

Interactive comment on “Weather model verification using Sodankylä mast measurements” by M. Kangas et al.

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This paper presents the Sodankyla observational facilities and their application to the verification of numerical weather prediction (NWP) systems. The location of the observatory is certainly one where NWP has many difficulties, related to clouds (e.g. winter-time super-cooled liquid water layers), snow/albedo feedback, and atmosphere to surface coupling related to forest (with variable density), snow cover, wetland and the presence of lakes covered with ice and snow. It is worth pointing out that such model problems are not limited to NWP. Also climate models have similar issues, particularly at latitudes where the climate signals are strongest (Arctic amplification).

For the reasons above, I very much welcome the publication and documentation of

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the Sodankyla station data. The paper is well written and the potential of the data is well described. The latter is illustrated by comparing/discussing the radiation observations with different NWP models. It is concluded that the reason for the errors is quite complicated and that more processes have to be considered. I would have welcomed a deeper analysis of model problems on the basis of observations, but I guess it is beyond the scope of the current paper.

In conclusion, I feel that the paper is well worth publishing as it describes instrumental infrastructure and valuable data. I hope that various readers will make use of the data for the benefit of model development and model parameter optimisation. I look forward to seeing model studies based on these observations.

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