

The BOUSSOLE project technical reports; report # 10-114, issue 1.

BOUSSOLE Monthly Cruise Report

Cruise 131

January 21 - 25, 2013

Duty Chief: Emilie Diamond (diamond@obs-vlfr.fr)

Vessel: R/V Téthys II

(Captains: Rémy Lafond then Renaud Le Bourhis)

Science Personnel: Emilie Diamond and Grigor Obolensky.

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



The BOUSSOLE buoy with snow-covered Alps mountains on the background.

BOUSSOLE project

ESA/ESRIN contract N° 13226/10/I-NB

October 28, 2013



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'Études Spatiales, France

CENTRE NATIONAL D'ÉTUDES SPATIALES



National Aeronautics and Space Administration, USA



Centre National de la Recherche Scientifique, France



Université Pierre & Marie Curie, France



Observatoire Océanologique de Villefranche/mer, 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 The CDOM fluorometer, AC9 and Eco-BB3 have been withdrawn from the CTD package from March 2013.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).

From 2013, the BOUSSOLE cruises are coupled with one day of operations by the DYFAMED program. This coupling aims at optimizing usage of ship time and human resources. So for one day of each cruise, there will be one deep CTD cast with water sampling for oxygen, alkalinity and nutrients analysis at the DYFAMED site and also two vertical plankton nets (0-100 m).

Further details about these operations and the data collection and processing 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 and the second day, bad weather prevented the departure from the Nice harbour. The second day was used for a CTD cast with water sampling at the BOUSSOLE site and CTD casts in 3 stations of the transect. The last day, bad weather prevented work at the BOUSSOLE site.

Monday 21 January 2013

Bad weather prevented departure from the Nice harbour.

Tuesday 22 January 2013

Bad weather prevented departure from the Nice harbour.

Thursday 24 January 2013

The second day, the sea state was slight with a gentle breeze and the sky was blue. 1 Secchi disk, a CTD cast with water sampling at the BOUSSOLE site were performed and a CISCO connection with the buoy was established and data retrieved. Then, CTD casts in 3 stations of the transect were performed.

Friday 25 January 2013

The last day, we arrived at the BOUSSOLE site but the weather conditions prevented working at the station.

Cruise Report

Monday 21 January 2013 (UTC)

Bad weather prevented departure from the Nice harbour.

Tuesday 22 January (UTC)

Bad weather prevented departure from the Nice harbour.

Thursday 24 January 2013 (UTC)

People on board: Emilie Diamond and Grigor Obolensky.

1000 Departure from the Nice harbour.

1325 Arrival at the BOUSSOLE site.

1330 Secchi disk 01 (27m).

1400 Attempt of CISCO connection with the buoy: unsuccessful.

1415 CTD 01, 400 m with water sampling at 400, 200, 80, 70, 60, 50, 40, 30, 20, 10 and 5 m for HPLC, a_p , POC, CDOM and cytometry.

1500 CISCO connection with the buoy and data retrieval.

1520 Departure to the first transect station.

1630 CTD 02, 400 m, station 01 (43°25'N 07°48'E).

1755 CTD 03, 400 m, station 04 (43°34'N 07°31'E).

1920 CTD 04, 400 m, station 06 (43°39'N 07°21'E).

Departure to the Nice harbour.

2020 Arrival at the Nice harbour.

Friday 25 January 2013

Bad weather prevented work at the BOUSSOLE site.

