

[BIOSWOT-Med]: SPASSO Images Analysis

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March 23, 2023

Executive Summary

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1 Ongoing operations and upcoming stations

SWOT passing time (UTC) over:

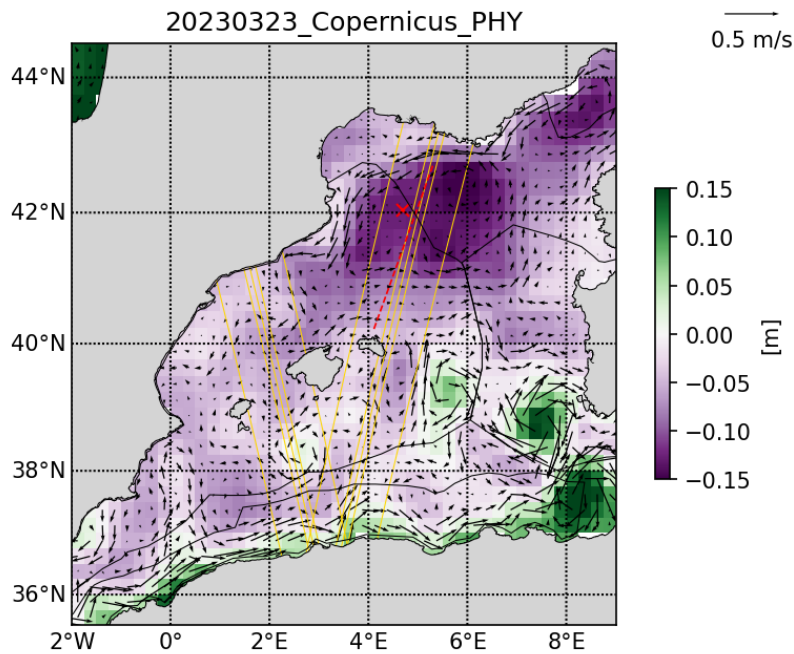
43°N - 5°E Asc		42.7°N - 4.8°E Asc	
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2023-03-23 01:18:22	2023-03-23 01:18:22		
2023-03-24 01:09:00	2023-03-24 01:09:00		
2023-03-25 00:59:37	2023-03-25 00:59:37		
2023-03-26 00:50:15	2023-03-26 00:50:15		
2023-03-27 00:40:52	2023-03-27 00:40:52		

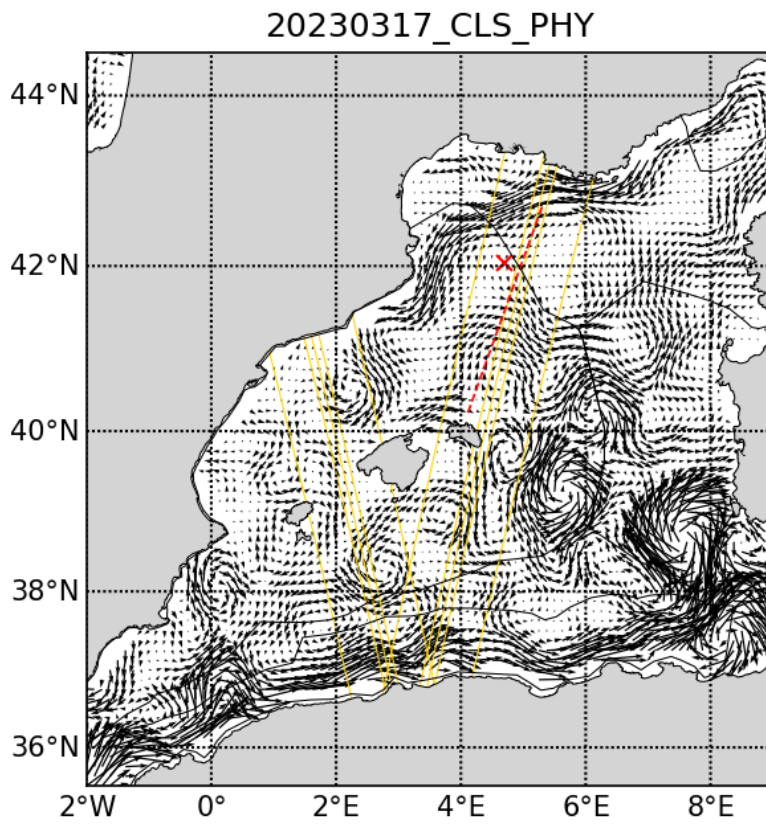
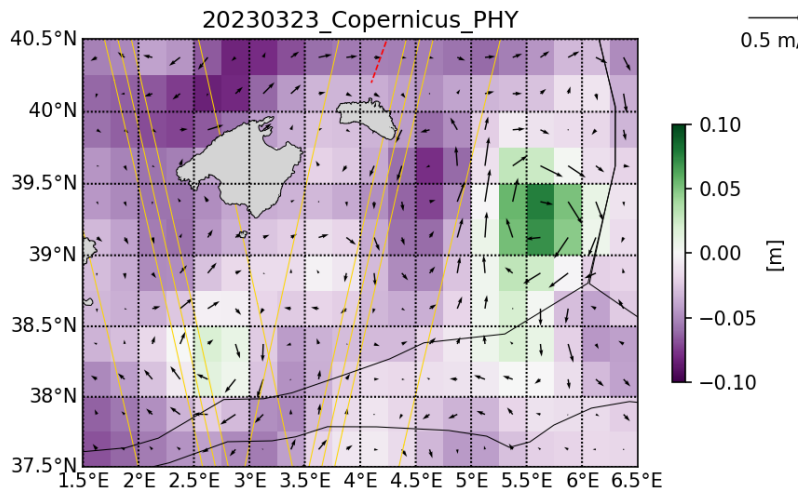
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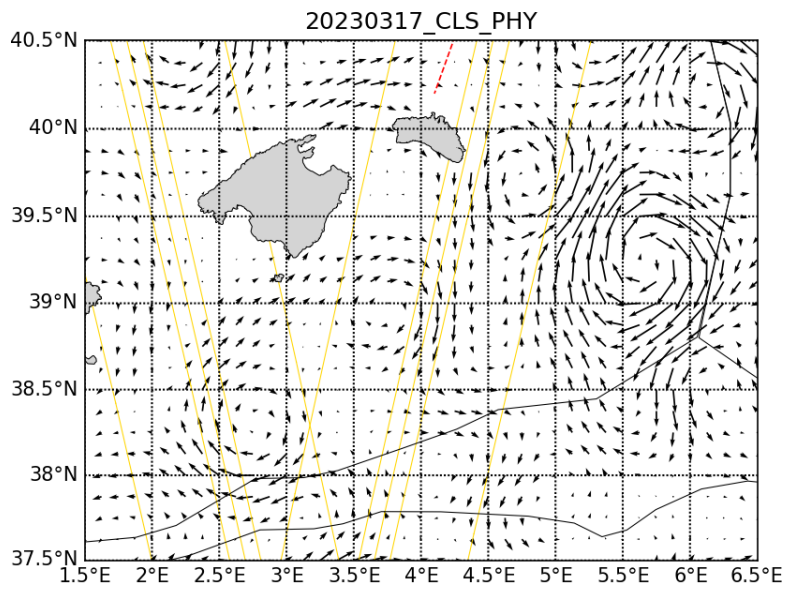
2 Daily figures analysis

