- There are duplicated contents in the method section very similar to the one (Quilfen and Chapron 2021). Maybe need a rewriting in the revision.

  This ESSD paper aims to publish the denoised SLA dataset, which is the main focus here rather than the presentation of the method. The methodology section is necessary for a proper understanding of the results and to assess the specificity of the approach, and it refers to the paper by Quilfen and Chapron (2021) which is entirely devoted to the EMD denoising method. Note that the 2021 paper presents the EMD denoising method applied to significant wave height while it is applied to sea level in this manuscript with some improvments (e.g. determination of the A parameter). However, as suggested by Hui Feng, we can indeed shorten this section and will do so in the revised manuscript.

- The paper at page 510 states "the adjustment of the EMD denoising process for Jason-3 and Sentinel-3 was performed by using the AltiKa results as reference". Is this objective way to do such an adjustment

  The reason for such an adjustment is explained on page 17. Rather than discuss whether this is an objective way to proceed, we can argue that it is our choice to provide a combined data set of three altimeters showing consistency in their mean power spectral density. AltiKa and Sentinel-3 show very similar noise content and PSD shape, so the approach is easily justified. This is not the case for Jason-3 where the sea level measurements are significantly noisier. However, the strength of the methodology also lies in the fact that each denoised data is attached with its locally estimated uncertainty. Therefore, Jason-3 denoised measurements are attached with larger uncertainty estimates. We believe this is an advantage for ocean modelers, for example, to have both consistency in PSDs and a supply with a meaningful uncertainty estimate.

- It looks EMD, a data-driven method, leads to a more complicated design process for any specific applications, such as a specific coast/shelf region. The two-step analysis should be completed using regional altimeter data to determine an optimal value of A. In addition, One single value of A in a region may not well represent the seasonality. Look forward to seeing any comments on this by the authors.

  This is not the case, the EMD denoising process does not lead to a different or more complicated design process for a specific application. It can be applied in the same way, with the same algorithms for different data sets (SSH, SWH,Sigma0) and different environmental conditions or ocean basins, including coastal areas. This is because it is a data-driven, self-consistent method that relies on local noise estimation and signal thresholding if the signal to noise ratio is too low, see Equations 3 and 4. In Equation 4, the main term that makes the rule is En, the locally estimated noise energy. A is only a global parameter to allow a global adjustment of the method according to criteria to be defined by the developer. We detail how we derived the value of A, and show that one can indeed obtain slightly different values if one varies the data set used to tune it, but this can be considered as a kind of noise on the estimation of A. So we chose an average value that can be used everywhere, every time.

- It will be nice if the datasets used in this paper, and processing codes can be available for the readers and potential users who are interested in using the EMD

  The dataset is already available, as indicated in section 5: Data availability, and the code will be made available before the end of the interactive discussion time period.