Major comments: 1. The mainly parameters are overlap rates r1 and r2, so the results will be sensitive to the temporal resolution of data (time step) and the movement speed of eddies. 1) If the time step is lager (e.g. you use AVISO weekly data), the critical value rc should be set smaller. 2) There are some different dynamic environments in NPO (e.g. background velocity in KE , STCC *: : :*..), the movement speed of eddies are also different. Is the constant rc properly in your model? I think the authors should discuss how to properly set the critical value rc , and pay attention to the limit conditions.

Reply: Yes, we agree that the critical value rc should be depended on time step, and we simply use a constant rc here just for illustrate the model. Users can use a non-constant rc as their will. We add the point in discuss section 5.2.

2. The Look-ahead approach is better and advanced. But N and rc should not be completely independent. In 5.2, "Although N=4 and N=6 might be better", is the constant rc reasonable on day 0 and day N+1 ?

Reply: We simply use a constant rc. Although N and rc should be something relative, we are not clear how to optimally deal with it. For example, one can use rc=rc_0-a*N. But others may comment how to choose a, or even suspect this relationship.

Specific Comments:

3. L14 in the abstract, I was confused about 'a two-dimensional (2-D) vector' in the beginning. I thought the authors used the velocity field. Phrase similar to 'a pair of overlap rates' is simple.

Reply: Thanks for this suggestion. Phrase 'a pair of overlap rates' is simple, but may also bring other problems. For example, it is hard to descript Fig 6b using 'a pair of overlap rates'. Maybe we should modify as "a two-dimensional (2-D) similarity vector".

4. L22~23 in abstract ïijNthe present tense and past tense are mixed in the same sentence. Appropriate modification? E.g. < Although eddy splitting and merging are ubiquitous in the ocean, they have different geographic distribution in the Northern Pacific Ocean. Both the merging and splitting rates of the eddies are high, especially at the western boundary, along major currents and in "eddy deserts."> I am also not a native English speaker. please refer to other reviewers about the grammatical issues.

Reply: Thanks for your suggestion. We will change them according to all reviewers' comments.

5. L489 In the Conclusion, <"MEI" and "GEM" computer codes*: : :*..>. Can the authors add some sentences about the codes? E.g. The code language is matlab, fortran or C? how to reserve/save the genealogy tree information in figure8b?

Reply: The codes are written in Fortran 90/95. We save part of the tree information (There are more information not output can be found in the codes, users can output them as their will.) with "Eddy-Eddr.dat", which contains the parent/child eddies (if it has) and merging/splitting events (if it has). One can read the manual for this information.