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The potential impacts of a sulfur- and halogen-rich supereruption such as Los Chocoyos on the atmosphere and climate

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Supplementary figures

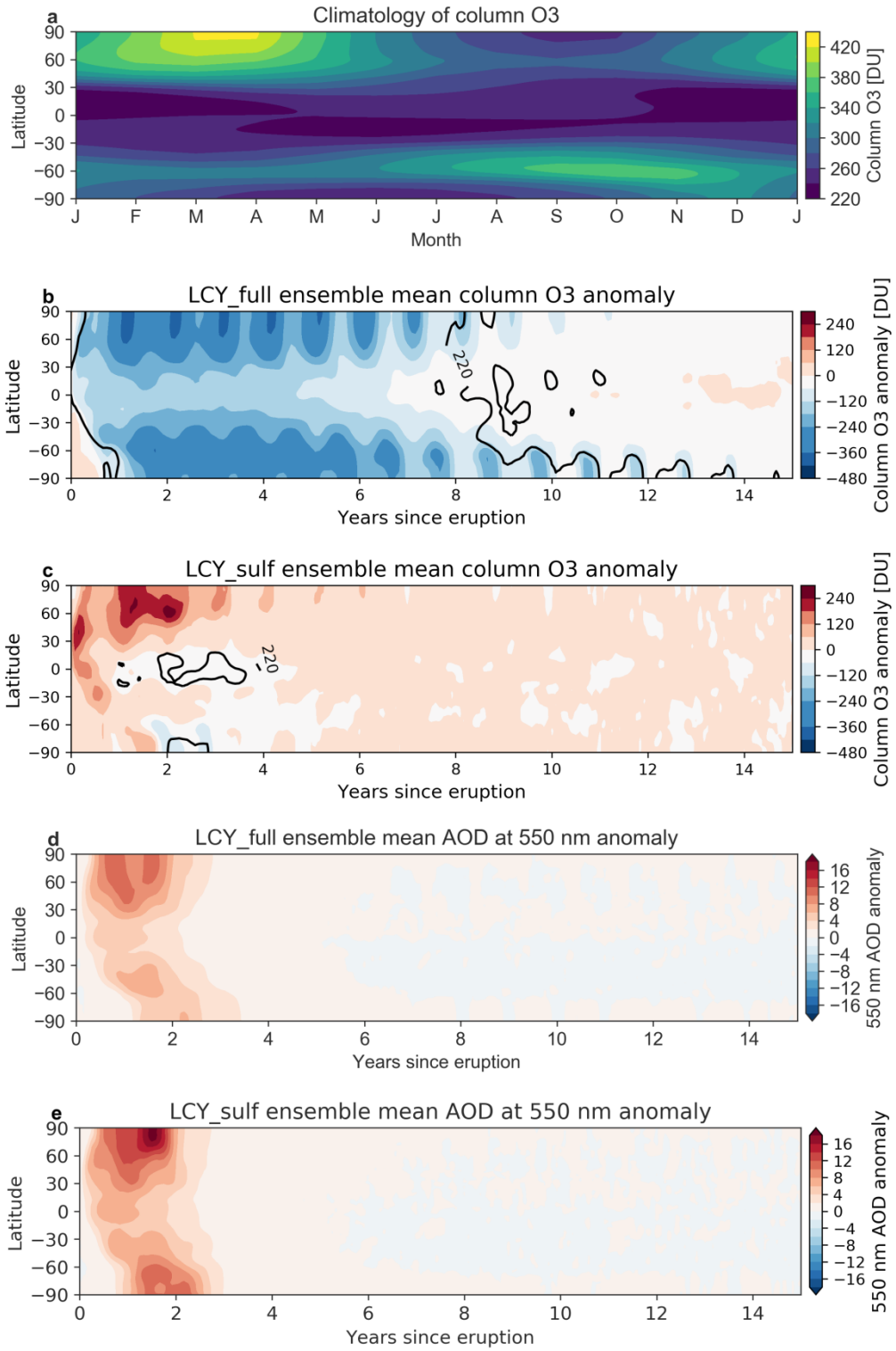

Figure S1: Zonal mean column ozone and aerosol optical depth (AOD) evolution after the Los Chocoyos (LCY) eruption. (a) Column ozone climatology for the CTR. (b) LCY_full ensemble mean column ozone anomaly. (c) LCY_sulf ensemble mean column ozone anomaly. (d) LCY_full ensemble mean AOD anomaly. (e) LCY_sulf ensemble mean AOD anomaly. See Table 1 for information about the eruption scenarios and model simulations.