2.1 Altimetry, derived currents

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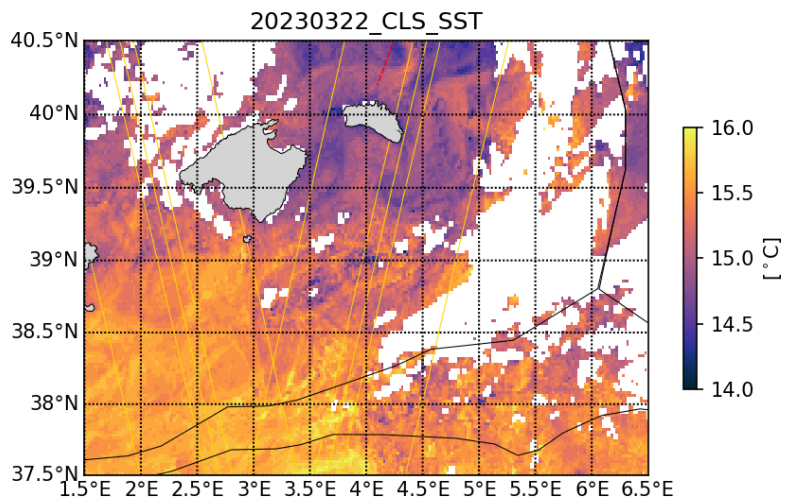
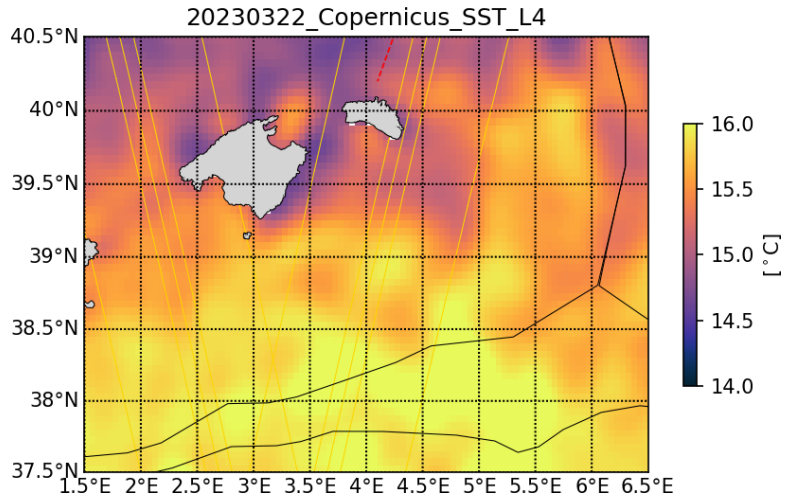




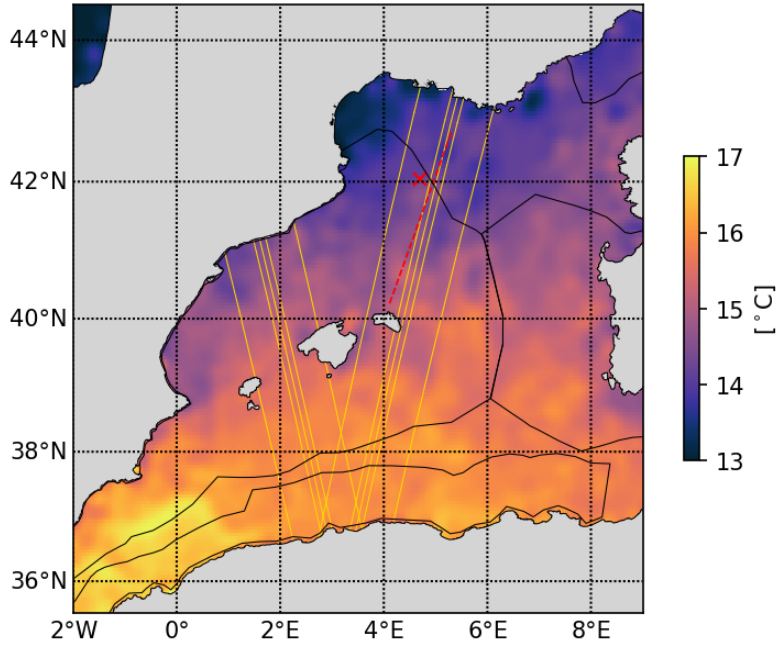


2.2 SST analysis

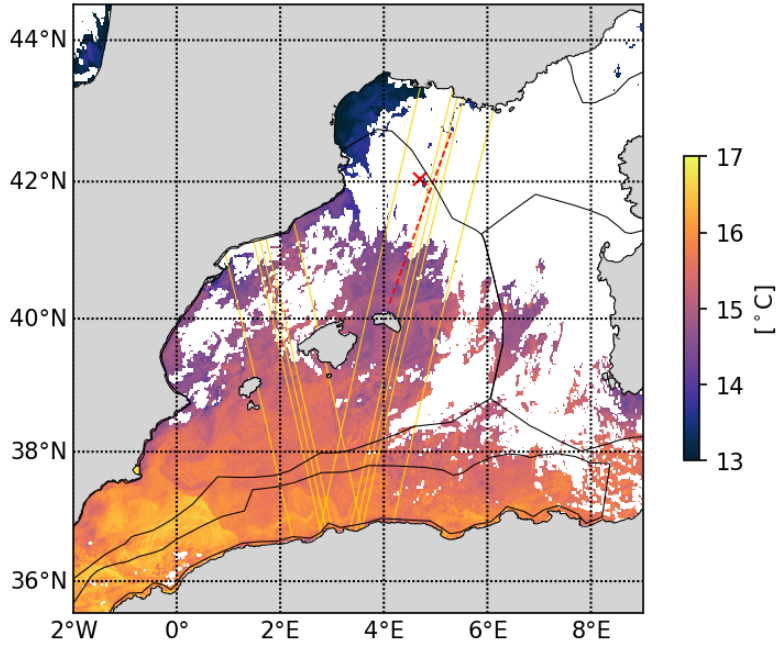
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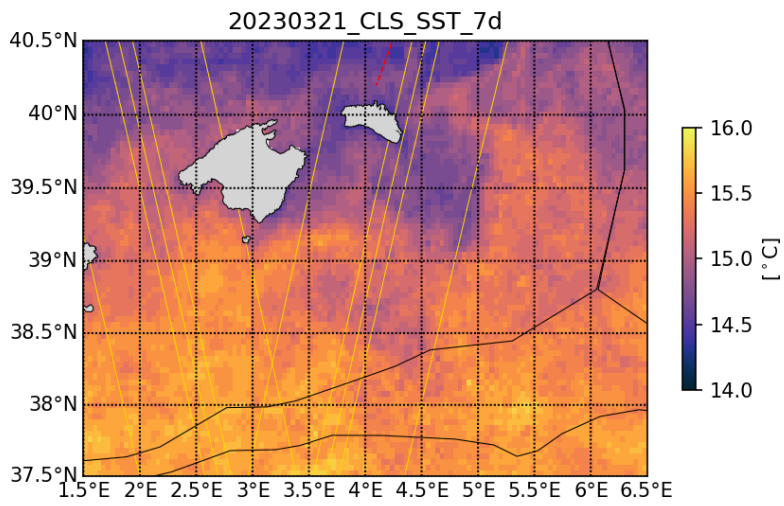
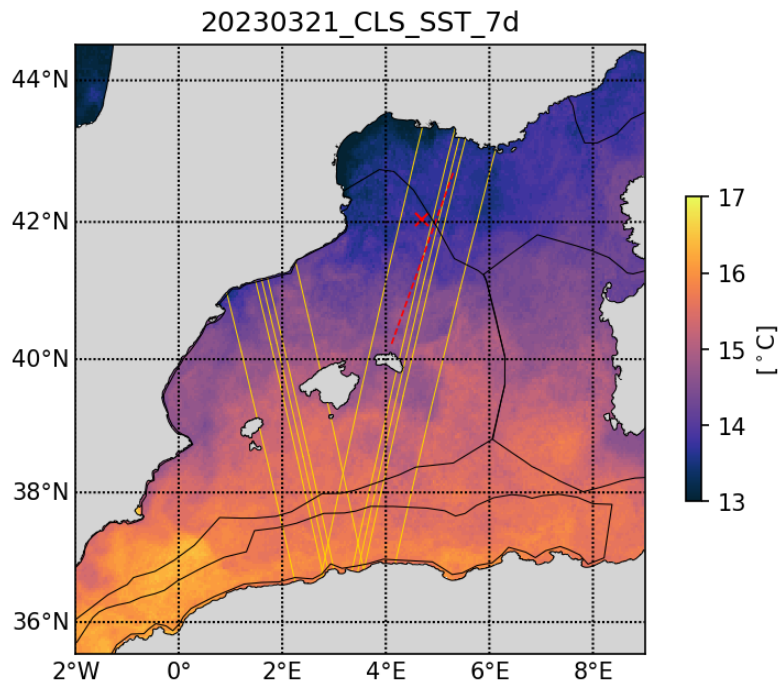


