Supplementary information

Evaluating the influences of adding dynamical external forcing components in Regional Climate Model WRF on the climate simulation results in China

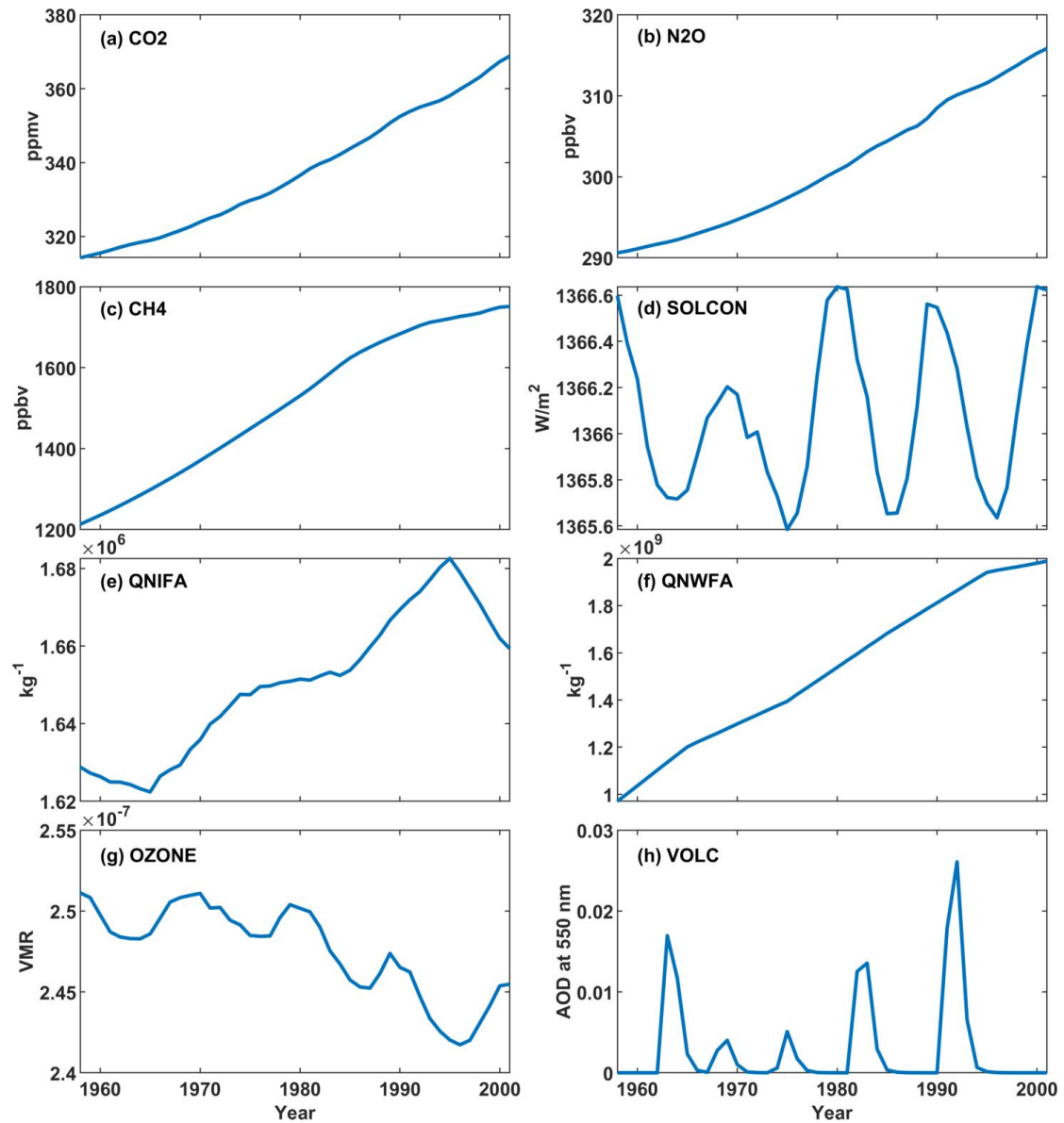
Figure S1 Time series of annual mean forcing variables averaged over the whole simulation region. a: CO_2. b: N_2O. c: CH_4. d: Solar constant. e: Ice-friendly aerosol. f: Water-friendly aerosol. g: O_3. h: Volcanic aerosol. Aerosols, Ozone, Volcanic aerosols are the vertical integration of the whole layers.
