

Interactive comment on “Dual-Wavelength Radar Technique Development for Snow Rate Estimation: A Case Study from GCPEX” by Gwo-Jong Huang et al.

Anonymous Referee #1

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This article describe a dual-frequency method to estimate the amount of snowfall from radar measurements obtained by NASA’s D3R radar during the GCPEX experiment in 2012. The proposed method hinges on a representation of the Z-SR relationship conditional to the DWR. The Authors demonstrate the superiority of their DWR-based algorithm when compared to traditional power-law relationships to retrieve the liquid-equivalent snow rate. The article provides a nice illustration of the use of in situ microphysical data, with radiative-transfer models (T matrix with various assumptions about the mass-size relationship) constrained by remote sensing observations. However, before I can recommend this article for publication, the Authors should revise a few key points detailed below. The writing is of unequal quality

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with some paragraph extremely well written when others a filled with typos and unclear sentences. It would also be possible good to reduce the length of the manuscript by removing 1 or 2 figures and the overly long part that details the processing of the 2DVD images. Lastly, I couldn't find much about the efforts of the Authors to avoid or mitigate the effects of attenuation on the radar measurements, particularly at Ka band. Failing to do so can significantly bias the retrievals performed using the radar observations.

Please also note the supplement to this comment:

<https://www.atmos-meas-tech-discuss.net/amt-2018-211/amt-2018-211-RC1-supplement.pdf>

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2018-211, 2018.

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