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Comment

## ***Interactive comment on “Dehydration effects from contrails in a coupled contrail–climate model” by U. Schumann et al.***

### **Anonymous Referee #2**

Received and published: 7 September 2015

This study addresses an important question concerning the redistribution of humidity in the atmosphere by contrails at global scale. By coupling a climate model with a contrail model, it quantifies the effect of dehydration on the radiative effect of contrails and of the redistribution of humidity in the atmosphere. The authors report a small negative net radiative forcing from dehydration related to a reduction of the liquid and ice water paths and cloud cover of low and high-level clouds. The manuscript is clearly structured and presented, and I recommend its publication in its present version, with very minor suggestions.

Minor suggestions:

Figures 3 and 4 seem to have been swapped.

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Page 19575, line 6: The authors mention some factors that affect contrail RF, to which contrail lifetime and diurnal variation should be added, as these factors play a crucial role in the balance between the SW and LW contrail forcing contributions.

Page 19582, paragraph 3: The authors correctly highlight the dependence of their results on the representation of sedimentation and the contrail's particle size spectrum. It would be interesting if they could also comment on the dependence of the radiative properties on these factors.

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 19553, 2015.

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