

# [BIOSWOT-Med]: SPASSO Images Analysis

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March 21, 2023

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## Executive Summary

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## 1 Ongoing operations and upcoming stations

SWOT passing time (UTC) over:

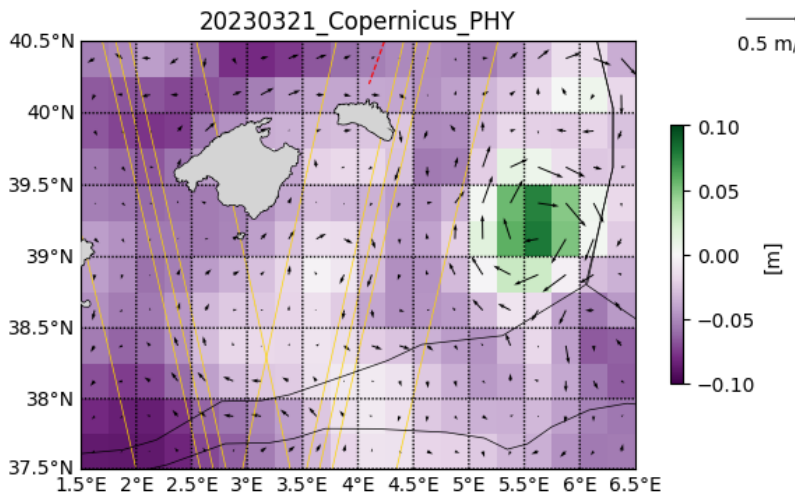
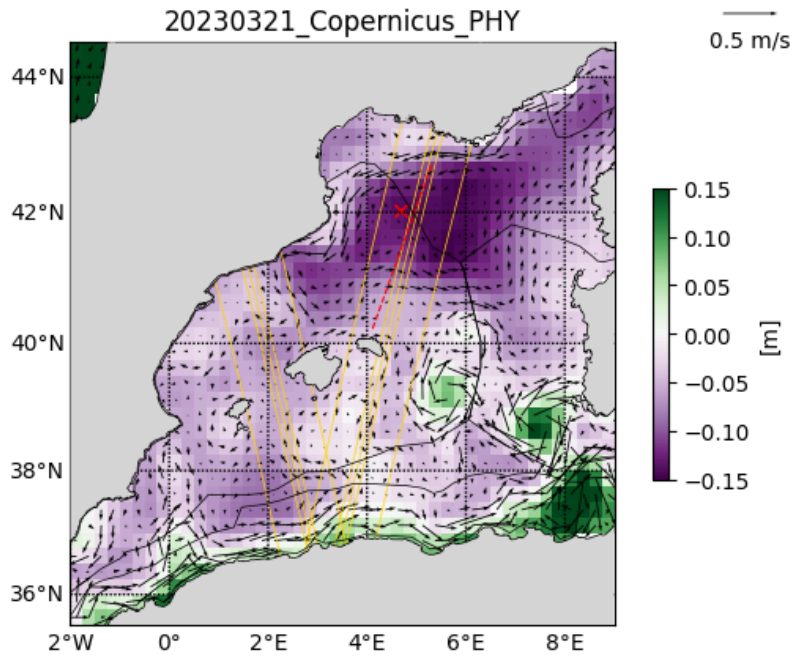
43°N - 5°E Asc   42.7°N - 4.8°E Asc
:----- :-----
2023-03-21 01:37:07   2023-03-21 01:37:07
2023-03-22 01:27:45   2023-03-22 01:27:45
2023-03-23 01:18:22   2023-03-23 01:18:22
2023-03-24 01:09:00   2023-03-24 01:09:00
2023-03-25 00:59:37   2023-03-25 00:59:37

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## 2 Daily figures analysis

### 2.1 Altimetry, derived currents

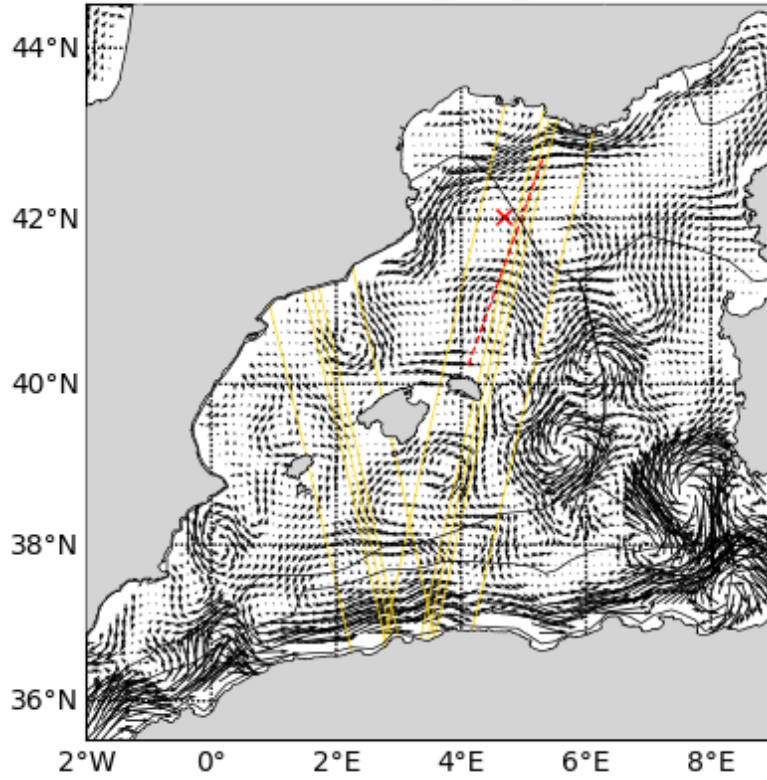
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## 2.2 SST analysis

