(SUPPORTING INFORMATION)

Response of Global Surface Ozone Distribution to Northern Hemispheric Sea Surface Temperature Changes: Implication for Long-Range Transport

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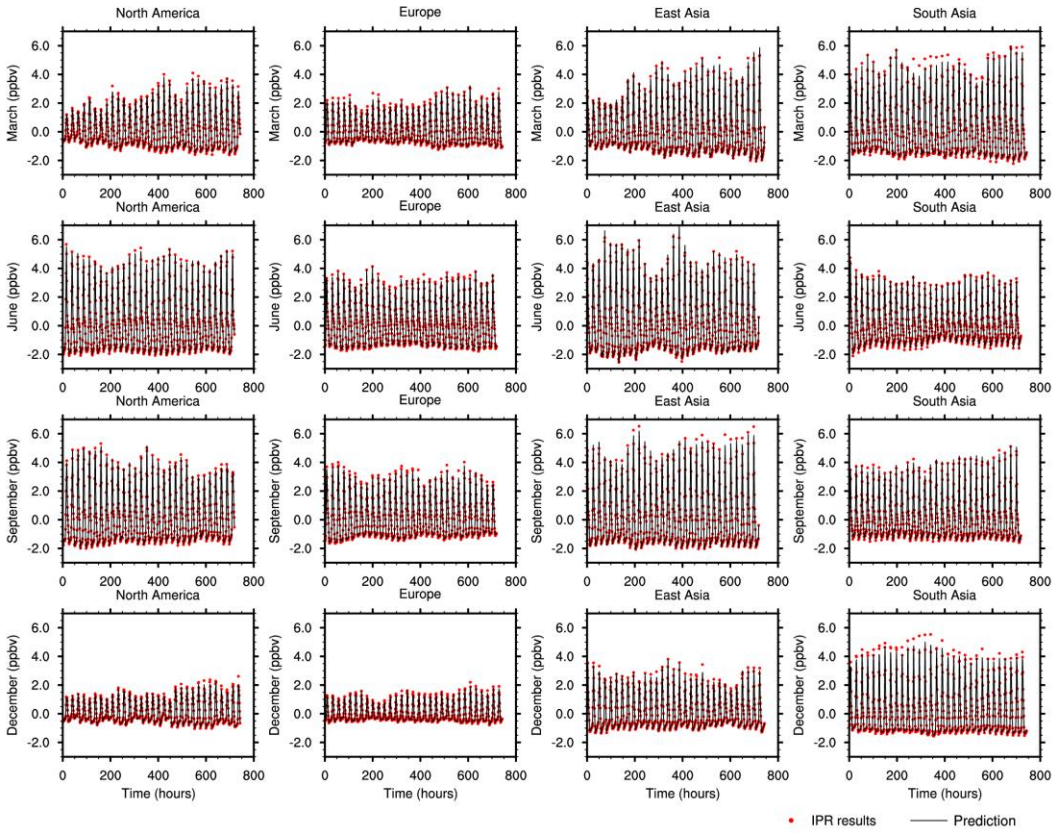

Figure S1.Hourly time-series of predicted O_3 changes (black lines) and the sum of IPR results (red dots) averaged over four major regions of interest (i.e., America (15°N–55 °N; 60°W–125°W), Europe (25°N–65 °N;10°W-50 °E), East Asia (15 °N–50 °N;

95°E–160 °E) and South Asia (5 °N–35 °N; 50 °E–95°E)) during the March (first row), June (second row), September (third row) and December (last row) of random modeling years in CTRL.

