

Interactive comment on “Estimating Radar Precipitation in Cold Climates: The role of Air Temperature within a Nonparametric Framework” by Kuganesan Sivasubramaniam et al.

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General comments:

In this paper, a non-parametric method is applied to estimate radar precipitation considering both rainfall and temperature. The use of radar for precipitation estimation is an interesting topic. Many papers have been presented about this topic, but the specific problem authors deal in this paper is how to assess solid precipitation in cold regions. The solution they propose is of interest for cold climates in northern Europe, of course, but I suppose it could be extended to other areas where solid precipitation occurs.

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Specific comments:

Authors used 68 rain gauges in this study that are clustered around urban areas. Do authors think that this uneven distribution may affect results? In other terms, is the location of raingauges relevant for the application of the proposed procedure?

P 9 L 14 “The gridded hourly wind speed datasets are derived from a statistical downscaling of a 10 km numerical model dataset onto a 1 km grid”. Did authors verify how the method is sensible to the specific realization of the statistical downscaling?

Authors apply correction to gauge precipitation to consider wind induced underestimation. Gauge precipitation is affected by several sources of uncertainty. Wind is of course relevant, but another systematic error is related to the calibration of raingages that causes underestimation for high rainfall intensity and overestimation for low rainfall intensity. Further uncertainty arises when solid precipitation has to be measured. How did authors deal with these errors? Are they already managed by the meteorological institute?

Section 5.6 is very short compared to the rest of the paper and I did not fully understand what is the intention of authors. I think they should better explain this part or remove it.

Technical corrections:

P.4 L. 6 The Finnish Meteorological Institute

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