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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Potential source regions and processes of the aerosol in the summer Arctic" *by* J. Heintzenberg et al.

Anonymous Referee #2

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This manuscript analyses aerosol particle sources over the Arctic Ocean during summertime based on in situ measurements conducted during several cruices. The analysis appears to be scientifically sound with no major errors. The paper is well structured and clearly written. I have a few suggestions for improving the paper a bit further.

The last two paragraphs of "Introduction" mainly list the contents of the paper. Preferably, scientific goals of this papers should be listed as well. What is the main goal of the paper? Which questions the paper is searching for answers?

The authors test their clustering algorith in section 4. Rather than just saying ". . .lending confidence in. . ." at the end, I would recommend adding a short (2-3 sentences) summary of the outcome of this testing exercise. Now the reader needs to make his/her

own judgement of whether and how well the chosen approach performs.

The last section of the paper (synopsis and conclusions) would benefit of having a paragraph discussing the major implications that the findings made here might have in terms of the Arctic climate system. One line related to this issue could also be added to the “Abstract”.

Minor/technical issues:

Page 8449, line 21: should maybe be “derived”.

Page 8454, lines 8-9: “one” and “two” are bit strange choices of words here. Maybe something like “The first case” and “The second case”.

Page 8455, line 1: “super-micrometer particles. . .”, particles missing?

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 8429, 2015.