

BOUSSOLE Monthly Cruise Report

Cruise 85

Novembre 13 - 16, 2009

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Vessel: R/V *Téthys II*

(Captains: Alain Stephan)

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Fig 1. Boreal springtime was announced from both the green waters in the Ligurian Sea and migratory birds visiting the *Thetys II*. Here a *Motacilla alba* resting before continuing its northward travel.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

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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 gimbal 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, 60, 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

Data from instruments connected to the buoy OCP at 4m were sending constant values; divers will change the OCP-Dacnet cable to attempt to solve this problem. One of the four days, Céline Bachelier will complete the MOOSE and DYCOMED programs with a deep CTD cast and water sampling. One of the four days, Marc Picheral will be on board to perform a PVM 0-1000 m profile and two Plankton Net 0-100 m profiles at the BOUSSOLE site. One of the four days, two cameramen will be on board for a France3 reporting.

Cruise Summary

Three of the four cruise days were used, due to bad weather on the last day. The first day was mainly used for optical and CTD casts at the BOUSSOLE site and for sampling at the Dyfamed site. The second day was used for cleaning the buoy, and completing the transect. The third day was used for optical, CTD and PVM casts at the BOUSSOLE site and for buoy data retrieval. The manual CIMEL is still not available.

Friday 13 March 2009

This day departure from Nice port was delayed for letting the cue of the bad weather to pass. When arrived at the BOUSSOLE site, weather conditions allowed sampling, though not being optimal (H1/3 1.3 m wind speed 1 kn, covered sky, good visibility). 3 SPMR profiles, 1 CTD cast and 1 Secchi Disk were performed before moving to Dyfamed station for MOOSE/DYCOMED sampling. The oxygen probe of the CTD did not worked properly.

Saturday 14 March 2009

The second cruise day sea state was good with no or very low wind blowing and blue sky. When on site, divers went at sea for cleaning the instruments and changing the cable connecting the OCP 4m to the Dacnet. The connector block of the cable did not fit with the Dacnet connector. The block was changed and the divers went again at sea to complete the intervention. 1 Secchi Disk and 1 CTD with water sampling were performed at the BOUSSOLE site before completing the transect. 2 cameramen from France3 were on board for filming sampling activities for a reportage.

Sunday 15 March 2009

This day sea state and wind were similar to the previous day but sky was variable, being overcast in the morning. When arrived on BOUSSOLE site, 1 CTD and 1 Secchi disk were performed and 2 plankton net samples were collected. Then a CISCO connection with the buoy was established and data retrieved. 1 SPMR profile was performed but cloud coverage was not stable enough and the measurements interrupted. So 1 PVM cast was realized but data collection failed. When sky conditions were stable 3 others SPMR profiles were collected. Then 1 other Secchi Disk, 1 PVM test at surface, 1 PVM profile and 1 CTD cast were performed.

Monday 16 March 2009

The last cruise day was cancelled because of bad weather.

Cruise Report

Friday 13 March 2009 (UTC)

People on board: Céline Bachelier, Emilie Diamond and Vincenzo Vellucci.

0800 Departure from the Nice port.
1115 Arrival at the BOUSSOLE site.
1130 CTD 01, 400 m with water sampling at 200, 150, 80, 70, 60, 50, 40, 30, 20, 10 and 5 m for HPLC, Ap and CDOM and TSM.
1240 SPMR 01, 02, 03.
1335 Secchi Disk 01 (10 m).
1355 CTD MOOSE, 2000 m.
1535 Departure from BOUSSOLE site.
1815 Arrival at the Nice port.

Saturday 14 March 2009

People on board: Céline Bachelier, Laurent Coppola, Vincenzo Vellucci, 3 divers and 2 cameramen.

0550 Departure from the Nice port.
0910 Arrival at the BOUSSOLE site.
0920 Diving on the buoy. Instruments cleaned. The connector block of the OCP 4m cable doesn't fit on the Dacnet.
1015 The connector block is modified and divers go again at sea for placing the cable.
1020 Secchi Disk 02 (10.5 m).
1055 CTD 02, 400 m with water sampling at 200, 150, 80, 70, 60, 30, 20, 10 and 5 m for HPLC, Ap and TSM.
1130 Departure to the first transect station.
1230 CTD 03, 400 m, station 01 (43°25'N 07°48'E).
1320 CTD 04, 400 m, station 02 (43°28'N 07°42'E).
1410 CTD 05, 400 m, station 03 (43°31'N 07°37'E).
1500 CTD 06, 400 m, station 04 (43°34'N 07°31'E).
1550 CTD 07, 400 m, station 05 (43°37'N 07°25'E).
1630 CTD 08, 400 m, station 06 (43°39'N 07°21'E).
1655 Departure to the Nice port.
1730 Arrival at the Nice port.

Sunday 15 March 2009

People on board: Céline Bachelier, Emilie Diamond, Marc Picheral and Vincenzo Vellucci.

0615 Departure from the Nice port.
0930 Arrival at the BOUSSOLE site.

0935 CTD 09, 400 m with water sampling at 200, 150, 80, 70, 60, 40, 30, 20, 10 and 5 m for HPLC, Ap and TSM.
0955 Secchi Disk 03 (8 m).
1000 2 x Plankton net, 0-100 m.
1015 CISCO connection with buoy for data retrieval.
1120 SPMR 04. Series stopped because of unstable cloud cover.
1200 PVM, 0-1000 m. Didn't work.
1240 SPMR 05, 06, 07.
1340 Secchi Disk 04 (8 m).
1345 PVM test, surface.
1355 PVM, 0-1000 m.
1440 CTD 10, 400 m with water sampling at 10 and 5 m for HPLC, Ap.
1515 Departure to the Nice port.
1800 Arrival at the Nice port.

Monday 16 March 2009

Bad weather.

Calculated Swath paths for the MERIS Sensor (ESOV Software)

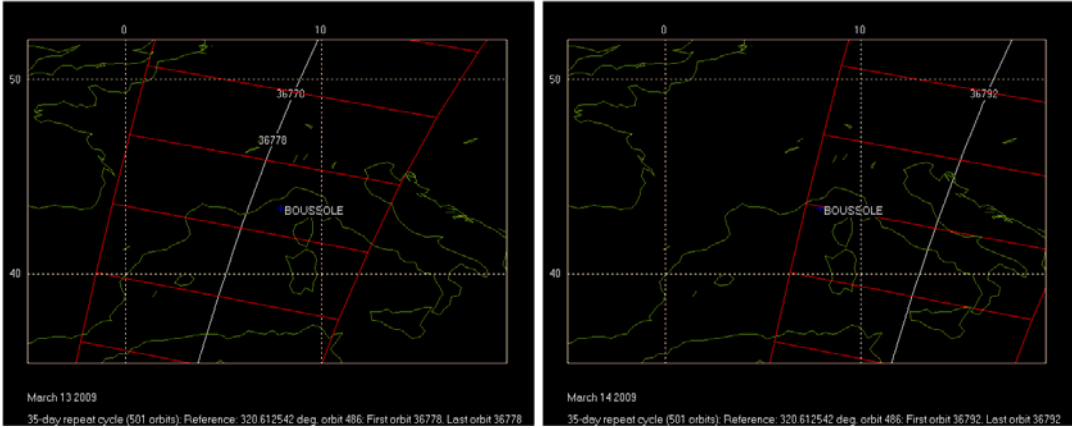


Figure 2. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for March 13 and 14 2009.

Appendix

