Supporting information for

Post-eruption precipitation anomalies are dominated by internal variability, not volcanic aerosol impacts

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Figure S1. Precipitation response over Africa in CESM-LME, showing precipitation anomalies in all CESM LME ensemble members (rows) and their average (bottom row), for all 12 assessed eruptions (columns). Anomalies are shown in the January-December year of the eruption, which is the year of maximum impact over this continent.

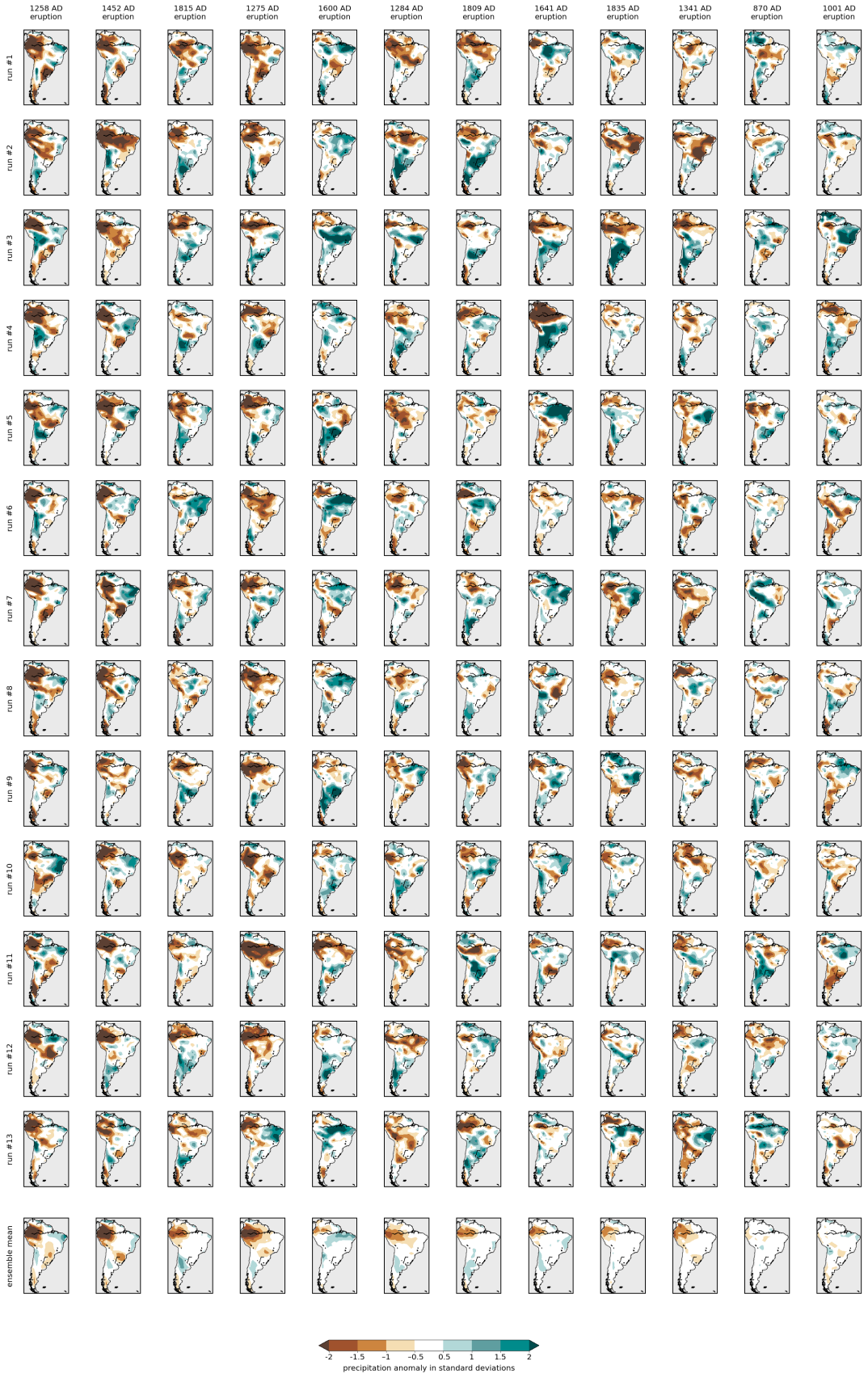

Figure S2. As in Figure S1 for showing precipitation response over South America in CESM-LME.

