

# [BIOSWOT-Med]: SPASSO Images Analysis

L. Rousselet, A.M. Doglioli

March 18, 2023

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## Executive Summary

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## 1 Ongoing operations and upcoming stations

SWOT passing time (UTC) over:

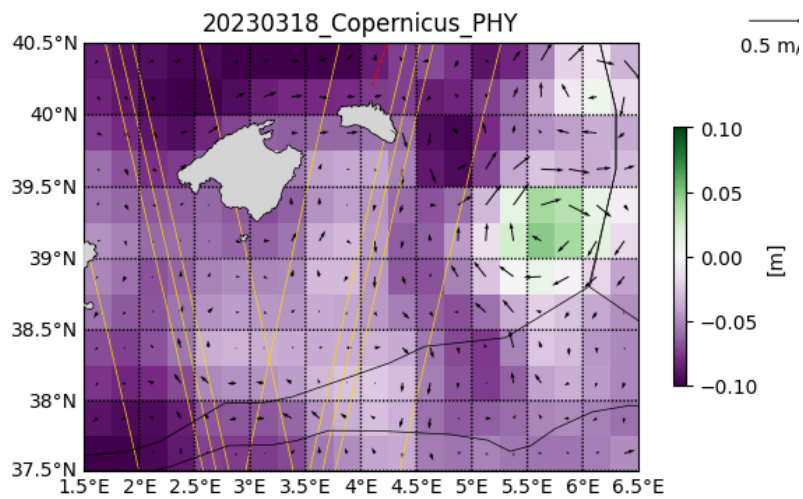
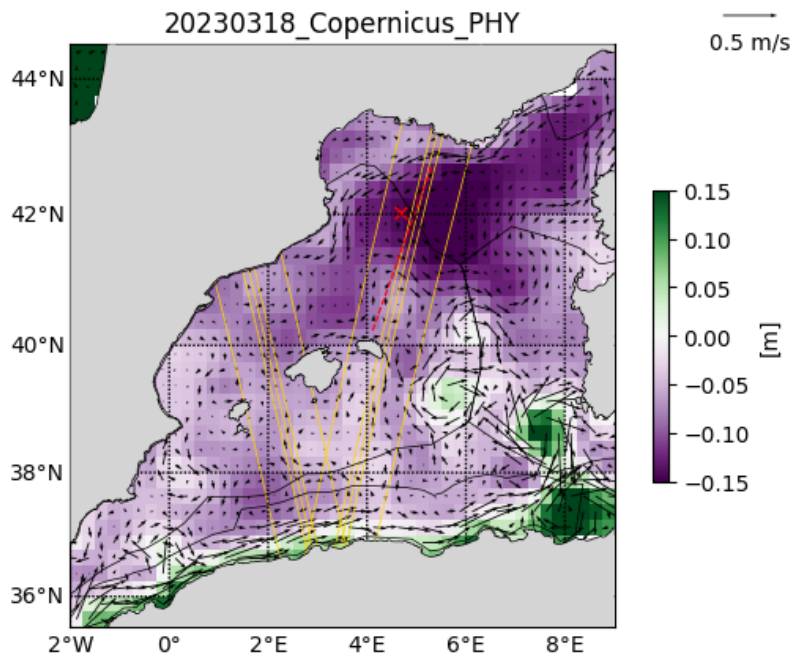
43°N - 5°E Asc   42.7°N - 4.8°E Asc
:----- :-----
2023-03-18 02:05:15   2023-03-18 02:05:15
2023-03-19 01:55:52   2023-03-19 01:55:52
2023-03-20 01:46:30   2023-03-20 01:46:30
2023-03-21 01:37:07   2023-03-21 01:37:07
2023-03-22 01:27:45   2023-03-22 01:27:45