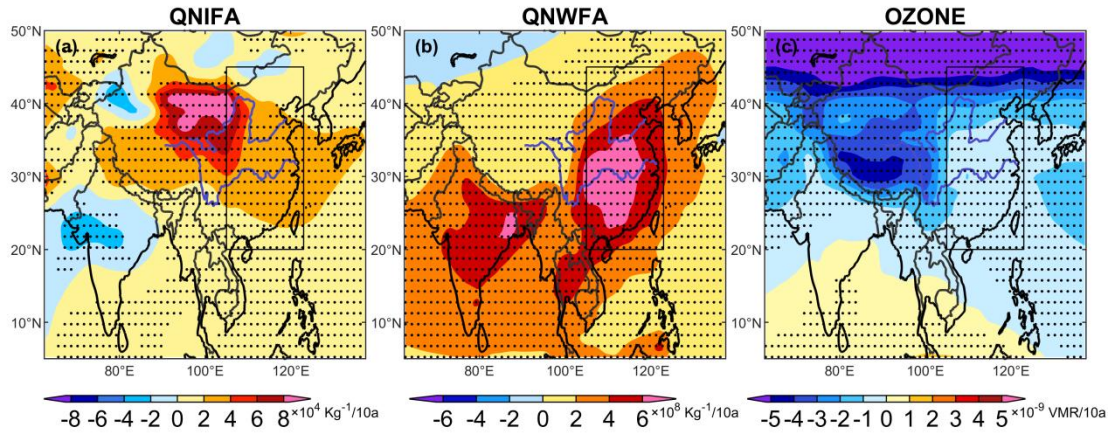
Figure S2 Long-term trend of ice-friendly aerosols (a), water-friendly aerosols (b), and ozone (c) during 1961–2001.
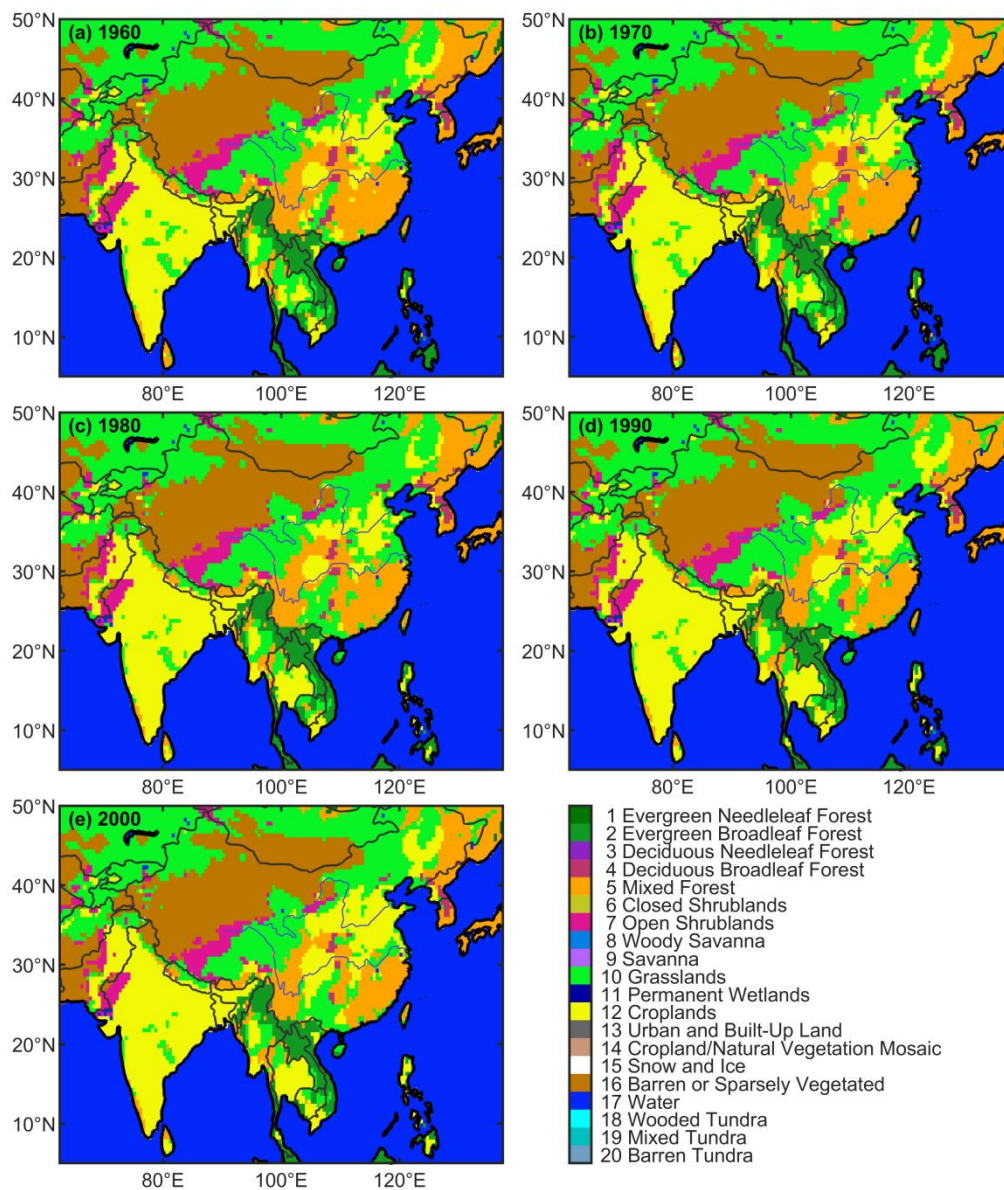

Figure S3 Spatial distribution of 20 type land cover/land use in WRF's land surface model (Noah_MP) in 1960 (a), 1970 (b), 1980 (c), 1990 (d), and 2000 (e).
