The Cryosphere
Open Access
Discussions
EGU

Interactive comment on "Effect of snow microstructure variability on Ku-band radar snow water equivalent retrievals" *by* Nick Rutter et al.

Anonymous Referee #1

Received and published: 26 August 2019

General comments

The authors present a well-written and well-reasoned study into the effects of snow microstructure on Ku-band SWE retrieval in sub-Arctic and Arctic landscapes.

Please define the acronyms SWE and SSA at their first use in the Introduction.

Detailed comments

Figure 5: What are the "histograms of individual land surface types (red)"? Please clarify. These seem not to be discussed in the text either.

P7, L11: What is a layer "entity"? Please define/describe. Their number is indicated in Table 1, suggesting that they are a significant element; however, they do not seem to

be discussed in the text.

P9, L3: Reference to Figures 9x should be 10x.

P9, L11: Should this be "...Figure 10 d and f)..."? Also, should Figure 10b have a white line?

P11, L23: Although the use of single median values for density is reasonable, and density is not the focus of the paper, please comment on the relative effects that density may have on SWE retrieval error. That is, what would Figures 10b,d,f look like if density were to be perturbed within their interquartile ranges?

In the Discussion, please also comment on the likely influence that ice lenses (such as the one mentioned on Page 6, Line 24 for 2017/18) may have on SWE retrieval error.

Interactive comment on The Cryosphere Discuss., https://doi.org/10.5194/tc-2019-167, 2019.