

Interactive comment on “Approaches to radar reflectivity bias correction to improve rainfall estimation in Korea” by C.-H. You et al.

Anonymous Referee #2

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A. Major comments This paper discusses radar reflectivity bias correction to improve rainfall estimation in Korea. The paper content is relevant for its publication. However, for its publication, it needs some revisions as the followings;

1. Introduction (1) Line 28: rainfall rate \rightarrow areal rainfall rate (2) Line 29: This derivation \rightarrow this estimation (3) There does not be existed a unique $R(Z)$, \rightarrow There is not existed a unique $R(Z)$, (4) Put the values of ranges in figure 1 with interval of 60km. 2.2 Methodology (1) Line 12: at similar heights \rightarrow at the almost same height (?) (2) The reflectivity was calculated from the DSD measurements at 1 min resolution, \rightarrow The reflectivity was calculated from the DSD at 1 min resolution

3.1 Equidistance line method (1) Concerning Fig.6, it shows average reflectivity difference between PSN and BSL. Which radar shows higher reflectivity? What is the

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reason on the dominant peak of the average value? It should be explained. (2) comparing the average reflectivity differences between PSN and BSL in Fig. 6 and 7, most of the average values in Fig. 7 is less than 0 dB. However, most of the average values in Fig. 6 is higher than 0 dB. It should be explained in detail.

3.2 Overlapping area method (1) Concerning Fig.10, it shows average reflectivity difference between PSN and BSL. Which radar shows higher reflectivity? What is the reason on the dominant peak of the average value around 03 LST? It should be explained.

3.3 Disdrometer method (1) What are the daily rainfall amounts from the gauges and Parsivel on 8 Sept. 2012? (2) explain the reason on the unstable behavior of reflectivity from Parsivel in Fig. 13. Is it reasonable to use Parsivel data as a reference in this study? Why is it sufficiently reliable to us as a reference in spite of the unstable behavior. * 4. Conclusions The authors should include comparison of three methods using some statistical parameters.

B. Reviewer's recommendation This paper shows radar reflectivity bias correction using three methods to get more accurate rainfall from single polarization radar. The approaches and results are considered as reasonable. Therefore, this paper is recommended for its publication with corrections as suggested in the major comments.

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