The Cryosphere Discuss., 9, C3301–C3302, 2016
www.the-cryosphere-discuss.net/9/C3301/2016/

The Cryosphere Discussions
Open Access
EGU

Interactive comment on "Anisotropy of seasonal snow measured by polarimetric phase differences in radar time series" *by* S. Leinss et al.

Anonymous Referee #2

Received and published: 14 March 2016

General comments: This paper describes the measurement of CPD and its relationship to snow's anisotropy and SWE/density. Multiple seasons of snow measurements were conducted and the measured data were compared to the model described in the paper. The measured anisotropy of snow showed a good agreement with the results obtained from the micro-CT scan of the snow pack.

General comments: - What is the transmit power used? - What is the effect of surface roughness and features on the measured CPD? How is the effect being isolated from the anisotropic of snow?

Specific comments: p. 6071; line 1-3: Nadir-looking radars can also measure 2D anisotropy if there is a difference in crystal orientation along the xy-plane. p. 6071; line 6: It appears the statement is a bit contradicting as the anisotropy is caused by

the particle scattering p. 6080, line 10: Is it possible to show a raw radargram of the quad-pol data as well as the SLC radargram with reference to the geometry depicted in Figure 5? It is interesting to see the spatial variability of the raw radar signal. p.6086, line 21: Can the authors show a comparison between CPD_meas and CPD_model before optimization and after optimization, and the corresponding number of iterations and change in fitting parameters? Is the data in Figure 14 before or after optimization?

Interactive comment on The Cryosphere Discuss., 9, 6061, 2015.