

# [BIOSWOT-Med]: SPASSO Images Analysis

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March 16, 2023

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## Executive Summary

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## 1 Ongoing operations and upcoming stations

SWOT passing time (UTC) over:

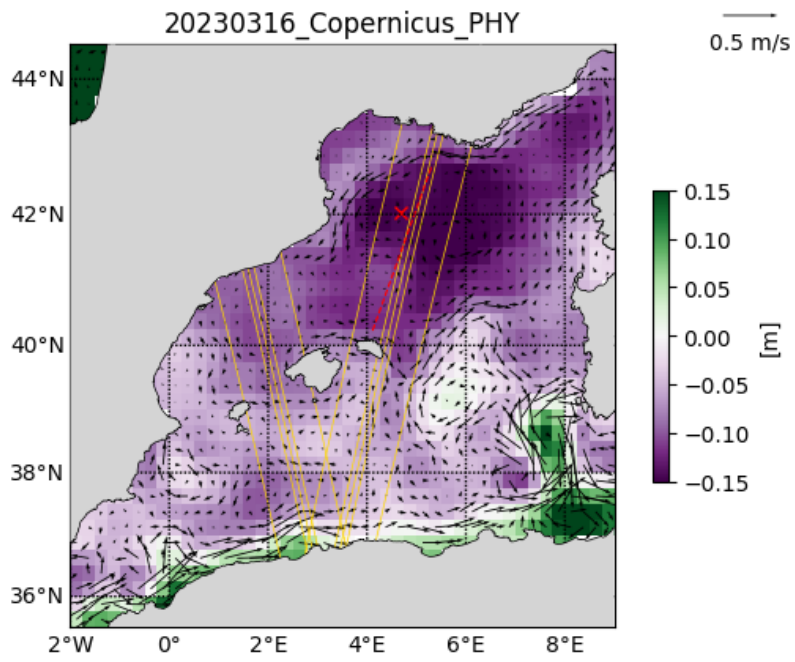
43°N - 5°E Asc   42.7°N - 4.8°E Asc
:----- :-----
2023-03-16 02:23:59   2023-03-16 02:23:59
2023-03-17 02:14:37   2023-03-17 02:14:37
2023-03-18 02:05:15   2023-03-18 02:05:15
2023-03-19 01:55:52   2023-03-19 01:55:52
2023-03-20 01:46:30   2023-03-20 01:46:30

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## 2 Daily figures analysis

### 2.1 Altimetry, derived currents

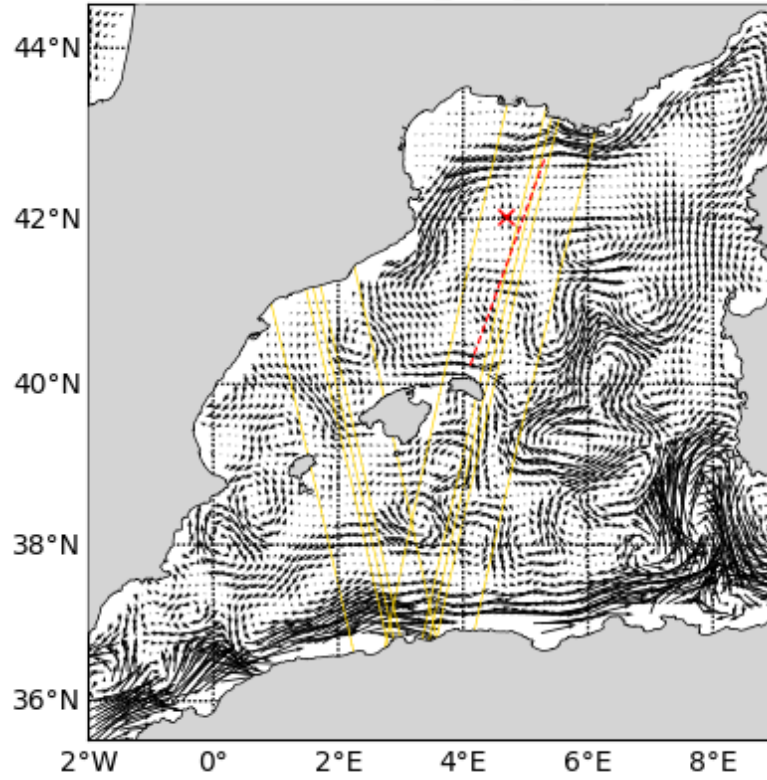
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## 2.2 SST analysis

