
	Bou260808black2				13:06	3:00																			

Boussole **24/08/2008** **BOUS080824_01**

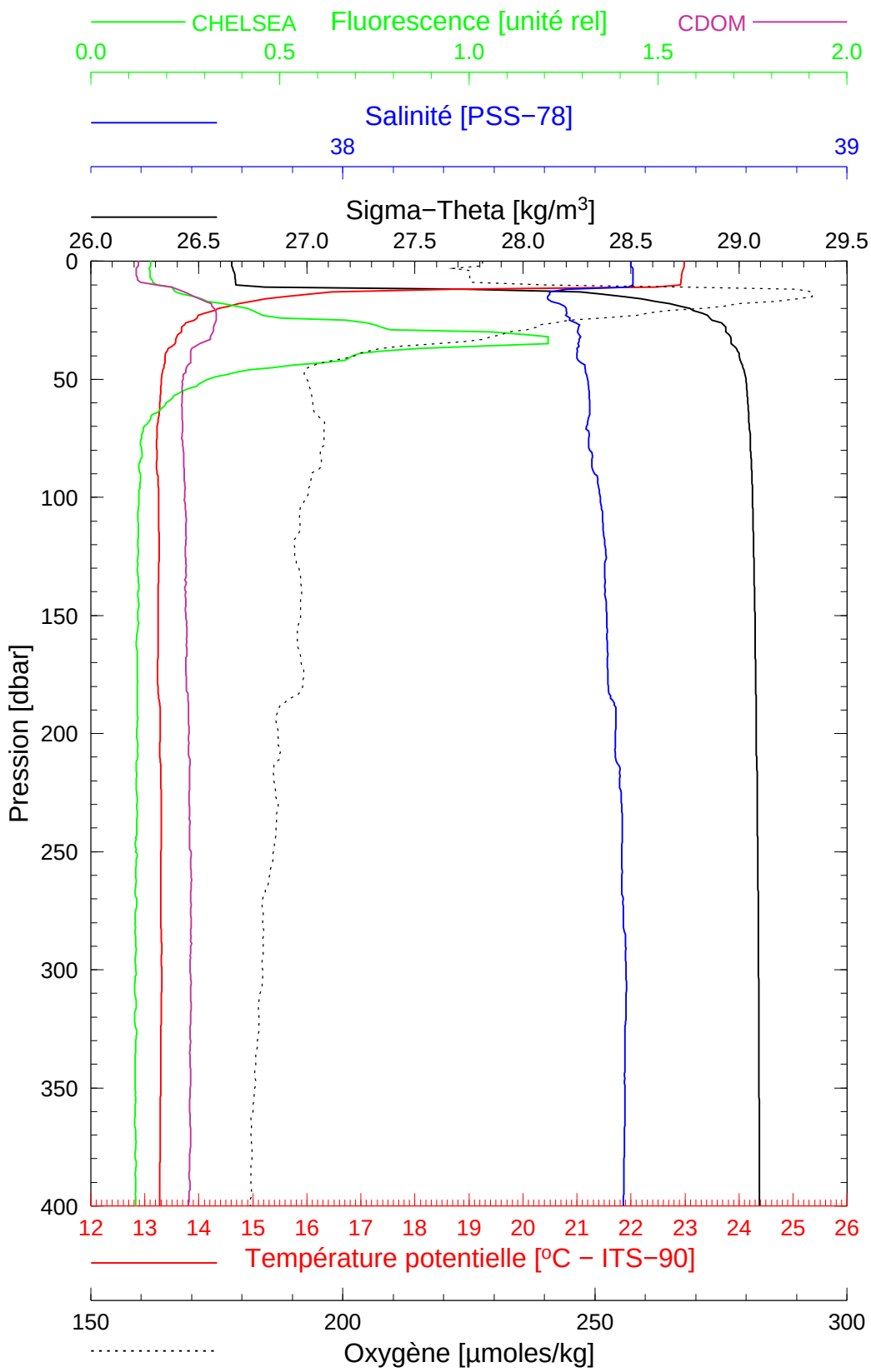
BOUS001



Date	*24/08/2008*	*Latitude*	*43º21.875*
Heure déb	*11h 49min [TU]*	*Longitude*	*07º53.636*

