# FUMSECK cruise

# **SPASSO** Images Analysis

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Author(s): A. Petrenko, A. Ricout and F. d'Ovidio (on land) S. Barrillon A.Doglioli (on board)

### **Executive Summary**

To avoid the storm as much as possible, the original plan (see Ongoing section) has been modified. The bead experiment, originally scheduled for today, is now scheduled for Monday May 6, at P=S.

A day of preparation of the bead experiment has been added instead of the original Sunday plan. At first scheduled close to Capo Melo, then to Ventimiglia/Vintimille; it is now shifted to Villefranche Harbor to be more sheltered.

Question for tonight: since transect N-O has not been done, would it be better to complement the omega-equation domain to calculate vertical velocity by covering that south-west area rather than doing the P=S, G=Q and D=H=R triangle? See predictions below...

Fingers crossed for tomorrow experiment.



Figure: predicted wave heights top 8h am, bottom 8hpm Courtesy of: <u>PREVIMER</u> modelling analysis

### 1 Ongoing operations and upcoming stations

Plans of yesterday, today and tomorrow have been changed because of the meteorological conditions.

Yesterday, they did a station at K, then a second one at P, then did the MVP until station N, and then continued to the coast. At the coast, they brought the MVP back onboard and followed the coast in zigzag through the Northern Current hoping to take shelter in Ventimiglia/Vintimille until Sunday evening.

Finally, instead of staying in Ventimiglia/Vintimille, they have decided to seek shelter in the Villefranche sur Mer Habor. There, they plan to weigh the buoys, to ballast them and to make a general repetition of the bead experiment in real conditions (but without putting the beads and the dye).

The bead experiment, originally scheduled for today, is now scheduled for Monday May 6, at P=S.

They will decide according to the weather what they can do in the night between Sunday and Monday. See question in executive summary. In any case, Monday morning they plan to arrive as early as possible at point P to retrieve the glider and proceed with the bead experiment.

### 2 Daily figures analysis

#### 2.1 Altimetry, derived currents and Lagrangian analysis



We observe a general cyclonic circulation in the region of interest.



The area has low energy, apart in the cyclonic loop and, especially, along the Northern Current trajectory.





The OW Near Real Time (NRT) data may have some trouble but is not too bad (not too striated).



Note the bigger zones going north-east.

Reminder: In the Lat\_adv, the red goes North while the green goes south; in the Long\_adv, the green goes east, the blue goes west).

#### 2.2 SST analysis



No more cloud cover... of course with 35 knots winds !!!

#### 2.3 Chlor



Note the change of scale in the Chl data. Before the scale was between 0.1 and 0.4, now it is between 0.1 and 0.25 mg/m3.

#### 2.4 Glider

Glider communication is going fine (see the stars on the zoom figures of FSLE and Chl). Special thanks to Nagib Bhairy who has spent the whole day yesterday following its behavior since communication mails were down.

The glider recovery is scheduled for tomorrow before the bead experiment.

#### 2.5 Hull-mounted ADCP

Here are two pictures of ADCP horizontal currents along the track of the Téthys II during May 2nd, the first one at 19m depth and the second one 8m below, at 27m depth.



#### 2.6 MVP

Here are figures of the first MVP transect (two figures: the transect route on Chl and the vertical transect) and the following two (for each, two figures: the transect route on SST and the vertical transect). Some salinity corrections need to be done. The blue dot is the start, the red one the final point.











#### Acknowledgements

The FUMSECK cruise is part of the BIOSWOT program.

The calculated hull-mounted ADCP currents are processed by Celine Heyndrickx, La Seyne sur Mer.

The altimetry data are the AVISO Mediterranean regional product:

http://www.aviso.altimetry.fr/index.php?id=1275.

The derived currents are processed by SPASSO to derive Eulerian and Lagrangian diagnostics of ocean circulation: OkuboWeiss parameter, particle retention time and advection, Lagrangian Coherent Structures. Sea surface temperature (level 3 and 4, 1 km resolution) and chlorophyll concentration (level 3, 1km resolution, MODISAqua and NPPVIIRS sensors combined (after May 27, 2017) into a new product called MULTI) have been provided by CMEMS Copernicus Marine Environment Monitoring Service (http://marine.copernicus.eu). Another SST product (level 4, composite, 1 km resolution) is provided by the Jet Propulsion Laboratory (JPL), Pasadena, CA.

## Useful links:

## FUMSECK is a cruise from the <u>BIOSWOT</u> project

## SPASSO <u>FUMSECK</u> webpages