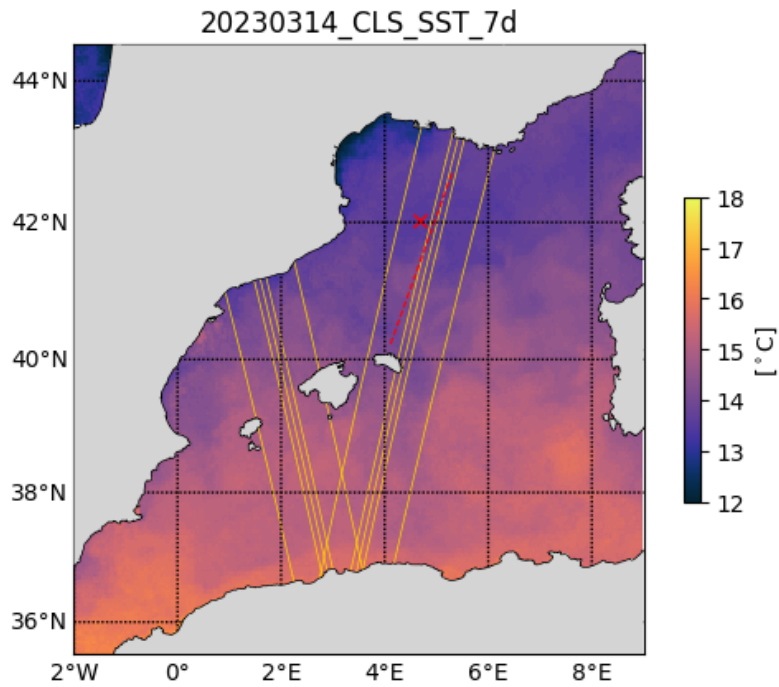
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20230310\_CLS\_PHY



### 2.3 Chlorophyll analysis

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## 2.4 Eulerian/Lagrangian analysis

Eulerian diagnostics computed with Copernicus\_PHY velocities:

