

# Supporting Information for "Quantifying the Impact of Internal Variability on the CESM2 Control Algorithm for Stratospheric Aerosol Injection"

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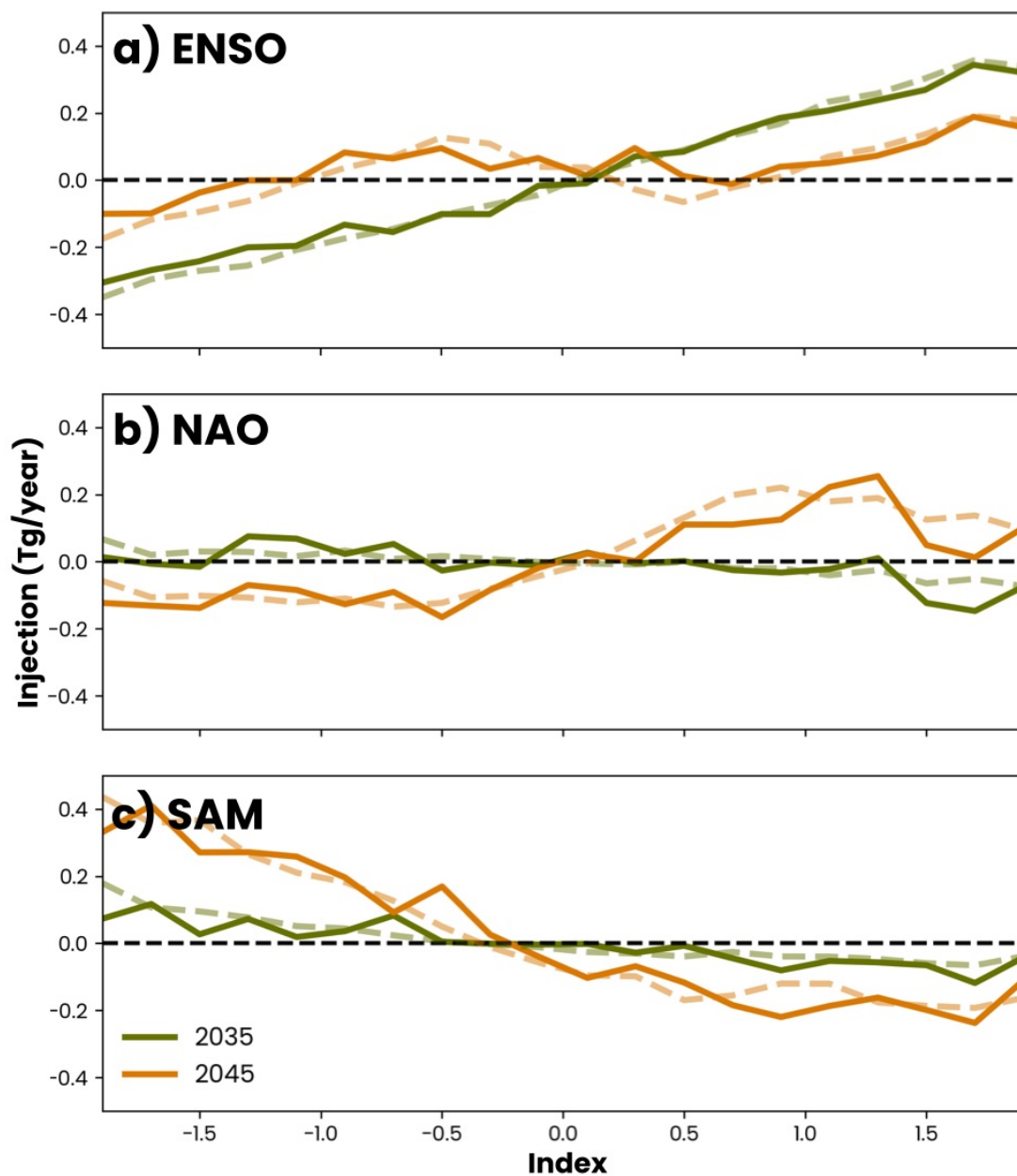
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1. Figure S1.

