

## ***Interactive comment on “Impact of ozone observations on the structure of a tropical cyclone using coupled atmosphere–chemistry data assimilation” by S. Lim et al.***

**Anonymous Referee #2**

Received and published: 20 June 2015

An ensemble-based data assimilation, the maximum likelihood ensemble filter (MLEF) is employed and interfaced with the WRF-Chem to investigate the impact of ozone ( $O_3$ ) assimilation on the structure of a tropical cyclone (TC).

The results show that the  $O_3$  assimilation has a notable impact on the analyses of other chemical variables (e.g.,  $NO_2$  and  $SO_2$ ) as well as  $O_3$  itself, and atmospheric variables (e.g., wind, temperature and specific humidity), especially near the TC case considered.

Please indicate in some detail :

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- a. How was the coupling between MLEF and WRF-Chem implemented
- b. Please highlight the impact of including/excluding MLEF had on final result.
- c. Please highlight where in the WRF-Chem package is ozone taken into account.

apart from these minor issues this is a well-written and presented ms and I recommend publication once the minor comments are addressed.

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 11573, 2015.