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## 2 Daily figures analysis

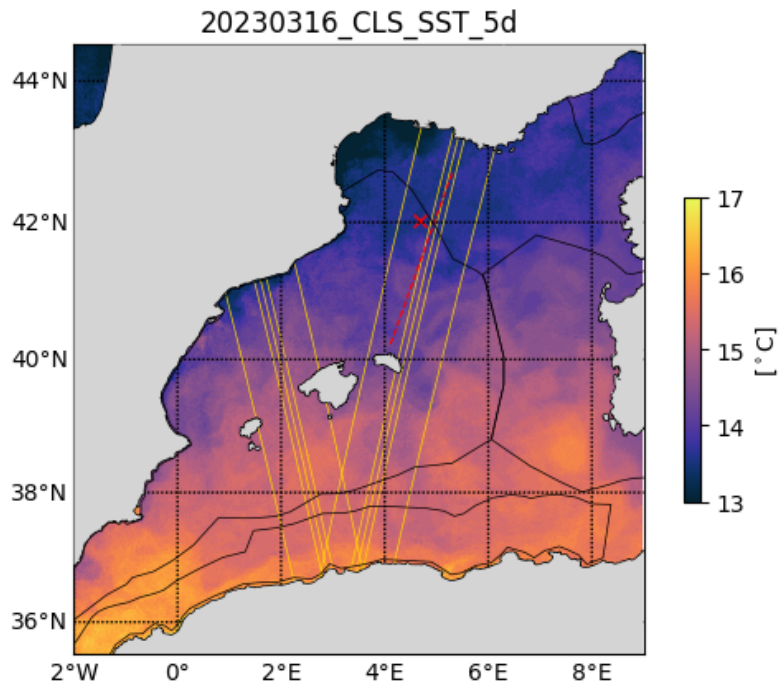
### 2.1 Altimetry, derived currents

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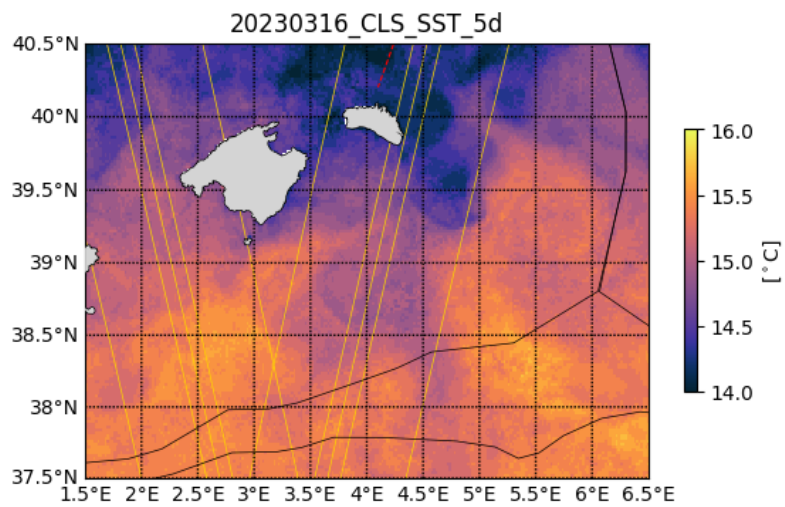
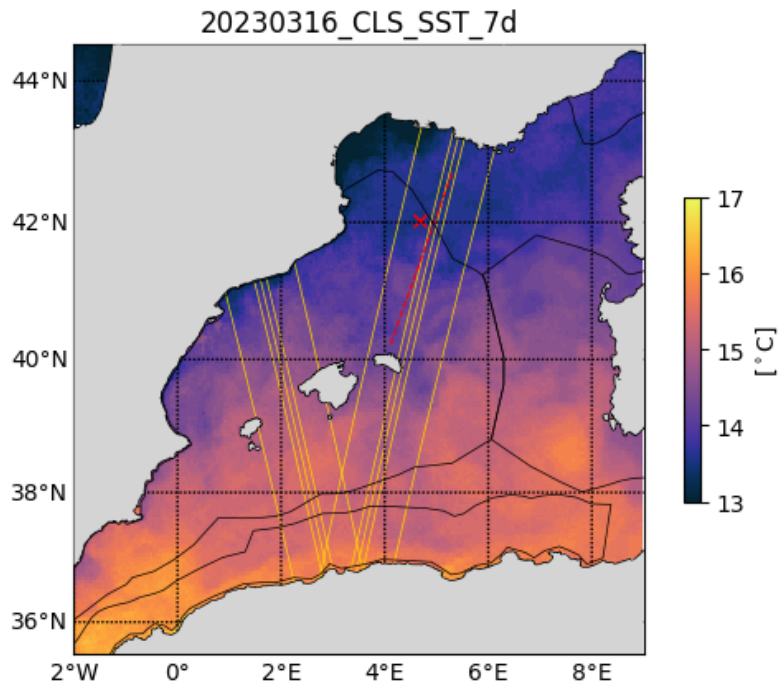
## 2.2 SST analysis

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### 2.3 Chlorophyll analysis

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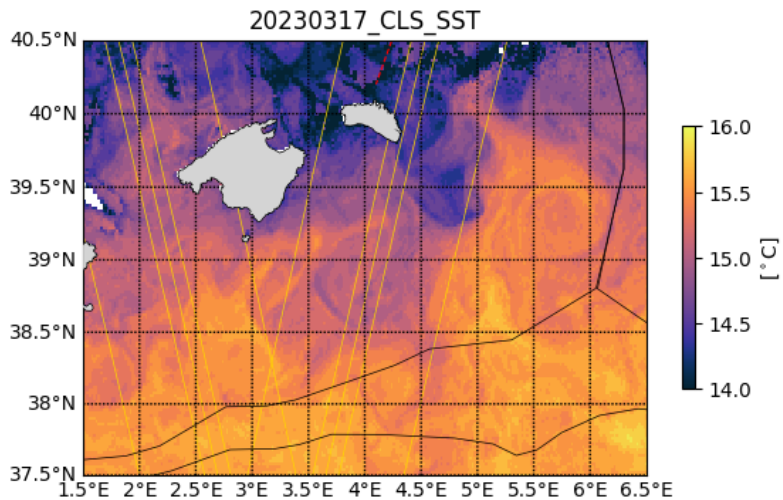
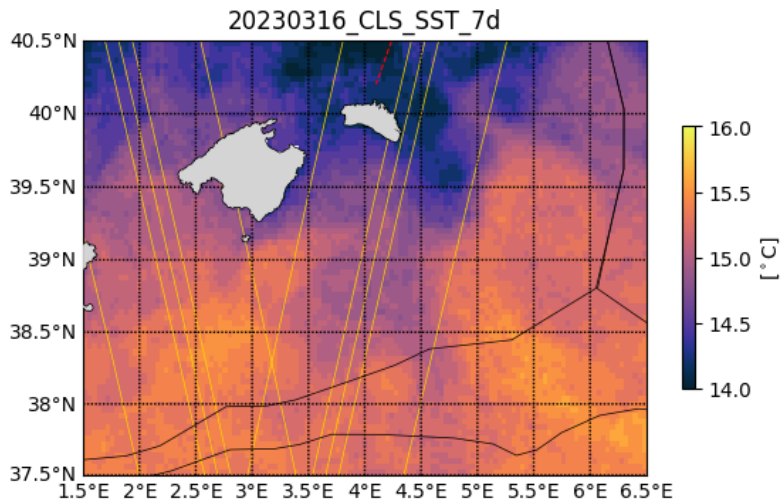


