

TABLE A2. Root-mean-square error (RMSE) between observations and simulation with default parameters ($\text{RMSE}_{\text{obs-default}}$), and between observations and simulation with parameters after data assimilation ($\text{RMSE}_{\text{obs-simu}}$) in both control and warming treatment.

Variable	Control		Warming	
	$\text{RMSE}_{\text{obs-default}}$	$\text{RMSE}_{\text{obs-simu}}$	$\text{RMSE}_{\text{obs-default}}$	$\text{RMSE}_{\text{obs-simu}}$
Soil respiration ($\text{g m}^{-2} \text{d}^{-1}$)	1.11	0.97	1.05	0.93
Rh ($\text{g m}^{-2} \text{d}^{-1}$)	0.56	0.66	0.67	0.70
Aboveground carbon (g m^{-2})	39.2	29.0	53.0	26.2
Root carbon (g m^{-2})	17.9	22.0	114.7	53.9
Labile carbon (g m^{-2})	42.1	3.5	67.1	5.7
Soil carbon (g m^{-2})	560.1	55.6	687.0	104.1

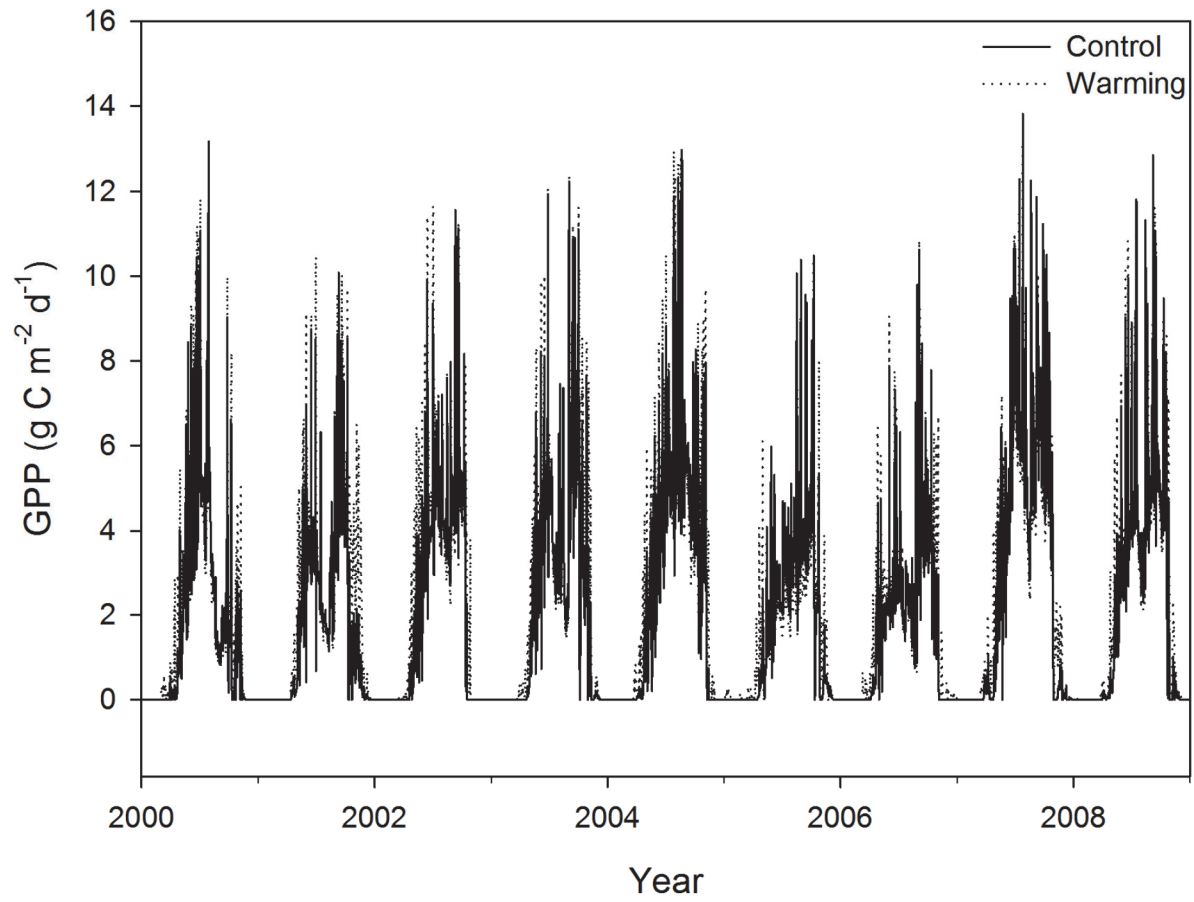


FIG. A1. Daily values of GPP under control and warming treatments derived from photosynthesis sub-model of TECO model.