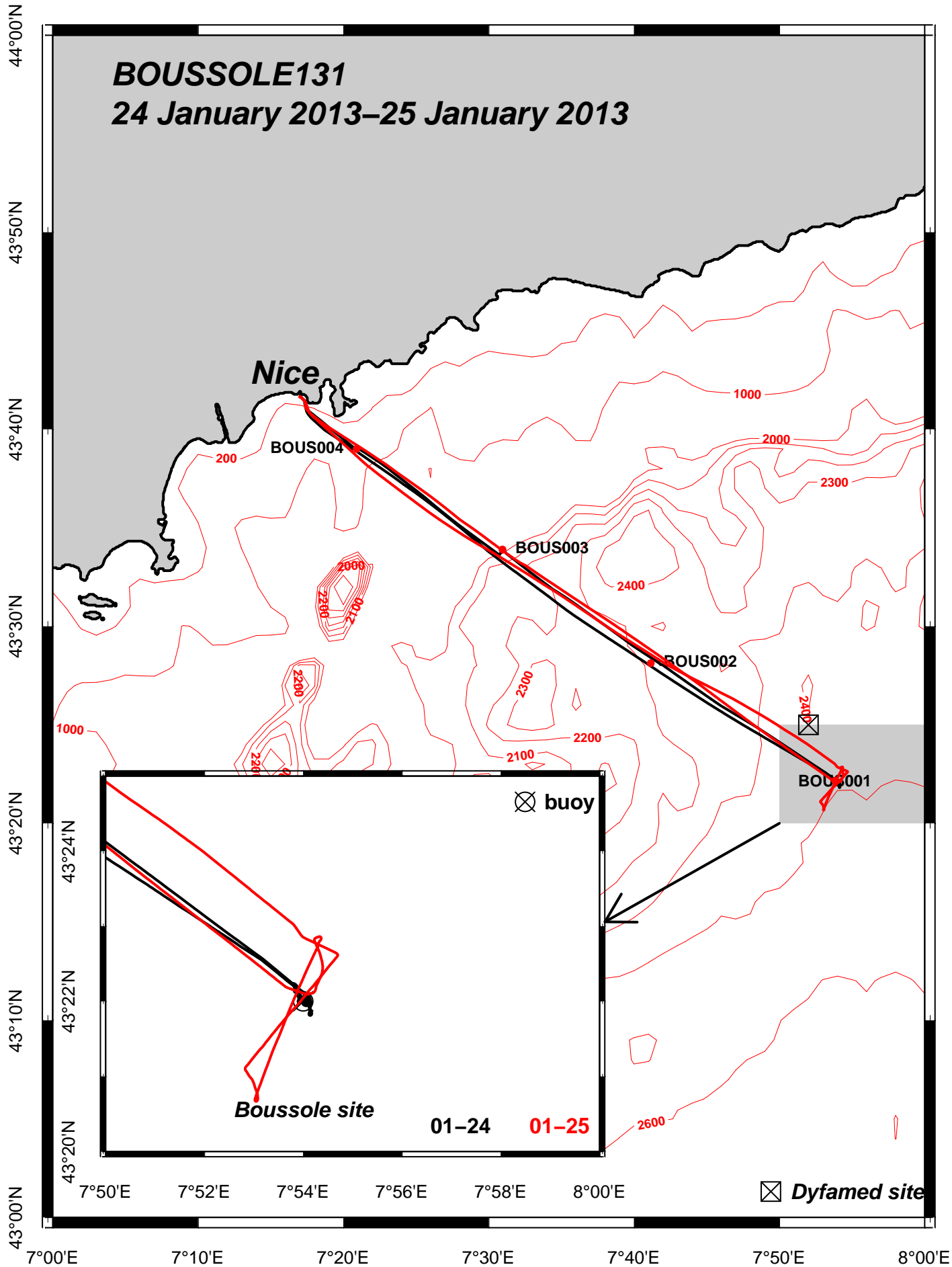
Problems identified during the cruise

No problems.