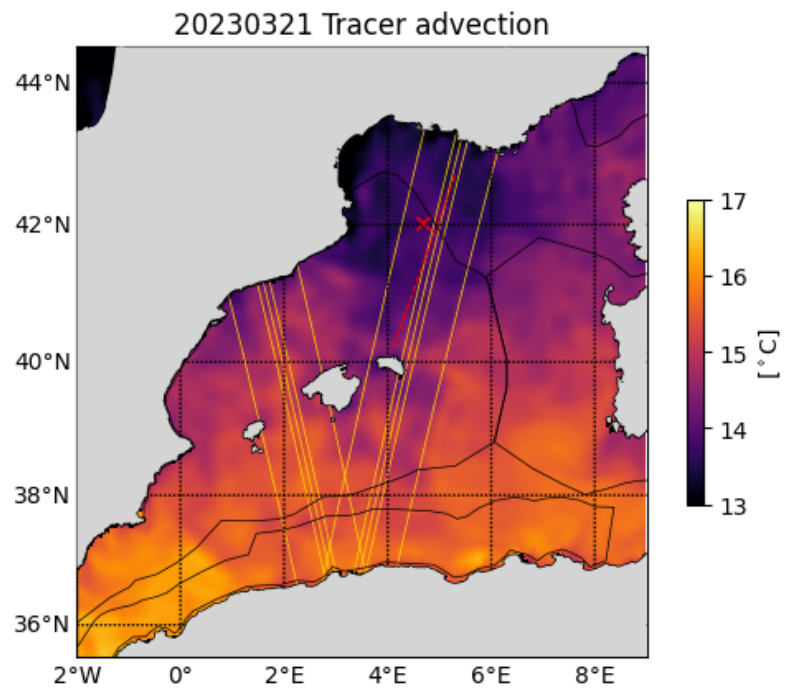
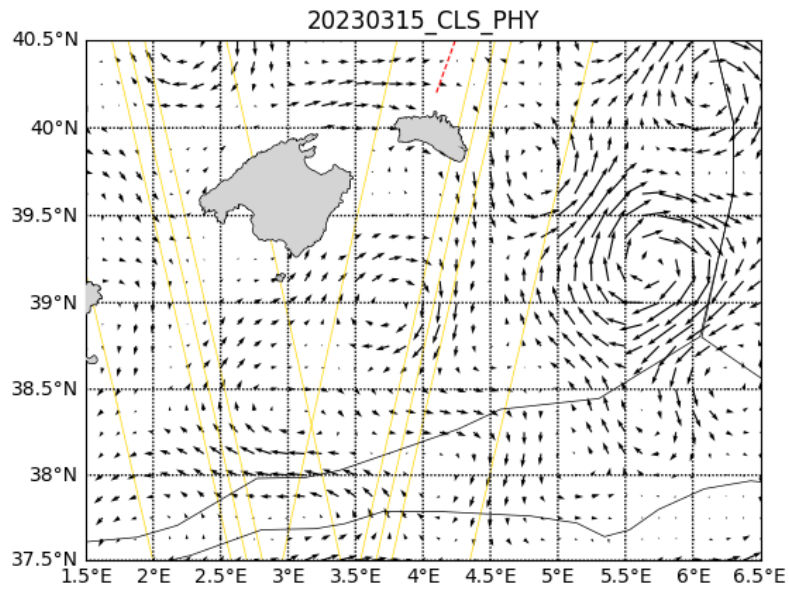
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20230315\_CLS\_PHY



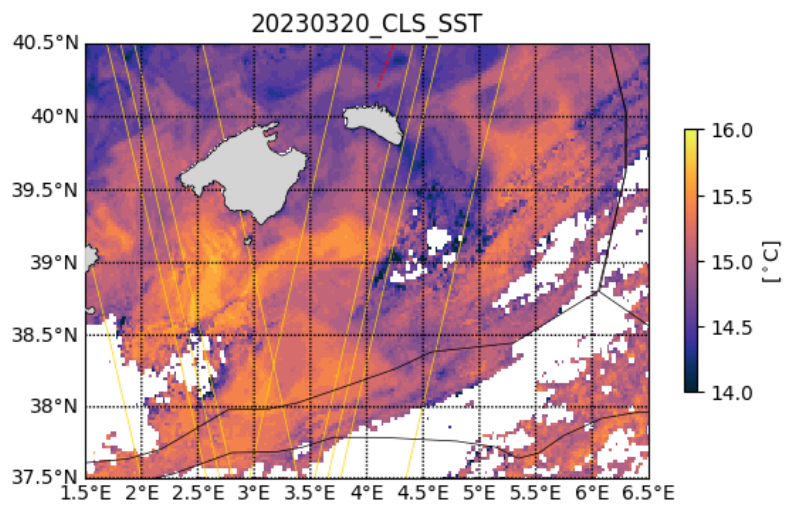
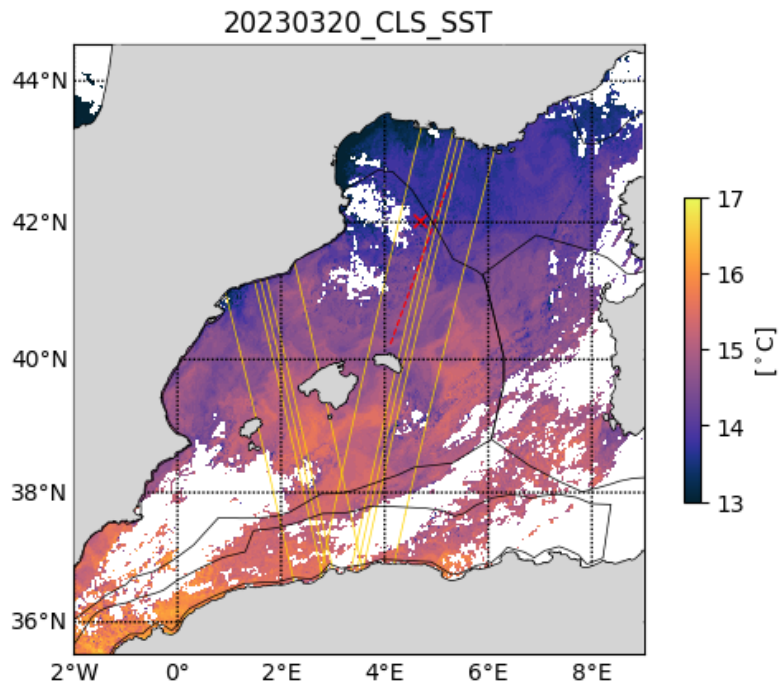
### 2.3 Chlorophyll analysis

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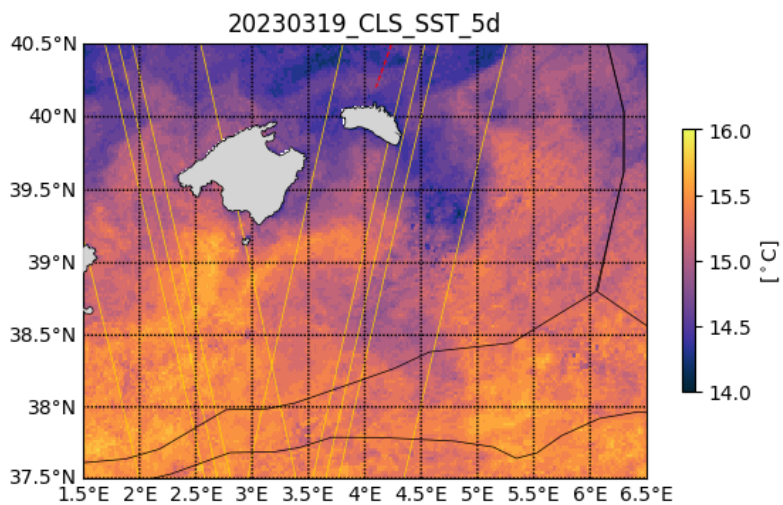
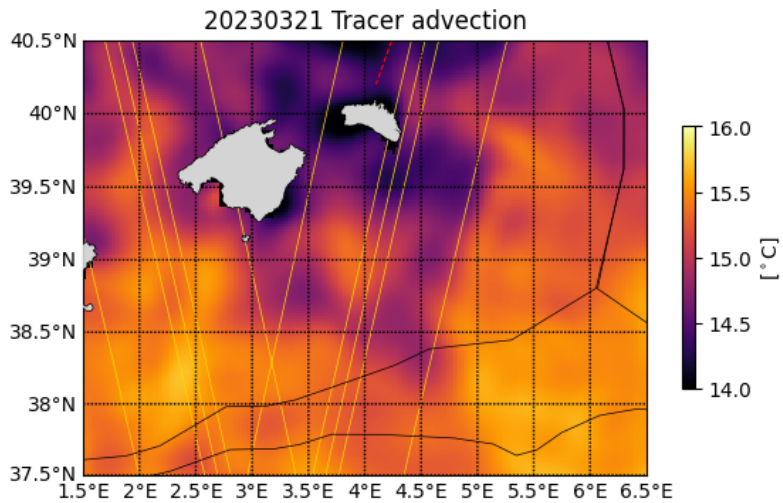
## 2.4 Eulerian/Lagrangian analysis

