

[BIOSWOT-Med]: SPASSO Images Analysis

L. Rousselet, A.M. Doglioli

April 15, 2023

Executive Summary

Type here your executive summary

1 Ongoing operations and upcoming stations

SWOT passing time (UTC) over:

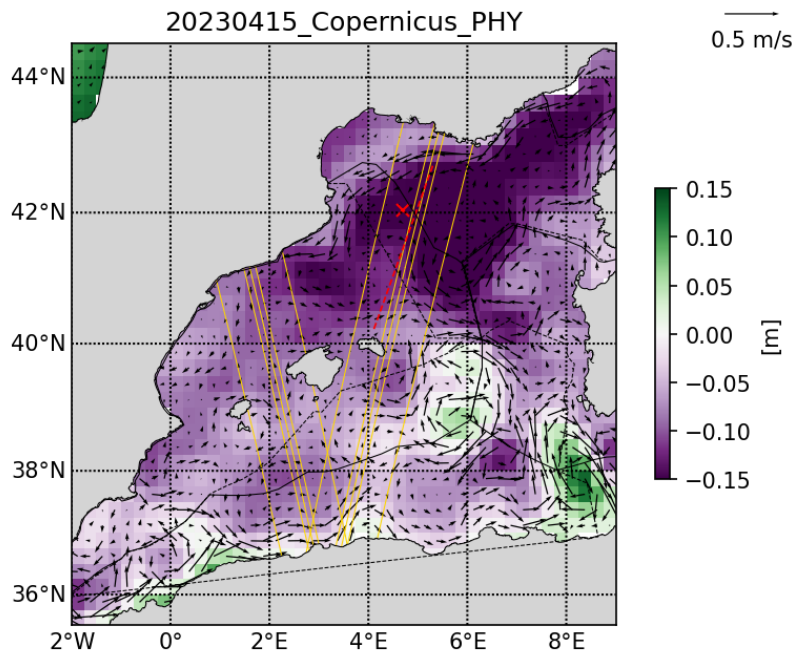
43°N - 5°E Asc 42.7°N - 4.8°E Asc	
:----- :-----	
2023-04-15 21:33:23	2023-04-15 21:33:23
2023-04-16 21:24:01	2023-04-16 21:24:01
2023-04-17 21:14:38	2023-04-17 21:14:38
2023-04-18 21:05:16	2023-04-18 21:05:16
2023-04-19 20:55:53	2023-04-19 20:55:53

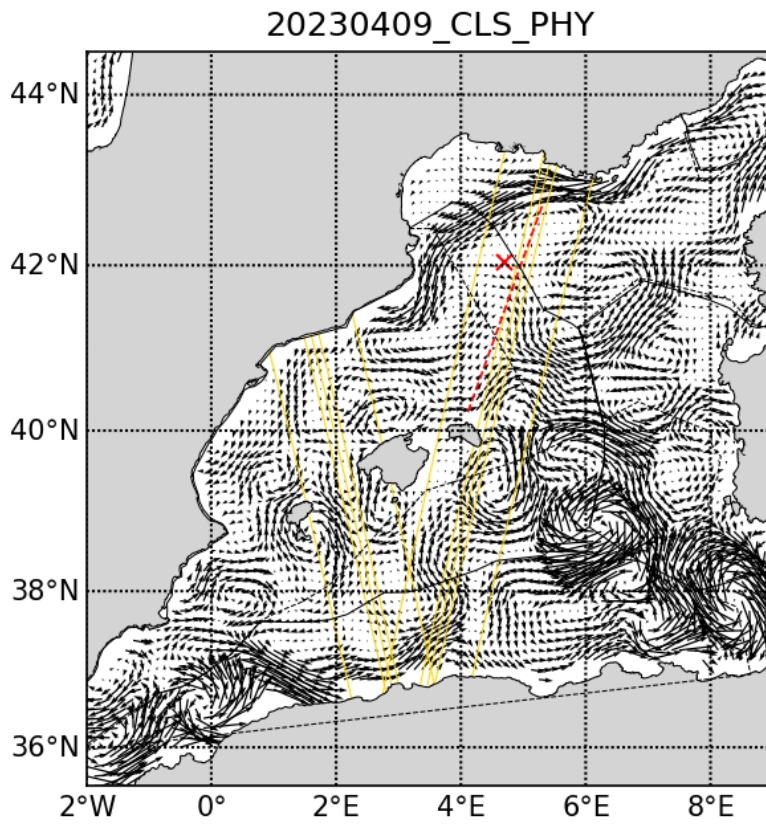
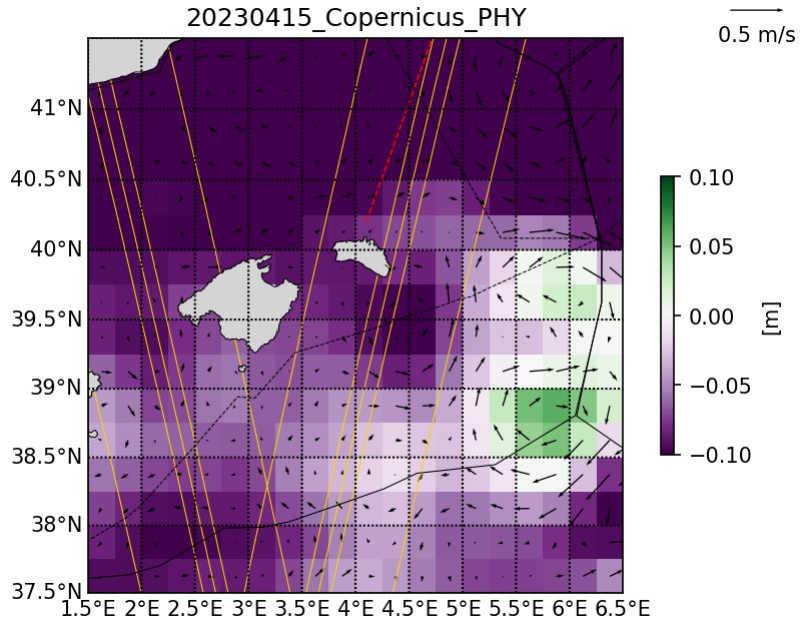
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2 Daily figures analysis

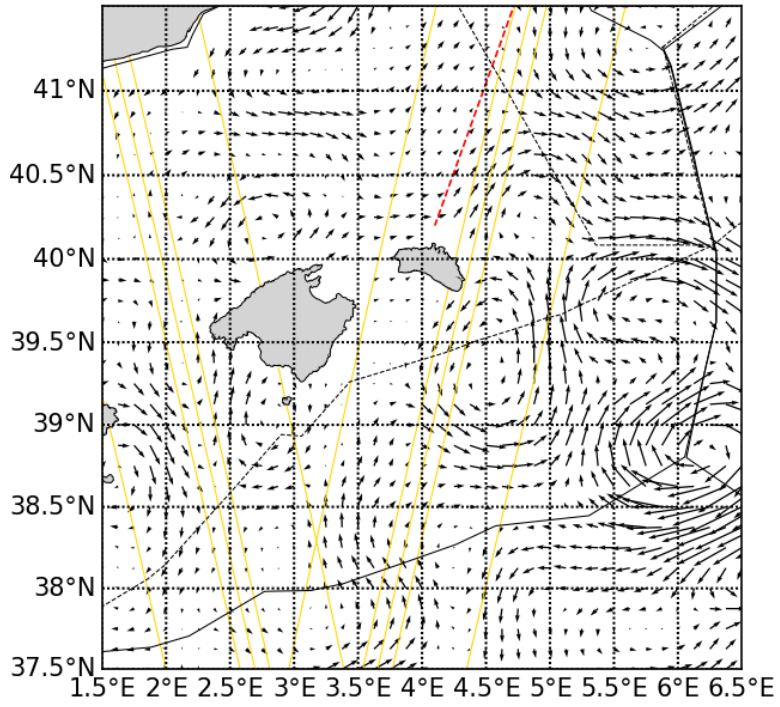
2.1 Altimetry, derived currents

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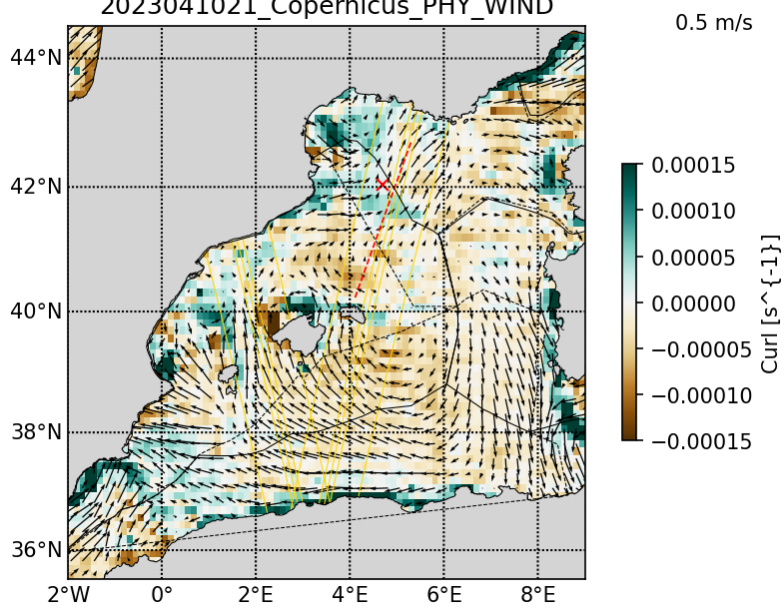


