Ocean Sci. Discuss.,
https://doi.org/10.5194/os-2019-77-SC1, 2020
© Author(s) 2020. This work is distributed under
the Creative Commons Attribution 4.0 License.

Ocean Science
Discussions

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.

Roland Romeiser

rromeiser@rsmas.miami.edu

Received and published: 2 January 2020

This is an interesting and well-written paper on the analysis of data from two airborne near-nadir Doppler radar systems. The measurements and data analysis simulate to some extent what could be achieved with the proposed spaceborne radar system SKIM in terms of ocean wave and current measurement techniques and capabilities. A variety of data interpretation / data processing issues are discussed, and some findings regarding the agreement between experimental results and numerical model results, the accuracy of retrieved surface current vectors, and implications with respect to SKIM

are presented. I think this is valuable work that can become the basis of future technical documents on actual SKIM data products. The paper is a little long, but this detailed discussion with a number of equations and diagrams is adequate for a comprehensive evaluation of the SKIM concept and valuable for the identification of issues for further improvement.

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

– 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?

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

– 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.

– 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.

– 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.

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