

Earth Syst. Sci. Data Discuss., referee comment RC3
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Comment on **essd-2022-77**

Anonymous Referee #3

Referee comment on "SEIA: a scale-selective eddy identification algorithm for the global ocean" by Yikai Yang et al., Earth Syst. Sci. Data Discuss.,
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The paper presents a new algorithm for detecting and tracking eddies from SLA AVISO maps. While the new ideas are interesting, the way the algorithm is presented as being threshold-free is unconvincing. The validation part lacks also a comparison with eddy detection and tracking other datasets such as the official AVISO product (Mesoscale Eddy Trajectories Atlas Product).

I would recommend major revisions and have some remarks:

- * why only choosing the 2015-2019 period? are there specific reasons for that?
- * you claim that for your method "No arbitrary values are set", can you explain why you chose $c=1$ in equation (1)?
- * Setting $Dt=125\text{km}$ as a fixed threshold seems to be against your idea of presenting an algorithm that is non parametric. Can you elaborate? I would prefer if you presented your new ideas without putting much focus in selling it as a parameter-free algorithm
- * Moschos et al. were not the first to introduce deep learning techniques for eddy detection. Replace "introduced" by "presented".
- * "but there are few precedents due to limited datasets" needs reference.
- * The English writing needs to be improved