Reply to Referee #2:

Authors response (AR): We would like to thank referee #2 for his/her review and for the suggestions to improve the manuscript. We respond below to the referee's comments.

This manuscript presents a new gridded sea surface height and current dataset produced by combining observations from nadir altimeters and drifting buoys. The application of the MIOST solution is extended to the simultaneous mapping of equatorial waves and mesoscale circulation from real observations. These results pave the way for the exploration of new types of ocean signals that may eventually be mapped from remote sensing and in situ observations.

In the introduction section, it is better to review and summarize different global gridded sea surface current datasets that already exist. Also, further highlight the differences and advantages between this data set and other previous data sets.

AR: We have considered the recommendations suggested by the referee by adding references to existing global gridded sea surface current datasets. In addition to the discussion on the limitation of surface variabilities resolved by DUACS maps, we have extended the summary & conclusion section with a paragraph presenting existing datasets that can be used as an alternative to DUACS/MIOST maps, from line 483:

"It is also worth mentioning that several other global gridded products exist as an alternative to the DUACS/MIOST products which provide only the geostrophic part of the surface current. Examples of these other products that provide a broader spectrum of ocean surface current variability (e.g., the total surface currents) include, 1) the Copernicus GLORYS12v1 global ocean reanalysis (Lellouche et al., 2018; https://doi.org/10.48670/moi-00021), 2) the Copernicus GLOBCURRENT product (Rio et al., 2014; https://doi.org/10.48670/moi-00050), 3) the OSCAR product (Dohan, 2021; https://doi.org/10.5067/OSCAR-25I20) distributed by the NASA-JPL Distributed Physical Oceanography Active Archive Center (PO. DAAC)."