Interactive comment on “Wuhan MST radar: Technical features and Validation of wind observations” by Lei Qiao et al.

Anonymous Referee #2

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Review on Wuhan MST radar: Technical features and validation of wind observations, by Qiao

General comments: The main objectives of the manuscript are, i) describing the Wuhan MST radar system and ii) validating its measurements. The major problem of the manuscript is it neither describes the system completely nor does a comprehensive scientific evaluation of its products. It falls somewhere in between. Also, the radars built under Chinese Meridian project were discussed in earlier papers (see Chen et al. 2016). Then it is not clear to me what the authors want to describe/study here? The authors may focus on either complete description of the system (highlighting the updates from 2016 after Chen's publication, if any) or on a detailed scientific evaluation of products.

Specific comments: 1. The MST radars from China were discussed at length in few system related papers (Chen et al. 2016). What is new in this paper? Is there any upgrade made after those papers? If the authors intention is to highlight the stable performance of the system, then it is better to do a detailed scientific evaluation. 2. Lines 30-37: Several of these radars have been upgraded, like MU radar, Indian MST radar, NERC MST radar, etc. It is better to include recent references also to have updated knowledge on these radars. 3. The description of the system is not complete. Enough details were not provided on the antenna parameters, TR module specifications and RF performance. Also, it is better to include important specifications of the system in a table. 4. A separate sub-section exists on clutter suppression without describing how it is done! Is it simple removal of data at zero frequency and fill it with interpolated data from neighboring points? Or do you employ any filtering techniques (like wavelets)? 5. In spite of having two years of observations, the authors restricted the analysis to one profile comparison. Even that comparison shows a difference of 5-7 m s-1 in the mid- and upper-troposphere, too large to accept. The authors should do the validation using a large data set to have a statistically robust conclusion on the performance of the radar. 6. Line 289: Several reasons were quoted for the wind discrepancy, including aspect sensitivity, without dwelling on any of those issues. Mere quoting of some references (elsewhere) may not resolve the problems in your radar or analysis. If aspect sensitivity is the real reason, why is it occurring only at those heights and in meridional plane alone? 7. Line 308: Even the average wind difference between the radar and ERA is too large (10 ms-1). What could be the reason for this difference? Also, do some statistical analysis by providing RMSE and correlations with statistical significance tests. 8. Line 354: Same problem as above, the SSW events were cited as the potential reason for the wind discrepancy without verification. Instead of citing old references, why don’t you check whether or not any such events occurred during that period? 9. So many grammatical errors to list here (few of them are given below in minor comments). They should be corrected before the submission of the revised version.