

BOUSSOLE Monthly Cruise Report

Cruise 95

March 06 - 09, 2010

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

Vessel: R/V Téthys II

(Captain: Guy Le Falher)

Science Personnel: Jean De Vaugelas, Emilie Diamond, Yves Lamblard, Vincent Taillandier, Vincenzo Vellucci, Romain.

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

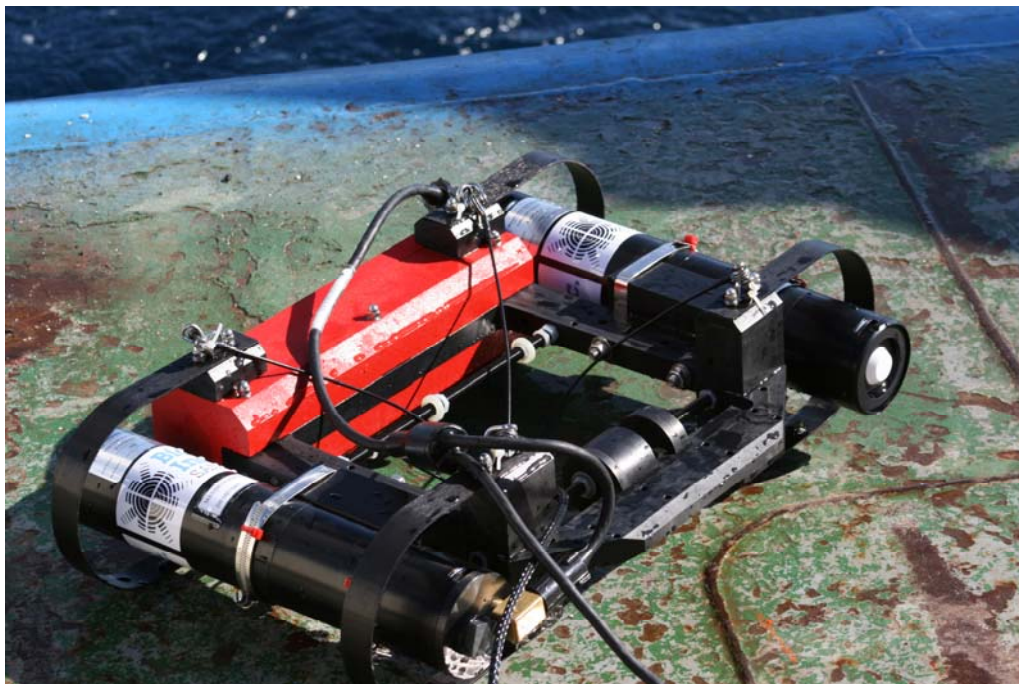


Figure 1. The Biospherical's C-OPS (Compact Optical Profiling System) tested during this BOUSSOLE cruise.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

March 10, 2010



Contents

1. Cruise Objectives
2. Cruise Summary
3. Cruise Report
4. Problems identified during the cruise
5. Calculated Swath paths for Meris Sensor

Appendix

Cruise Objectives

Routine operations

Multiple SPMR profiles are to occur within about 1 hour of satellite overhead passes of MERIS around solar noon, under optimal conditions: clear blue skies and flat, calm sea surface. From October 2009 to March 2010, another SPMR will be used for profiles (SN 008 instead of SN 006). It will measure upwelling radiance and downward irradiance instead of upward and downward irradiance. The reference will also be another SMSR (SN 021 instead of SN 006). 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, AC9 (from July 2002) and Eco-BB3 (from June 2003), 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 (until summer of 2007).

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. Divers will also put a neoprene cap on the HS4 and on the transmissometers for acquiring three dark measurements (started in 2009).

Additional operations

During this mission, a Biospherical's C-OPS (Compact Optical Profiling System) have been tested near the surface. During next missions, it will be tested on 0-200 m at the BOUSSOLE site to perform optical profiles and to compare them with SPMR measurements.

Cruise Summary

The first cruise day was the only day used, because of the bad weather during the rest of the cruise. The first day was used for diving operations, for buoy data retrieval, for optical and CTD casts with sampling at the BOUSSOLE site and for testing the C-OPS.

Saturday 06 March 2010

The first day, weather conditions were correct the morning, though not being optimal (H1/3 0.7 to 1.2 m, wind speed 20 to 25 kn, blue sky and excellent visibility) and were rough from noon (H1/3 1.5 to 2.0 m). When arrived on site, divers went at sea for cleaning buoy sensors. Neoprene caps were also put on the HS4 and on the transmissometers for acquiring three dark measurements. An attempt of direct connection with the Dacnet on the buoy was unsuccessful. So divers rebooted the system through the AK connector. The third time, the direct connection was established for data retrieval but the captain judged that sea conditions became to dangerous for people on the zodiac so the download was stopped before finished and people came back on board. During this time, the Biospherical's C-OPS was tested near the surface to balance E_D and E_U sensors tilt and was dropped to 20 m to check the freefall velocity. Then, 1 Secchi disk, 1 CTD cast with water sampling and 3 SPMR profiles were performed. An attempt of CISCO connection with the buoy failed. After, the sea state was not good enough to work even on the transect.

Sunday 07 March 2010

Bad weather prevented departure from the Nice port.

Monday 08 March 2010

Bad weather prevented departure from the Nice port.

Tuesday 09 March 2010

Bad weather prevented departure from the Nice port.

Cruise Report

Saturday 06 March 2010 (UTC)

People on board: Jean De Vaugelas, Emilie Diamond, Yves Lamblard, Vincent Taillandier, Vincenzo Vellucci and Romain (diver).

