

Interactive comment on “Vertical distribution of aerosols over the Maritime Continent during El Nino” by Jason Blake Cohen et al.

Anonymous Referee #1

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This manuscript presents analysis of measurements and modeling of vertical distributions of aerosols during post El-Nino fire season. There is no doubt that vertical distributions of aerosols are of great importance and large uncertainties exist due to lack of measurements and thus poorly constrained model results. The authors claim that their results are significantly different from other previous studies. However, the analysis are mostly based on statistical analysis of vertical CALIPSO data and simple application of plume rise model. It is well known that large uncertainties remain in plume rise modeling, and many efforts have been made to improve plume rise modeling and improve fire emissions. The used CALIPSO data may also have large uncertainties during fire events and necessary verification are not provided. Besides, the authors overuse some words like "significant" (used more than 20 times) without showing how significant. The authors conclude that significant amount of aerosol mass exists in the

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free troposphere using assumption that boundary layer height is 1000m in Singapore. However, this assumption might not be reasonable during severely polluted case like fire, since previous studies found that aerosols can stabilize boundary layer height. The authors should be very careful when use some words. I would not recommend publishing this work before the authors can include more comprehensive evaluation of the used methods and show more interesting results.

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