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Climate-driven deterioration of future ozone pollution in Asia predicted by machine learning with multi-source data

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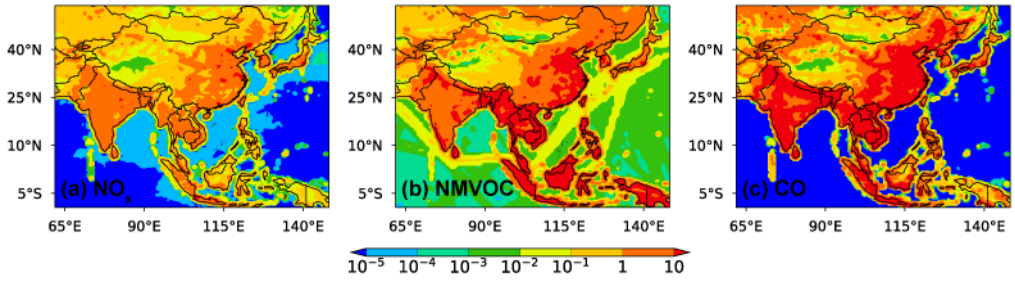

Figure S1. Spatial distributions of O_3 precursor emissions ($g/m^2/yr$) of (a) NO_x, (b) NMVOC, and (c) CO over Asia in 2019.

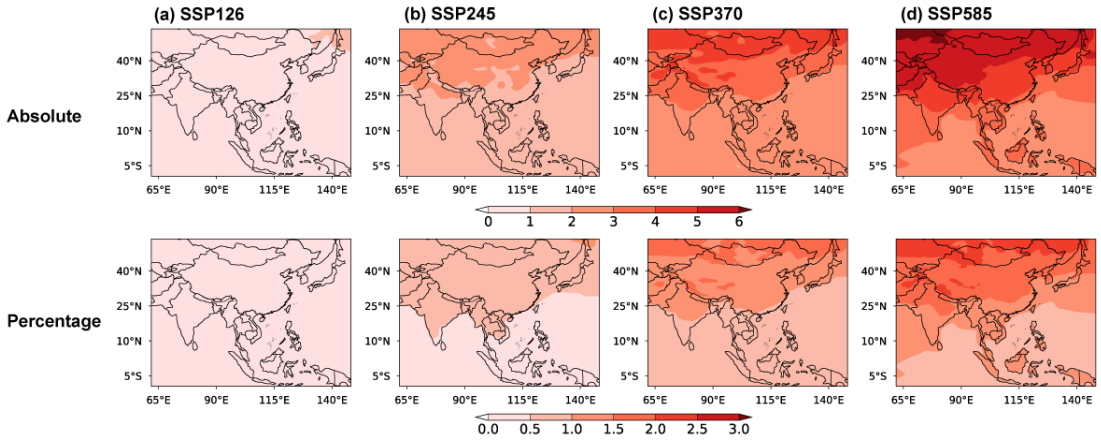

Figure S2. Spatial distributions of absolute (K) and percentage difference (%) in the CMIP6 multi-model mean of air temperature at 2m (T_2m) between 2025 (2020–2029 mean) and 2095 (2091–2100 mean) over Asia under the SSP1-2.6, SSP2-4.5, SSP3-7.0 and SSP5-8.5 scenarios (from left to right), respectively. No overlaying hatch pattern indicates statistical significance with 95% confidence from a two-tailed t test.

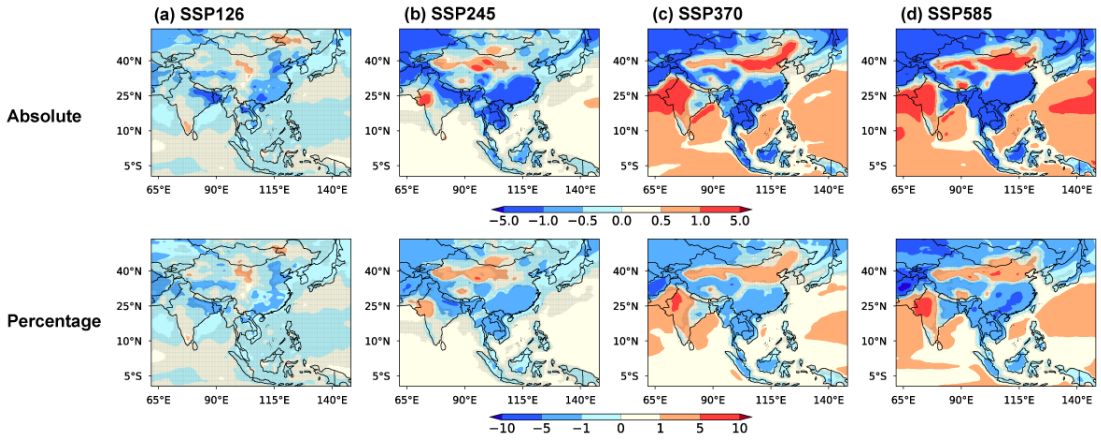

Figure S3. Same as Fig. **S2**, relative humidity (RH, %)

