

A carbon cycle model constrained by biospheric and oceanic carbon cycle history: Comparison with satellite-based NPP

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A simple carbon cycle model was established with constraints of biospheric and oceanic carbon cycle history based on observed atmospheric CO₂ and delta13C time variation. In this model, time variation of global carbon cycle was simulated from 1850 to 1990. The results show the good agreements with the time variation of not only observed atmospheric CO₂ but also biospheric and oceanic carbon cycle history. Terrestrial net primary production (NPP) shows the increasing trend from 1920 and the increase rate is estimated at about 100000020er 10 years in 1980s. These results were compared with the satellite-based time variation of global NPP from 1983 to 1991. Although both results show the NPP increasing trend in 1980s, 6 times higher increasing trend was estimated from the satellite data.