

Ocean Sci. Discuss., referee comment RC1
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Comment on os-2021-55

Anonymous Referee #1

Referee comment on "Sea-level variability and change along the Norwegian coast between 2003 and 2018 from satellite altimetry, tide gauges, and hydrography" by Fabio Mangini et al., Ocean Sci. Discuss., <https://doi.org/10.5194/os-2021-55-RC1>, 2021

The manuscript is a very good contribution towards the use of coastal altimetry from ALES for local sea level trend and sea level budget assessments. For this reason, the scope of the article goes beyond the regional character of the study. While I strongly encourage the publication of this study, I must assign a major revision due to two main points that the authors will find specified in the attached document alongside other minor comments:

1) The insufficient description of the method to assess trends and in particular about the computation of the uncertainty, which raises the suspect that a fundamental issue such as serial correlation in geophysical time series is not being taken into account. The absence of such a description negatively affects the possible value of the results and the discussion about statistical significance

2) The several missing points and abundance of speculations in the discussion, in particular concerning the "sea level budget", which actually cannot be defined as such, since it does not provide any assessment of the components other than the steric ones. To solve this issue, the authors should either expand the discussion with the necessary analysis or reduce the aims and ambitions of the paper for what concerns Section 5

I think both the major and the minor issues highlighted in my review can be solved with a bit more work and possibly some additional analysis. Therefore I am willing to consider a revised version.

Please also note the supplement to this comment:

<https://os.copernicus.org/preprints/os-2021-55/os-2021-55-RC1-supplement.pdf>