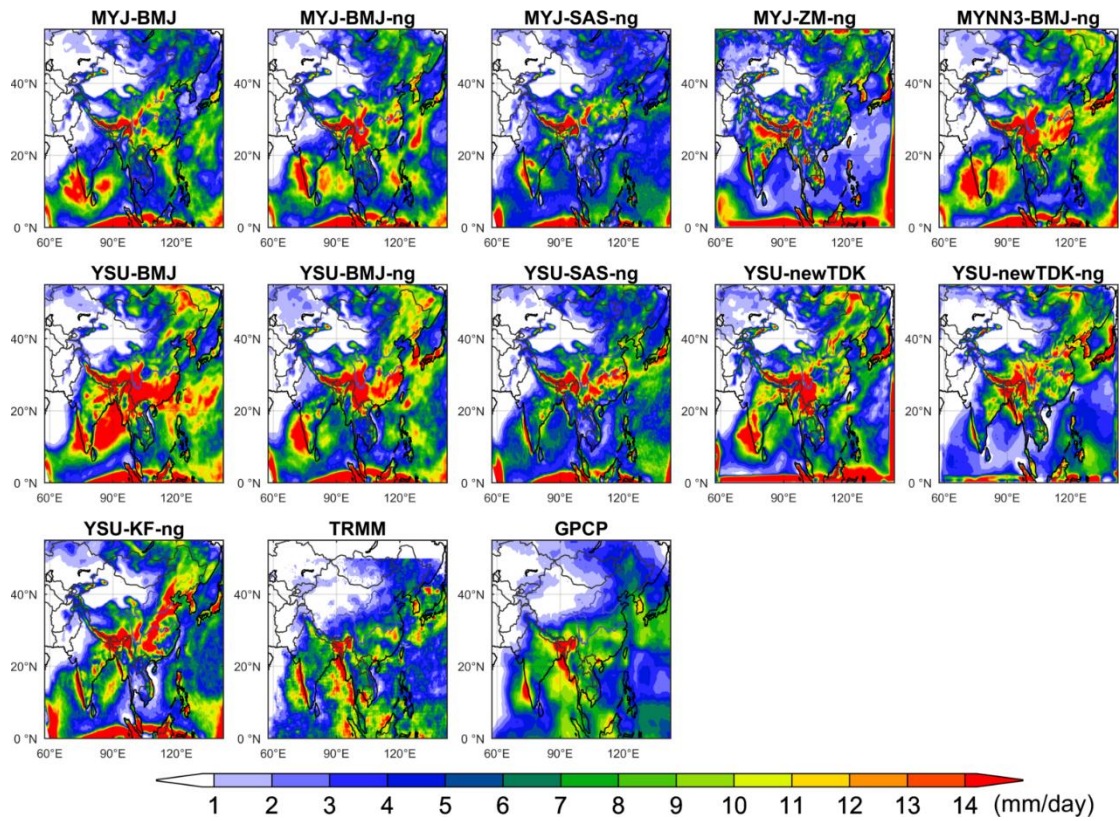
Figure S4 Summer (June, July, August) mean precipitation rate (mm/day) of various assemblies of physical parameterization schemes and two sets of observations (TRMM, GPCP), in 1998. The label "ng" means the spectral nudging option has been applied.
