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Interactive comment on “Primary productivity and its variability in the equatorial South China Sea during the northeast monsoon” by S. H. Ooi et al.

Anonymous Referee #2

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The title of the paper is ‘Primary productivity and its variability in the equatorial South China Sea during the northeast monsoon’, however, I don’t find any primary productivity data in the manuscript. Although the authors try to use chlorophyll concentration as an index, ‘chlorophyll’ and ‘primary productivity’ are totally two different things, one is a biomass term, and the other one is a rate term. Even this, ocean color satellite derived chlorophyll concentrations (SeaWiFS and MODIS) are known for their bad performances in coastal regions (case 2 waters) with magnitudes of differences compared with measurements due to the influence of coastal CDOM, sediments, and bottom reflection etc. This study seems rely heavily on the coastal chlorophyll data, thus, without in-situ measurements validation, it is hard to convince the readers the results presented here are significant. Also the ‘cloud’ issue seems pretty serious in the study

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region, how to account for these uncertainties from the satellite data? From this state, I cannot recommend publication in ACP.

The authors present wind data, wave data, and chlorophyll data to support their conclusions. While most of the data are with very coarse resolution in space, which cannot even resolve mesoscale structures in the ocean, then how can they provide meaningful representations for the coastal dynamics, and further ecosystem response?

The authors mention the ‘dilution’ effect for observed low chlorophyll concentrations. However, this is purely ‘physical’, have you ever considered the ‘biological’ effect, like nutrient depletion, high grazing pressure?

P21574, L6, and also in the main text, please indicate what satellite data is ‘new’?

P21575, L27, chlorophyll concentration is an index of phytoplankton biomass.

P21576, L7, you probably mean ‘from phytoplankton’

P21577, L21, what is the resolution of OSCAR data?

P21578, L5-13, I think this paragraph is not necessary.

Eq(1), wind stresses are vectors, so it would be good to present u and v stress here. And in the following paragraph, there is no need to talk so much about the Ekman transport or dynamics, as they are just basic oceanography concepts.

P21581, L18, are you talking about summer upwelling off the Vietnam coast? Because from a lot of literatures, winter upwelling in that region is not significant. Moreover, wind stress only is not an indicator for the upwelling event.

P21582, L17, By ‘North Equatorial Drift current’, do you mean ‘North Equatorial Current’?

P21590, L26, and also over the entire manuscript, nutrient distribution data or at least water turbidity data are needed to support the idea of ‘wind-mixing (upwelling)-nutrient-

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chlorophyll'. Otherwise, it seems too fast to jump from the wind forcing to phytoplankton response.

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