Building upon earlier product, the META team has released a new version, with the main advance of META4.0 being the explicit identification of eddy merging and splitting events. Eddy identification in META relies on SSH closed contours containing a single extremum, and the tracking method adopts an overlapping scheme. Based on single-trajectory eddy segments, the META team again applied this overlapping scheme to group multiple segments connected by merging and splitting events into one network. This dataset offers strong data and technical support for the study of eddy interactions. The data and methods are feasible, the writing is smooth, and the figures are detailed. I therefore recommend minor revision and acceptance after simple modifications. My specific comments and questions are as follows:

1) When extracting SSH contours, what interval is used? What considerations guided the choice of this value? After all, the contour interval adopted can slightly affect how boundaries are defined.

2) Some studies mark eddies missing for two consecutive days in the recognition field as dead. The META team has chosen a 7-day window here. Would a 7-day window be too broad, potentially grouping different eddies together? Have any relevant tests been conducted?

3) I would like to ask how the choice of a 10% overlap coefficient was made. I have conducted related experiments, and an overly small overlap coefficient can easily group together eddies that do not belong to the same segment. Changes in this overlap coefficient significantly affect the grouping of eddies and thus the final number of trajectories. At a coefficient of 10%, the overall number of trajectories tends to decrease relative to a more reasonable value.

4) The team compared the 4.0 product with the 3.2 product (Figures 7–10). They mention that META4.0 "*reduces artificial discontinuities and allows for a more consistent tracking of eddy* ***lifecycles***." I have reservations about this view. The article also mentions that the radius and shape error evolve over the normalized life cycle and follow a birth–maturity–decay framework. Under this framework, even a single-

trajectory eddy is continuous throughout its own life cycle. So, can some eddies, after being merged by another eddy during their decay stage, still be regarded as belonging to that so-called ***lifecycle***? Furthermore, the method adopted for identifying merging and splitting is itself a form of artificial processing. That is, if the 10% coefficient were to change, would Figures 7 to 10 need to be updated? I do believe that the greatest progress of META4.0 is that it provides powerful data and technical support for studying eddy interactions, and it offers a new perspective for researching eddy merging and splitting.

5) In Figure 2b, the orange trajectory nearly intersects with the green trajectory during the decay stage. I am curious whether any merging events occurred at this stage.

6) Format and text issues in the figures:

a) The legends in some figures are not sufficiently detailed. Various symbols should be clearly marked in the legends rather than only mentioned in the main text—for example, the hexagons and stars shown in Figures 2 and 3, the different lines representing eddy trajectories, and the various color maps for network spatial frequencies in Figure 20, etc.

b) The title of Figure 17a should be "*Evolution of eddy properties around **death** events*".

c) The text on the horizontal and vertical axes of Figure 23b should be changed to English to be consistent with Figure 23a.