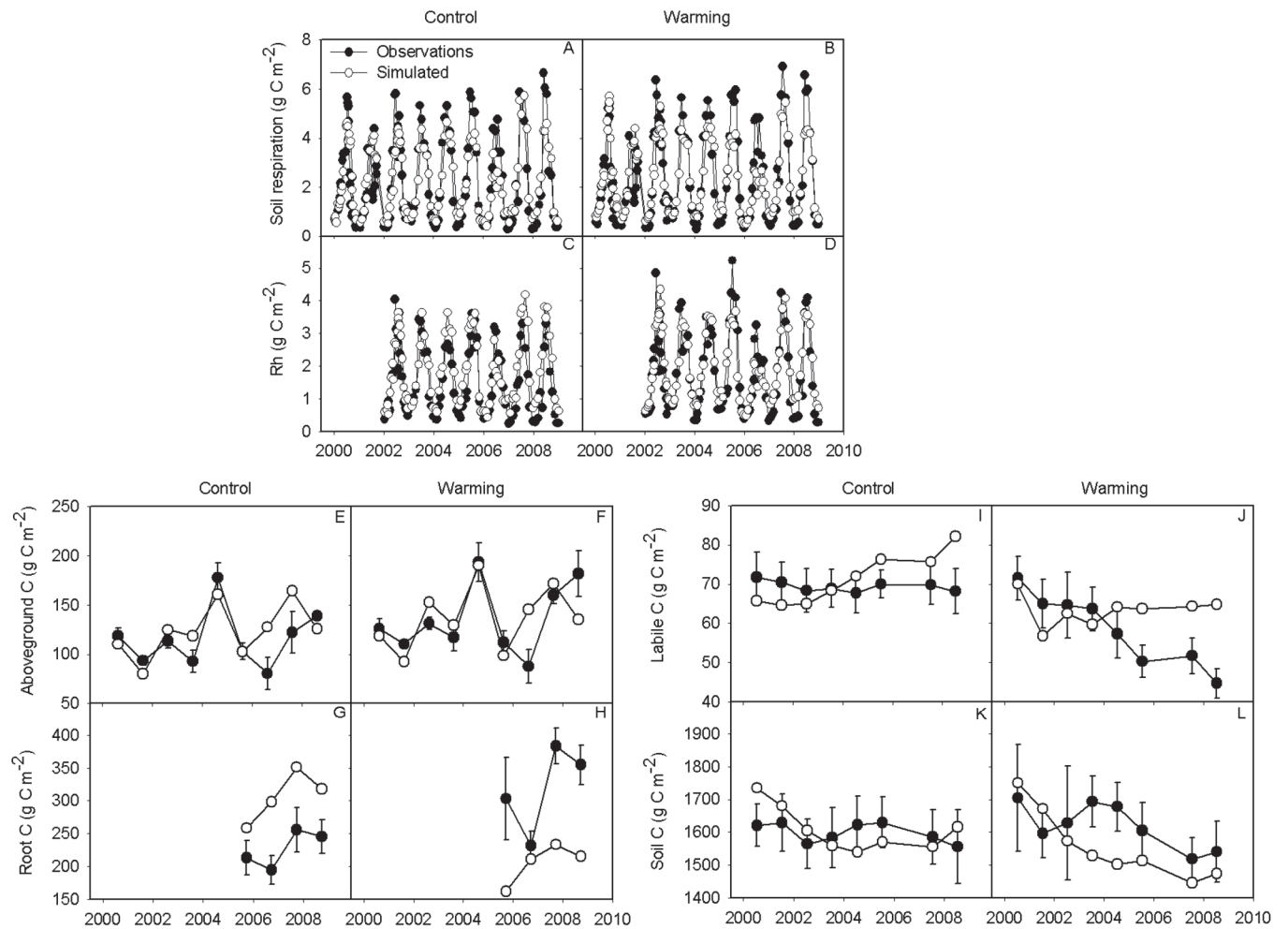


FIG. A2. Comparison of the observations and the mean values of the simulated observational variables with the parameters accepted under control and warming treatments when first six years data were used to constrain the parameters. a-b: soil respiration under control and warming; c-d: heterotrophic respiration (Rh); e-f: aboveground biomass carbon; g-h: root biomass carbon; i-j: labile soil organic carbon; k-l: soil organic carbon. Note: observations are mean with standard error except for soil respiration and Rh for clarity.

