

Interactive comment on “Application of bias correction methods to improve the accuracy of quantitative radar rainfall in Korea” by J.-K. Lee et al.

Anonymous Referee #2

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The authors present a paper where they analyze the impact of different correction techniques on radar rainfall estimations. They analyze algorithms to correct the reflectivity factor, and rainfall correction techniques based on rain gauge measurements. The application of these techniques is carried out on a good number of test cases.

First point. A first aspect that makes this work not publishable in the actual version is the language. I understand the problems and difficulties of the authors because I'm not a native English speaker, but in this case the quality of the paper is largely impacted by language. In many cases there are sentences really unclear and/or not understandable. I suggest them to ask help to a native English speaker (or someone that knows

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the language very well) for a deep revision of the manuscript. Moreover I do not report the large number of misspelling, typing errors, etc. Second point. Maybe I'm wrong, but are we sure that they are not talking about "errors" instead of "bias"? For example, why the Z-R should (always) lead to a bias and not to a generic error without a precise and constant sign? The Local Gauge Correction appears to be a generic error correction, but is presented in a section called "Rainfall bias correction method". Moreover I guess the authors intended "methods" and not "method". Third point. Authors are often poorly concise and not very clear in the description and they cause confusion to the reader. Please revise the paper and be clearer, even, if necessary with simpler language and omitting not useful information. For example pgg 4016 line 20: the authors write: "In this paper four merging methods are available. . . ." And then at pgg 4017 line 1 they says that in the paper only one method is applied. . . Fourth point. At which time scale are the authors working? At which time scale the various methods are applied, are they applied at hourly scale, at event scale..other? And similarly, the scores are derived comparing rainfall estimate and reference rainfall, but at what time scale? Fifth point. In some case the definitions are lost. For example they start referring to AWS in the abstract and they continue in other sections, but AWS is never defined extensively (I suppose AWS is related to ground measurements. . .) Sixth point. Why using so strange enumerating approach for tabs? I see for example Table1a and Table2b. . .? Seventh point. I suggest using even a score with "sign" for verification. For example BIAS or Percentage error. Eighth point: Some sentences are really difficult to be understood. Example 1 (pgg 4015 line 5): "Horizontal and vertical reflectivity (ZH and ZV), di_ifferential reflectivity (ZDR), di_ifferential phase (ÄRD^{DP}), specific di_ifferential phase (KDP), correlation coefficient (rho_HV), and spectrum width (SW) with a scan range of the maximum 150 km and a gate size of 0.125 km." . . .this sentence has not a verb. . . Example 2 (pgg 4018 line 19): "Reflect the accumulated attenuation e_ects due to rainfall in the observed reflectivity (attenuation ratio less than 10%)." What does it mean exactly?

Final evaluation. I suggest major reviews or rejection with suggestion of resubmitting
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the paper (if this latter option is allowed by the journal). The errors and unclear parts are too much to be listed. The authors have probably done a good work in collecting all the data, the material and in doing the data processing, but I think they have to do another (probably not very big) effort to better organize the manuscript, to better present the results and to improve the writing language. I consider the actual version as a sort of first draft of the final paper and it is still far from being publishable.

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