Eulerian diagnostics computed with Copernicus\_PHY velocities:  
KE: kinetic energy

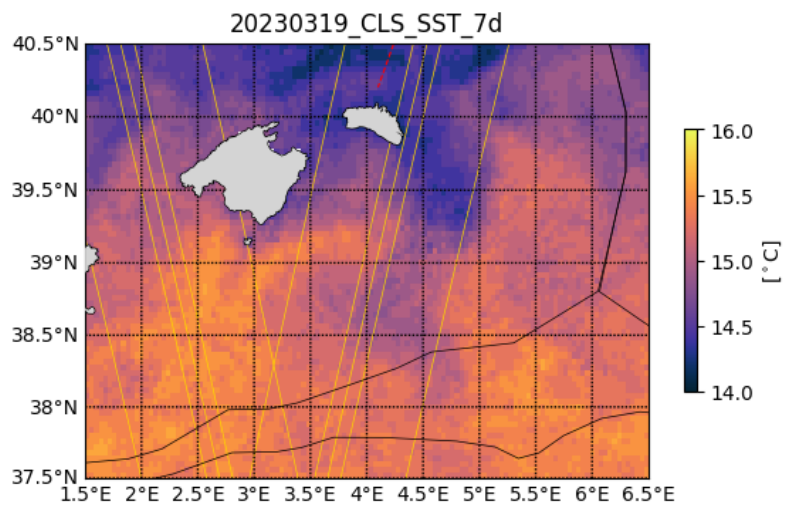
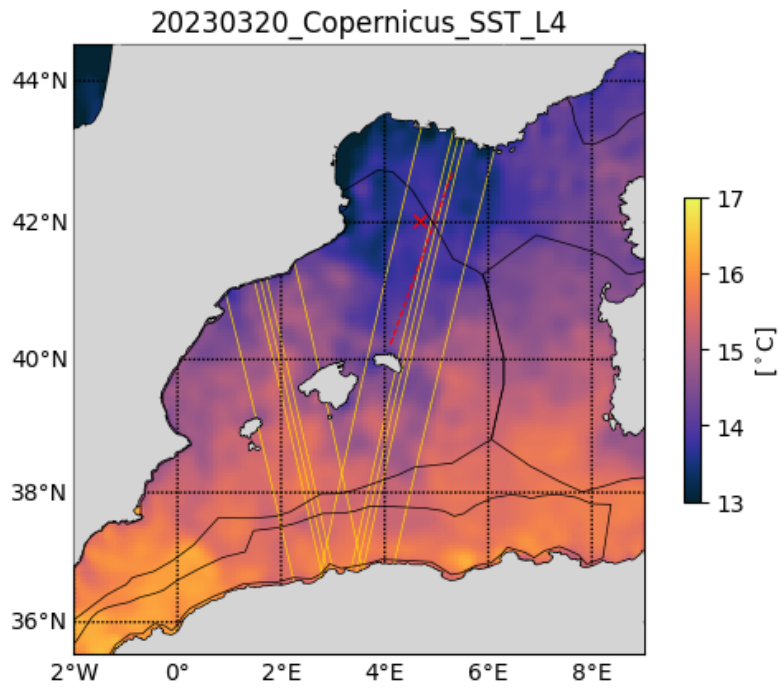


OW: Okubo-Weiss parameter

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)

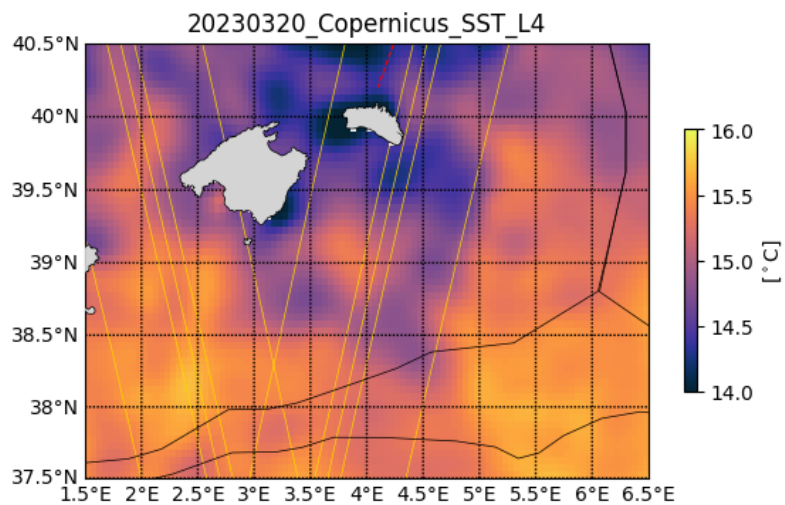
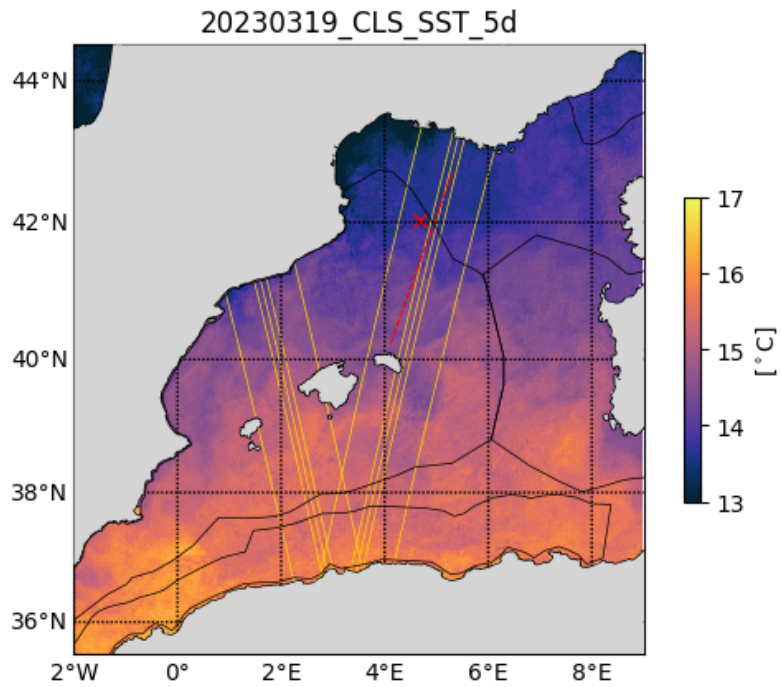