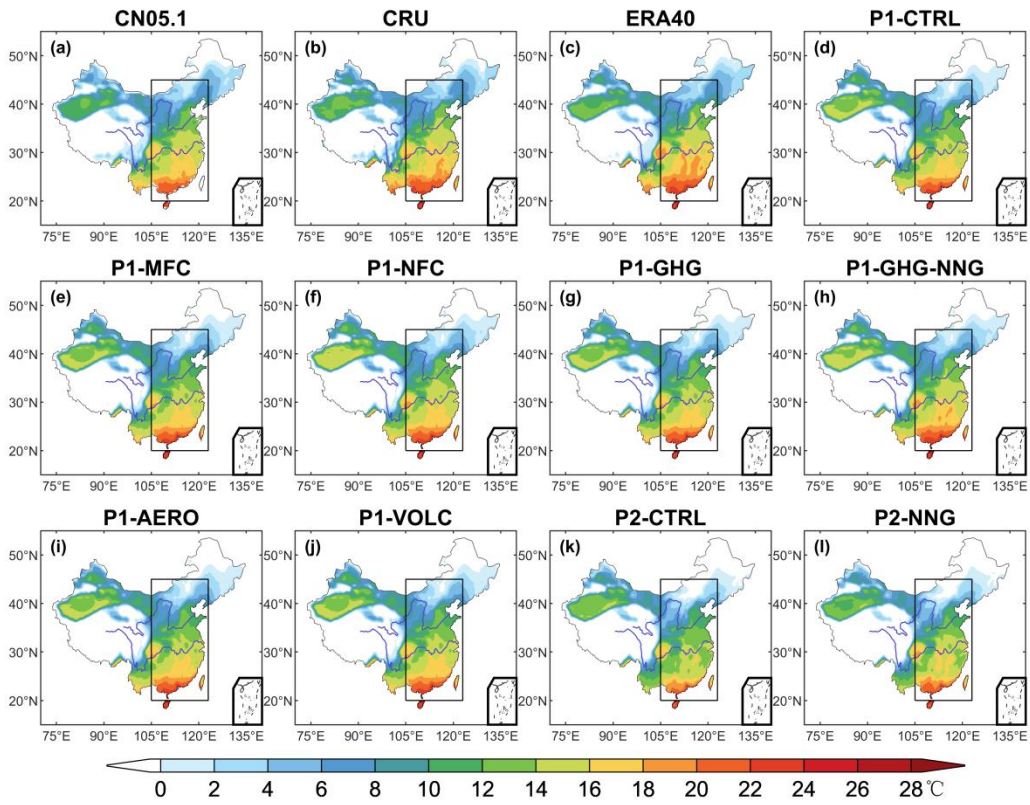
Figure S5 Climatological mean annual temperature in China during 1971–2000.
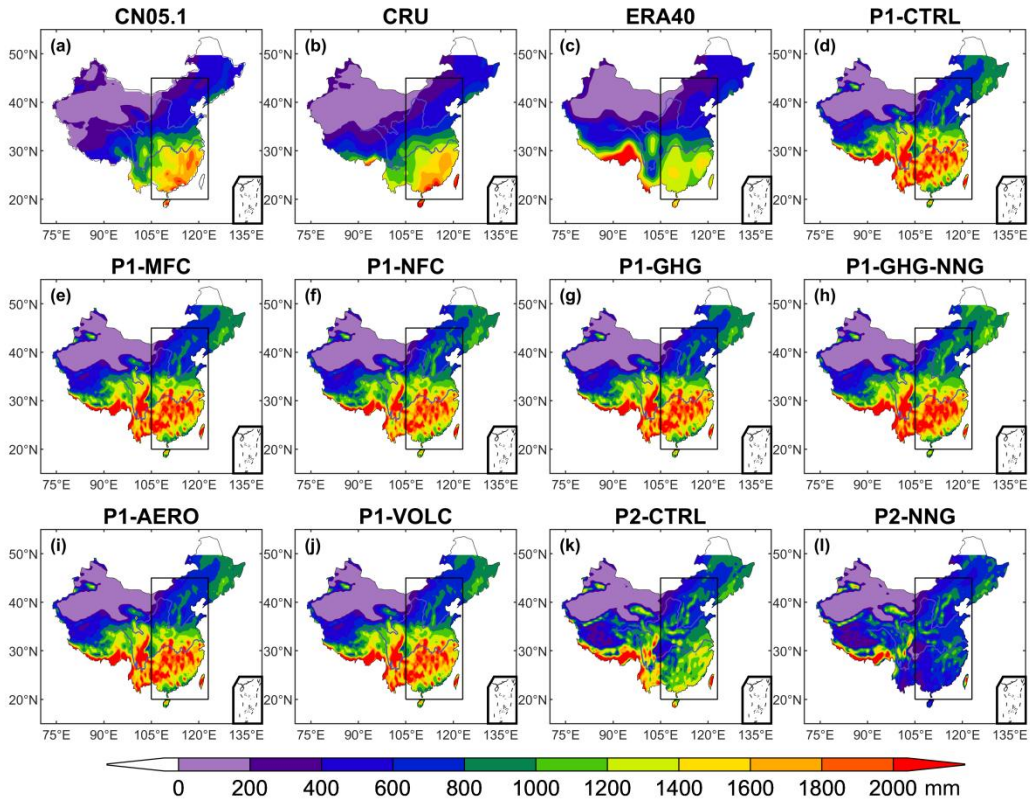

Figure S6 Climatological mean annual accumulated precipitation in China during 1971–2000.