0520 Departure from the Nice port.

0835 Arrival at the BOUSSOLE site.

0850 Diving on the buoy for cleaning instruments. Dark HS4 and transmissometers measurements at 09:15, 09:30 and 09:45.

0905 C-OPS tests.

0915 Attempt of direct connection with Dacnet on the buoy: unsuccessful.

0945 Secchi disk 01 (22 m).

0955 Direct connection with Dacnet on the buoy after reboot of the system through AK connector and partial data retrieval.

1015 CTD 01, 400 m with water sampling at 200, 150, 80, 70, 60, 50, 40, 30, 20, 10 and 5 m for HPLC, Ap, TSM and CDOM.

1050 SPMR 01, 02, 03.

1215 Attempted CISCO connection with the buoy: unsuccessful.

1230 Departure to the Nice port.

1615 Arrival at the Nice port.

Sunday 07 March 2010 (UTC)

Bad weather prevented departure from the Nice port.

Monday 08 March 2010 (UTC)

Bad weather prevented departure from the Nice port.

Tuesday 09 March 2010 (UTC)

Bad weather prevented departure from the Nice port.

Problems identified during the cruise

- The first day, sea conditions allowed the diving, measurements and samples during the morning, though not being optimal. Bad weather prevented departure from Nice port from the other three days.
- The download of buoy data was stopped before finished because the captain judged that sea conditions became too dangerous for people on the zodiac so they had to come back on board before the end.

Calculated Swath paths for the MERIS Sensor (ESOV Software)

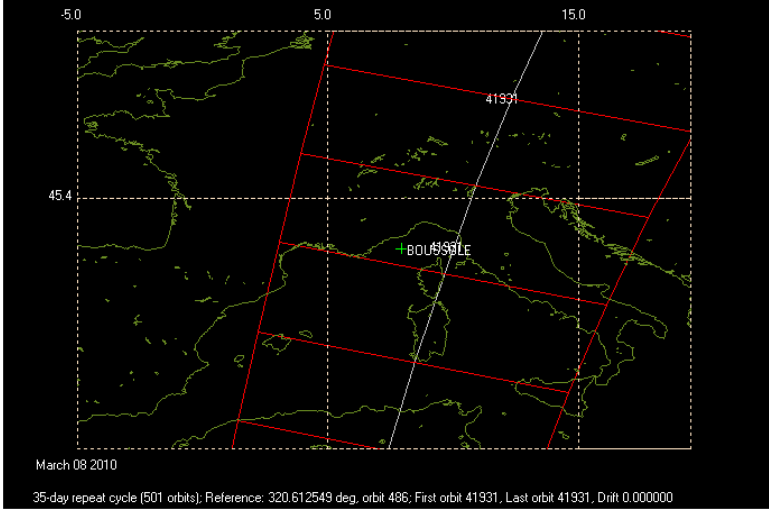
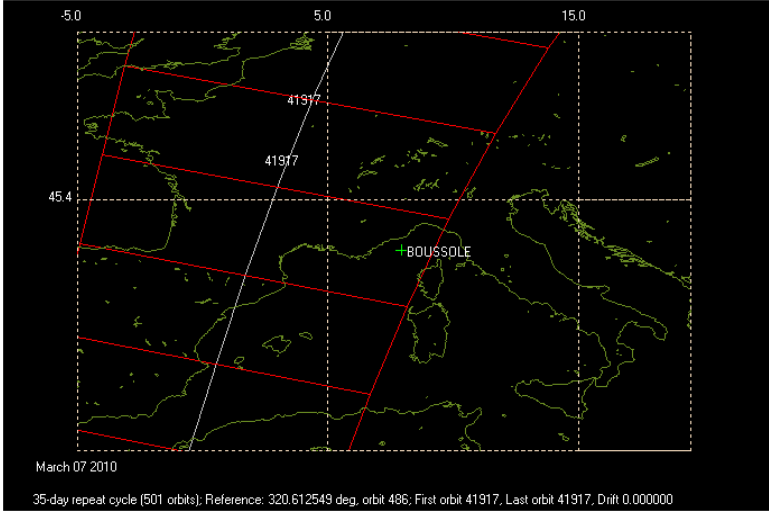
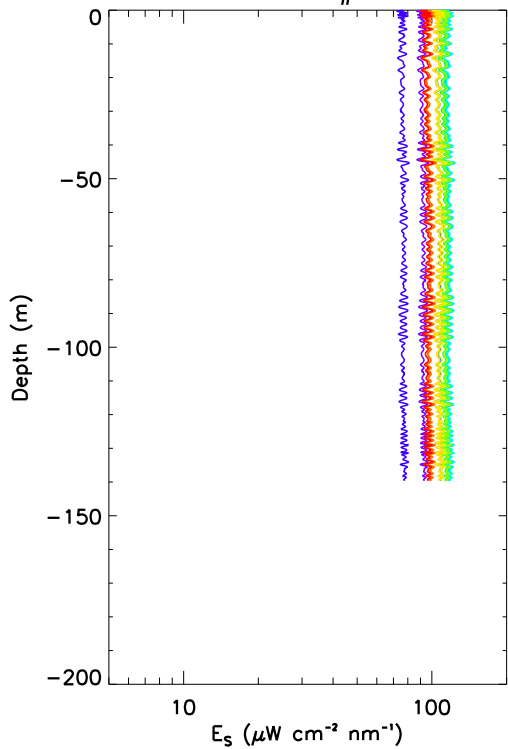