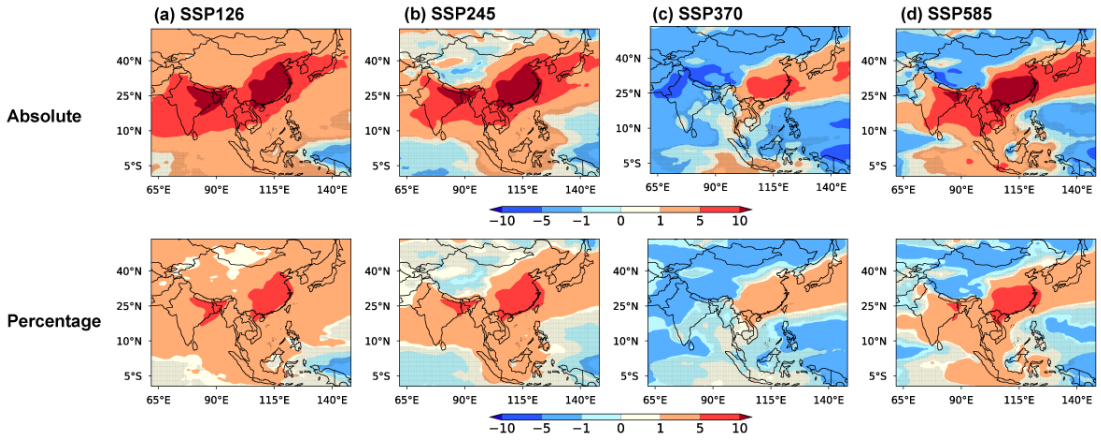

Figure S4. Same as Fig. **S2**, but for incoming shortwave solar radiation (RSDS, W m^{-2}).

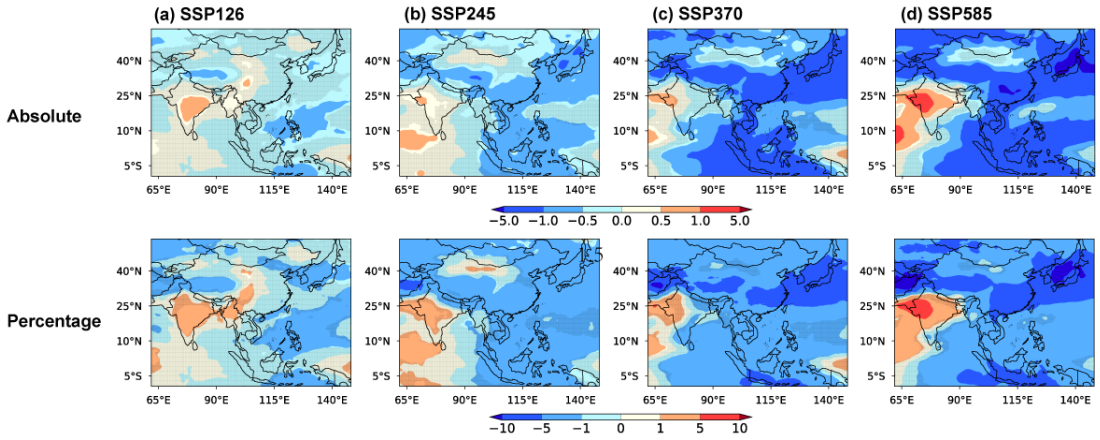

Figure S5. Same as Fig. **S2**, but for total cloud cover (CLT, %).