Boussole **25/08/2008** **BOUS080825_02**

BOUS002



Date	*25/08/2008*	*Latitude*	*43º22.129*
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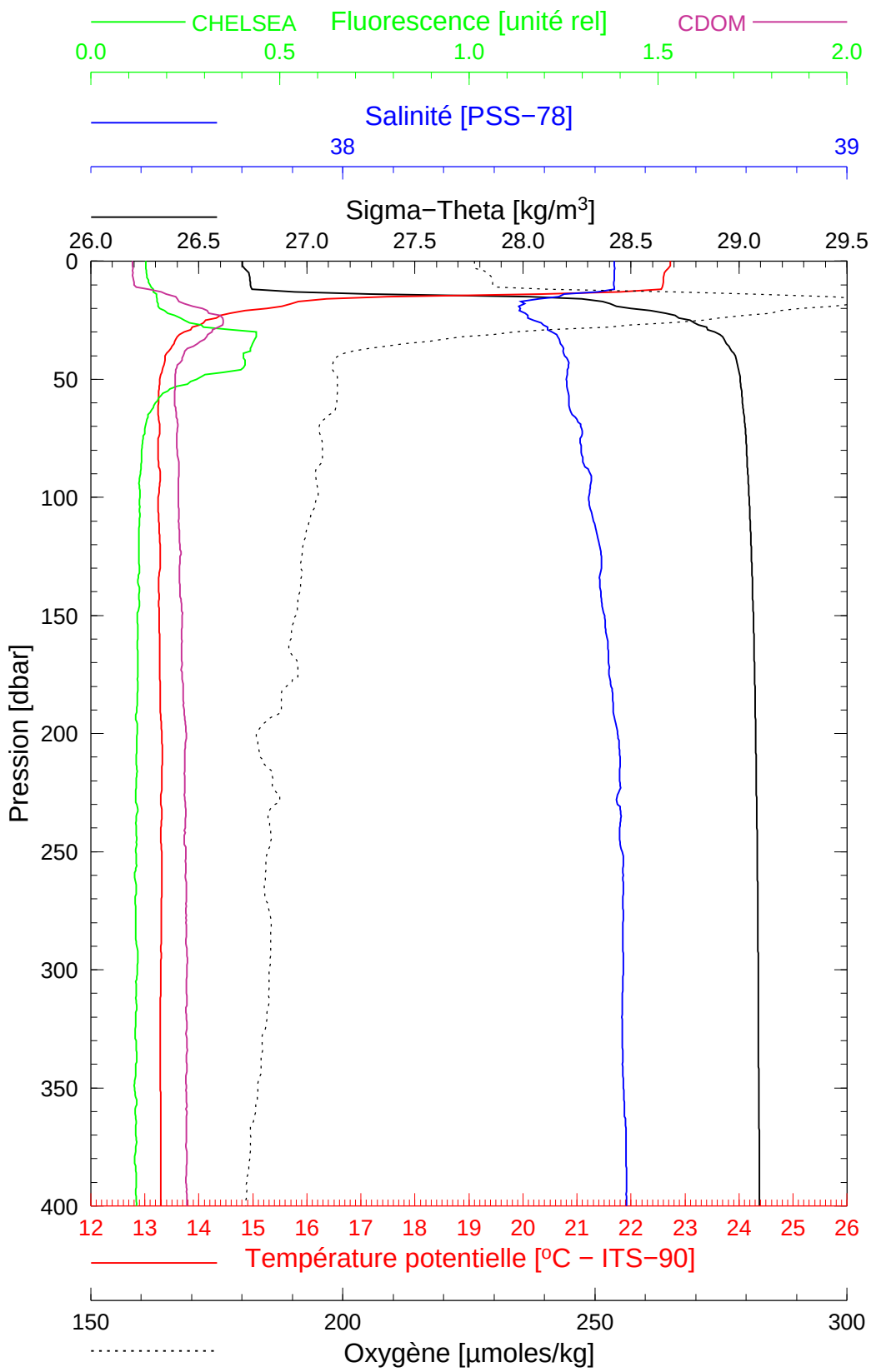
Boussole **25/08/2008** **BOUS080825_03**

