

Atmos. Chem. Phys. Discuss., referee comment RC2  
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## Comment on acp-2021-838

Anonymous Referee #2

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Referee comment on "Frequent new particle formation at remote sites in the subboreal forest of North America" by Meinrat O. Andreae et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-838-RC2>, 2021

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This manuscript summarizes new measurements of aerosol size distributions made in summer in pristine British Columbia at two sites 150km apart. The measurements were short in duration and not simultaneous. One site exhibited very frequent new particle formation, often at night, while the other did not. The authors have made the most important datasets on the aerosol size distribution publicly available. They make interesting and useful comparisons of the sites to other places where similar new particle formation is observed or may be expected. The paper motivates more measurements in this very interesting pristine region where conditions are likely not far from pre-industrial. The topic is important, the paper is well written and deserving of prompt publication. I have only a very few minor comments.

Abstract: would it be worth discussing briefly the very interesting diurnal cycle of new particle formation?

Methods: was the SW radiation shown in Figure 1 measured or from reanalysis?

The description of how the nucleation and growth rates presented in Table 1 were calculated might belong better in a short subsection in the Methods, since the Table is given much before the description in section 3.4.6?

I agree with Reviewer 1 that the short duration of the measurements do lead to uncertainties in the interpretation of the data. The authors do point this out already, but more discussion (based on reanalysis, for example) of how representative the weather conditions during the measurement period were of the usual conditions during the summer season would be beneficial. Such a discussion could be used to give more confidence in the results if conditions were representative, or to highlight the uncertainty

if they were not.