PREBIOSWOT cruise

SPASSO Images Analysis

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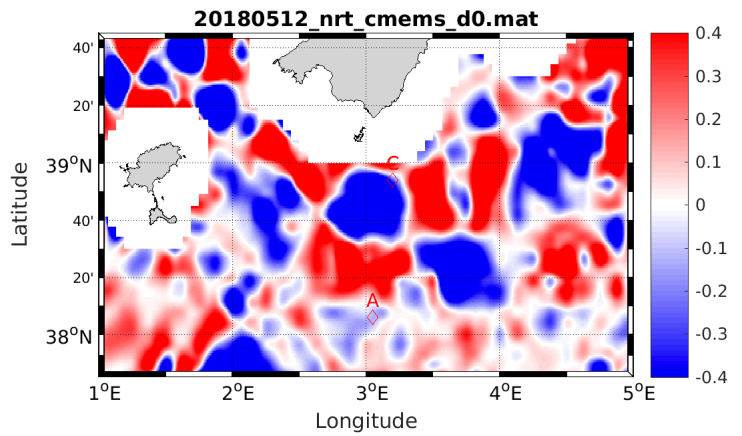
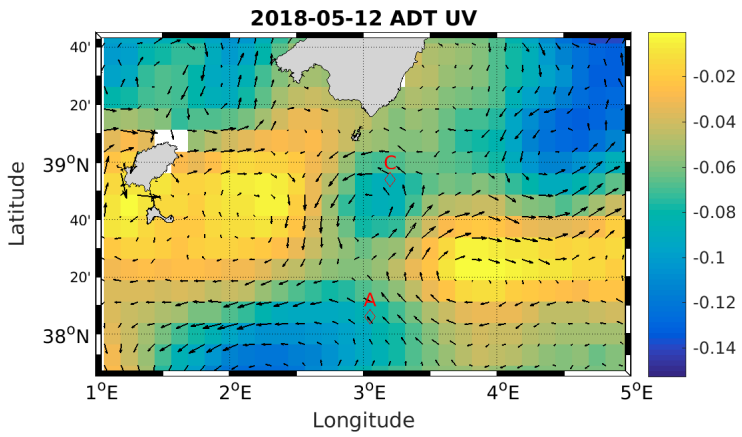
Executive Summary

The lagrangian survey is in the second phase of the hippodrome strategy, now between A and C, planned until sunday. As there no buoys to drive the hippodrome trajectory, the same trajectory is repeated between A and C.
The currents are getting stronger in the AC section, as a cyclonic eddy seems to appear just between north of A and north of C in the AVISO currents, centered around 3.0°E - 38.7°N . Moving C northwest (to 3°E - 39.1°N) would allow to cross it enterirely, but this point seems to be outside of the authorized blue box. The distorted mesoscale structure now centered around 2.15°E - 38.7°N is getting weaker. It has moved slightly northward.
The Lagrangian adaptive strategy is focusing on an oblique NW-SE FSLE that is now almost crossed by the transects between A (3.05°E - 38.1°N) and C (3.2°E - 38.9°N). This FSLE is still moving northward, so that C is now located on the FSLE. We would recommend if possible to move C northward.
The CLS Chl figure is a bit cloudy but seems to show a nice front between A and C, south of the FSLE, with more Chl around C, in agreement with the is situ measurements.





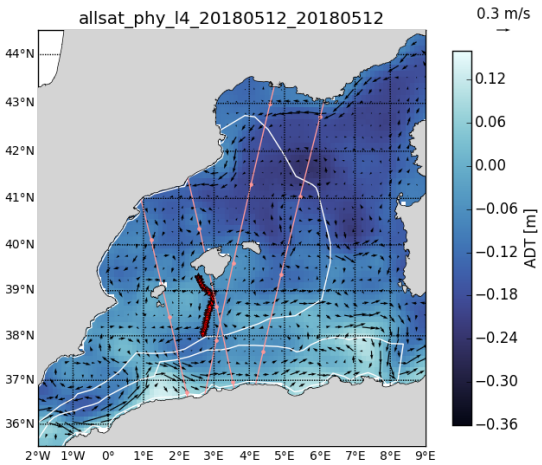
1 Ongoing operations and upcoming stations

