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Supplement of

Hemispherically symmetric strategies for stratospheric aerosol injection

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1 Inter-Model Comparison of Latitudinal Distribution of Aerosol Optical Depth (AOD)

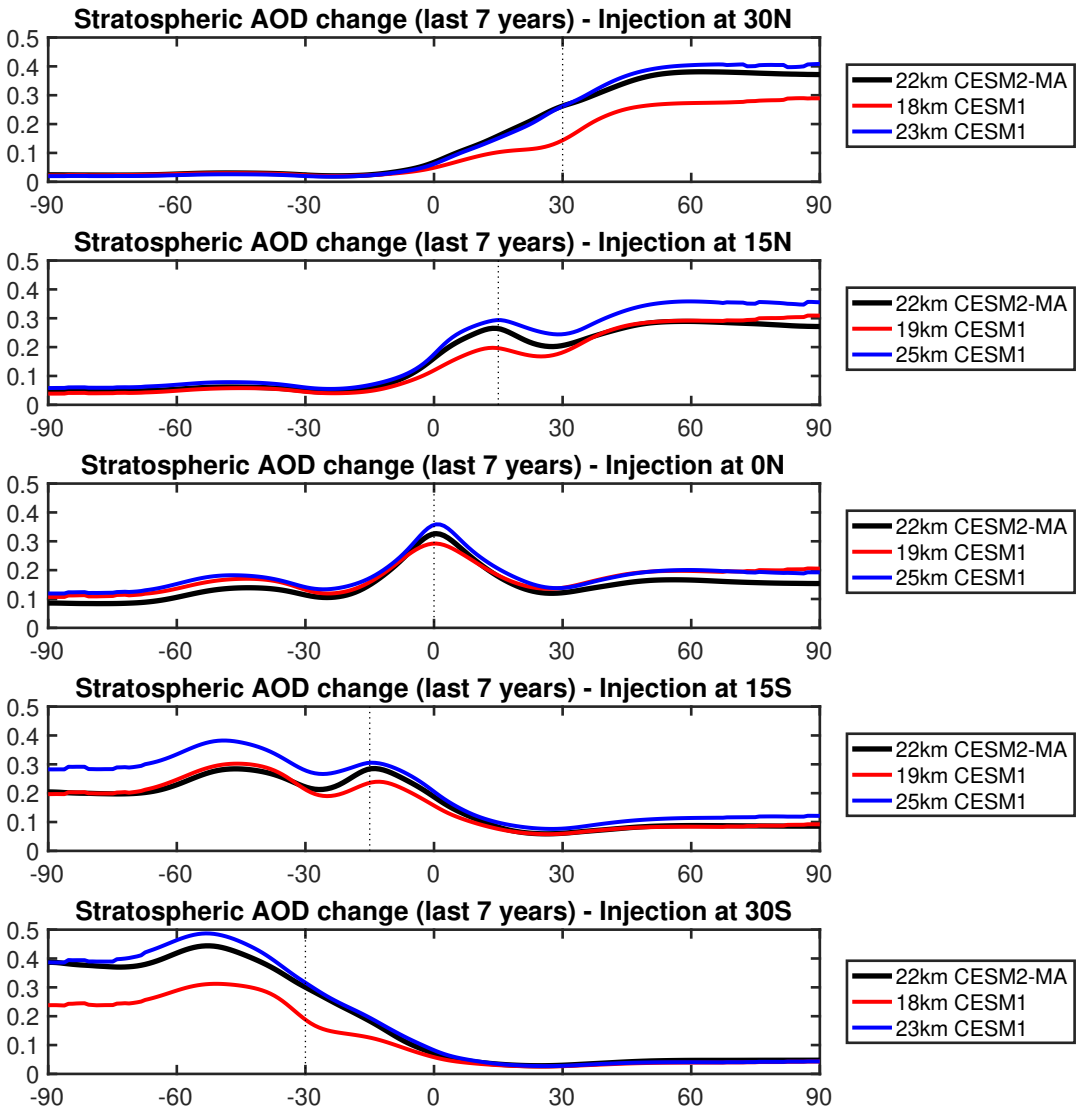

Figure S1. Inter-Model comparison of latitudinal distribution of aerosol optical depth (AOD).

