

Interactive comment on “Statistical post-processing of ensemble forecasts of the height of new snow” by Jari-Pekka Nousu et al.

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On behalf of all authors, we thank Anonymous Referee 1 for the value he found in our work and his useful comments and suggestions.

Minor comments: Eq. (3): Is this a typo, or is the ensemble mean indeed divided by μ_{cl} here? I'm asking because μ_{cl} is a parameter describing the observation climatology, so it is not obvious that it can also be used to normalize the forecasts. Please clarify.

This is a typo in Equation 3. The forecasts are actually normalized by their own climatology \bar{x}_{cl} . This normalization and the overall multiplication by the observation climatology μ_{cl} were found to improve the efficiency of the regression model in the case of very different climatologies between observations and forecasts by Scheurer and

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Hamill, 2018. There was not any typo in the code. We corrected the equation in the revised manuscript. Thank you for pointing this out.

p13, l16: So stratification is w.r.t. ensemble mean? Just checking because above you said stratification will be done w.r.t. ensemble median.

Indeed, the stratification was based on the ensemble mean in our work, following Bellier et al., 2017. The references to the median in the rank histogram description Page 12 and in the caption of Figure 3 were incorrect and replaced by the mean in the revised manuscript. Thank you for pointing this out.

p25, l13: I would use the phrase 'was significant' only of statistical tests for significant are performed

We agree and removed this sentence. We modified the description of this result by a quantitative statement: “At all lead times, the skill score with the snow reforecast verification is higher than with the real-time snow forecast verification: the improvement of the median CRPSS is about 0.12.”

Language and typos: p8, l2: -> is currently not performed within the computing facilities of any national weather service p11, l20: -> tools p12, l20: -> conditioning p12, l27: -> they allow one to p13, l14: -> relatively

Thank you for pointing out these typos which were all corrected in the revised manuscript.

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