Appendices

BOUSSOLE131

24 January 2013–25 January 2013

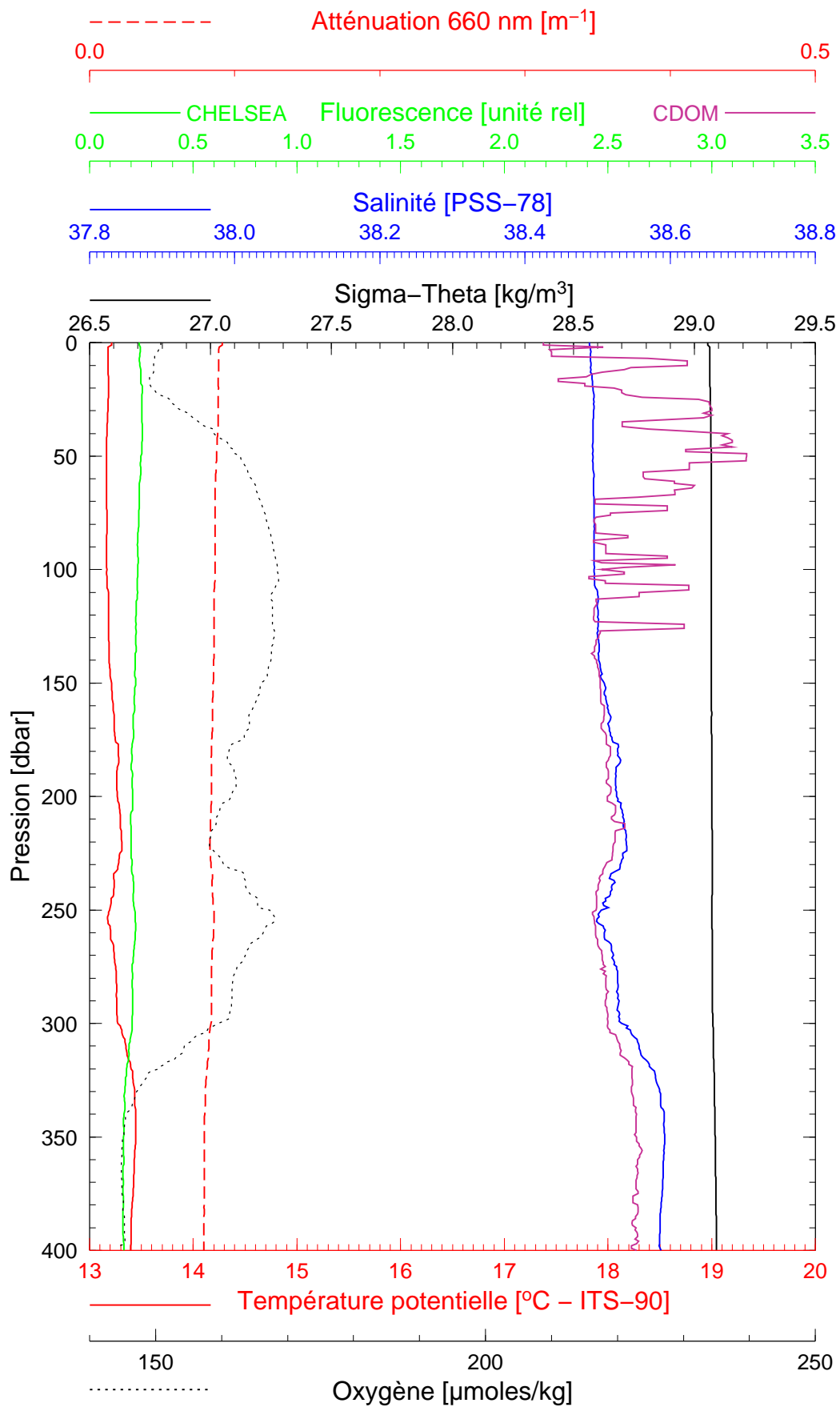


BOUSSOLE 131

24/01/2013

BOUS130124_01

BOUS001



Date 24/01/2013
Heure déb 14h 17min [TU]