20230322_Copernicus_SST_L4



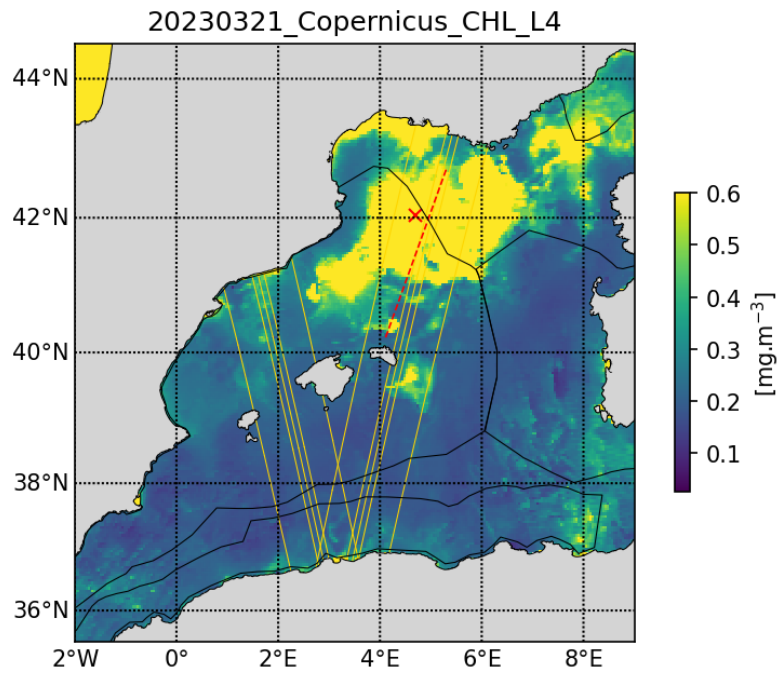
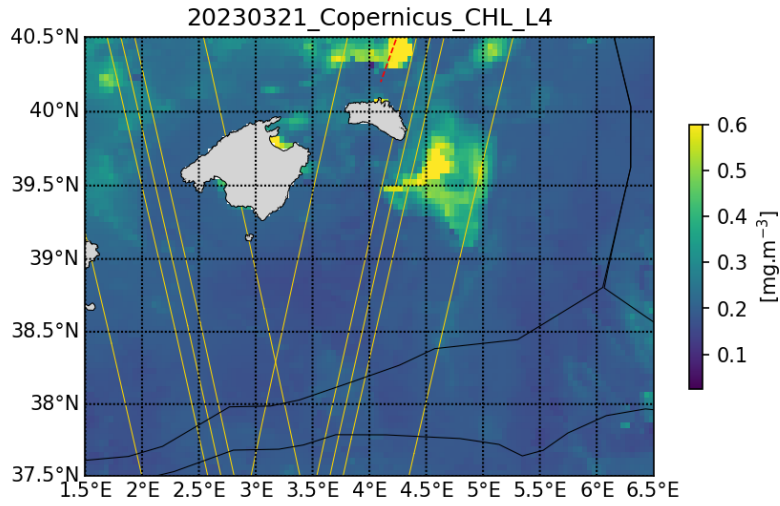
20230322_CLS_SST

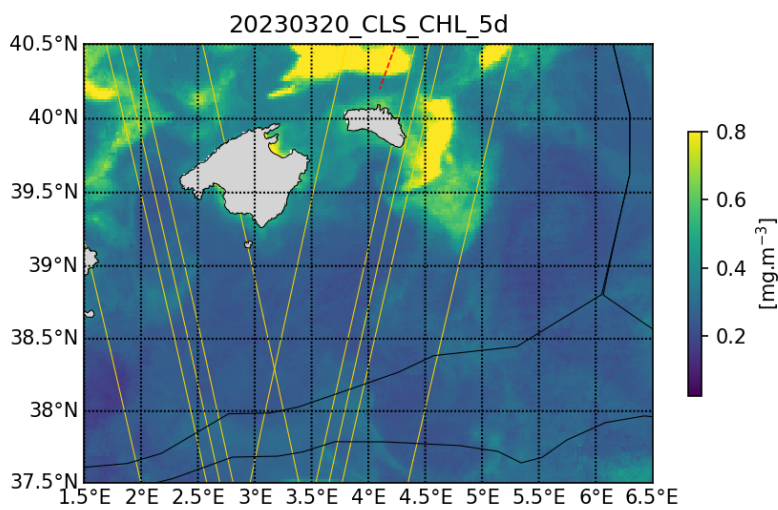
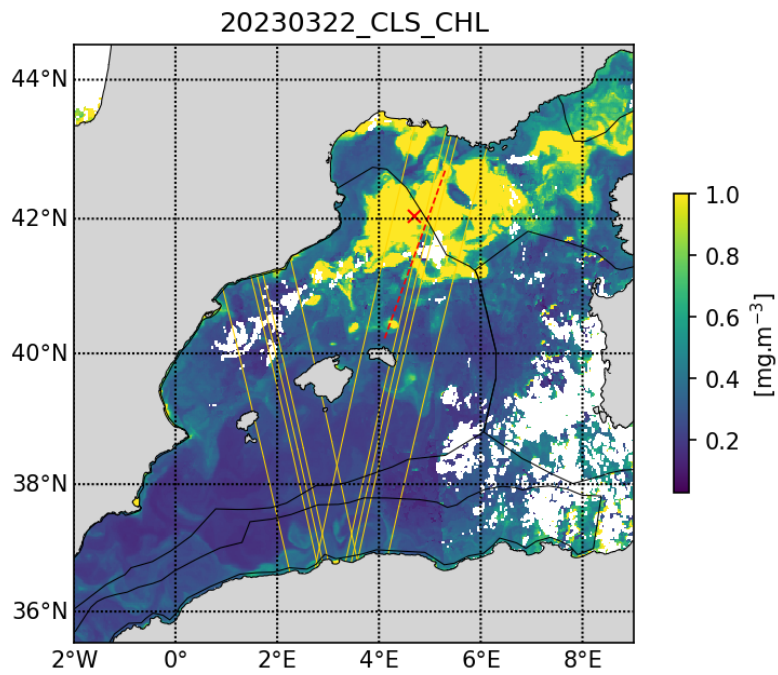


