



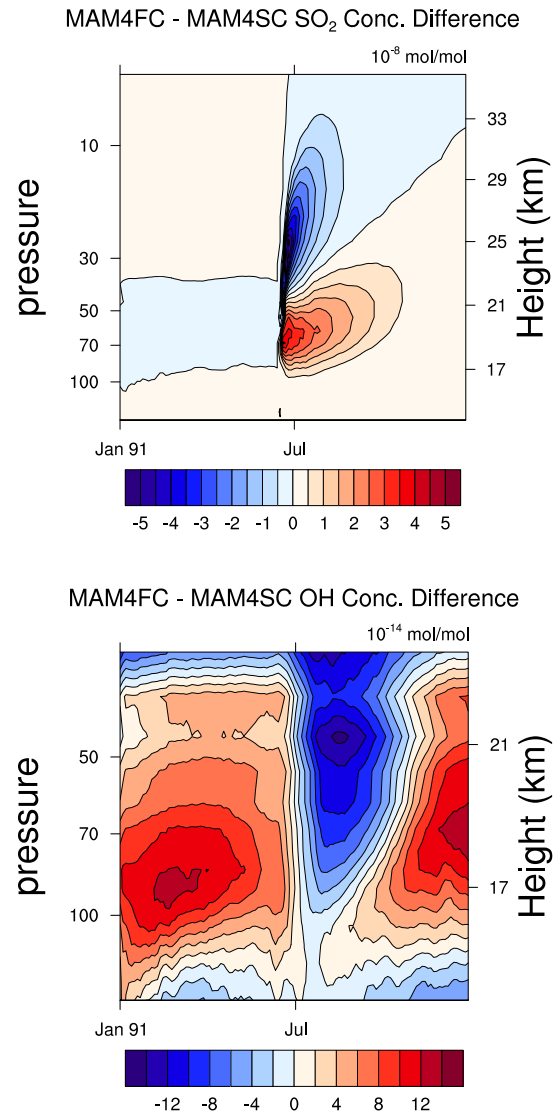
*Supplement of*

## **Size-resolved process understanding of stratospheric sulfate aerosol following the Pinatubo eruption**

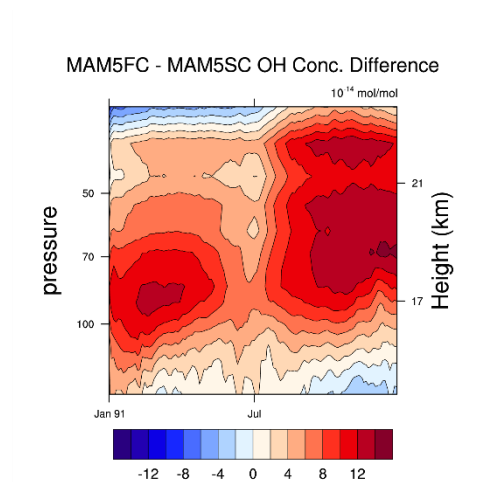
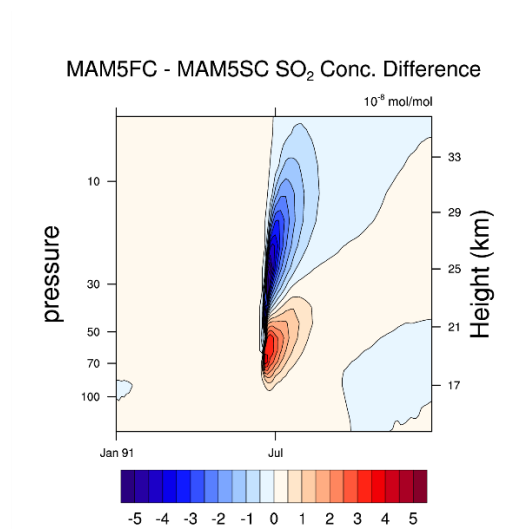
**Allen Hu et al.**