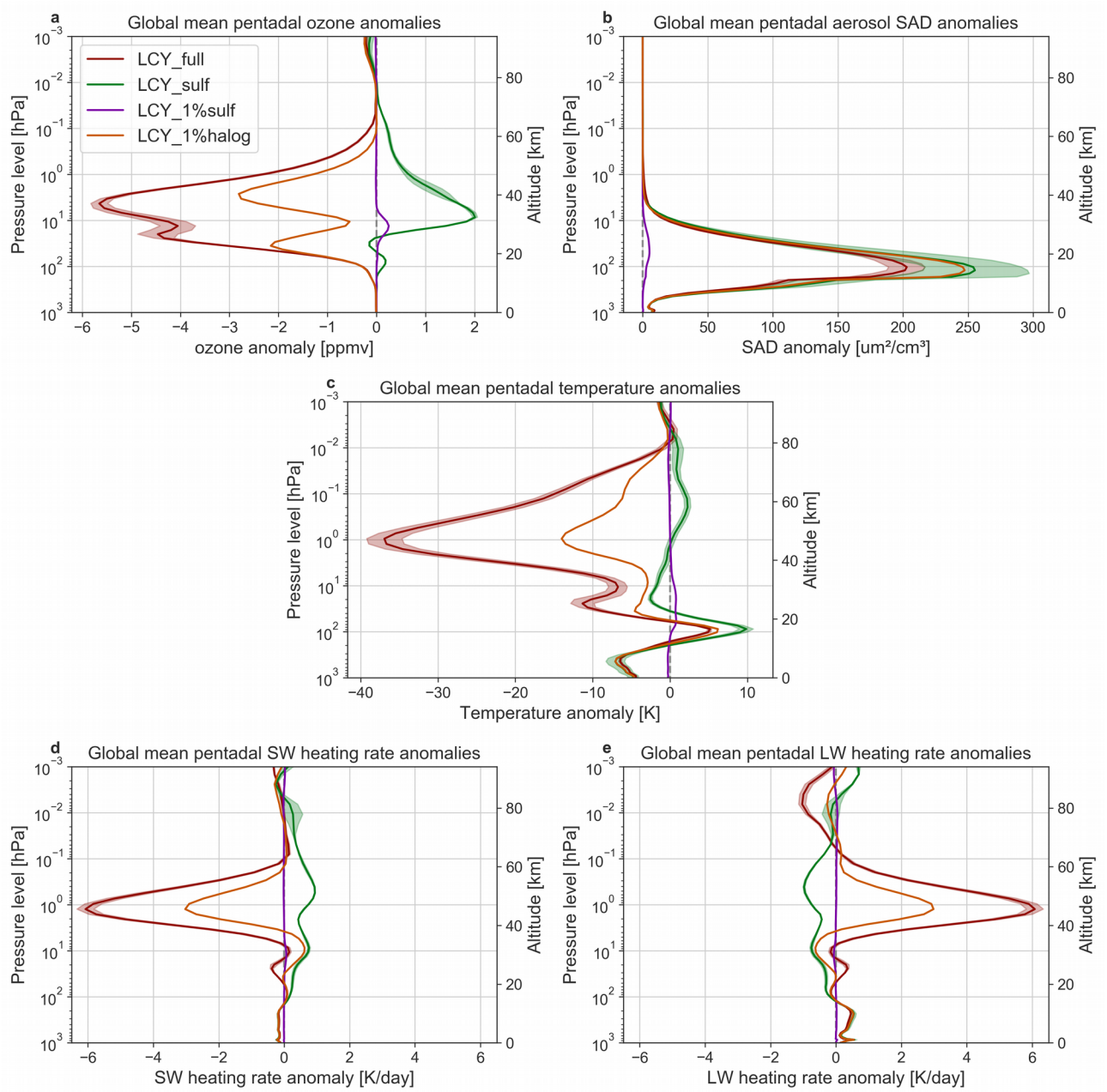

Figure S2: Global mean post-eruption five year (pentadal) mean anomaly profiles of (a) ozone concentration, (b) aerosol surface area density (SAD), (c) temperature, (d) short wave heating rate and (d) long wave heating rate of the LCY eruption scenarios. Shading represents the two standard deviation range.