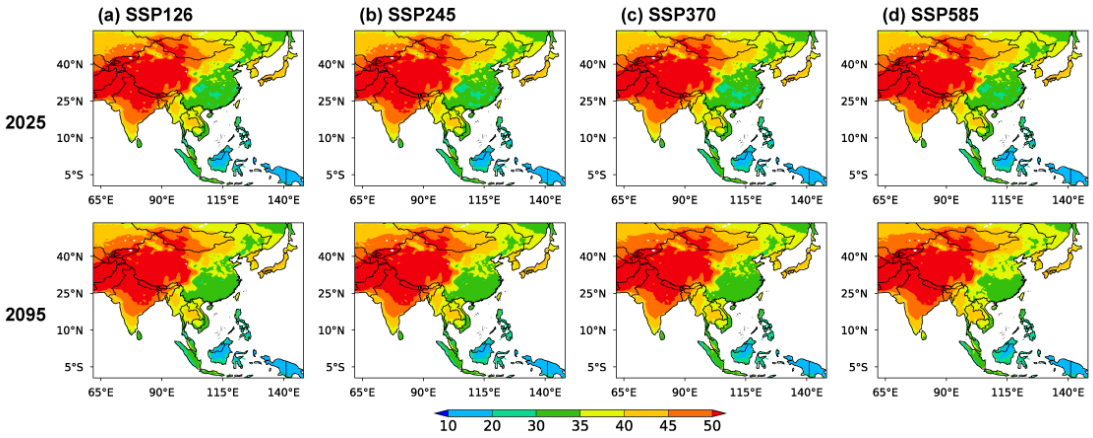

Figure S6. Spatial distributions of projected near-surface O_3 concentrations (ppb) averaged in 2025 (2020–2029 mean) and 2095 (2091–2100 mean) driven by climate change under the four scenarios (SSP1-2.6, SSP2-4.5, SSP3-7.0 and SSP5-8.5, from left to right column) over Asia.

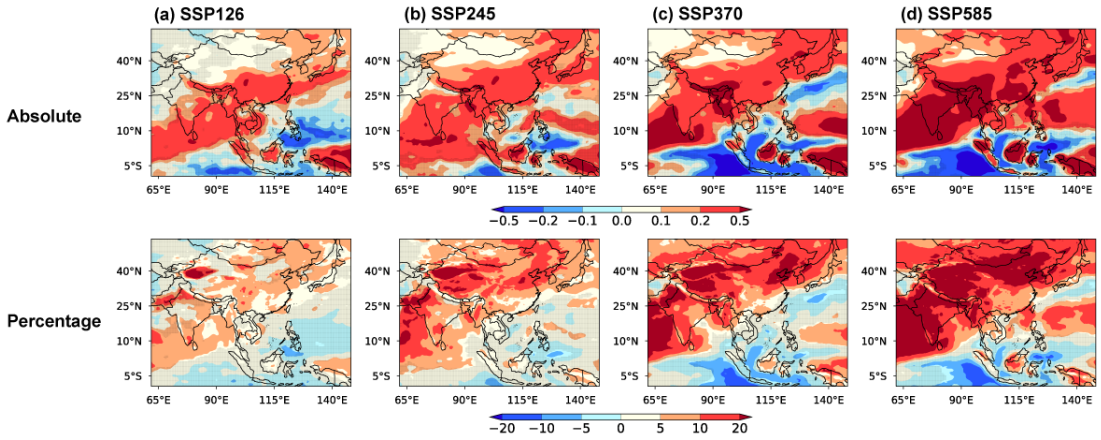

Figure S7. Same as Fig. **S2**, but for precipitation (PRECP, mm day^{-1}).

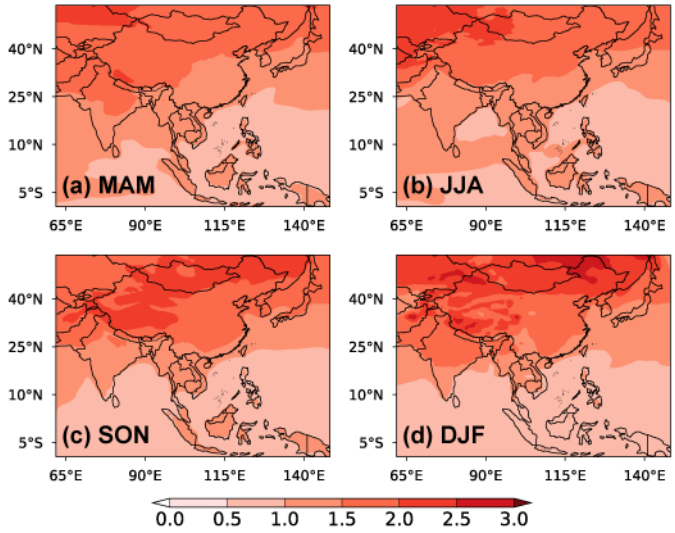

Figure S8. Spatial distributions of percentage differences (%) in the CMIP6 multi-model seasonal averaged T_2m between 2025 and 2095 over Asia under the SSP5-8.5 scenario. No overlaying hatch pattern indicates statistical significance with 95% confidence from a two-tailed t test.