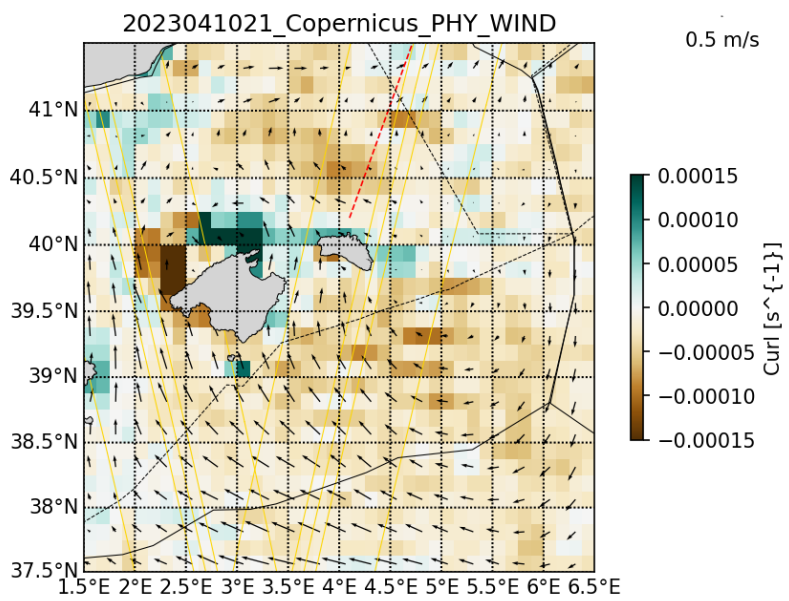


20230409_CLS_PHY



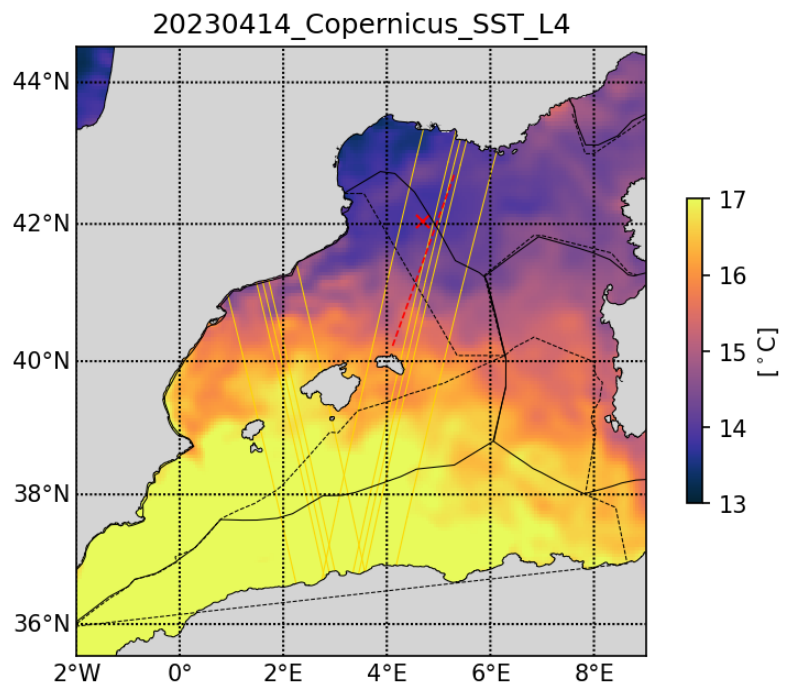
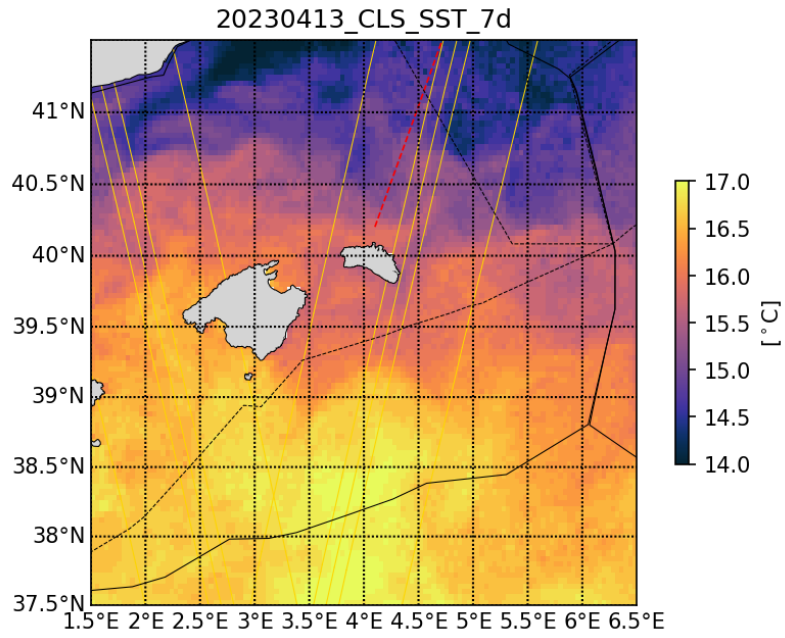
2023041021_Copernicus_PHY_WIND

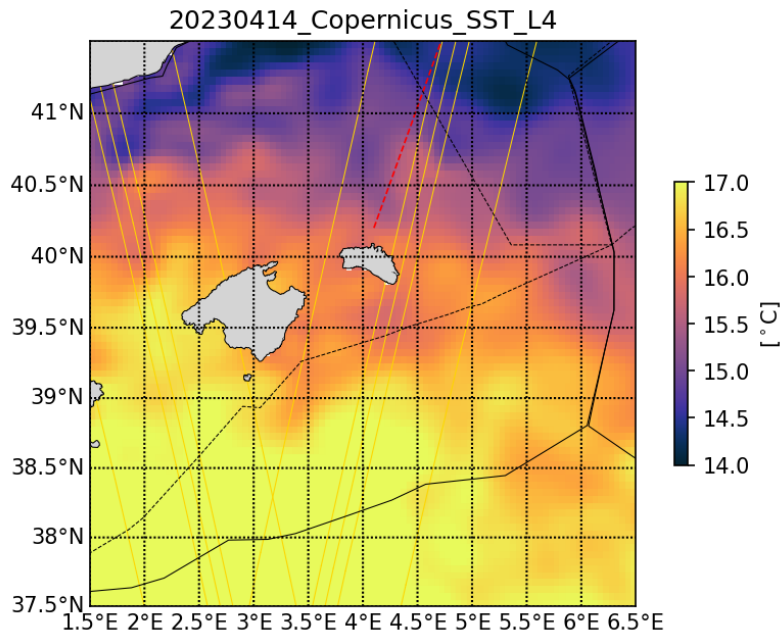
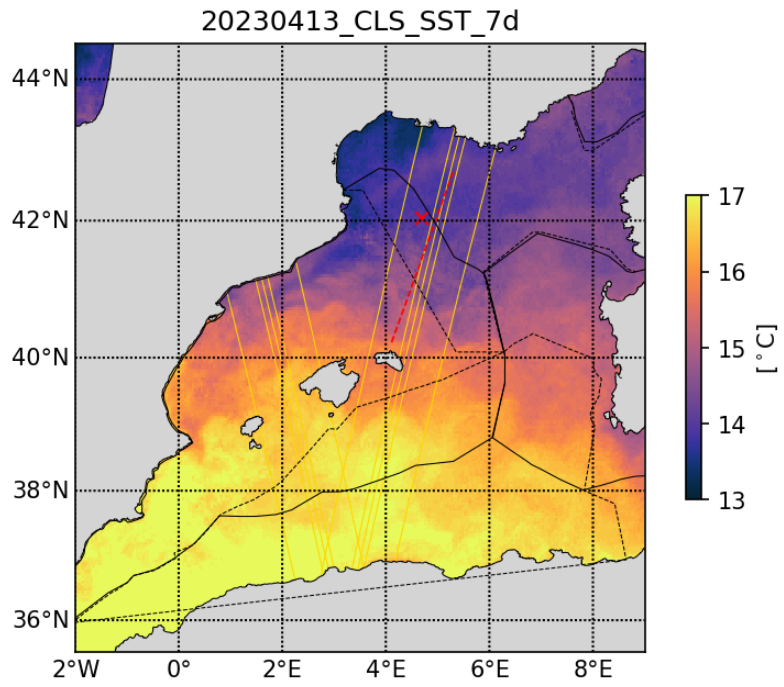




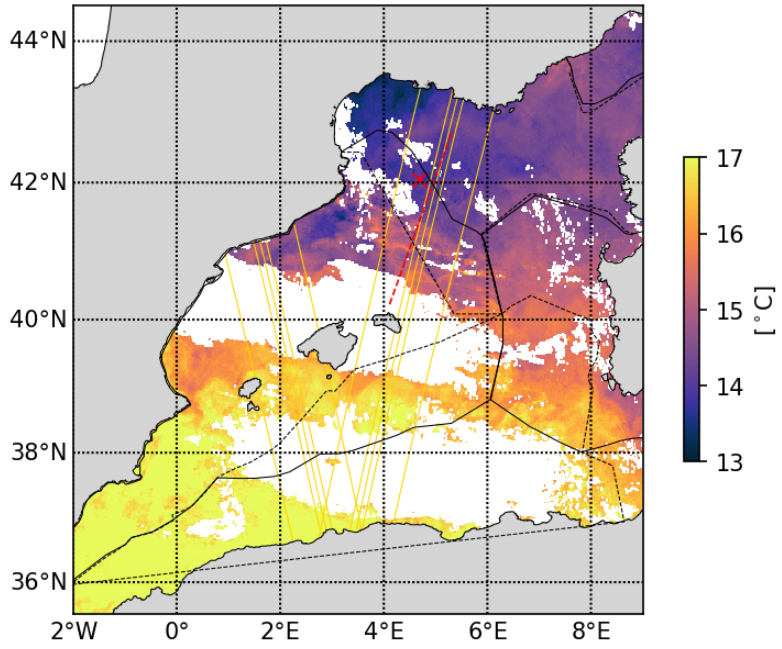
2.2 SST analysis

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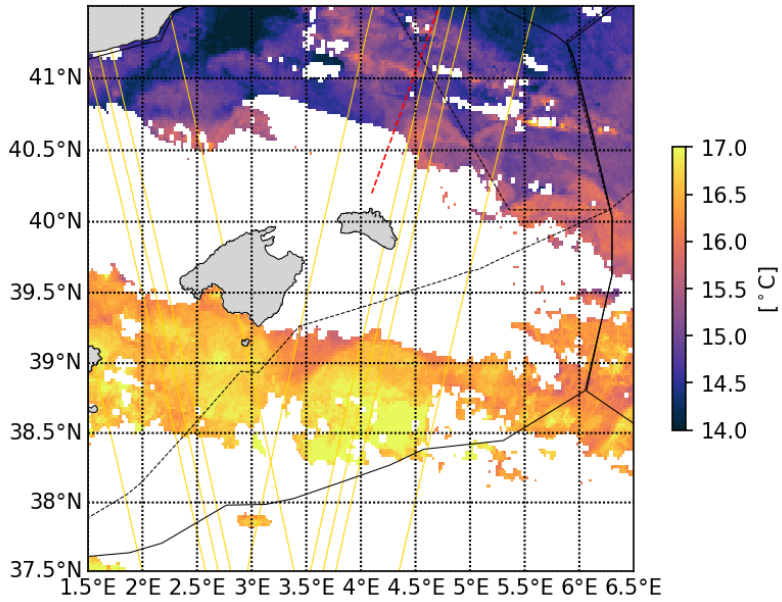




