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COST Action ES1402: Evaluation of Ocean Syntheses

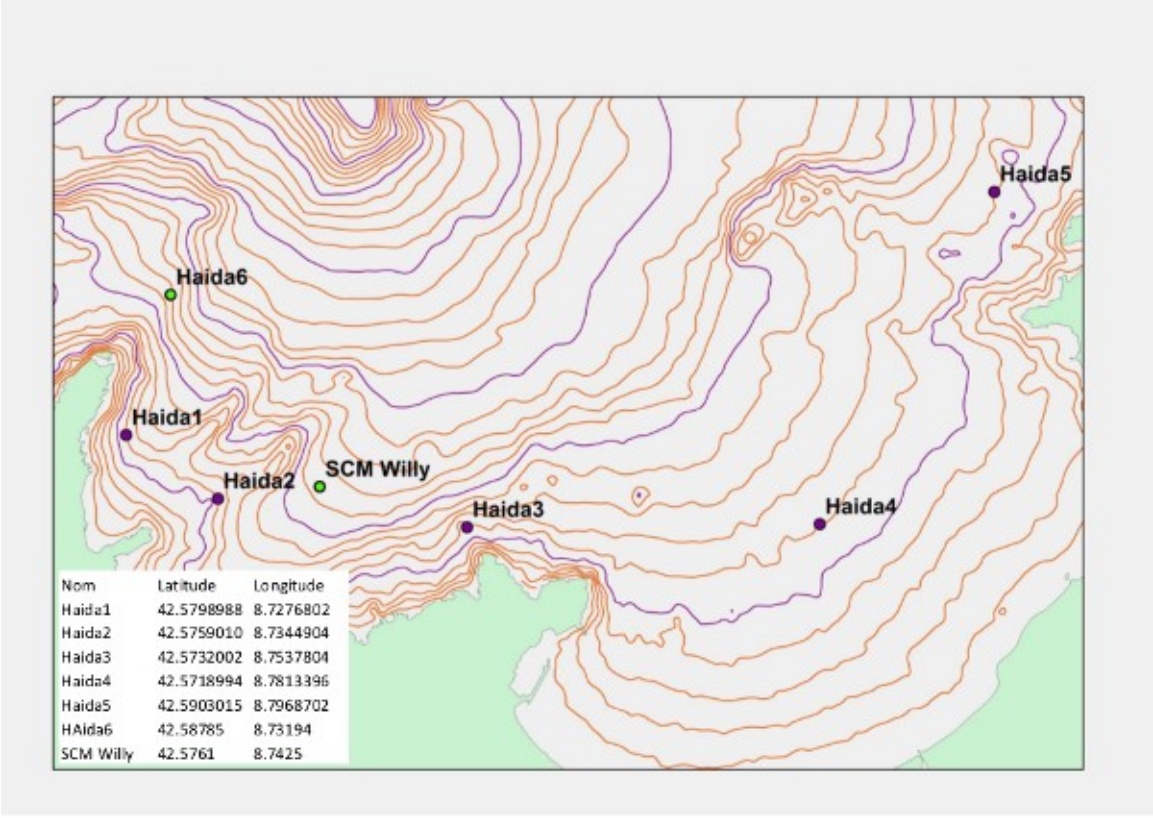
Measurement of ocean currents in the Bay of Calvi (Corsica, France)

Scientific report
20 August 2015

During my stay at STARESO in Corsica (France) a series of currentmeter measurements were collected at the points indicated in Figure 1. The schedule of the stay was as follows:

8 August: arrival at Stareso
9 August: gathering of material and measurement points planing
10 August: 1st day of measurements and data analysis: 30 m isobath. Stormy conditions
11 August: 2nd day of measurements and data analysis: 30 m isobath. Prevalent NE wind
12 August: Data analysis
13 August: 3rd day of measurements and data analysis: 30 m isobath. Calm winds
14 August: 4th day of measurements and data analysis: 30 and 60 m isobaths. Calm winds
15 August: Discussion of future campaign planning. Departure from Stareso

The 30 m and 60 m isobaths were chosen in this campaign in order to assess the spatial and temporal variability of currents at the inner bay. The 30 m points were sampled 4 times during the 1-week stay, and the 60 m points were sampled once during the week. A Seaguard RCM current meter was used.



