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## ***Interactive comment on “Influence of natural surfactants on short wind waves in the coastal Peruvian waters” by D. Kiefhaber et al.***

### **Anonymous Referee #1**

Received and published: 16 August 2015

This paper focuses on measurements of wave slopes using a novel technique. Data from a cruise in the upwelling zone off Peru is shown and discussed in some detail. This new technique is interesting and can be potentially useful for air-sea interaction studies with waves. The paper lacks a clear focus, however, as well as important information necessary to make a more thorough evaluation of the usefulness of the new technique.

A central reference is Kiefhaber et al (2015), but this paper is in review and is not yet published. The authors cannot therefore convincingly argue that independent mss data are available, which leaves some doubt about the results they present here.

The presentation is unclear and it is difficult to identify the main scientific idea. The introduction focuses mostly on gas transfer, but no numerical examples are given on

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the transfer rates based on the measurements. If the main idea is to present a new technique I would have expected a more technical paper, perhaps submitted to another journal. Useful information to add would be e.g. - what is the theoretical maximum value of the slope that can be measured? - Does the lens have a fixed aperture? - What method is used to determine whether or not a speckle is present in the image?

From an oceanographic point of view the discussion is superficial and the results do not appear to be new. In addition, the data set appears to be too small to draw any conclusions e.g. relating the mss to wind, waves or water temperature. For some reason basic wave information is missing (e.g. significant wave height and mean period).

The technique is based on IR imagery, but a thorough discussion of potential sources of measurement errors and their impact on the mss values is missing. This is particularly problematic as the slope PDF is proportional to the IR intensity. The implications of having an instrument that can only be used during the night should also be discussed. I would expect night time convection to play a role in establishing "patchy seas", but no data on the heat fluxes and/or ocean stratification are presented.

I do not recommend the paper for publication in OS as it stands, but the authors might be able to make substantial revisions and additions as outlined above to improve it. In any case I would recommend that they consider resubmitting to a journal like jtech, focusing more on the technical aspects.

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Interactive comment on Ocean Sci. Discuss., 12, 1291, 2015.

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