KE: kinetic energy

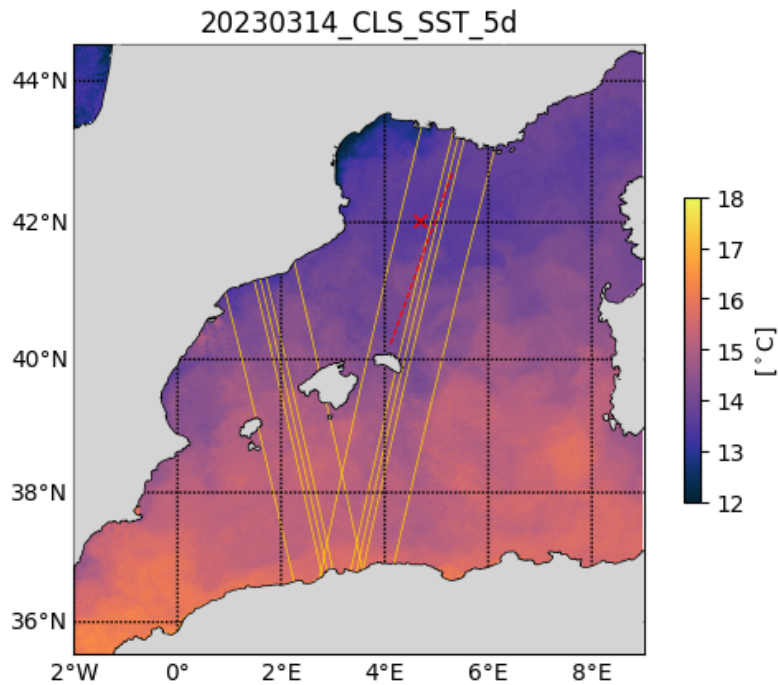
OW: Okubo-Weiss parameter

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

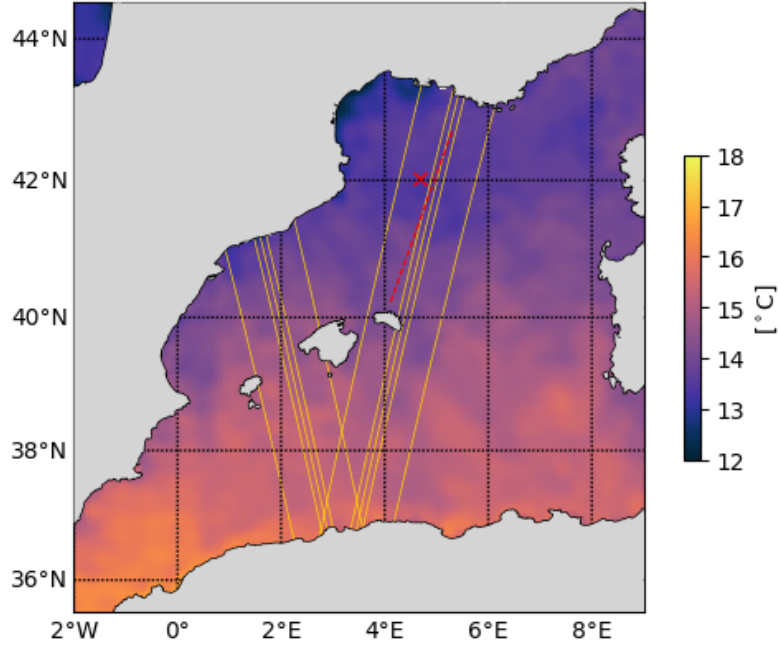
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### Acknowledgments

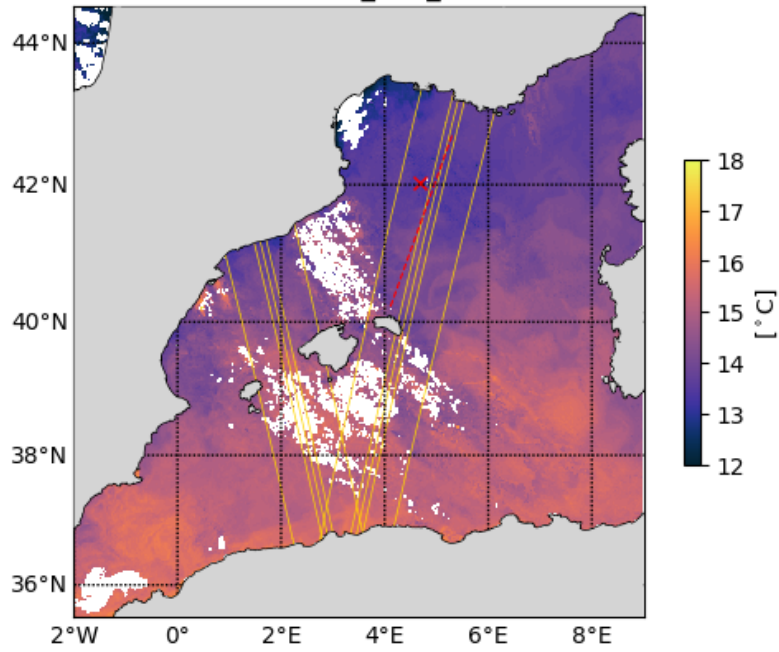
Example:

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 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.

