After reading the comments from Referee 2 and Dr. Wang, authors reply the comments 2 and 4 from Referee 1 again to better communicate our thoughts. Authors would like to revise the manuscript according to all comments. Thank Referee 1 for useful comments.

2. For radar data assimilation, the volume-scan radar data are commonly used. However, the current study is based on radar reflectivity composites. One may wonder its practical value.

Response:

According to fitting functions in manuscript, the reflectivity error (σ, unit: dBZ) is inflated from a basic error, which represents the instrument error:

$$\sigma = \begin{cases} \sigma_l & RR_{avg} < RR_{avg1} \\ \sigma_l + \alpha\beta(RR_{avg} - RR_{avg1}) & RR_{avg1} \le RR_{avg} < RR_{avg2} \\ \sigma_u & RR_{avg2} \le RR_{avg} \end{cases}$$

where RR_{avg} means the symmetric rain rate, σ_l and σ_u are the lower and upper boundaries of reflectivity error respectively, β is the slope of fitting functions and α is a tuning parameter. The representative error of reflectivity can be described as a function of 'symmetric rain rate'. By tuning the parameter α, the representative error can either be assigned completely by the symmetric error model ($\alpha = 1$) or ignored ($\alpha = 0$).

Authors already performed several reflectivity assimilation experiments to examine the practical value of this symmetric error model constructed by composite reflectivity. By compared with a constant error value ($\alpha = 0$), authors obtained improvements if α is less than 0.25, σ_l and σ_u are 3 and 5 dBZ respectively. Authors plan to report details of assimilation experiments in another study. It may illustrate that the heteroscedasticities of composite reflectivity and reflectivity are alike in convective systems. Because both composite reflectivity and reflectivity can provide similar information about the location, strength and shape of convective systems.

The operational centers, such as ECMWF, Met Office, NCEP and ECCC, built the symmetric error models of satellite radiance according to their own assimilation systems and prediction models. Thus, if someone wants to use the symmetric error model of radar reflectivity in practice, the symmetric error models of radar reflectivity should be built on a certain assimilation system and prediction model to obtain the appropriate inflation coefficient. The σ_l and σ_u also need to be discussed. To sum up, authors think this paper should focus on how to construct the symmetric error model of radar reflectivity and what impacts of the symmetric error model of radar reflectivity on Gaussianity, which may fall better in the scope of *Atmospheric Measurement Techniques*.

4. Authors should give more efforts to clarify the concept of "symmetric rainrate predictor", e.g., what does "symmetric" mean? What is advantage of it over the other methods? Throughtout the manuscript, the interpretation of results strongly rely on Geer and Bauer (2011, hereafter GB2011), which considerably reduces the relevance

of this study.

Response:

Since the major comment 4 from Referee 2 is also related to the explanation of symmetric error model, authors would like to clarify how the symmetric error model improve the Gaussianity of OMBs without changing the value of OMBs.

As shown in Figure 8 and 9, each OMB bin, 0.5 mm h^{-1} interval, is normalized separately, i.e. OMBs of reflectivity are normalized by different standard deviation. Although the PDF of all samples is not Gaussian, the PDF could approximate to Gaussian in each bin. This is the heteroscedasticity of reflectivity, i.e. ‘The error of equivalent reflectivity can change as a function of precipitation’ as stated in Introduction. Thus, the Gaussianity can be improved because this study normalized the OMBs by using different standard deviations which are a function of rain rate.