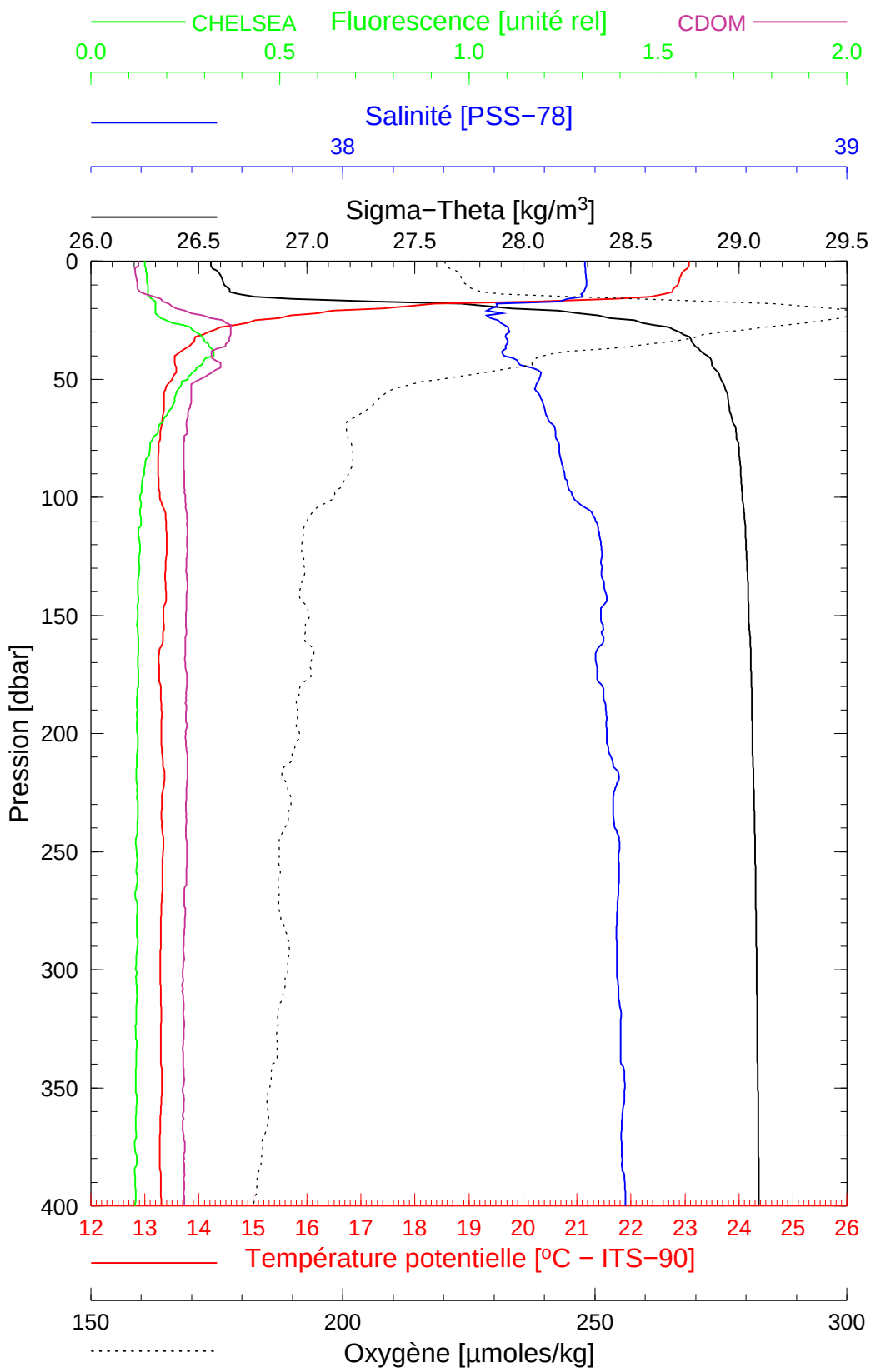
BOUS003



Date	*25/08/2008*	*Latitude*	*43º24.989*
Heure déb	*10h 16min [TU]*	*Longitude*	*07º47.827*