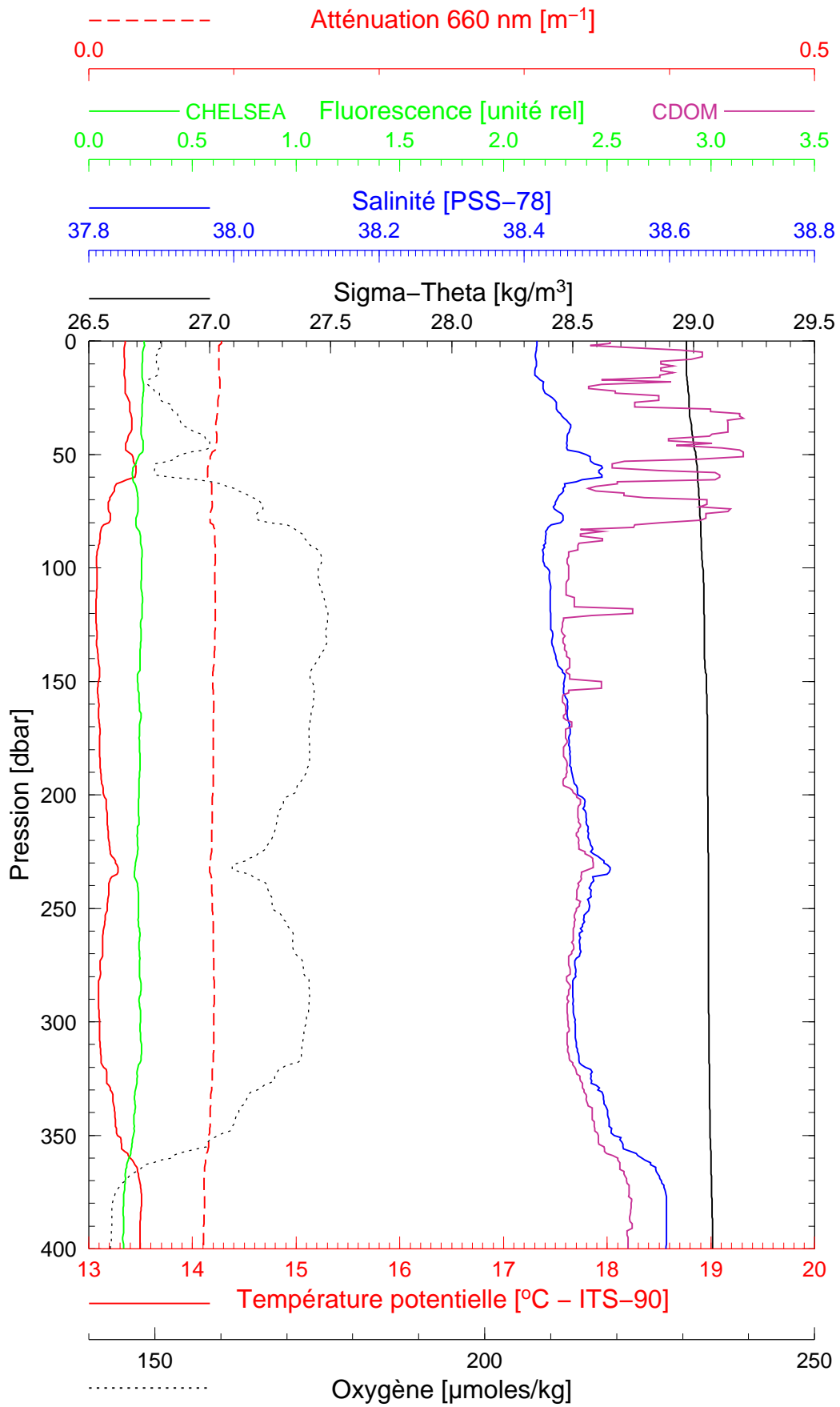
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BOUSSOLE 131