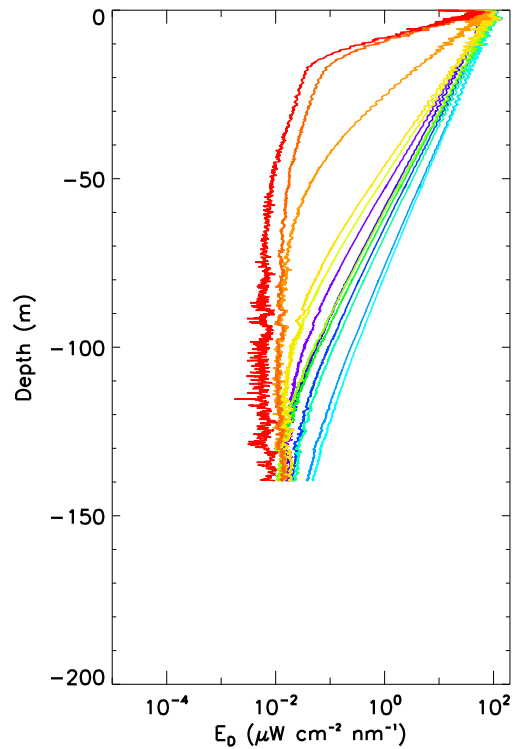
Figure 2. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for 07 and 08 March 2010.

Appendix

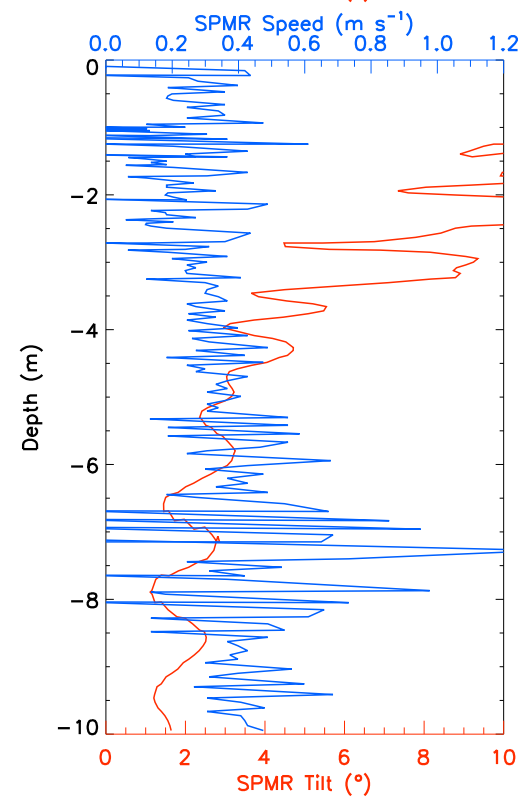
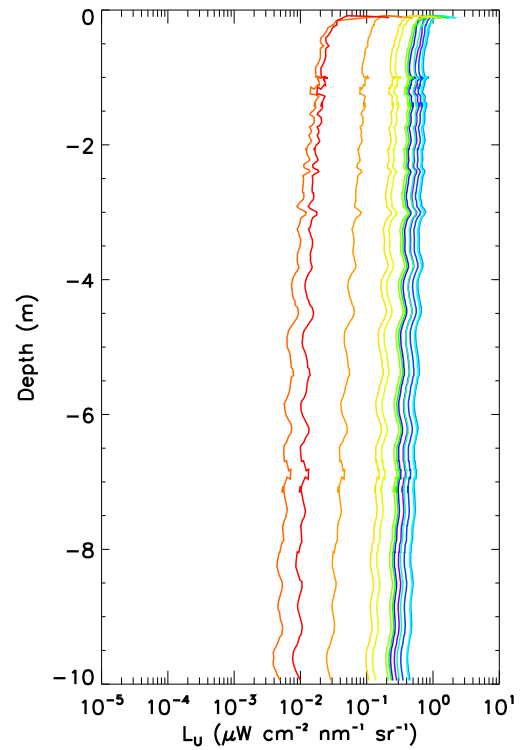
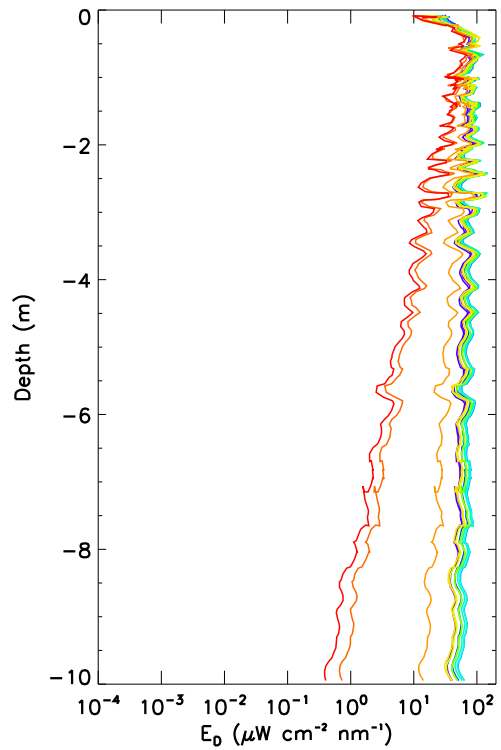
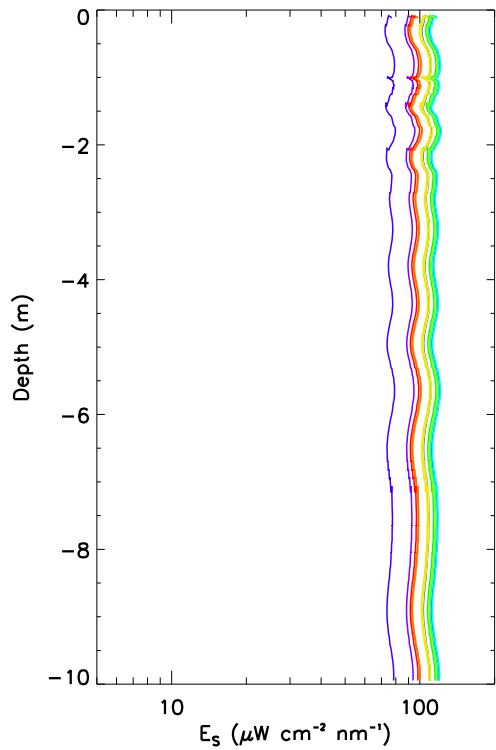
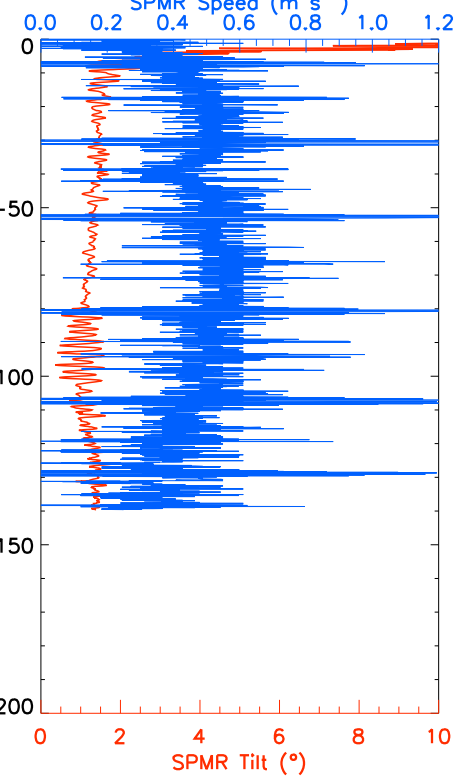
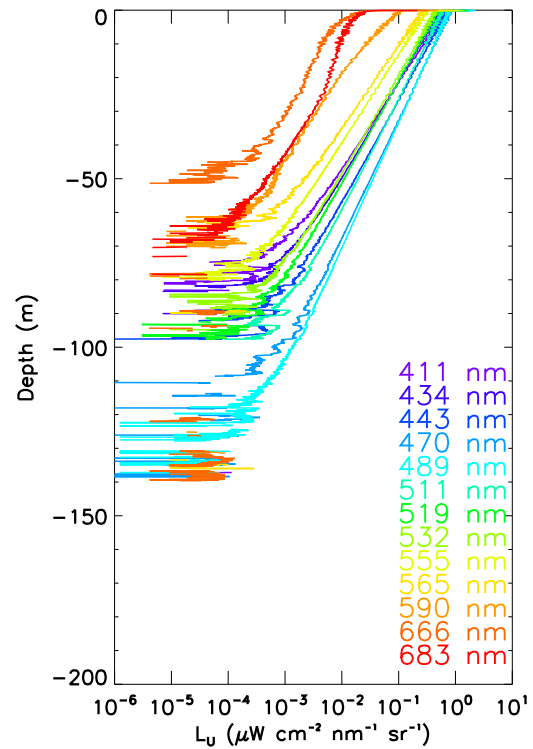
Boussole#95



