To Reviewer 1

The authors have done a good job of revising the paper. There are two small outstanding issues that I would like to raise again as they were partially but not fully addressed in the revision. This may be my fault for not being clear enough in my comments.

1. Thanks to the revision, I have better understood what is meant by "no reflectivity data". However, I do find the nomenclature "no reflectivity data" to be misleading. It sounds like missing data, rather than existing data with small or zero dBZ value.

Answer: The wording of "no reflectivity data" is quite commonly used in the radar data assimilation community. However, considering that this may be misleading, we changed it to "clear-air reflectivity data"

2. Localization and Desroziers et al (2005) calculations. I think I did not make my point clearly enough. As noted by Waller et al (2019) "The diagnostic in Desroziers et al. (2005) is derived assuming that the analysis is calculated using minimum variance linear statistical estimation. However, the diagnostic no longer provides a correct estimate of the observation error covariance matrix if local ensemble data assimilation is used to calculate the analysis. Using a modified version of the diagnostic it is possible to recover some of the observation error statistics. Waller et al. (2017) show that the diagnostic can be used to estimate the error correlations between two observations if the observation operator that determines the model equivalent of observation y_i acts only on states that have been updated using the observation y_j. Otherwise, the error correlation cannot be estimated using the diagnostic."

As this paper follows a similar methodology to Waller et al (2019) it is probably the case that the calculations do not suffer from this issue. However, I think the authors should verify this and mention it in their paper.

Answer: We added "Furthermore, it is noted in Waller et al. 2017 that for the local ensemble data assimilation scheme the error correlation between two observations y_i and y_j estimated by the Desroziers method is correct if the observation operator applied to calculate the model counterpart of y_i acts only on states updated by y_j, however, the LETKF does not seem to suffer strongly from this issue as shown in Waller et al. 2019".

Typos

L33 "paramters (?)"

L184 "e.g. ?"

L207 "spacial"

Answer: Done.