Dear Referee #1,

We sincerely thank you for your comments on our manuscript titled *"Assessing and optimizing the role of wind forcing and upper-ocean dynamics in marine pollution transport simulations using surface drifters in the Canary Current System."* Your observations are highly valuable and have helped us identify areas for improvement. Below, we address each of the points raised in detail:

1. **Limited drifter dataset and selection of the study period**

   o We appreciate the comment raised by the reviewer as it gives the opportunity to explain in more detail the constrains faced with the databases selected. We have used the available data temporal domain since we were constrained on one hand by the hydrodynamic data and on the other by the availability of drifter data. For this reason, given that the IBI Analysis and Forecast model regularly removes its older data, the amount of available data today would be even smaller than when the experiments presented were conducted. In any case, thank you for your comment; we will take it into account in future experiments.

2. **Information on the Lagrangian modeling framework "TrackMPD"**

   o We believe that we have provided sufficient details about TrackMPD adding also a reference to the manuscript by its developers in case the reader would be interested in more details about this Lagrangian model.

   o Regarding the differences between TrackMPD and other tools, there are no significant differences in the 2D model. However, when considering a third vertical dimension, the differences become more substantial. For more information on these differences between TrackMPD and similar tools, you can refer to the following article: Bigdeli et al. (2022) (https://doi.org/10.3390/jmse10040481).

3. **Lack of discussion in the results**

   o It is possible that the structure we chose was not the most appropriate, as combining the results and discussion may have diluted the discussion within the results. Thank you for your comment; we will take it into account for future work.

4. **Insufficient references of previous drifter-based studies**

   o We believe we have included several references based on studies of a similar nature. In particular, we referenced two manuscripts about the Global Drifter program in the Data section and some more within the Results and discussion section. We would be grateful to know the references missed by the reviewer.

5. **Lack of a map of the study area**

   o We understand the need to present a figure representing the circulation system of the region to provide context for the observations, and we will take it into consideration in future projects.

Conclusion

Thank you again for your review. We appreciate the comments and will take them into consideration for future work.