## 2.4 Eulerian/Lagrangian analysis

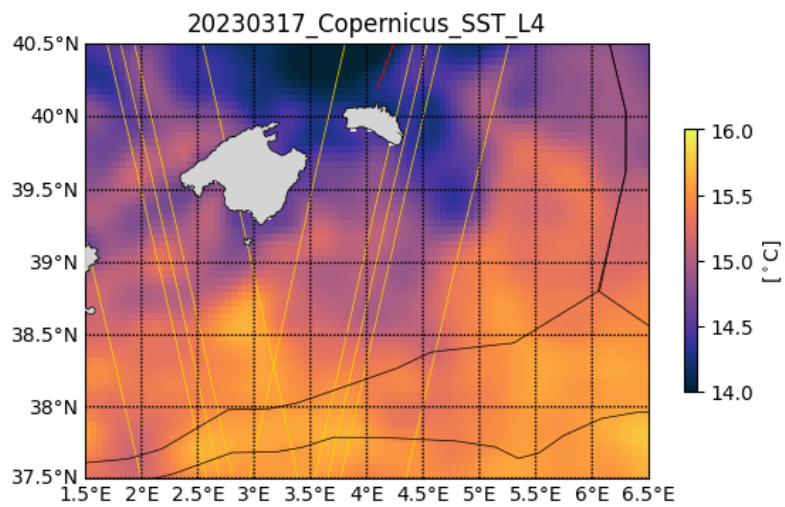
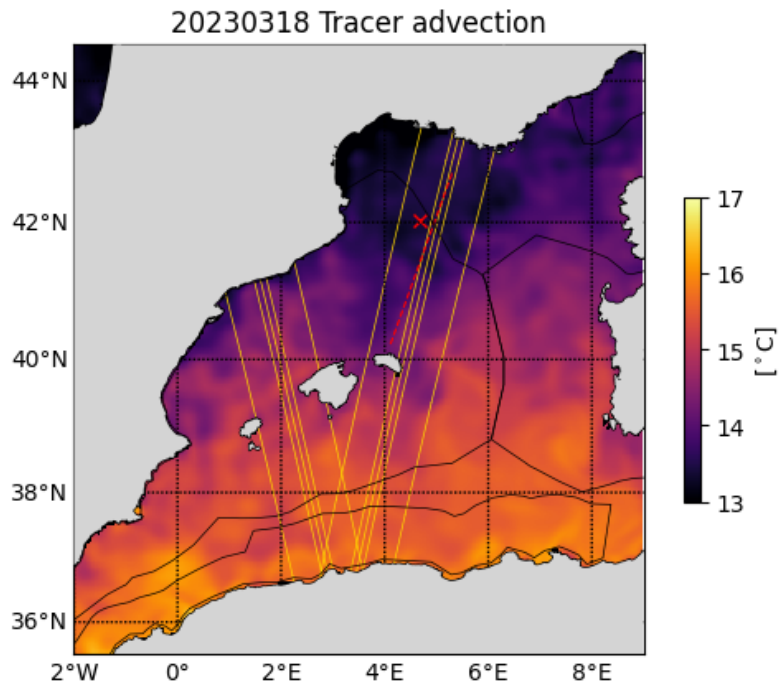
Eulerian diagnostics computed with Copernicus\_PHY velocities:

KE: kinetic energy

OW: Okubo-Weiss parameter



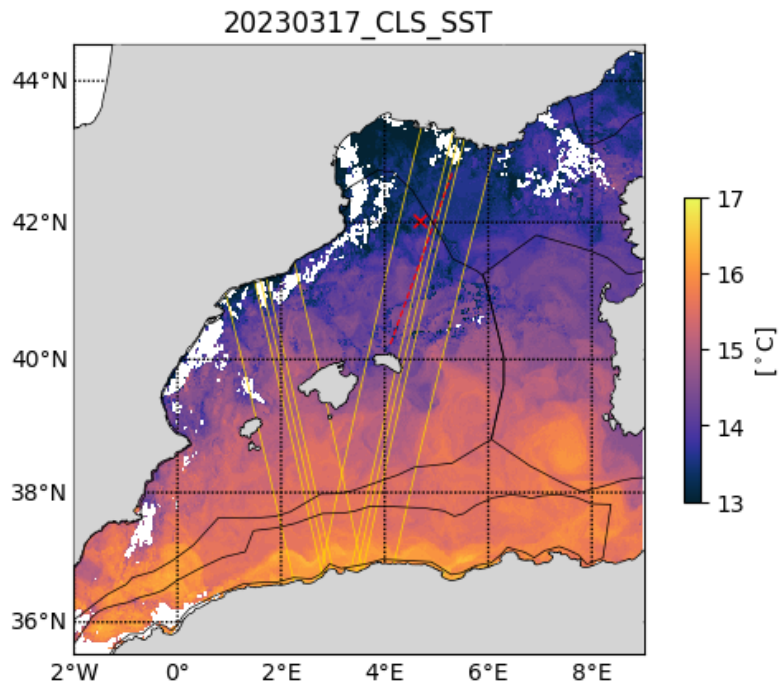
Lagrangian diagnostics computed by seeding Lagrangian particles every 0.02deg and advected for 30 days backward in time with Copernicus\_PHY velocities:  
 FTLE: finite time Lyapunov exponents (convergent fronts detection)  
 LLADV: longitude and latitude advection  
 Retention parameter (based on computing the okubo Weiss parameter along a particle trajectory): Detect trapping structures (colorbar = days water parcels have a positive vorticity)



## 2.5 Other analysis

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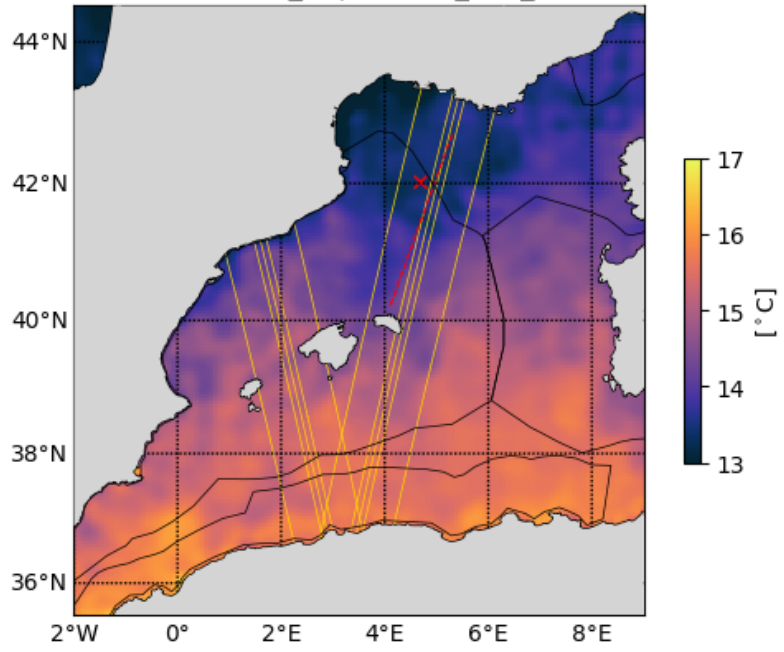
## Acknowledgments



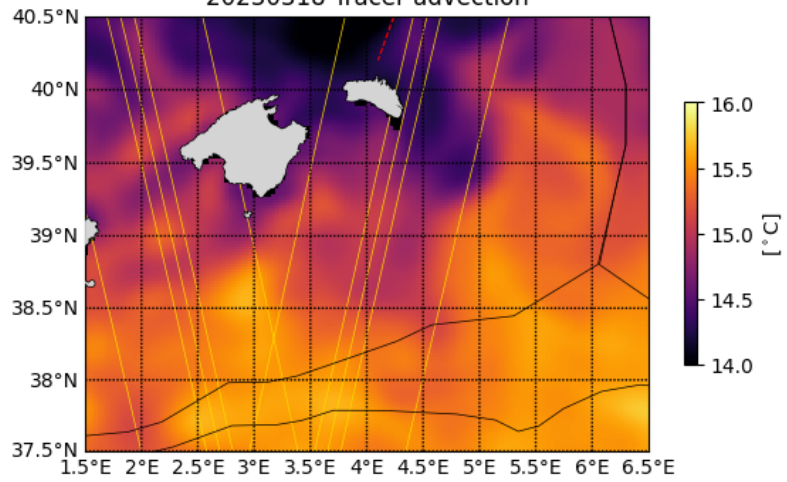
Example:

The altimetry data are the AVISO Mediterranean regional product: <http://www.aviso.altimetry.fr/index.php?ic>  
 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.

