

## ***Interactive comment on “Evaluating the performance of SURFEXv5 as a new land surface scheme for the ALADINcy36 and ALARO-0 models” by R. Hamdi et al.***

**Anonymous Referee #2**

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General comments:

The study investigates if scores in NWP models (models and countries) improve when older versions of surface parameterisations are replaced by SURFEX. For the ALADIN/ALARO users this summary of results is probably useful as a documentation of model development. For SURFEX users it is probably also valuable to see that scores are in general improved with updated surface parameterisations.

I wonder why you don't utilize more observations in your validation study. In many figures and tables results based on only one station at the time are discussed. Sometimes a few stations. For example, why don't you utilize all observations present in the

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Belgium model domain (Figure 1), i.e. also France, the Netherlands and Germany? This would give a better statistical basis for your study and make your conclusions more strong. Now, I think one can question how general your conclusions are due to the limited number of stations.

The font size of the labels and legends in most of the figures is too small and in some cases almost impossible to read. Please go through the figures and improve readability.

Detailed comments:

Page 4056, line 1: Please remove “upper” as it confuses more than it helps I think. Also later in the text I would recommend to exclude “upper” and only refer to the “atmosphere”.

Page 4058, lines 25-26: I recommend to remove “is not ... we would like”.

Page 4064, line 4: Please specify version of ECOCLIMAP used.

Page 4065, lines 11-12: How do you know it is “too little near-surface vertical turbulent mixing” that causes the cold bias? Is there another study with SURFEX indicating that or is the Best and Hopwood study really so general so their conclusions are valid for this specific problem?

Page 4066, line 7: Better to say directly “too high” instead of “higher” I think.

Page 4066, line 9: Mistake with sign. Replace “+/-” with “+”, right?

Page 4066, line 20: Mistake with sign. Replace “+/-” with “+”, right?

Page 4066, line 24: Remove “too” or if you keep “too” it should be followed by “compared with...”.

Page 4069, lines 20-27 and Figure 11: Why don't you show/discuss bias results?

Page 4074, line 16: Replace “higher” with “too high”.

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