Authors' response to the second round of comments of Referee #1 on os-2025-5187 "Horizontal transport on the continental shelf driven by periodic rotary wind stress" by Paldor and Friedland.

The authors' response follow the comments of Referee #1 (written with gray backround).

The authors well answered most of my questions, and the clarity of this paper has been significant improved.

However, I am still not very much convinced on the neglect of bottom Ekman layer. As stated in the revision, the merging of surface and bottom Ekman layer were not considered. In general, surface and bottom Ekman layer merges once the water depth H is shallower than three times of the Ekman thickness (10-30 m in general on the shelf). Beyond that critical depth, wind-driven surface Ekman layer can hardly feel the bottom bathymetry directly. Since this study considered the depth-averaged currents, the information of bathymetry will enter the equation even when the flow doesn't contact the sea bed. This, however, will apparently obscure the realistic physics.

Hence, in my understanding, in the case the oscillatory wind-induced Ekman transport drives an along-isobath drift, it must feels the bottom bathymetry, thus the bottom Ekman layer must exist. Certainly, introducing the bottom friction will make the problem complicated and the resulting equations might be unsolvable analytically. Bottom Ekman layer is a "passive response" to the wind-driven current, hence, I believe neglecting the bottom friction can still reveal the "first-order" dynamics. Therefore, I am not going to insist that the authors must include the bottom friction in their solution. Instead, I suggest the authors add more clarifications on how the bottom friction will affect the results, why it is not considered here, and what shall be done in future. It is not Okey to just say that we only consider the region outside the "gray region", because it is exactly in the "gray region" that the oscillatory wind Ekman transport will be rectified by the bathymetry and produced an along-shelf drift, a mechanisms in fact identical to the tidal rectification proposed by Loder et al. (1983).

In response to the last comment of Referee #1 we expanded the paragraph in L102-112 where we clearly highlight the assumptions involved in our analytical model. We have also added in L273-275 (in the summary of recommendations for future research) that the proposed future OGCM runs should also examine our hypothesis that the bottom depth approximates the thickness of the Ekman layer in the bulk of the shelf.

We couldn't quite figure out why the Referee thinks that: "*It is not Okey to just say that we only consider the region outside the "gray region"..*". The way we see it, it's of utmost importance to delineate clearly between what's included in the model and what's not.