

The BOUSSOLE project technical reports; report # 10-127, issue 1.

BOUSSOLE Monthly Cruise Report

Cruise 144

February 11 – 14, 2014

Duty Chief: Melek Golbol (golbol@obs-vlfr.fr)

Vessel: R/V *Téthys II*

(Captain: Joël Perrot)

Science Personnel: Melek Golbol and Vincent Taillandier.

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

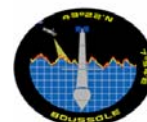


The C-OPS reference – radiometer measuring $Ed(0+)$ – which is secured to a broad at the forward deck of the R/V *Téthys II*.

BOUSSOLE project

ESA/ESRIN contract N° 13226/10/I-NB

April 22, 2014



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



National Aeronautics and Space Administration, USA



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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 Chl fluorometer. Additional instrumentation for measurement of inherent optical properties has been added from December 2011. The package includes a hyperspectral absorption meter (Hobilabs a-sphere), a multispectral backscattering meter (Hobilabs Hydrosat-6) and a multispectral beam transmissometer (Hobilabs Gamma-4). 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).
- 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 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 two last days, bad weather prevented departure from the Nice harbour. Only the second day was used for the BOUSSOLE cruise. During that day, buoy data were retrieved from a physical connection to the buoy computer via the cable available on top of the buoy. 1 CTD cast with water sampling at the BOUSSOLE site, optical profiles, 1 Secchi disk and the CTD transect were performed.

Tuesday 11 February 2014

Bad weather prevented departure from the Nice harbour.

Wednesday 12 February 2014

The second day, the sea state was slight with a light breeze. The sky was blue and the visibility was excellent. When arrived at BOUSSOLE, 3 C-OPS profiles were performed followed by 1 CTD cast and 1 Secchi disk. Surface water was collected with a bucket for TSM analysis. A direct connection with the buoy was established

for data retrieval. The CISCO and ARGOS connections, the solar panels and the sensors on the top of the buoy were cleaned. Finally, the CTD transect was performed.

Thursday 13 February 2014

Bad weather prevented departure from the Nice harbour.

Friday 14 February 2014

Bad weather prevented departure from the Nice harbour.

Pictures taken during this cruise can be found at:

<https://plus.google.com/photos/114686870380724925974/albums/6005145077221860145?banner=pwa>

Data from the BOUSSOLE cruises and buoy are available at:

http://www.obs-vlfr.fr/Boussole/html/boussole_data/login_form.php

Cruise Report

Tuesday 11 February 2014 (UTC)

Bad weather prevented departure from the Nice harbour.

Wednesday 12 February 2014 (UTC)

People on board: Melek Golbol and Vincent Taillandier.

0650 Departure from the Nice harbour.
1000 Arrival at the BOUSSOLE site.
1015 C-OPS 01, 02, 03.
1055 CTD 01, 1000 m with water sampling at 400, 200, 150, 80, 70, 60, 50, 40, 30, 20, 10 and 5 m for HPLC, a_p and CDOM.
1210 Bucket at surface for TSM.
1215 Secchi disk 01 (19m).
1300 Direct connection with the buoy and data retrieval.
1330 Departure to the first transect station.
1405 CTD 02, 400m, station 01 (43°25'N 07°48'E).
1455 CTD 03, 400m, station 02 (43°28'N 07°42'E).
1540 CTD 04, 400 m, station 03 (43°31'N 07°37'E).
1625 CTD 05, 400 m, station 04 (43°34'N 07°31'E).
1715 CTD 06, 400 m, station 05 (43°37'N 07°25'E).
1755 CTD 07, 400 m, station 06 (43°39'N 07°21'E).
1810 Departure from station 6.
1840 Arrival at the Nice harbour.

Thursday 13 February 2014 (UTC)

Bad weather prevented departure from the Nice harbour.

Friday 14 February (UTC)

Bad weather prevented departure from the Nice harbour.