20230317\_Copernicus\_SST\_L4

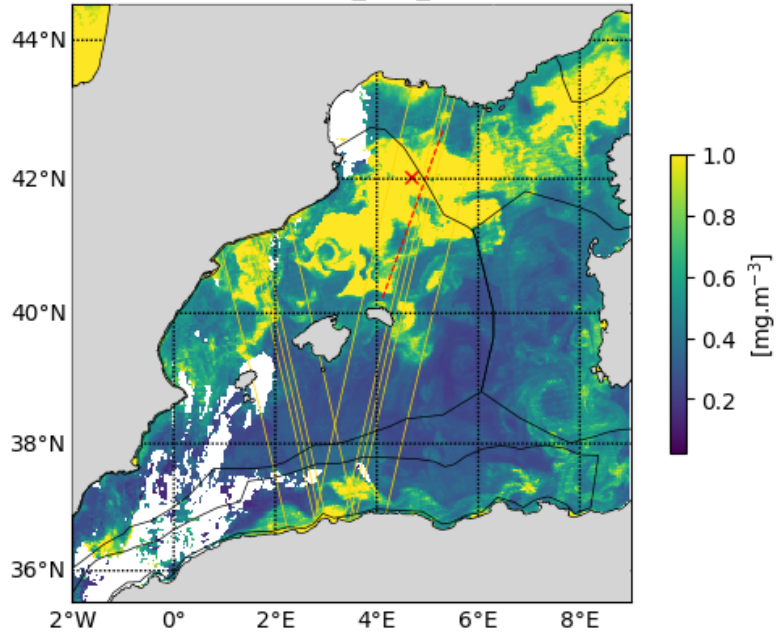


20230318 Tracer advection

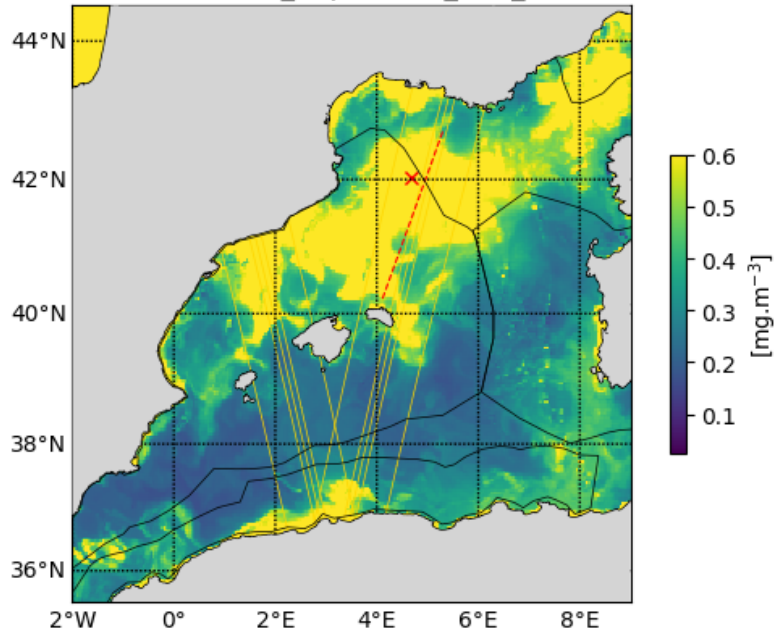


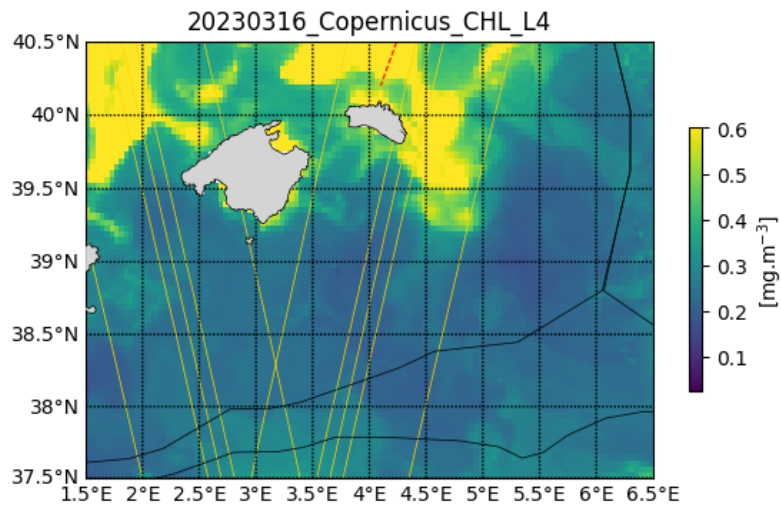
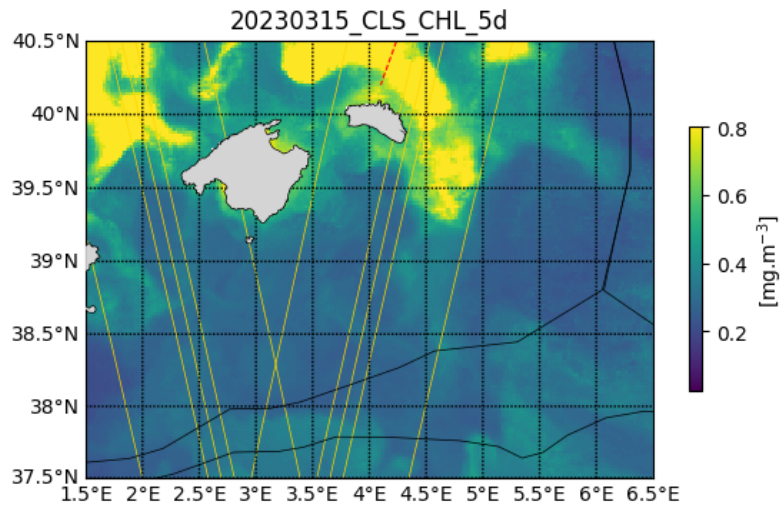