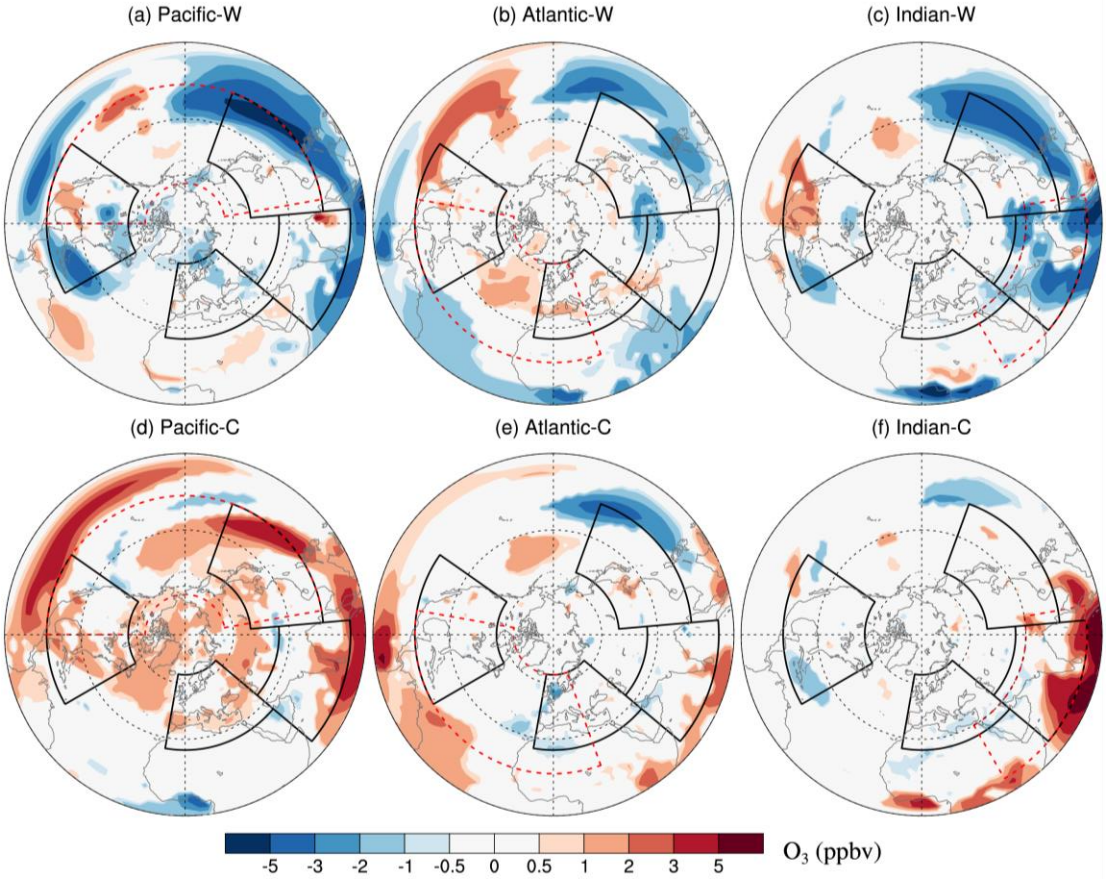

Figure S2. Changes in the wintertime (December-February) surface ozone concentrations (ppbv) in the Northern Hemisphere induced by 1℃ warming (top) and 1℃cooling (bottom) in the North Pacific Ocean (left), North Atlantic Ocean (center), and North Indian Ocean (right) relative to CTRL. Four major regions of interest (i.e., NA (15°N–55 °N; 60°W–125°W), EU (25°N–65 °N;10°W-50 °E), EA (15 °N–50 °N; 95°E–160 °E) and SA (5 °N–35 °N; 50 °E–95°E)) are marked with black polygons. Red dashed lines mark the regions where the SST has been changed. Only results significant at the 0.1 level evaluated with a Student t-test are depicted.

