Supplement of

Insights of warm cloud biases in CAM5 and CAM6 from the single-column modeling framework and ACE-ENA observations

Yuan Wang[1,*], Xiaojian Zheng[2], Xiquan Dong[2], Baike Xi[2], and Yuk L. Yung[3]

[1]Department of Earth, Atmosphere, and Planetary Sciences, Purdue University, West Lafayette, IN, USA

[2]Department of Hydrology and Atmospheric Sciences, University of Arizona, Tucson, AZ, USA

[3]Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, CA, USA

***Corresponding author: Yuan Wang (yuanwang@purdue.edu)**

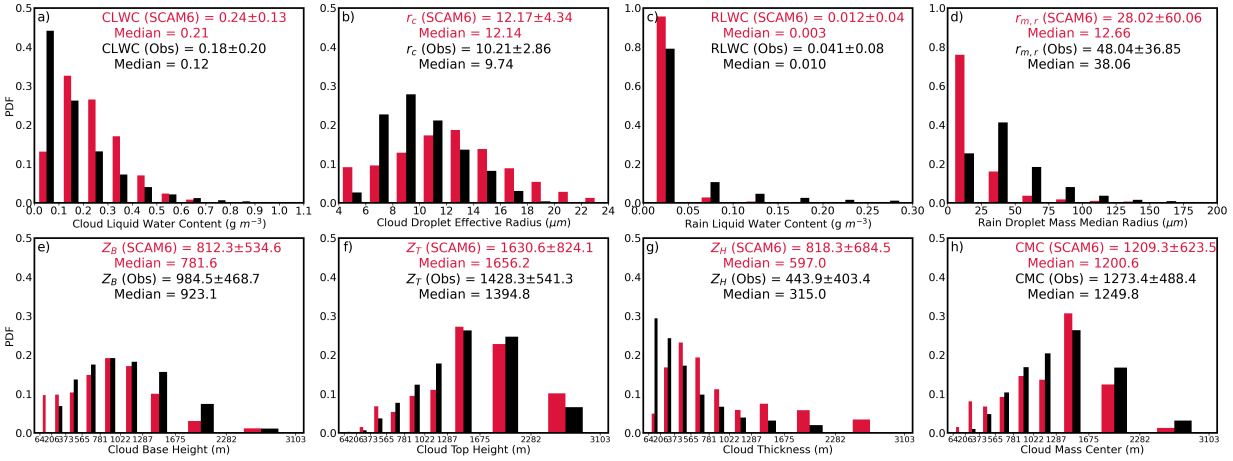

Figure S1. The same with Fig. 3 but the samples are selected based on the criteria of consecutive cloud layers lasting more than 2 hours with the cloud top heights less than 3 km, in order to focus on the signals of stratus and stratocumulus clouds.

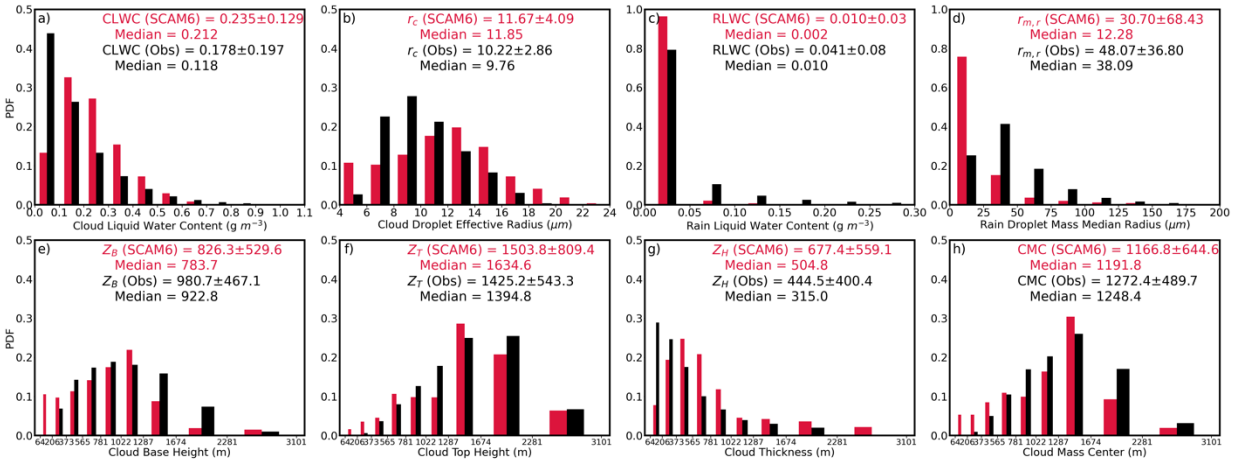

Figure S2. The same with Fig. 3 but for the sensitivity experiment in which all Q related variables (both state variables and tendency terms) are scaled down by a factor of 0.85 in the large-scale forcing dataset.