2 Changes in Surface Air Temperature

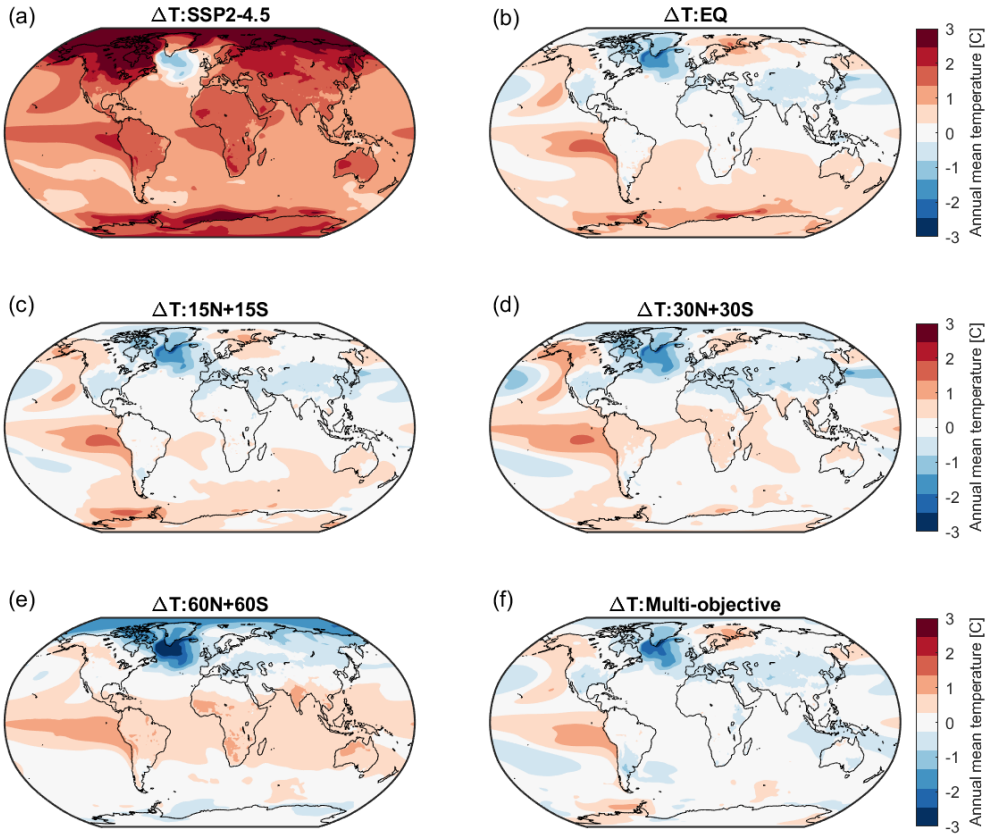

Figure S2. Changes in surface air temperature, averaged over 2050–2069, compared to the reference period (2008–2027) for (a) SSP2-4.5 and (b)-(f) different SAI injection strategies.

