

Interactive comment on “A practical demonstration on AMSU retrieval precision for upper tropospheric humidity by a non-linear multi-channel regression method” by C. Jiménez et al.

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The variation in the result for the independent trainings was very small and judged not worth commenting. For instance, a reported standard deviation of 6.5 could have been the mean of a set of 10 individual standard deviations expanding 0.25 around this value. If larger variability was observed, this would have been an indication of problems in the training set, and a more representative training set would have been needed.

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The suggestions concerning the error bars and further statistical analysis are good, but it would imply a deeper treatment of the data. There might be of interest, but we are confident concerning the validity of the conclusions in the paper, as supported by the present treatment of the data.

We think that the issue of AMSU biases is covered in the retrieval validation section. There real AMSU radiances were inverted with MLPs trained with simulated AMSU radiances. As the reviewer states, biases in the real AMSU data are not included in the synthetic radiances, so this should be part of a drop in retrieval performance when retrieving the real data set. But as the precision deteriorates so little, any possible biases were judged not specially relevant in the context of some other forward modelling problems, such as the parametrisation of the surface emissivity or the modelling of clouds. Of course, if any serious biases observed in the radiances were well characterised and easy to include in the forward modelling, we would have proceeded so, but to the best of our knowledge, that is not the case and our forward modelling is the best we could do for this work.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 7487, 2004.

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