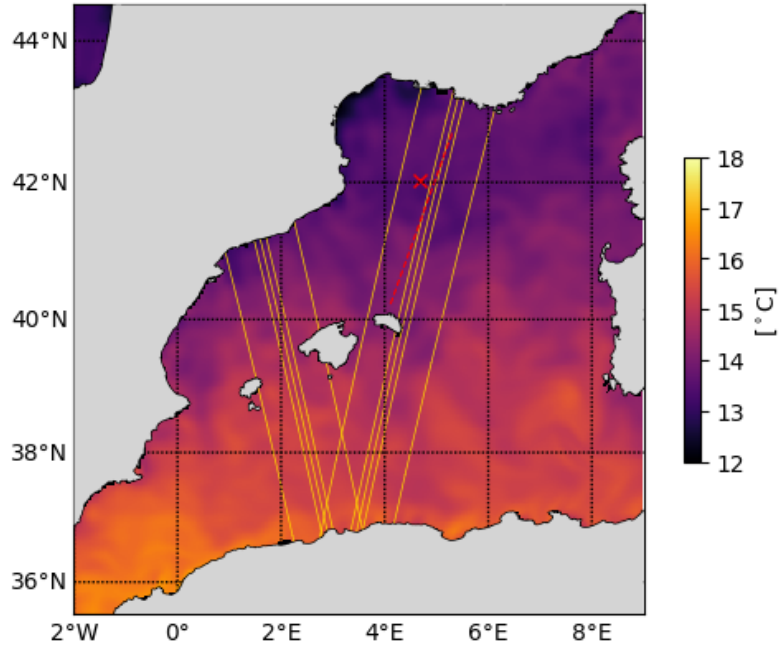
20230315\_Copernicus\_SST\_L4



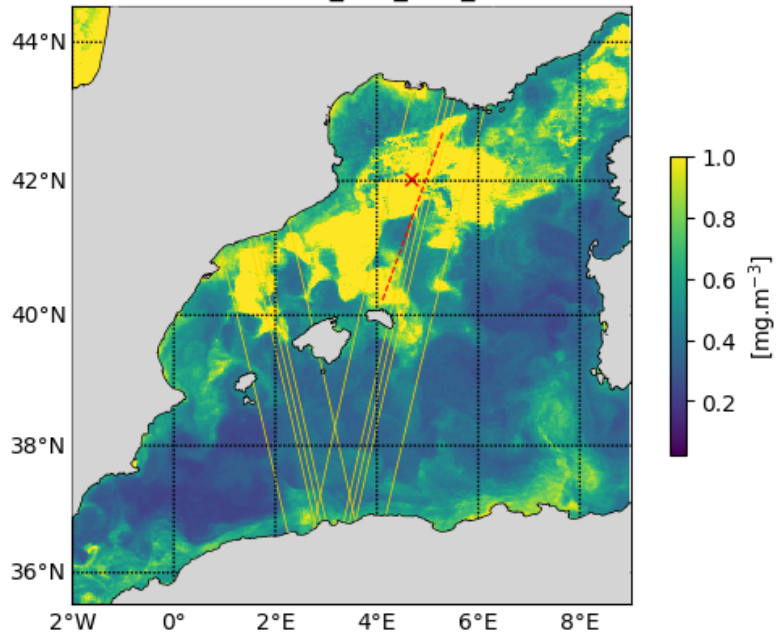
20230315\_CLS\_SST

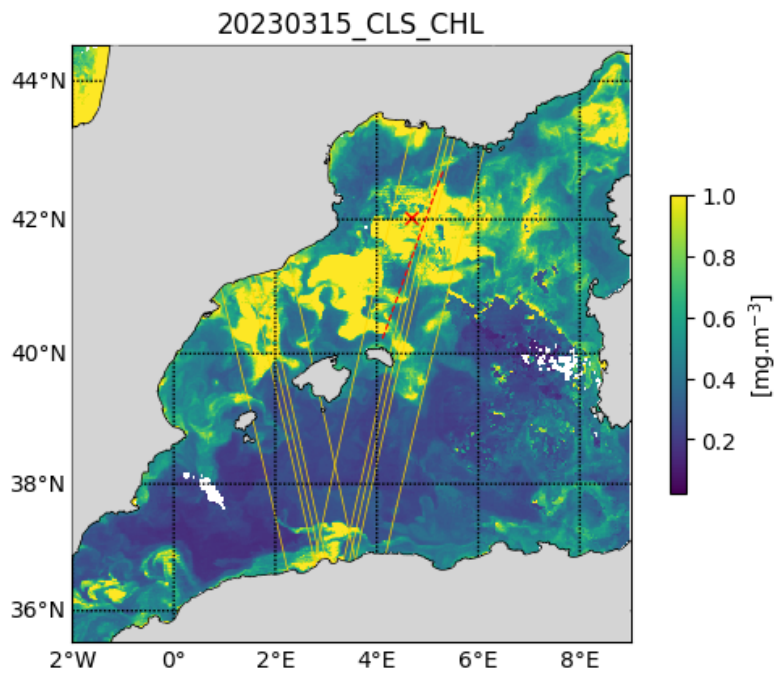
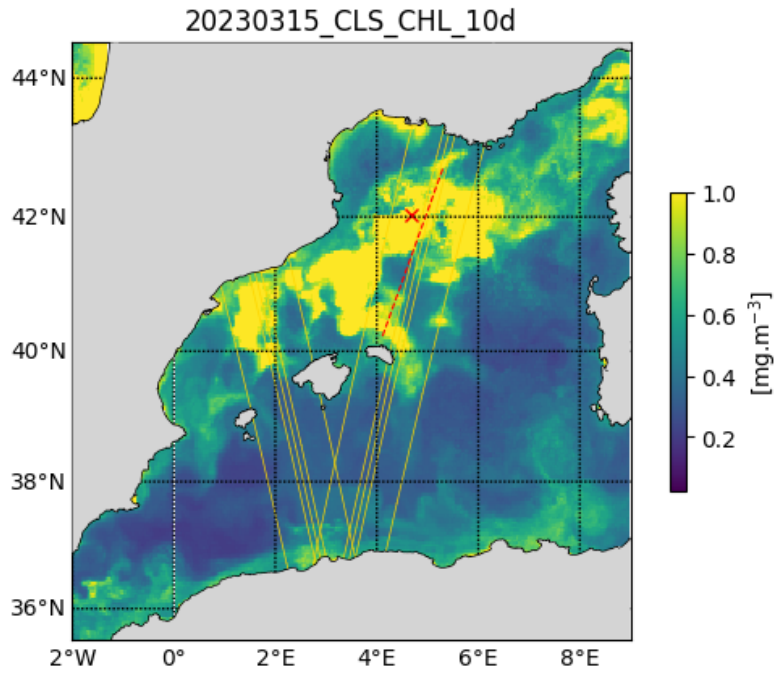