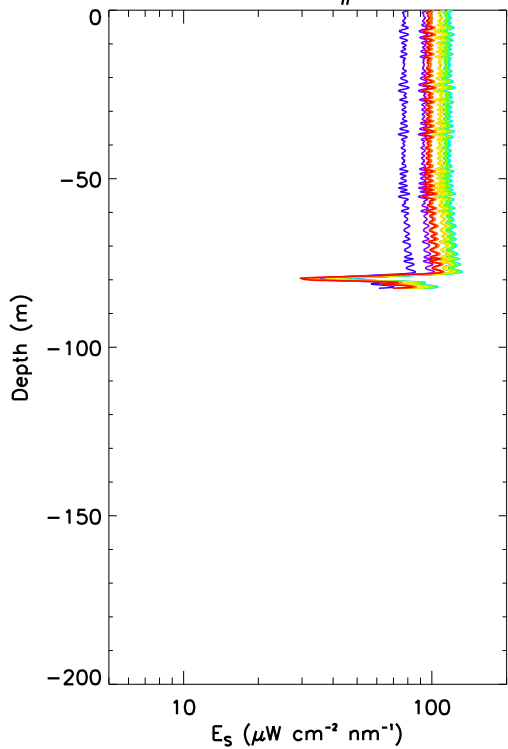
B95_Bou060310AA



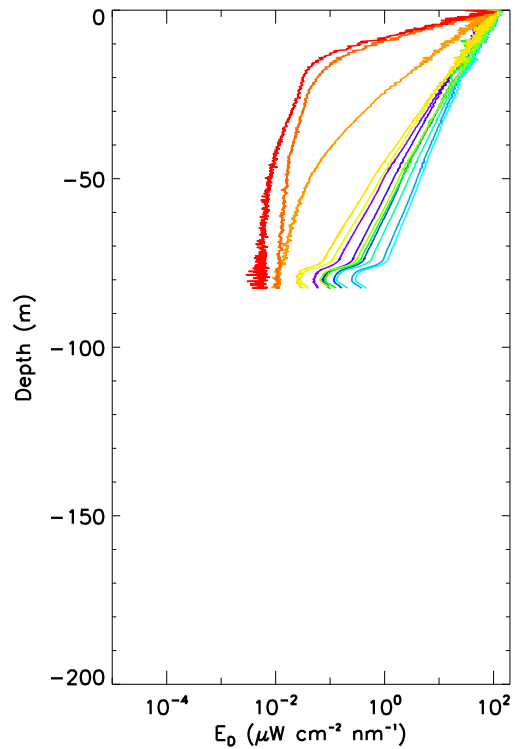
11:2 UTC



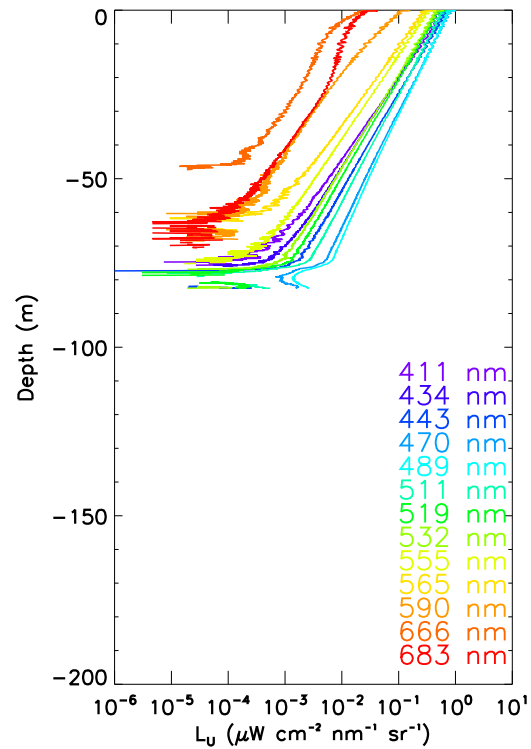
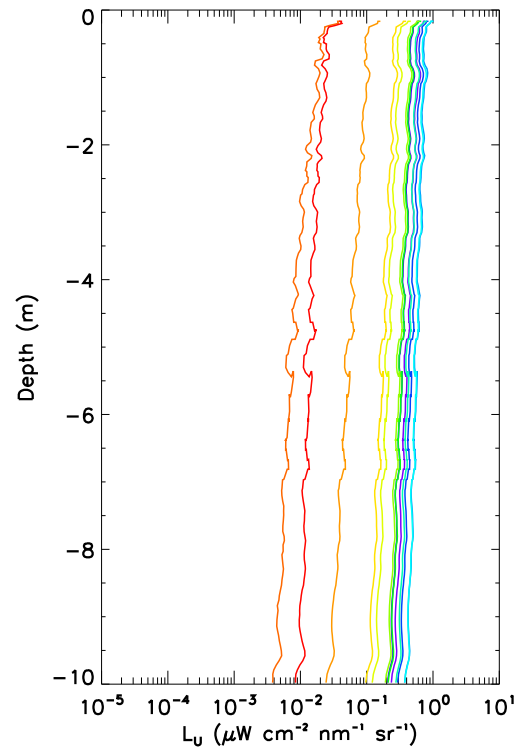
