



Supplement of

Global and northern-high-latitude net ecosystem production in the 21st century from CMIP6 experiments

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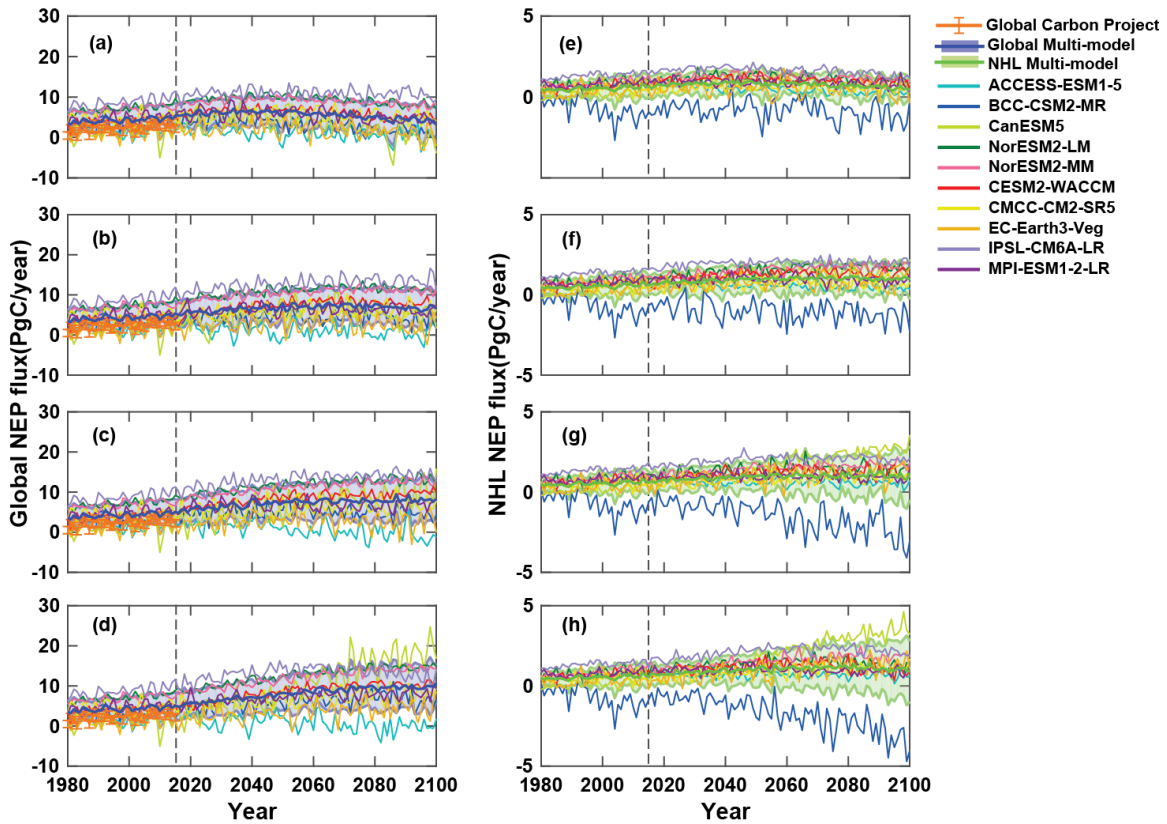


Figure S1. Time series of ten CMIP6 models NEP outputs during the historical period (1980-2014) and the future period (2015 - 2100) under four future scenarios at the global and the NHL scales: (a) global NEP under SSP126; (b) global NEP under SSP245; (c) global NEP under SSP370; (d) global NEP under SSP585; (e) NHL NEP under SSP126; (f) NHL NEP under SSP245; (g) NHL NEP under SSP370; (h) NHL NEP under SSP585. The shaded bands are the SD values among models representing the model uncertainties.