20230316 Tracer advection

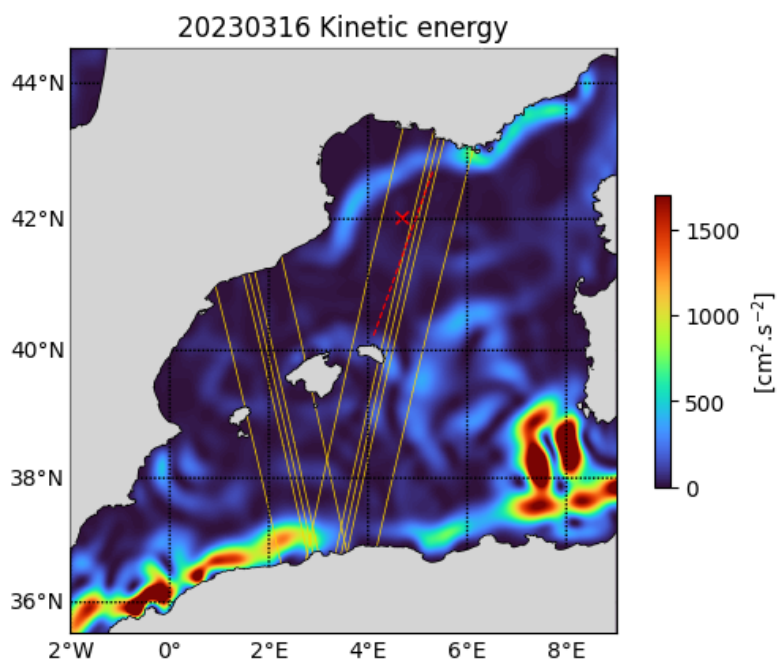
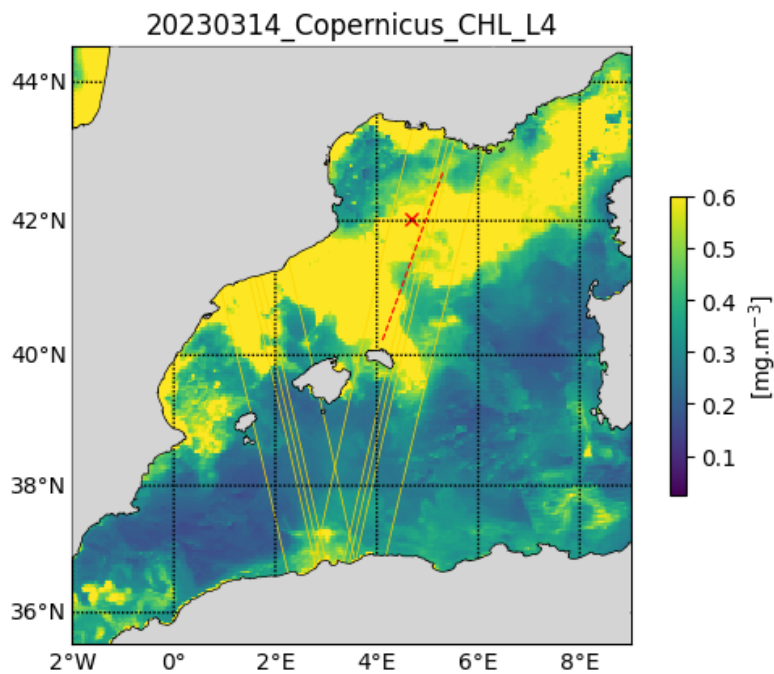