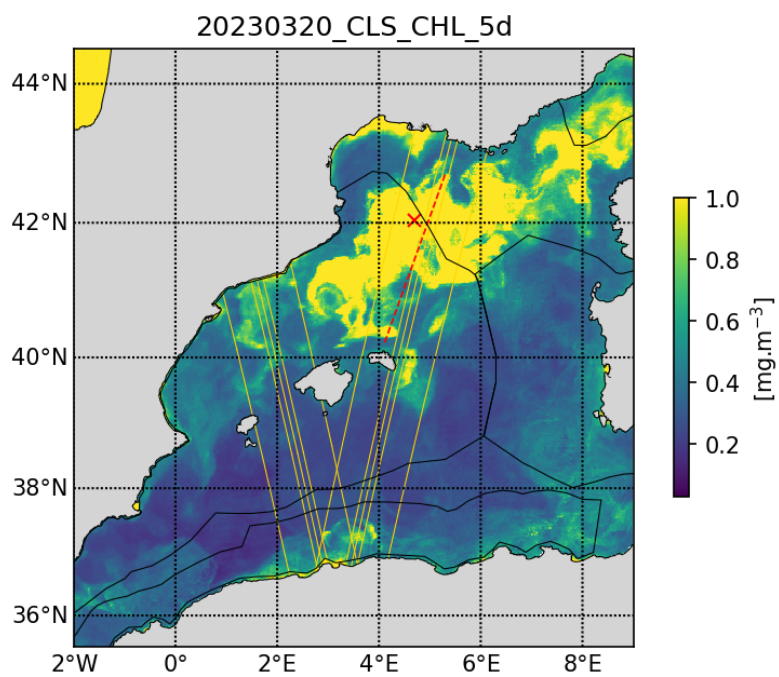
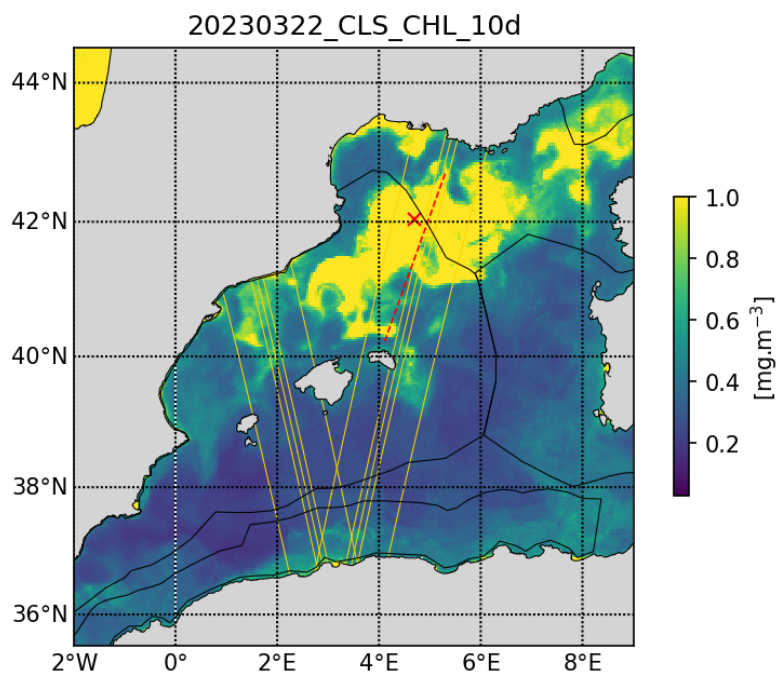


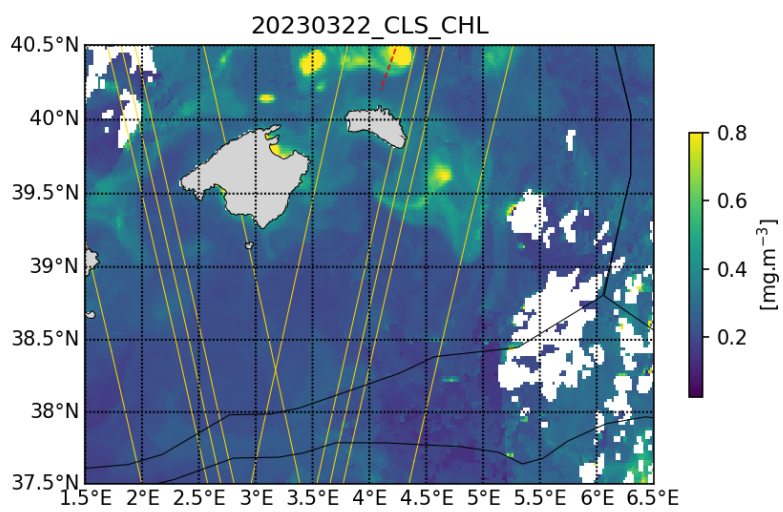
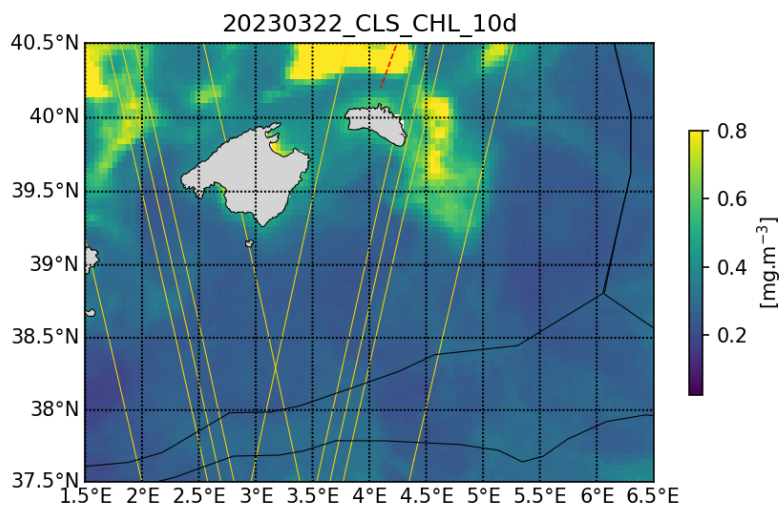
2.3 Chlorophyll analysis

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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:

