Atmos. Meas. Tech. Discuss.,
doi:10.5194/amt-2017-56-RC1, 2017

Atmospheric Measurement Techniques Discussions

Interactive comment on "Investigation of water adsorption and hygroscopicity of atmospheric particles using a commercial vapor sorption analyzer" *by* Wenjun Gu et al.

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Received and published: 20 June 2017

Water adsorption and hygroscopicity are among the most important physicochemical properties of aerosol particles. The authors developed a novel method to provide the information on mass hygroscopic growth of atmospheric particles. It can be considered to be published in AMT after modifications. (1) There is no information on how to collect the samples on the pan. The effects of the weight and thickness of dry sample on the results should be discussed. (2) Page 8, 169: determine the DRH. In this section, the authors mentioned that the method was developed based on the ASTM, 2007, but, lack of the detail description on the principles. The authors should descript why the DRH can be determined by following step 1)-3) (Line 176-179). Typically, the efflorescence RH was detected by measuring the change in hygroscopic growth with decreasing

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Discussion paper

RH. Why, DRH was detected by this method? (3) Page 8, 178-179: RH is set to a value which is ∼5% (when change/difference in RH is mentioned in this work, it always means the absolute value) higher than the anticipated DRH. Here, “higher” or “lower”? (4) Page 9 180-181: 3) RH is linearly decreased with a rate of 0.2% per min to a value which is ∼5% lower than the anticipated DRH. What does mean here? (5) Page 8 178-Page 9 181: The description is different from what were done in Figure 2. (6) In Figure 4: Too few data points are given. Only one data point showed the particle growth factor. It is difficult to judge the agreement is good or not. (7) If the slow response of vapor sorption analyzer (hours for each measurement) is a drawback for the future applications?

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