

Supplement of Atmos. Chem. Phys., 21, 2745–2764, 2021  
<https://doi.org/10.5194/acp-21-2745-2021-supplement>  
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*Supplement of*

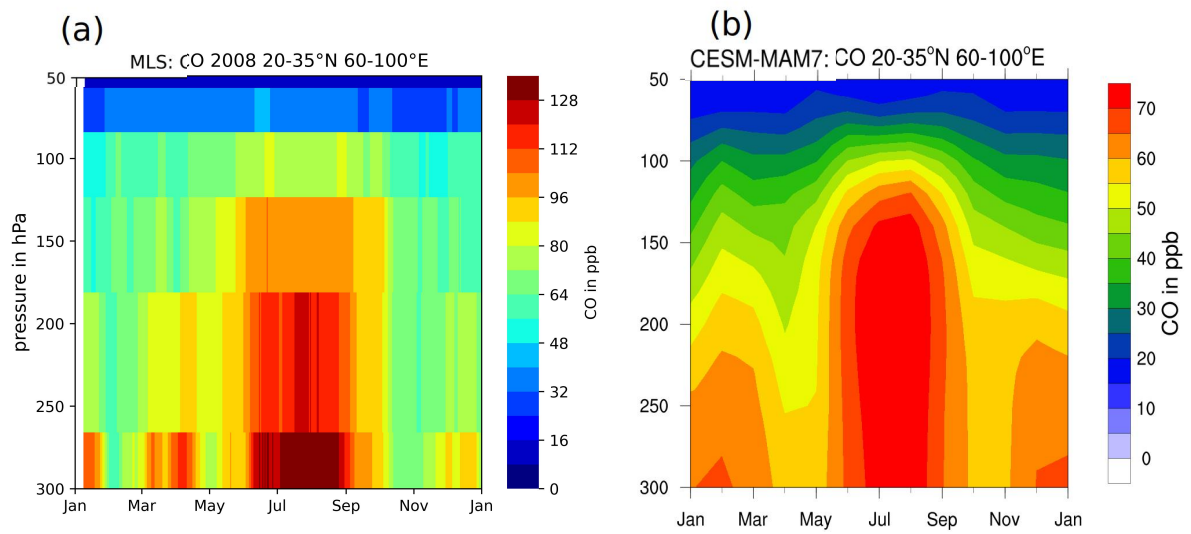
## **Global modeling studies of composition and decadal trends of the Asian Tropopause Aerosol Layer**