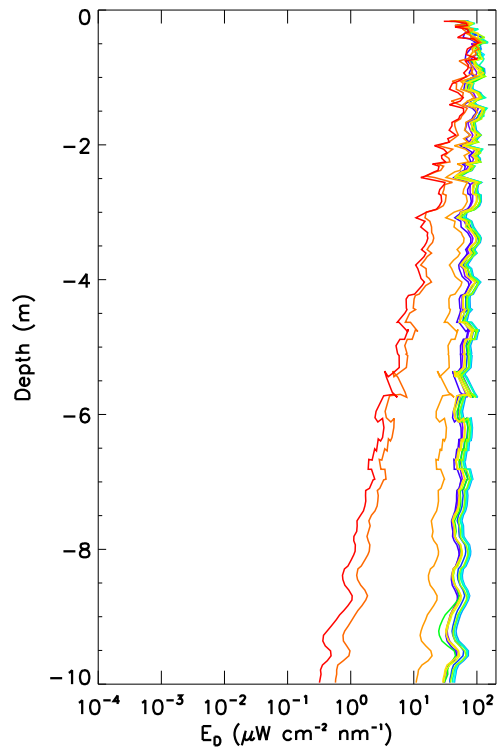
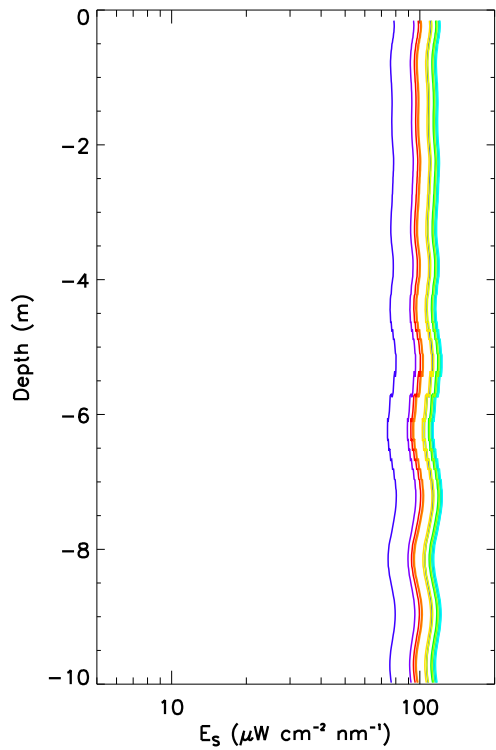
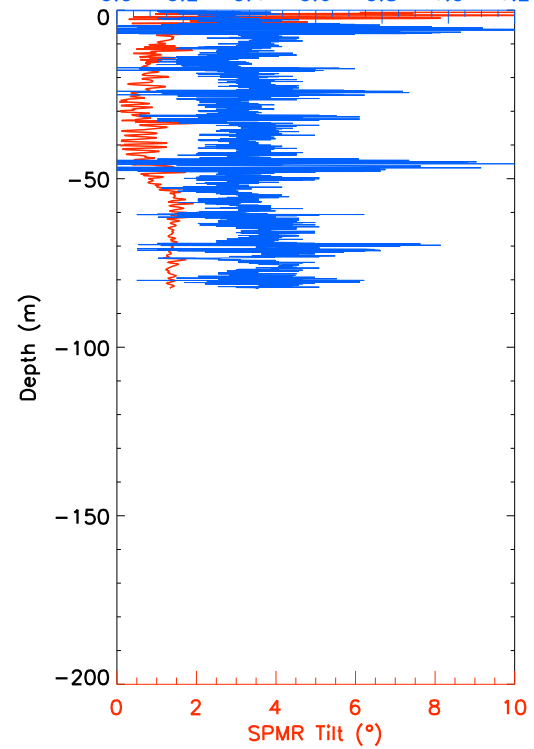
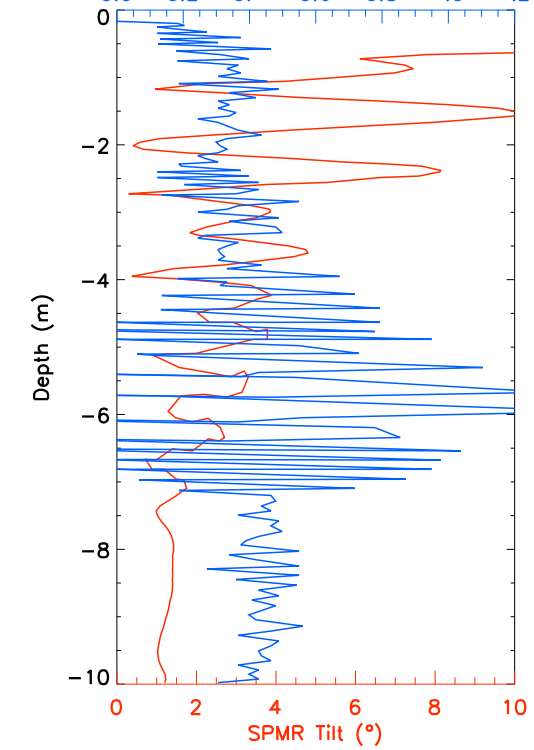
Boussole#95



