



EGUsphere, referee comment RC1
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Comment on egusphere-2022-231

Takaya Uchida (Referee)

Referee comment on "Global coarse-grained mesoscale eddy statistics based on integrated kinetic energy and enstrophy correlations" by Imre M. János et al., EGU sphere,
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Janosi et al. apply their proxy-vortex method in diagnosing the effective eddy radius and westward propagation of mesoscale eddies globally. It has been known for some time that mesoscale eddies in the real ocean are larger than the Rossby deformation radius. However, what substitutes the Rossby radius as a better metric for describing their size has been a subject of debate. Their method of estimating the effective eddy radii will be a good addition to this debate and I recommend their manuscript for publication with only minor comments listed below.

- Sections 2.3 and 3.1: It would be interesting to have a physics-based discussion on why one would expect a temporal correlation between the area-integrated eddy kinetic energy and enstrophy;
- Equations 6 and 8: The notation of the mean of I_{EKE} and I_Z are denoted with an overbar while the temporal mean of the nominator is in angle brackets. I would suggest unifying the notation one way or the other for representing the mean;
- Line 243: In the later -> latter;
- Lines 322-323: The notation E_{ec} is EKE_{ec} in Figure 6. Please unify the notation.