3 Changes in Precipitation

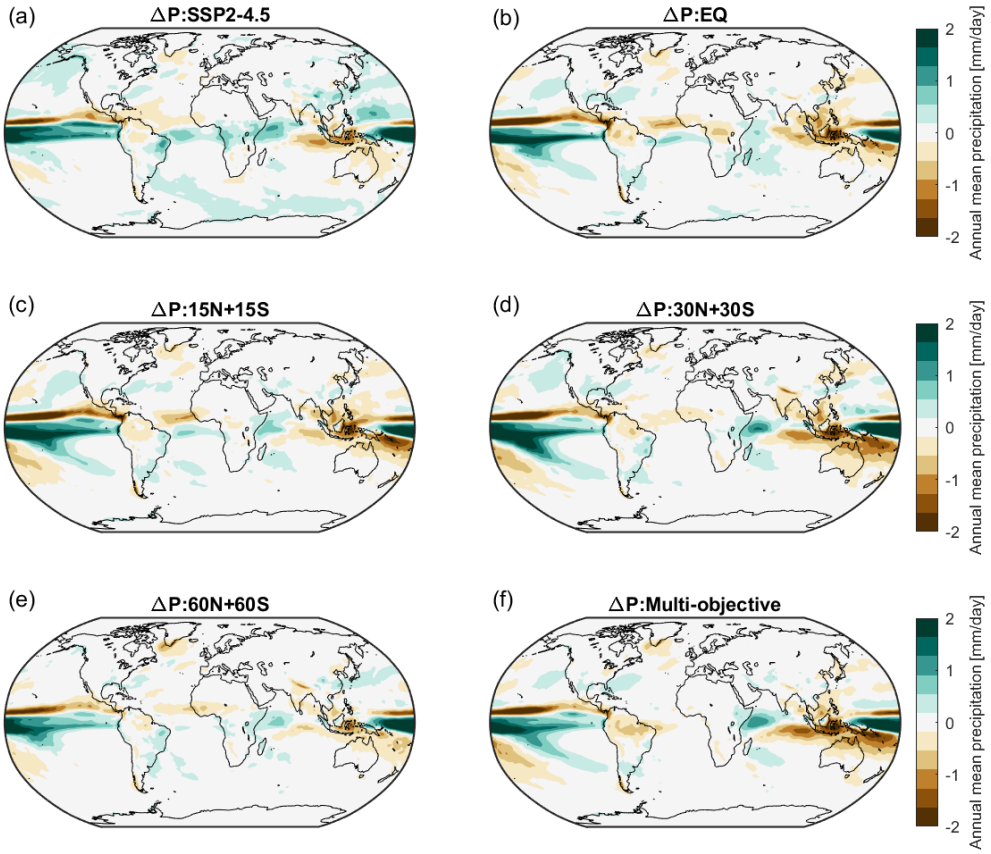

Figure S3. Changes in precipitation, averaged over 2050–2069, compared to the reference period (2008–2027) for (a) SSP2-4.5 and (b)-(f) different SAI injection strategies.

4 Changes in Precipitation minus Evaluation (P-E)

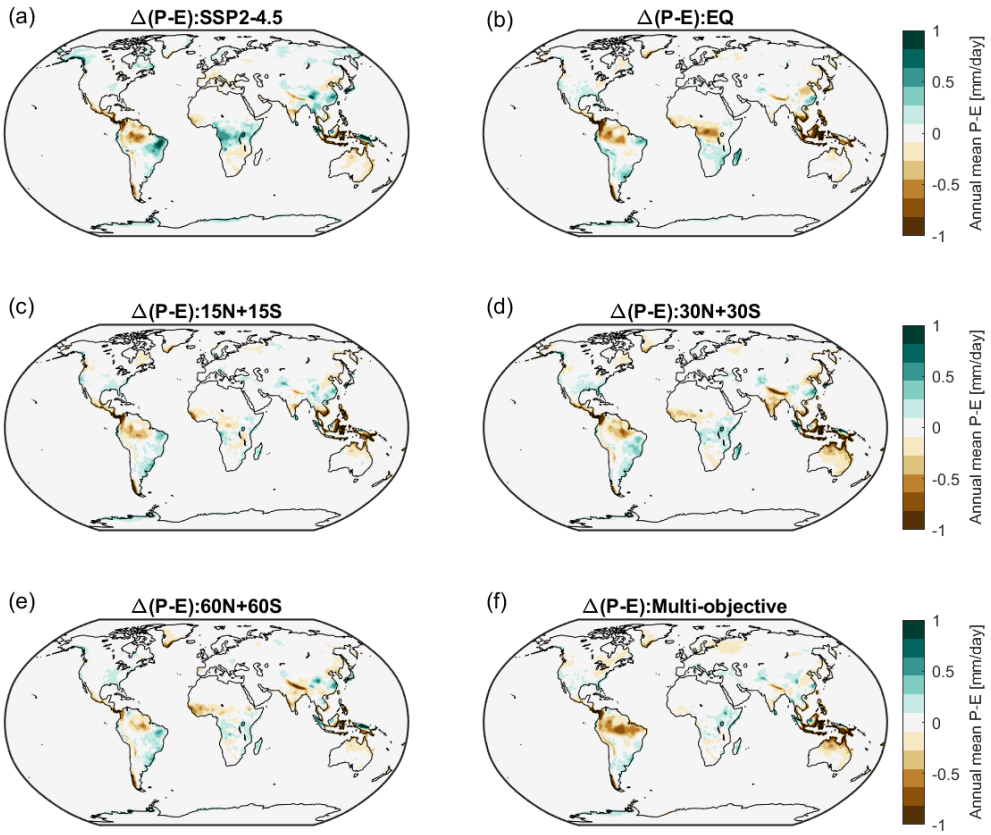

Figure S4. Changes in precipitation minus evaporation (P-E) over land, averaged over 2050–2069, compared to the reference period (2008–2027) for (a) SSP2-4.5 and (b)-(f) different SAI injection strategies.