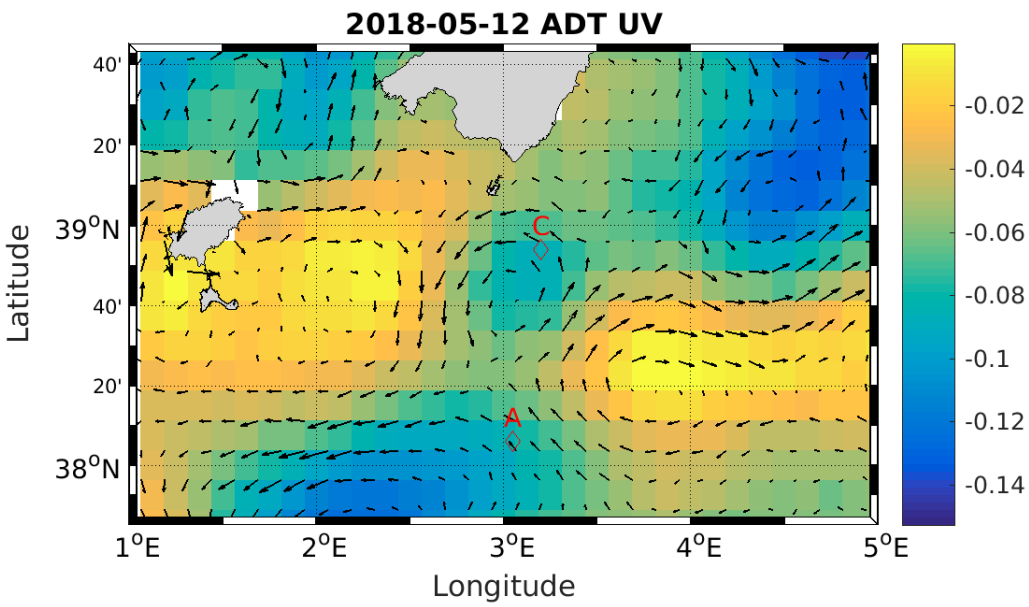
The lagrangian survey is in the second phase of the hippodrome strategy, now between A and C, planned until sunday. The BB will sample the distorted mesoscale structure which is there since April, 27, now centered around 2.15°E - 38.7°N .

The cytometer results show some contrasts in the species distributions for the A-C hippodrome, although less important than the A-B contrasts. As there no buoys to drive the hippodrome trajectory, the same trajectory is repeated between A and C.