20230313\_CLS\_CHL\_5d

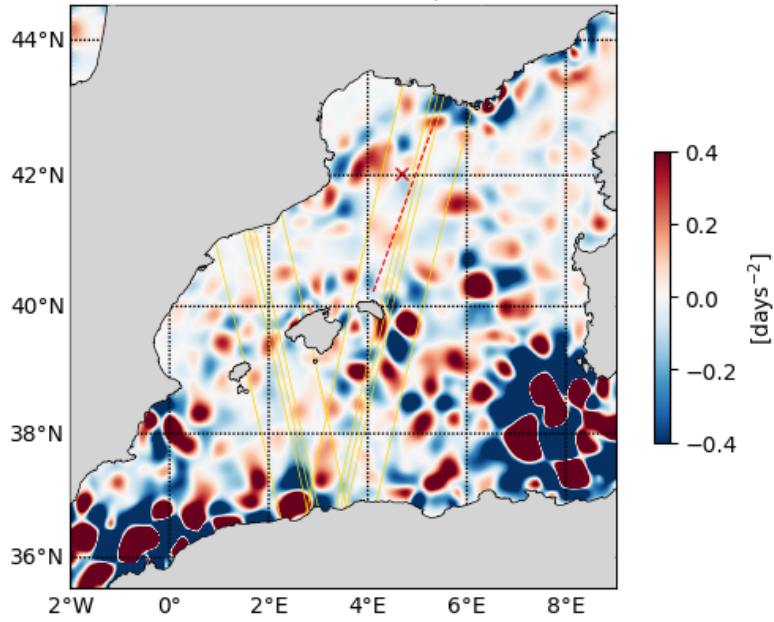




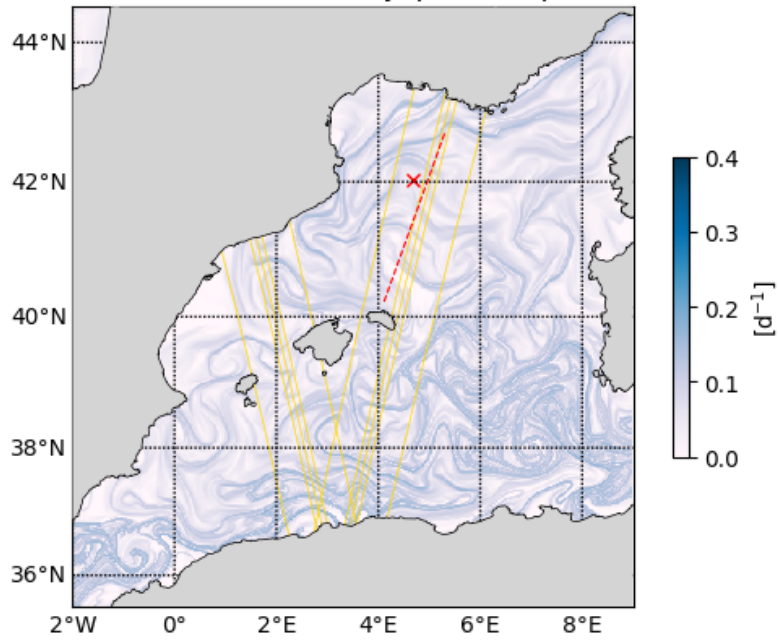




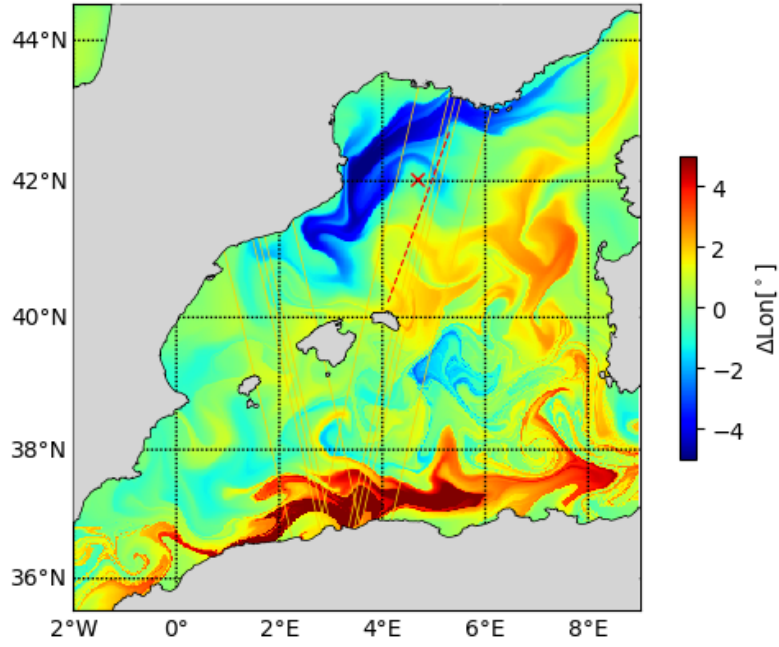
20230316 Okubo-Weiss parameter