20230414_CLS_SST

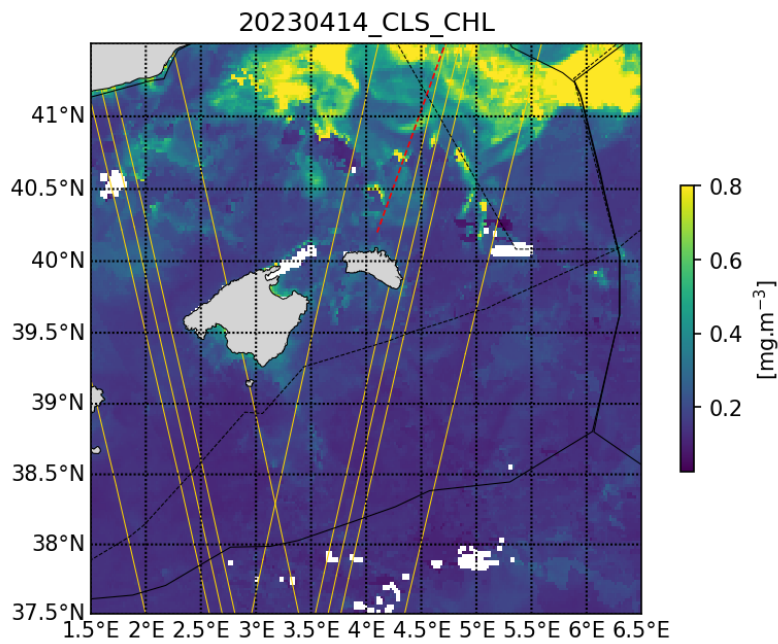
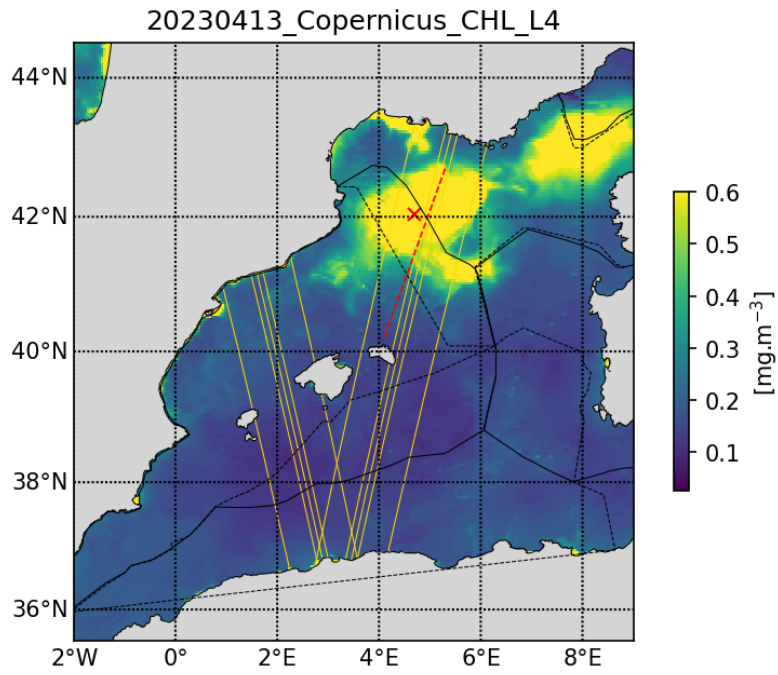


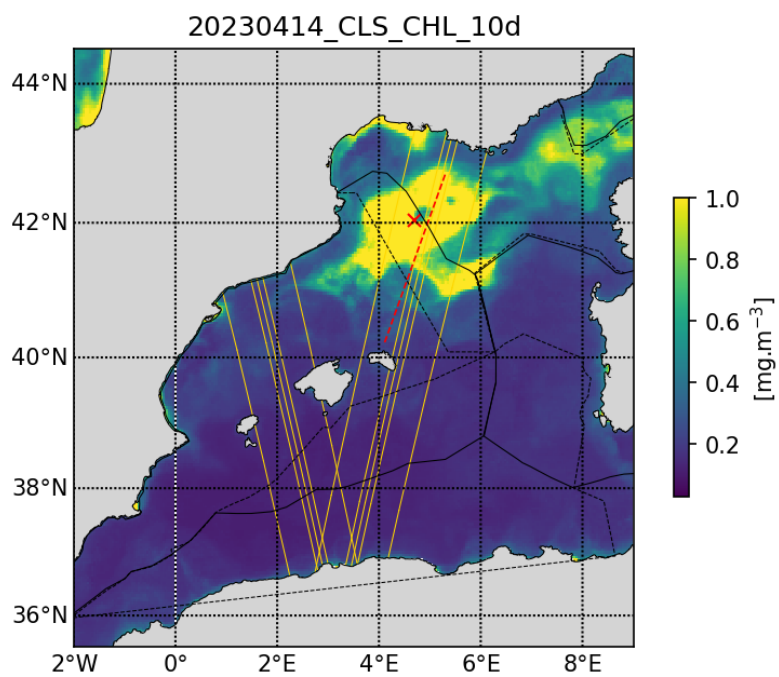
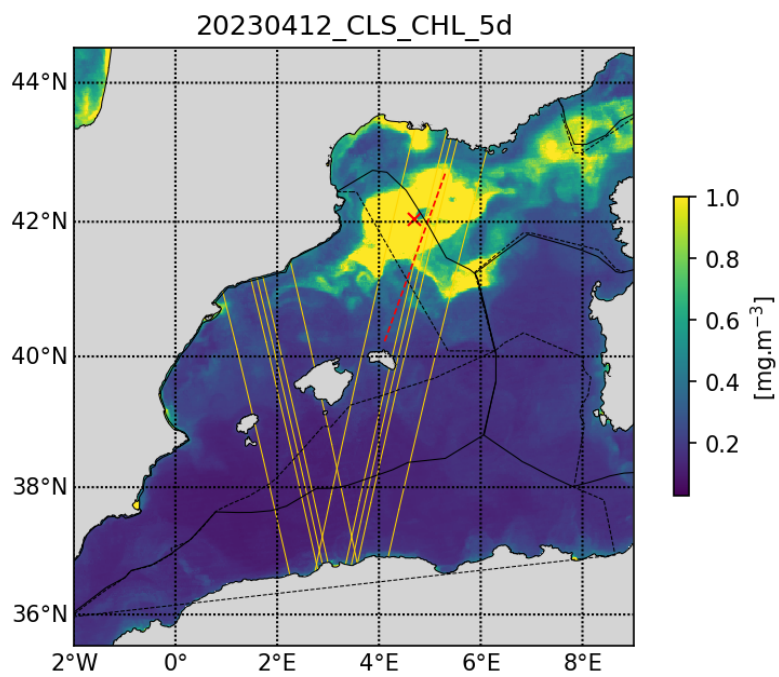
20230414_CLS_SST



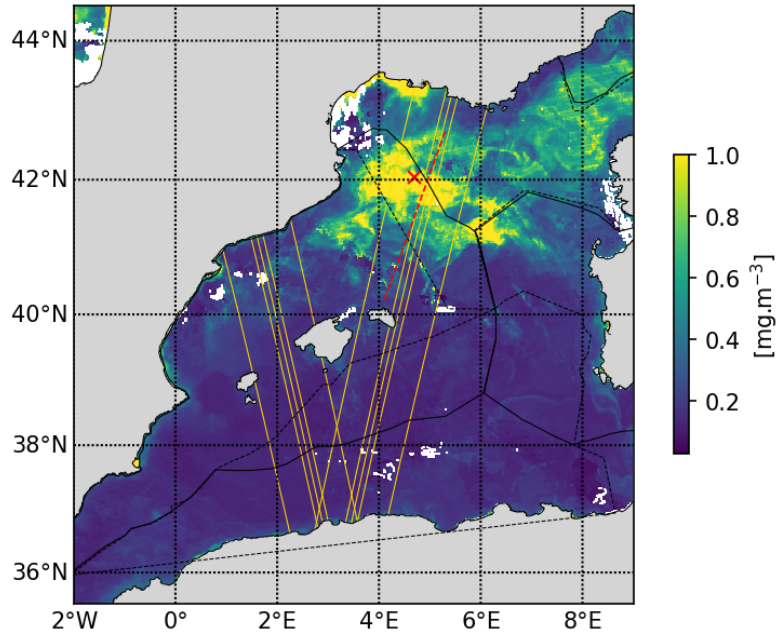
2.3 Chlorophyll analysis

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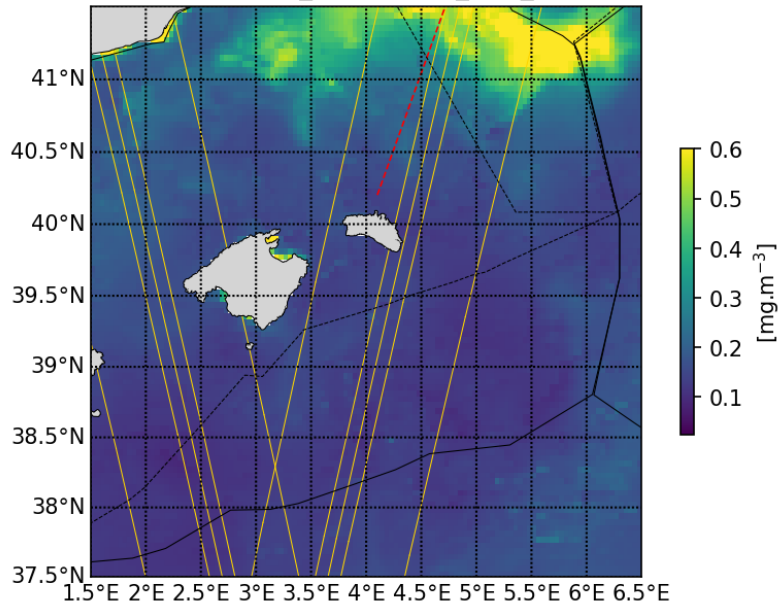


