Figure S1: Ozone anomaly at pressure level 50 hPa (a) with latitude bands TP(10°S-10°N); ERA5 (green), C3S (blue), MERRA2 (red) and SWOOSH (black) are included; (b) The corresponding residual; (c) The linear terms; (d) The QBO50 terms; (e) The QBO30 terms and (f) the ENSO terms; The solid lines in (c-f) marked the significant terms and the dash lines in (c-f) marked the insiginifcant terms.
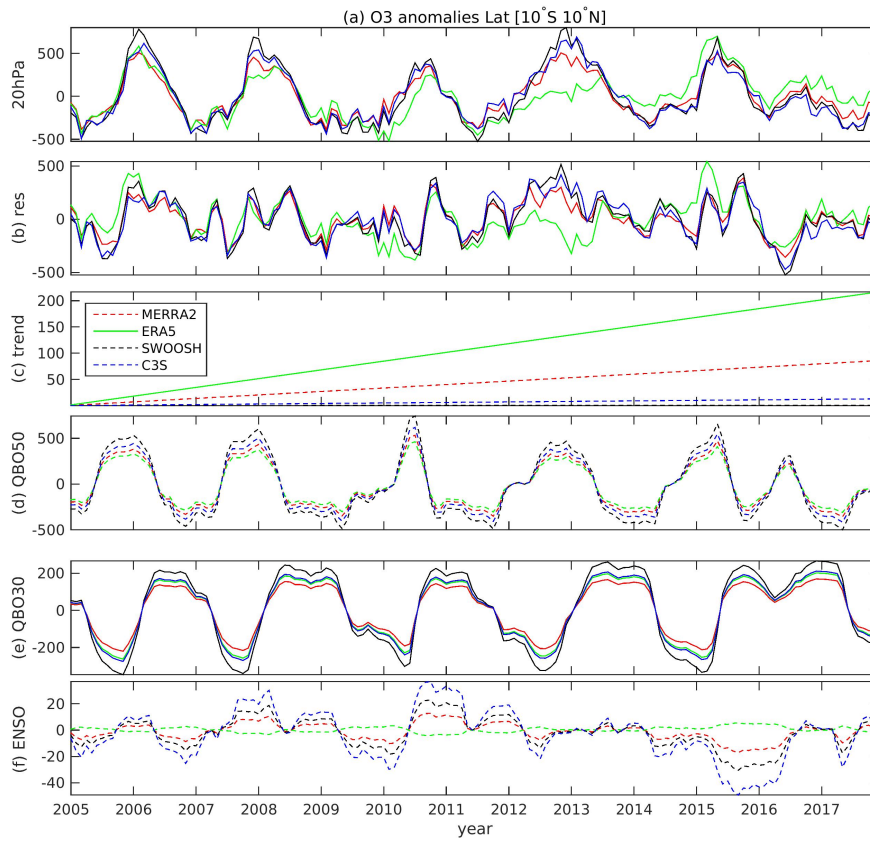
Figure S2: Same as figure S1 but for 20 hPa.
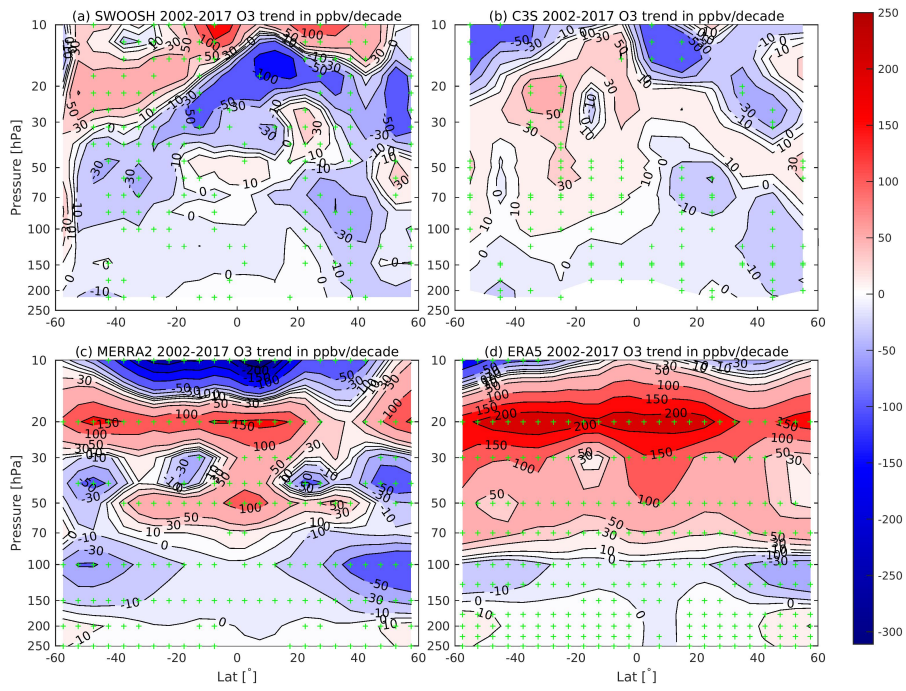
Figure S3: Ozone trend in ppbv/decade based on SWOOSH (a), ERA5 (b), MERRA2 (c) and C3S (d) data for period 2002-2017. The green '+' marked the significant area at 5% level.
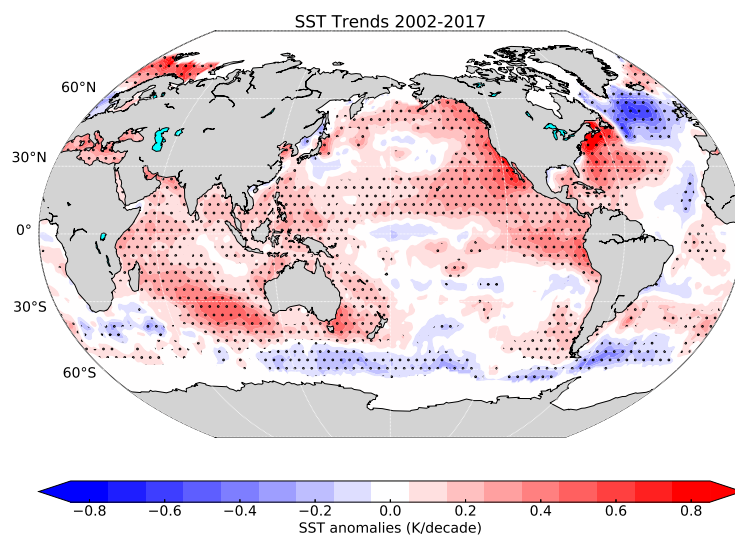
Figure S4: Global distribution of SST trends for the period 2002-2017 based on HadISST. The black dots marked the significant area at 95% level.