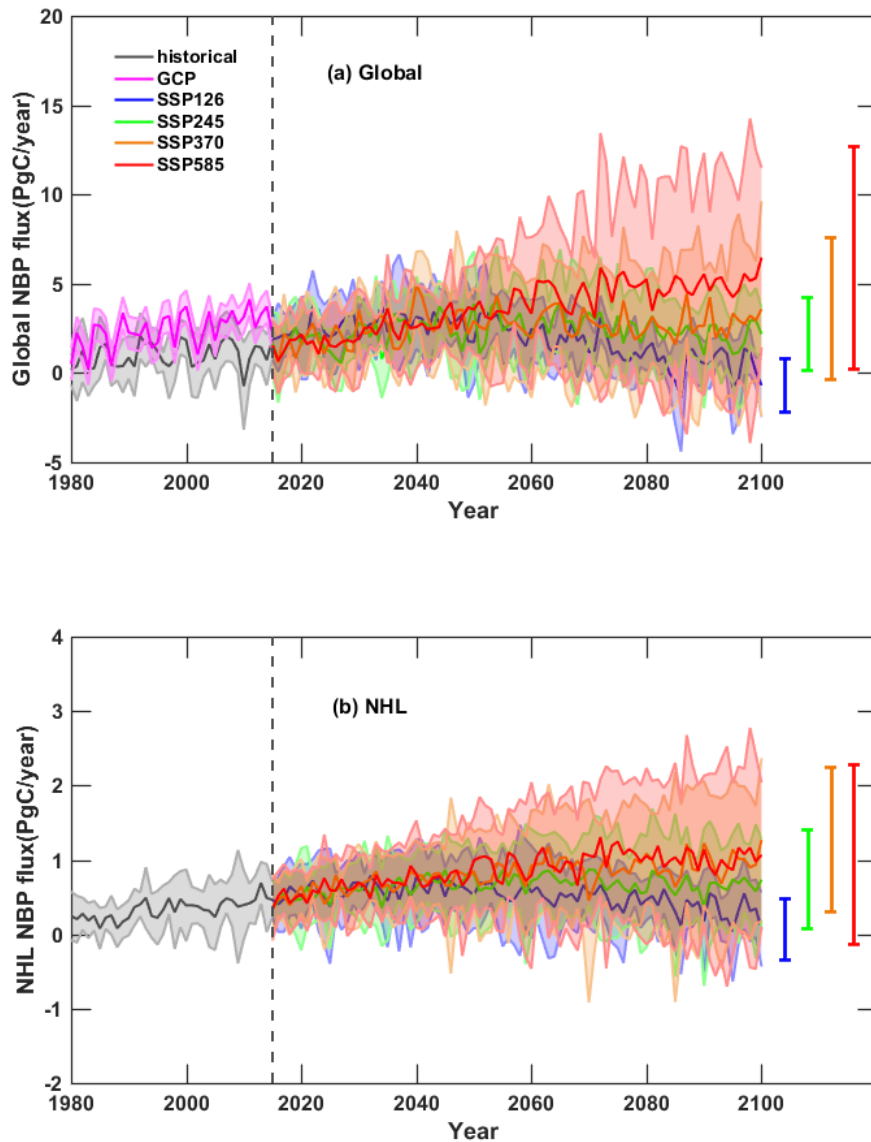


Figure S2: The annual mean and SD of NBP of the seven CMIP6 models during the historical period (1980-2014) and the future period (2015 - 2100) under four global change scenarios at the global (a) and Northern High Latitude (NHL) (b) scales. The shaded area indicates the SD values across the models. Error bars at the right of the panels show the mean SD of NBPs during 2095-2100 under each of the four scenarios.

