Root mean square error (RMSE) or mean absolute error (MAE)? - Arguments against avoiding RMSE in the literature

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Response to Editor' comments

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We are very grateful to the editor for reading the manuscript, review comments, our responses, and related references extremely carefully and making the decision to continue the discussion on this general but important topic.

We have modified the Introduction according to the editor's suggestions. Point-by-point responses are listed below. One additional change we made is breaking the added penultimate paragraph in the revised version into two paragraphs. It would help to emphasize our first point, i.e. RMSE's more discriminating feature is often desirable in model performance evaluations.

Suggestions for the authors

Even though I think that the manuscript could eventually be published in GMD, I think that a few modifications are necessary.

- *In the introduction, the authors say that "the MAE tends to be much smaller than the RMSE" This should be replaced by a more exact statement. It could be said that the RMSE is by definition never smaller than the MAE. The difference between RMSE and MAE depends on the variance.*

  The previous statement of "the MAE tends to be much smaller than the RMSE" has been replaced with "the RMSE is by definition never smaller than the MAE".

- *Also in the introduction, the authors say that "the RMSE penalizes large errors". Although this is often true, it should be noted that the RMSE penalizes variance but not necessarily large errors. For example, consider a set of 10 errors which are all 1. Then MAE and RMSE are identical: MAE = RMSE = 1. If the model improves and two of the errors are reduced to zero (1,1,1,1,0,0,1,1,1,1) then RMSE ≈ 0.9 ¿ MAE =* 0.8.

  It has been modified. Now it reads "While the MAE gives the same weight to all errors, the RMSE penalizes variance as it gives errors with larger absolute values more weights than the errors with smaller absolute values".