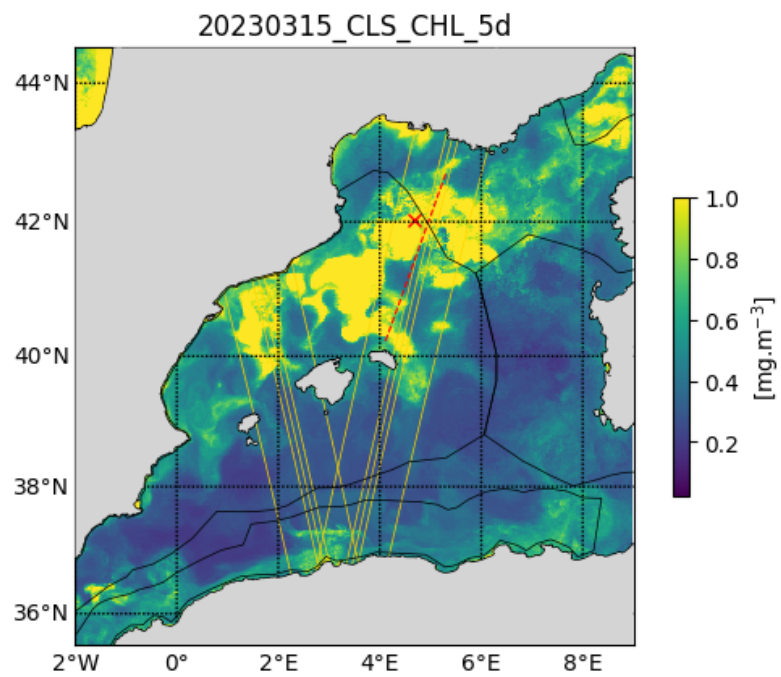
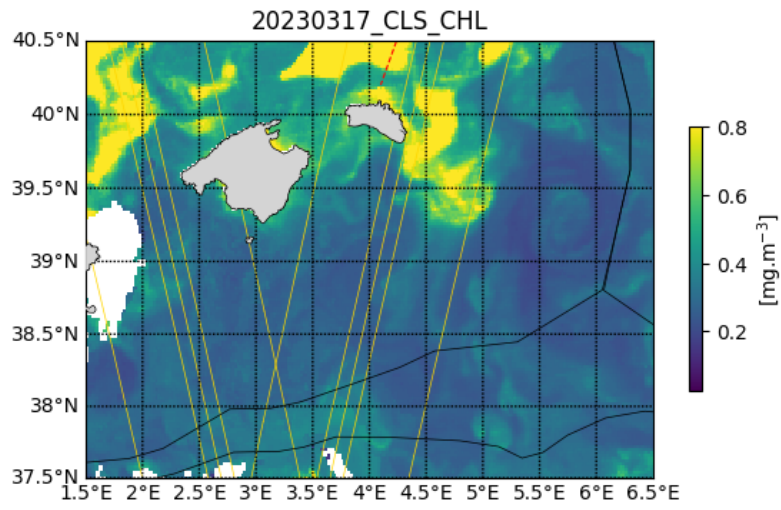
20230317\_CLS\_CHL

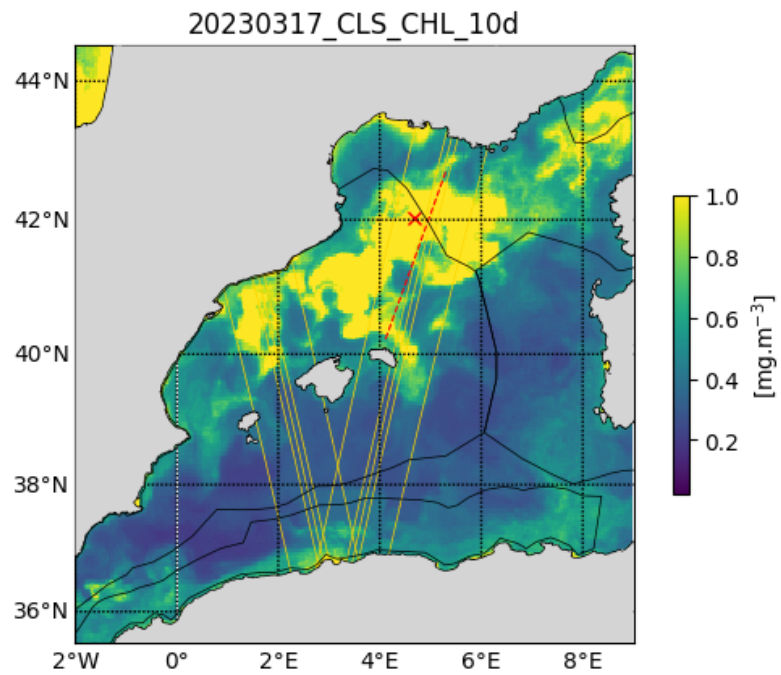
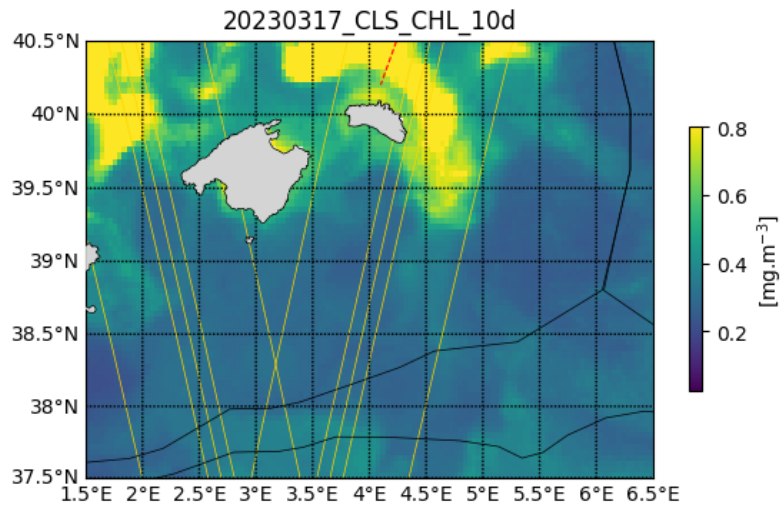


