Supplementary

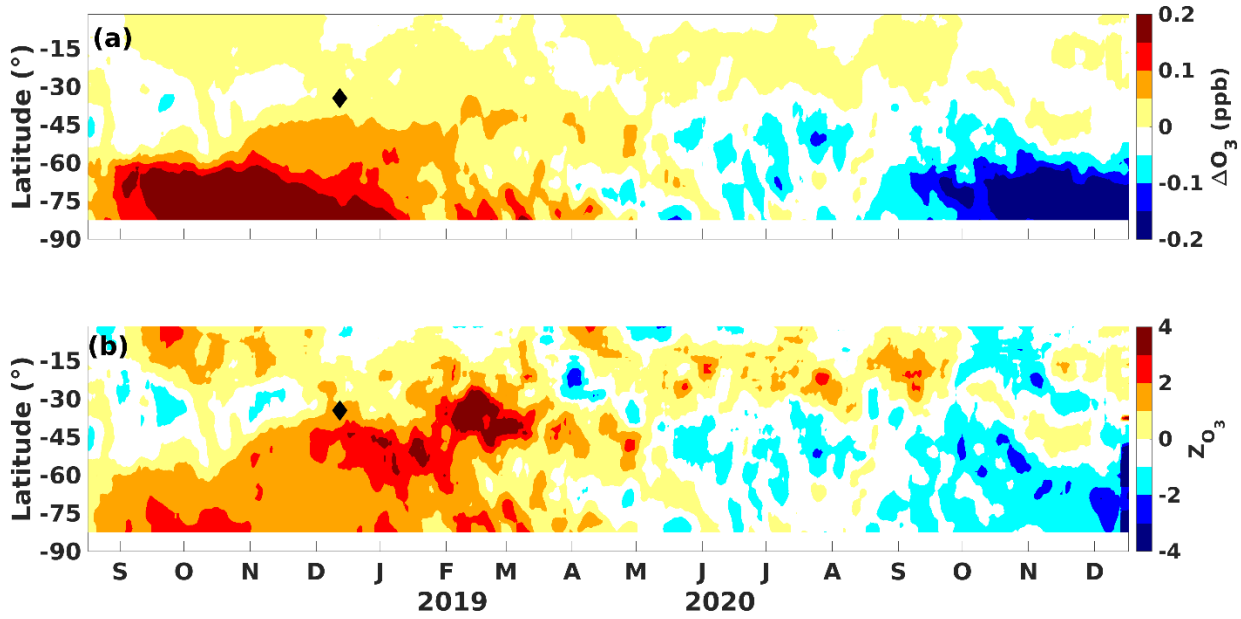

Figure S1. (a) *Daily zonal mean anomaly (Δ) in MLS Ozone (O_3) mixing ratio, and (b) corresponding standardized anomaly (Z) at the altitude of 15 km from September 2019 to December 2020 are shown. The x-ticks mark the middle of each month. The black diamond in each plot marks the black summer event.*

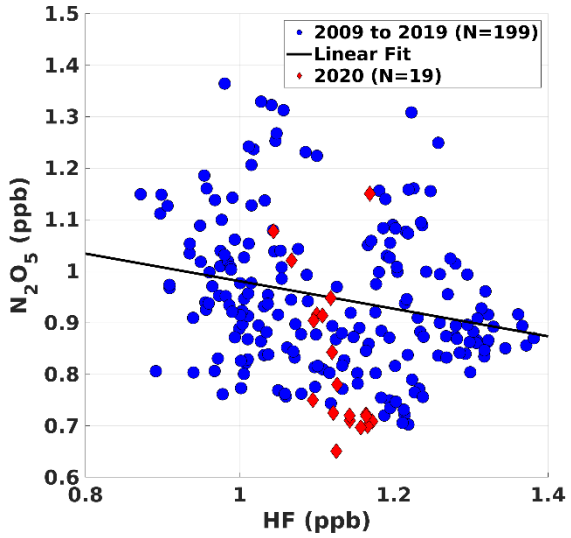

Figure S2. Tracer-Tracer correlation analysis between ACE-FTS HF and N_2O_5 for the altitude of 25 km is shown.