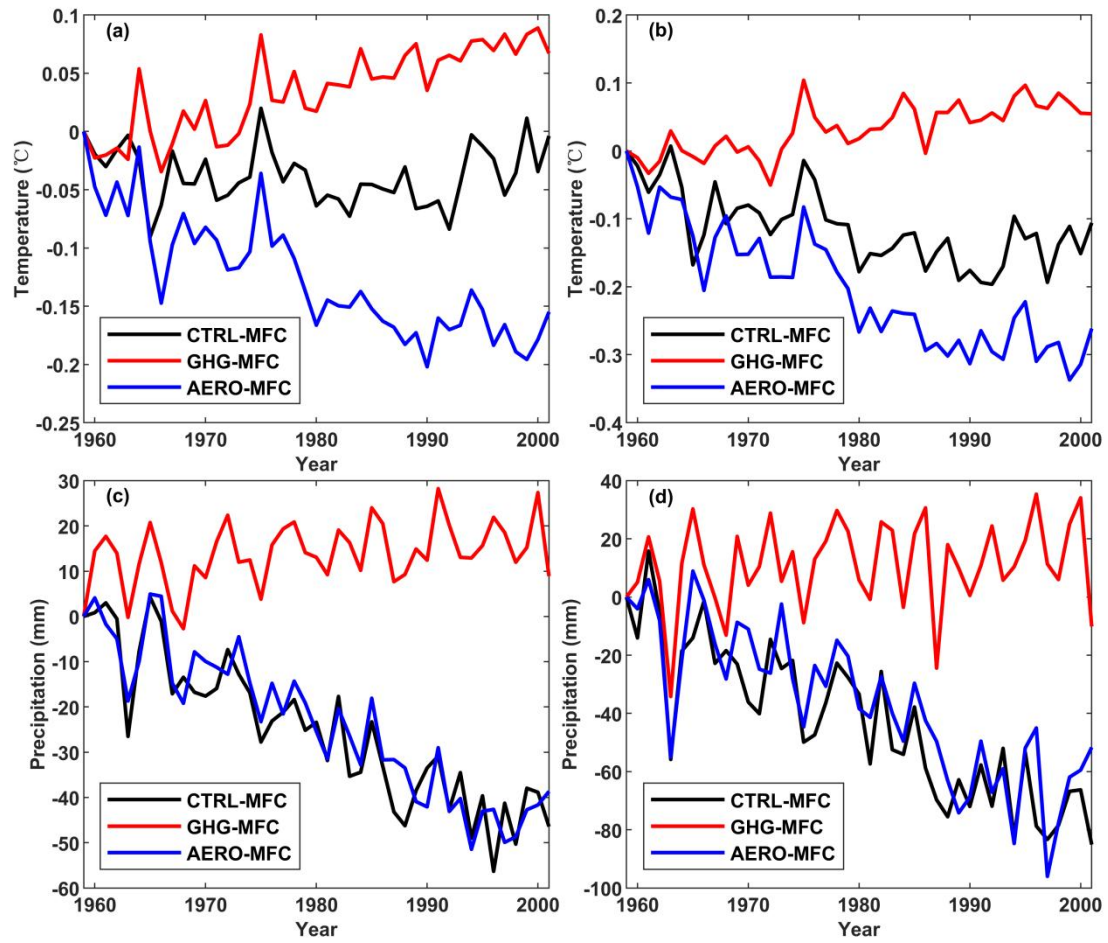
Figure S7 The difference between three P1 simulations (P1-CTRL, P1-GHG, P1-AERO) and P1-MFC simulation for the area weighted mean annual temperature (a, b) and precipitation (c, d) series in China (a, c) and in EC (b, d) region. The time series of CTRL-MFC, GHG-MFC, AERO-MFC has been subtracted by their first year values to show the accumulated effect of forcing components.