

## **Responses to Anonymous Referee # 2**

First of all, we would like to thank the reviewer for the useful comments and suggestions.

1. The Introduction has been completed by some sentences about the influence of  $\text{H}_2\text{O}_2$  retention on the upper troposphere as suggested by the reviewer.
2. Page 17455: Measurements indicated that  $\text{H}_2\text{O}_2$  concentration has been reduced because of losses during sprayer atomization. For experiments with approximately 10 ppm  $\text{H}_2\text{O}_2$  concentrations the averages of these reduced values were between 80% and 88% of the initial bottle solution concentration, with a confidence level of 95%. For experiments with about 1 ppm  $\text{H}_2\text{O}_2$  concentrations the averages of the reduced values were between 61% and 66% of the initial concentration with a confidence level of 95%. This statement has been added to the revised manuscript.
3. Error analysis: We used a standard Gaussian error propagation, which is available in standard text books of error computations, to calculate combined errors in our measurements. We feel it is unnecessary to add details of the exact calculation (differential error formulars) because it would not add any new information. The error bars in the figures represent the measurement errors which were calculated by the Gaussian error computation. A sentence which is mentioning this has been added to the revised paper. In Figure 5, the data measured with higher  $\text{H}_2\text{O}_2$  liquid phase concentrations show more fluctuation, in particular visible in the outstanding group of data at lower temperatures. Leaving these data out would show in general the tendency that the retention is decreasing with increasing temperature. As we did not find any obvious reason to reject the low lying group of data points (5 points altogether) we decided to leave them on the plot.