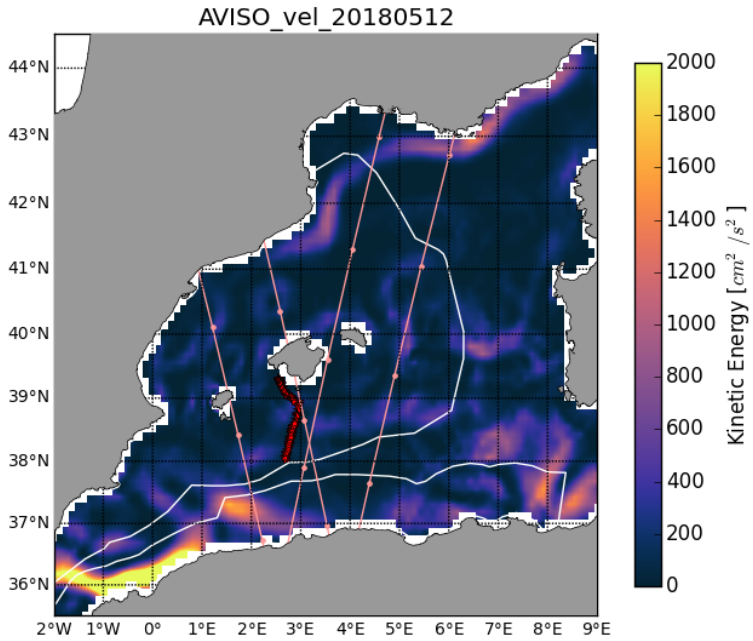
2 Daily figures analysis

2.1 Altimetry, derived currents and Lagrangian analysis

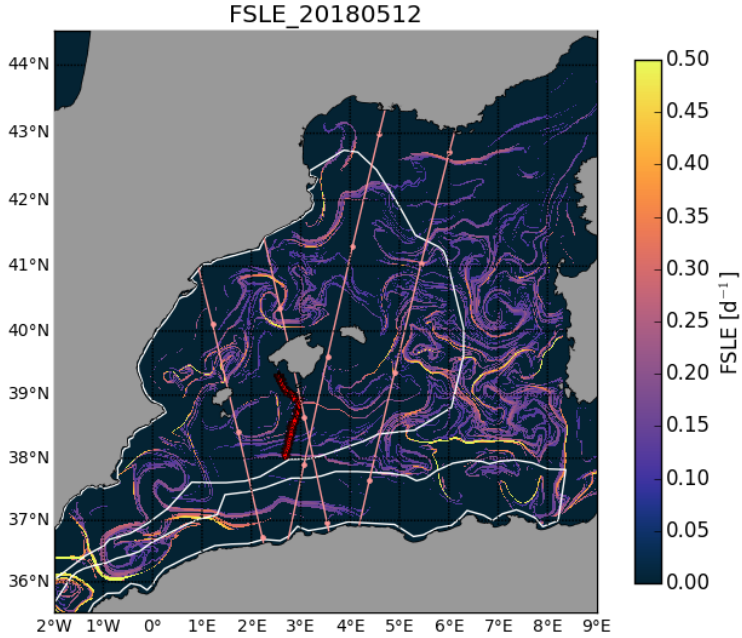


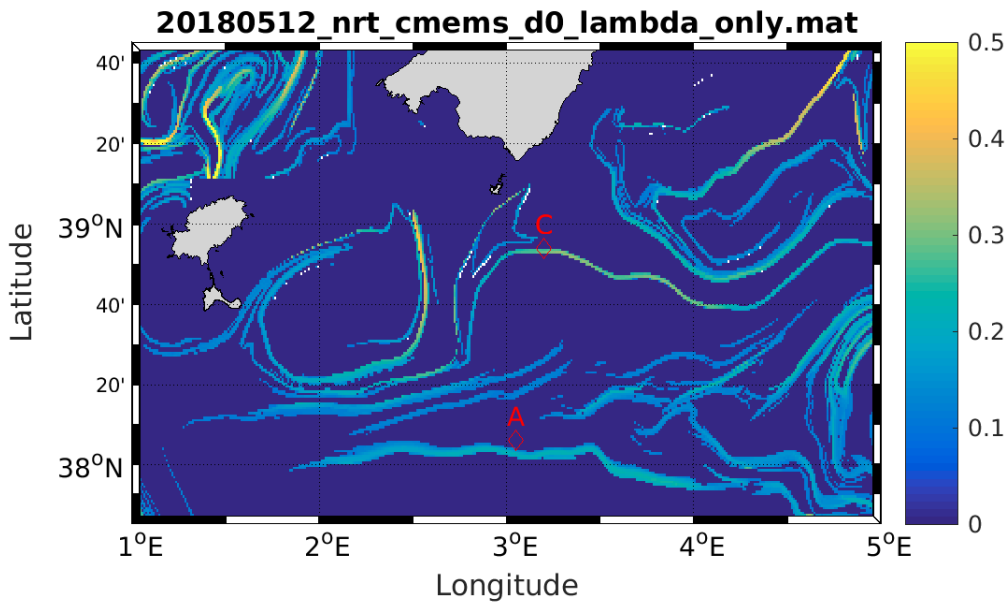


The currents are getting stronger in the AC section, as a cyclonic eddy seems to appear just between north of A and north of C in the AVISO currents, centered around 3.0°E - 38.7°N . Moving C northwest (to 3°E 39.1°N) would allow to cross it enterirely, but this point seems to be outside of the authorized blue box. The mesoscale structure now centered around 2.15°E - 38.7°N is getting weaker. It has moved slightly northward.