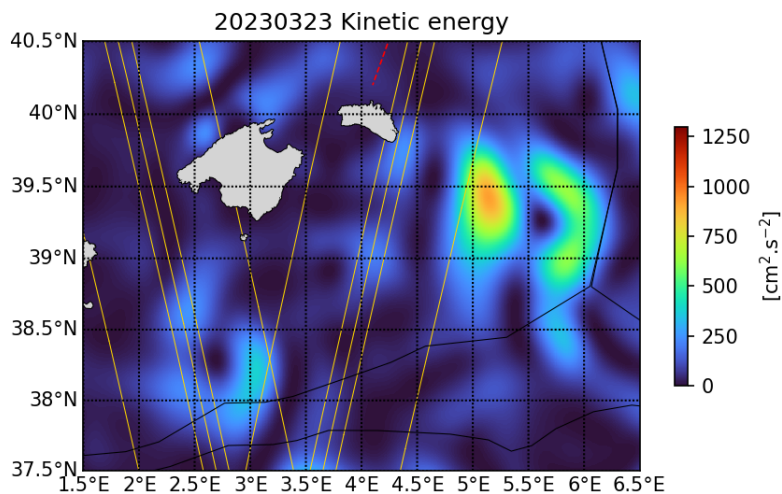
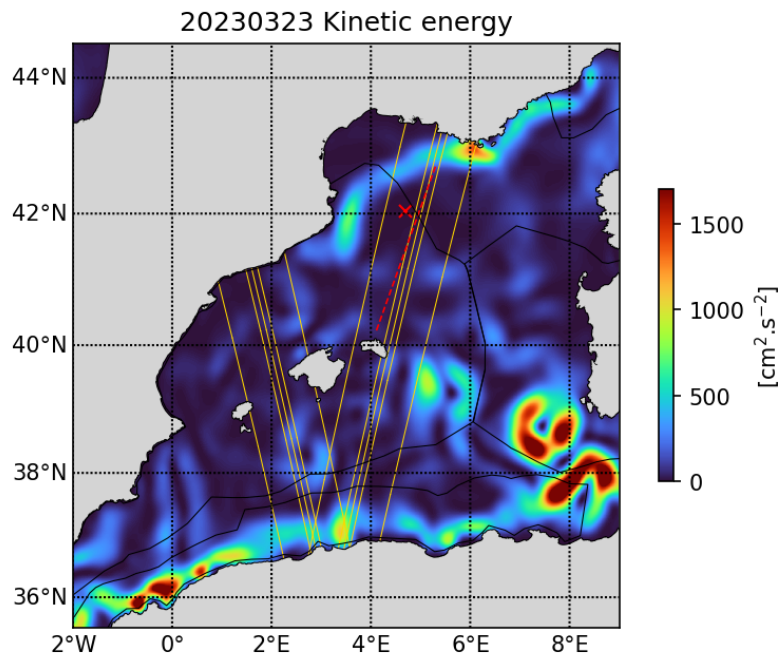
FTLE: finite time Lyapunov exponents (convergent fronts detection)

LLADV: longitude and latitude advection

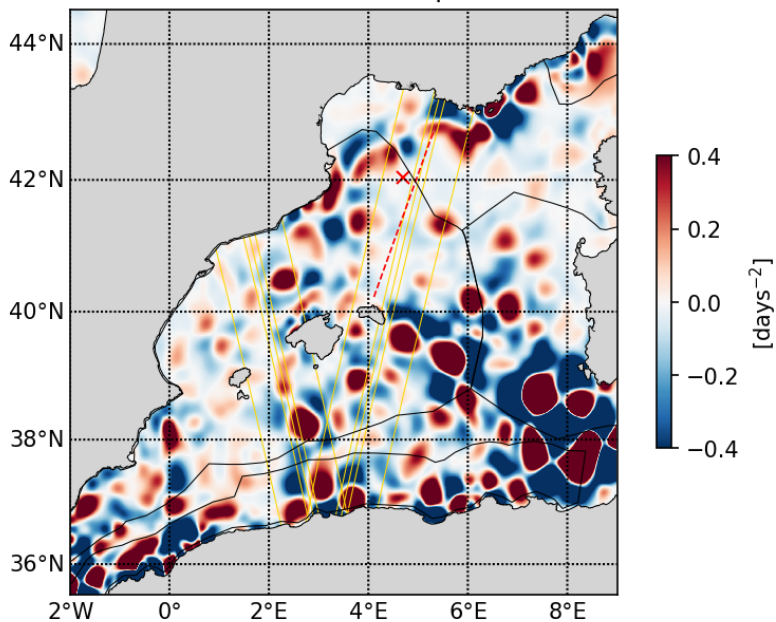
Retention parameter (based on computing the okubo Weiss parameter along a particle trajectory): Detect trapping structures (colorbar = days water parcels have a positive vorticity)

Timefrombathy: Water age since last contact with isobath XXm (precised in figure title)

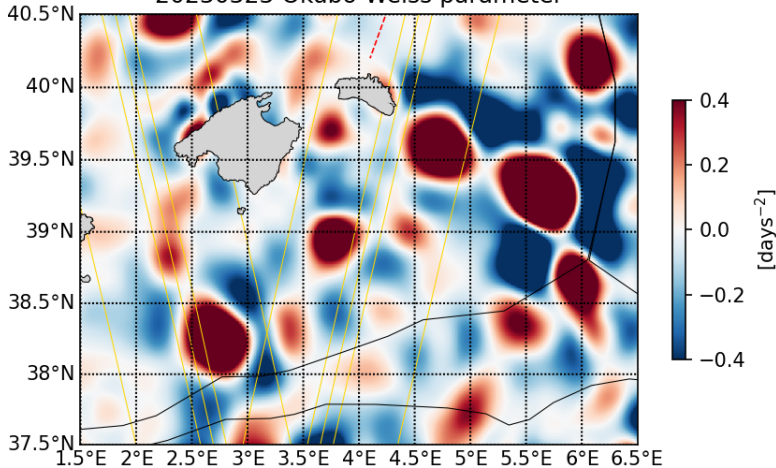
More details available at: <https://www.swot-adac.org/resources/swot-adac-products-access/>



