Thank you very much for taking the time to review our manuscript carefully, and we appreciate your constructive and positive feedback. We hereby provide a revised version of our manuscript and provide answers to all comments below. The answers to the comments are in blue.

Altogether, the paper is written in a clear and concise manner. Also, the English language is used appropriately. Moreover, the surface drifter data are definitely worth to be published, since the provide a complementary view of the ocean surface circulation, when compared with data from mooring stations or from model simulations.

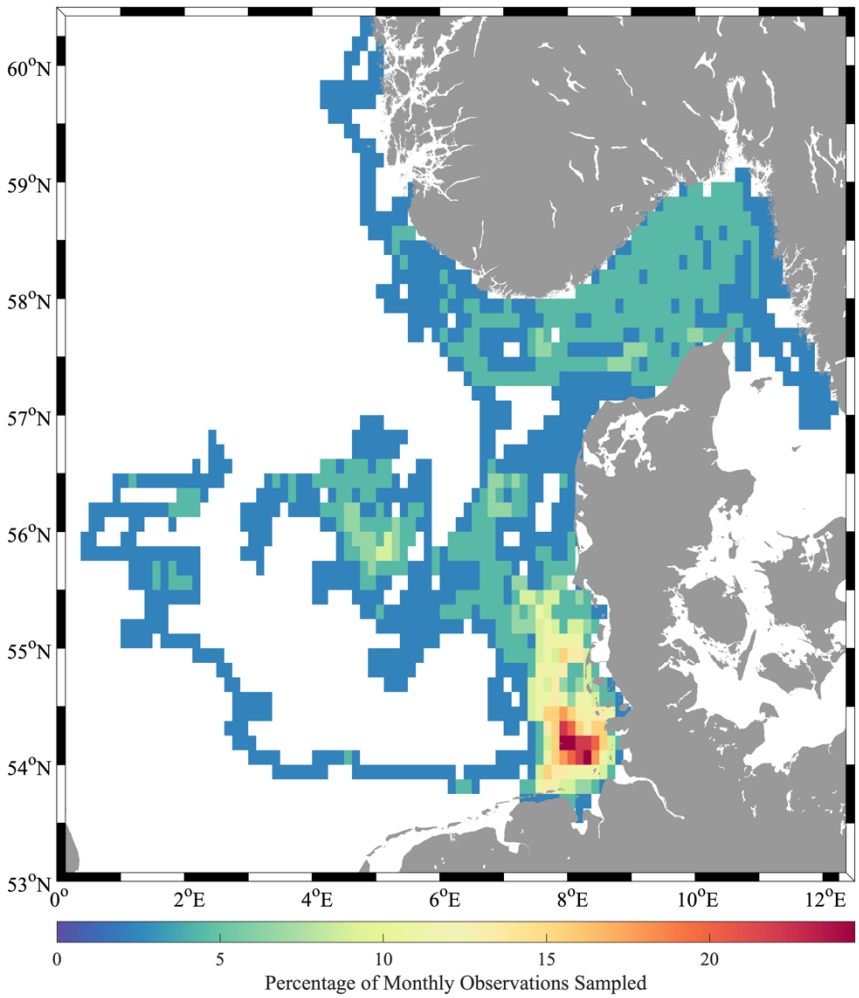
However, at present the paper shows a severe weakness, which should be accounted for, before it is suitable for publication in ESSD.

The benefit of the gridded data is extremely questionable. Hence, its calculation and presentation make no sense, and therefore, it should be removed from the manuscript. There are three major reasons for this criticism:

1) Mesoscale dynamics occur in a spatio-temporal space, and hence, a temporal average over several months or even years, as done in this study, smooths out most of the mesoscale-structures. Looking at the 15 km resolution gridded data in Figure 8, this problem becomes evident. In fact, only the very coarse cyclonic Skagerrak Gyre circulation is visible. This averaging problem becomes even more obvious, when looking at the finer resolution results. It is apparent, that the 7.5 km, 5 km, and 3 km resolution results do not provide any significant additional information. When looking at the higher resolution results, only the impact of the interpolation scheme can be observed.