Boussole **25/08/2008** **BOUS080825_04**

BOUS004



Date	*25/08/2008*	*Latitude*	*43º28.092*
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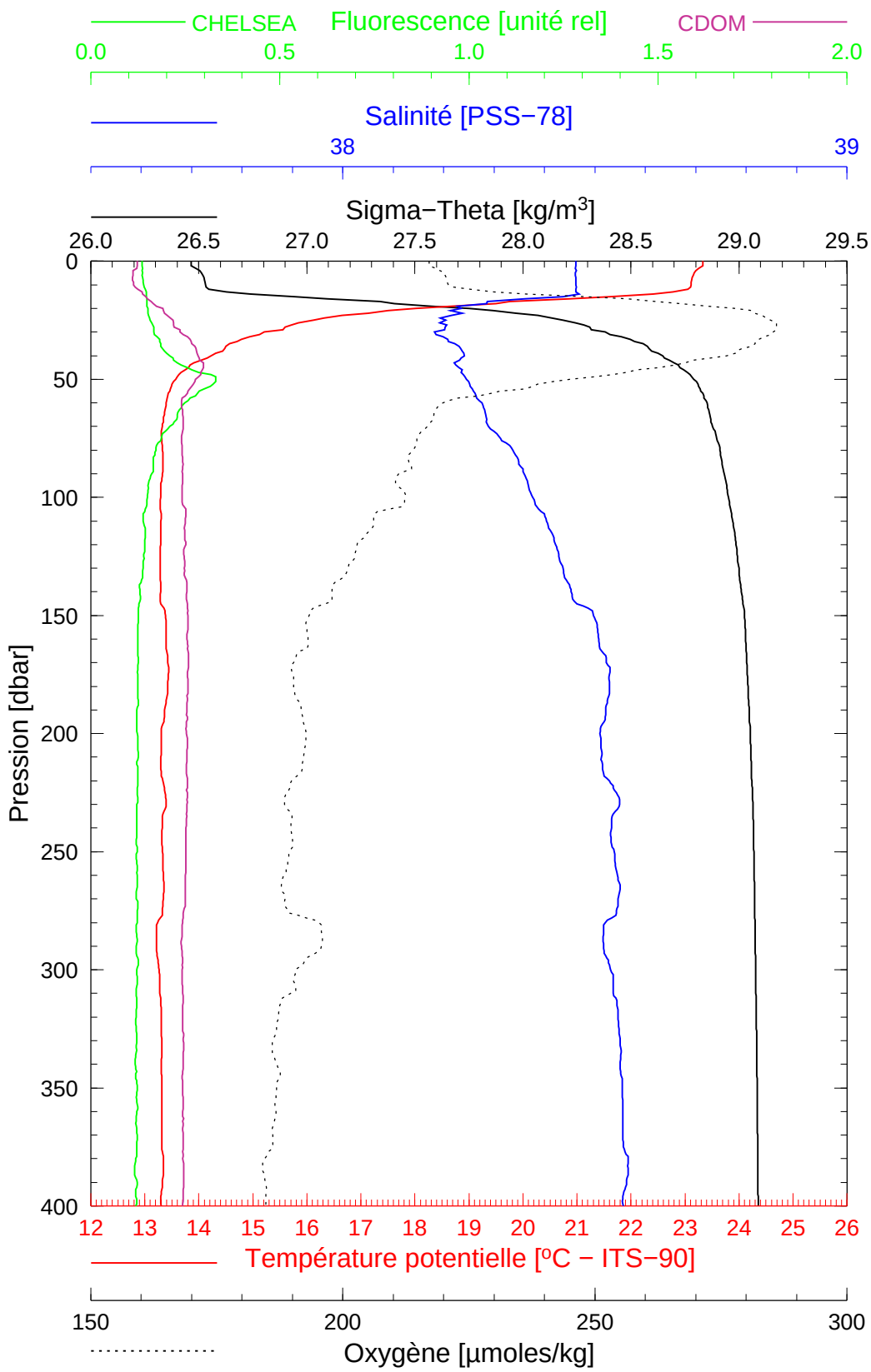
Boussole **25/08/2008** **BOUS080825_05**