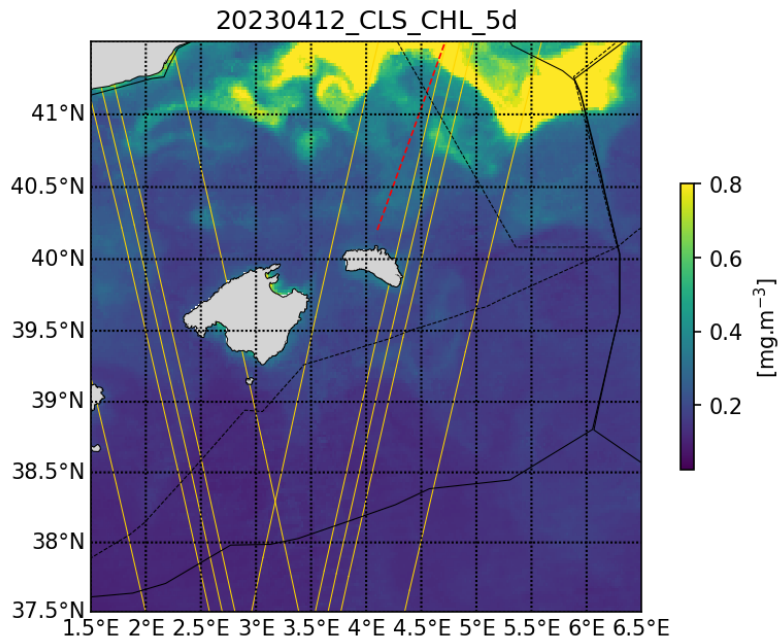
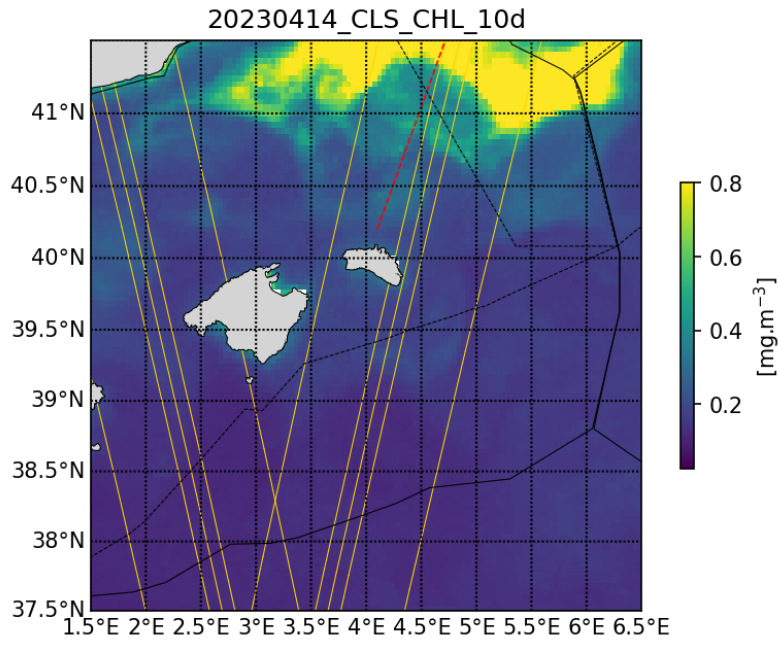


20230414_CLS_CHL



20230413_Copernicus_CHL_L4





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:

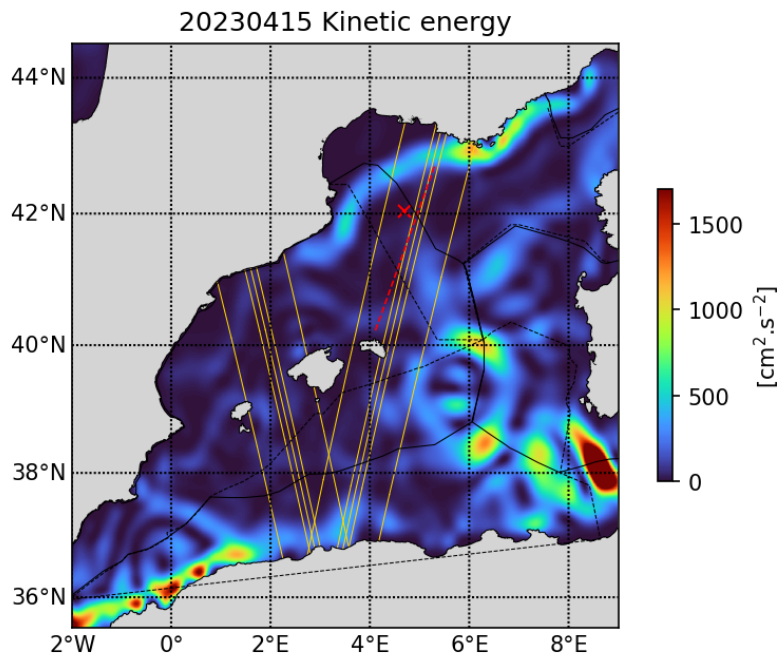
FTLE: finite time Lyapunov exponents (convergent fronts detection)

LLADV: longitude and latitude advection

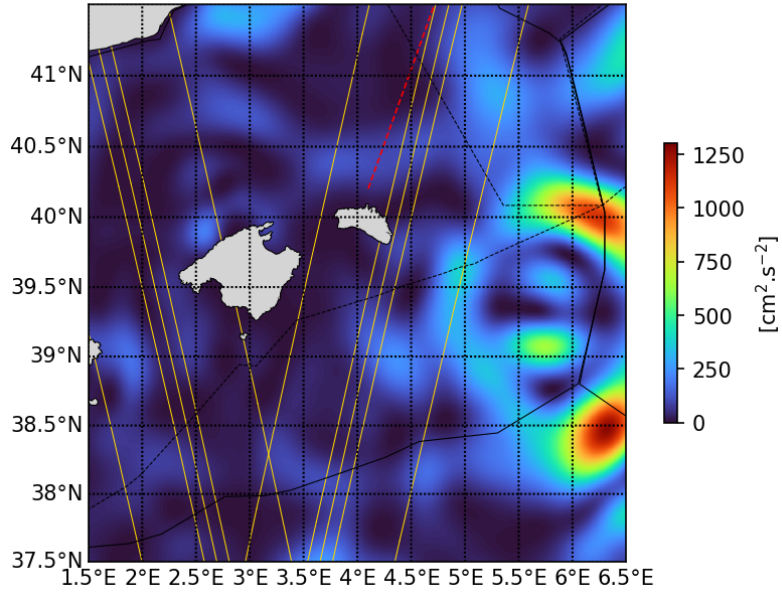
Retention parameter (based on computing the okubo Weiss parameter along a particle trajectory): Detect trapping structures (colorbar = days water parcels have a positive vorticity)

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

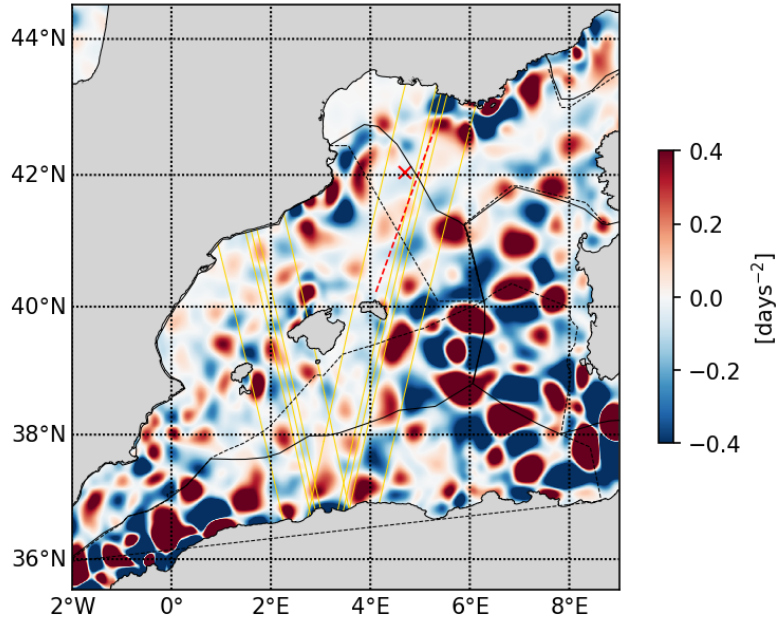
More details available at: <https://www.swot-adac.org/resources/swot-adac-products-access/>