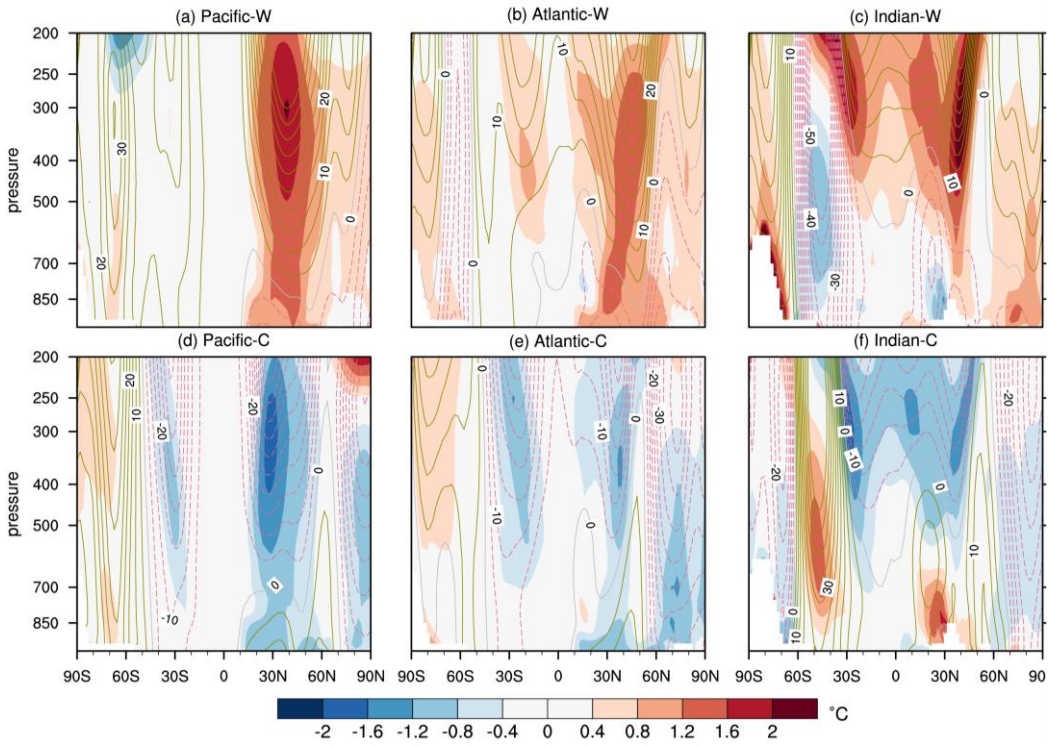

Figure S3. Vertical and latitudinal distributions of air temperature differences (color contours, ^{o}C) and geopotential height anomalies (contours, m) longitude averaged from 150°W-180°W for (a) Pacific_W and (d) Pacific_C, 50°E-80°E for (b) Atlantic_W and (e)Atlantic_C, and 20°W-40°W for (c) Indian_W and (f) Indain_C, relative to CTRL.

