

***Interactive comment on* “Characterization of aerosol properties at Cyprus, focusing on cloud condensation nuclei and ice nucleating particles” by Xianda Gong et al.**

Anonymous Referee #1

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This study reported the new particle formation, aerosol hygroscopicity, and ice nucleation activities in the atmosphere at Cyprus. The manuscript is well-written and very clear. But, there are several questions should be addressed in the revised version. (1) In conclusions, the author mentioned “frequently NPF and growth events were observed”. As described in the text, most of bursts in nucleation particles attribute to airport emissions, but not NPF. The wording “frequently” may not be properly. (2) The samples were separated into “ocean” and “land” samples. How about the effects of “land and sea breeze” on the samples? The “land” air may blow to the ocean, and later will come back again. This may explain why the “ocean” samples is similar to that of “land”. (3) In the abstract, “with a median κ value of 0.57, suggesting the presence of

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sulfate.". Actually, 0.57 means almost of pure sulfate. The sea salt can also go down to accumulation mode particles. A high k value may indicate the presence of sea salt. (4) In page 6, Line 10: "Each filter was immersed into 1 mL ultrapure water". 1 ml is enough to wash the particle off from the filter? (5) Typically, the particle surface areas concentration is calculated assuming a spherical shape. While, dust particle may be more irregular, as a result, lead to increase in the surface areas.

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