We thank the reviewer for their positive evaluation of our manuscript. We are grateful that the reviewer supports publication of the manuscript after minor revisions.

Below, we provide a detailed point-by-point response to each of the reviewer's comments, along with a summary of the corresponding modifications implemented in the revised manuscript.

Satellite altimetry products from 1993 to 2023 are assessed to quantify the temporal evolution of surface geostrophic current variability in the Mediterranean Sea. In particular, trends in Eddy Kinetic Energy (EKE) are estimated using three gridded altimetric products. Along-track datasets and an eddy atlas are also employed for comparison in selected regions. Significant positive and negative EKE trends are identified in the most energetic areas of the basin. The influence of the increasing number of satellites on the observed EKE rise is evaluated. Products based on a constant two-satellite configuration appear adequate for estimating long-term trends, but they fail to capture important dynamical structures in some regions. Therefore, the use of constant three-satellite altimetry products is recommended for future investigations of EKE variability in the Mediterranean Sea.

The paper is well structured, and the English is generally fluent and clear. The figures effectively support the written statements. I recommend the publication of this manuscript in Ocean Science, after the authors address the following specific comments (minor revision).

Specific comments:

L43 and L45. Change "waters" to "water".

We modified it (L. 46, 48).

L45. Remove "and freshwater".

Removed (L. 48).

L47. Add the following reference before Escudier et al. : Poulain, P. M., Menna, M., & Mauri, E. (2012). Surface geostrophic circulation of the Mediterranean Sea derived from drifter and satellite altimeter data. *Journal of Physical Oceanography*, *42*(6), 973-990. Add this reference in the reference list.

We added the reference (L. 49).

L76. Provide mode details on the Eddy Atlas. Is it based on ADT or SLA structures?

We added a description of the atlases in section 2.1.3 (L. 85-89) and the reference of Pegliasco et al., 2022 (L. 80):

The META eddy atlases are constructed from gridded Absolute Dynamic Topography (ADT) fields (i.e., SLA + MDT, Mean Dynamic Topography) from DUACS. A high-pass filter removes large-scale signals to isolate mesoscale variability and eddies are then identified from closed ADT contours using strict geometric and amplitude criteria. Finally, eddies are tracked in time by overlapping their effective contours between consecutive days to build trajectories.

Caption of Fig. 3., L156 and L193. Change "Area-weighted mean" to "Area-averaged".

We acknowledge the potential confusion between "area-weighted mean" and "area-averaged." The definition of the area-weighted mean has now been added to the Data and Methods section in 2.2.1 (L. 99-101). Note that because the region of interest is relatively small, the area of individual grid points varies only slightly across the Mediterranean Sea; as a result, the area-weighted mean and the simple area-averaged are nearly identical.

In this analysis we computed the area-weighted mean (L. 99-101) as it is scientifically more correct (also used in previous studies: Barceló-Llull et al., 2025; Martínez-Moreno et al., 2021).

Caption of Fig. 6. Change to "Gray-hatched".

We corrected it.

Table 1. Define "Trend of the mean".

We added the following description (L. 212-214): **"Mean of all trends" corresponds to the spatial average of all grid-point trends. "Trend of the mean" represents the linear trend computed from the basin-wide area-weighted EKE time series, the one shown in Fig. 3.**

Caption of Fig. 7. Add info about the L3-ref and all-sat-glo curves.

Added. **Green corresponds to L3-ref trends and yellow to all-sat-glo ones.**

L216. Change "horizontal velocities and their variability are" to "geostrophic velocity variability is".

Corrected (L. 237).

L274. Change "However, some go south-east" to "However, some move south-east".

Corrected (L. 303).

L306. Change "applications as the two-sat product" to "applications such as the two-sat product".

Changed (L. 368).

We hope these revisions adequately address the reviewer's concerns and improve the clarity and scientific contribution of our manuscript. We remain grateful for the helpful feedback.

Sincerely,

Paul Hargous, on behalf of all co-authors