Lai and Gan 2023 analyse the variability of coastal circulation and dynamics in response to different atmospheric forcing during a period of downwelling-favorable winds. The analysis is similar to the one by the same authors (i.e. Lai and Gan 2022, cited) for upwelling winds (10-28th July 2015), while in this case they analyse a period of downwelling-favorable winds (5-23 July 2017). They analyse the sensitivity of the results to different spatio-temporal variable atmospheric forcing, namely 1) single station observation (WL-OBS), 2) global reanalysis data (LR-ERAI) and 3) high resolution regional atmospheric forcing (HR-WRFW with heatflux from ERAI and WRFA with heatflux from WRF) while in Lai and Gan 2022 they used 1) global reanalysis data, 2) high resolution regional atmospheric forcing and 3) air-sea coupled model. The results show that the model with high resolution forcing (and hence better representation of near-surface wind and air temperature) improved the simulation of coastal ocean currents, water temperature and salinity, and estimates of the across-isobath transport. The paper is well written and logically organized. The results are probably of interest for the community. I would suggest publication after minor revison.

Response: Thank you and we appreciate the reviewer's time and comment.

Minor comments
It is not clear from the text whether heat flux is used in the simulations forced with observational data. In The methods it only mentions the wind, however on L324 it states "…the heat flux forcing being the same in the WL-OBS, LR-ERAI, and HR-WRFW experiments…"
Response: We used the same surface heat flux from the ERA-interim dataset to drive the ocean model in these three experiments. We clarify this in section 2.2 of the revised ms..
"The first experiment, referred to as WL-OBS, was forced by a temporally variable but spatially uniform wind field obtained from the Waglan Island meteorological station. The second experiment, referred to as LR-ERAI, was forced by the temporal-spatial variable wind forcing form the global reanalysis of ERA-interim data provided by the ECMWF, with a spatial resolution of approximately 79 km. The third experiment, referred to as HR-WRFW, was forced by higher resolution (1 km) wind forcing from the regional WRF model developed here. To isolate the effects of different wind forcing, we used the same surface heat flux based on bulk formula from the ERA-interim dataset to drive the ocean model in these three experiments, including temperature, pressure, solar radiation, and longwave radiation."

The authors used ERAI that has ~75km resolution and 6h resolution as forcing for the LR-ERAI case and as boundary and initial conditions for the production of the WRF 1km that is then used as forcing for the high-resolution cases. ERA5 is available at ECMWF for the period of interest and has higher temporal and spatial resolution (~30km and hourly resolution). A model forced with this higher resolution dataset (ERA5) may provide more accurate results.

Response： Yes, we acknowledge that latest ERA5 data with a 0.25-degree resolution has a higher temporal and spatial resolution compared to ERA-Interim data. In this study, we also employed the latest ECMWF ERA5 data to force the ocean model and obtained results that were comparable to those driven by the ERA-Interim data. The figure below shows the comparisons of the along-shore and cross-shore winds of the observations, ERA-interim and ERA5 data at Shan Wei, Waglan Island and Shang Chuan Dao stations in July 2017. The comparison suggests a certain

degree of similarity between the ERA-interim and ERA5 data; however, both datasets exhibit deviations from the observed winds.

Our primary focus of this study was to compare the high-resolution coastal ocean model (less than 1 km horizontal resolution) results driven by our high-resolution WRF forcing with the widely used global reanalysis data, including ERA-Interim, to demonstrate the benefits of using high-resolution atmospheric forcing. Therefore, we chose to compare our ultra-high-resolution WRF forcing with the relatively coarser ERA-Interim data.

We have briefly explained this in the section 2.2 of the revised ms..

"Although the latest ERA5 reanalysis data from the ECMWF comes with many improvements compared with ERA-Interim data, such as enhanced spatial and temporal resolution, we found that the performance of these two datasets is comparable in this specific coastal region. Therefore, we opted to use the relatively coarse-resolution ERA-interim data to drive the ocean model, aiming to showcase the advantages of employing higher resolution atmospheric forcing from a regional model."