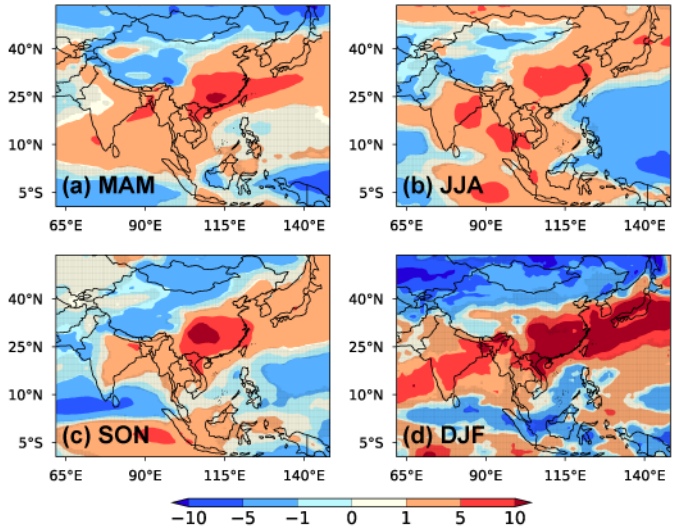

Figure S9. Same as Fig. **S8**, but for RSDS.

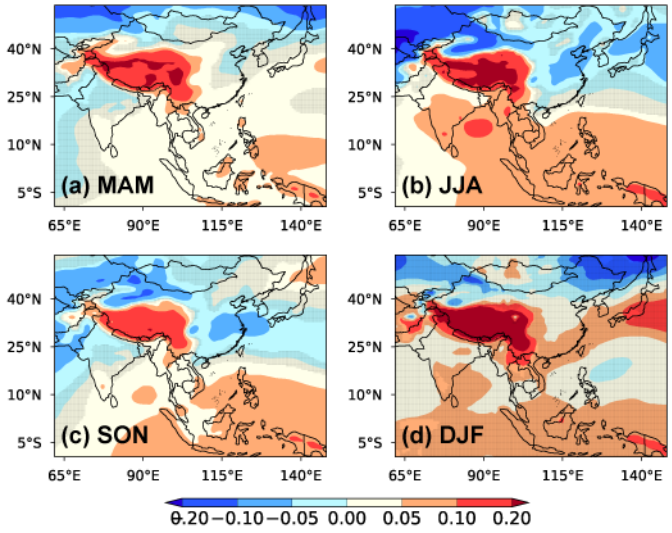

Figure S10. Same as Fig. **S8**, but for SLP.

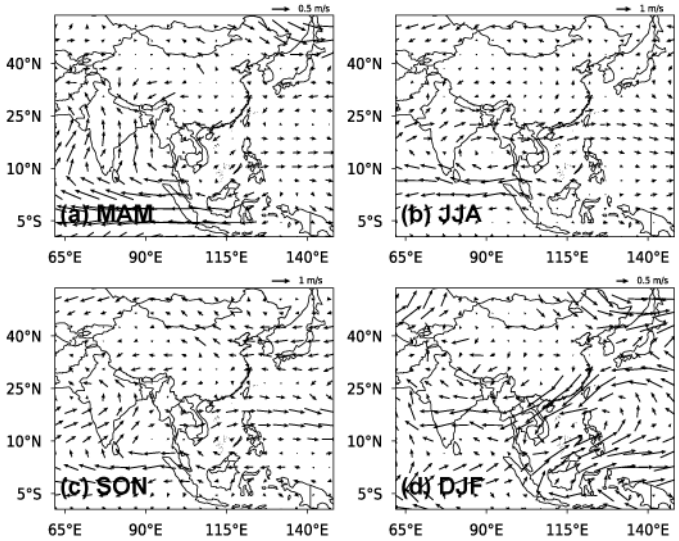

Figure S11. Spatial distributions of absolute differences (m/s) in the CMIP6 multi-model seasonal averaged wind fields at 850 hPa between 2025 and 2095 over Asia under the SSP5-8.5 scenario.

