Reply to the comments of 2nd Referee:

Comment 1: There are a very large number of appendices, some of them very short, which results in a disjointed manuscript that doesn't flow very well. I would consider reformulating these so that the overall paper flows better (possibly merging those which are fundamental to the paper, e.g. the non-technical description of Merra2BC, into the body). Appendix F doesn't even appear to be referenced anywhere in the manuscript. There are several places (particularly in the introduction, but also in section 2.1.1) where an excessively long list of citations is given to exemplify a point – please consider whether all of these are necessary and if not cite the most pertinent examples. In a number of places, configuration parameters of WRF-Chem are referred to without explaining their meaning. While the manuscript is obviously of most interest to those familiar with this model, it should be understandable more widely. Finally, the experiments carried out should be described prior to the results section.

Response 1: We thank the Referee for the valuable comments and present here. We agree with the reviewer's major comment on our manuscript's presentation style and will do our best to improve it.