

Interactive comment on “Frequent Ultrafine Particle Formation and Growth in the Canadian Arctic Marine Environment” by Douglas B. Collins et al.

Anonymous Referee #1

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This manuscript summarizes measurements conducted in 2014 and 2016 in the Canadian Arctic aboard the CCGS Amundsen. Ultrafine particle formation and growth were frequently encountered especially in 2016. In addition to summarizing the particle events the authors look at various meteorological and oceanographic data that might explain the differences in particle events between 2014 and 2016. Unfortunately the differences in atmospheric and oceanic conditions were small and there was no smoking gun that clearly explains the differences in particle events between the two years.

The manuscript is well written and easy to read. I feel the manuscript is appropriate for ACP and should be published with minor revisions.

C1

1. I think it should be clearly pointed out that these are coastal measurements and not the open Arctic Ocean. I think “Coastal” should be added to the title before Canadian.
2. Page 10, line 15. What VOCs?
3. Figure 5, e-h. The Flexpart PES for 0-200m are very hard to read. Can these figures be expanded to better show the data? This really points to the local source of the particles.
4. Page 17 line 15. Saying these factors “led to a greater frequency of UFP formation” is really speculation. Perhaps “could have individually or collectively contributed to a greater frequency...”

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C2