Review on the paper “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 L. Marié et al.

This paper presents the technique and examples of current velocity measurements from an airborne platform carrying two radars. The data acquisition was performed at a site located off the western coast of France where the surface currents are continuously monitored by two HF radars. Surface drifters were deployed for validation of airborne velocity measurements. The paper provides a detailed discussion of the experimental setup, measurement technique, errors, and comparison of the velocity data from different sensors.
I find the paper very deep, well worth publishing, providing very valuable information for developers of radars for velocity measurements from space. All figures are of excellent quality. Congratulations to the others on a good paper, but an even more impressive field campaign.
However, the paper would benefit from the following changes (not only minor).
- The text needs a substantial reduction: 33 pages and 15 pages in Appendix, this is too much. Please make sure authors are happy with this? Many formulas and demonstrations come from the paper of Nouguier et al., 2018 and Rodriguez et al., 2018. The saving is worth it.
- The text needs a closer proof reading. There are some typos (altitude/attitude in page 39, 40; are/is following the word data within the whole paper, Appendixes/appendices in page 16, ...
- The main body of the paper requires a number of changes to the text where it appears confused while Appendixes are well written and very clear.
Specific points.
Abstract: what is the major finding in this study? Only an estimate of C0? The description of the experiment should be shortened giving the place to the main results.
P3 L15 something is wrong with the English of this sentence? The contribution … of contributions
P4 L2 measurement equation. Maybe measurement is not necessary?
P9 Figure 4 caption: contribute to or contribution to. “to” is missed.
P10 Some problems with the English in many places. L1-2: the sentence seems not finished. L7: U is the current speed … L8 wave slope variability? spectrum. L16 While the incidence angle increases … the backscatter becomes dominated
L27,30. eq. 14 contains phi or phi_s? it is confusing.
P11 L24: something gone wrong in this sentence. … work was focused in two boxes. Perhaps, work performed in locations matching by two boxes in Figure 6 …
P13-P14. The text is very confusing and should be re-written.
P16 L8. Please check for frequency and remove band if only one frequency is used. L12 How to understand the ambiguity of 126 m/s ?
P17 L8 Consider: observations corresponding to Phi=12deg are reported.
P19 L1-4. Please remove repetition in this sentence: 30 seconds
P21 L12: Consider: Due to the narrower radar beam, the data from Karadoc are easier to interpret than the data from Kuros. L14 and P22 L1-2: something is wrong with the English in these lines.
P23 Figure 13 caption: remove one “blue” and complete the sentence.
P26 L1 Consider … spectra estimated from measurements on November 2 …
L4 energy is much lower than
P31 P7 Perhaps: Regarding the radar measurements, …
P33 L19-21. This conclusion is confusing and should be re-written.