24/01/2013

BOUS130124_02

BOUS002



Date 24/01/2013
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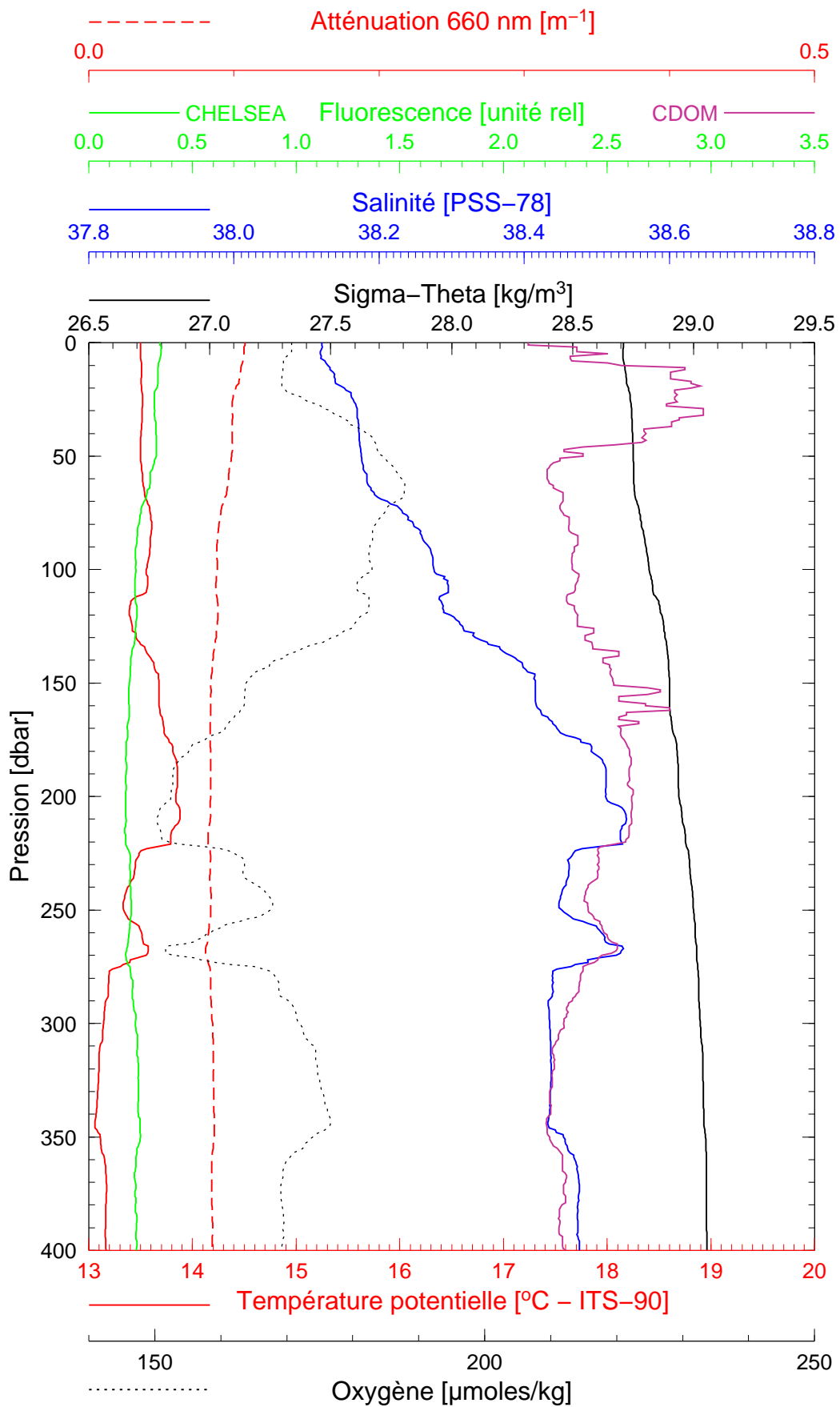
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Longitude 07°41.152 E

BOUSSOLE 131

24/01/2013

BOUS130124_03

BOUS003



Date 24/01/2013
Heure déb 17h 58min [TU]