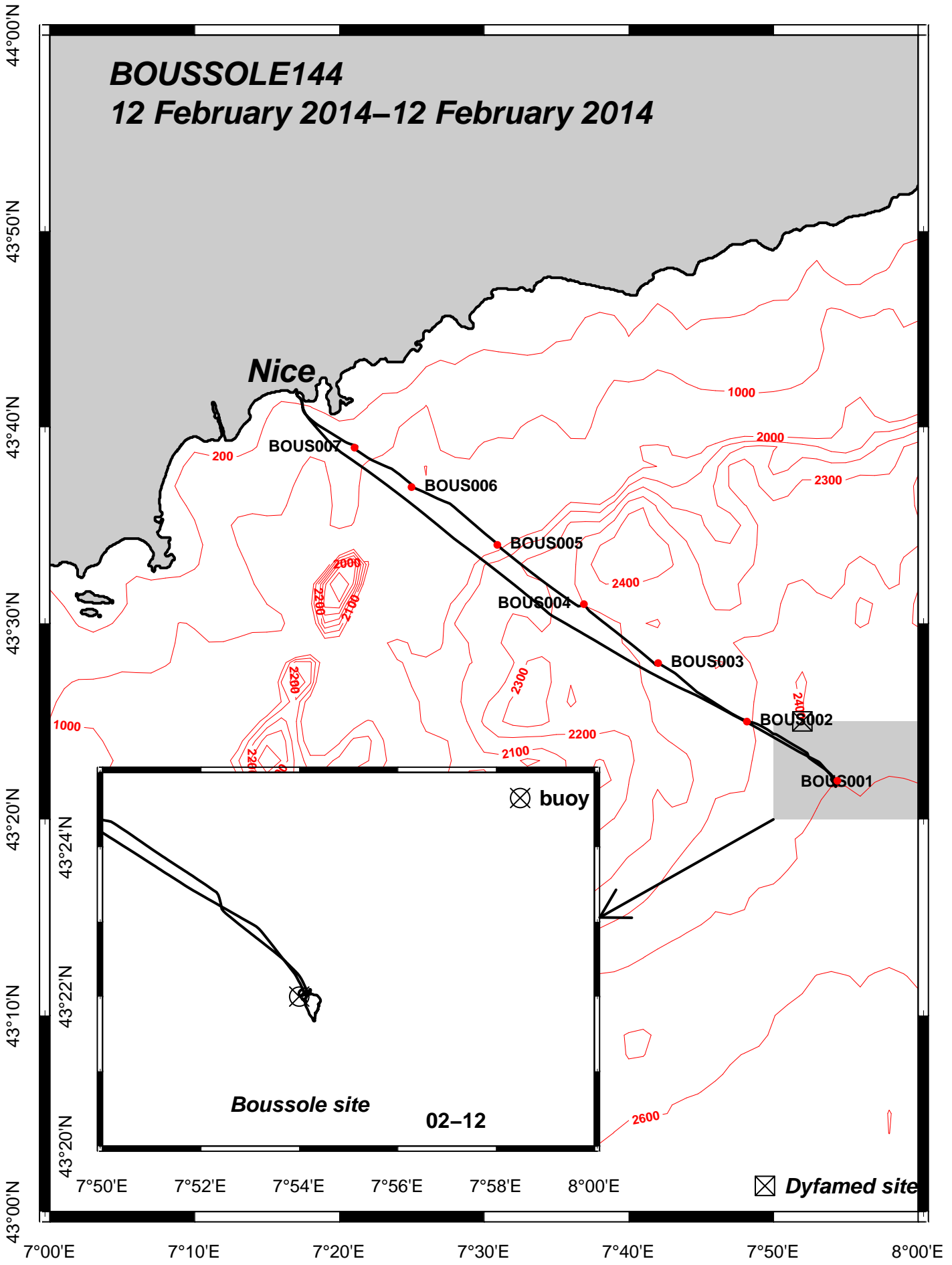
Problems identified during the cruise

- The IOP package was not available because the instruments were sent to *Hobi Instruments service* for calibrations. The instruments were not returned in time for this cruise.
- The C-OPS commonly used on the BOUSSOLE missions was still under calibration at *Biospherical*. The C-OPS used for this cruise was the one shared among the marine optics and remote sensing group at LOV. The instrument is similar to the BOUSSOLE one, yet has a Lu sensor instead of a Eu one. The sea cable length is shorter than that of the BOUSSOLE instrument. Therefore the optical profiles were shorter (between 25 and 40m depth) than the profiles usually acquired at BOUSSOLE.

