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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Large-eddy simulation of radiation fog: Part 1: Impact of dynamics on microphysics" *by* Marie Mazoyer et al.

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Dear Sir,

We would like to thank you sincerely for your precious support to correct the text, and all your suggestions. Before answering to your questions, we must confess that there was an error in the coding of the deposition process : the deposition velocity was mistakenly multiplied by the volume of the grid, corresponding to a ratio of 25 for all the simulations at 5m resolution (so a deposition velocity of 50 cm/s instead of 2 cm/s was actually applied), and to a ratio of 4 for the simulation at 2m resolution (noted DX2). Consequently, the deposition effect was overestimated. All the simulations except the one without deposition (called NDG) have been run again and most of the figures have been updated. For the REF simulation (with a deposition velocity of 2 cm/s), the dis-

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crepancies with the observed microphysical fields are a bit stronger (cloud mixing ratio and droplet concentration more overestimated), but the DE8 simulation (deposition velocity of 8 cm/s as it was requested by one of the reviewers) presents a significant improvement. The signature of the fog onset at elevated levels in the REF simulation is not so marked, and is more evident in the DE8 simulation, showing that both the tree drag effect and the deposition are necessary to reproduce the formation of fog at elevated levels. The new results do not modify the analysis of the fog event and the conclusions of the study. The text has been also reduced to answer to the reviewers : the sensitivity test on the initial conditions has been removed, as well as the corresponding figures. The length of the text has been reduced as expected. Lastly, the text has been revised by an english native speaker.

Best regards,

Christine Lac

Please also note the supplement to this comment:
http://www.atmos-chem-phys-discuss.net/acp-2016-900/acp-2016-900-AC3-supplement.pdf

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