We would like to thank anonymous reviewer 2, for the helpful comments and suggestions. In line with the comments and suggestions, we revised the manuscript. Below are all the comments (in bold) followed by the replies. The parts that are in italic are corrections that are included in the revised version of the paper:

1. The authors should provide a motivation why there is a need to develop a new technique to measure CE. Are there discrepancies in previous results? Or the present technique can provide information that cannot be offered by previous researches? One of the papers they may want to refer to is Radke et al. (1980, J. Appl. Meteor., 19, 715) where discrepancies between CE measured in labs and derived from field observations are described. Also, the single-drop technique can potentially differentiate different factors influencing the CE which cannot be done by previous methods. The authors should give a more detailed description on this point.

We would like to thank the reviewer for this important point, which was also raised by the first reviewer. The suggested reference was added to the paper. We emphasize these suggestions in a new paragraph that was added to the conclusions section: *This technique overcomes some of the limitations inherent in previous studies which required a bulk collection of material. The analytical methods employed were limited by issues such as signal to noise and an inability to observe multiple collection events on single droplets. Moreover, very few experimental works have been performed with atmospherically relevant particles sizes (Radke et al., 1980; Andronache et al., 2006), another advantage of this technique. The droplet size and charge state used here are also consistent with atmospheric conditions.*

2. One of the possible error sources of the CE results reported here is the droplet size which seems to be assumed constant. Given that the RH is very low, the evaporation and hence the change of drop size can be very quick, and this will affect the results of CE calculations. The authors should make estimates of the drop size during the aerosol collection and report errors.

Based on the reviewer comment we added standard deviation values to the droplets sizes in Table 2. The variations in droplets sizes were taken into account and they are represented by the error bar of CE values in Fig. 5. With these suggestions and those made by reviewer 1, we added an explanation in the caption of Fig. 5: *CE calculated as a function of particle radius. Shapes represent different aerosol concentrations. CE error bars based on droplets size, aerosol size and aerosol number concentration measured from each experiment as describe in Eq. 3.*

We agree with the reviewer that evaporation may change the droplet size, which may affect CE values. Since all three reviewers asked about the droplet sizes due to evaporation and the effect it has on the CE, we decided to change our CE calculation in order to include the fact that droplets evaporate in the chamber. In addition, we include a new paragraph on the subject in the result and discussion section. The droplet size at the time that collection occurred is not measured in our system; therefore, we used different droplets sizes that corresponded to the range of evaporation times in the system in order to calculate theoretical CE values. The following was added to the paper in the result and discussion: *As noted earlier, the droplets evaporated completely while in the chamber at both RH conditions. Since droplet size could not be determined precisely at the moment when collection occurred in the chamber, calculations of theoretical CE were performed for three relevant droplets sizes: The first was the original droplet size as measured from the droplet generator (21.4 and 21.9 μm, for Low and High RH conditions, respectively) for the full droplet lifetime. The second, droplet size with half the volume of the original droplet (radius of 17 and 17.4 μm, for Low and High RH conditions, respectively) over the full lifetime. For the third an extreme case was considered, droplets with a radius of 5 μm for the full droplet lifetime. The results of these calculations are presented in Fig. 10. Overall, as droplet size decreases, CE values increases. In the extreme 5 μm case, CE values increases by more than an order of magnitude. For the Low RH case the best agreement is with the 5 μm case, which logically follows from the rapid evaporation of these droplets. In the High RH case the experimental CE values fall nearest the half volume case, which again logically follows since these droplets more slowly evaporate.*

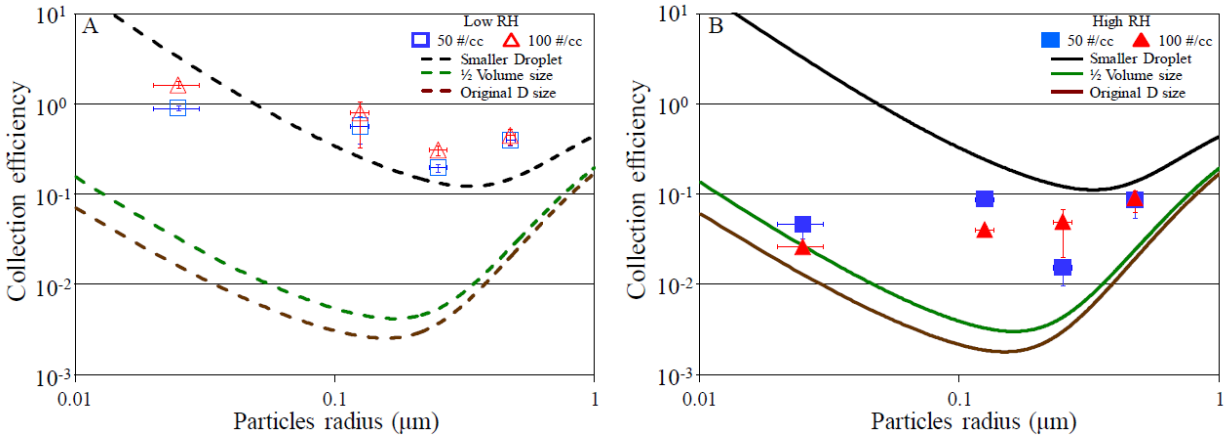

Figure 10: CE as a function of particle radius at Low and High RH (Panel A and B, respectively). CE experimentally determined in this study (points) with theoretical calculations (lines). The lines represent calculation with different droplets sizes: the measured droplet size (brown), droplets with half the volume (green) and 5 µm droplets (black). See text for details.