**Adriana Bossolasco et al.**

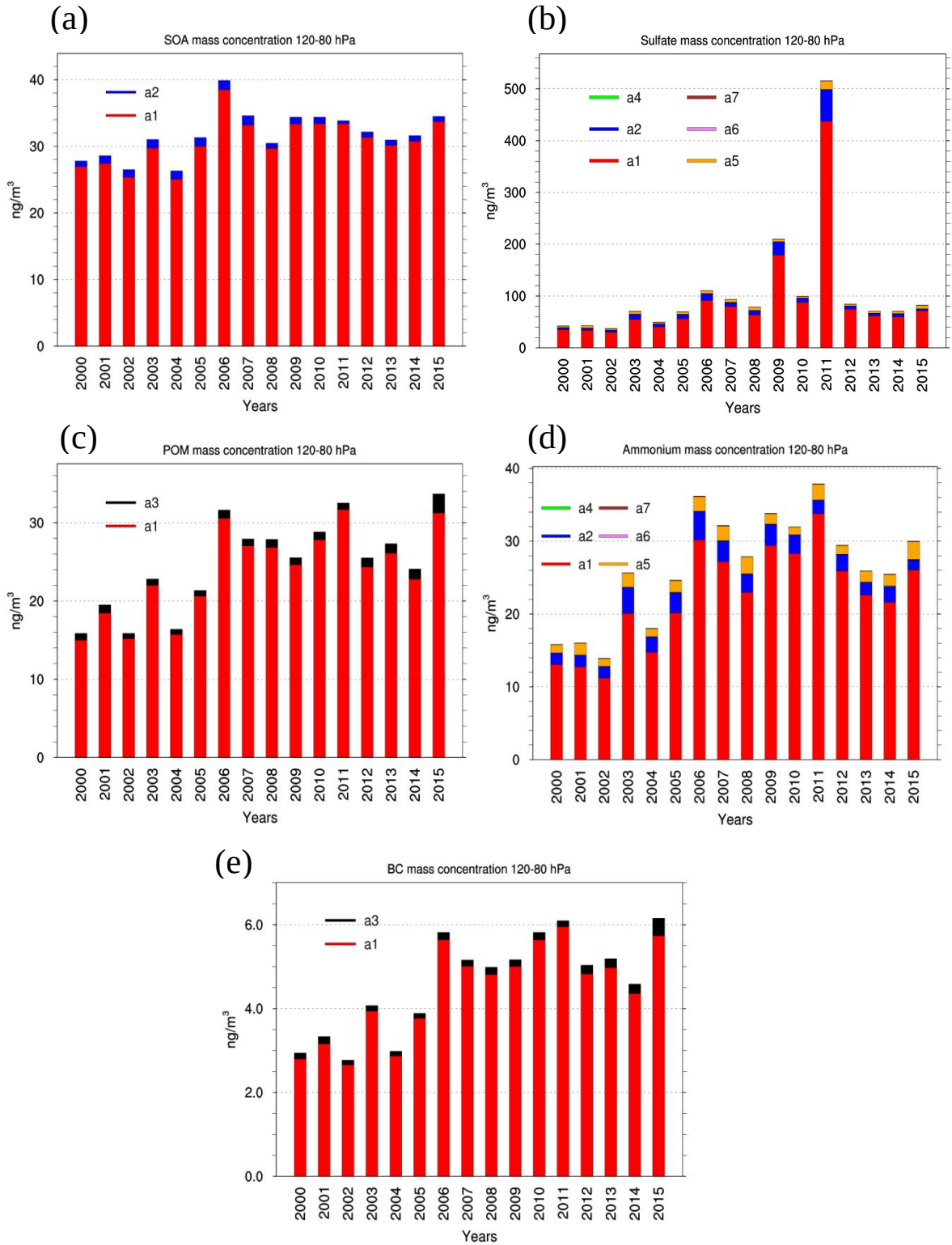
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## Supplements