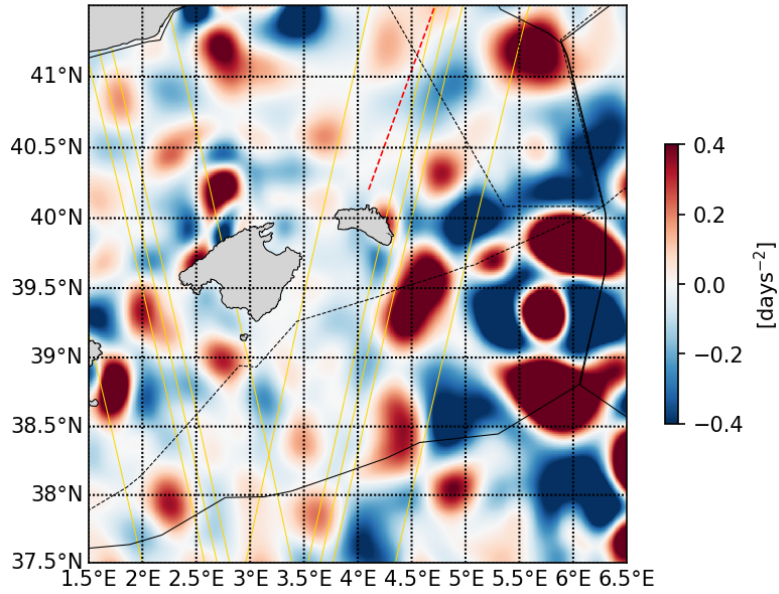
20230415 Kinetic energy



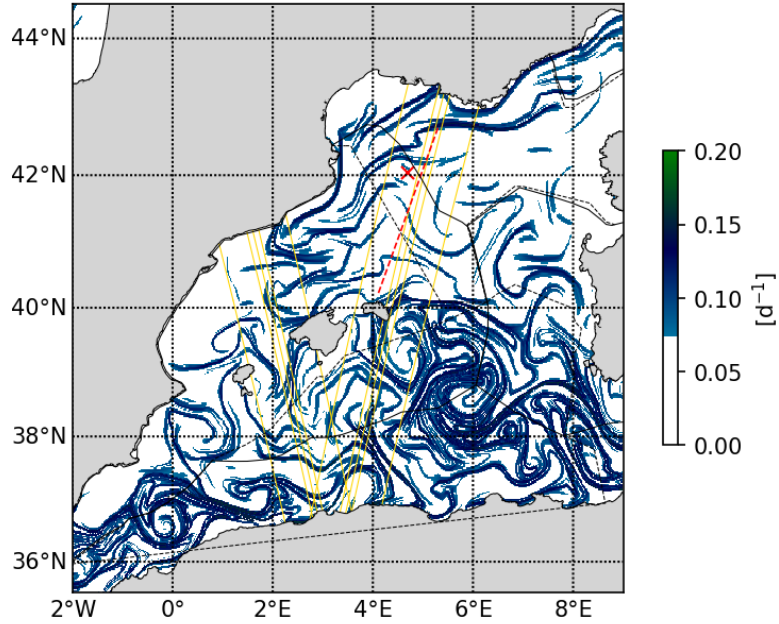
20230415 Okubo-Weiss parameter

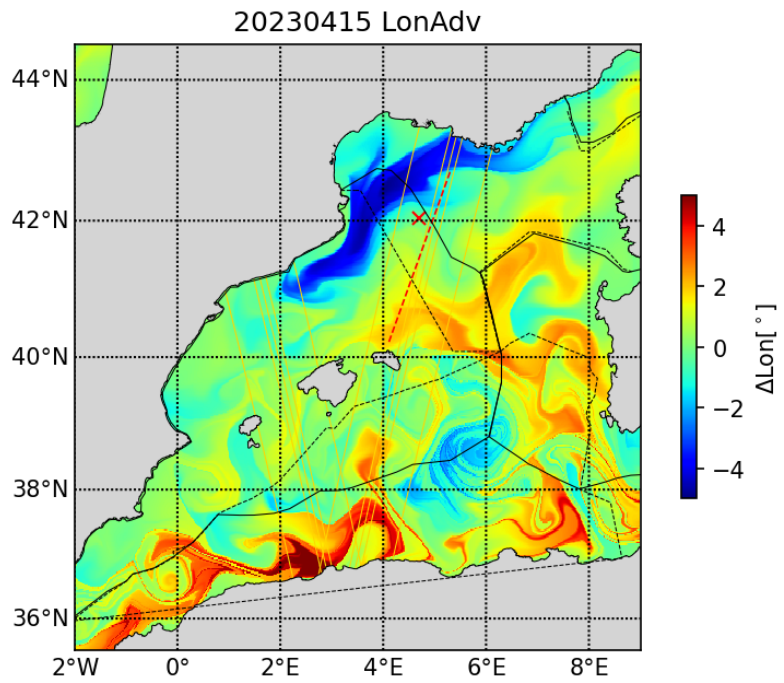
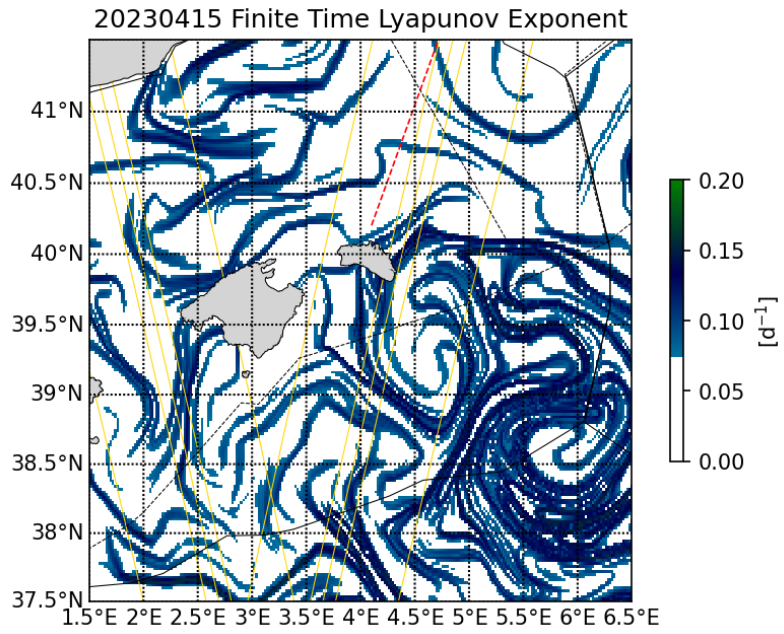


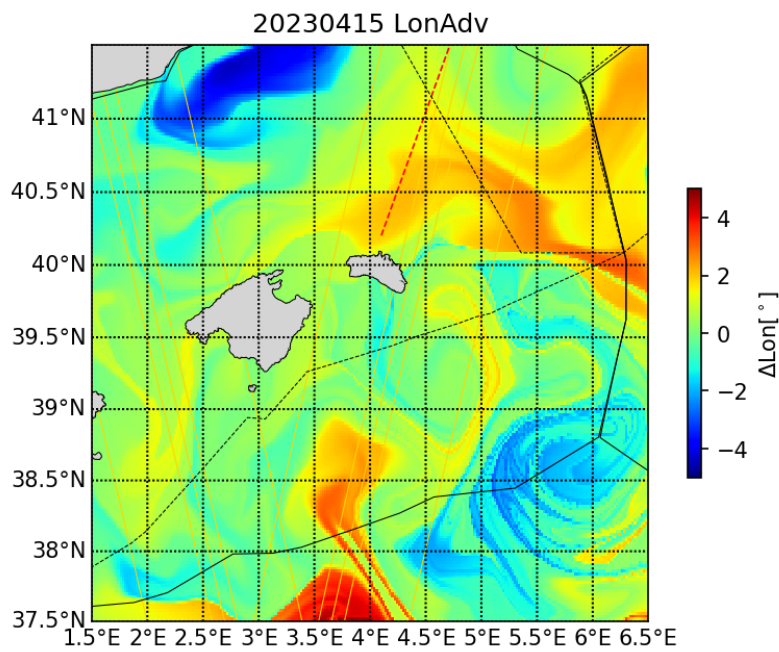
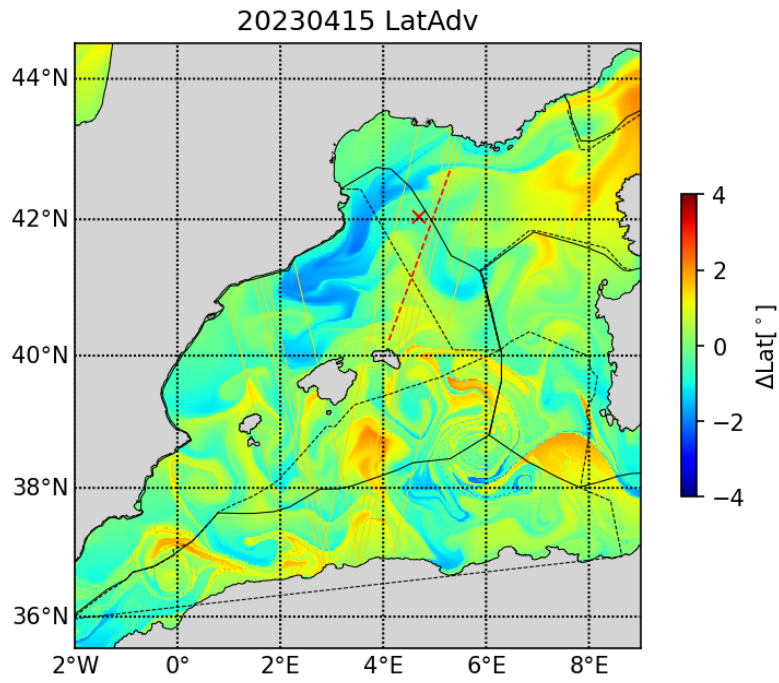
20230415 Okubo-Weiss parameter

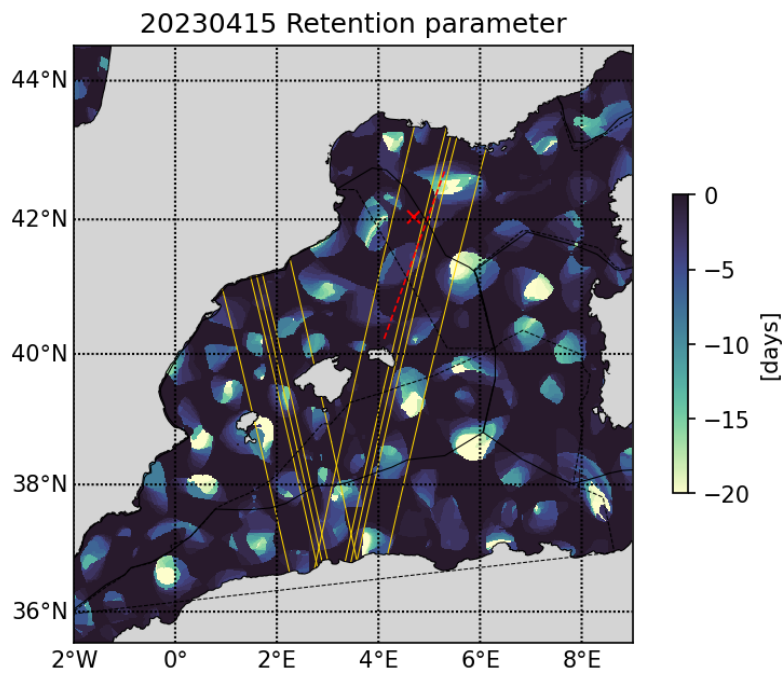
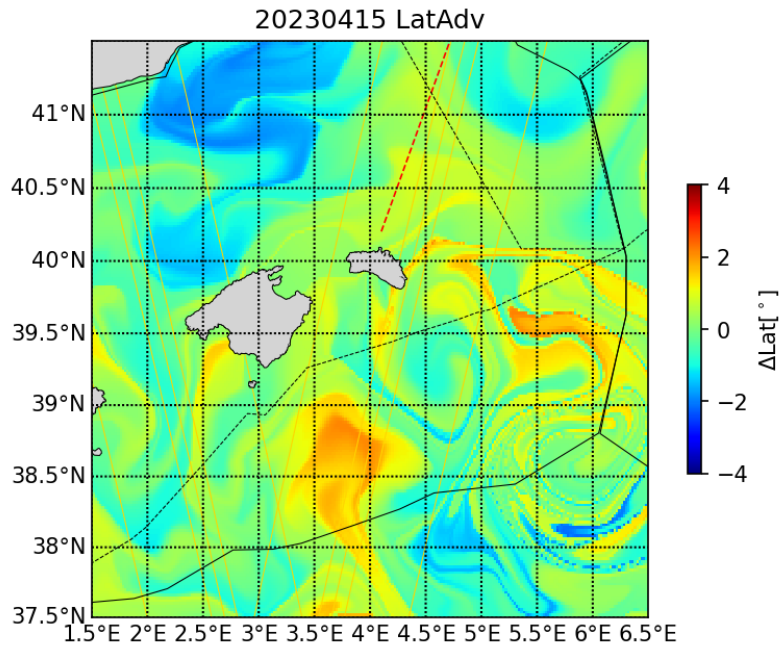