Thank you for raising this point. We have reconsidered this point and agree that averaging over the entire time period is only feasible if temporal averaging is also carried out. Seasonal events and mesoscale structures would be excessively smoothed. For this reason, we decided to remove Fig. 2, which showed the residual current for the entire North Sea. The attached figure illustrates that analyses for different time windows, as carried out by Lilly et al. (2021), are not possible because the dataset for the North Sea is limited in this respect.

However, we have retained this approach for the Skagerrak. These data were obtained from one seasonal deployment (Fig. 6, lines 250-263). In principle, averaging the data over a larger area is a common method as seen in Coquereau and Foukal (2023) or Qian et al. (2013). Nevertheless, we have adjusted the figure. For better transparency, data gaps have been removed from the figure and represented as NaN (not a number). In addition, the number of observations has been added to provide better statistical information (lines 264-269). This demonstrates that the data was exclusively averaged, gridded and not interpolated. Thus, a complete overview for the Skagerrak can be provided for this period. The high resolution current velocities in the Skagerrak also present that, with the high resolution position data from drifters, an analysis of submesoscale dynamics is feasible (lines 317-330 and 338-345).



2) The argument that compared to model simulations, these gridded data with a 0.125 degrees resolution can provide an improved understanding with respect to the mesoscale dynamics in the North Sea is not acceptable. First, the severe problem mentioned above regarding the temporal averaging of different mesoscale patterns does not occur in model simulations. If required, models do provide results with a temporal resolution even on the subtidal timescale. Moreover nowadays, the spatial resolution of most North Sea models is of the order of 3 km (see e.g. Paetsch et al., 2017), which is nearly one order of magnitude better than the standard resolution of the gridded data, which are presented in this study.

Thank you for the comment. We have revised our results and discussion in this regard. Models and Lagrangian measurements both have their validity, are needed and are essential for future-oriented research. We would like to emphasize that both benefit from each other. We hope this is now formulated more understandably to clarify our statement (lines 308-316).

3) When converting Lagrangian data to a Eulerian framework you always face the theoretical problem, of how to deal with the Stokes drift, which is inherently included when averaging Lagrangian data over the wind wave scale and/or the tidal scale; both is actually done in the current study. Hence, a discussion about the treatment of the Stokes Drift, when converting drifter data to a Eulerian gird, is definitely necessary. However, at present, this issue has been totally ignored by the authors.

Thank you for raising this point. We have included this point in the discussion because it is undoubtedly an important aspect in the future in order to be able to make detailed statements about residual currents in the North Sea (lines 328-337). A comprehensive analysis of Stokes drift would be beyond the scope of the paper, especially since ESSD is a data journal and the focus should remain on the dataset.

Having in mind these severe problems mentioned above, it is clear that all aspects related to the gridding of the drifter trajectories must be deleted in the manuscript. In contrast, the authors should focus on the real advantages of their very attractive drifter data set. Firstly, the data are an excellent source for model validation. Single drifter trajectories are ideal subjects to be compared with model tracer trajectories in a one-to-one comparison study, using the same starting point and the same time period in retrospective tracer simulations. Secondly, drifter data can nicely be used to derive dispersion properties, as for example performed in Ricker et al. (2022). Since, ideally in hydrodynamical simulations the dispersion rate has to be calibrated for each specific model area, this kind of independent dispersion information can be very helpful for numerous model investigations.

Thank you for pointing this out. We have decided that a detailed validation analysis with models would beyond the scope of the paper due to the fact that this is a data paper. Nevertheless, we also included this in the discussion to highlight the potential of the dataset for model validation (lines 308-316). We have also emphasized the potential of the high resolution dataset. It provides area-wide in situ measurements, which for example provide the opportunity to understand and analyze the transition processes between the mesoscale ocean circulation and submesocale dynamics or the pathways of marine litter (lines 297-305).