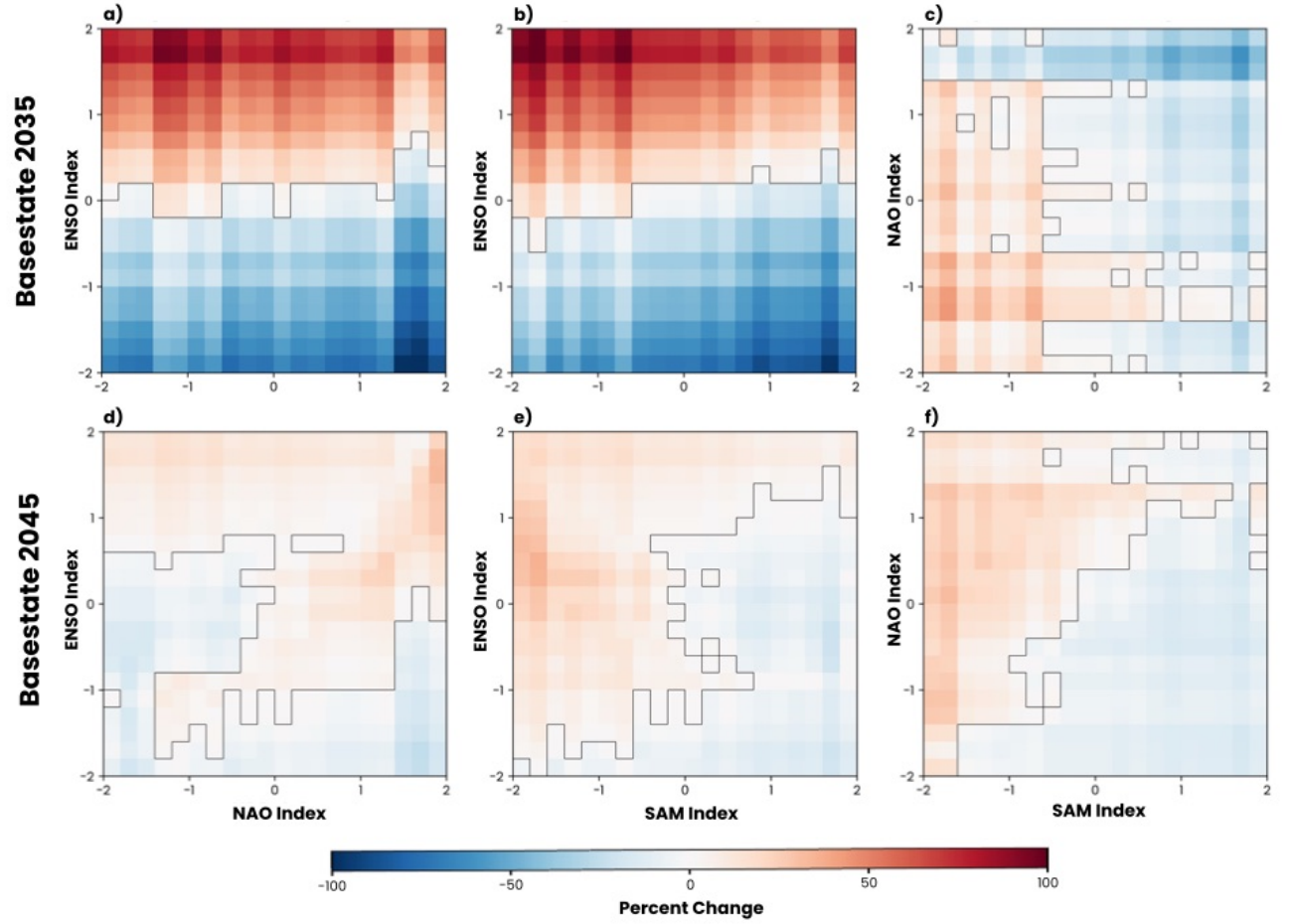
2. Figures S2

**Introduction** This document contains the supporting information for the manuscript entitled *Quantifying the Impact of Internal Variability on the CESM2 Control Algorithm for Stratospheric Aerosol Injection*. Figure S1 shows the ENSO, NAO, and SAM driven portion of the injection as a function of index. Figure S2 shows the percent change in total SO<sub>2</sub> injection as a function of two internal variability indices but using composites from the ARISE control simulation rather than the CESM Large Ensemble.

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**Figure S1.** The portion of the SO<sub>2</sub> injection (Tg/year) in response to (a) ENSO, (b) NAO, and (c) SAM using the base state years 2035 (green line) and 2045 (orange line). Solid lines use data from ARISE-SAI-CTRL and dashed lines use data from CESM2-LE.



**Figure S2.** Percent change in total SO<sub>2</sub> injection as a function of two internal variability indices but using composites from ARISE-SAI-CTRL. Top row uses the year 2035 base state and bottom row uses the year 2045 base state. Black line in each panel separates positive percent change (red shading) from negative percent change (blue shading).