## 2.5 Other analysis

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## Acknowledgments

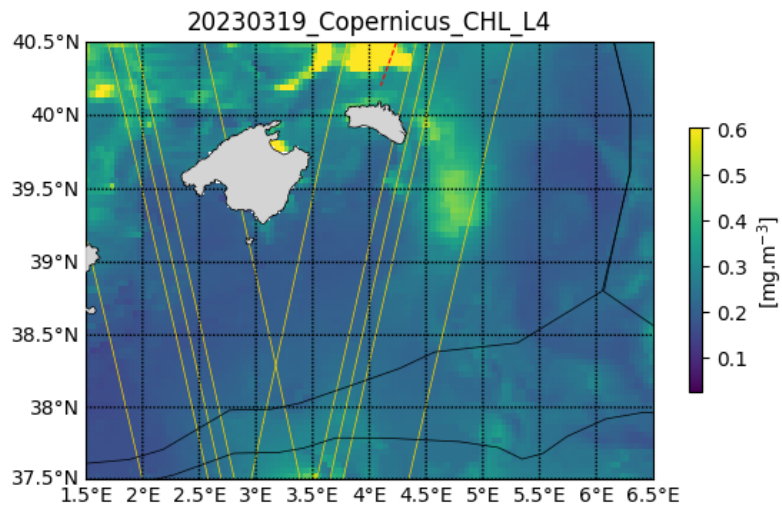
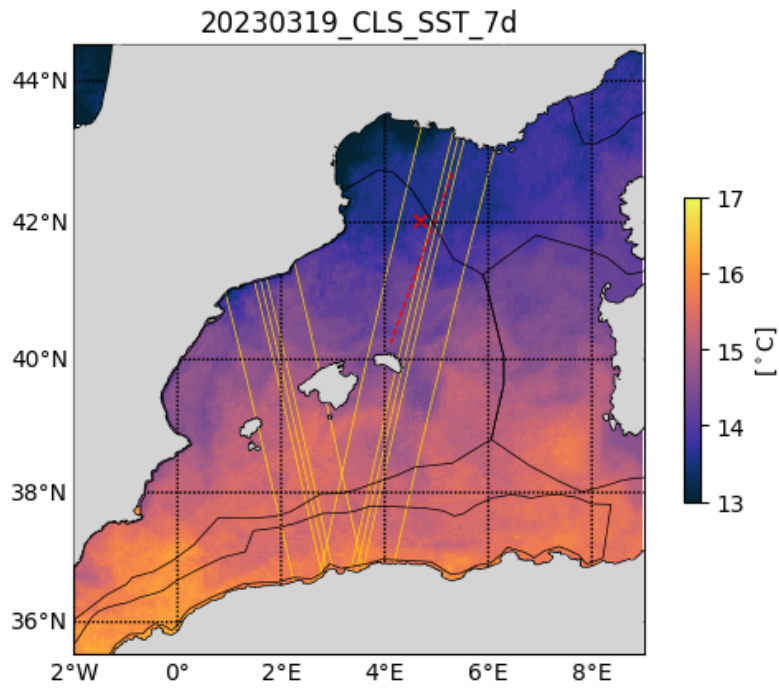




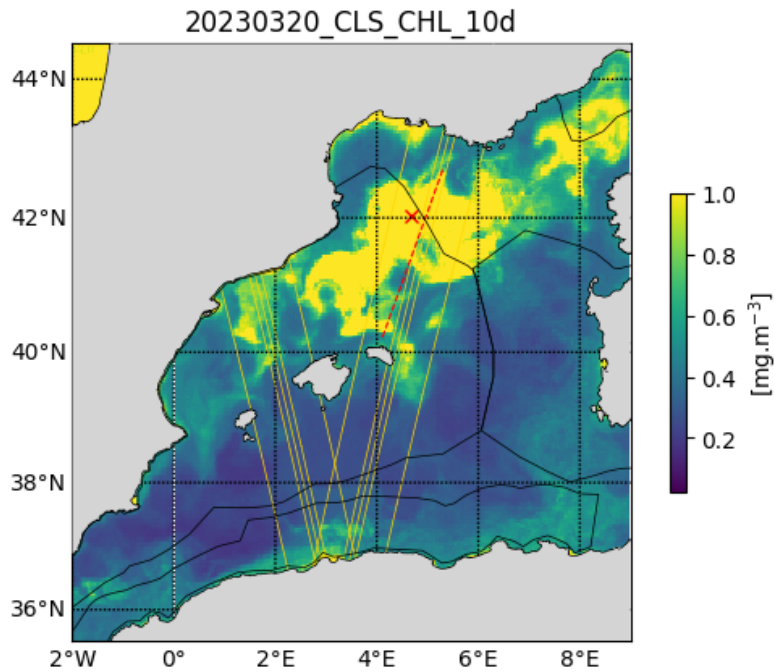
Example:

The altimetry data are the AVISO Mediterranean regional product: <http://www.aviso.altimetry.fr/index.php?id=1>  
 The derived currents are processed by SPASSO to derive Eulerian and Lagrangian diagnostics of ocean circulation: OkuboWeiss parameter, particle re-