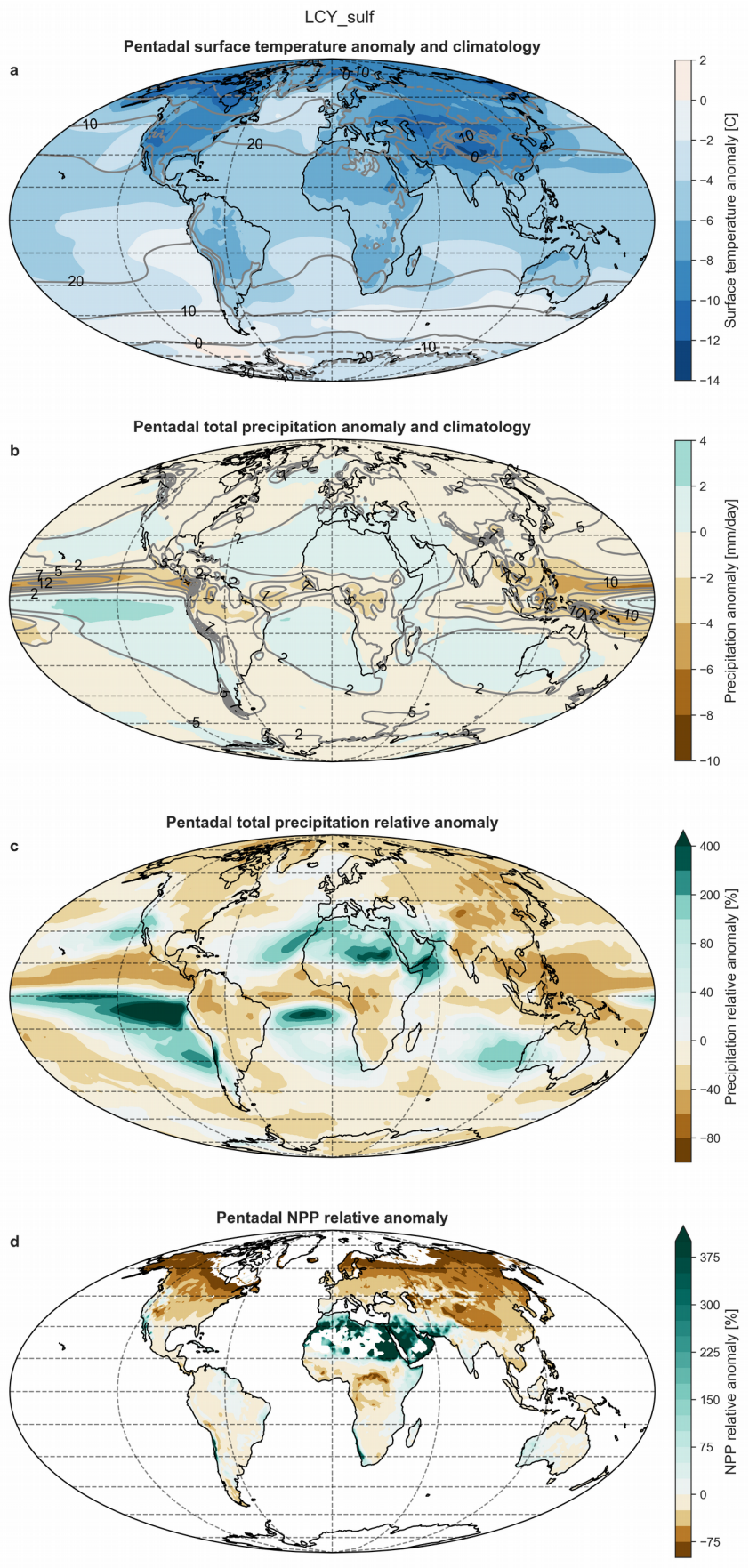

Figure S3: Maps of post-eruption five year (pentadal) mean surface temperature anomaly and climatology (a), precipitation anomaly and climatology (b), precipitation change (c) and NPP change (d) for LCY_sulf. White areas on the NPP map indicate invalid values.