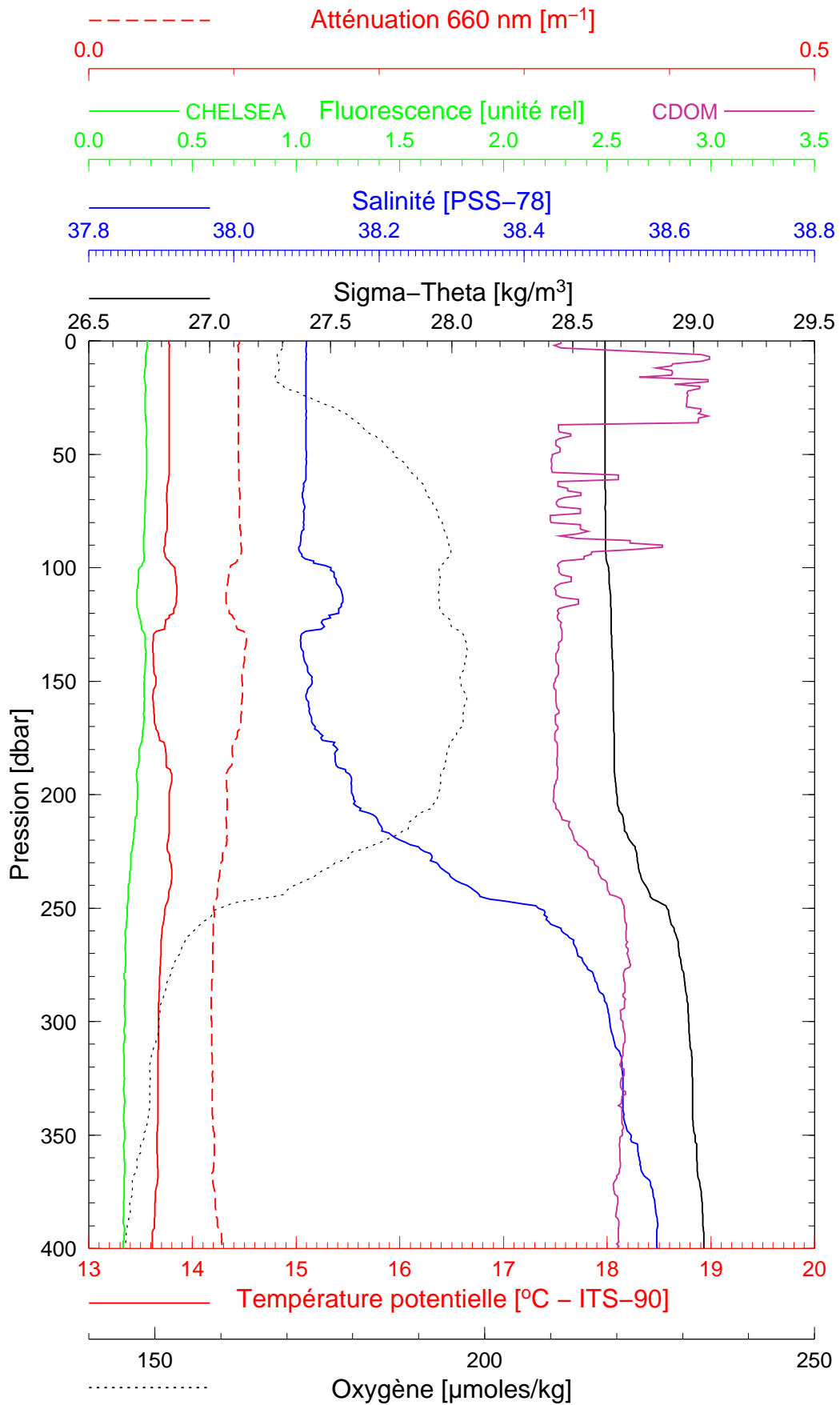
Latitude 43°33.898 N
Longitude 07°30.948 E

BOUSSOLE 131

24/01/2013

BOUS130124_04

BOUS004



Date 24/01/2013
Heure déb 19h 22min [TU]

Latitude 43°39.001 N
Longitude 07°20.916 E