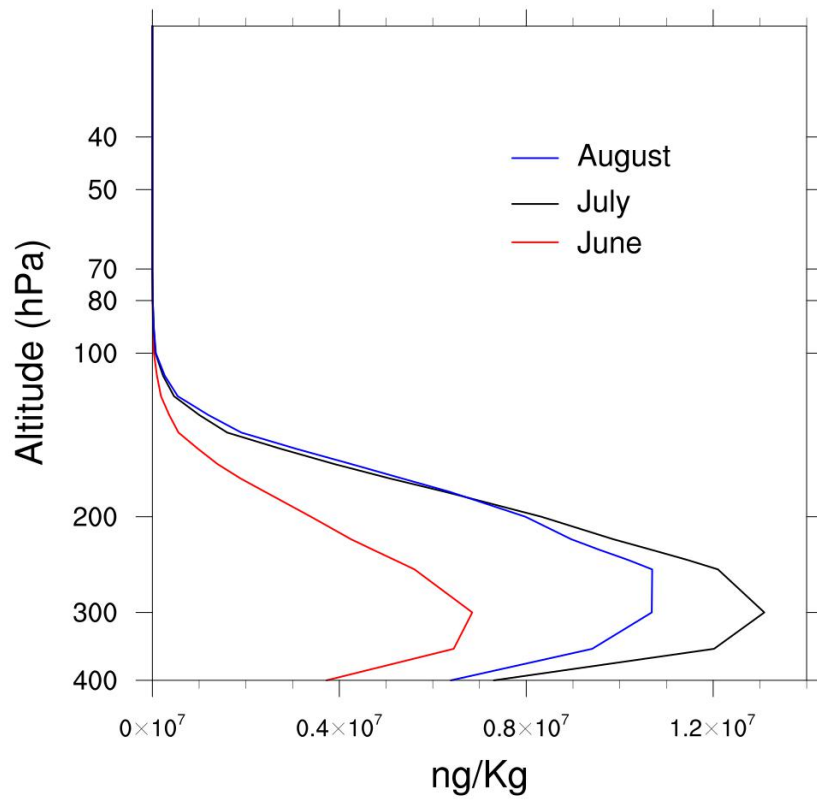


**Figure S1: Averaged vertical evolution of CO for the year 2008 between 20-35 °N, 60-100 °E, (a) 15-day averaged MLS CO observations. The plotted vertical grid reflects the given pressure levels at 316, 215, 147, 100, 68 and 46 hPa from the MLS retrieval, with no added vertical interpolation. (b) Respective CESM-MAM7 modelled CO. No MLS averaging kernel has been applied.**

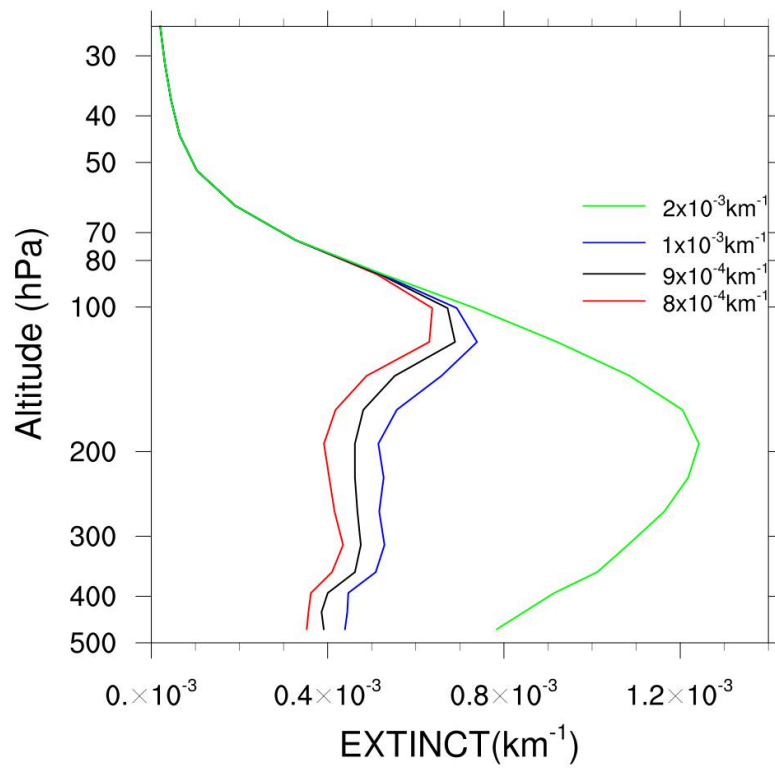


**Figure S2: Evolution of aerosol mass concentration in  $\text{ng}/\text{m}^3$  in the different modes, averaged between  $20\text{-}35^\circ\text{N}$ ,  $60\text{-}100^\circ\text{E}$  at 120-80 hPa for July-August: (a) SOA, (b) Sulfate, (c) POM, (d) Ammonium and (e) BC.**

### Clouds Ice 2014 JJA



**Figure S3: Vertical profiles of cloud ice fraction averaged for June, July and August 2014 between 20-35 °N and 60-100 °E.**



**Figure S4: Vertical profiles of aerosol extinction coefficient averaged for August 2014 between 20-35 °N and 60-100 °E. The different color lines show the different filter applied for the Extinction coefficient.**