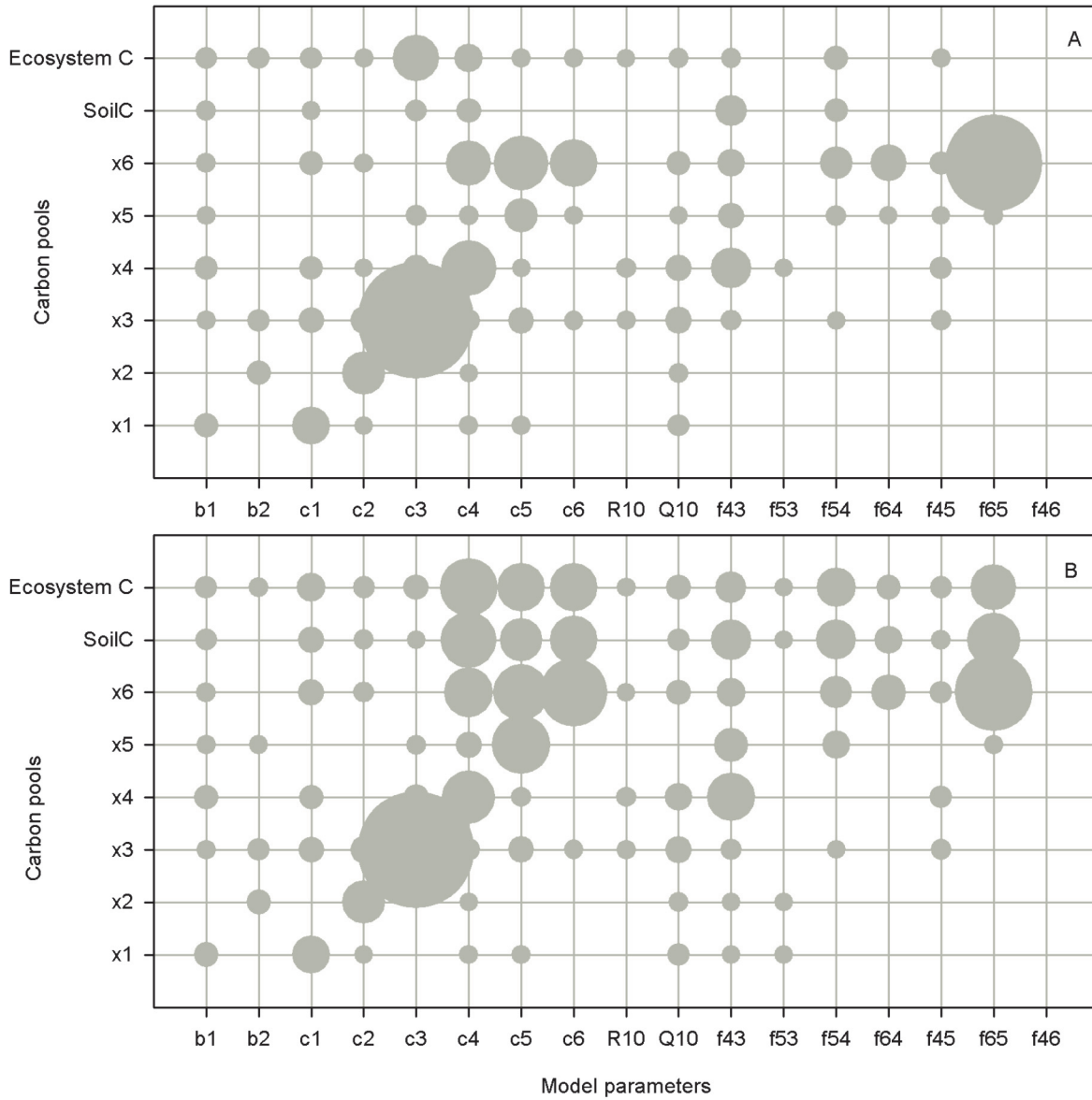


FIG. A3. The sensitivity of the carbon pools in short term (nine-year simulation; a) and long term (90-year simulation; b) to the 17 parameters in the warming treatments. x1–x6 are the six carbon pools as shown in Fig. 1; c1–c6 are turnover rates of the carbon pools; b1–b2 are the allocation coefficients of GPP to shoot and root, respectively; $f_{i,j}$ values are the carbon transfer coefficients from pool j to pool i . The area of the circle represents the value of the coefficient of determination