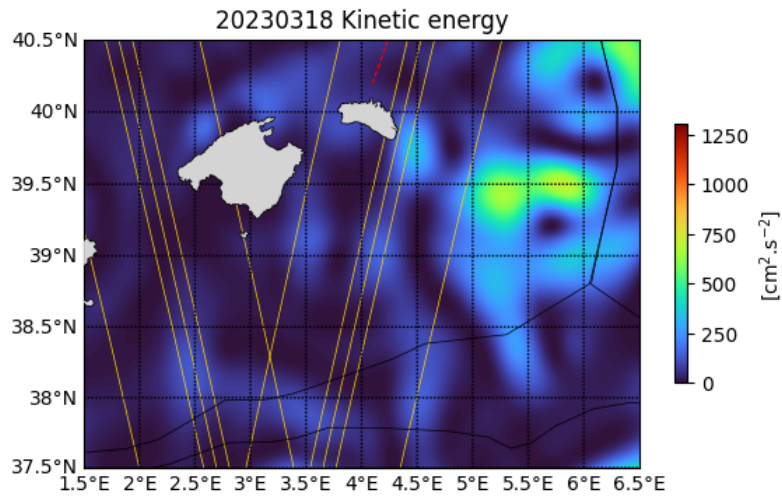
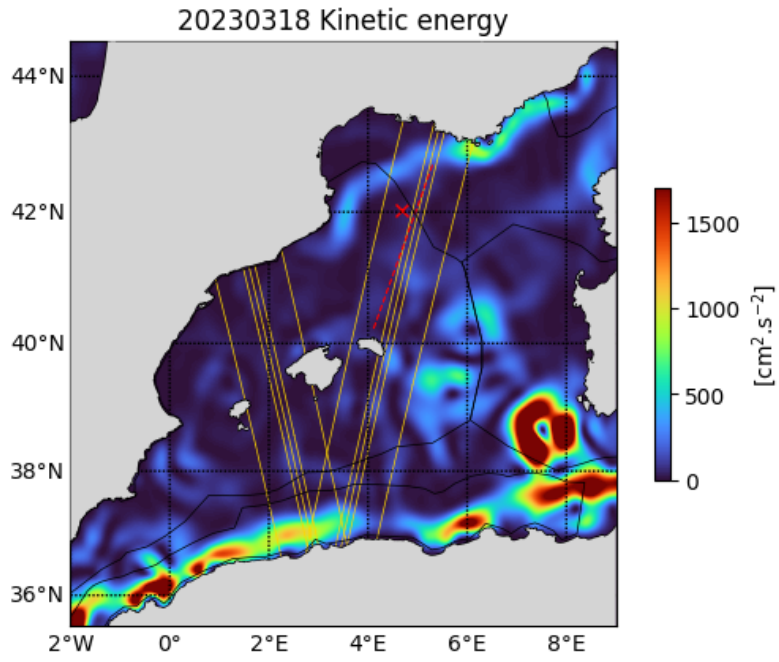
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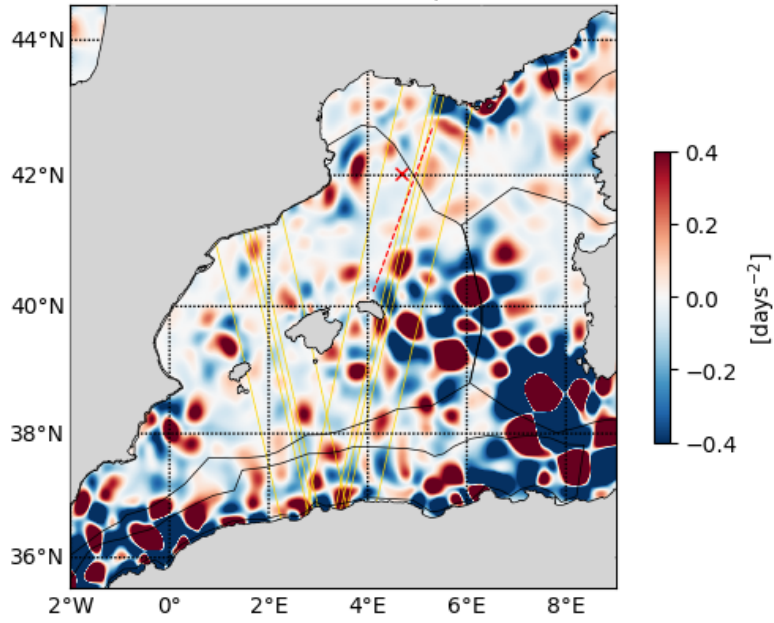