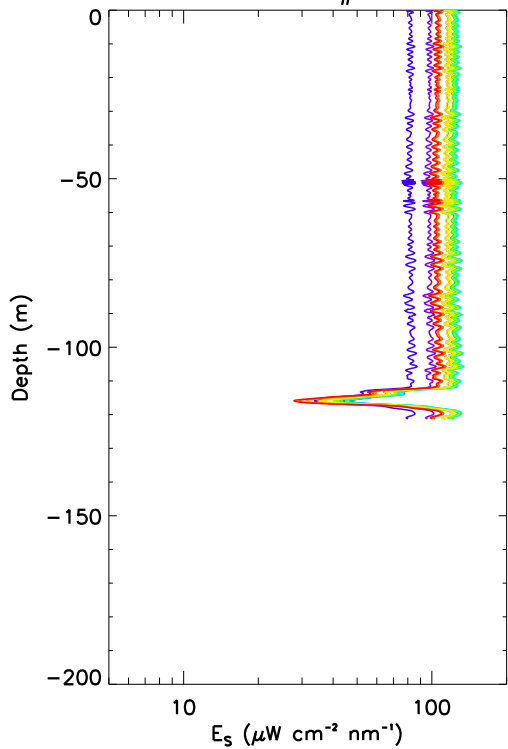
B95_Bou060310AB



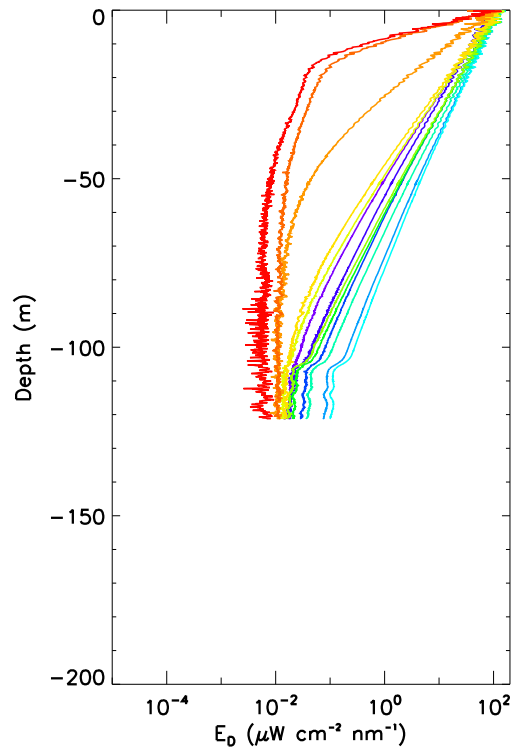
11:16 UTC

SPMR Speed (m s^{-1})SPMR Speed (m s^{-1})

