*1) Regarding the "perturbed-observation" EnKF methodology, it is not clear how the data are assimilated. Specifically, at a given assimilation step, are all observations assimilated at once or are observations assimilated sequentially by batches ?*

The ozone and height observations are assimilated together in a single batch for each assimilation step. We will make this point clear in the revised version.

2) In the height-only assimilation experiment, looking at Fig. 9, the optimal localization length seems to be beyond the 5000km value. Have there been tests done with longer localization lengths ?

This is an important question that we need to address. We have now completed tests beyond 5000 km. The height-only assimilation does optimize at 5000 km (with and without NNMI) for the EnKF-uv, but for the EnKF-$\psi\chi$ height-only assimilation optimizes at 7000 km (with and without NNMI). This results in slightly smaller analysis errors and slightly higher WEP than currently reported. For example, below we show the WEP out to 8000 km (compare with original Figure 9f). We will modify the paper to account for these new results.
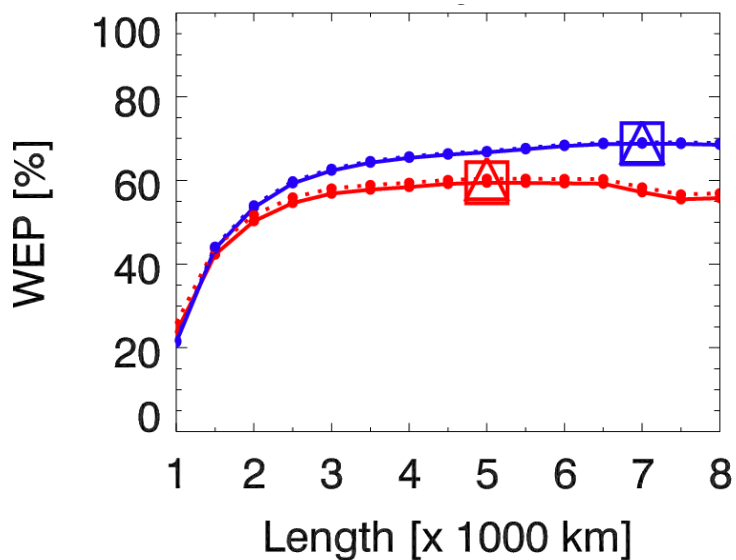
Also, considering that ozone assimilation and height assimilation products behave differently when varying localization lengths, why has a single localization length parameter strategy been retained for the combined ozone and height assimilation experiment ?

This single localization strategy was used as a simple method for maintaining a consistent localization approach among all experiments in this first study on tracer-wind extraction using the EnKF. It would be interesting to study the application different spatial localization functions for different model variables and the resulting effects on multivariate correlations. However, this is beyond the scope of the present work.