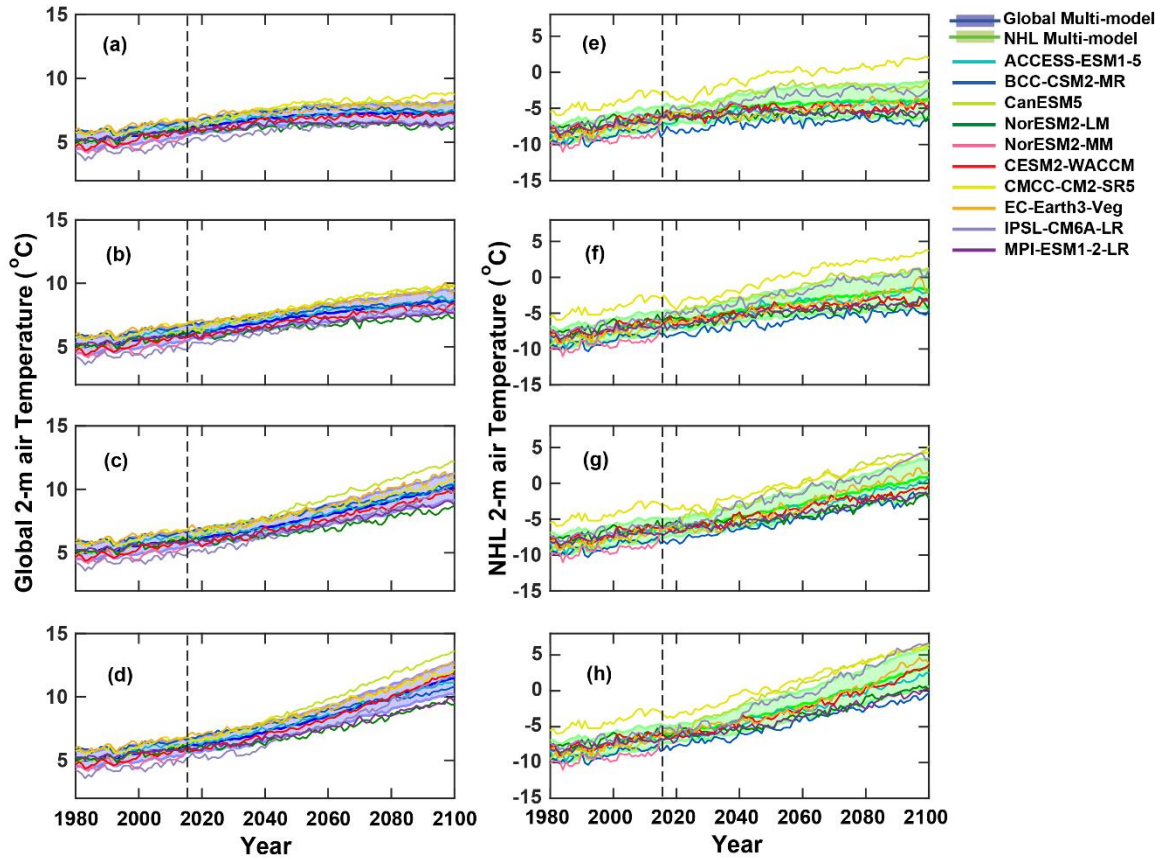


Figure S3. Time series of ten CMIP6 models TAS outputs during the historical period (1980-2014) and the future period (2015 - 2100) under four future scenarios at the global and the NHL scales: (a) global TAS under SSP126; (b) global TAS under SSP245; (c) global TAS under SSP370; (d) global TAS under SSP585; (e) NHL TAS under SSP126; (f) NHL TAS under SSP245; (g) NHL TAS under SSP370; (h) NHL TAS under SSP585. The shaded bands are the SD values among models representing the model uncertainties.