Appendices

BOUSSOLE144

12 February 2014–12 February 2014

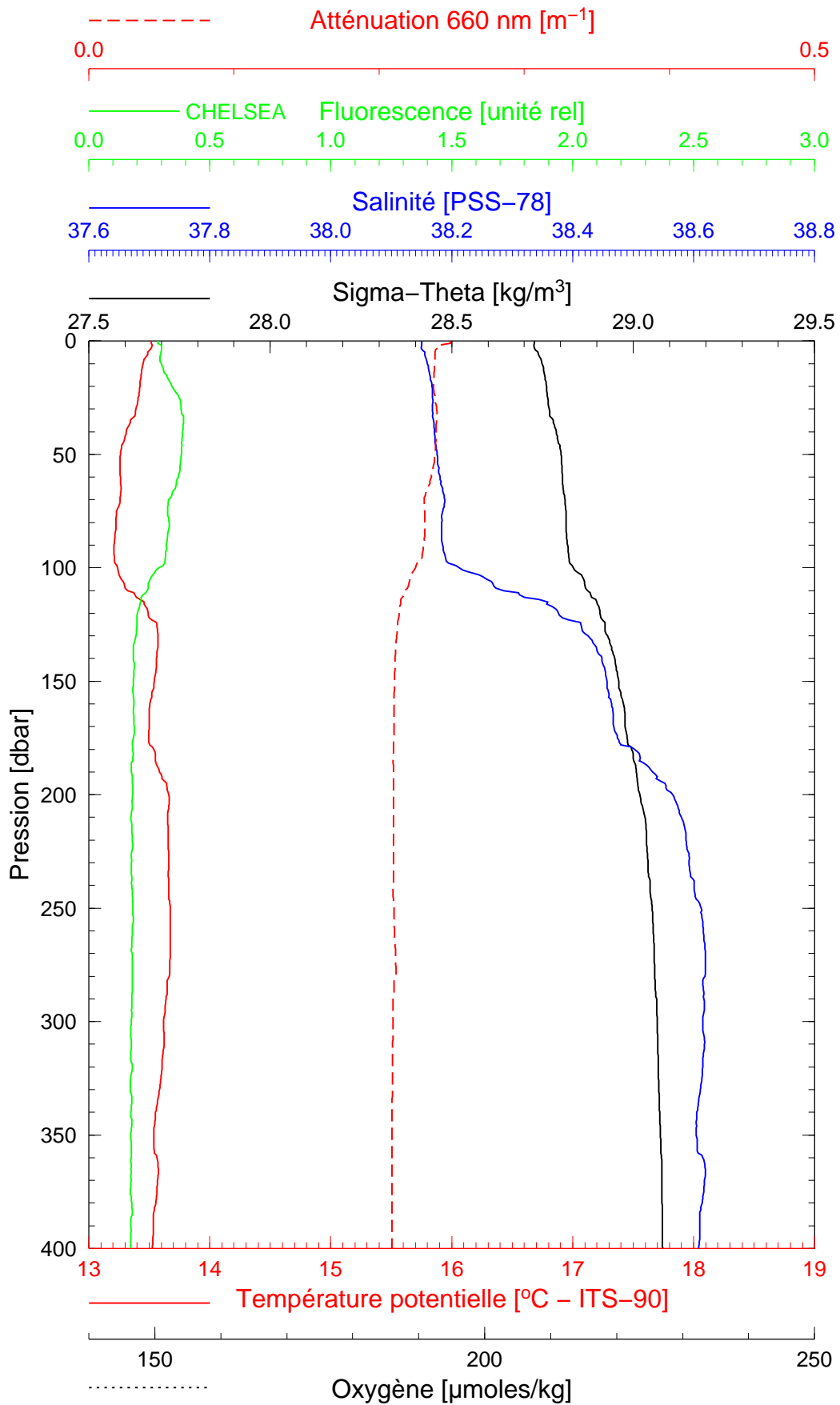


BOUSSOLE 144

12/02/2014

BOUS140212_01

BOUS001



Date 12/02/2014
Heure déb 10h 53min [TU]

