Atmos. Chem. Phys. Discuss.,
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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Precipitation regimes over central Greenland inferred from 5 years of ICECAPS observations" *by* Claire Pettersen et al.

Anonymous Referee #1

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This is a nice and unique analysis of precipitation at Summit, Greenland based on state-of-the-art surface-based passive microwave and cloud radar observations. The clear split of precipitation into two classes is novel, ice dominated processes from the southeast, and mixed phase clouds from the southwest. Distinct circulation features are found with each class. The results parallel some earlier findings by Chen et al. (1997, J. Climate, Precipitation over Greenland Retrieved by a Dynamic Method and Its Relation to Cyclonic Activity). The results present a consistent story. My comments for improvement are very modest.

Specific Comments:

1, Line 5, page 2: Shepherd et al. A Reconciled Estimate of Ice-Sheet Mass Balance. Science, 338, 1183-1189, doi: 10.1126/science.1228102 is a better reference

for Greenland mass balance status.

2. Line 12, page 8: Make clear you are using 1979-2016.

2. Line 8, page 23: Lifted over 5 km on average?

4. The references are hard to read and better formatting is needed.

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