

BOUSSOLE Monthly Cruise Report

Cruise 103

October 18 – 20, 2010 (initially planned on Oct. 10 – 13)

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

Vessel: R/V Téthys II

(Captain: Rémy Lafond)

Science Personnel: Emilie Diamond, Grigor Obolensky, Vincenzo Vellucci.

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Figure 1. Vincenzo Vellucci making adjustments on the Biospherical C-OPS for a better balance of the instrument during the descent phase.

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 about 1 hour of satellite overhead passes of MERIS around solar noon, under optimal conditions: clear blue skies and flat, calm sea surface. From last mission, we restart deploying the SPMR SN 006 and its SMSR reference SN 006. From April 2010, we perform optical profiles with a Biospherical's C-OPS (Compact Optical Profiling System) on 0-200 m at the BOUSSOLE site. It will replace the SPMR/SMSR system at short-term. 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 or 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. 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

No additional operations planned.

Cruise Summary

This cruise was initially planned from the 10th to 13th of October, but because of the sea state (H1/3 between 1.8 to 3m) it was postponed for the week after, between the 18th to 20th October, when the *Téthys II* ship was disposable. The 18th and the 20th, the sea state prevented works on the BOUSSOLE site (H1/3 around 2m), but the first day was nevertheless used for making adjustments on the Biospherical C-OPS into the rade of Villefranche-sur-mer. The 19th, the weather was good but the head mechanic of the *Téthys II* participated to the national strike of this day. Without the full crew, the marime superintendent allowed us to go and retrieval buoy data but forbad any instrumental deployment on board.

From Sunday 10 to Wednesday 13 October 2010

Bad weather prevented departure from the Nice port: cruise postponed.

Monday 18 October 2010

The first day, the sky was blue but the sea state prevented works on the BOUSSOLE site (H1/3 around 2m). This day was nevertheless used for making adjustments on the Biospherical C-OPS into the bay of Villefranche-sur-mer for a better balance of the instrument during the descent phase of profiles.

Tuesday 19 October 2010

The second day, the sea state was slight and the sky was blue with a moderate breeze. The head mechanic of the *Téthys II* participated to the national strike so the marine superintendent just allowed us to go to BOUSSOLE site to retrieval buoy data. When on site, surface water was collected with a bucket and a CISCO connection was established for data retrieval. Then, 1 Secchi disk and 2 sets of CIMEL measurements were performed. During the CIMEL measurements, the sky conditions were stable with a blue sky but some cirrus around the sun.



Figure 2. Sky conditions during CIMEL measurements.

Wednesday 20 October 2010

Bad weather prevented departure from the Nice port.

Cruise Report

From Sunday 10 to Wednesday 13 October 2010

Bad weather prevented departure from the Nice port.

Monday 18 October 2010 (UTC)

People on board: Emilie Diamond, Grigor Obolensky and Vincenzo Vellucci.

- 1105 Departure from the Nice port.
- 1120 Arrival near the Point B site (bay of Villefranche-sur-mer).
- 1120 C-OPS tests.
- 1430 Departure to the Nice port.
- 1450 Arrival at the Nice port.

Tuesday 19 October 2010 (UTC)

People on board: Emilie Diamond.

- 0840 Departure from the Nice port.
- 1150 Arrival at the BOUSSOLE site.
- 1200 Water sampling with bucket at surface for HPLC, Ap and TSM.
- 1215 CISCO connection with buoy and data retrieval.
- 1245 Secchi disk 01 (21 m).
- 1250 CIMEL 01, 02.
- 1320 Departure to the Nice port.
- 1635 Arrival at the Nice port.

Wednesday 13 October 2010

Bad weather prevented departure from the Nice port.

Problems identified during the cruise

- Bad weather prevented work at the BOUSSOLE site and along the transect during 6 of the 7 cruise days.
- The only day with a better sea state was a national strike day and a member of the crew was at the demonstration so there were not enough sailors for instruments deployment.

Calculated Swath paths for the MERIS Sensor (ESOV Software)

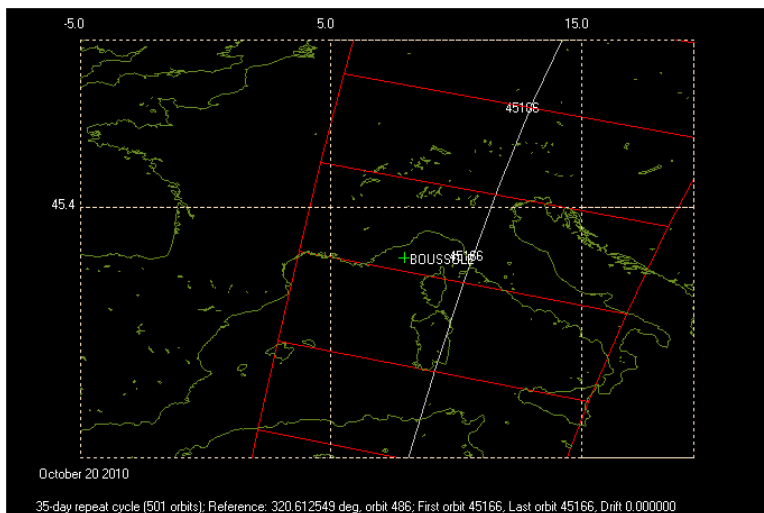
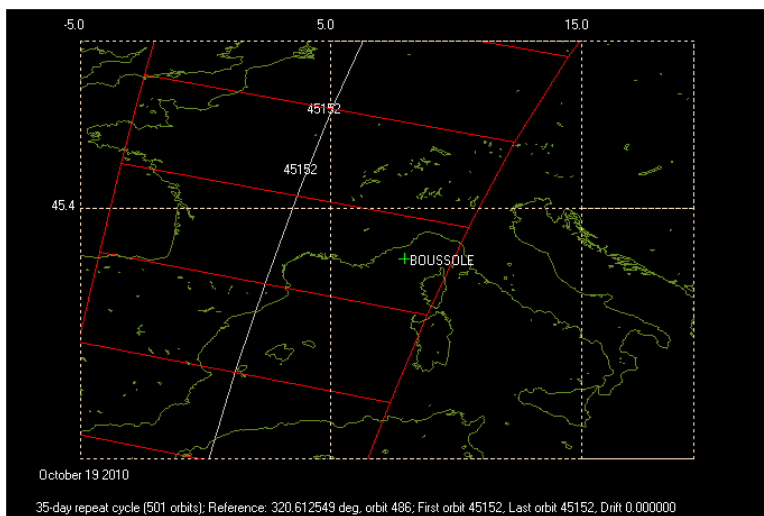


Figure 3. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for 19th and 20th October 2010.

Appendix

