



EGUsphere, referee comment RC2
<https://doi.org/10.5194/egusphere-2022-1073-RC2>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on egusphere-2022-1073

Anonymous Referee #2

Referee comment on "Global submesoscale diagnosis using along-track satellite altimetry" by Oscar Vergara et al., EGU sphere, <https://doi.org/10.5194/egusphere-2022-1073-RC2>, 2022

This paper considered the transition of the wavenumber spectral slope between conventional mesoscale and smaller-mesoscale (<100km) using Jason-3 and Sentinel-3A altimeter data. The two spectral slopes and their transition scales indicate the composition of the local ocean dynamics, are useful measures for analyzing the future SWOT data. The authors have pushed the boundary of the application of conventional altimeter and did a careful analysis of the small-scale ocean signals often masked by altimetry noise. It is worth publishing after a major revision. I have one major comment and a list of minor editorial comments.

Major comments:

It has been shown that SSH and its spectrum have a clear seasonality. It is worth a separate section to look into the same set of diagnoses but considering their seasonality, i.e., of the submesoscale signals as well as the transition scales and spectral slopes.

Minor comments:

Line 217: "the local observability wavelength is low" can be reworded to "the local observable wavelength is short"

Line 141: change "the regionally average" to "the regionally-averaged".

Line 143: do you mean "spectral slope variation" by "spectral variance"?

Line 145: provide an quantitative description of "changes abruptly"

Line 153: define "x"

Line 154: add "in the log-log coordinate" after "two straight lines"

Line 160: by "coherent", did you mean "consistent"?

Line 161: replace "average regional" with "regionally-averaged"

Line 170: "least-squares" should be "least-square"

Line 217: replace "short" with "small" as it describes wavelength

Line 201: delete "values"

Line 339: Did you mean "significant"?

Line 435: replace "lowest" with "shortest"

Line 543: change "of critical importance" to "critical"