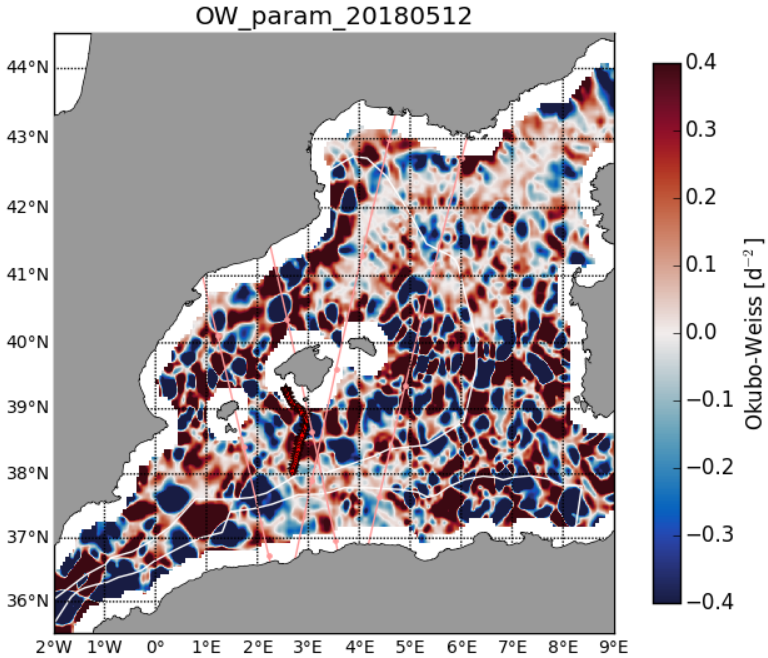


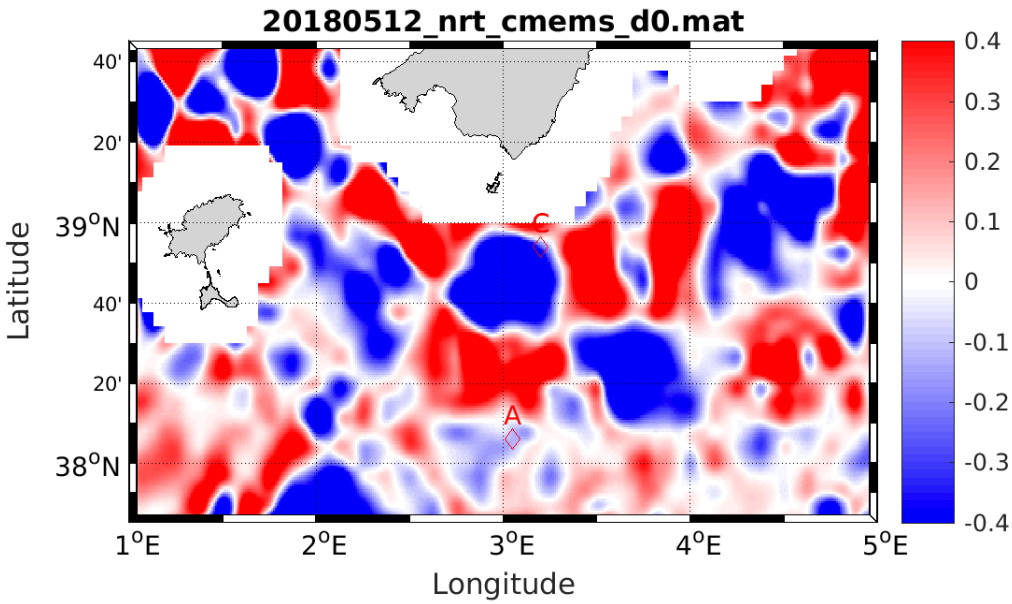
The area has low energy.





