

Supporting Information for ”Non-linear and distinct responses of temperature and precipitation to volcanic eruptions with stratospheric sulfur injection from 5 to 160 Tg”

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sulfur mass (Tg)	ΔT_s (K)	ΔP (mm/day)	η_a (mm/day/K)
5	-0.090 ± 0.160	-0.017 ± 0.031	0.186 ± 0.195
10	-0.187 ± 0.147	-0.034 ± 0.032	0.184 ± 0.218
20	-0.352 ± 0.155	-0.075 ± 0.029	0.213 ± 0.189
40	-0.519 ± 0.155	-0.138 ± 0.031	0.266 ± 0.203
80	-0.598 ± 0.148	-0.222 ± 0.028	0.371 ± 0.186
160	-0.592 ± 0.137	-0.345 ± 0.028	0.582 ± 0.202

Table S1. Temperature response (ΔT_s), precipitation response (ΔP), and hydrological sensitivity (η_a), averaged over the first year following the volcanic eruption. Shown are the ensemble mean, and one standard deviation across each 20-member ensemble.

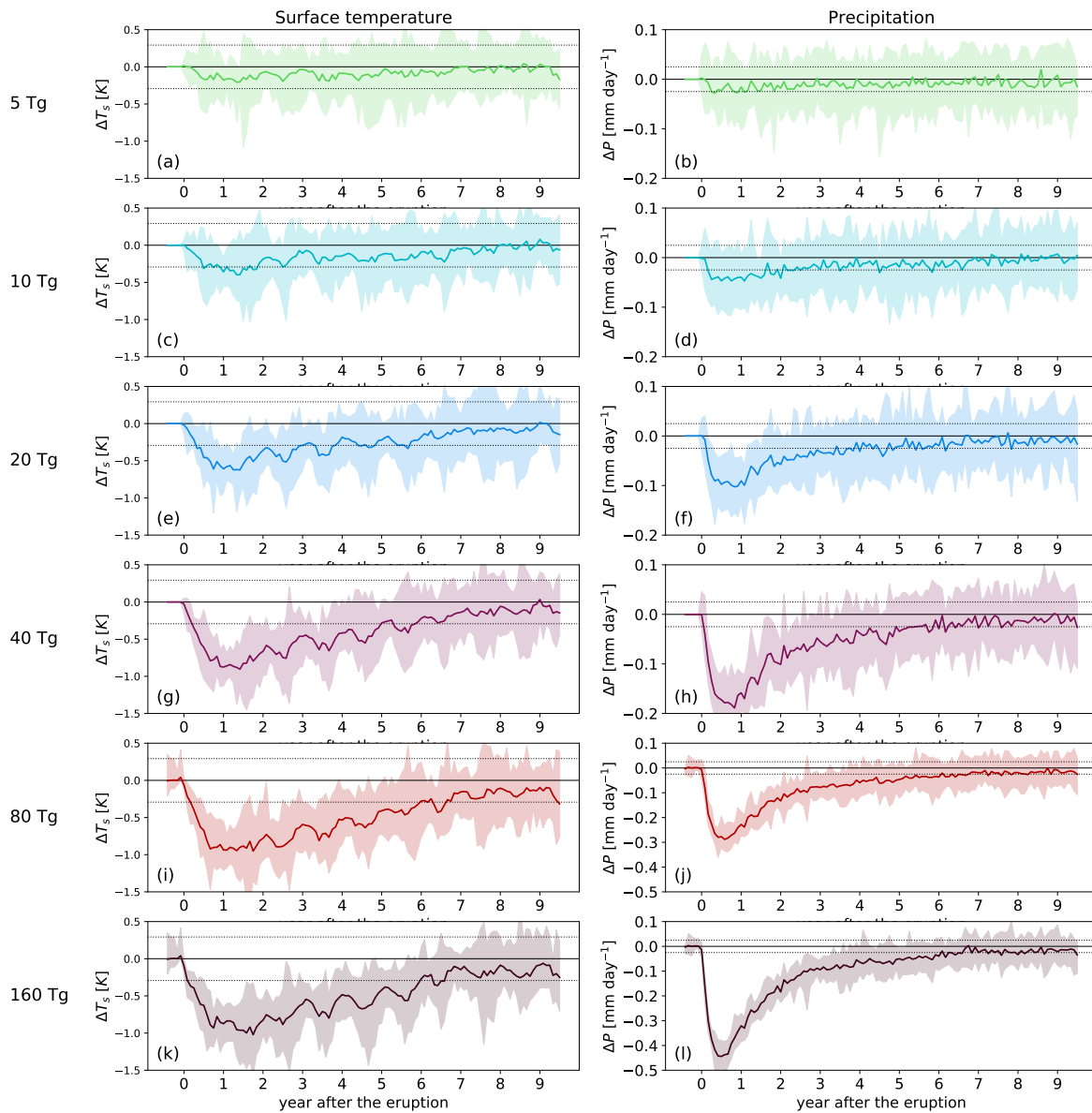


Figure S1. Time series of global mean surface temperature (left) and precipitation anomalies (right) averaged over a 20 member ensemble of 5-160 Tg S eruptions. Solid lines represent the fully coupled model with interactive SST output. Shaded area denotes the ensemble spread across the interactive SST model. Dotted line denotes the $2 \cdot \sigma$ (STD) of the control run.