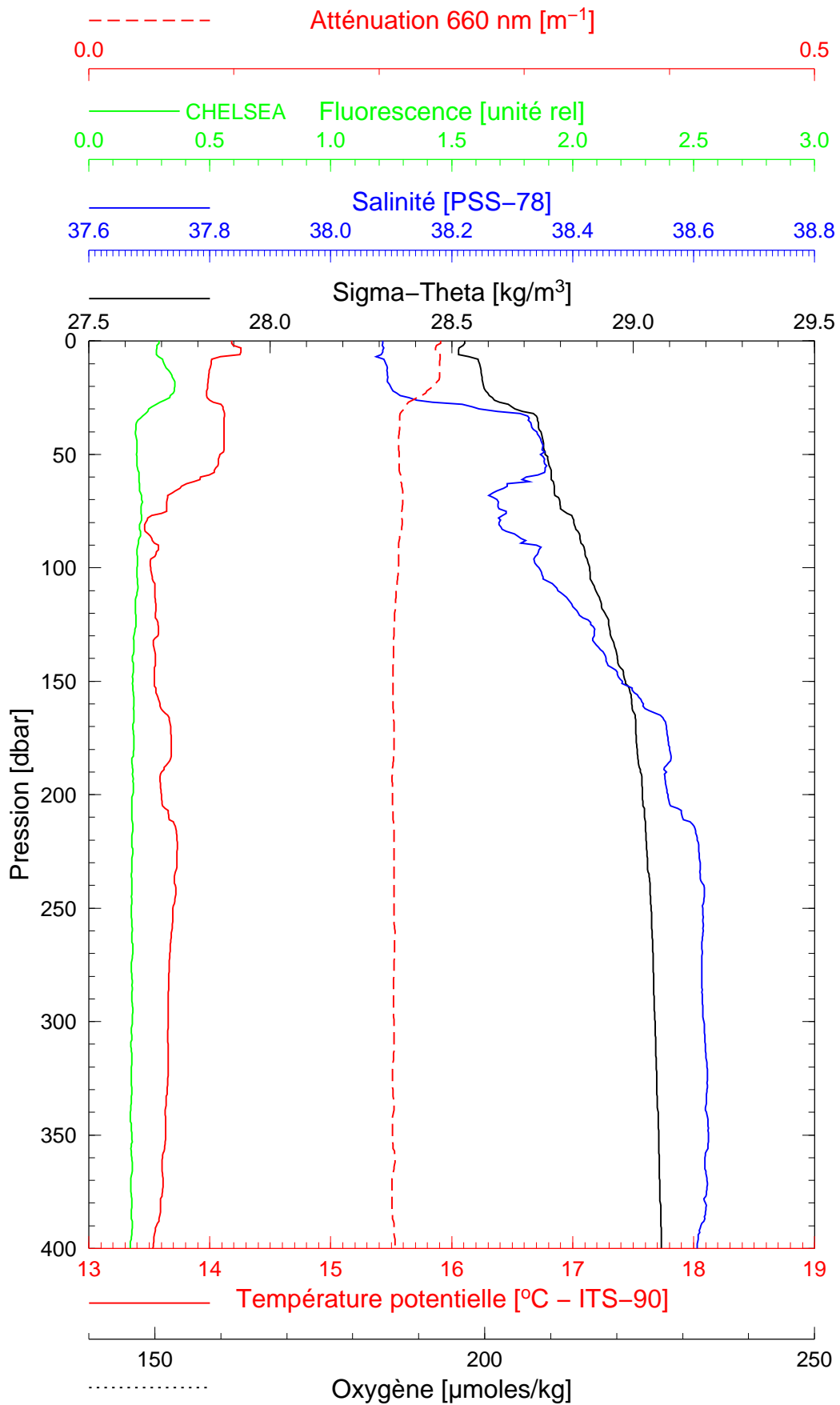
Latitude 43°21.971 N
Longitude 07°54.419 E