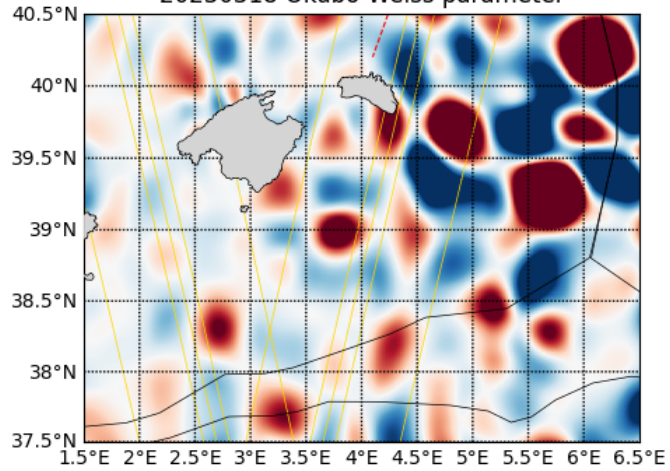




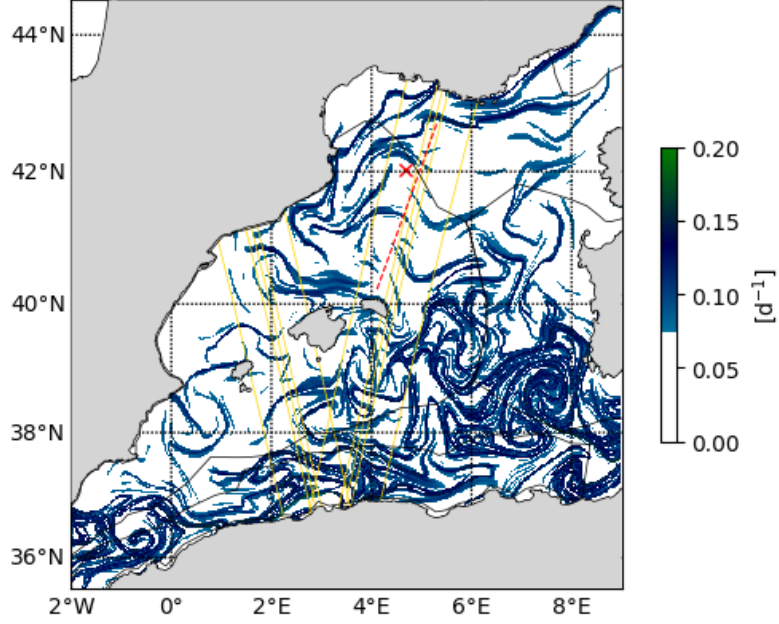
20230318 Okubo-Weiss parameter



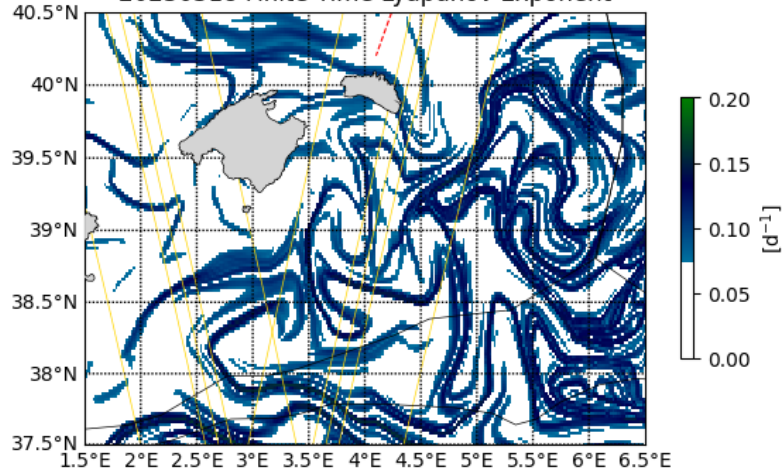
20230318 Okubo-Weiss parameter



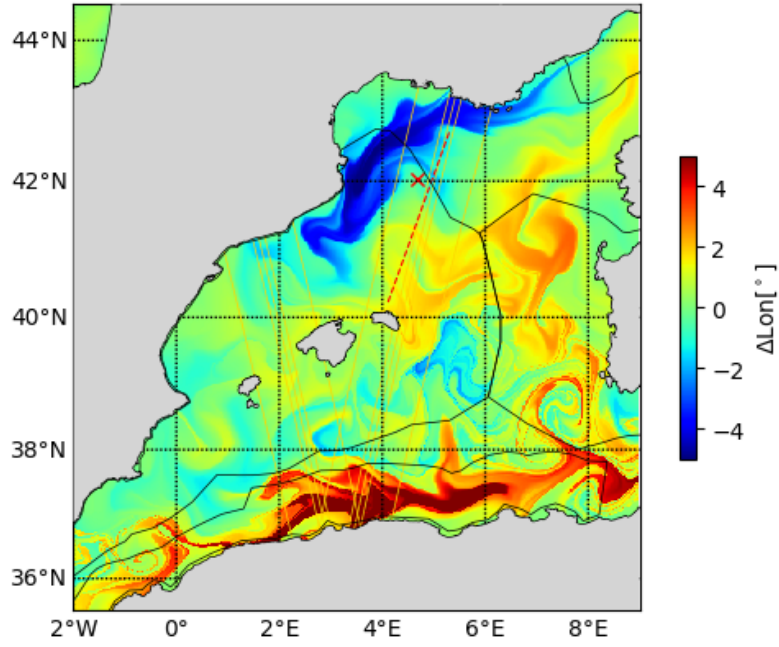
20230318 Finite Time Lyapunov Exponent



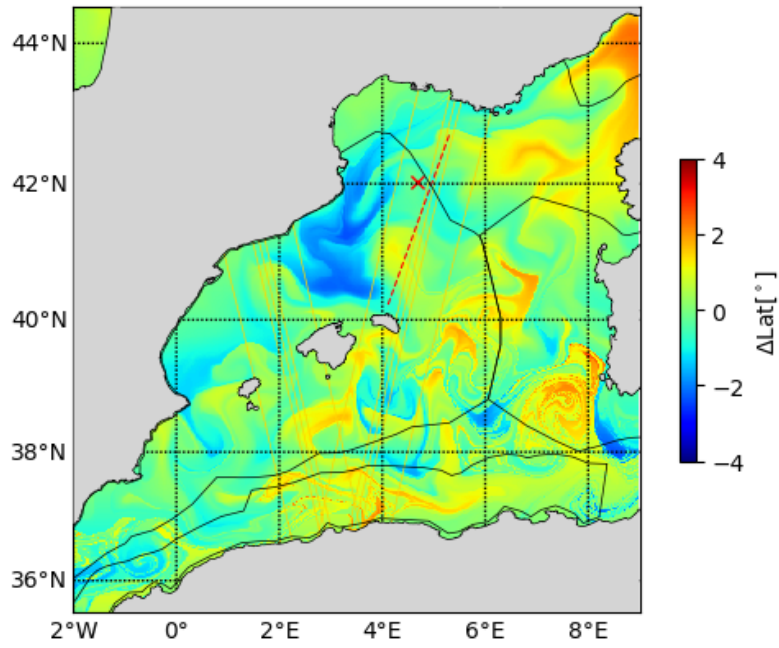
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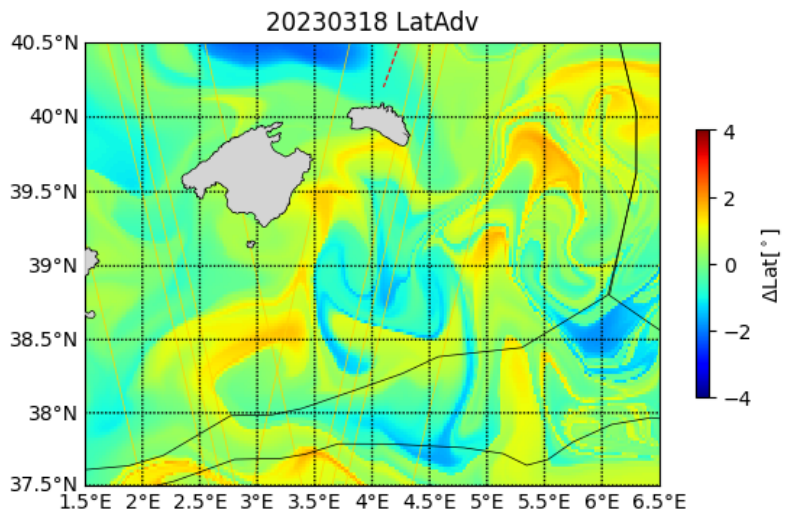
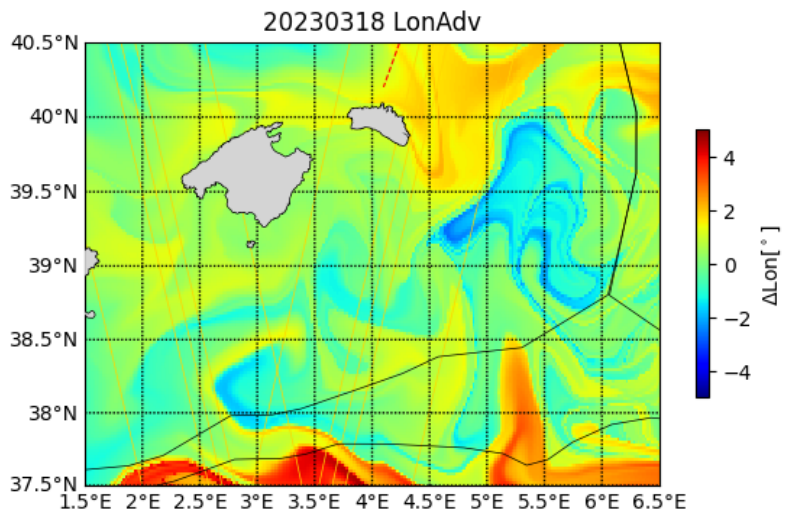
20230318 LonAdv