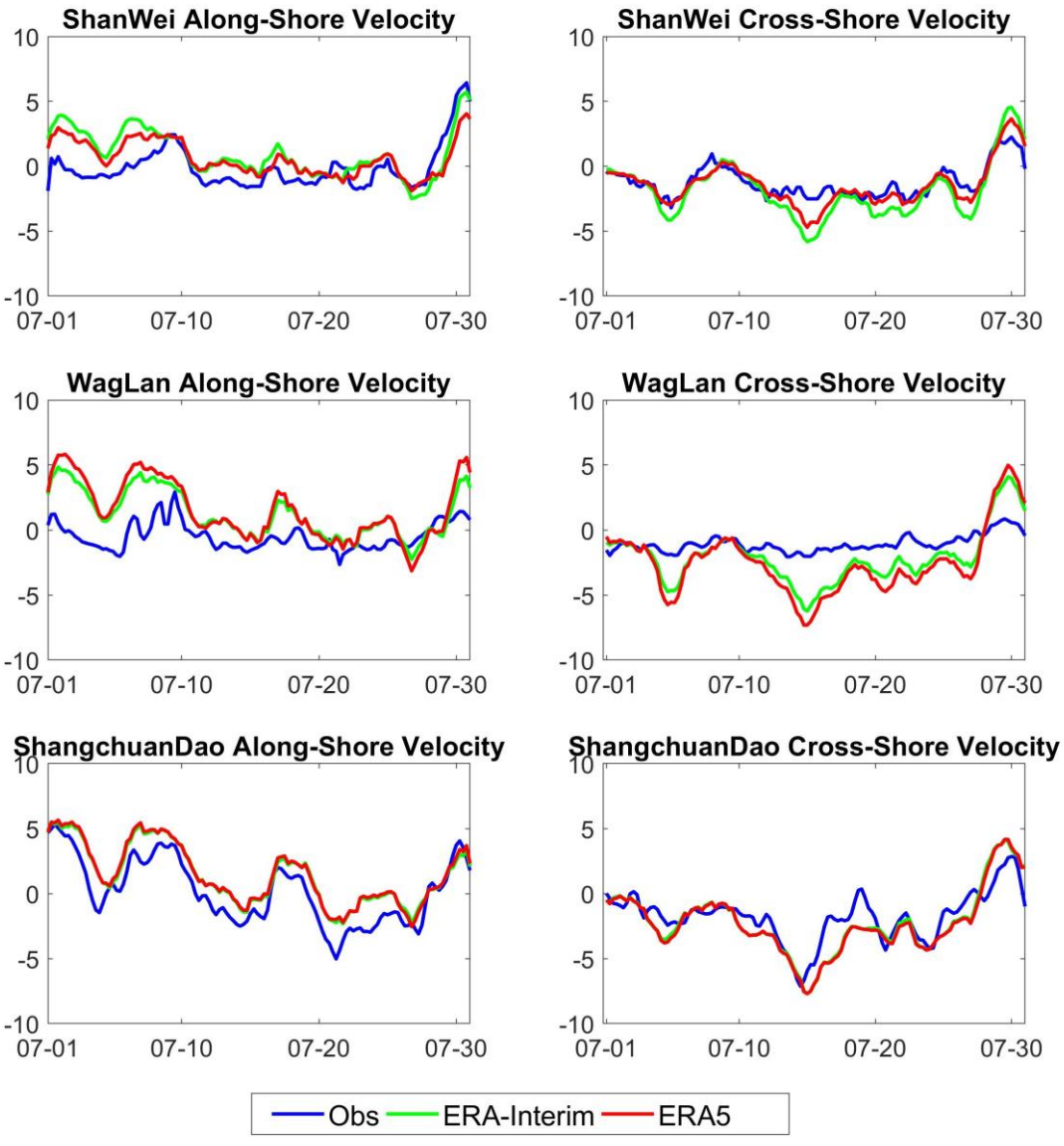

Figure 1. the comparisons of along-shore and cross-shore winds of the observations, ERA-interim and ERA5 data at Shan Wei, Waglan Island and Shang Chuan Dao stations in July 2017.

Please rephrase L338 "A positive (negative) value represented an onshore (offshore) transport of the shelf water perpendicular to the isobaths". Parenthesis are used to add extra information. The way the authors use them in the sentence can save a little of space but is confusing.

Response： we revised it as follow:

"A positive value represents an onshore transport, while a negative value indicates an offshore transport, and both are perpendicular to the isobaths."

Please revise the colour schemes you use. The ones in figures 7, 8, 9 and 11 are not colour-blind friendly.

Response: Revised following the reviewer's suggestions.