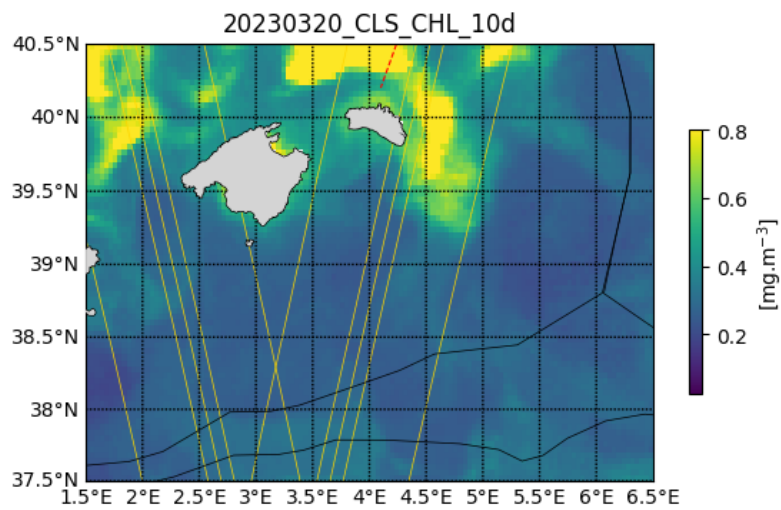
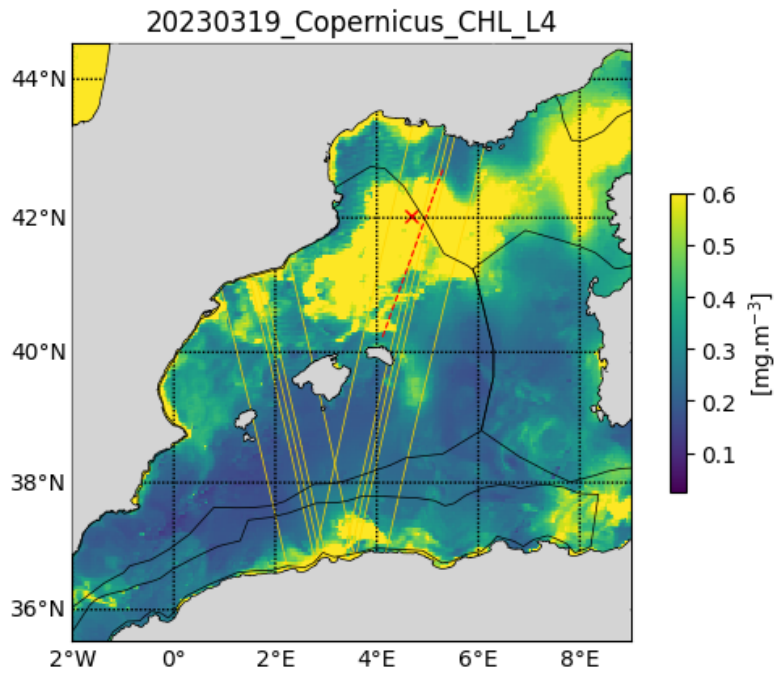


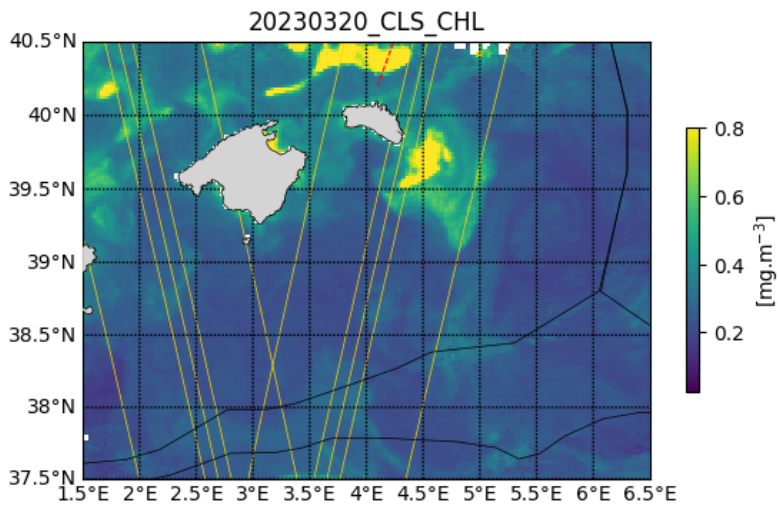
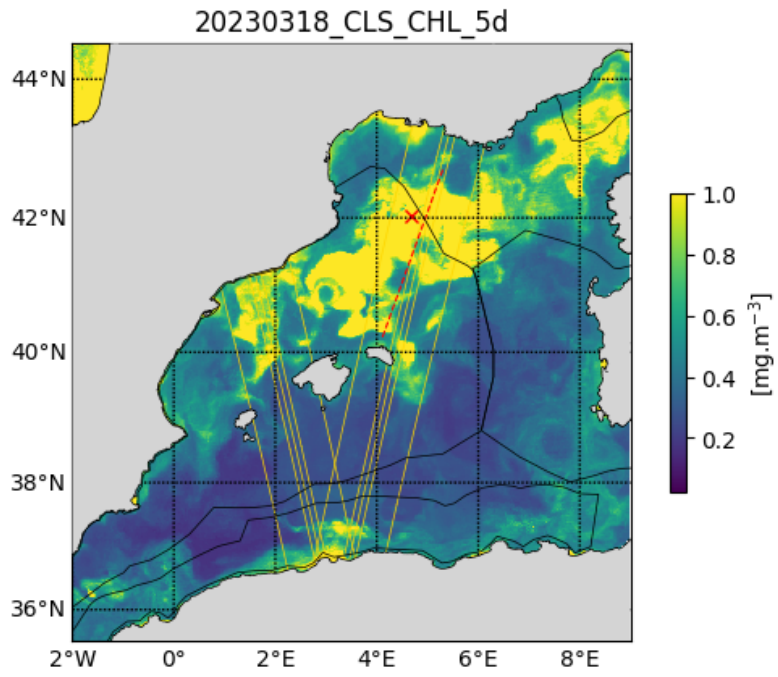


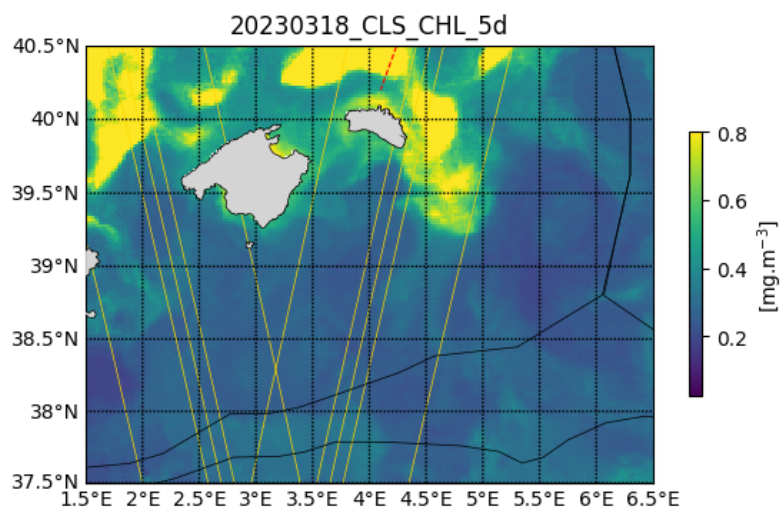
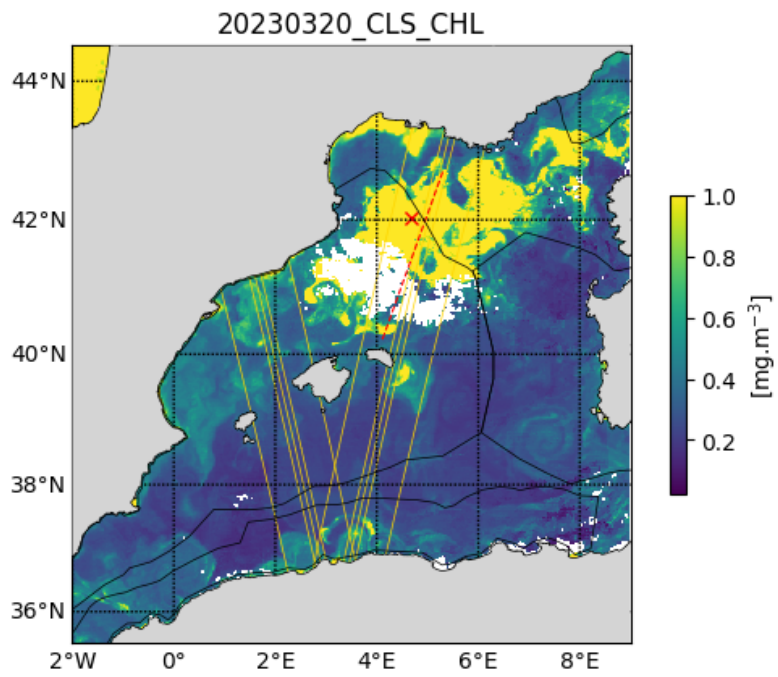
tention time and advection, Lagrangian Coherent Structures. CLS provided the SST and surface CHL concentration composite products. Sea surface temperature (level 3 and 4, 1 km resolution) and chlorophyll concentration (level 3, 1km resolution, MODISAqua and NPPVIIRS sensors combined (after May 27, 2017)