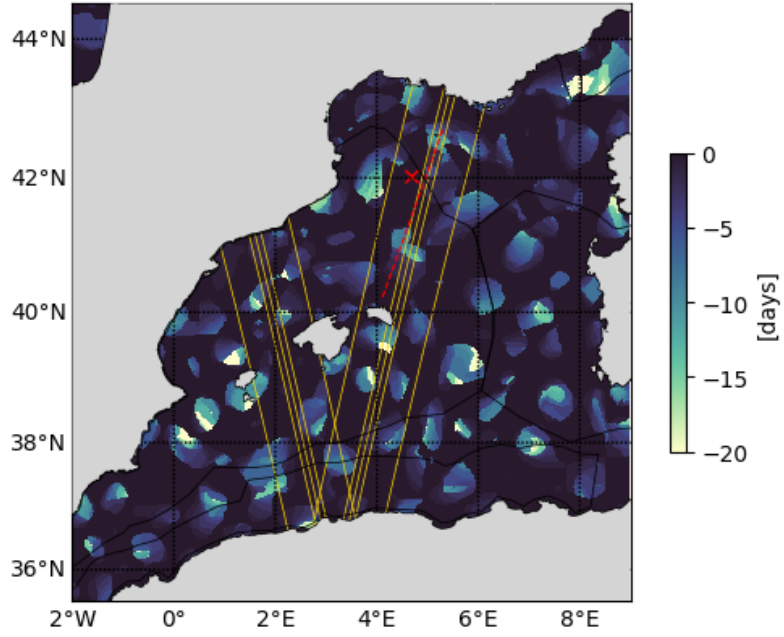
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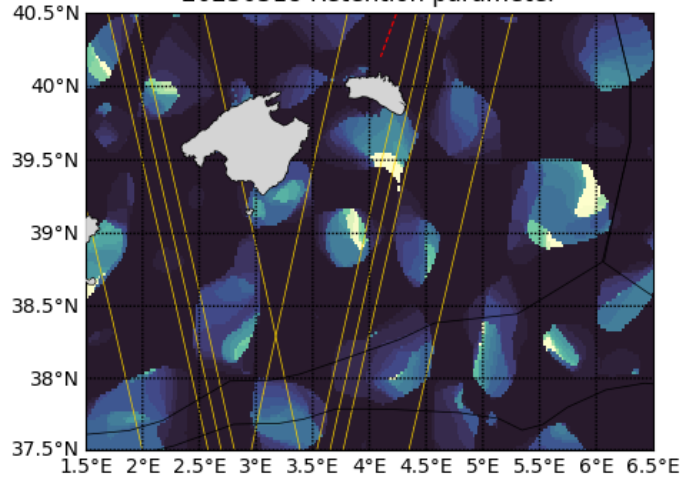




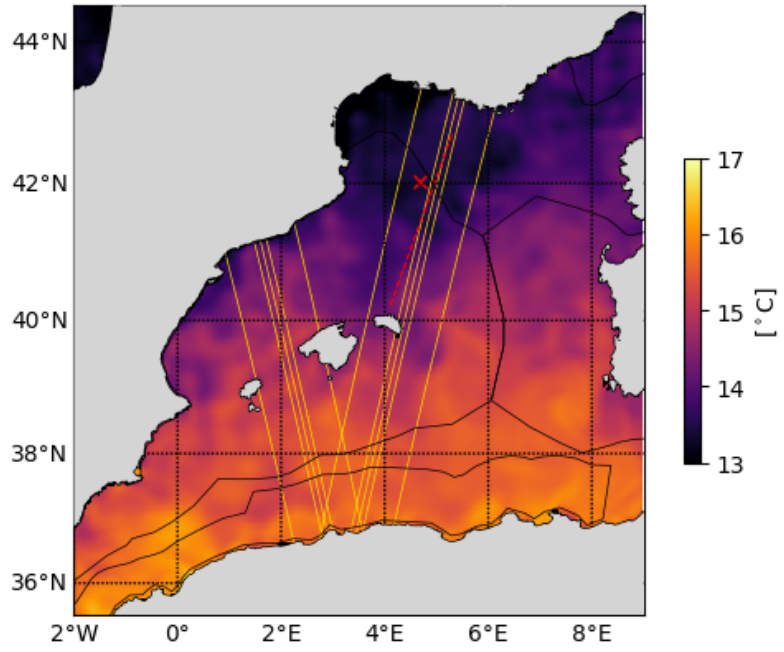
20230318 Retention parameter



20230318 Retention parameter



20230318 Tracer advection



20230318 Tracer advection

