

Atmos. Meas. Tech. Discuss., referee comment RC2  
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## **Comment on amt-2021-200**

Anonymous Referee #2

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Referee comment on "Support vector machine tropical wind speed retrieval in the presence of rain for Ku-band wind scatterometry" by Xingou Xu and Ad Stoffelen, Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-200-RC2>, 2021

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Comments regarding Xu and Stoffelen, "Support vector machine tropical wind speed retrieval in the presence of rain for Ku-band wind scatterometry"

General comments:

The authors have devised a machine learning technique to correct Ku-band scatterometer wind speeds in the presence of rain contamination using a supervised learning technique in which C-band scatterometer winds that are less impacted by rain are used as training outputs. The technique appears offer significantly improved wind speed biases on validation data that was not used to tune the algorithm. It is a valuable contribution to the literature.

Specific comments:

- There still appears to be room for improvement in the statistics of the corrected speeds (e.g. Figure3) as compared to cited results obtained by others.
- The equations for computing the statistics in Table 2 needs to be spelled out.
- The rain regression results have such large errors that it is hard to ascertain the merit of doing the regression.
- It appears that only the low quality QC-II data is corrected for rain. Is this appropriate? Might it be advantageous to correct WVCs with light rain that are moderately contaminated or for that matter to train the technique to apply small (or zero) corrections to uncontaminated data?
- Table 1 lists the inputs. I suspect one could achieve better performance by also including the NRCS measurements themselves or mean values of those measurements for each azimuthal look as inputs to the SVM. Estimates of brightness temperature, if available, could also be helpful.