20230415 Finite Time Lyapunov Exponent

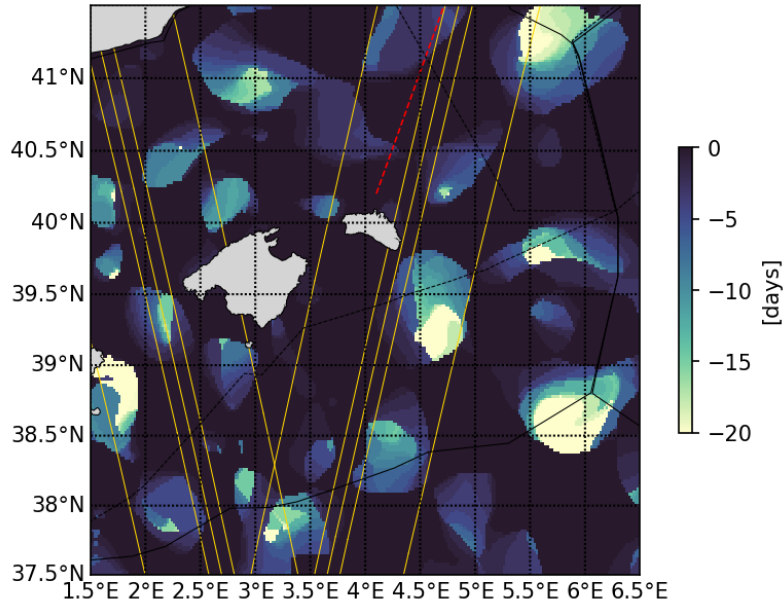




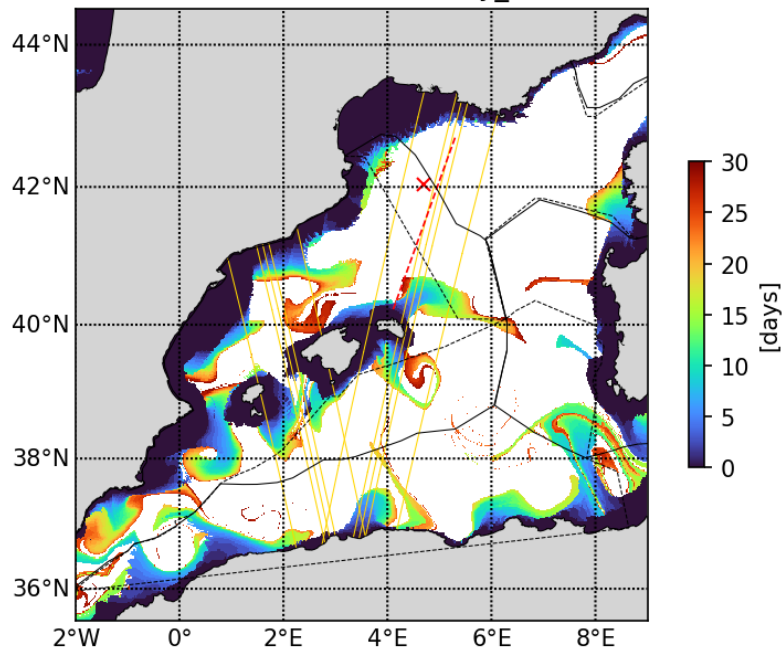




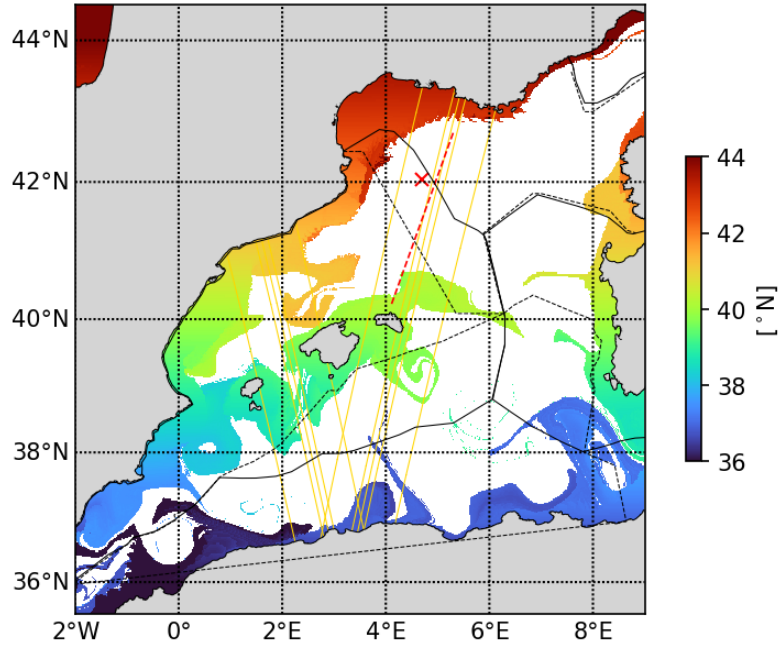
20230415 Retention parameter



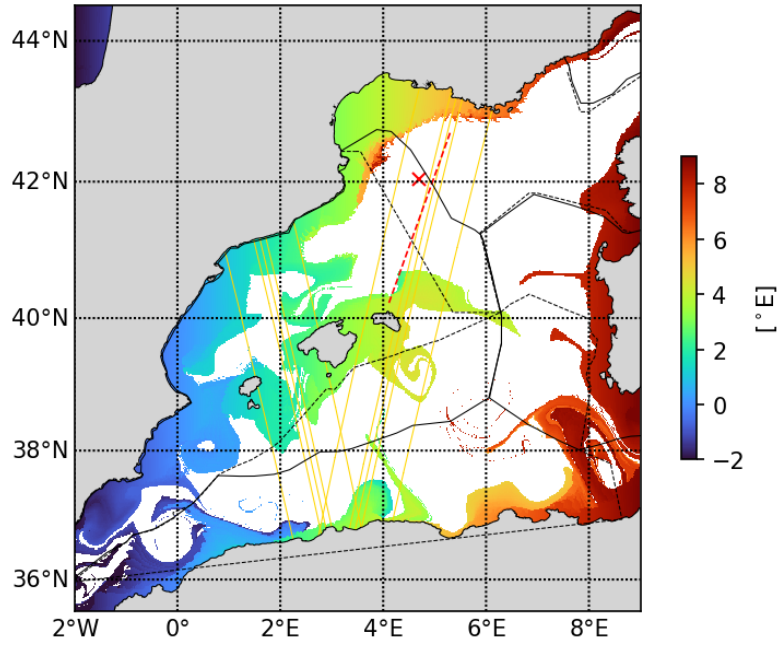
20230415 Timefrombathy_500m

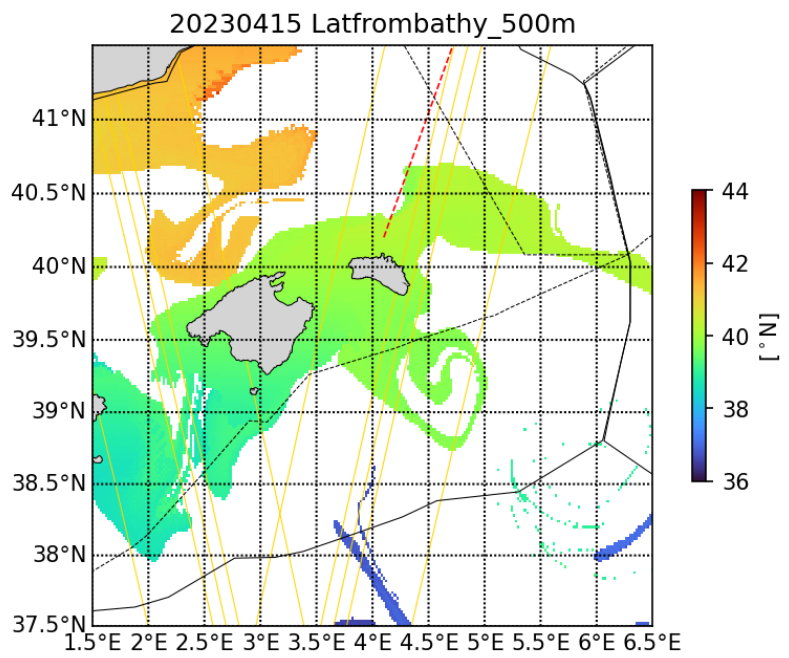
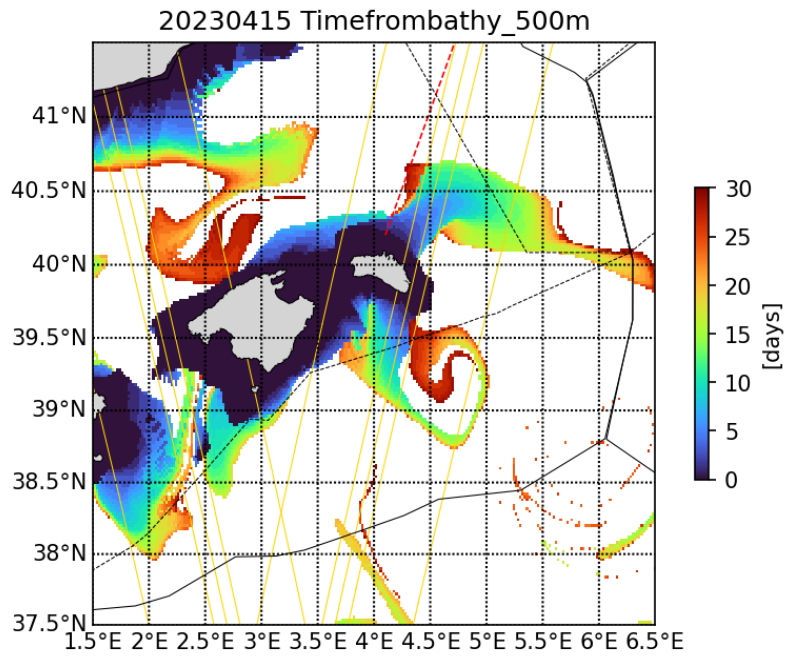