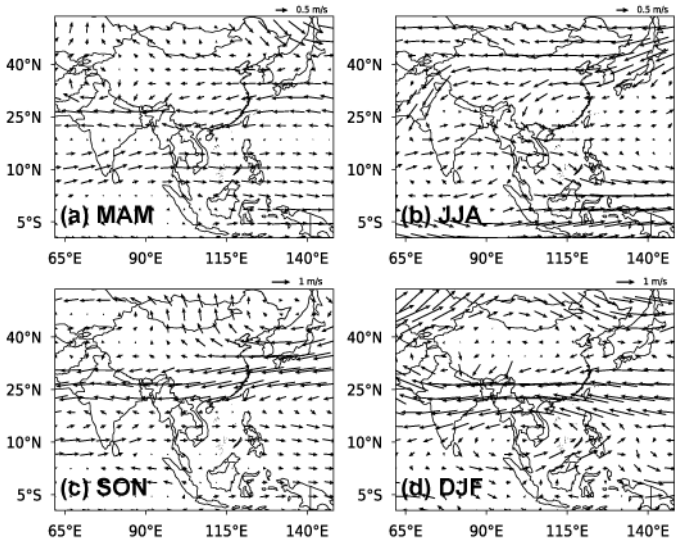

Figure S12. Same as Fig. **S11**, but for wind fields at 500 hPa.

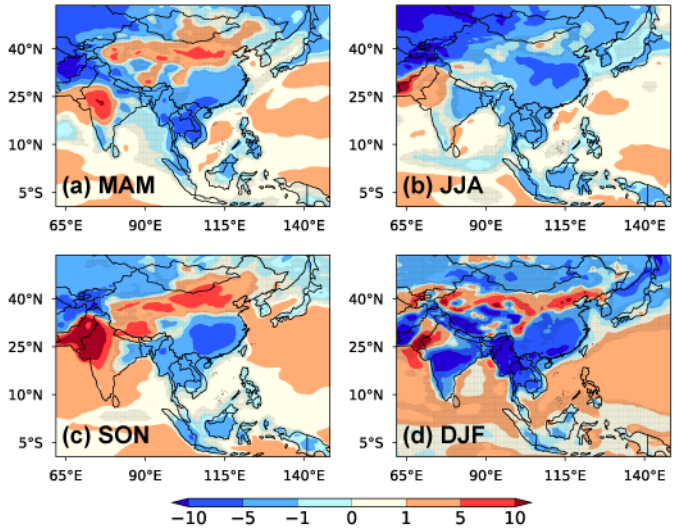

Figure S13. Same as Fig. **S8**, but for RH.

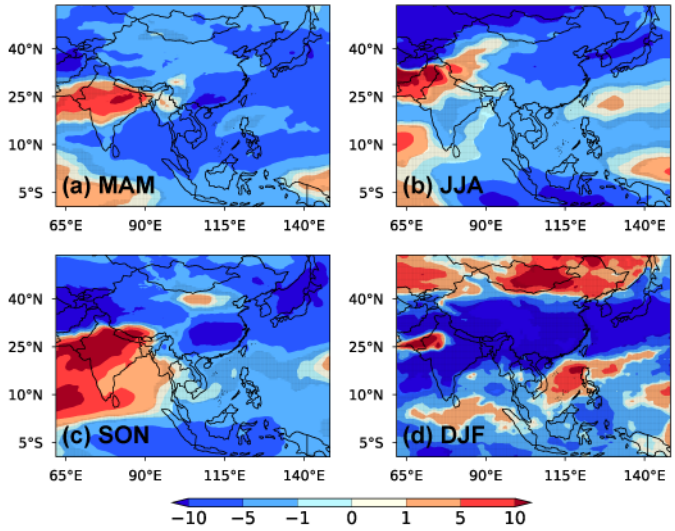

Figure S14. Same as Fig. **S8**, but for CLT.

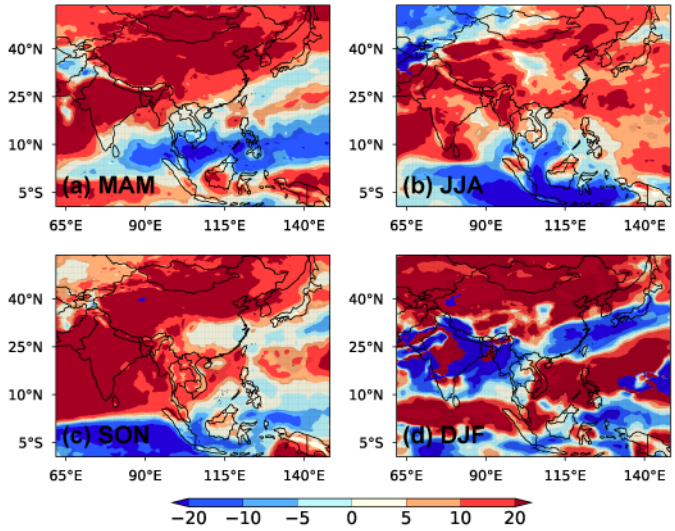

Figure S15. Same as Fig. **S8**, but for PRECP.