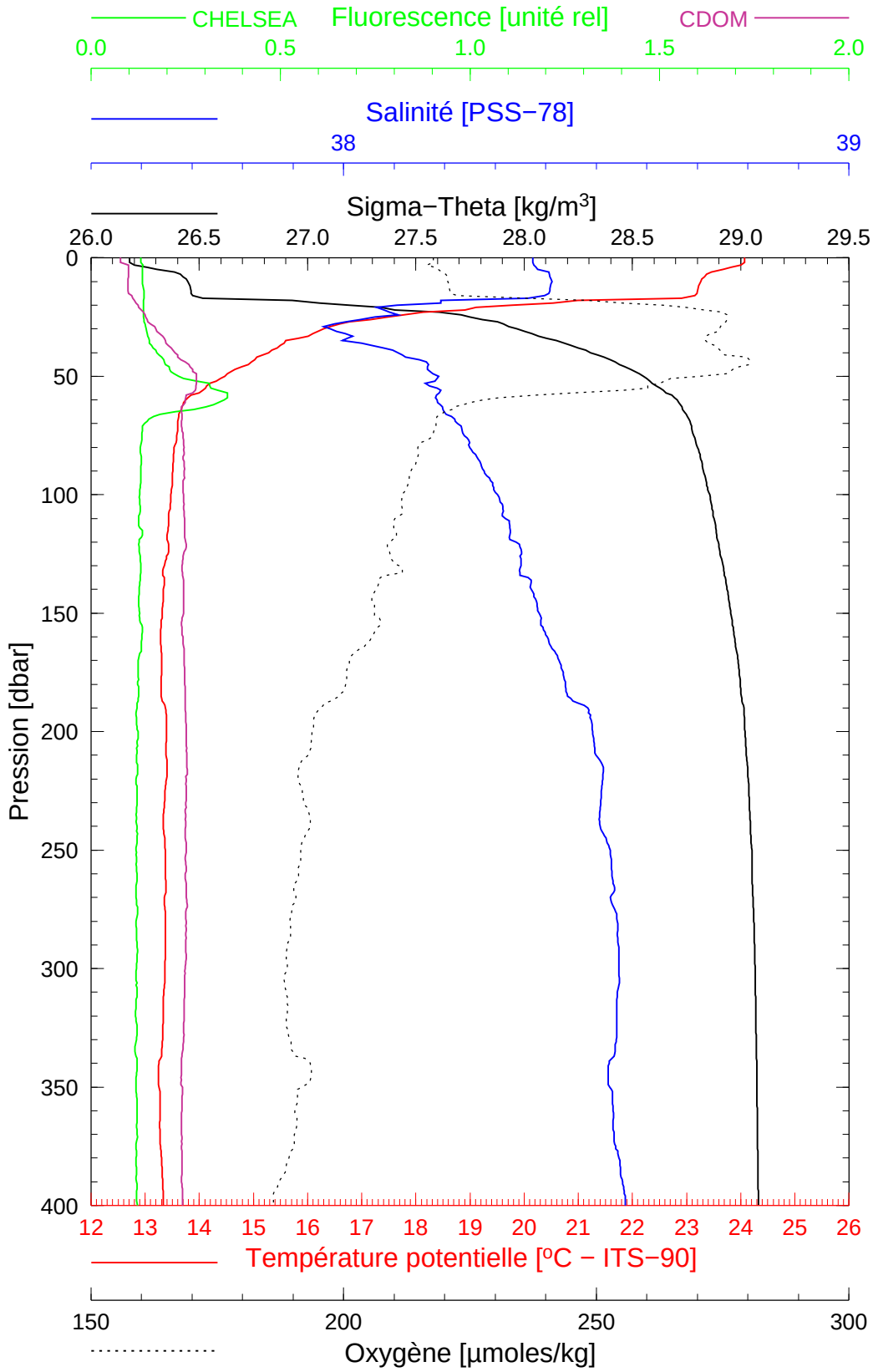
BOUS005



Date	*25/08/2008*	*Latitude*	*43º31.012*
Heure déb	*12h 11min [TU]*	*Longitude*	*07º36.476*

Boussole **25/08/2008** **BOUS080825_06**

BOUS006



Date	*25/08/2008*	*Latitude*	*43º34.044*
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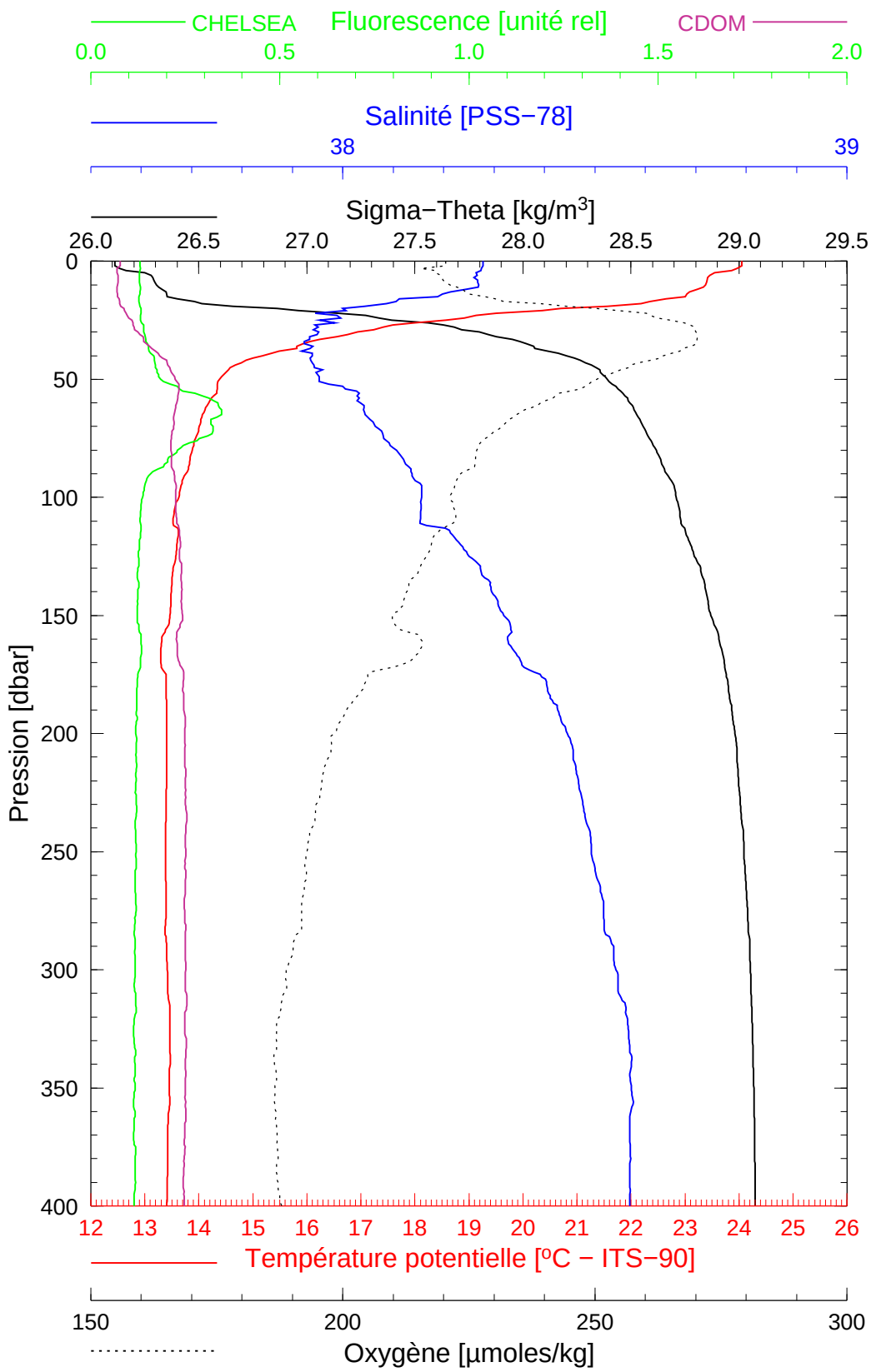
Boussole **25/08/2008** **BOUS080825_07**