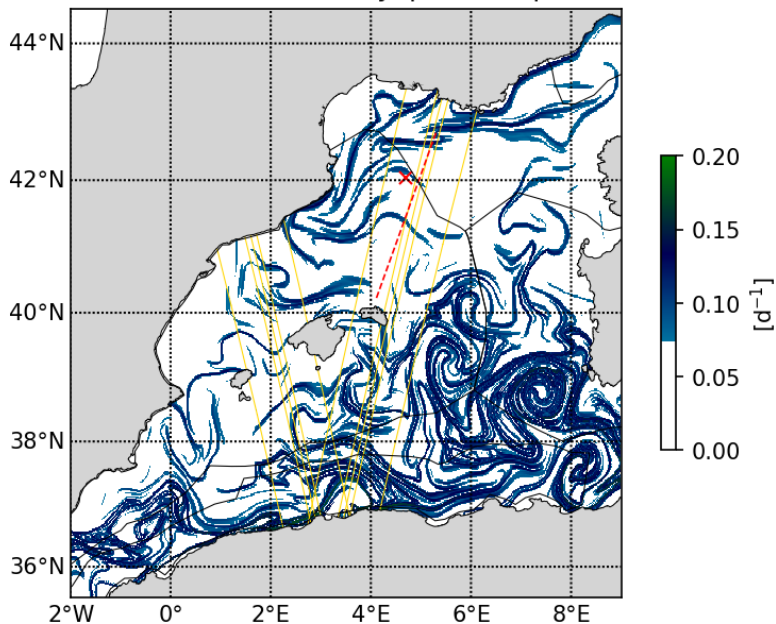
20230323 Okubo-Weiss parameter

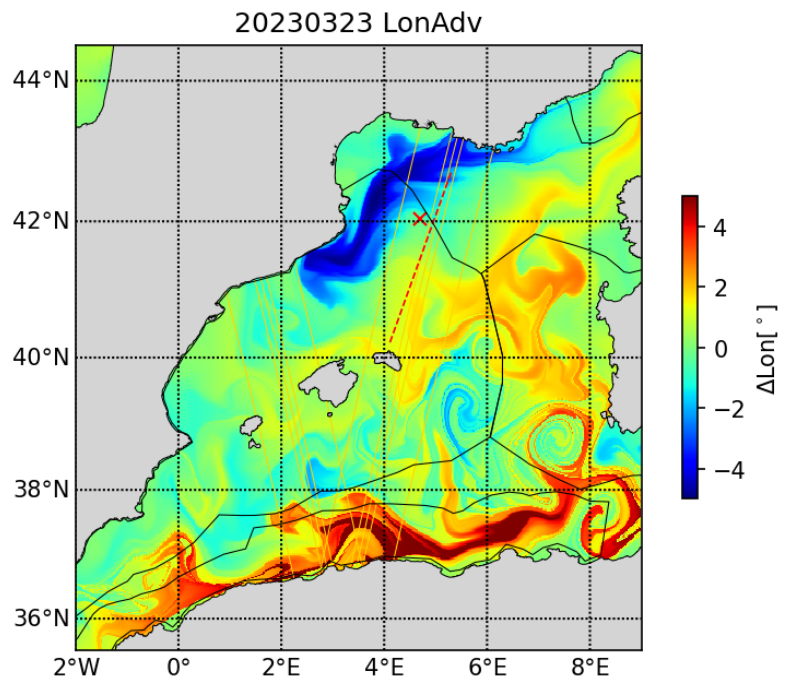
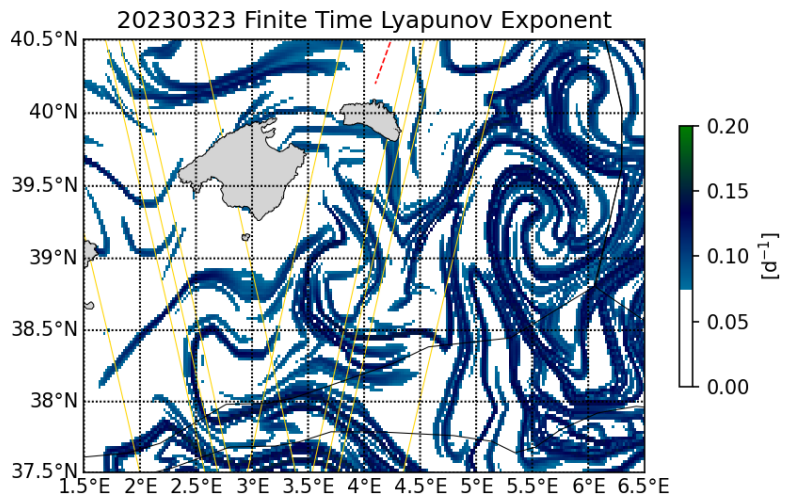