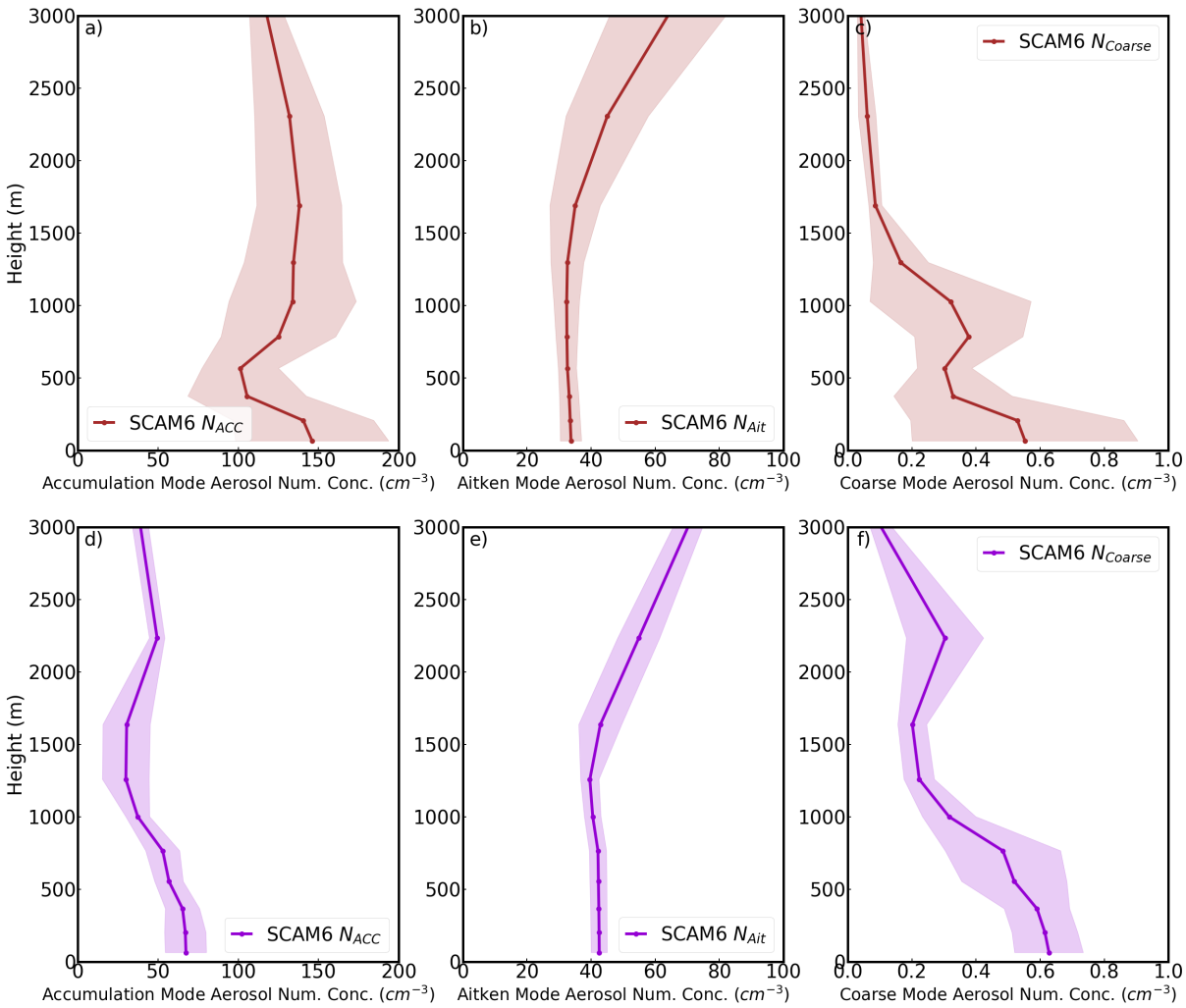

Figure S3. Vertical profiles of SCAM6 simulated aerosol number concentrations of Aitken mode (a, d); Accumulation mode (b, e); Coarse mode (c, f), during the Summer (brown) and Winter (purple) ACE-ENA IOPs.