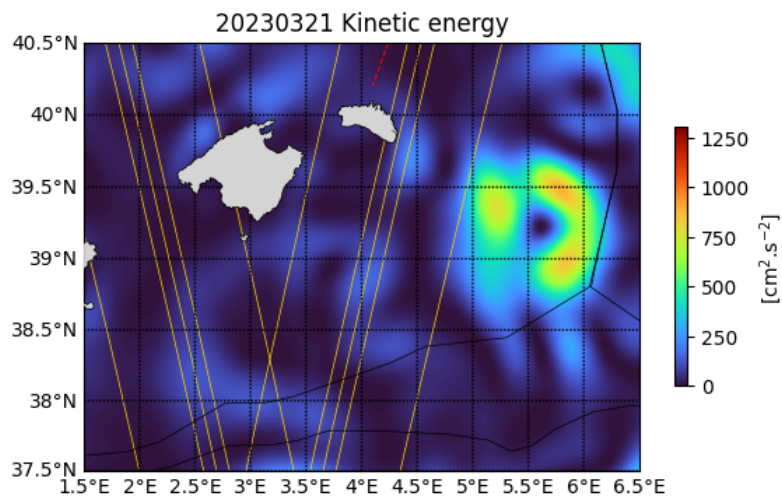
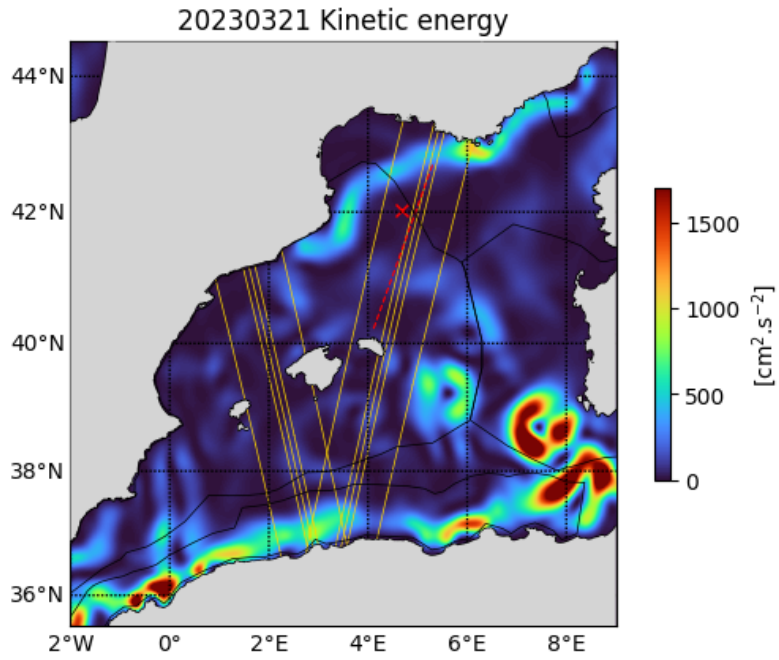


into a new product called MULTI) have been provided by CMEMS Copernicus Marine Environment Monitoring Service (<http://marine.copernicus.eu>). Another SST product (level 4, composite, 1 km resolution) is provided by the Jet Propulsion Laboratory (JPL), Pasadena, CA. SPASSO is operated with the support of the SIP (Service Informatique de Pythéas) and in particular C. Yohia, J. Lecubin. D. Zevaco and C. Blanpain (Institut Pythéas, Marseille, France).



