PREBIOSWOT cruise SPASSO Images Analysis

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Executive Summary

This is the second bulletin test before the cruise starts. The beginning of the cruise is scheduled for April 28, 2018.

The structure at 4°E 38.5°N has evolved to small filaments and is disappearing. Following it will allow to monitor the end of the bloom. A combined analysis of all the data suggests a possible coastal water upwelling, advected southward, around 4°E 39°N in the Eastern SWOT track. An anticyclonic eddy is appearing SW associated with a local Chl increase.



1 Ongoing operations and upcoming stations

This is the second bulletin test before the cruise starts. The beginning of the cruise is scheduled for April 28, 2018.

2 Daily figures analysis

2.1 Altimetry, derived currents and Lagrangian analysis



An anticyclonic eddy is appearing SW (0.5°E 37.5°N). Around 4°E 39°N , a southward current is present.



A high velocity structure is located South-East of the SWOT transect.



Both the FSLE and the OW figures show the anticyclonic eddy at $0.5^{\circ}\!\!\!\mathrm{E}$ 37.5 $^{\circ}\!\!\mathrm{N}$.

The Longitude and Latitude advection figures have been modified in order to plot the difference between now and 15 days ago. These figures show both the advection towards N close to the SE local energy maximum and the trapping associated to the SW eddy. A southward advection can be seen around 4°E 39°N associated with the above cited current.

2.2 SST analysis

Around $4^{\circ}E$ 39°N, the SST is slightly lower than the surrounding waters, which could be explained as a possible coastal water upwelling, advected by the above cited current.

2.3 Chlorophyll analysis

The CLS image show a local maximum around 4°E 39°N , compatible with the coastal water upwelling hypothesis. Meanwhile, the structure discussed in the previous bulletin at 4°E 38.5°N has evolved to small filaments and is disappearing in the CMEMS data figure. Following it will allow to monitor the end of the bloom. (Note: the CMEMS data figure is showing more recent data.)

Acknowledgements

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. CLS provided the SST and surface CHL concentration composite products. 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.

PREBIOSWOT project webpages

(à définir)