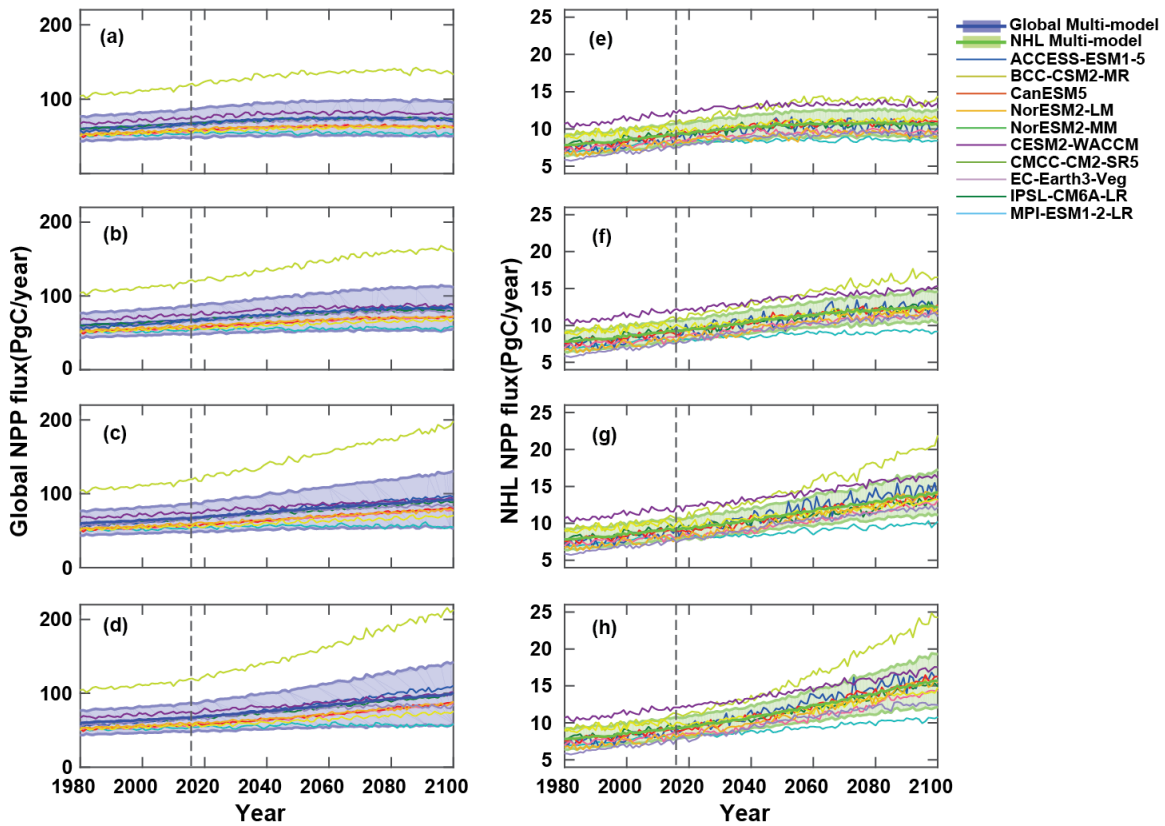


Figure S4. Time series of ten CMIP6 models NPP outputs during the historical period (1980-2014) and the future period (2015 - 2100) under four future scenarios at the global and the NHL scales: (a) global NPP under SSP126; (b) global NPP under SSP245; (c) global NPP under SSP370; (d) global NPP under SSP585; (e) NHL NPP under SSP126; (f) NHL NPP under SSP245; (g) NHL NPP under SSP370; (h) NHL NPP under SSP585. The shaded bands are the SD values among models representing the model uncertainties.