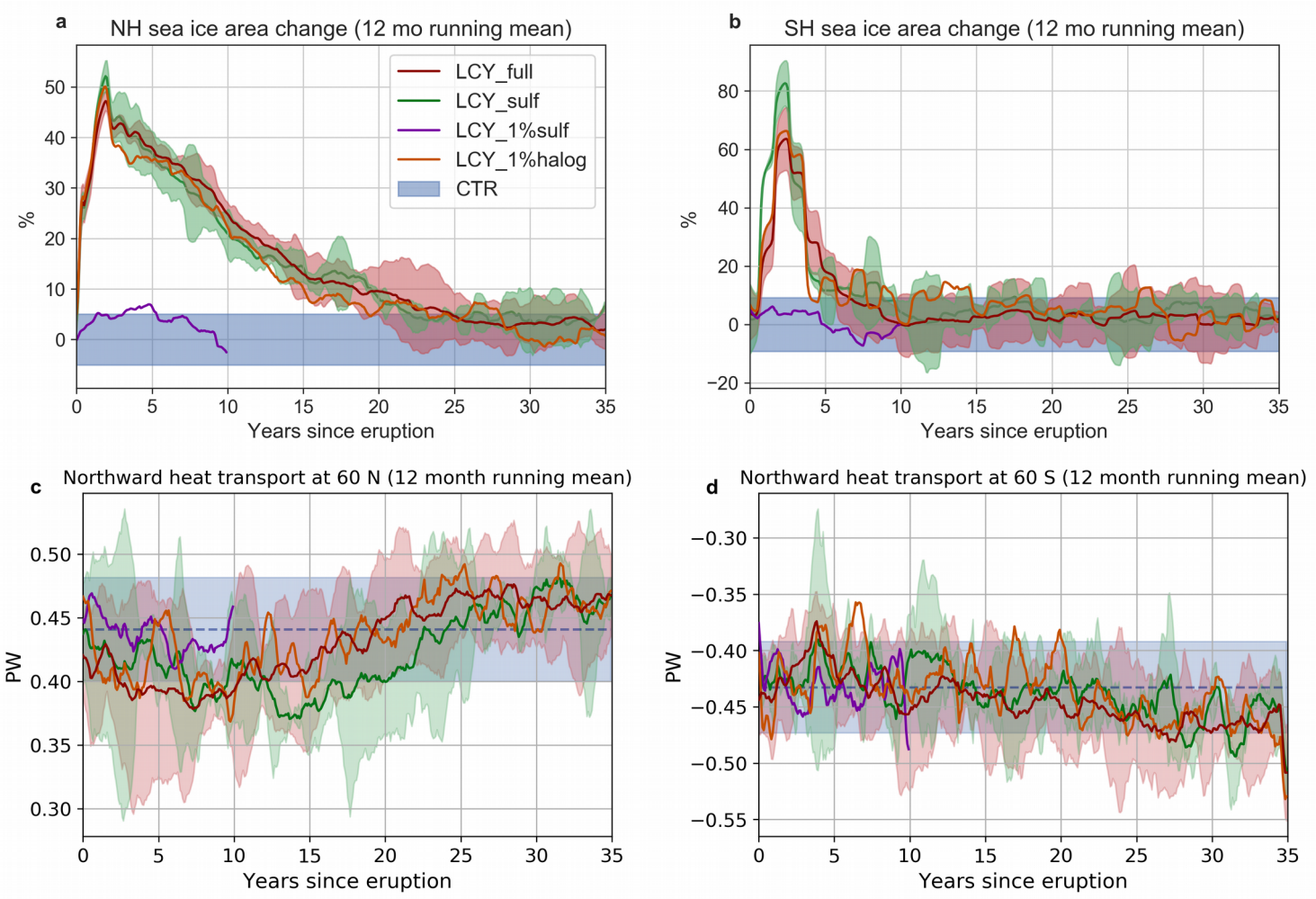

Figure S4: Hemispheric mean sea ice changes and northward ocean heat transport anomalies after the LCY eruption. Sea ice change for (a) the Northern hemisphere (NH), (b) the Southern hemisphere (SH). Northward ocean heat transport at (c) 60°N, and (d) 60°S. To allow running means to extend to zero, the pre-eruption year from the CTR was added to each ensemble member. Shading represents the two standard deviation range.

