

***Interactive comment on “Aerosol Characteristics  
in the Entrainment Interface Layer In Relation to  
the Marine Boundary Layer and Free Troposphere”  
by Hossein Dadashazar et al.***

**Anonymous Referee #1**

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I feel this paper is worthy of publication after a few grammatical and technical issues are addressed. Any study involving aircraft aerosol measurements will usually carry a large amount of uncertainty because of the complexity the aerosol properties as well as uncertainties in time and space. The authors give a summary of the particle counts within the EIL, FT, and SUB layers along with the uncertainties. The results are also well summarized in Table 1. Though the variability of the aerosol data is noticeable among the layers there is enough evidence to show how the EIL does indicate particle enhanced particle nucleation due to the larger amount of nanoparticles present and thus, this layer is worthy of further study.

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Without direct measurements of actinic flux, I am not sure how sturdy the authors' conclusion are about the role the OH radical plays in the nucleation in this layer but previous studies seem to support this conclusion.

Another point to raise is the actual aerosol type that is found in the vicinity of the EIL be it smoke, dust, or pollution. Can the authors comment on what the dominant type is and how each can affect or influence particle enhancement in the EIL? There was not much emphasis on this since aerosol type is important when quantifying aerosol-cloud-climate interactions.

Enclosed is the PDF of suggested revisions.

Please also note the supplement to this comment:

<https://www.atmos-chem-phys-discuss.net/acp-2017-913/acp-2017-913-RC1-supplement.pdf>

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Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2017-913>, 2017.

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