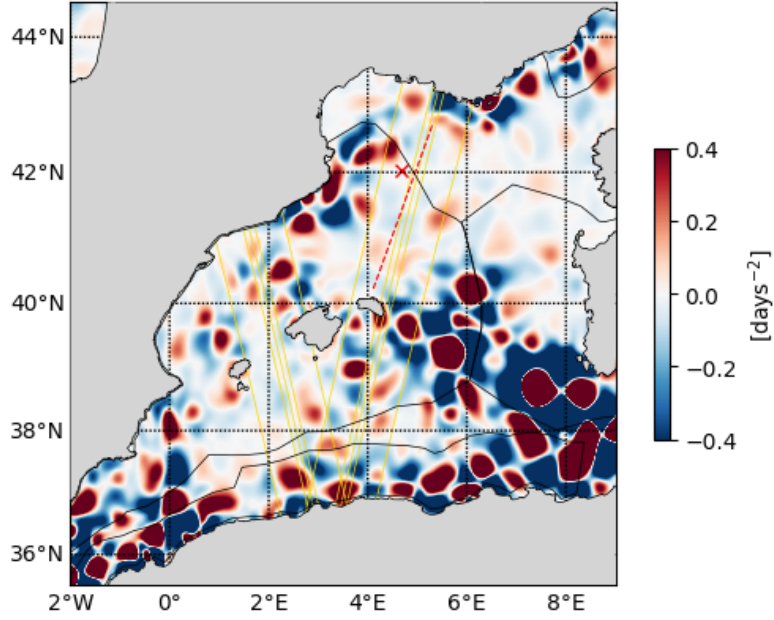




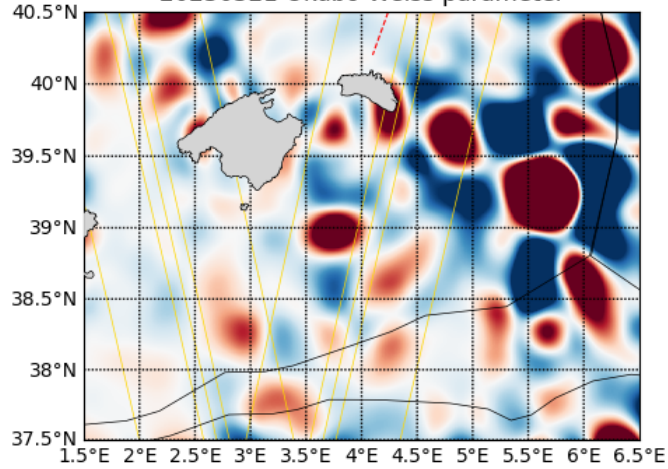




20230321 Okubo-Weiss parameter

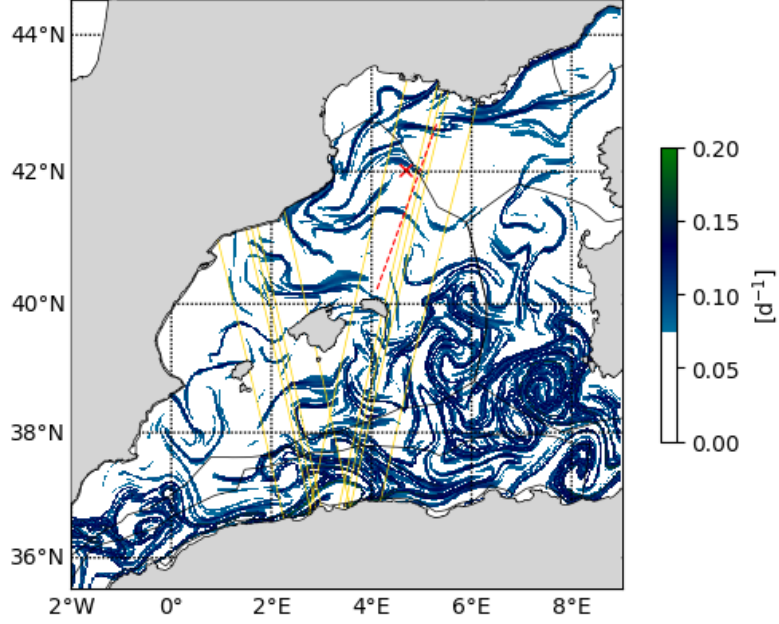


20230321 Okubo-Weiss parameter

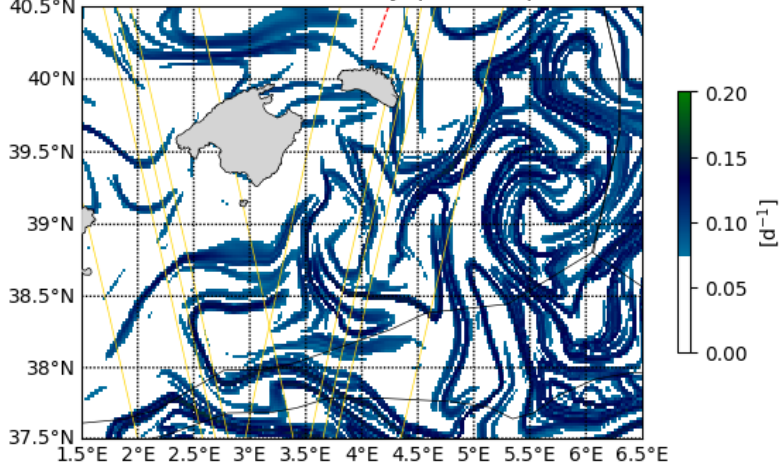




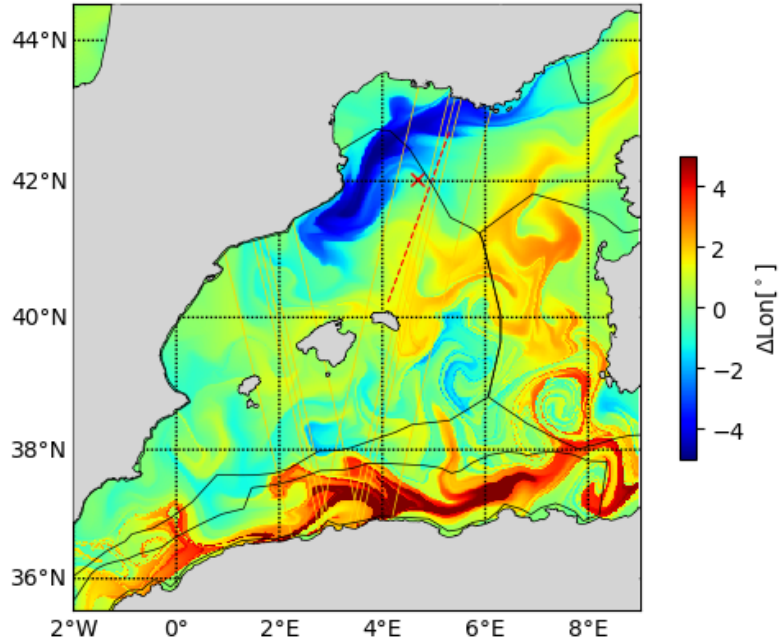
20230321 Finite Time Lyapunov Exponent



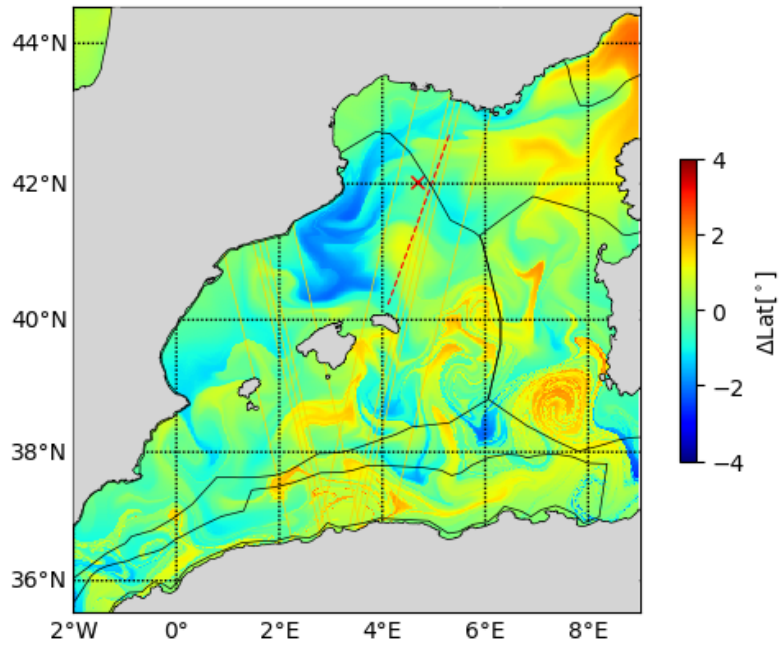
20230321 Finite Time Lyapunov Exponent

