Atmospheric Chemistry and Physics Discussions

Atmos. Chem. Phys. Discuss., referee comment RC5
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Comment on acp-2022-395

Anonymous Referee #4

Referee comment on "Investigating the radiative effect of Arctic cirrus measured in situ during the winter 2015–2016" by Andreas Marsing et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2022-395-RC5, 2022

Lines 103-104: Regarding the use of the saturation mixing ratio to estimate the gas phase water content (GWC), consider citing Kramer et al. (2009, ACP, Fig. 7; 2020, ACP, Figs. 6, 7 & 9) to defend this assumption (i.e., RHi ~ 100% inside cirrus clouds). That may be a better option than referencing Heller's PhD thesis. However, measurements in Kramer et al. (2009; 2020) are not representative of Arctic cirrus where homogeneous ice nucleation appears more prevalent (suggesting higher RHi); see Mitchell et al. (2018, ACP).