BOUSSOLE 144

12/02/2014

BOUS140212_02

BOUS002



Date 12/02/2014
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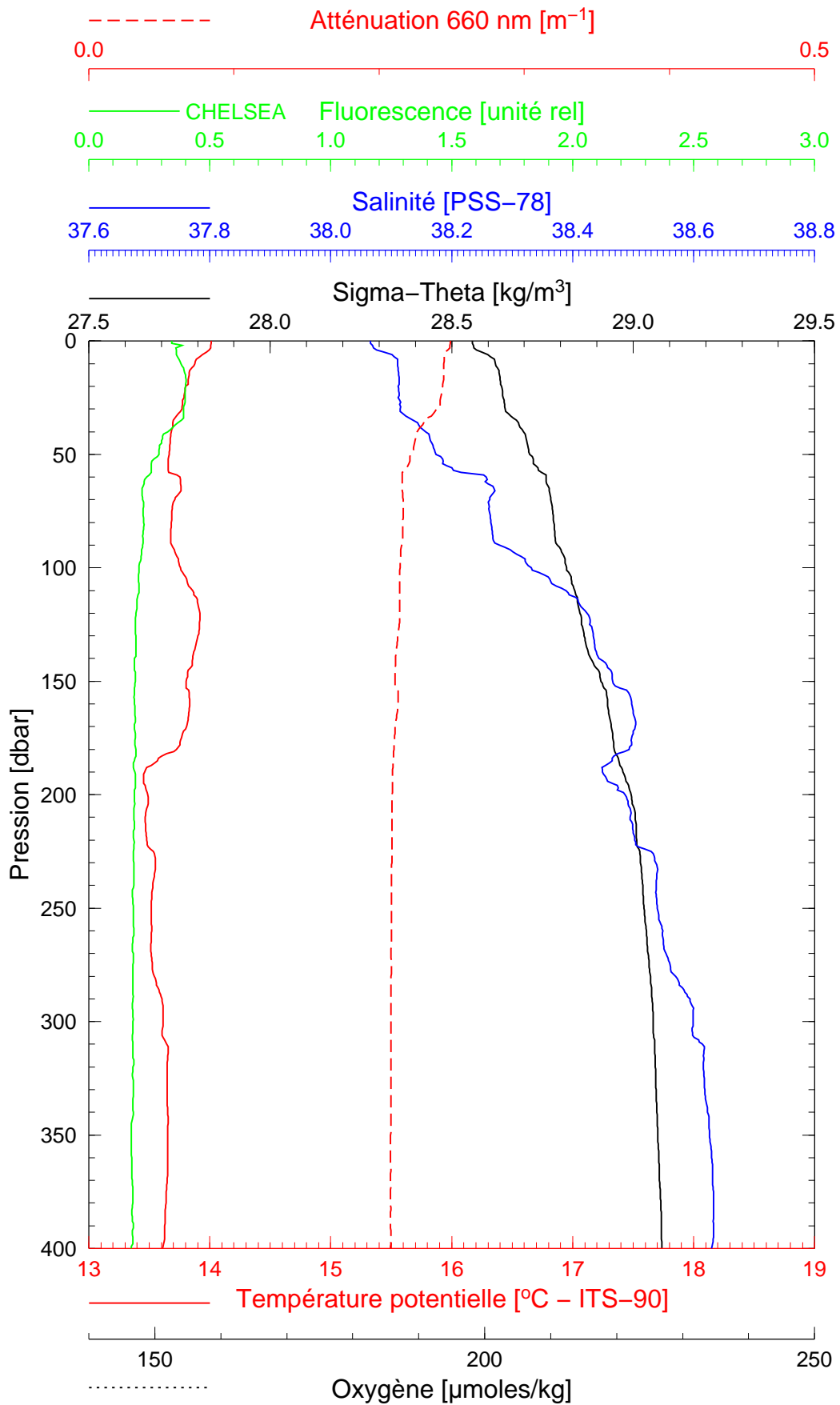
Latitude 43°24.990 N
Longitude 07°48.170 E

BOUSSOLE 144

12/02/2014

BOUS140212_03

BOUS003



Date 12/02/2014

Latitude 43°27.973 N

Heure déb 14h 54min [TU]

