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Interactive comment on "Aerosol-precipitation interactions in the southern Appalachian Mountains" *by* G. M. Kelly et al.

Anonymous Referee #2

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The stated objective of the paper is providing additional insights into the complex question of aerosol impacts on precipitation. Respectively, the paper provides a short literature review of the subject. In fact, the study presents associations of classifications of aerosol properties, synoptic classification, air mass back trajectories and precipitation amounts, and provides some discussion on the possible causes of the observed associations. Out of a very large number of associations, it finds one that is "statistically significant", and presents it as a possible cause and effect. On average, out of every 100 tested random associations, 5 should come out "significant" at the 5% level just by chance. Therefore, the single "significant" association that was found cannot be considered as such, especially without any supporting independent physical considerations for the nature of this particular association between aerosols and precipitation. Unfortunately, this study does not advance our knowledge on its stated objective. The

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tables provide interesting data, but to be publishable it has to be presented in a more scientifically sound context.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 5487, 2012.