Nom	Latitude	Longitude
Haida1	42.5798988	8.7276802
Haida2	42.5759010	8.7344904
Haida3	42.5732002	8.7537804
Haida4	42.5718994	8.7813396
Haida5	42.5903015	8.7968702
HAida6	42.58785	8.73194
SCM Willy	42.5761	8.7425

Figure 1: Measurement points realised during the research stay. Purple points are situated at the 60 m isobath and green points are situated at the 30 m isobath

Different meteorological conditions were encountered during the week, allowing to assess the impact of the main wind patterns in the circulation of the bay. The largest current speed were found on the first day of measurements, which were realised after a large storm. Another situation that we were able to sample was the circulation in the inner bay during prevailing NE winds, in which the main circulation appears to be anticlockwise in the eastern part of the basin and clockwise in the western part of the basin. Two examples of the measurements realised during the stay are shown in figure 2.

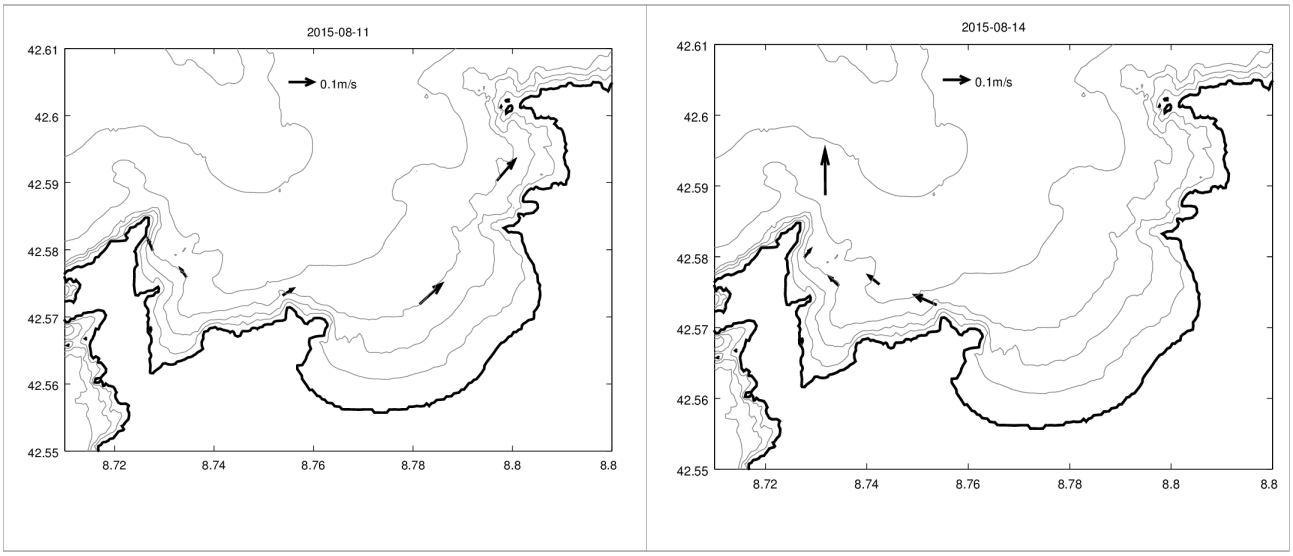


Figure 2. Currents pattern during a NE wind situation (left panel) and currents at the eastern part of the basin, measured at the 30 and 60 m isobaths.

The results obtained has led us to agree to continue the measurement of the currents in the Bay of Calvi in a regular way, once every month. The sampling will be increased to include more measurements at the 60 m isobath. These data will be analysed jointly in order to better understand the distribution of the main currents in the Bay of Calvi, as well as their temporal and spatial variability. These data will be used in the frame of a local model, nested in a regional / Mediterranean Sea model. At least 6 months of measurements will be needed in order to start a model. A combination with other measured variables and remote-sensed ones will be used to force the model. Plans are to use these data for their assimilation in regional models, and for validation purposes. Mediterranean Sea reanalyses will be used for initialisation purposes, and feedback will be provided to these reanalysis producers in WG4 of the EOS-COST Action.