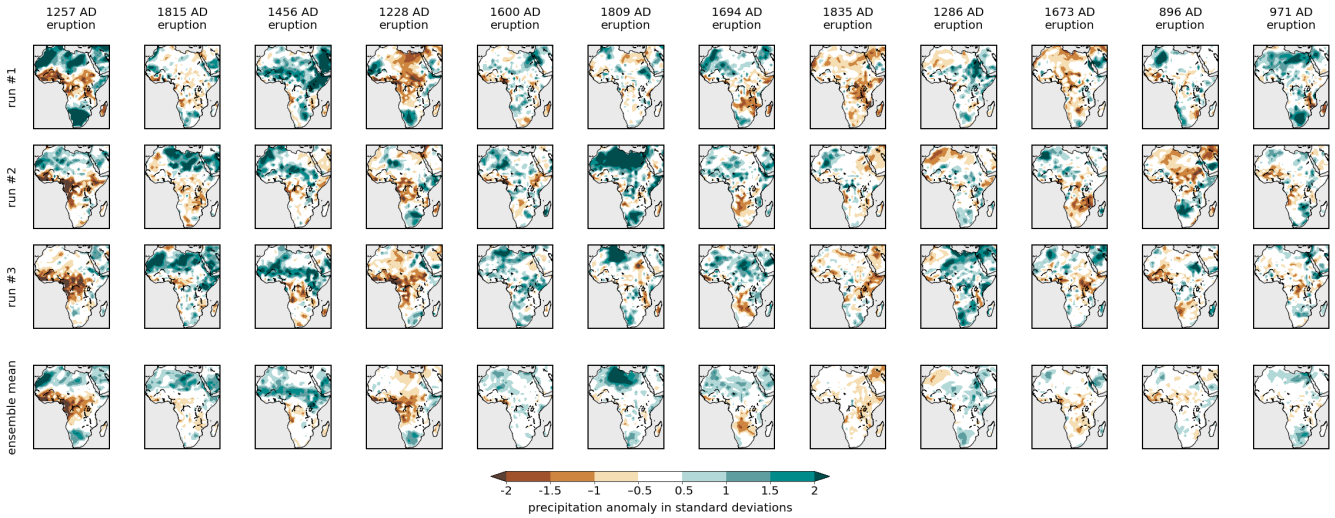

Figure S3. As in Figure S1 but in GISS LME, with the exception that for GISS LME the strongest response is in the year *after* the eruption, which we show here.