20230323 Okubo-Weiss parameter

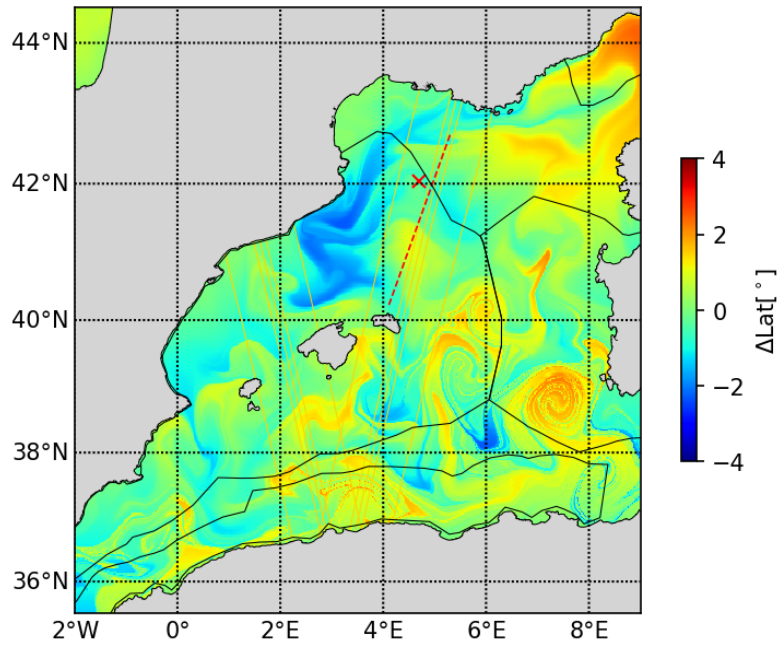


20230323 Finite Time Lyapunov Exponent

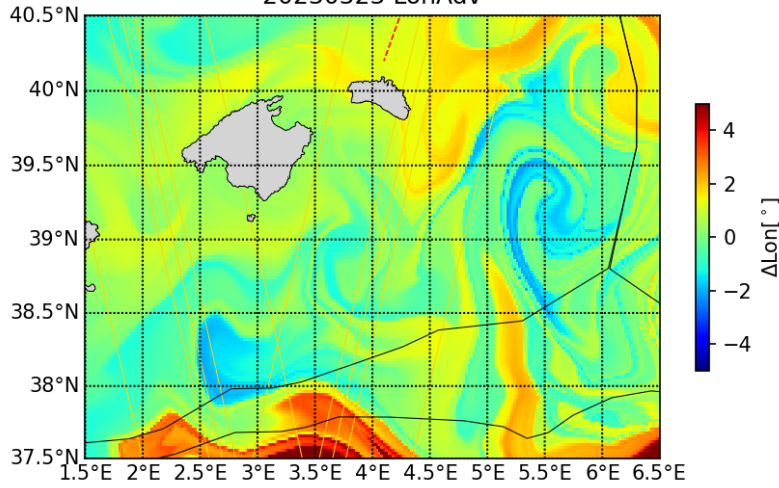




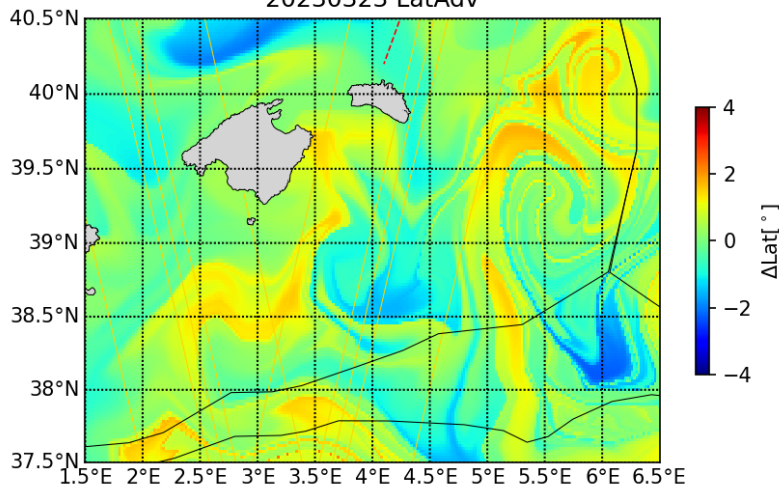
20230323 LatAdv



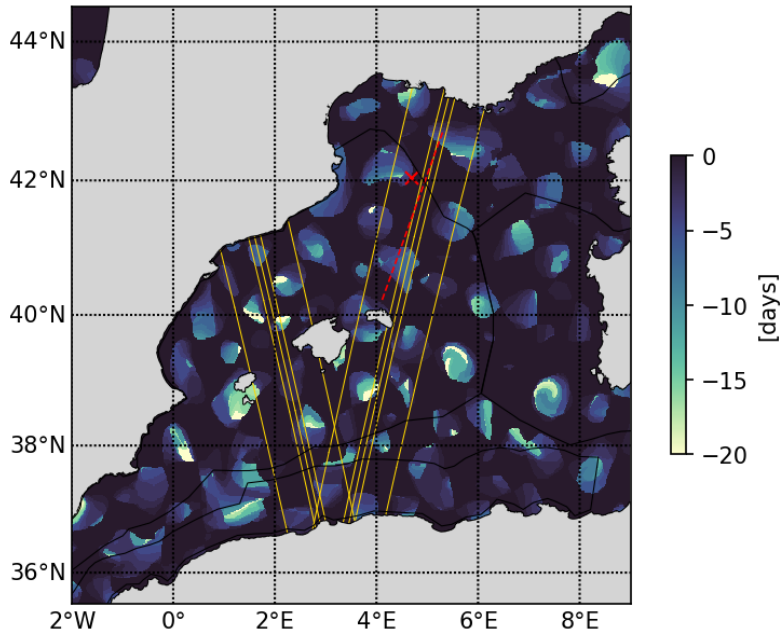
20230323 LonAdv



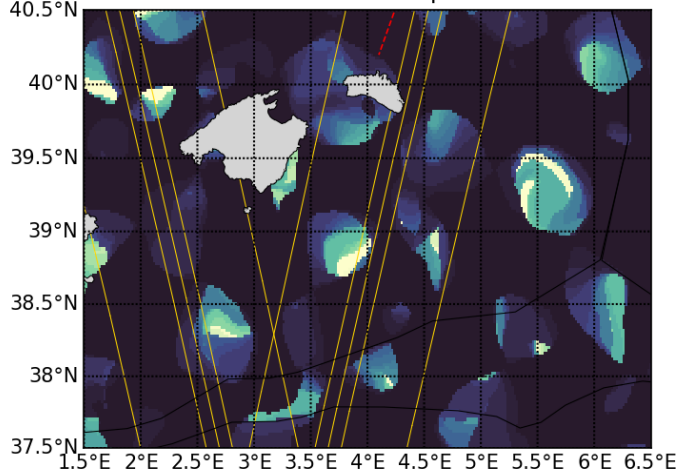
20230323 LatAdv



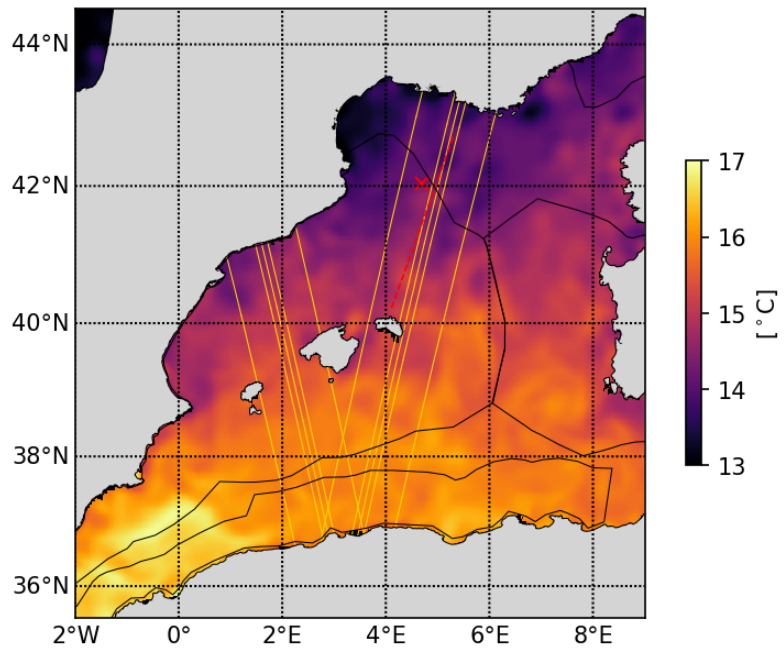
20230323 Retention parameter



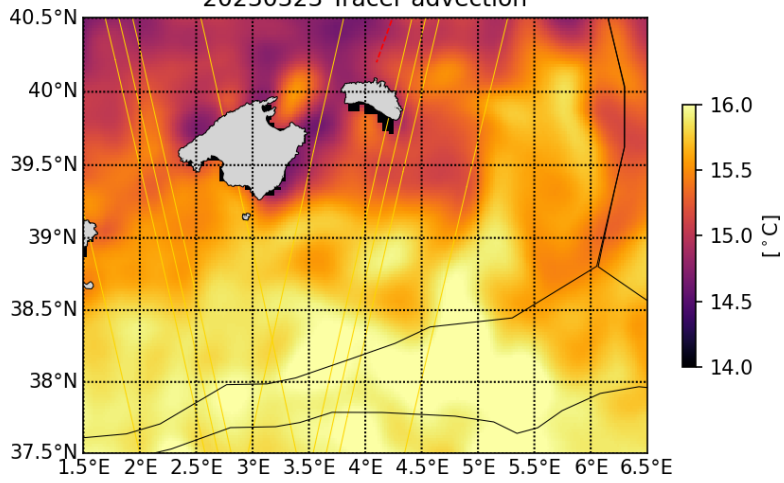
20230323 Retention parameter



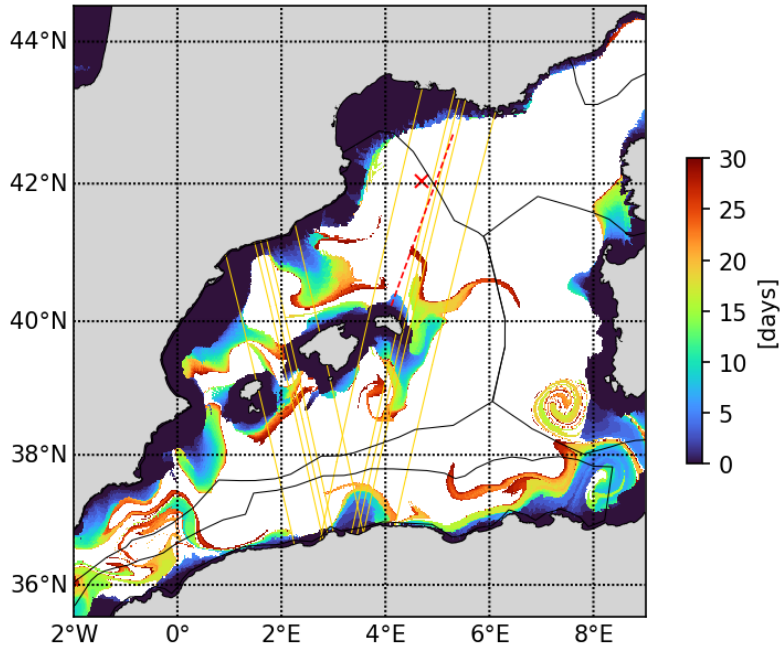
20230323 Tracer advection



