

# ***Interactive comment on “Incomplete sulfate aerosol neutralization despite excess ammonia in the eastern US: a possible role of organic aerosol” by Rachel F. Silvern et al.***

**Rachel F. Silvern et al.**

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Thank you for the detailed review. It appears there is some confusion about the constraints used in our thermodynamic calculations. We use the total ammonia to sulfate ratio ( $\text{NH}_x/\text{S(VI)}$ ) as the predictor variable to identify a departure from thermodynamic equilibrium in the observations, not the ammonium to sulfate ratio (which the reviewer refers to as MR). Additionally, our paper does not focus on aerosol pH but on the aerosol neutralization ratio, and the discussion of aerosol pH at the beginning of the paper is only to make the point that the aerosol is acidic even if ammonia is in large excess. As the reviewer points out, this simply comes out of the thermodynamics but we expect that some readers may be confused. We will clarify these issues and provide a

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point-by-point response to this review at the end of the discussion period. We may not be able to convince the reviewer but ultimately look forward to the continuation of this discussion of aerosol thermodynamics in the open literature.

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Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2016-315, 2016.

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