

## **Response to Reviewer #1**

**We thank the reviewer for their helpful comments and suggestions. We provide below the original comments, shown in gray, and our responses, with specific revisions noted, in bold font.**

This paper presents rare direct measurements of Arctic aerosol during the winter-spring transition and adds valuable insight and understanding to the body of knowledge regarding aerosol chemistry at the individual particle level. The finding that all secondary sulfate was present as an internal mixture with SSA is significant, and changes how these kinds of particles are modeled. The paper is clear, well-written, and sufficiently detailed. The figures are well-done, informative and easy to understand. I have only minor corrections to be addressed prior to acceptance for publication.

I have no detailed specific (scientific) comments, the paper was extremely well presented.

Technical corrections: Spaces appear between numbers and percent symbol, probably typographical or Latex error.

**We formatted the text in accordance with the SI (International System of Units) guidelines, which state “when it is used, a space separates the number and the symbol %.”**

Pg 3 Line 12: Consider adding “(Cl<sub>2</sub>)” after “chlorine” to be clear about which form of chlorine is liberated.

**This was added.**

Pg 9 Line 7 and Page 11 Line 13 (two instances): use “composed/composing” instead of “comprised/comprising”

**This was changed.**