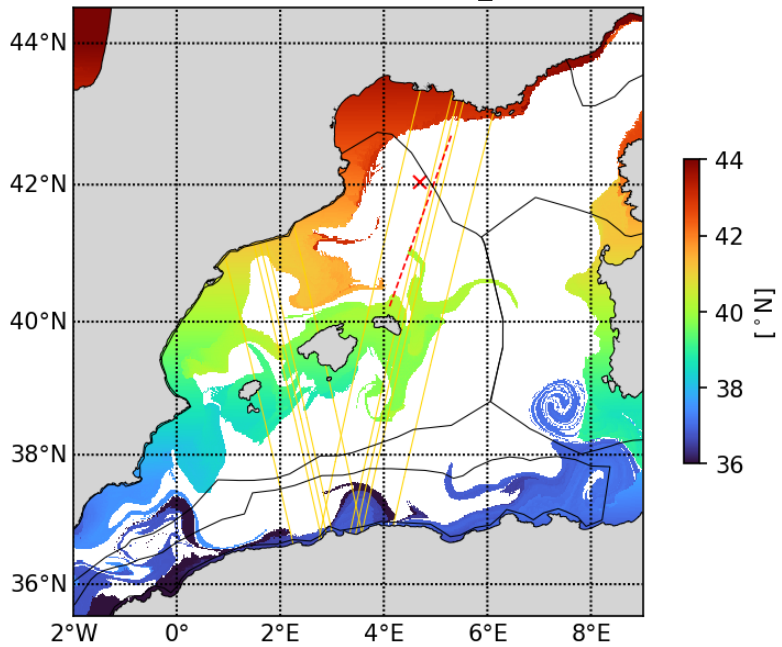
20230323 Tracer advection



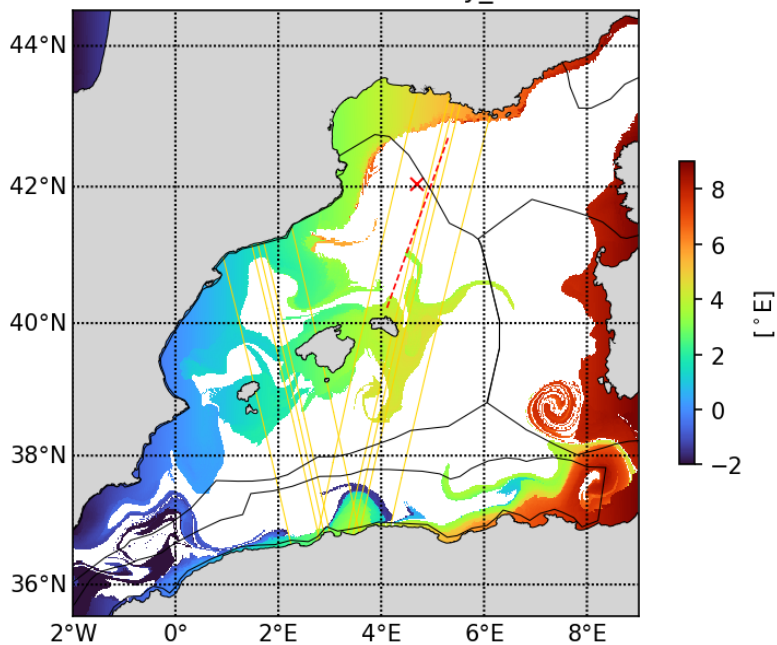
20230323 Timefrombathy_500m



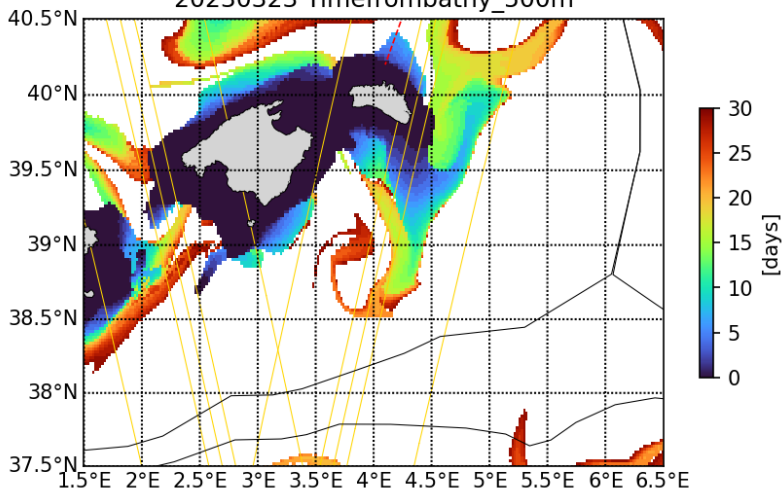
20230323 Latfrombathy_500m



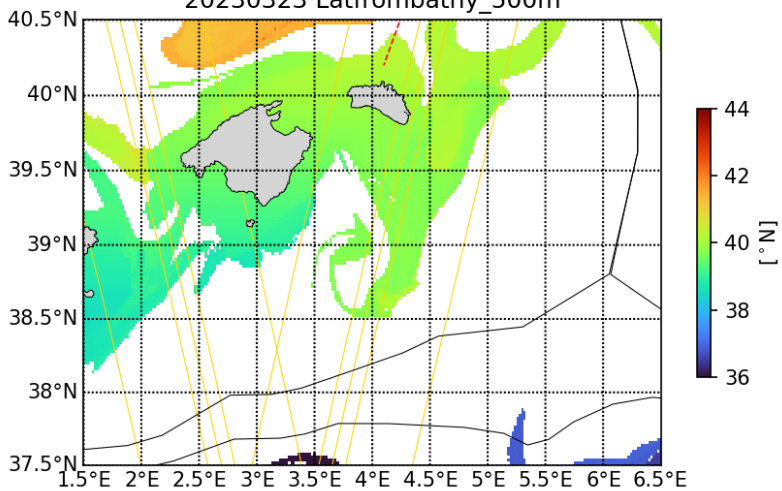
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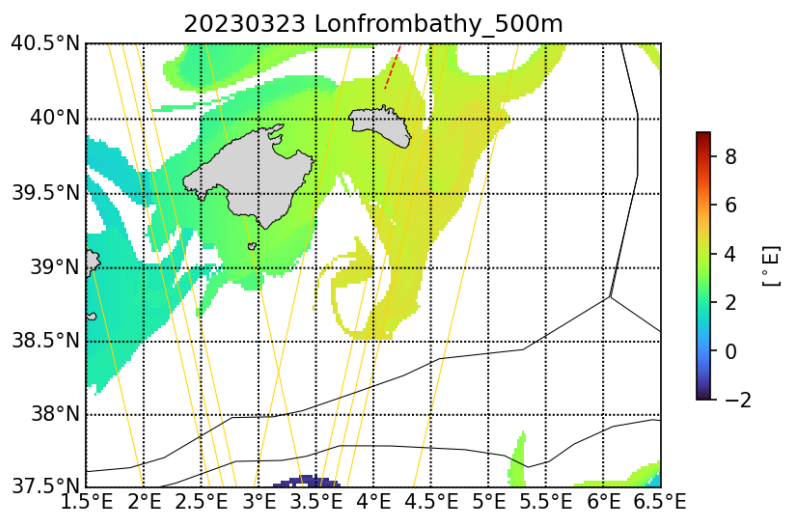


20230323 Timefrombathy_500m



20230323 Latfrombathy_500m





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=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. 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).