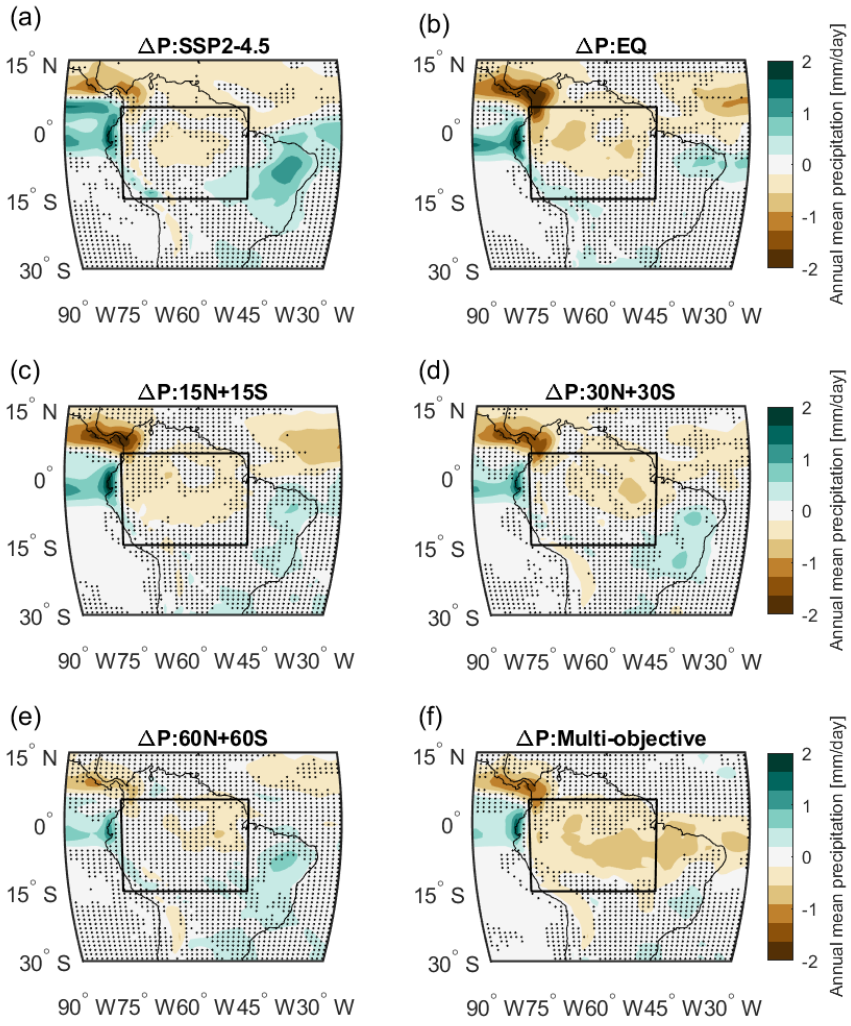

Figure S5. Changes in precipitation (averaged over 2050–2069) in the Amazon Basin compared to the reference period (2008–2027) for (a) SSP2-4.5 and (b)-(f) different SAI injection strategies. Shaded areas indicate where the response is not statistically significant based on a two-tailed Welch's t-test with a confidence level of 95 %.