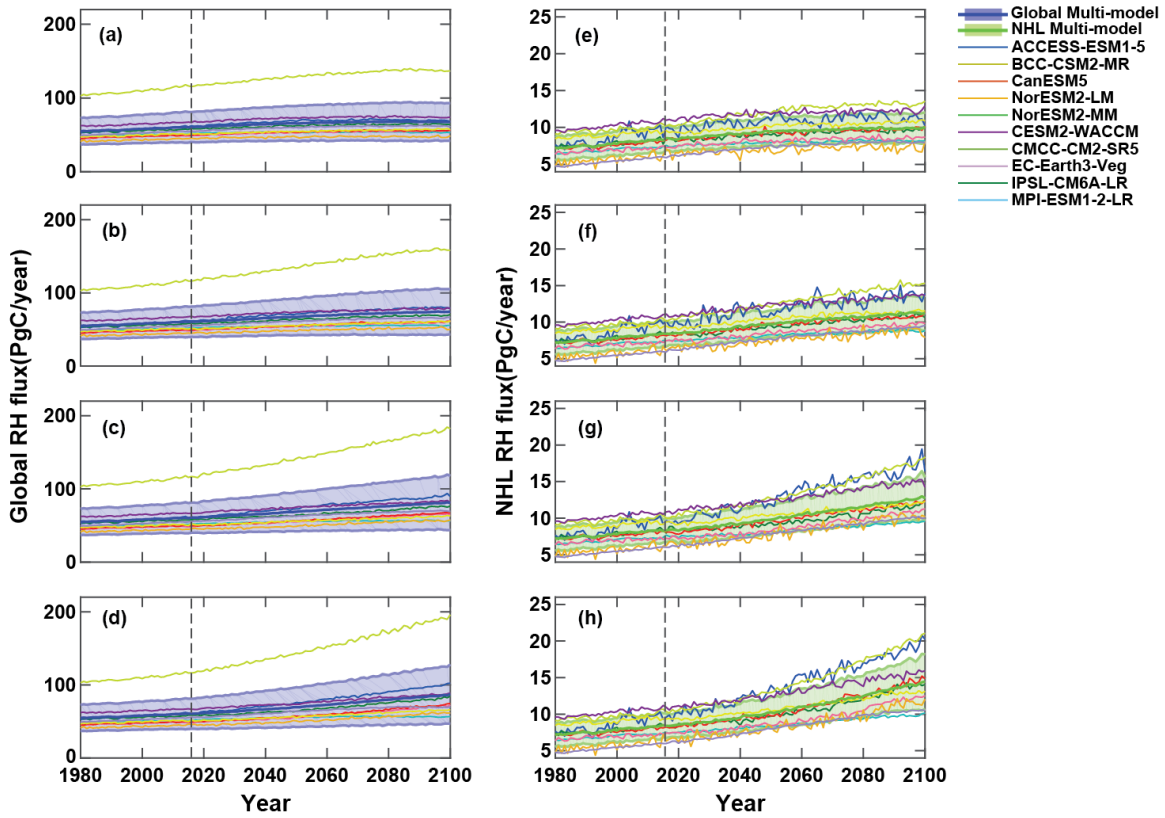


Figure S5. Time series of ten CMIP6 models RH outputs during the historical period (1980-2014) and the future period (2015 - 2100) under four future scenarios at the global and the NHL scales: (a) global RH under SSP126; (b) global RH under SSP245; (c) global RH under SSP370; (d) global RH under SSP585; (e) NHL RH under SSP126; (f) NHL RH under SSP245; (g) NHL RH under SSP370; (h) NHL RH under SSP585. The shaded bands are the SD values among models representing the model uncertainties.

