

Interactive
Comment

Interactive comment on “Aerosol hygroscopicity in the marine atmosphere: a closure study using high-resolution, size-resolved AMS and multiple-RH DASH-SP data” by S. P. Hersey et al.

Anonymous Referee #2

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This paper describes flight measurements of simultaneous high resolution and size resolved AMS and multiple DASH-SP measurements in marine atmosphere. The AMS results indicated that the organics have high O:C fractions. Using modified UNIFAC parameters derived from Peng et al. for dicarboxylic and multifunctional acids to predict the hygroscopic uptake of the organics, a hygroscopic closure analysis was made. Good agreement between measured GF and estimated GF was found. Further statistical analysis of the data yielded a useful two- parameter (VForganic and RH) relationship that well predicts GF in marine environments. The importance of the use of AMS data for explaining measured GF is exemplified. This paper is well written and is suitable for publication in ACP.

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I just have a minor point for the consideration of the authors:

This paper assumes that inorganic salts are in a solid state and do not uptake water. However, many laboratory experiments have found the existence of supersaturated droplets in many inorganic systems. Santarpia et al. (J. Geophys. Res., 110, D03206, doi:10.1029/2004JD005279, 2005) have observed supersaturated aerosols in coastal environments. It would be interesting to know how the closure analysis would be affected by relaxing the assumption of dry solid at RH below RHD of the salts.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 16789, 2008.

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