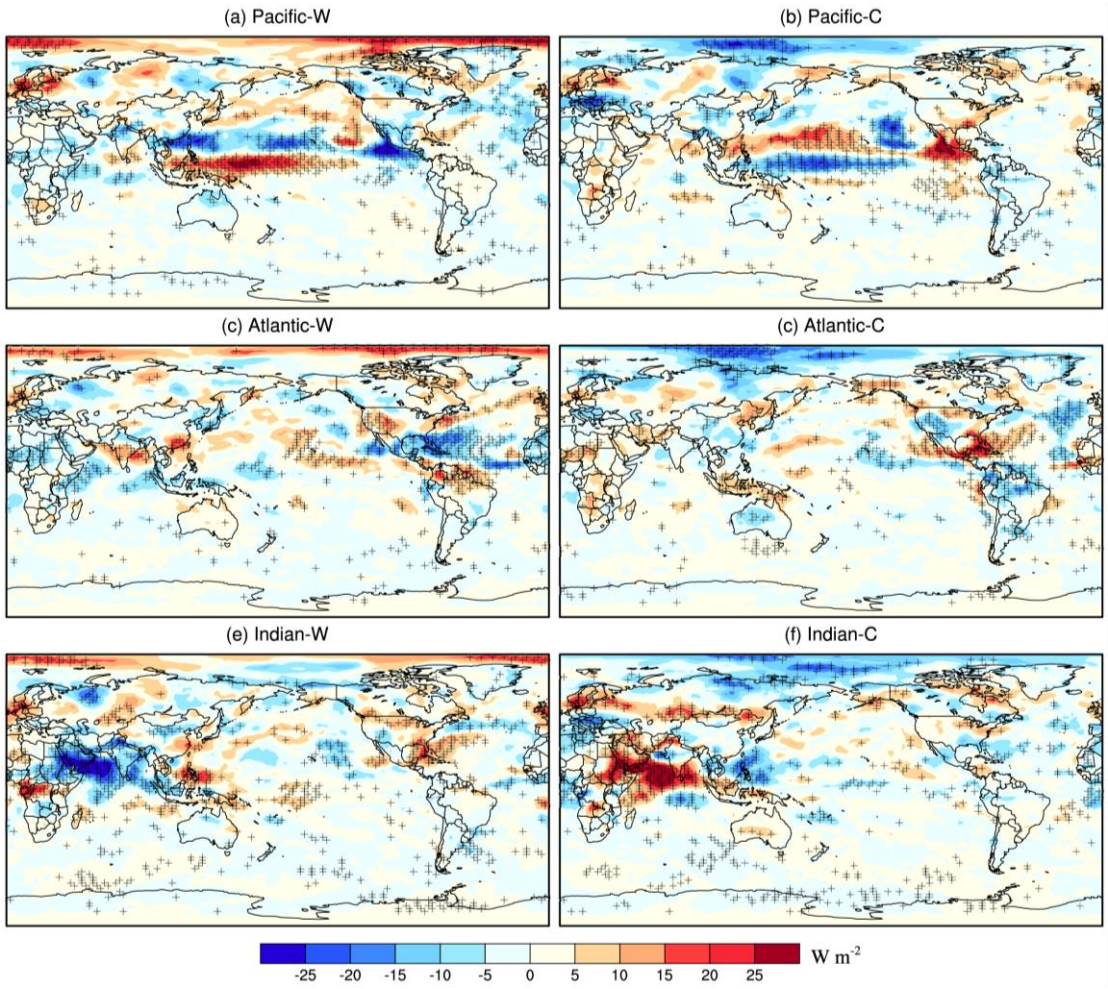

Figure S4. Perturbations of surface solar radiations (W m^{-2}) relative to CTRL for (a) Pacific-W, (b) Pacific-C, (c) Atlantic-W, (d) Atlantic-C, (e) Indian-W and (f) Indian-C in the summertime (June-August). The + symbols denote areas where results are significant at the 0.05 level evaluated with a Student t-test.

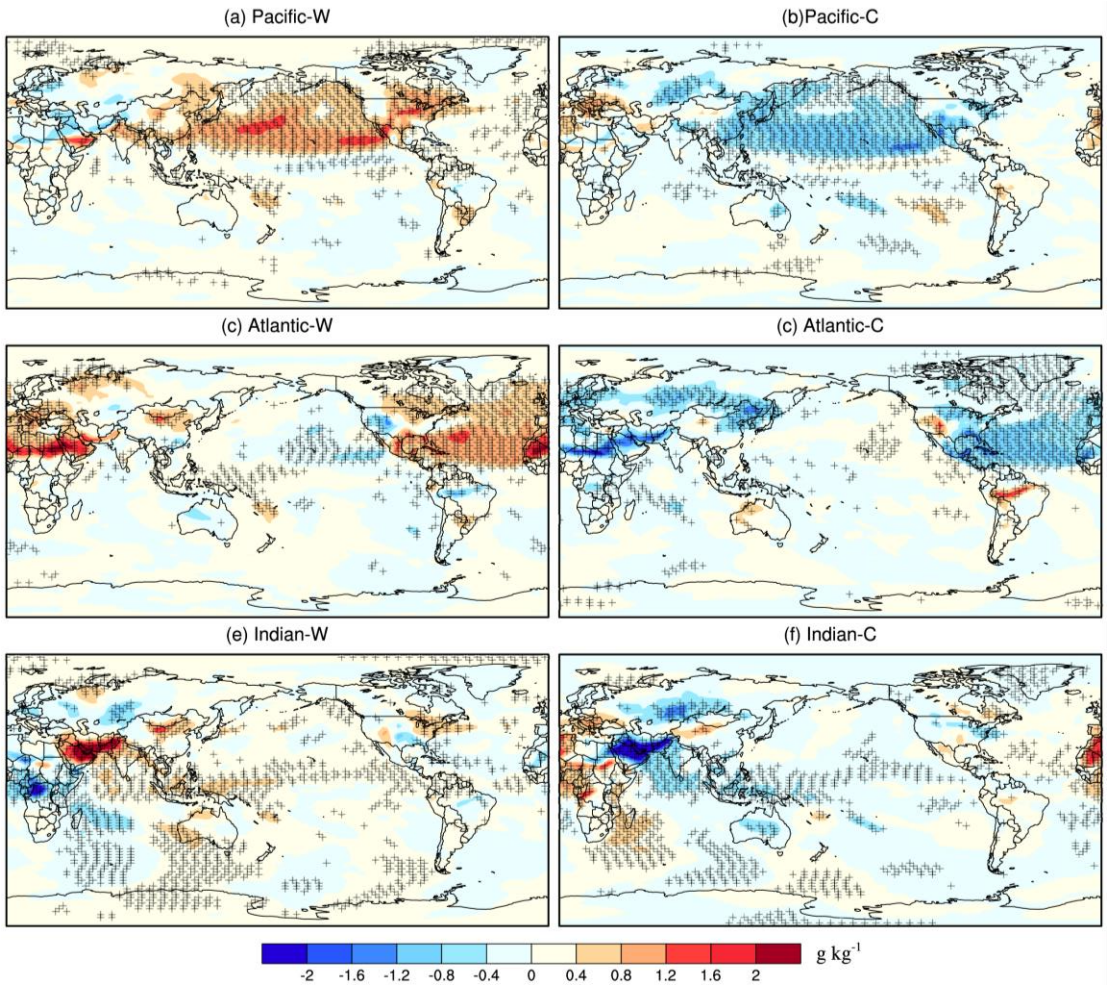

Figure S5. Same as Figure S5 but for surface specific humidity (g kg^{-1}).

