The authors would like to thank the reviewers of the manuscript entitled "Evaluation of the accuracy of thermal dissociation CRDS and LIF techniques for atmospheric measurement of reactive nitrogen species" for their helpful comments and suggestions. Our responses are as follows. The reviewer comments are in italics, our responses are in regular font, and changes to the manuscript are in blue.

Comments from Hans Ostoff

Title. The title seems a bit broad given that not all of the major NOy species were tested (e.g., PAN was not). Also, since measurement accuracy was not actually stated (e.g.,"the measurements of .... are accurate to +/-x%" or something to that effect), perhaps the title should be "Evaluation of interferences of ..."?
We understand Prof. Ostoff's concern, however, because we tested a number of NOy species, and because we tested them at a wide range of setpoints, not just the ones where they were supposed to be detected (i.e. HNO_3 at the ANs setpoints) we felt that it would be best to state them generally, rather than listing all the species out. Additionally, since the goal was not just to characterize interferences from NH_3 and O_3 additions, but to characterize how effectively the TD inlets convert species such as HNO_3 and ammonium nitrate particles, we would like to retain the phrase measurement accuracy.

pg 1, line 27. The paper that should be cited for detection of $ClNO_2$ by CRDS is (Thaler et al., 2011).
Thanks for catching this. We have fixed the reference.

pg 3, line 27. TD-CIMS instruments do not quantify ANs. They are usually quantified by clustering reactions with iodide and do not utilize a TD inlet.
This is true. We should not have included ANs in the list of species TD-CIMS detects. We have removed ANs from that line.

pg 7, line 3. Typo (Marrin)
We have fixed this typo.

pg 9, lines 21-22, and all figure captions. Please specify which instrument was used to monitor NO_2. It was not always obvious.
We have clarified that in all cases except when we are discussing the Berkeley TD-LIF, the NOAA TD-CRDS instrument was measuring NO_2. (Throughout manuscript)

pg 10, line 27. Sobanski (2016) is not listed in the reference section.
The reference is now listed.

pg 11, line 25. "The Berkeley group has found the HNO_3 conversion to be oven dependent even for identical pressure and flow conditions indicating some but not all ovens have impurities at the walls that effectively catalyze HNO_3 decomposition." This statement has major implications and should perhaps be featured more prominently (maybe repeated in the conclusion section). Can the authors speculate as to what these impurities might be? How permanent are these effects? Could they, for example, occur between inlet characterizations in the field and compromise results?
Unfortunately, we can't say for certain what those uncertainties are, or how permanent they are. This is why it is important to discard any ovens with obvious problems, and characterize the ones we do use very well. We have included a line in the discussion which emphasizes this. P20L5 now reads: "Based on the results of this paper, we make the following three recommendations: *(1)* TD ovens should be characterized with the appropriate reactive nitrogen compounds regularly at the oven set points using the oven residence time and gas pressure that will be used in ambient sampling. This is especially important given the findings of the Berkeley group regarding impurities found in otherwise identical ovens, as discussed in Sect. 3.1."

pg 15, line 20. NH4NO2 – typo
Thank you for catching this, we have fixed the typo.

pg 18, line 27. Slusher et al. 2004 is not a suitable reference as CIMS quantifies PAN and N_2O_5 at different masses and no corrections are necessary.
We were trying to say that Slusher *et al* had considered the recombination of NO_3 + NO_2 after the heater as a possible interference. However, it is true that this was not clearly stated, so because that paragraph had already been rewritten (see our response to Reviewer #3's comment on page 18, lines 22-23), we simply removed that statement.

Figure S7. Not sure what is meant by 0 nm sized particles – maybe it should be "no particles"?
This is indeed confusing. The 0 nm refers to setting the DMA size (and voltage) to 0, to ensure that no particles get through. Of course, it is possible for a few very small particles to get through, which is why we wanted to test the throughput at this voltage setting. We have included a line in the figure caption that explains this more clearly: "Here, "0 nm" refers to setting the DMA voltage to 0, which nominally does not allow any particles through."