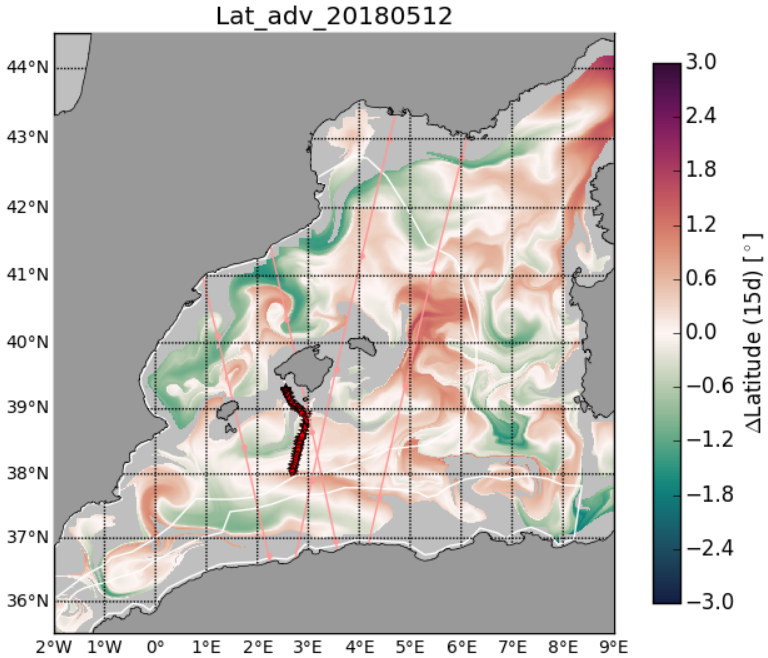
The Lagrangian adaptive strategy is focusing on an oblique NW-SE FSLE that has been crossed by the first transects between point A (about 3.4°E - 38.5°N) and B (about 3.9°E - 38.7°N) and is almost crossed again by the present transects between (new) A (moved southwest to 3.05°E - 38.1°N) and C (about 3.2°E - 38.9°N). This FSLE is still moving northward, so that C is now located on the FSLE. We would recommend if possible to move C northward.

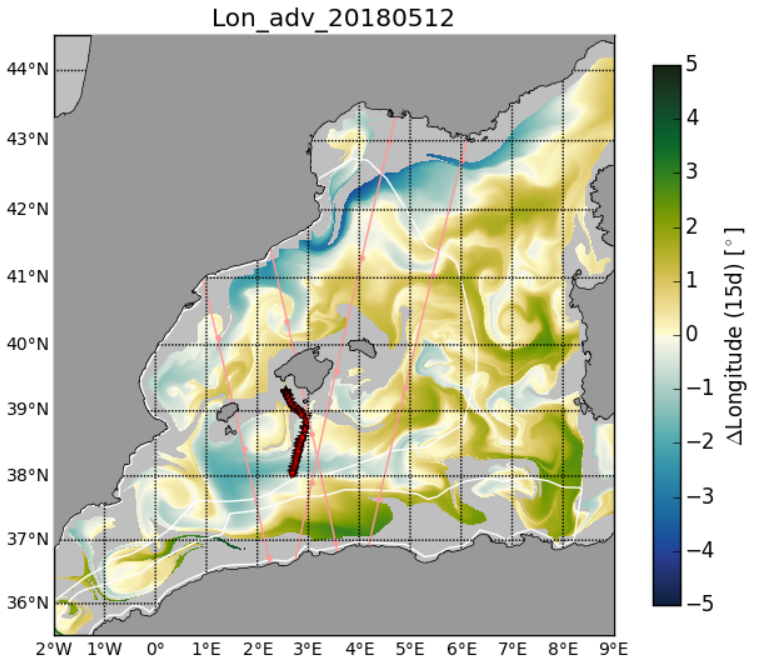




The cyclonic eddy that has formed between A and C, centered around 3.0°E - 38.7°N , is well visible on the OW plot and is stronger than the distorted mesoscale structure now centered at 2.15°E - 38.7°N .

