

# ***Interactive comment on “Characteristics of Global Oceanic Rossby Wave and Mesoscale Eddies Propagation from Multiple Datasets Analysis” by Yunfan Zhang et al.***

## **Anonymous Referee #1**

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Disentangling the Rossby waves from mesoscale eddies, if possible, and understanding their characteristics and influence on each other is an important, unresolved topic. This manuscript uses altimetry tracked SSH anomalies as well as Argo profiles to separately track Rossby waves and eddies. Their propagation characteristics are then compared.

One of my primary concerns with the approach taken is here, is how do we know that the authors have successfully separated long wave Rossby waves from the eddies? The authors use an existing product to identify the eddies, which is done via SSH anomaly, but then they also use low pass filtered SSH anomalies to identify Rossby waves. How do we know that these are identifying fundamentally different phenom-

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ena? This issue was discussed at length in the Chelton, et al (2011) Progress in Oceanography paper and I don't see anything in this analysis that suggests anything particularly new.

The Argo profile feature tracking is an interesting approach, but it does still raise the same question: why are the observed features identified as long wave Rossby waves and not eddies? In fact, doesn't the propagation of salinity anomaly hint that maybe these are, in fact, eddies that you're identifying as Rossby waves?

These fundamental questions need to be answered before the reader can credibly believe any conclusions about the interaction of the two phenomena. There are some interesting analysis ideas in this manuscript, but I do not see any sufficiently novel results to warrant publication.

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[Interactive comment on Ocean Sci. Discuss.](#), doi:10.5194/os-2016-64, 2016.

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