BOUS007



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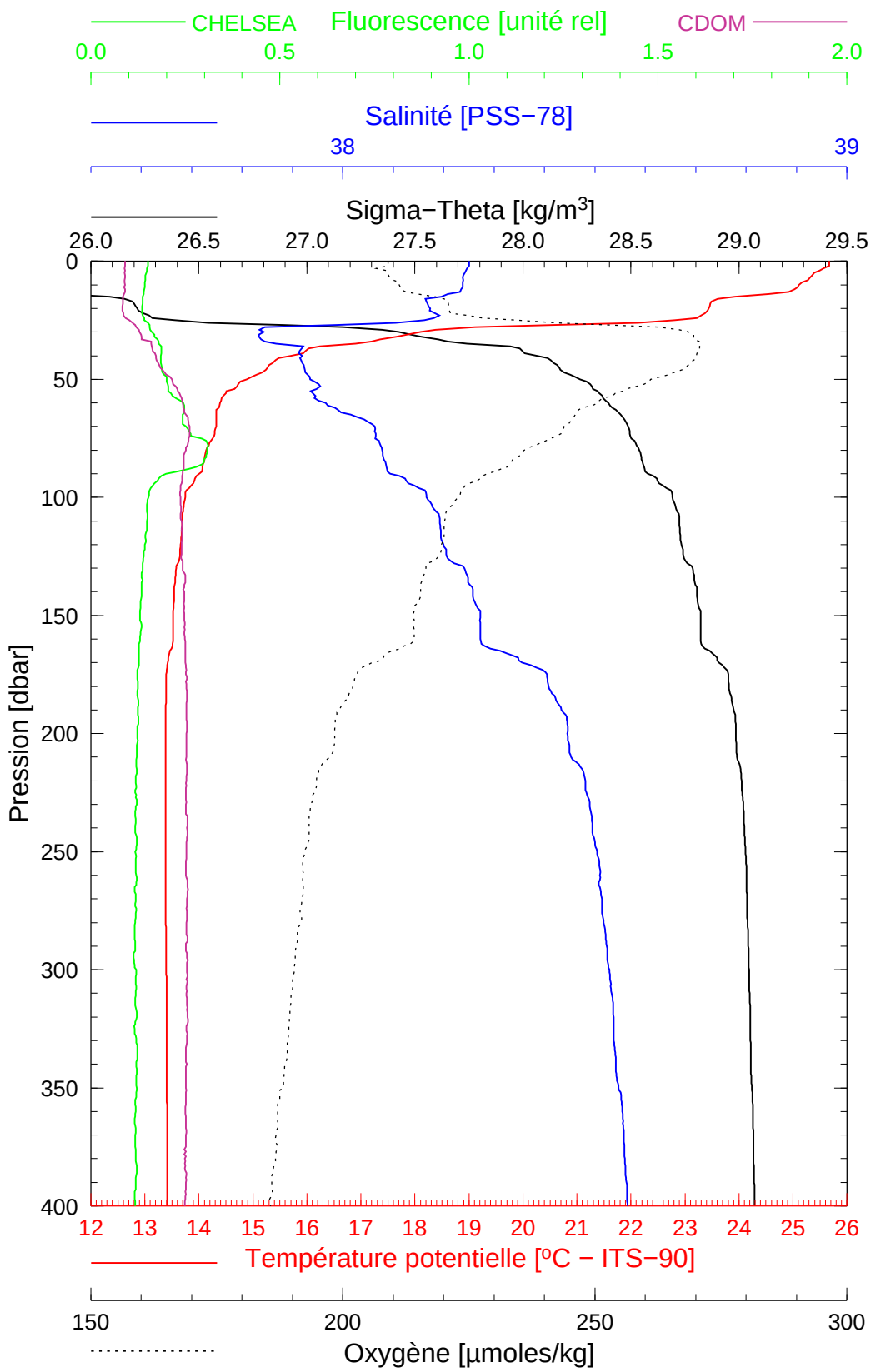
Boussole **25/08/2008** **BOUS080825_08**