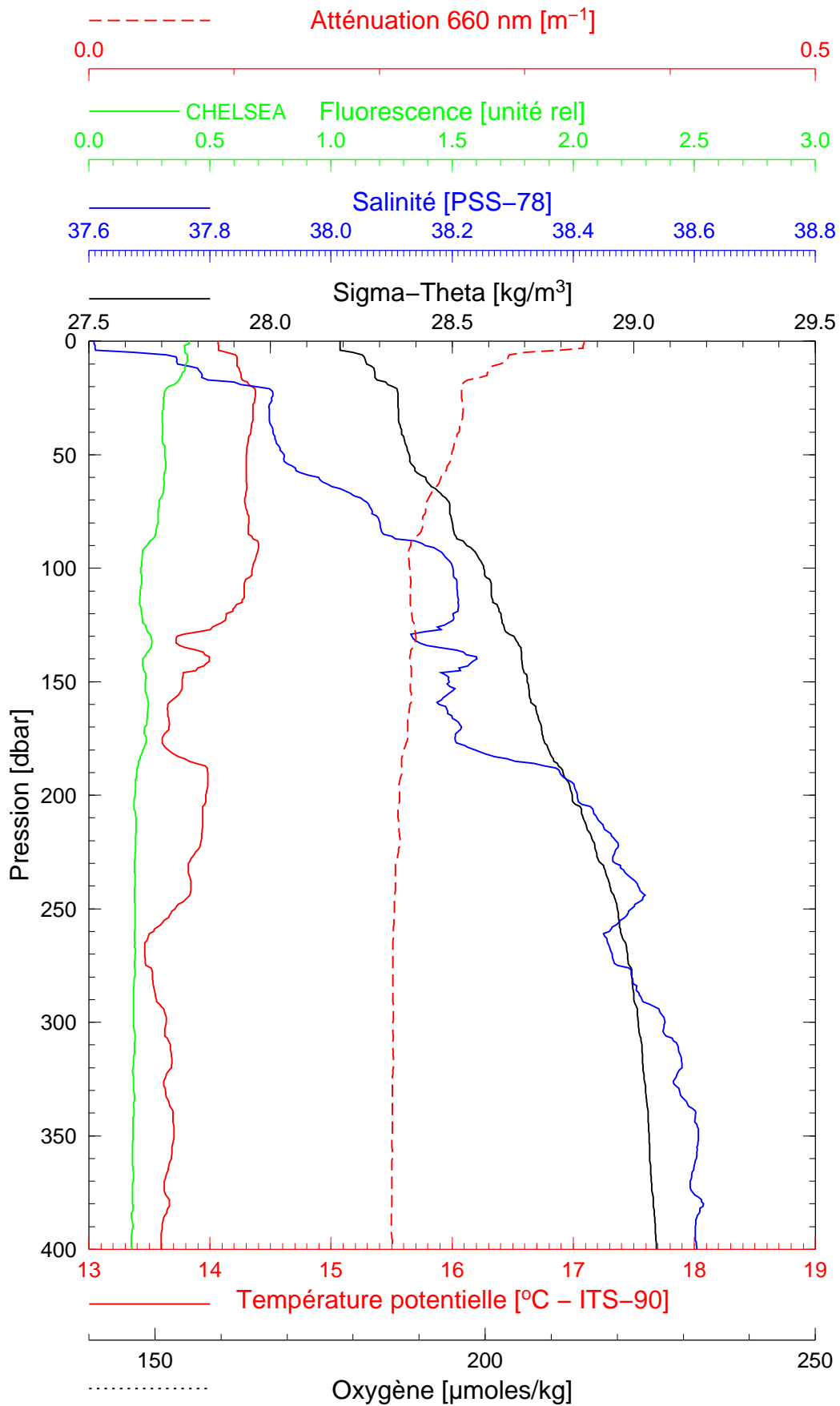
Longitude 07°42.034 E

BOUSSOLE 144

12/02/2014

BOUS140212_04

BOUS004



Date 12/02/2014

Latitude 43°30.979 N

Heure déb 15h 39min [TU]

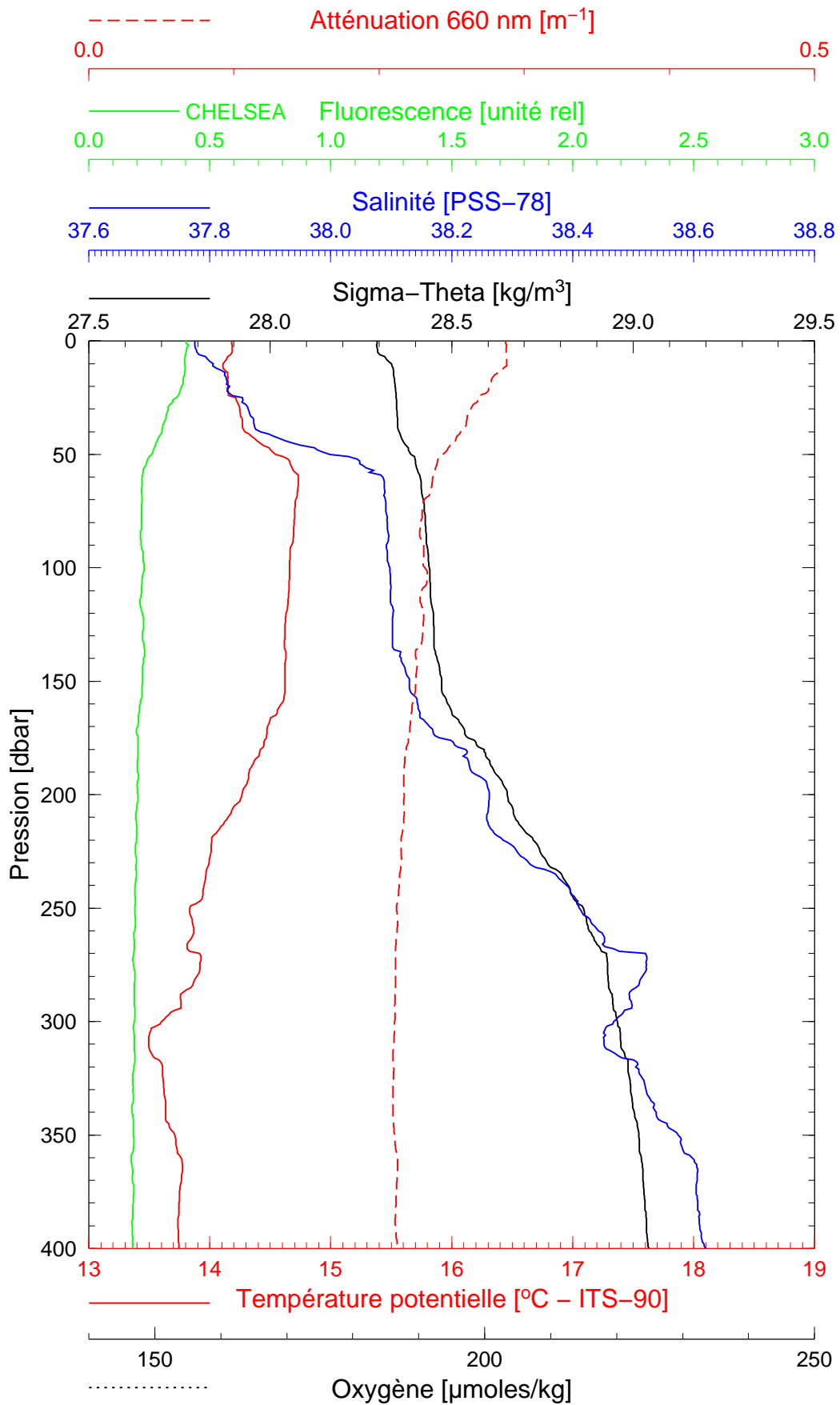
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BOUSSOLE 144

