Ocean Sci. Discuss.,
https://doi.org/10.5194/os-2019-77-AC1, 2020

Ocean Science
Discussions
Open Access
EGU

Interactive comment on "Measuring ocean surface velocities with the KuROS and KaRADOC airborne near-nadir Doppler radars: a multi-scale analysis in preparation of the SKIM mission" *by* Louis Marié et al.

Louis Marié et al.

fabrice.ardhuin@ifremer.fr

Received and published: 7 May 2020

We thank Dr Romeiser for his careful reading of our manuscript, and for taking the time to contribute this positive appraisal of our work to the interactive discussion of the article. We are currently drafting a revised version to address a number of issues raised by him and the other reviewers. In the following we detail what modifications we have performed, or intend to perform, in response to his comments.

I didn't notice any obvious technical mistakes or controversial discussion points, so

Printer-friendly version

Discussion paper

most of the following comments are of a purely cosmetic nature. For my taste, this paper is almost ready to be published in a final version.

Again, we thank Dr Romeiser for his positive appraisal of our work.

– A few language issues: I noticed that "incidence" is used as a standalone word at some places where "incidence angle" would be more appropriate. Similarly, "the Doppler" should usually be "the Doppler velocity", or maybe "the Doppler frequency" for some occurrences. And does this journal accept the use of "data" as a singular word?

We thank Dr Romeiser for pointing out these issues, which we have corrected in our revised manuscript.

– SKaR, which occurs twice on page 38, is not defined.

The definition of the “SKIM Ka-band Radar” has been added in the introduction section, which has been quite extensively rewritten in response to comments by the referees.

– The formatting of some equations is strange. Most equations are formatted flush-left with an equation number at the right border, but two equations on page 5, two on page 37, and two on page 44 are centered with no numbers. Equations (A1), (A3), (A6),(A13)-(A14), and (A22) have strange breaks in them.

We have formatted the equations of pages 5, 37 and 44 flush-left and numbered them. The “strange breaks” in the mentioned equations of Appendix A were introduced in anticipation of the two-column formatting necessary for publication in Ocean Science. We have corrected them in the revised manuscript (and paid attention to the appearance of the equations in two-column format).

– In figures 2 and A1B, there is no axis text on the vertical axes. In figure 10, it is a little difficult to understand the meaning of the four vertical axes, and it is not clear why A and C have numbers on the horizontal axis and B and D don’t.

We have corrected figures 2, 10, 11 and A1B.

– Finally, here is one technical comment: In section 5, "Implications for SKIM", it is said that wave spectral information from a buoy is generally sufficient for estimating wave contributions to the Doppler velocity. Yes, but shouldn't SKIM be able to estimate wave spectral parameters from its own data? My assumption so far has been that with the amount of information contained in SKIM raw data, it should be possible to estimate wave spectral parameters and surface current vectors without a need for additional (external) input data. It should be clarified in the text whether this is indeed the ultimate goal for SKIM or not.

We have clarified this point in section 5. Clearly, the aim in the SKIM context is to estimate the UWD contribution from the wave spectral information retrieved from the SKaR instrument. This was not performed for the present work in order to avoid compounding uncertainties associated with the sea state retrieval with those associated to the Doppler processing itself. The full end-to-end processing will be performed over the forthcoming years in the framework of the ESA-funded IASCO project and is expected to be the subject of future publications.

Interactive comment on Ocean Sci. Discuss., https://doi.org/10.5194/os-2019-77, 2019.