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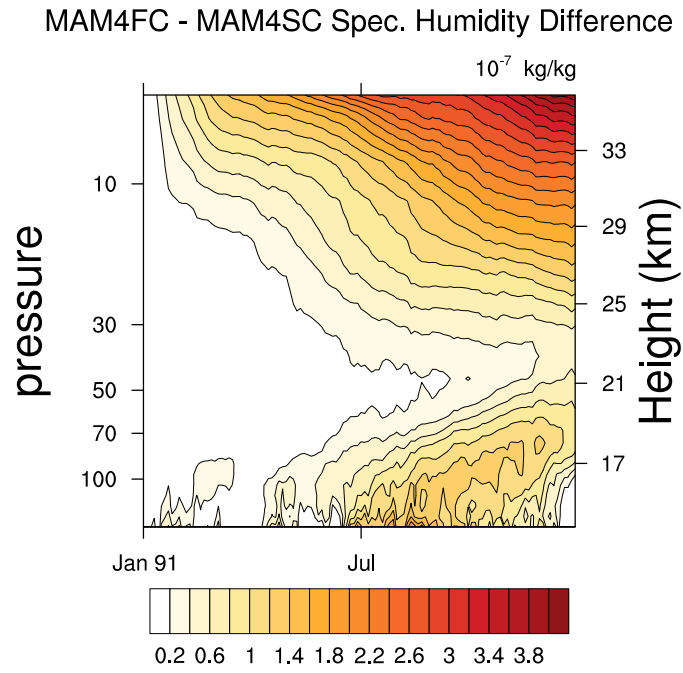
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**Figure S1: Differences in SO<sub>2</sub> concentrations and OH concentrations between MAM4FC and MAM4SC. The vertical axis represents altitude, while the horizontal axis represents time. Values are averaged over all longitudes and 30S-30N latitudes.**



**Figure S2:** Similar to Figure S1, but with the MAM5 experiments instead.



**Figure S3: Differences in specific humidity between MAM4FC and MAM4SC. The vertical axis represents altitude, while the horizontal axis represents time. Values are averaged over all longitudes and 30°S-30°N latitudes.**

### MAM5FC - MAM5SC Spec. Humidity Difference

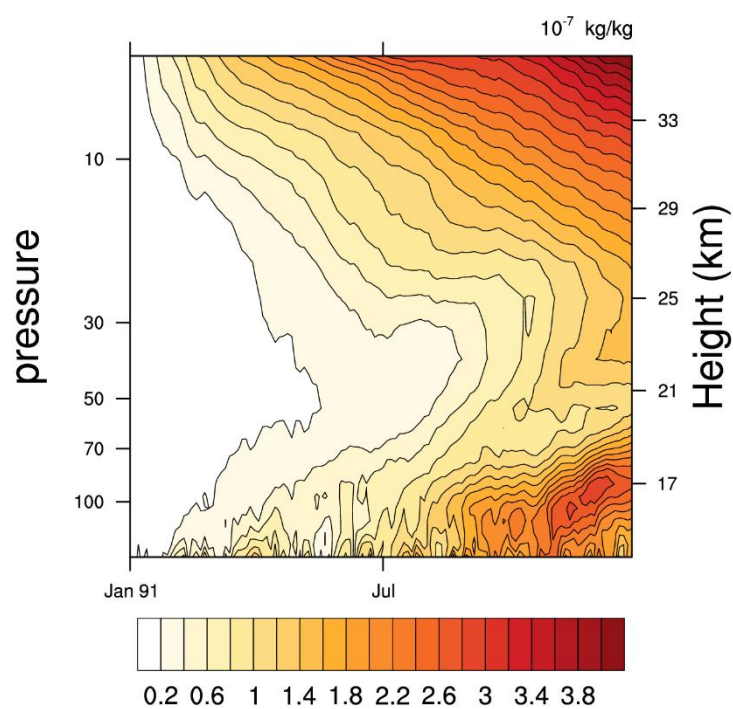


Figure S4: Similar to S3, but the difference in specific humidity in MAM5FC and MAM5SC instead.

