Comment on os-2022-15
Anonymous Referee #2


The manuscript presents a new direct measurements of an abnormally intense anticyclonic eddy in the northeastern tropical Pacific Ocean and investigates the eddy-associated seawater anomalies and transports by combining hydrographic measurements, satellite data and reanalysis model outputs. This study provides a valuable observational evidence to broaden our understanding of the influence of eddies on regional environments in the Pacific Ocean. However, the paper (including the Figures) is not well organized in the current form. And I have two main concerns: 1) The 3D eddy structure and zonal eddy transports were estimated from reanalysis data, as such the authors should firstly provide evidences that the model successfully reproduced the eddy, for example, by comparing the model outputs with the CTD profiles and satellite products. 2) If I understand correctly, the authors computed the zonal heat and salt transports by the rotation of the eddy. It doesn't make sense to compared them with meridional transports (by eddy rotation and/or migration) in previous studies such Sun et al 2019, He et al., 2018, Chaigneau et al., 2008, and Yang et al., 2015.

I therefore suggest a major revision to the manuscript. A detailed review comment was uploaded in the attachment, which I hope may provide some references for the authors.

Please also note the supplement to this comment: