Supplementary Materials

Hajima et al. "Consistency of global carbon budget between concentration- and emission-driven historical experiments simulated by CMIP6 Earth system models and suggestion for improved simulation of CO2 concentration"

Table S1

10 The average (AVE), standard deviation (STD), min (MIN), and max (MAX) values of cumulative land and ocean carbon uptake of ensemble members simulated by MIROC-ES2L and UKESM-1-0-LL.

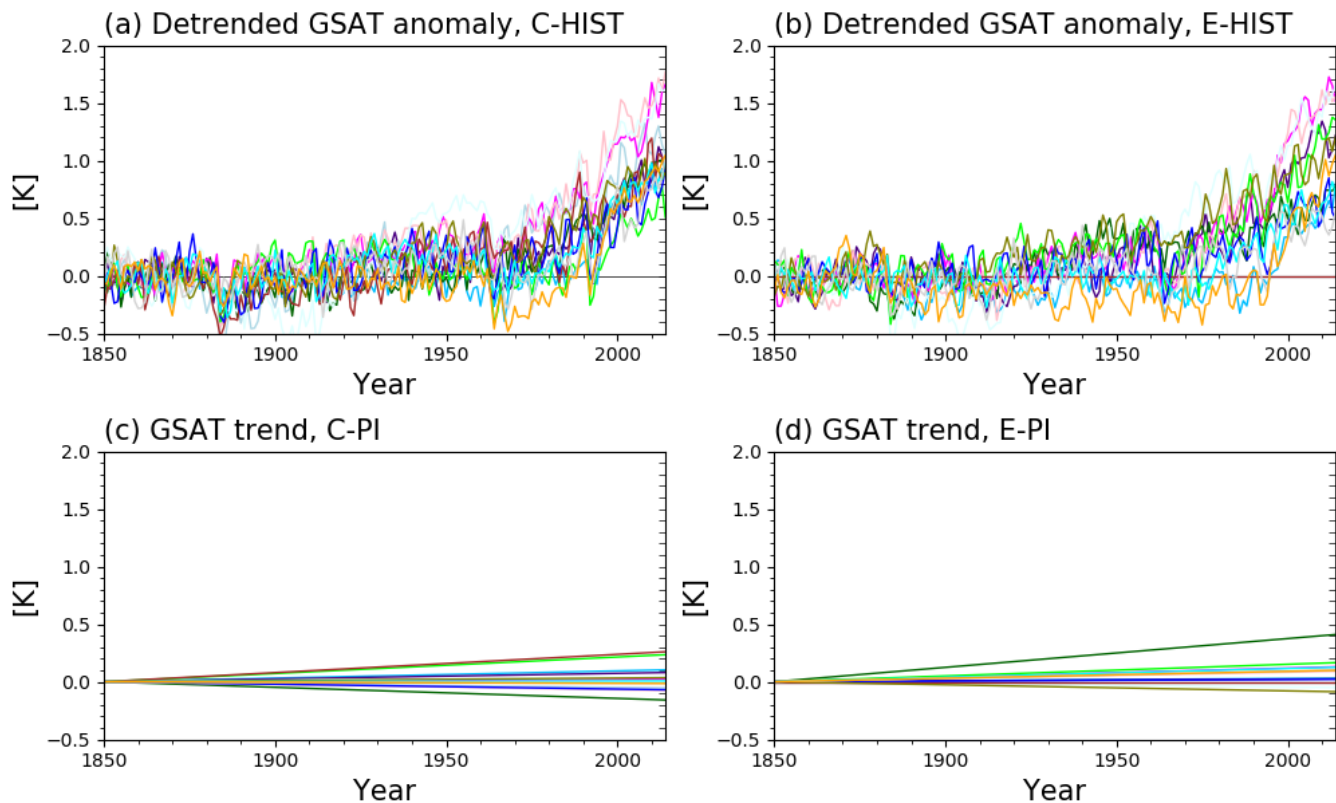| Cumulative Land C Uptake					
Model	Ensemble members	AVE	STD	MAX	MIN
MIROC-ES2L	30	51.2	4.1	57.3	40.8
UKESM-1-0-LL	12	-10.3	4.1	-5.2	-18.1
Cumulative Ocean C Uptake					
Model	Ensemble members	AVE	STD	MAX	MIN
MIROC-ES2L	30	133.3	0.8	134.9	130.8
UKESM-1-0-LL	12	135.5	1.4	138.7	133.2

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Figure S1. Global surface air temperature (GSAT) anomalies in (a) C-HIST and (b) E-HIST simulations. Panels (a) and (b) present GSAT anomalies corrected by the GSAT drift found in the control runs (C-PI and E-PI). The drifts were evaluated using linear regression lines and are presented in (c) and (d). Line color represents each model and the representation is the same as that in Figs. 4–7.
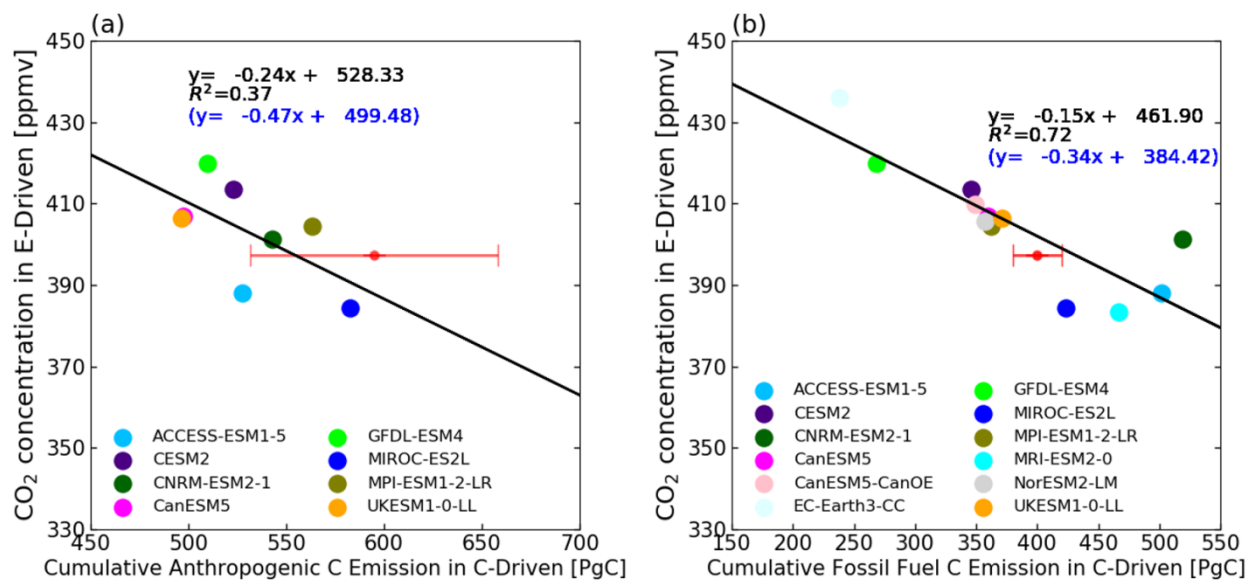
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Figure S2. Same as Fig. 5 but the compatible fossil fuel emissions (x-axis) are not corrected by the imbalance terms.
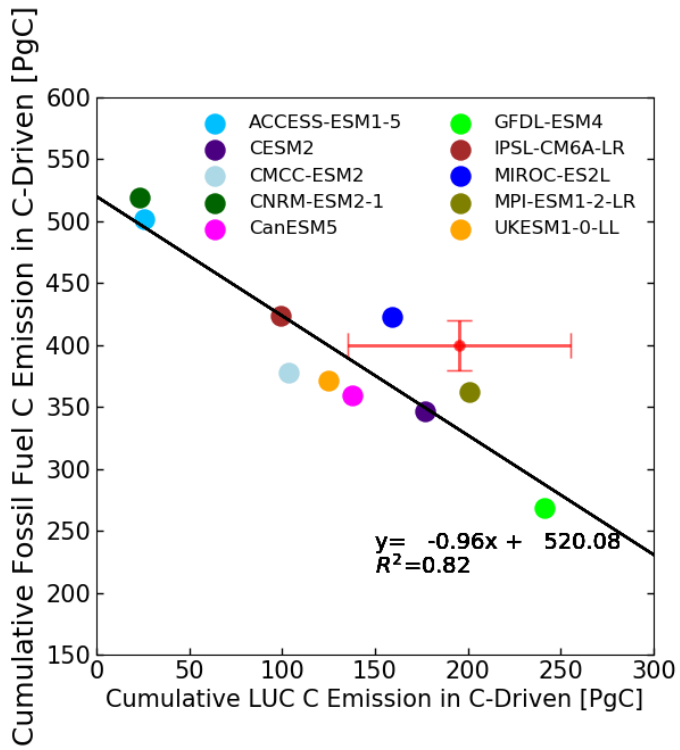
25

Figure S3. Same as Fig. 6 but the compatible fossil fuel emissions (y-axis) are not corrected by the imbalance terms.
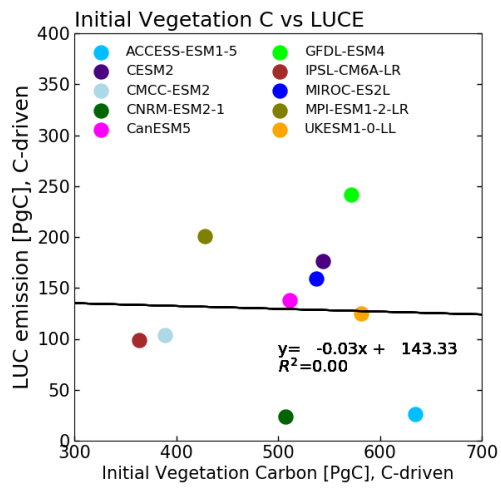
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Figure S4. Comparison between initial vegetation carbon in C-HIST and cumulative land use change emission.