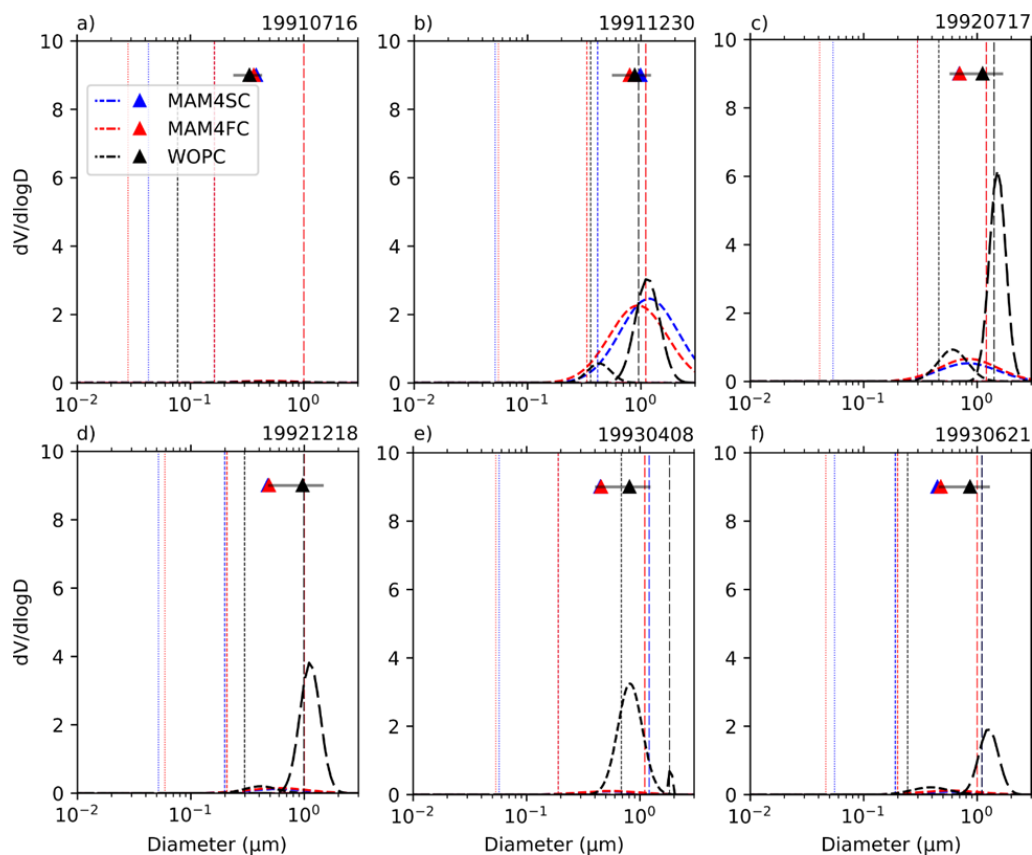


Figure S5: Similar to Figure 6 within the manuscript, but for the MAM4 experiments instead.