BOUS008



Date	*25/08/2008*	*Latitude*	*43º38.994*
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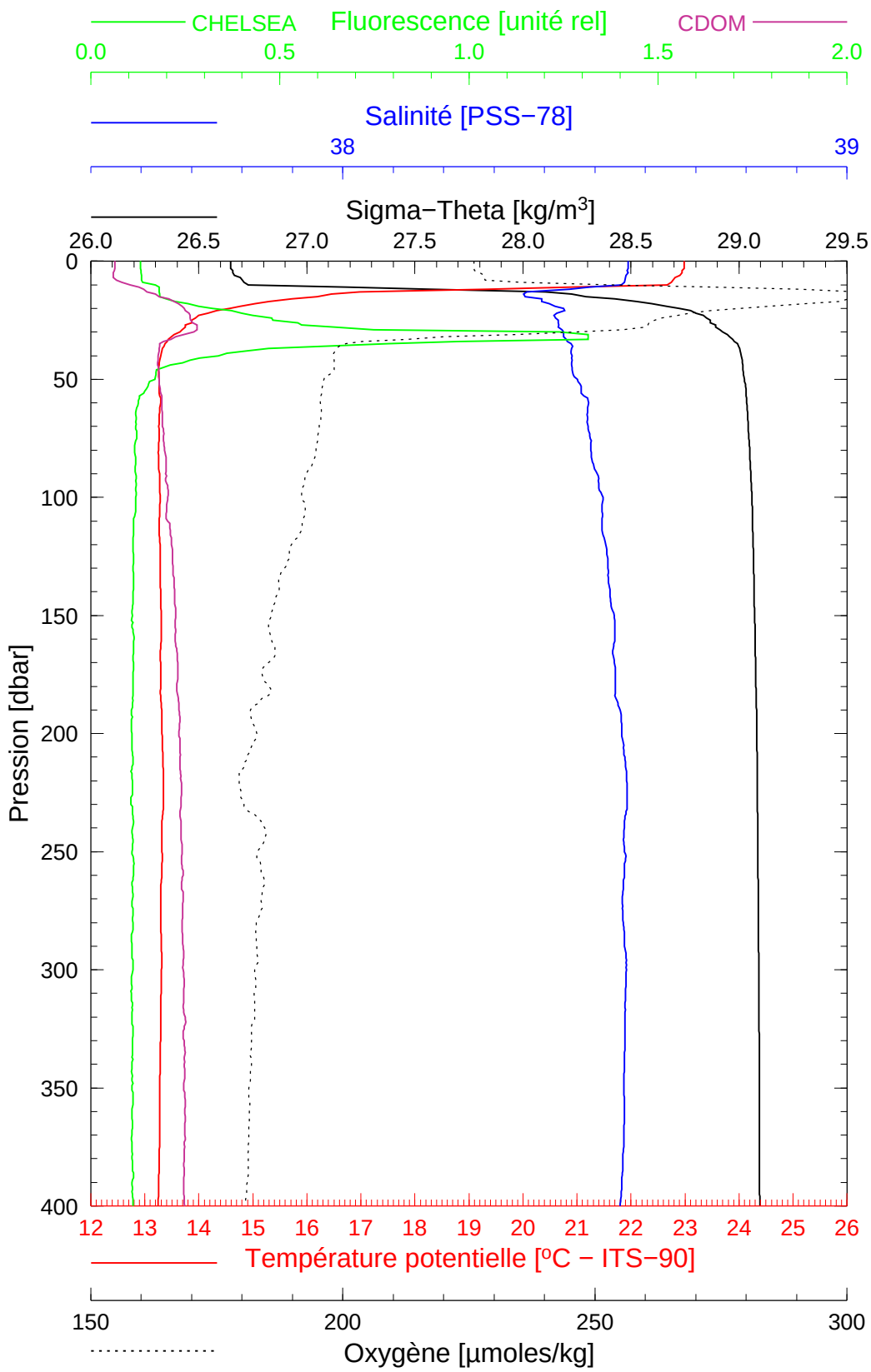
Boussole **26/08/2008** **BOUS080826_09**