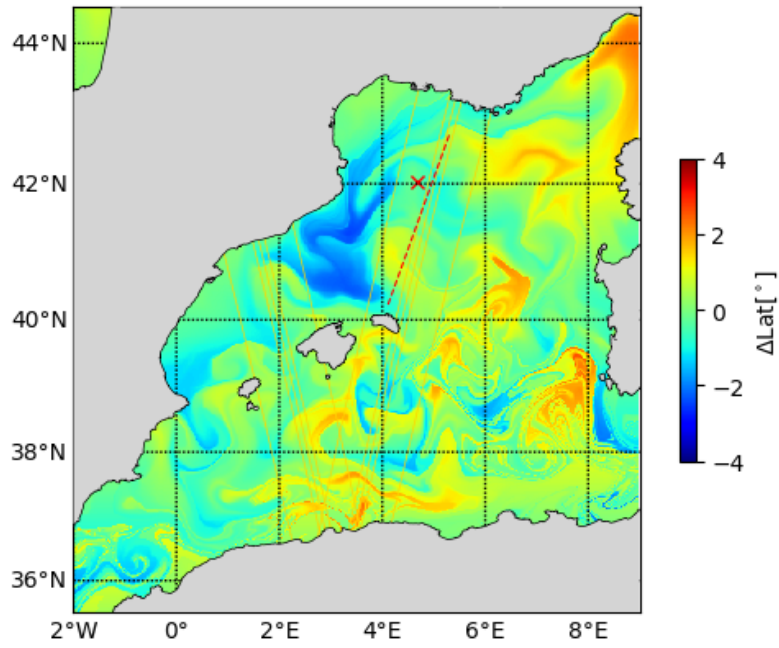
20230316 Finite Time Lyapunov Exponent



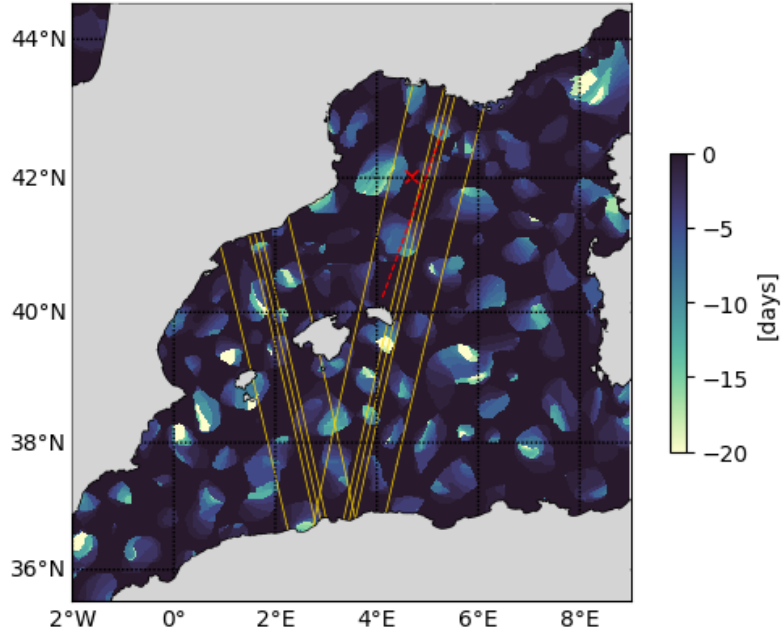
20230316 LonAdv



20230316 LatAdv



20230316 Retention parameter



20230316 Tracer advection