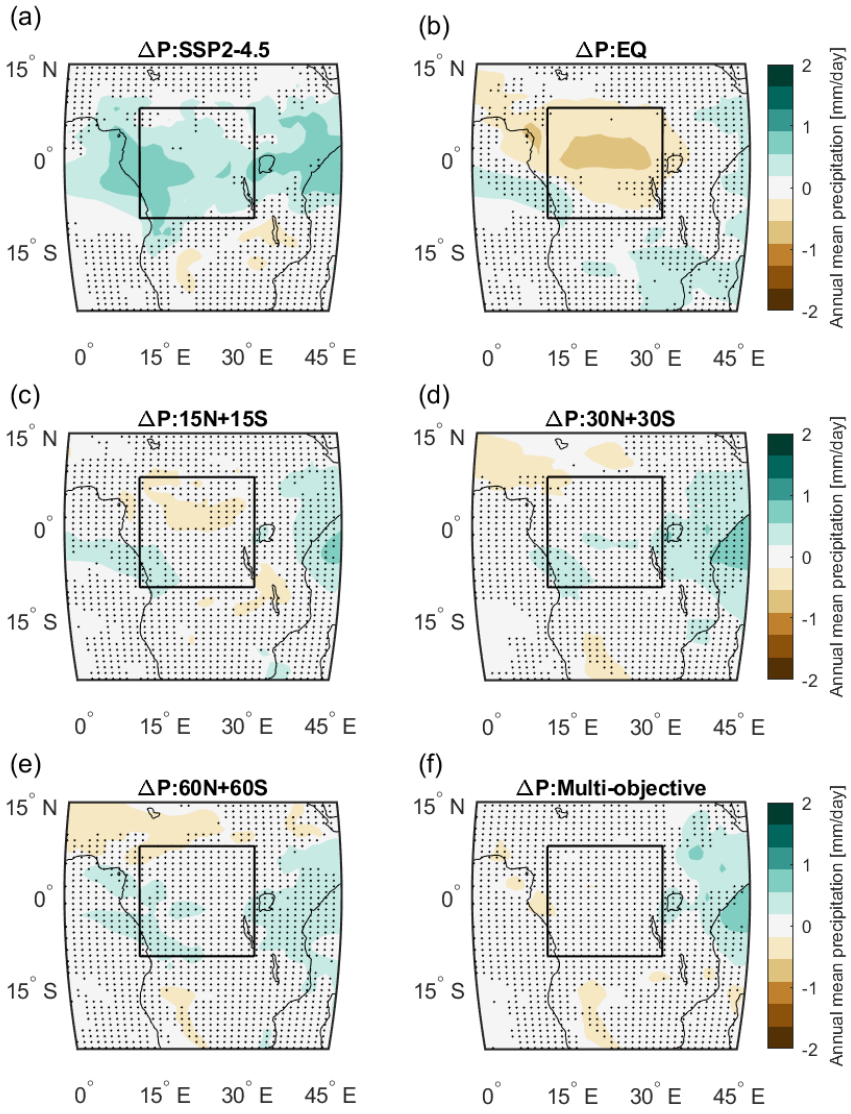

Figure S6. Changes in precipitation (averaged over 2050–2069) in the Congo Basin compared to the reference period (2008–2027) for (a) SSP2-4.5 and (b)-(f) different SAI injection strategies. Shaded areas indicate where the response is not statistically significant based on a two-tailed Welch's t-test with a confidence level of 95 %.

7 Correlation Analysis for Change in Precipitation in the Amazon Basin

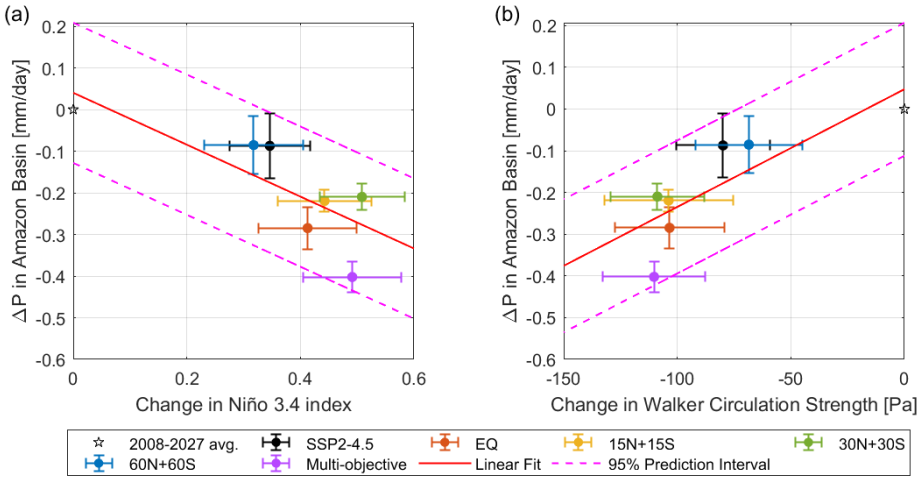

Figure S7. Correlation of change in precipitation in the Amazon Basin with (a) change in the Nino 3.4 index and (b) change in the strength of the Walker Circulation. Precipitation in the Amazon Basin is calculated as the average over the land region between 5° N-15° S and 50-78° W. Nino 3.4 index is calculated as the difference in near-surface air temperature anomaly over the nino 3.4 region (5N° -5° S, 120-170° W) and near-surface air temperature anomaly over all tropical oceans (20° N-20° S). The strength of Walker Circulation is calculated as the difference in sea-level pressure between the East Pacific Ocean (5° N-5° S, 80-160° W), and the Indian Ocean (5° N-5° S, 80-160° E). The change in these metrics is calculated as the difference between a 20-year average (2050–2069) and the reference period level (2008–2027). The error bars represent the standard error of the mean.