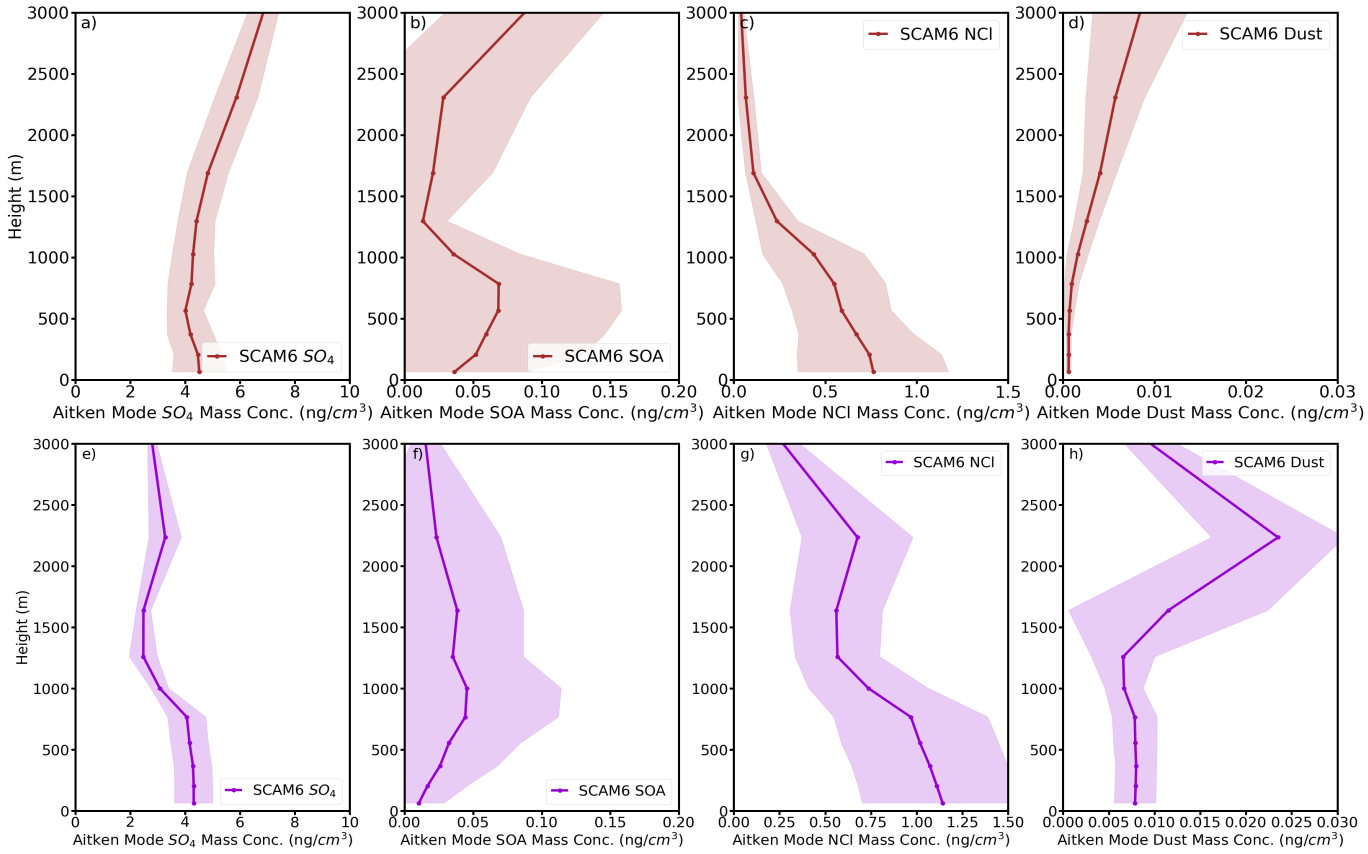

Figure S4. Vertical profiles of SCAM6 simulated Aitken mode aerosol chemical component mass concentrations of sulfate (a, e); SOA (b, f); NCl (c, g); Dust (d, h), during the Summer (brown) and Winter (purple) ACE-ENA IOPs.