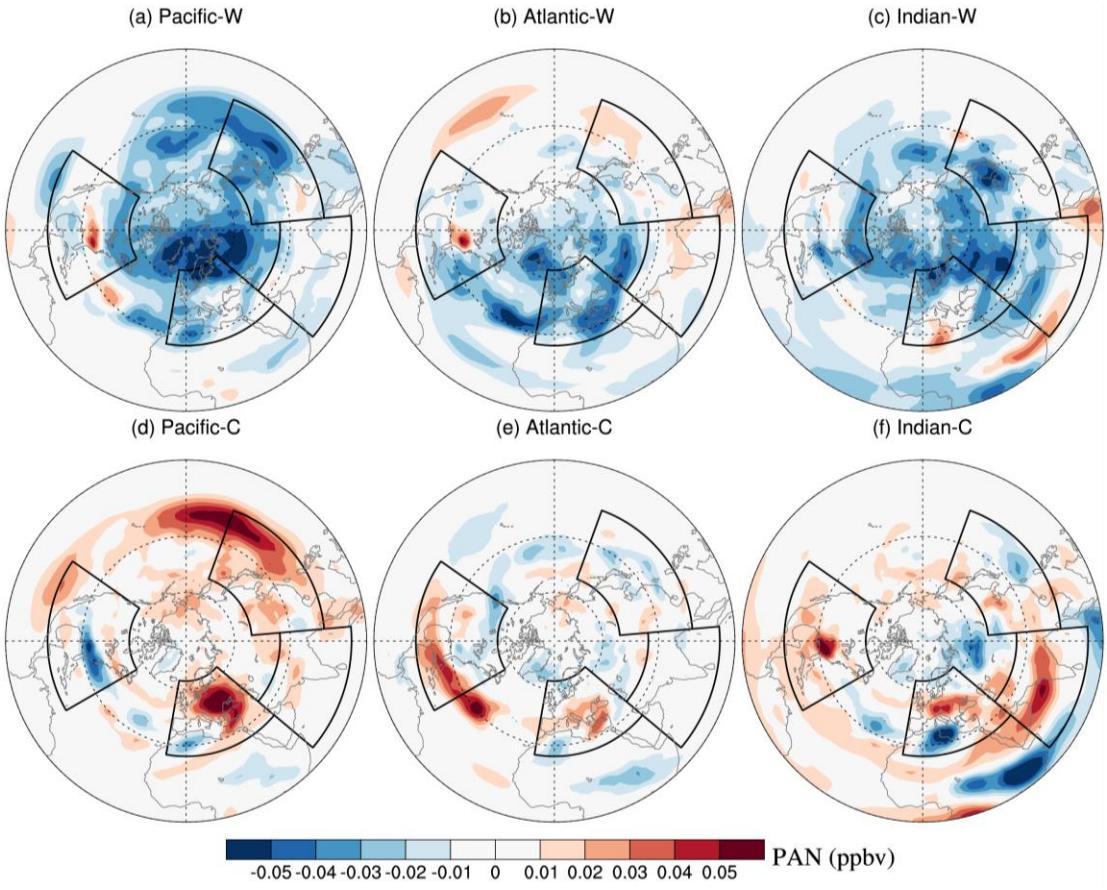

Figure S6. Changes in PAN concentrations (ppbv) at 500 hPa in the Northern Hemisphere for (a) Pacific-W, (b) Atlantic-W, (c) Indian-W, (d) Pacific-C, (e) Atlantic-C and (f) Indian-C relative to CTRL in the summertime (June-August). Four major regions of interest (i.e., NA (15°N–55 °N; 60°W–125°W), EU (25°N–65 °N;10°W-50 °E), EA (15 °N–50 °N; 95°E–160 °E) and SA (5 °N–35 °N; 50 °E–95°E)) are marked with black polygons.