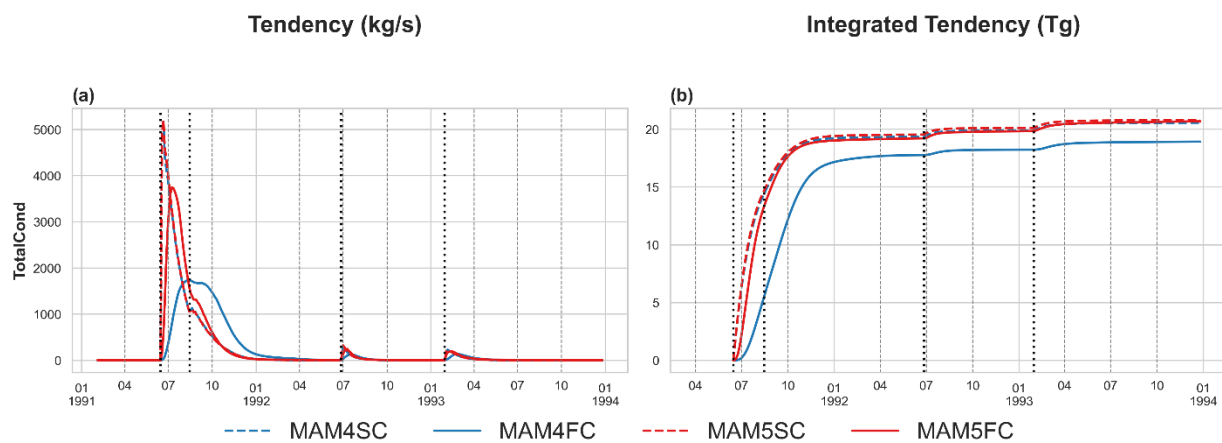
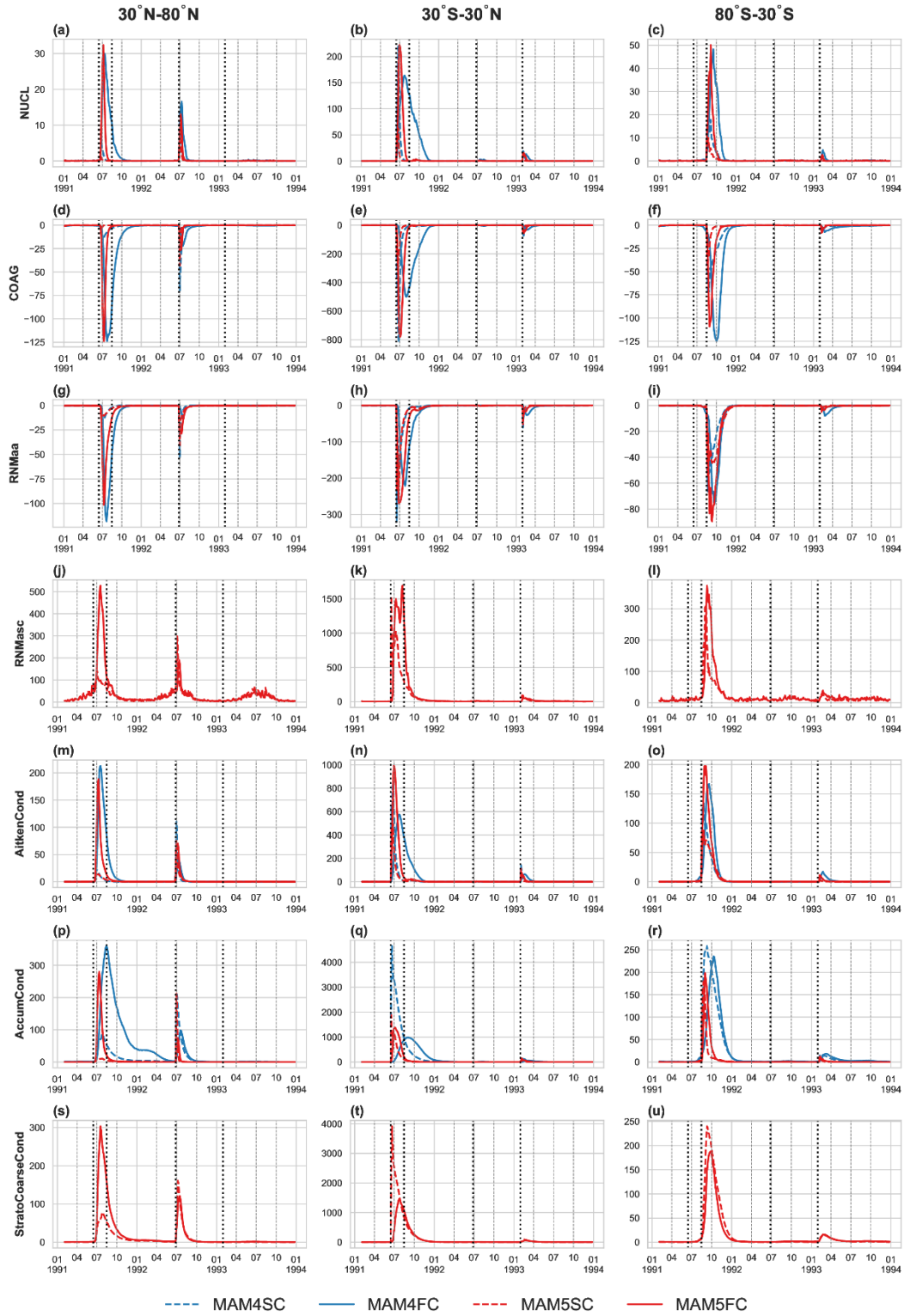
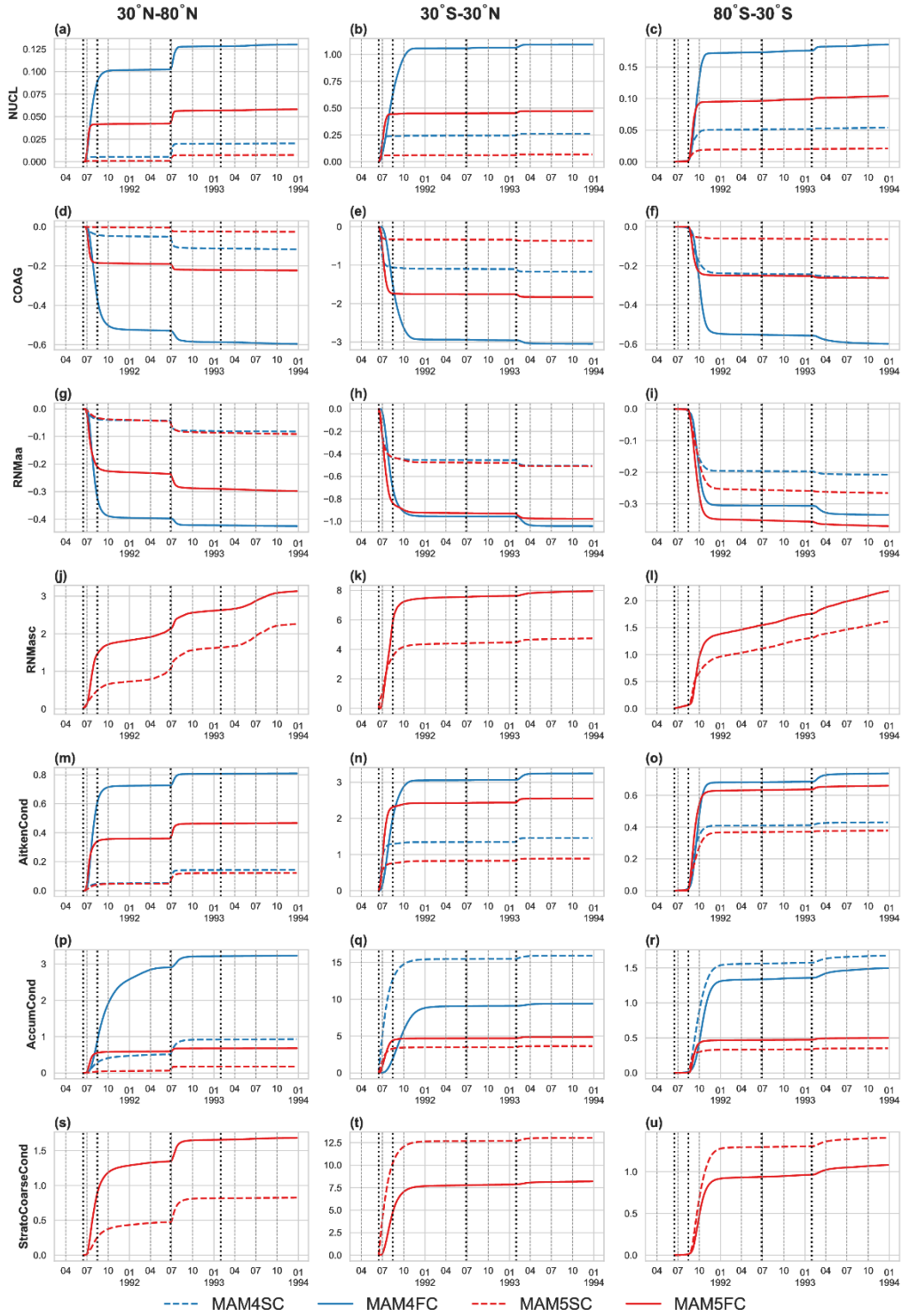


Figure S6: Sum of the condensation tendencies across the different modes in Figure 7.



**Figure S7:** The tendencies depicted in the left hand column of Figure 7, divided by latitudinal region. The vertical lines represent the Pinatubo, Cerro Hudson, Spurr and Lascar eruptions respectively. Unit kg/s.



**Figure S8:** The integrated tendencies depicted in the right hand column of Figure 7, divided by latitudinal region. The vertical lines represent the Pinatubo, Cerro Hudson, Spurr and Lascar eruptions respectively. Unit Tg.