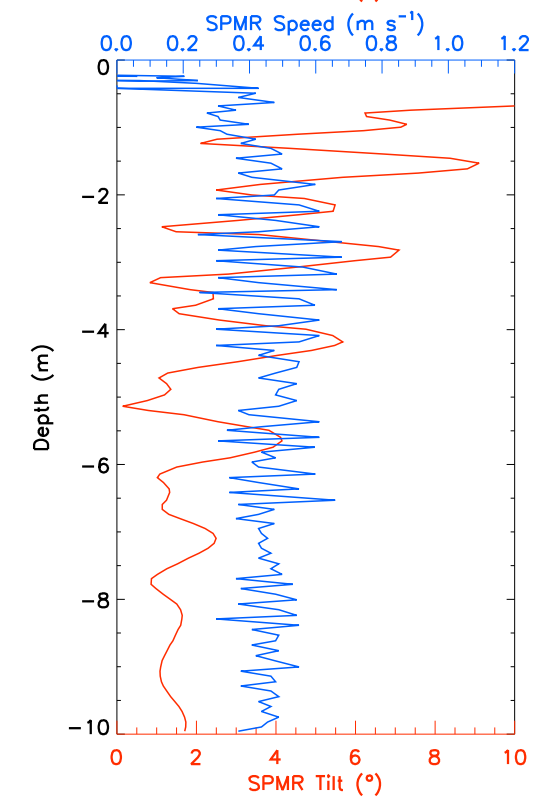
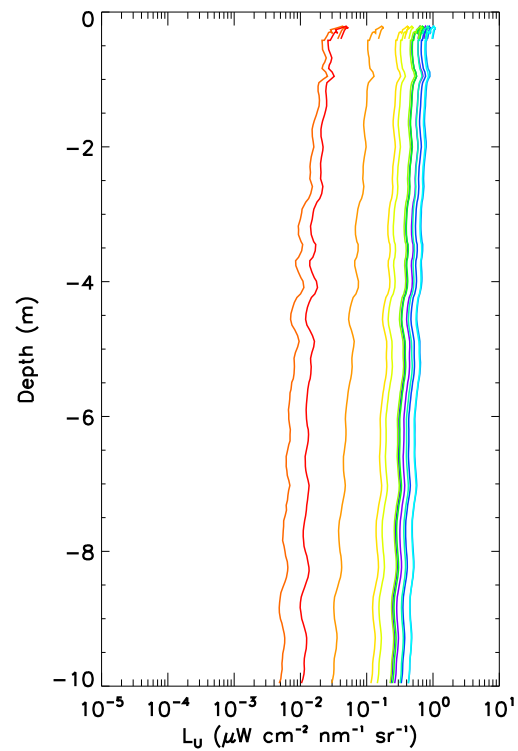
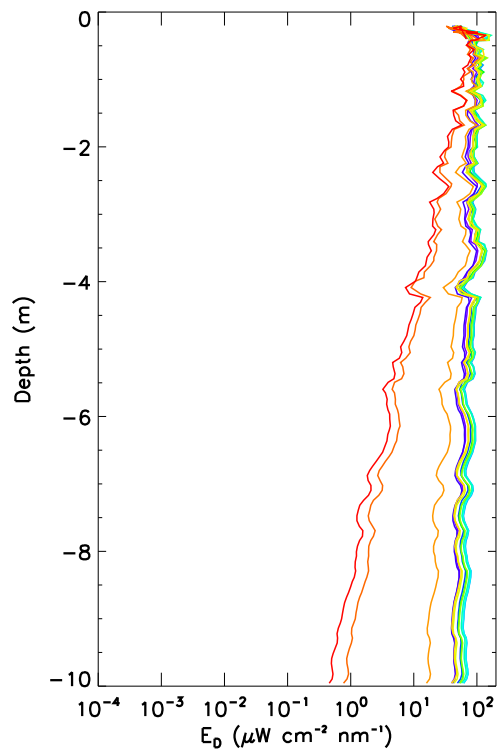
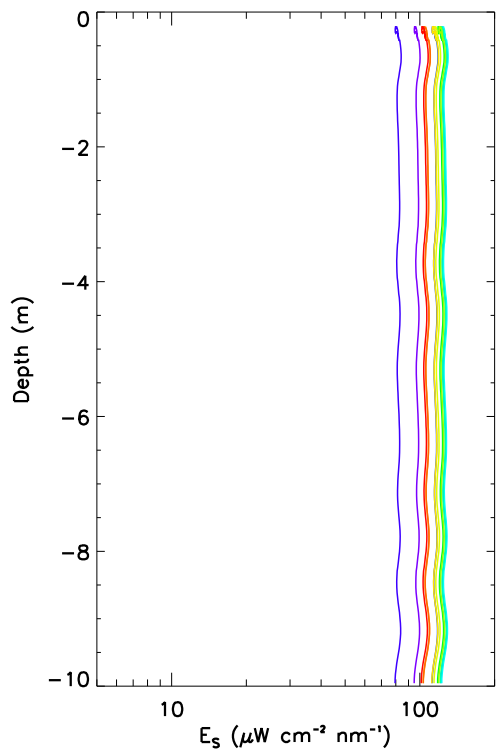
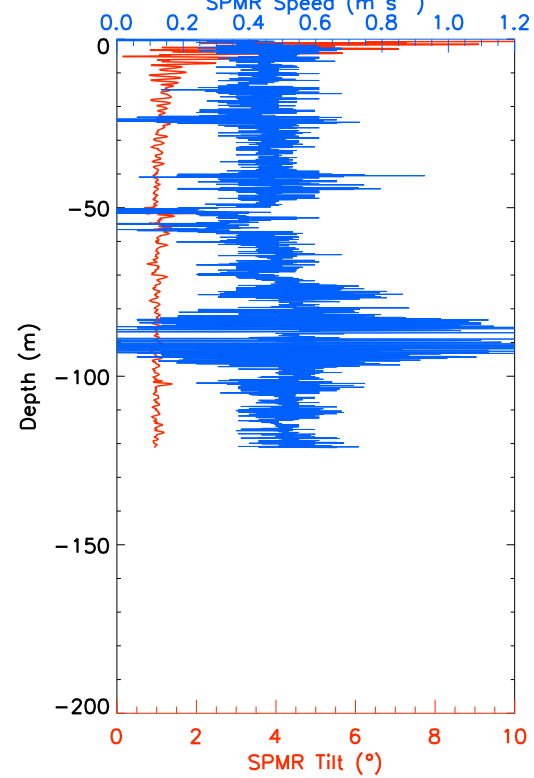
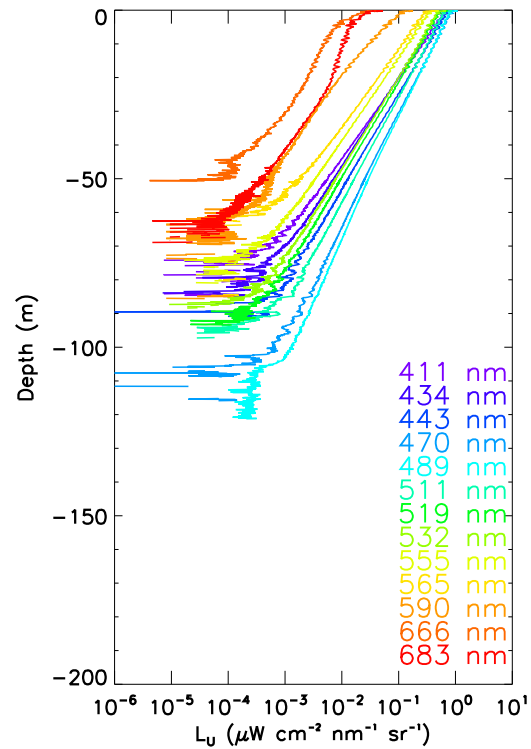
Boussole#95