BOUS009



Date	*26/08/2008*	*Latitude*	*43º22.114*
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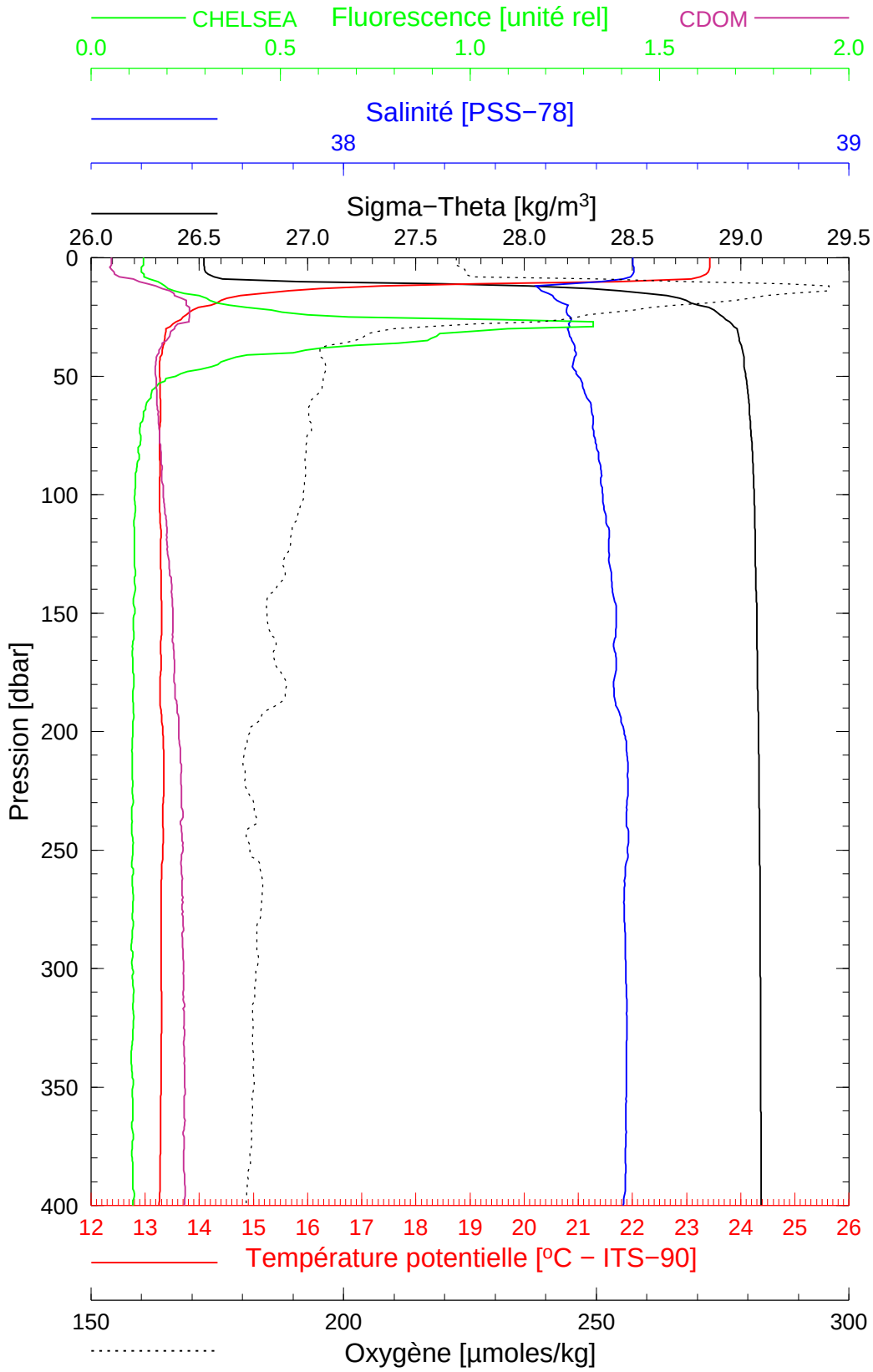
Boussole **27/08/2008** **BOUS080827_10**

BOUS010



Date	*27/08/2008*	*Latitude*	*43º21.616*
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