Atmos. Chem. Phys. Discuss., 13, C373–C374, 2013
www.atmos-chem-phys-discuss.net/13/C373/2013/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "New particle formation in the western Yangtze River Delta: first data from SORPES-station" *by* E. Herrmann et al.

Anonymous Referee #1

Received and published: 6 March 2013

This paper describes aerosol and air ion size distributions measured at Yangtze River Delta from November 2011 to March 2012. New particle formation (NPF) studies in eastern Asia, especially in this very polluted region, are rare. This manuscript presents the calculated aerosol nucleation and growth rates during this period. However, this paper does not show any new insights into NPF mechanisms and the data analysis related to the discussions of the possible involvement of ions in NPF and how condensation sink, global radiation and temperature can affect NPF is not convincing. I don't recommend for publication of this manuscript in ACP. But this manuscript still contains a valuable dataset of aerosol and ions that are useful to the aerosol science community and I suggest the authors include these data (excluding Sections 4 and 5) into another upcoming special issue paper.

Air ion analysis (Section 4): the data clearly show some differences in air ions during the NPF and non-event days, but the authors conclude that ions are not important in NPF. This conclusion is not convincing.

Event conditions (Section 5): the authors use a parameter L" (adopted from McMurry et al. 2005 and further approximated and simplified) but I don't think L" (a function of condensation sink CS, global radiation, and temperature) makes any physical sense. Assumption that CS and [SO2] can be canceled out is incorrect for most cases and a parameter derived from a series of approximation/simplification does not show new insights (Figure 8).

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 1455, 2013.