

## ***Interactive comment on “Accuracy of altimeter data in inner and coastal seas” by Luigi Cavaleri et al.***

### **Anonymous Referee #2**

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#### General comment

The paper presents an analysis of 4 altimeters wind and wave data in the Mediterranean Sea using high resolution atmospheric and wave numerical model as the reference for an “intercomparison” of the different altimeter. After a general statistical analysis over a 12 month period the authors analyze on Sentinel 3 pass in detail. This analysis shows that within 10 km of a coast the swH is not reliable. General statistical analyses have already been published and in the literature several intercomparison studies based on triple collocation have been published. Concerning the analysis of the Sentinel3 pass it just confirm what everybody know that if there is land within the altimeter footprint the waveform can be strongly distorted and lead to erroneous swH estimate.

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As it is the paper is very mildly interesting and doesn't contains results significantly original. Furthermore most of the figures are very difficult to read and the legends are lacking pertinent information.

#### Specific comments

Page 3 line 53 , Topex-Poseidon iis certainly one of the most important mission for the demonstration of the importance of altimeter for wind and wave.

Page 3 Jason1 should be Jason-1 to be consistent with ERS-1 ..

Page 3 line 55 As the authors are only dealing with altimeter data I don't understand why they refer to Bragg scattering that is only important for the estimation of wind from scatterometer data and certainly not from altimeter.

Page 3 line 58 Queffeuou and Bentamy (Analysis of Wave Height Variability Using Altimeter Measurements: Application to the Mediterranean Sea JAOT <https://doi.org/10.1175/2007JTECH0507.1>) analyzed 14 years of altimeter data in the Mediterranean. They should at least be cited.

Page 4 Figure 1. the number on the side of each plots are unreadable as well as the axis labels. The caption should explain the meaning of the dashed and solid lines.

Page 4 line 89 give the overestimate for all altimeters and explain how it is computed.

Page 5 figure 2 same comments as f figure 1. Unreadable.

Page 6 figure 3 same comments as figure 1

Page 6 line 107. To what does the 12% difference refers to? How is it computed?

Page 6 line 120-125. I don't understand. The S3 SAR data at 20Hz have a 300m along track resolution (and ~10km across-track one) but the 1Hz certainly not!! Furthermore the authors present C-band data (that are LRM) and KU PLRM that have a ~10km diameter. This paragraph is extremely imprecise and should be completely rewritten

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and reference to the S3 data provided.

Page 7 figure 4. Meaning of the colorscale and arrow to be included in the legend.

Page 7 figure 5. Please eliminate the PLRM data flagged for land. C band in gray is almost invisible. Change color.

Page 8 line 167 prIn ==>prIm

Page 8 Figure 9 Gray lines are invisible. Legend too small to be readable. It would be very interesting to see if the surface type flags of S3 (surf\_type\_20\_ku, surf\_type\_20\_c in the netcdf file) are working or not.

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Interactive comment on Ocean Sci. Discuss., <https://doi.org/10.5194/os-2018-81>, 2018.