

Additional changes

Note that the line numbers refer to the revised manuscript.

- 1) **Page 4, Line 17:** The units of temperature were replaced from “K” to “°C” after 0.25 and 0.15.
- 2) **Page 7, Lines 10-11:** We corrected an article and the name of parameter. “... where Z is a radar reflectivity factor and T is a temperature.” Was replaced by “... where Z is the radar reflectivity factor and T the air temperature.”
- 3) **Page 7, Line 12:** There was a typo in the text of the uncertainty values. The numbers “+100% / -30%” were corrected to the right one “+100% / -50%”. Instead of using the symbol “/” we provide the uncertainty range. The units of temperature ranges were corrected by adding the symbol of degree Celsius and the reference to Hogan et al. (2006) was added.
The final version of the sentence is: “Hogan et al. 2006 found that uncertainties of the IWC retrieval differ for different temperature ranges and are estimated to be from -50% to +100% for temperatures below -40°C and ranging from -33% to +50% for temperatures above -20°C. The numbers here are root mean squared errors given with respect to the reference IWC. Evaluating the method of Hogan et al. 2006, Heymsfield et al. 2007 estimated the uncertainties of +100% and from -50% to +100% in the temperature above and below -30°C, respectively.”.
- 4) **Page 7, Line 21:** We removed the repeated word “availability” placed after “... more than 90 %”.
- 5) **Pages 7-8, Lines 33-34:** We added the information on the GDAS1 vertical resolution at 2 km height to the sentence: “The vertical resolution varies from 173 m near the ground to 500 m at the height 2 km and to ~2.5 km at the height of 15 km.”
- 6) **Page 8, Line 9-10:** We added the sentence about the ICON vertical resolution at 2 km height: “The vertical resolution at the 2 km height is about 260 m.”
- 7) **Page 13, Line 19:** There was a mistake of section number. “.... (see Sec.22.2).” was changed on “... (see Sec.2.2.2).”
- 8) **Page 14, Line 6:** A needed space before the sentence “The occurrence of the liquid...” was added.
- 9) **Page 14, Line 7:** The name of parameter was corrected. “... cloud temperature” was replaced by “cloud top temperature”.
- 10) We added the units for degree C on **Page 15, Line 3, Page 19, Lines 1-3.**
- 11) **Page 16, Line 11:** “has larger occurrence values” was replaced by “has larger values of occurrence”.
- 12) **Table 2:** The title of the table 2 “Cloudnet product used for this study” was replaced by “Cloudnet characteristics for Ny-Ålesund”.
- 13) We rephrased the acknowledgements: “We gratefully acknowledge the funding by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – Project Number 268020496 – TRR 172, within the Transregional Collaborative Research Center “Arctic Amplification: Climate Relevant Atmospheric and Surface Processes, and Feedback Mechanisms (AC)³ in sub-project E02. We acknowledge the staff of the AWIPEV Research Base in Ny-Ålesund for helping us in operating the cloud radar, launching radiosondes and providing the MWR and ceilometer data. We gratefully acknowledge DWD service for providing the data of the global NWP ICON model for Ny-Ålesund. We also thank Patric Seifert for providing GDAS1 data for Ny-Ålesund and helpful discussions.”