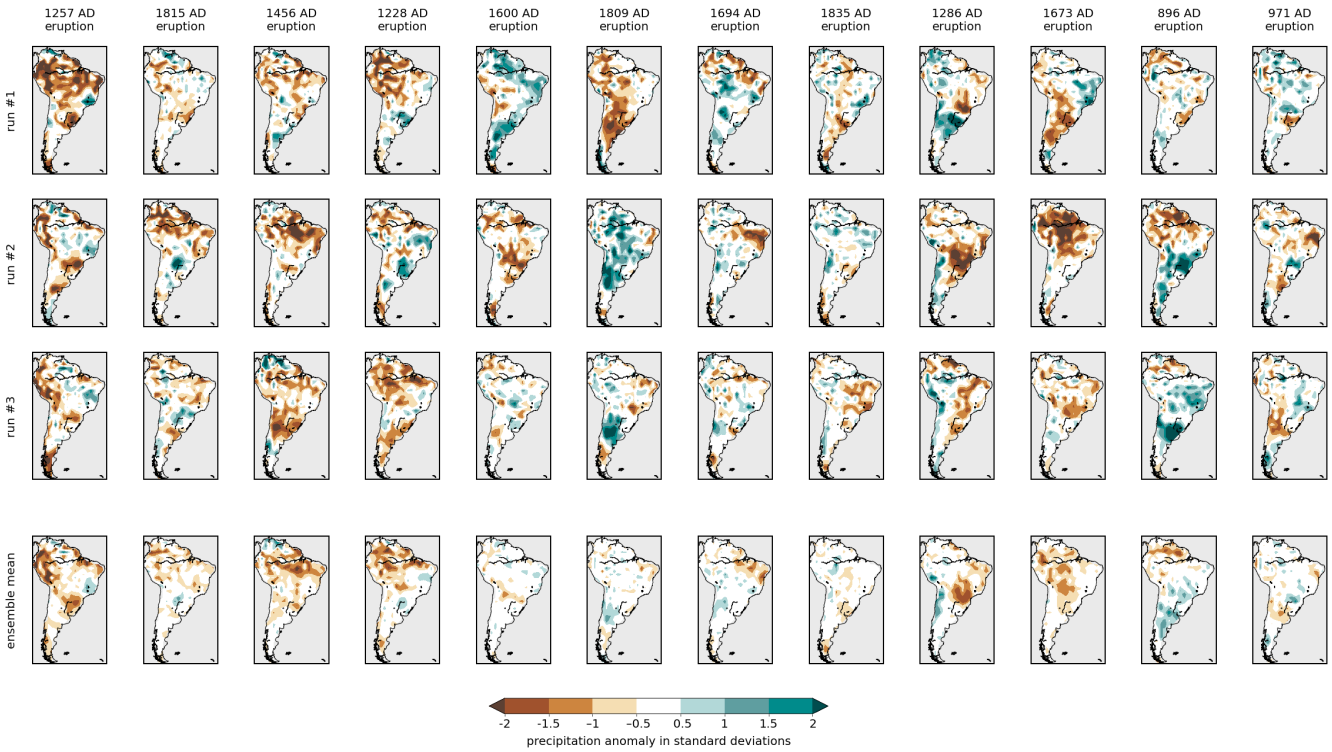

Figure S4. As in Figure S3 but in GISS LME, with the exception that for GISS LME the strongest response is in the year *after* the eruption, which we show here.

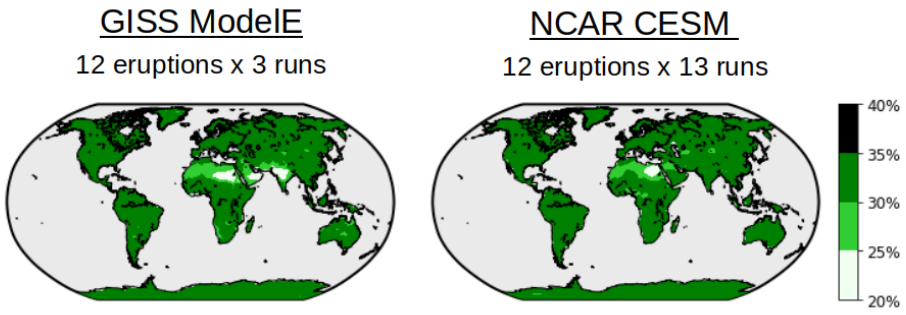

Figure S5. Proportion of years in last millennial ensembles that have more anomalous precipitation than ±1 $\sigma_{P,\ell}$. It is here evident that only the most precipitation-starved regions are outside the range of 30-35%, which includes the 32% value of a normally-distributed variable. Note that the $\sigma_{P,\ell}$ values were calculated without long-term variability, as described in Section 2.1.