

## ***Interactive comment on “Benefits of Coherent Large Beamwidth Processing of Radio-Echo Sounding Data” by Anton Heister and Rolf Scheiber***

**J. Paden (Referee)**

paden@ku.edu

Received and published: 14 May 2018

Title: Benefits of Coherent Large Beamwidth Processing of Radio-Echo Sounding Data  
Authors: Anton Heister and Rolf Scheiber

The paper discusses a range Doppler algorithm for ice sheet synthetic aperture radar (SAR) processing and also discusses along-track angular characteristics of the scattering. The method is used to show the angular or Doppler spectrum of the surface, internal layers, and ice bottom, the slope field for the internal layers, and Doppler domain filtering of internal layers which also can suppress the surface multiple when the superimposed internal layers and surface multiple have different Doppler frequencies.

C1

The paper is very well written with some nice examples. Even though this property of ice layers and SAR processing is well known in the ice radar community, a nice description like this is missing from the literature and the adaptation of the range-Doppler algorithm has not been published although others have done it before. The one issue is that this is a methodology paper and does not address any scientific question directly. On the other hand, the method described could be used to do so.

All comments and suggestions for improvement are included in the paper.

The most important points are to fill in descriptive information about the algorithm and to add/update some of the references.

Please also note the supplement to this comment:

<https://www.the-cryosphere-discuss.net/tc-2018-61/tc-2018-61-RC2-supplement.pdf>

Interactive comment on The Cryosphere Discuss., <https://doi.org/10.5194/tc-2018-61>, 2018.

C2