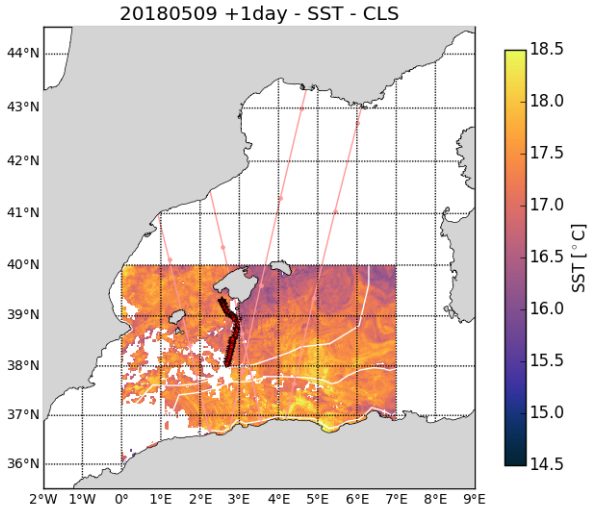
The BB may cross a smaller feature betweeen Ibiza and Majorqua on Monday.

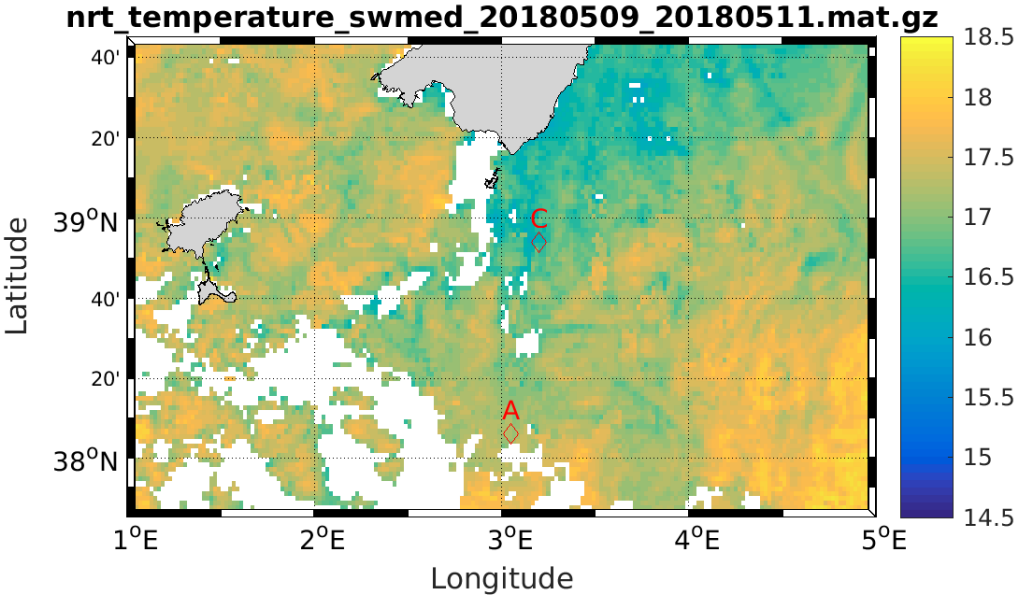


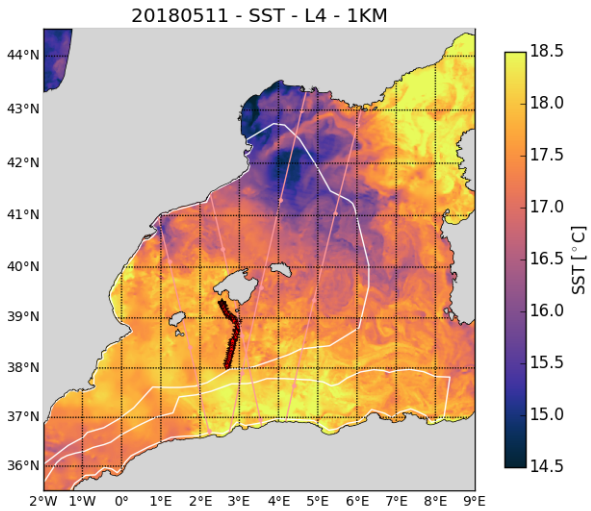


The Lat_adv and Lon_adv images agree with the FSLE structures.
The FSLE structure crossed by the BB transects seems to separate local waters or waters originating slightly from the south-west on its south-west side (around A) and coastal waters on its north-east side (around C).