B95_Bou060310AC



11:27 UTC

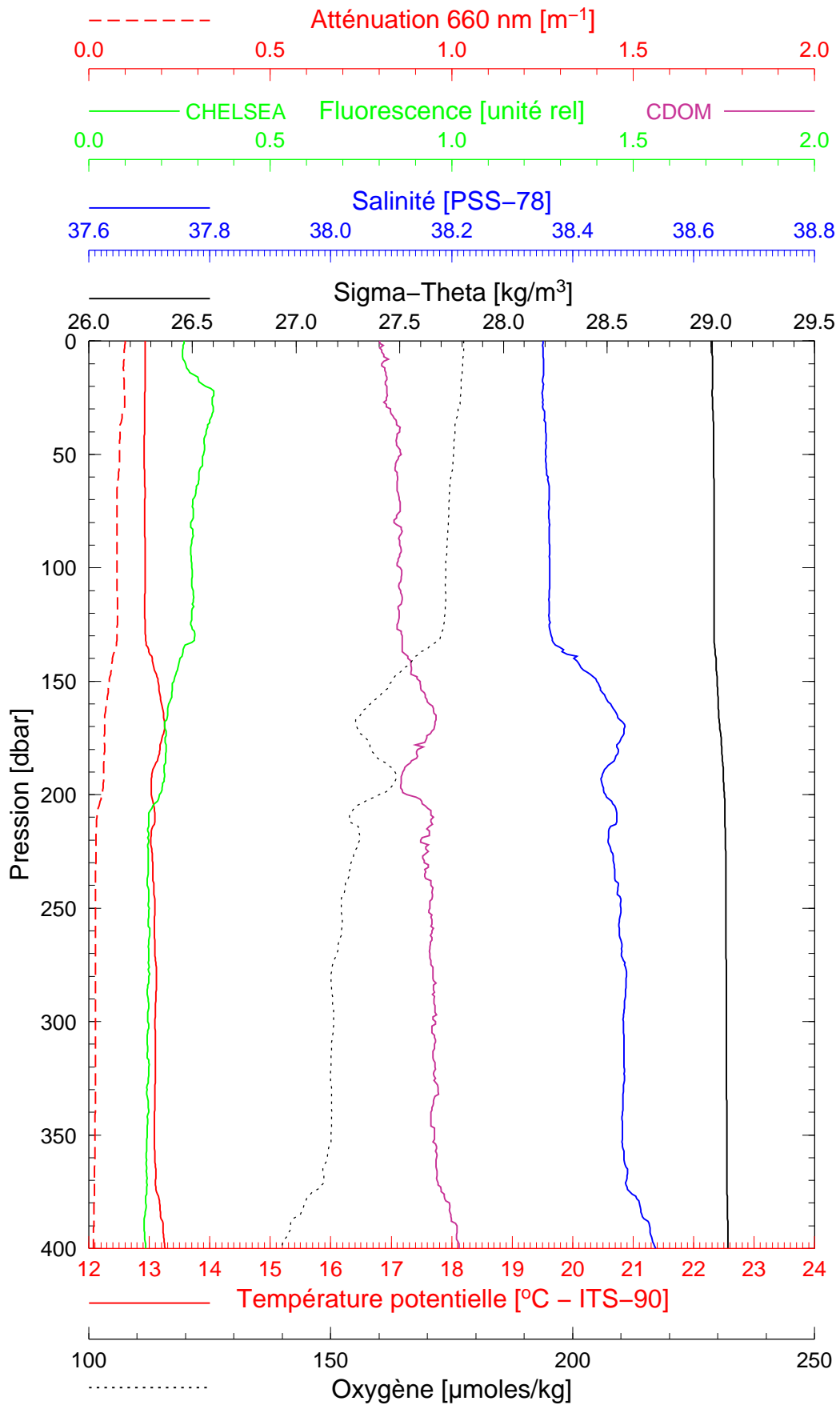


BOUSSOLE 94

06/03/2010

BOUS100306_01

BOUS001



Date 06/03/2010

Latitude 43°22.161

Heure déb 10h 19min [TU]

Longitude 07°54.292