12/02/2014

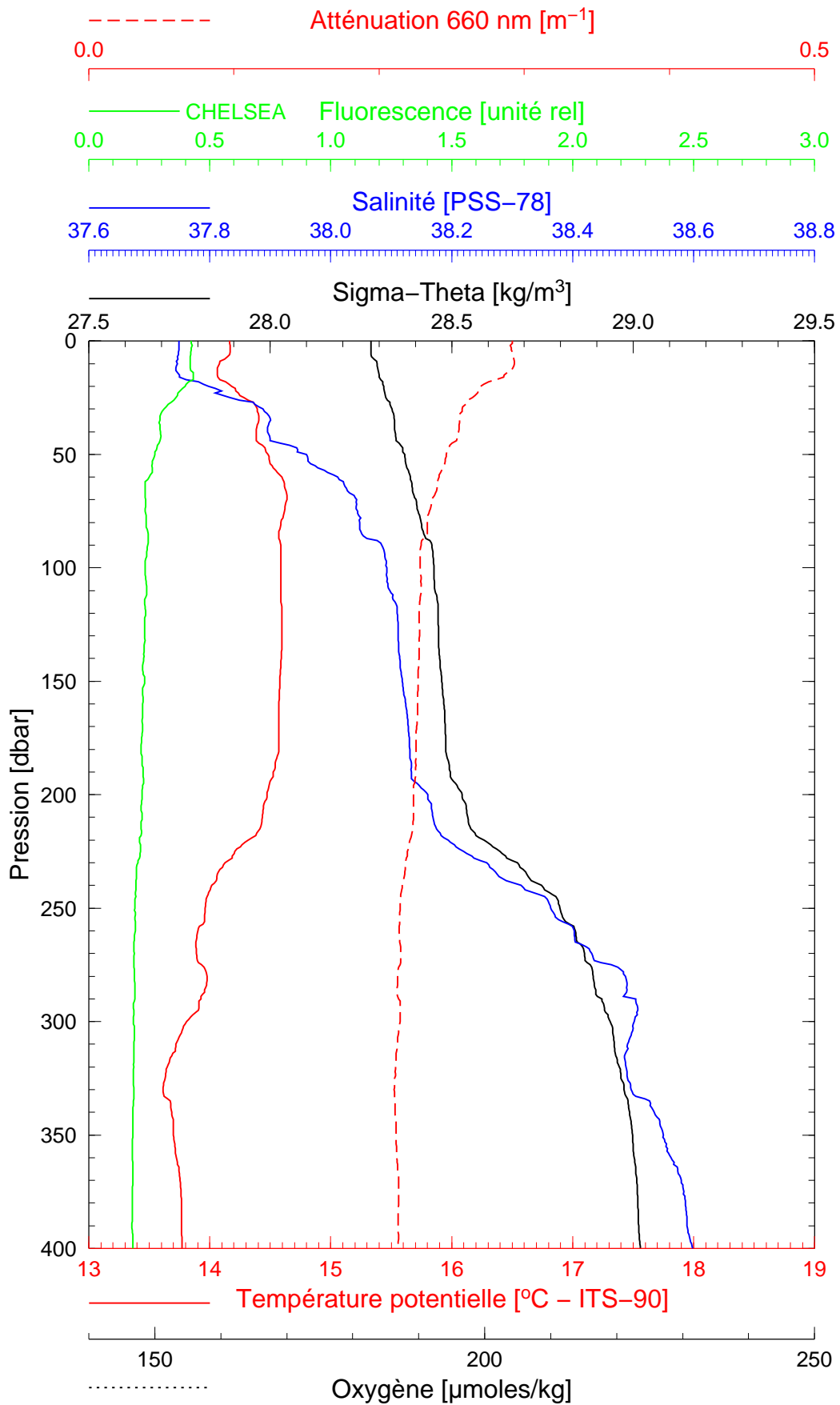
BOUS140212_05

BOUS005



Date 12/02/2014
Heure déb 16h 25min [TU]