2.2 SST analysis

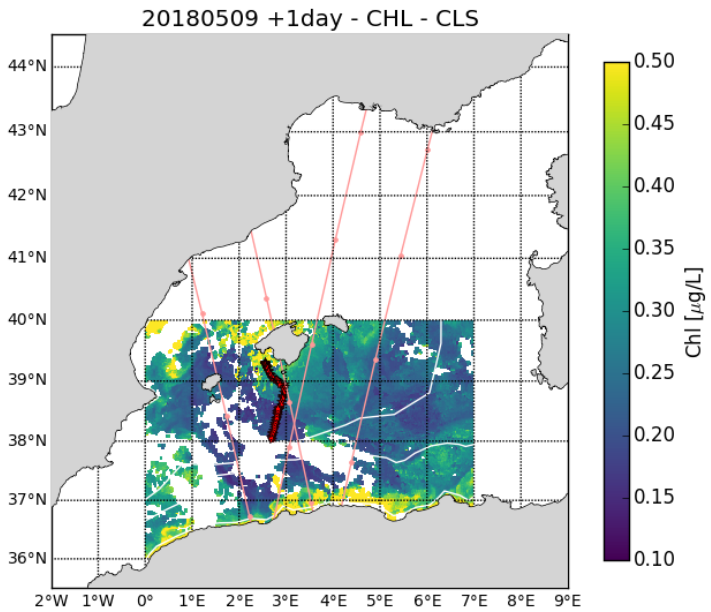


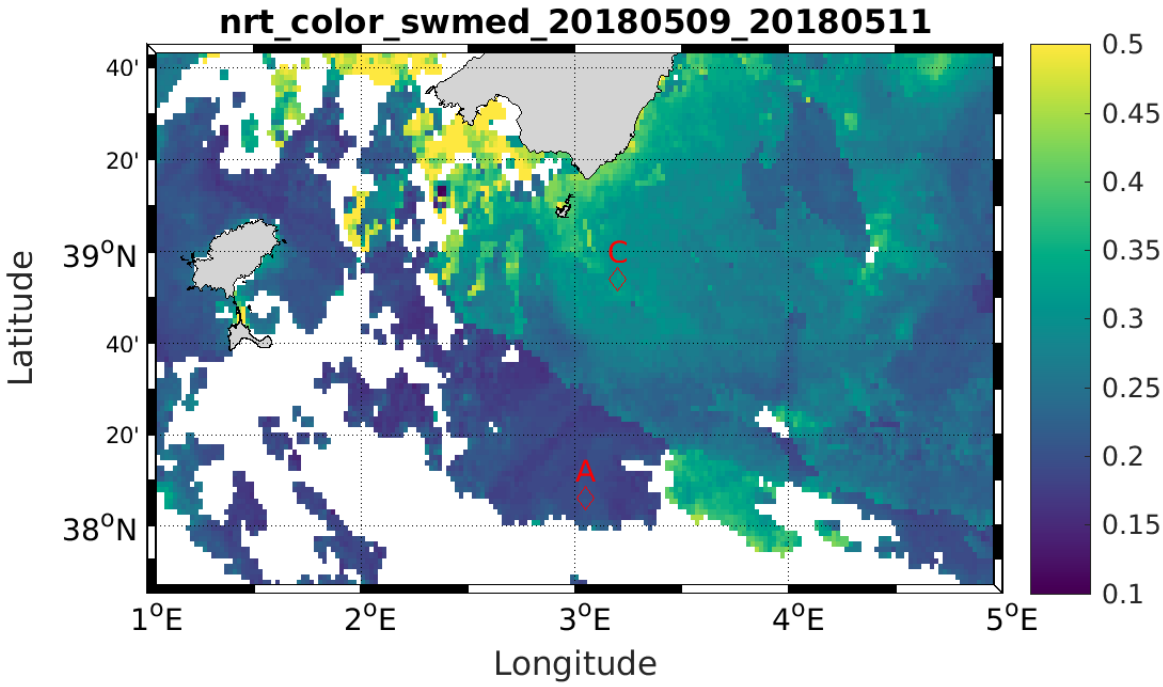




The CLS SST image is a bit cloudy, but it seems that the AC transect is warner in the South.

