



EGUsphere, author comment AC3
<https://doi.org/10.5194/egusphere-2022-294-AC3>, 2022
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Reply on RC1

Hector S. Torres et al.

Author comment on "Wind work at the air-sea interface: a modeling study in anticipation of future space missions" by Hector S. Torres et al., EGU sphere,
<https://doi.org/10.5194/egusphere-2022-294-AC3>, 2022

Dear reviewer,

We thank you very much for your constructive comments and suggestions, which we have taken into account in the revised version of the manuscript, as summarized below.

The manuscript addresses an interesting topic, estimating global wind work and presents interesting results. I like the idea to separate the time-dependent wind work to the low and high-frequency components. Though it is well written, I recommend a major revision based on my comments below:

- *A more than 5 TW global wind work has been reported before as in Yu et al. 2018 (<https://doi.org/10.1016/j.ocemod.2018.07.009>) and Yu et al. 2019 (<https://doi.org/10.1016/j.ocemod.2019.05.003>). Though they focused on the wind work over ageostrophic currents (Yu et al., 2018) and used it to explain the global EKE reduction after including ocean surface currents in the wind stress formulation. But these were not cited in this manuscript. And I encourage the authors to do a more thorough search of the topic just in case.*

Thank you for suggestion. We now cite and discuss results from following papers: Yu et al. 2018 and 2019, and Gaube et al. 2015.

- *I like the idea of low/high frequency wind work components but wondering if the 3.5-month data long enough. Is 3.5 month a good representation of the mean component? Is it long enough for low-frequency (seasonality)? I'd encourage the authors to extend the calculation to the whole 14-month available. This is the main reason why I recommend a major revision.*

When we started this paper, only 3 months of model output were available. In revised manuscript we have extended analysis to the last 12 months of the simulation, skipping the first two months because of spin-up issues.

- *Really minor: Line 92, "January 20 using 2012 ocean initial conditions". I think 2012 is a typo otherwise would need to explain why 2012 not 2020.*

Thank you, we have corrected the typo.