Thank you for addressing the comments of the reviewers and making substantial changes, particularly to the discussion section of the paper. I would hope that these changes meet most of the reviewers' expectations. There are still a few issues that need further attention. Please make the following changes to progress the paper:

Two of the reviewers requested greater clarity of the novel aspects of this study. Although the response to the reviewers indicated that the method is not new the application is (which is absolutely fine), this conflicts with the statement on line 464 that 'The method to identify the best-matching freeboard interface for individual CS2 tracks (sect. 3.1).' is novel and on line 282 'We applied a novel technique to select the best-matching freeboard interface for each track'.

It is essential to be clear on how this study differs from Price et al. (2019). Section 3.1 contains the equations already presented in Price et al. (2019) but even if this study uses the method of Price et al. (2019) the level of detail on the best-matching freeboard method either in this paper or Price et al. (2019) is insufficient to allow this study to be repeatable (e.g. what constitutes a 'match' / what cost function was used to find the 'penetration depth')? If development from Price et al. (2019) is to use equations 1 and 2 first, then resort to equation 3, this is not particularly new as equation 3 is the same as equation 1 if Pd=0 or equation 2 if Pd=Ts. As a minimum the equations must be included, but it would be far better to provide the code to complete the analysis (as per Data Policy for The Cryosphere) with the publication. In addition, I would avoid the terminology 'penetration depth' as this is not a measure of 1/e reduction in electromagnetic radiation.

More information on the data used under Data Availability is welcomed, but please refer to the specific DOI for the in situ data and cite them (please see https://www.the-cryosphere.net/policies/data_policy.html) to give appropriate credit to the groups who collected these data.

Please revisit the colour scheme for Figure 5. Fig 5b and 5c have a similar colour bar but opposite in direction, which is confusing. Please use divergent colour schemes (Fig 5a is good) rather than rainbow schemes, which are hard to interpret for those who are colour-blind. I recommend checking all images with an online colour-blindness checker.