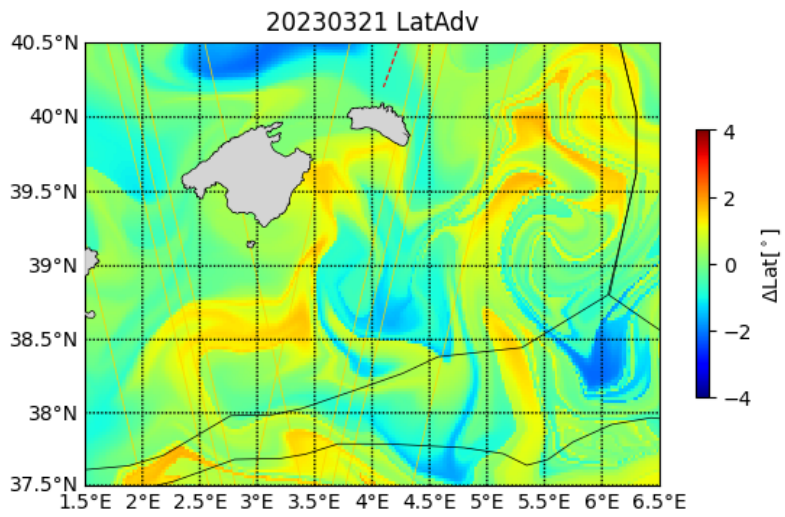
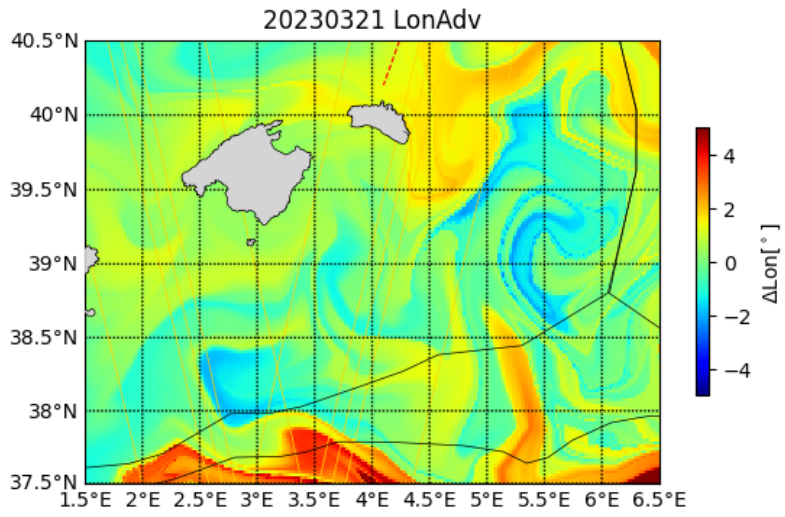


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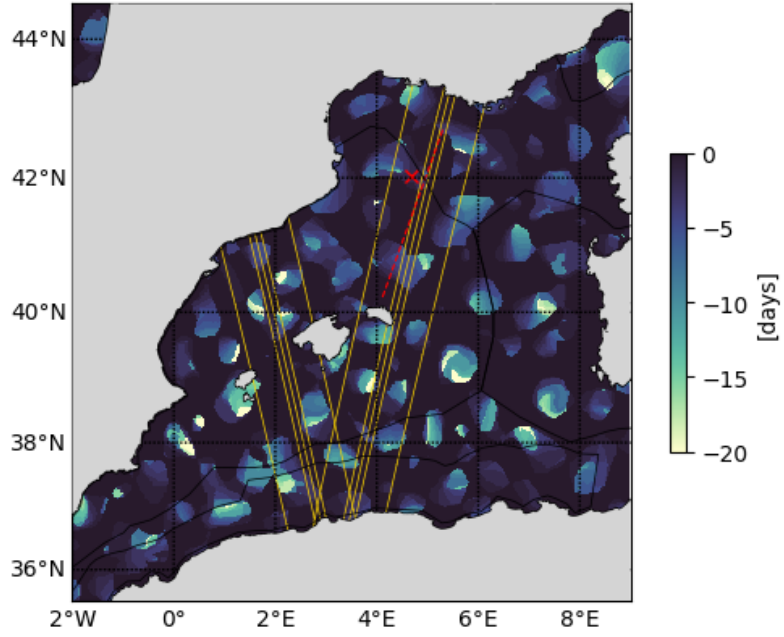


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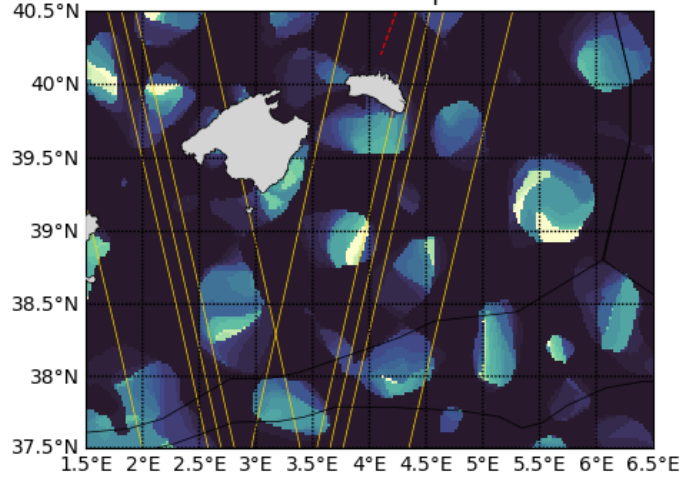




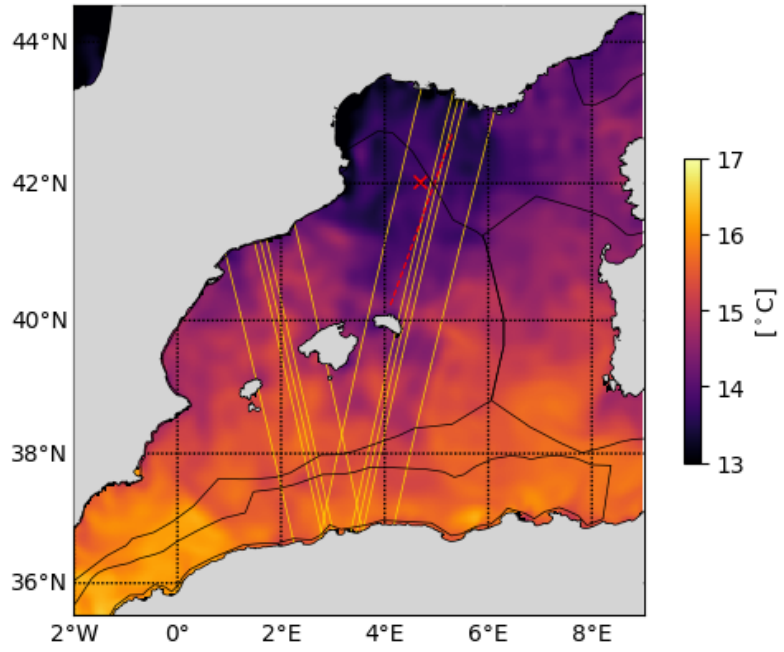
20230321 Retention parameter



20230321 Retention parameter



20230321 Tracer advection



20230321 Tracer advection

