

SOC model	Detail	Method	Lowest RMSE (kg m <sup>-2</sup> )	Variance explained	Number of simulations
Two-pool microbial	8 parameters, 2 carbon pools.	Bayesian MCMC	6.609	51.6 %	50 000+500 000
		RBF-SBO	5.785	51.6 %	221
Four-pool microbial	15 parameters, 4 carbon pools.	Bayesian MCMC	7.142	51.3 %	50 000+500 000
		RBF-SBO	5.756	51.4 %	199
CLM-CASA'	20 parameters, 13 carbon pools.	Bayesian MCMC	7.000	41.0 %	50 000+1 000 000
		RBF-SBO	7.162	42.8 %	321