Latitude 43°34.000 N
Longitude 07°30.925 E



Date 12/02/2014
Heure déb 17h 13min [TU]

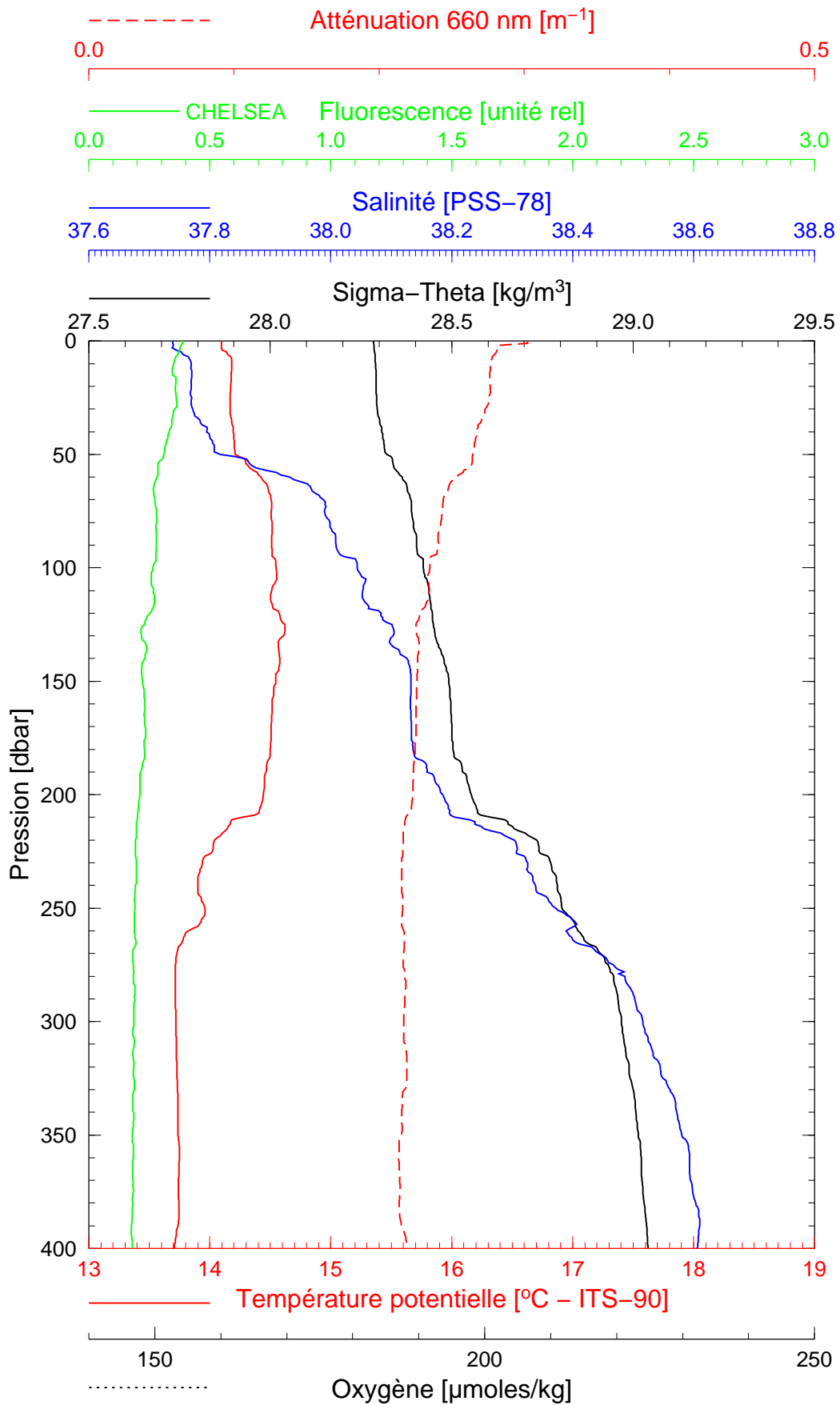
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BOUSSOLE 144

12/02/2014

BOUS140212_07

BOUS007



Date 12/02/2014
Heure déb 17h 53min [TU]

Latitude 43°38.961 N
Longitude 07°21.058 E