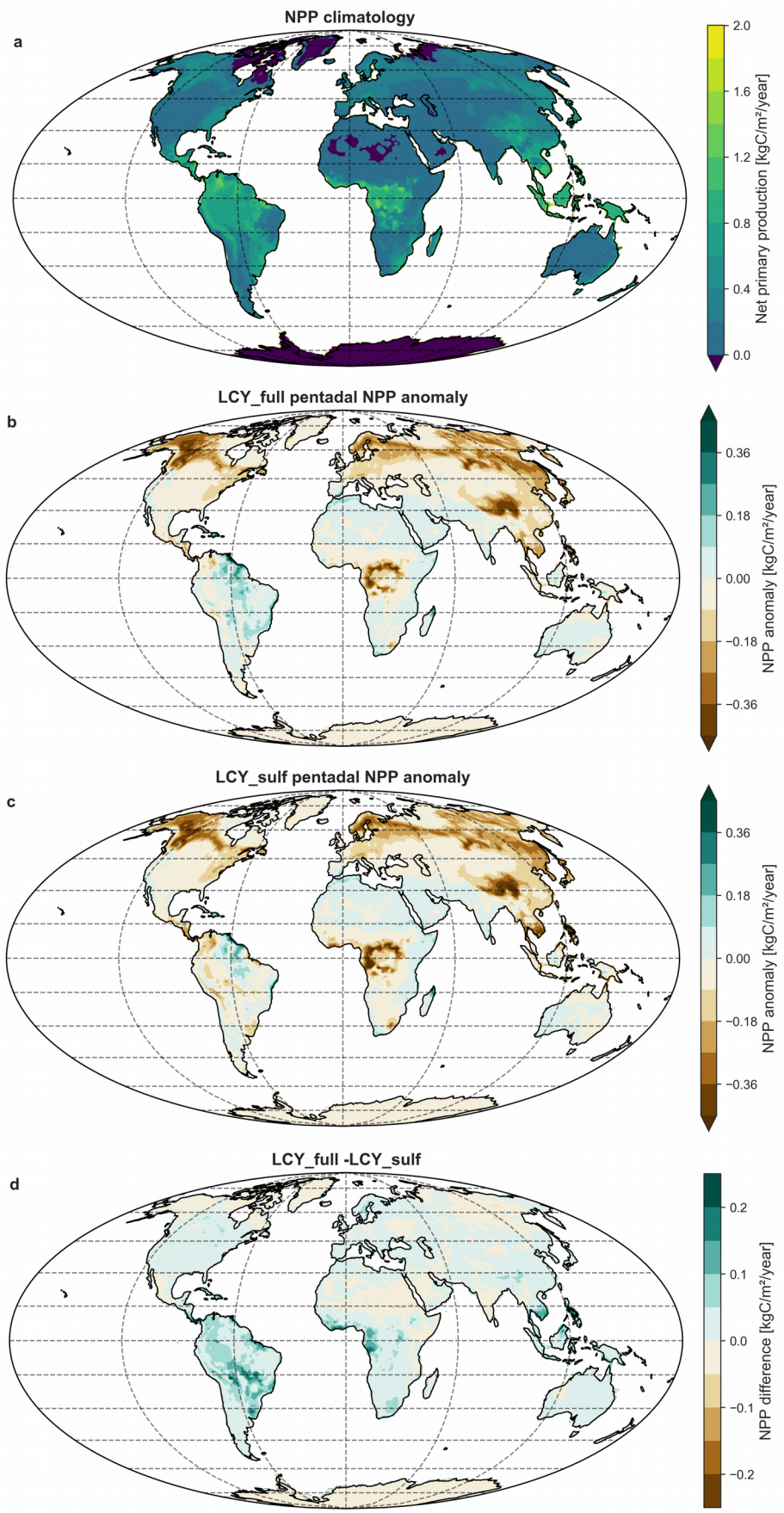

Figure S5: Global maps of net primary productivity (NPP) climatology for CTR (a), post-eruption five year (pentadal) anomalies for LCY_full (b) and LCY_sulf (c) ensembles. (d) shows the difference between (b) and (c).