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Interactive comment on “Using a WRF simulation to examine regions where convection impacts the Asian summer monsoon anticyclone” by N. K. Heath and H. E. Fuelberg

Anonymous Referee #2

Received and published: 9 December 2013

This manuscript describes a cloud-resolving WRF model experiment to examine the role that deep convection plays in transporting air from the boundary into the Asian summer monsoon upper-level anticyclone. The model experiment is very well conceived, and the paper is very well written. This is the first application of the WRF model run at cloud-resolving resolution over this large region. The results are extremely important in helping to determine the location of the most frequent transport of pollution to the UTLS.

I have only a few items listed below that need to be addressed. Once these items are addressed, the paper should be published in ACP.

C9284

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Specific Comments: page 24810, line 15: "greatest impact". Need to clarify what this means. Is this the time period when the greatest number of trajectories arrive at the ULAC?

page 24818, line 13: There are large changes (generally improvement) in detection efficiency for WWLLN over the 2007 to 2012 period. Lumping all years together in a single climatology can create some geographic biases. Might be better to treat the years individually.

page 24819, line 23: The MERRA low pressure extends farther south over India than in WRF. Please note this in the manuscript.

page 24824, line 11: The mean vertical velocity of each trajectory....

page 24824, line 13: An updraft from near the surface to 150 hPa averaging 23 m/s over this vertical distance and over a 16 km² area seems unrealistically large to me. Are there such updrafts documented in the literature?

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 24809, 2013.

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