

Suggestions for revision or reasons for rejection (will be published if the paper is accepted for final publication)

The revised manuscript is a greatly improved version of the original one. I have a few, mostly minor, comments to be considered before recommending acceptance for publications.

Thanks for appreciation

Section 3.1.1 is a single, long paragraph. The text would be better readable if split into 2-3 individual paragraphs. It is stated that "Results are broadly in line...". One should define which results. The results of this study? Some specific results discussed earlier?

Done

Also section 3.3 starts with a very long paragraph. To make this text more readable, I would again recommend splitting it into at least 2 paragraphs.

Done

The authors talk about minimum of the Hoppel mode (Abstract and end of section 3.1.1). I do not think this is quite a correct way of expressing this issue. In the scientific literature, this is usually called as a Hoppel minimum, and this minimum is then located between two modes, typically between Aitken and accumulation mode.

Edited, Hoppel minimum

There are a couple of small things related to sea spray aerosol in section 4.1.1. First, concerning the formation of sea salt by blowing snow, there is a very recent study (Frey et al. 2020, Atmos. Chem. Phys. 20, p. 2549) in strong direct evidence on this mechanism was obtained. This study could added to the citation list in this section.

Indeed already cited, was under review. Frey et al 2019, now 2020.

Frey, M. M., Norris, S. J., Brooks, I. M., Anderson, P. S., Nishimura, K., Yang, X., Jones, A. E., Nerentorp Mastromonaco, M. G., Jones, D. H., and Wolff, E. W.: First direct observation of sea salt aerosol production from blowing snow above sea ice, Atmos. Chem. Phys., 20, 2549–2578, <https://doi.org/10.5194/acp-20-2549-2020>, 2020.

Second, I am a bit skeptical in stating that coarse sea salt give a big contribution to a CCN population. Coarse particles tend to dominate sea salt mass concentrations but, being particle larger than 2.5 μm in aerosol dynamic diameter by definition, their number concentration is simply too low to give a notable contribution to CCN. I would think the sea salt/sea spray population giving the largest contribution to CNN is centered well below 1 μm , and probably close to 100 nm, in diameter.

This is indeed a novel finding, as we show that these particles, much smaller than 2.5 μm , may be related to blowing snow. Further studies are needed to support our observations, and are in preparation for submission.

The reference list needs to be revised carefully. First, at least 3 references mentioned in the text (Draxler and Hess 1988, James 1989, Kyro 2013) are missing altogether from reference list. They might be others as well. Second, several of the references are incorrectly formatted. Please check out.

Edited

Finally, there are quite a few typos in the text, especially in sections 1 and 2. Please check out the language of the very last version of the paper.

Edited