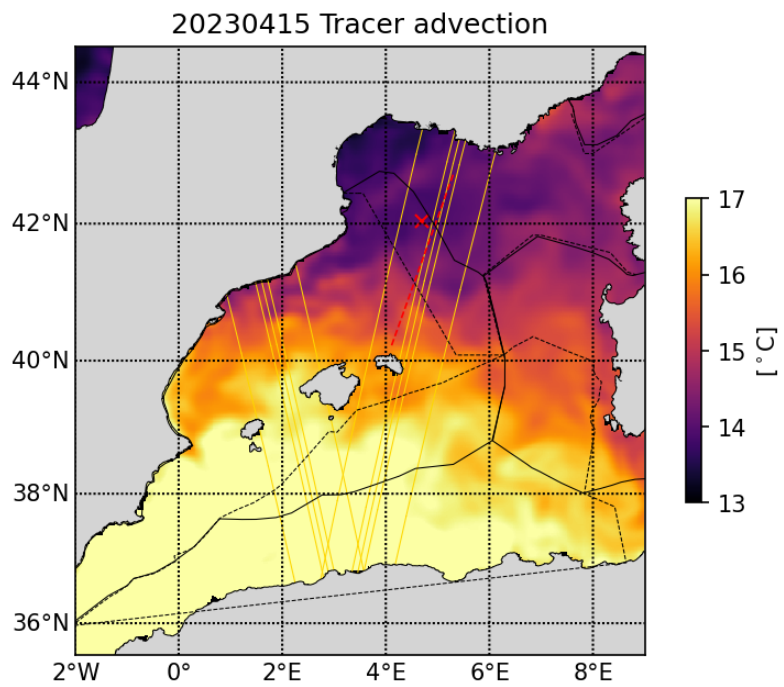
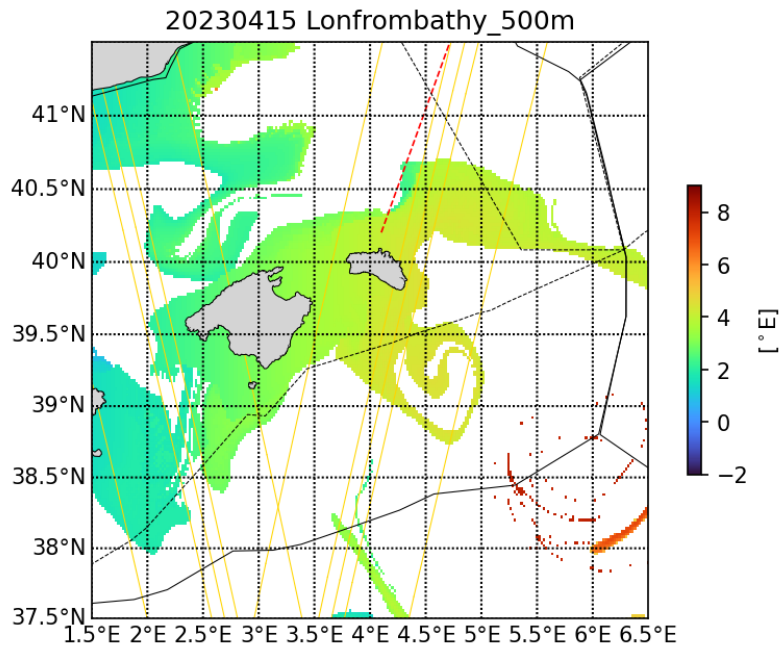
20230415 Latfrombathy_500m



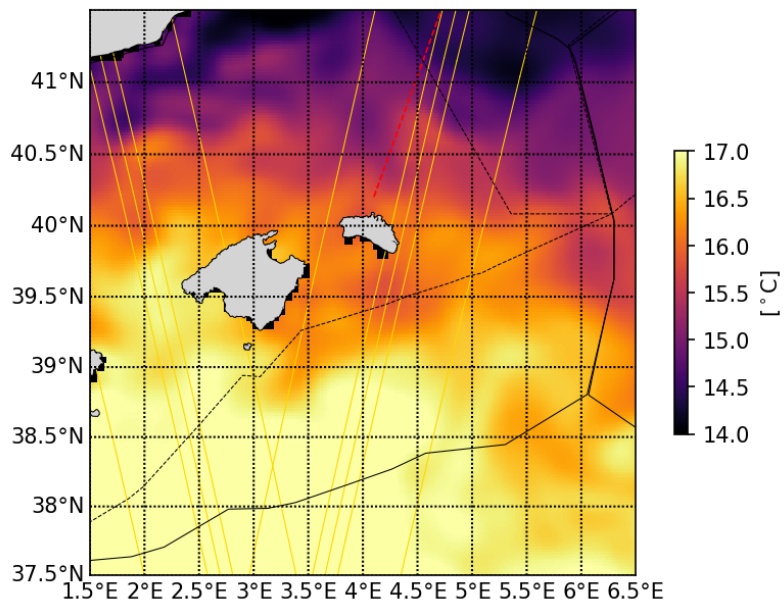
20230415 Lonfrombathy_500m





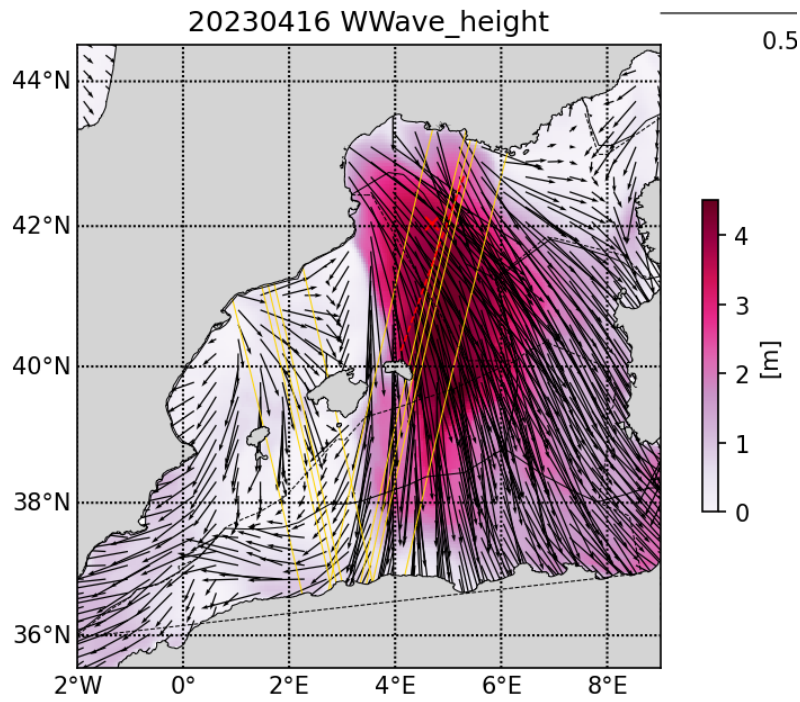
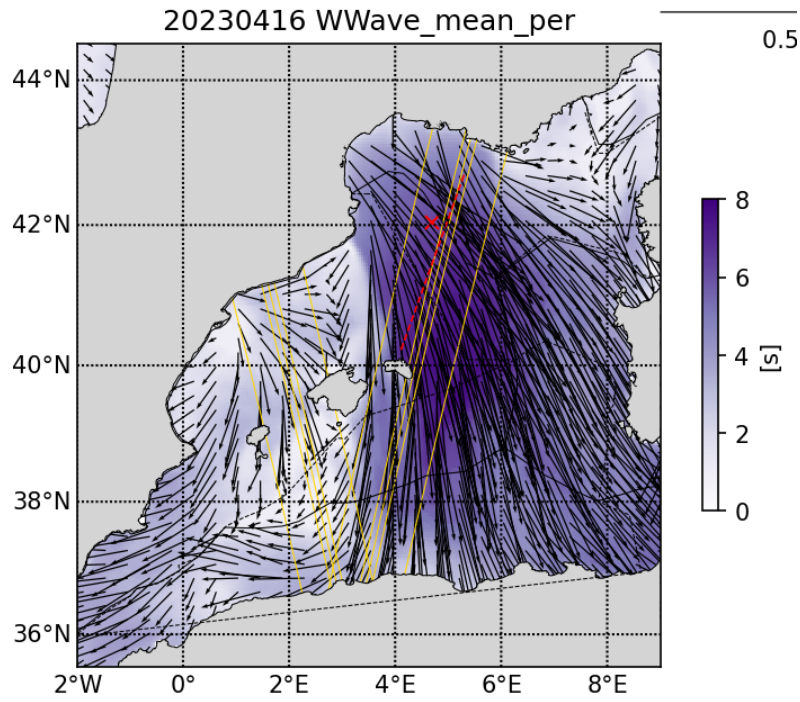


