Comment on egusphere-2022-169
Anonymous Referee #2

Referee comment on "Reconstruction of Mediterranean coastal sea level at different timescales based on tide gauge records" by Jorge Ramos-Alcántara et al., EGUsphere, https://doi.org/10.5194/egusphere-2022-169-RC2, 2022

This study performed the reconstruction of coastal sea level variability of the Mediterranean Sea from tide-gauge datasets using an optimal interpolation method. The authors showed that the reconstruction provides better estimate of coastal sea level variability than the altimeter data. The topic of the study is important, and the method is well thought out. Hence, this manuscript is acceptable after revisions.

Major comment:

L327-328: As the authors mentioned, there are large differences of the sea level trends between the tide-gauge data and the reconstruction at Algeciras, Barcelona and Tarifa (Table 3). What is the reason of these differences? In addition, the trend of the tide-gauges is more heterogeneous than that of the reconstruction (Table 3). The optimal interpolation method for the reconstruction might not be suitable to capture small-scale coastal processes. Please discuss this point.

Minor comments:

Section 2.1: How do you remove the astronomical tide from the tide-gauge data?

L264: “interdecadal”? 
L388-389: In this paragraph, the authors compared your result in summer with the result of the barotropic model by Martinez-Asensio et al. (2014). This comparison does not make sense. The authors should compare your result with the result of the tide-gauge data by Martinez-Asensio et al. (2014). The authors have to mention the difference of the results and advantages of your reconstruction.

Legend of Fig. 5: "serie" => "series"