

Interactive comment on “Investigations of aerosol impacts on hurricanes: virtual seeding flights” by G. G. Carrió and W. R. Cotton

G. G. Carrió and W. R. Cotton

carrio@atmos.colostate.edu

Received and published: 27 December 2010

In this study, we have put especial emphasis on the effects linked to cold pools, nonetheless, the revised manuscript will include a paragraph (in the introduction) focused on other potential mechanisms capable of mitigating the storm intensity. We will refer the reader to some studies investigating similar aerosol indirect effects simulated for single deep convective clouds as well as those suggested by Referee #1.

We did rerun the analyses to evaluate the main characteristics of the cold-pool area distributions using Θ_e (instead of simply a temperature difference). The final version of tables I and II could show the values computed in this way. These resulting mean and maximum areas showed the an identical behavior with an approximately monotonic response for concentrations below 8000/cc.

C11647

A plot to show the effect of seeding on tangential wind speed as a function of radius from the center could be generated. But unfortunately, additional analyses on latent heat releases in the outer rainbands are not possible as they would require reruns, which are not feasible given the lack of funding. However, in Zhang et al (2007, 2009) the heating analysis was performed which and led to the conclusion that the main response was at low-levels. Of course the latter authors did not run the higher seeding rate cases. There is probably an upper level heating response that is more evident in the high heating rate cases because the cold-pools were nearly absent. This is clearly seen in some other simulations that are being performed in our group. The final manuscript will have an additional paragraph commenting on this issue and mentioning the results Zhang et al (2007, 2009).

The authors wish to thank referees 1 and 2 for their helpful suggestions and the latter or his/her many specific comments to improve the presentation of our study.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 22437, 2010.