2.3 Chlorophyll analysis





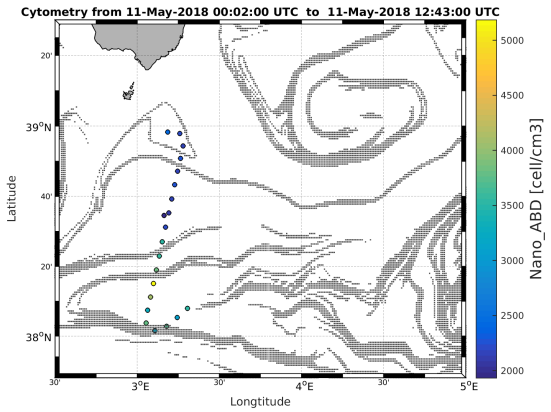
The CLS Chl figure is a bit cloudy but seems to show a nice front between A and C, south of the FSLE, with more Chl around C. The other Chl figures are cloudy.

2.4 Gliders

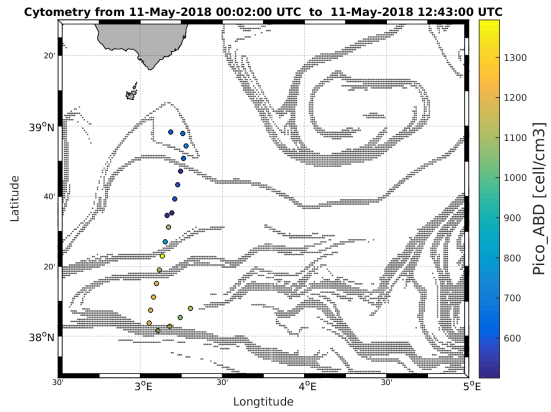
The gliders have turned around. The MIO glider is coming back on the same track and should be retrieved on May 15.

2.5 Online analysis

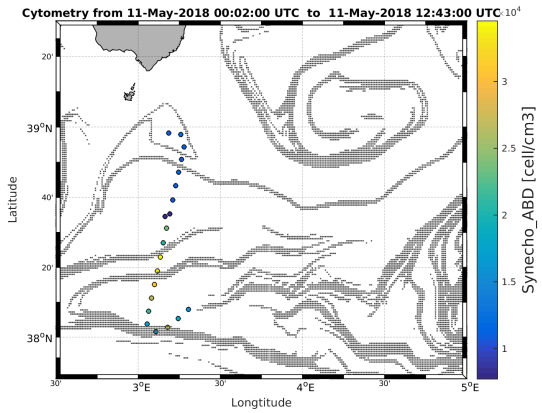
See below updated plots from Andrea and Gerald showing the changes of species distributions for the A-C hippodrome, which seem to correspond to the crossing of the Chl front mentioned above. The last plot show the ADCP currents and the salinity. The salinity also seems to follow the Chl front.



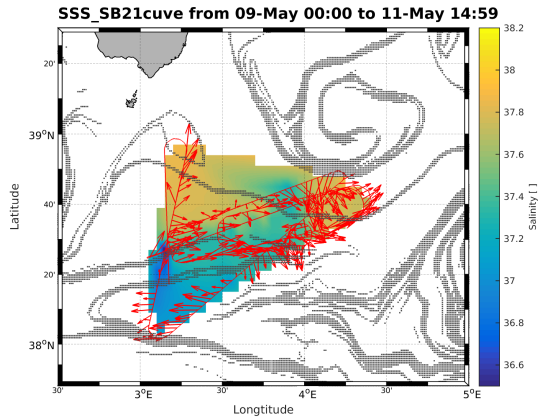
(a)



(b)



(c)



(d)

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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)

SPASSO PREBIOSWOT webpages

http://www.mio.univ-amu.fr/SPASSO/PREBIOSWOT/