

Atmos. Chem. Phys. Discuss., referee comment RC2
<https://doi.org/10.5194/acp-2021-1064-RC2>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on acp-2021-1064

Anonymous Referee #2

Referee comment on "Evaluating seasonal and regional distribution of snowfall in regional climate model simulations in the Arctic" by Annakaisa von Lerber et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-1064-RC2>, 2022

Review comments on manuscript "Evaluating seasonal and regional distribution of snowfall in regional climate model simulations in the Arctic"

Authors: von Lerber et al.

General comments:

Using CloudSat observations as the benchmark, the paper evaluates the performance of the HIRHAM5 model in simulating the seasonal and regional distribution of Arctic snowfall. The authors adopted both the observation-to-model and the model-to-observation approaches for the comparison. The study is well constructed. Uncertainties and caveats of the datasets are analyzed in detail. The paper is very well written. The results are very useful to the community and are suitable for publishing in ACP. My evaluation is that the paper has the accept-as-is quality.

Some small suggestions for the authors to consider:

Line 239-240: "Multiple scattering not considered in these computations", does this mean that the model-to-observation process does not include multiple scattering? If so, how does this affect the comparison?

Section 3.2: suggest to add more details on the procedure of using the Jenkinson-Collison method for circulation weather type classification.

Caption of Figure 7: The number at the end didn't show up correctly in the pdf text.

Figure 9: Panel c was not labeled.