Supplement of Atmos. Chem. Phys., 25, 11535–11555, 2025 https://doi.org/10.5194/acp-25-11535-2025-supplement © Author(s) 2025. CC BY 4.0 License.





## Supplement of

## Quantifying the decay timescale of volcanic sulfur dioxide in the stratosphere

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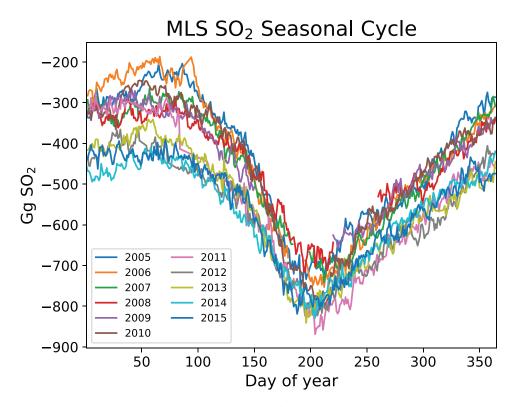


Figure S1: MLS  $SO_2$  seasonal cycle with large volcanic eruption perturbations removed in the  $10\,\mathrm{km}$  to  $14\,\mathrm{km}$  height band from  $40^\circ\mathrm{N}$  to  $90^\circ\mathrm{N}$ .

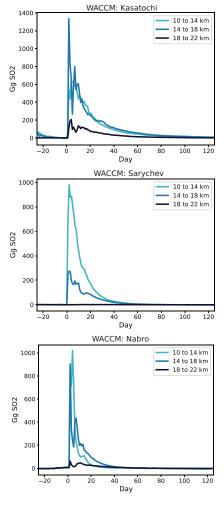


Figure S2: Volcanic  $SO_2$  perturbation for Kasatochi 2008, Sarychev 2009, and Nabro 2011 in the WACCM model.  $SO_2$  masses are split into three height bins: 10 to 14 km, 14 to 18 km, and 18 to 22 km.