

Response to Referee #2:

Thanks very much for your comments, suggestions and recommendation with respect to improve this paper. The response to all your comments is listed below.

In generally, I would like to accept this article to be published in AMT after one minor revision. Here I also have several questions on this paper improvement. Seemly, this paper is too technique. I would like to suggest more extend and embrace more references on this paper. As I knew, there are more studies working on phase transitions of aerosol particles. The authors should emphasize more literature and extend your study for the potential uses in the campaign.

For example,

Sun, et al., Key Role of Nitrate in Phase Transitions of Urban Particles: Implications of Important Reactive Surfaces for Secondary Aerosol Formation, J. Geophy. Res., 123, 1234-1243, 10.1002/2017JD027264, 2018.

Wise, et al., (2008). Water uptake by NaCl particles prior to deliquescence and the phase rule. Aerosol Science and Technology, 42, 281–294.
<https://doi.org/10.1080/02786820802047115>

Li, et al., Microscopic Evidence for Phase Separation of Organic Species and Inorganic Salts in Fine Ambient Aerosol Particles, Environ. Sci. Techn., 55, 2234-2242, 10.1021/acs.est.0c02333, 2021.

There are more studies using ETEM, ESEM, and optical microscopy.

Response: We have followed your suggestion and integrated some key references on aerosol phase transitions, which has strengthened the scientific context of our work. Please check the marked up file for details.