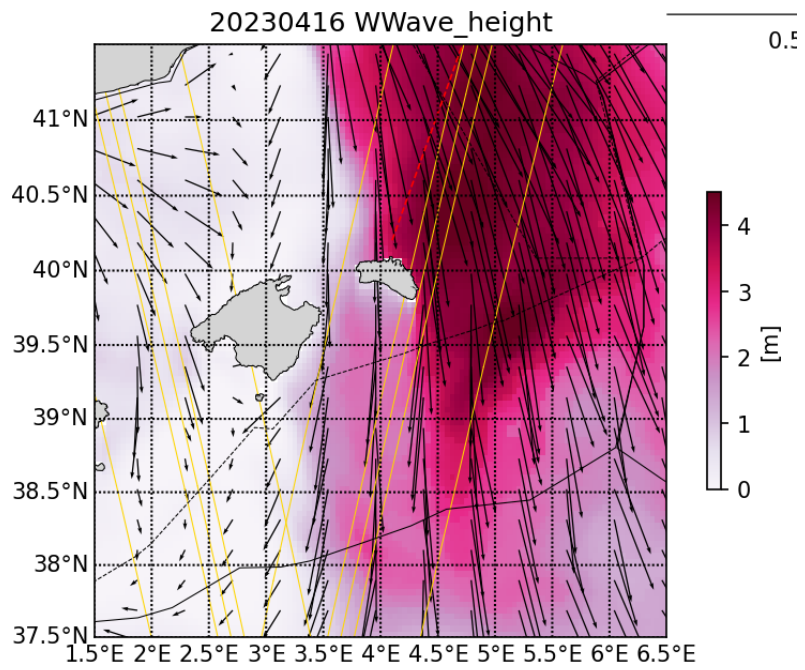
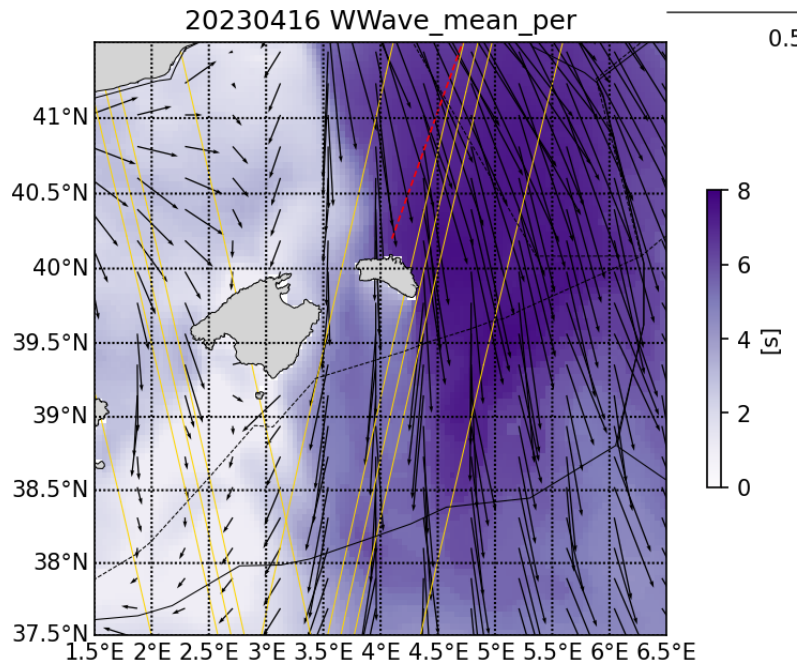
20230415 Tracer advection

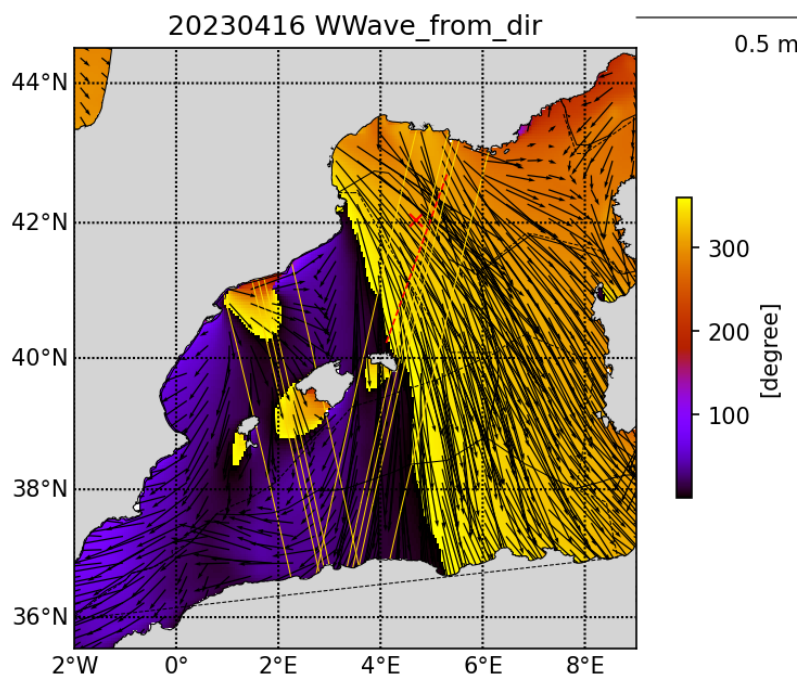
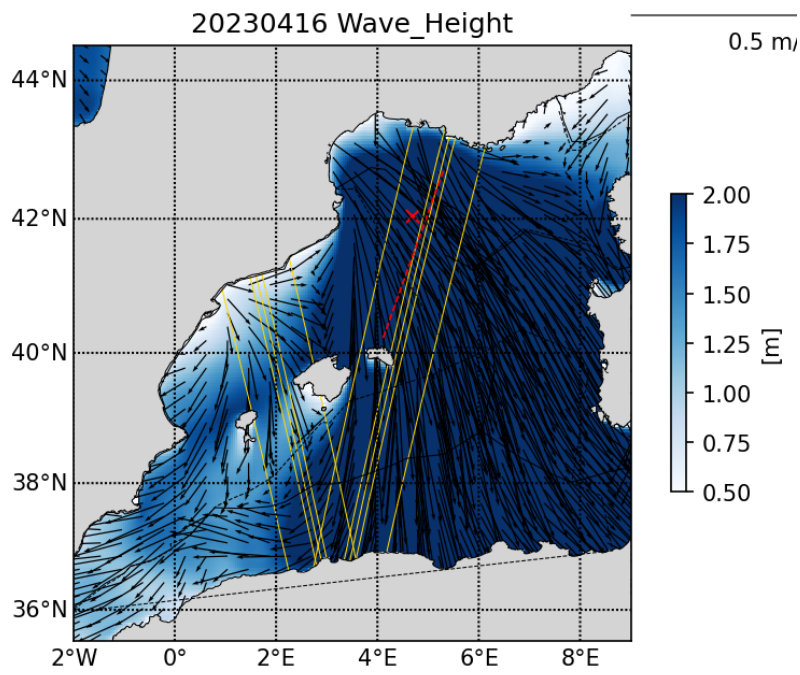


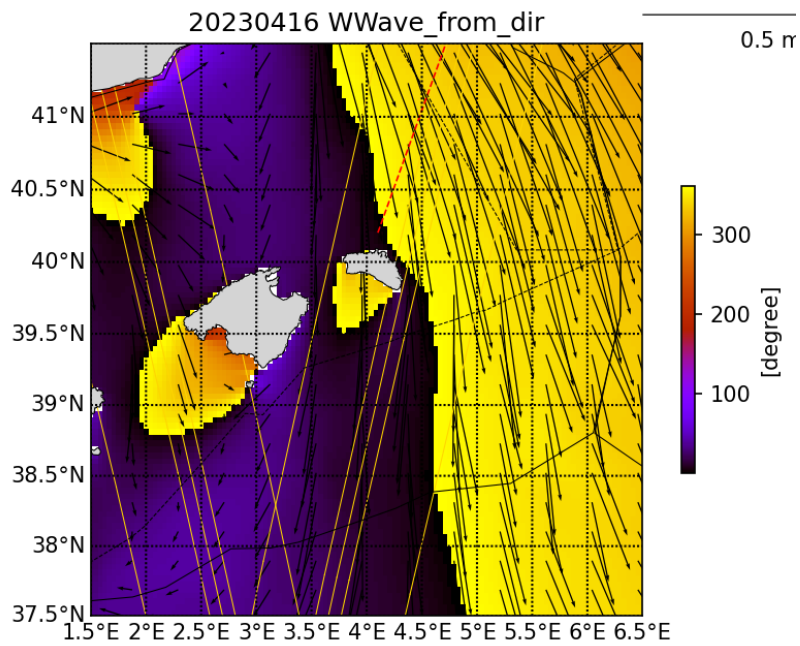
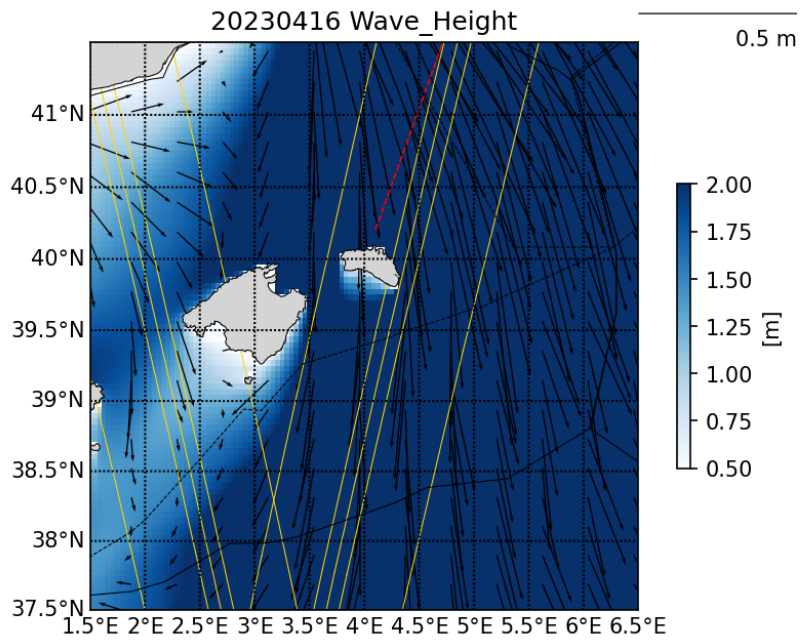
2.5 Wave forecast analysis

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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).