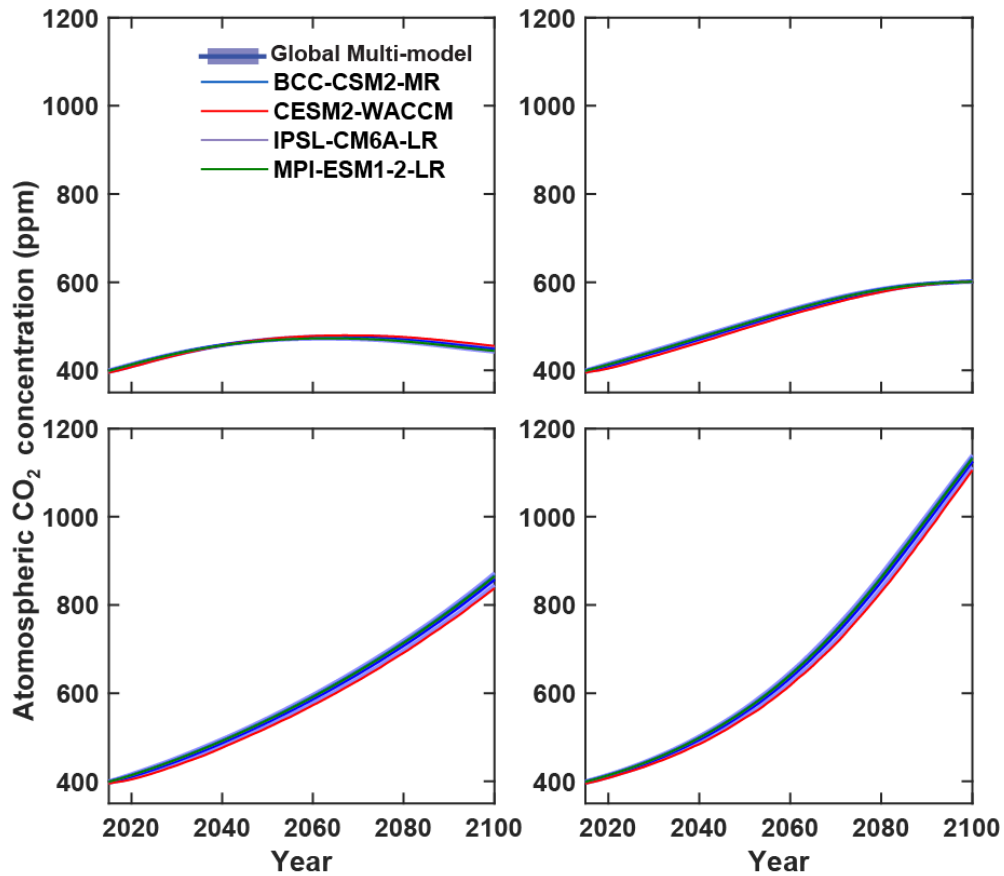


Figure S6. Time series of four CMIP6 models bottom layer global atmospheric CO₂ concentration outputs during the future period (2015 - 2100) under four future scenarios at the global scale: (a) global CO₂ under SSP126; (b) global CO₂ under SSP245; (c) global CO₂ under SSP370; (d) global CO₂ under SSP585. The shaded bands are the SD values among models representing the model uncertainties.

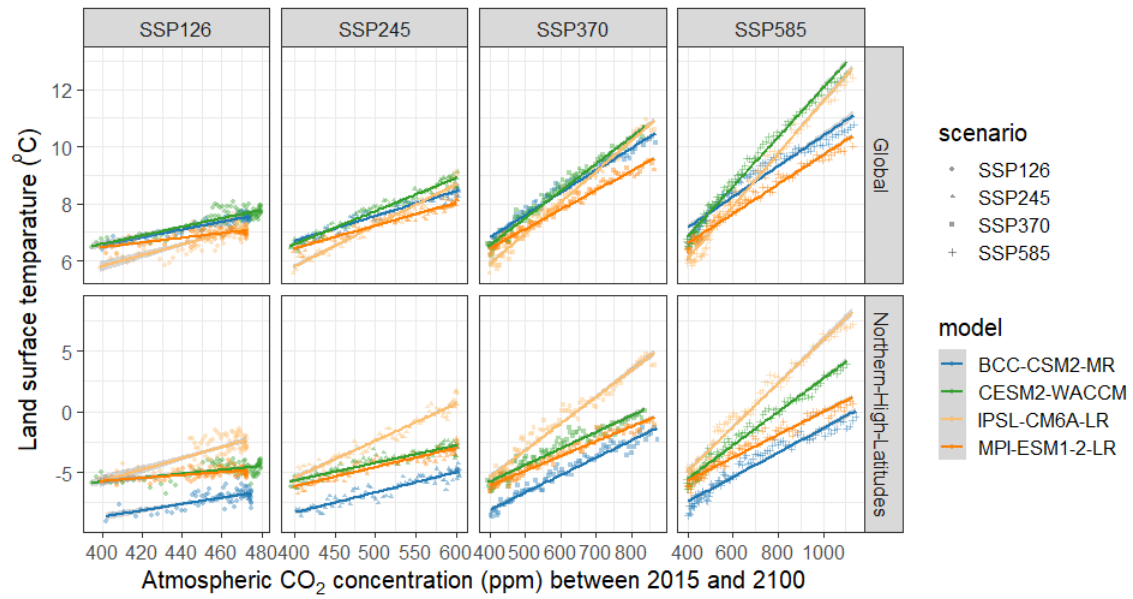


Figure S7. Land surface temperature ($^{\circ}\text{C}$) vs. atmospheric CO_2 concentration (ppm) in four CMIP6 models during the future period (2015 - 2100) under four future scenarios at the global and the NHL scales.