

Simulation of ecohydrological controls of carbon and hydrologic cycle in semiarid area, Mongolia

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In the terrestrial ecosystem, the exchange of hydrologic, energy, and trace gas flux through the land surface processes is an important component of atmosphere - biosphere - hydrosphere system. The representation of these exchanges in atmospheric models or ecosystem models and hydrologic models, employ various schemes of soil-vegetation-atmosphere processes. In the present study, we employed CENTURY ecosystem model to simulate seasonal dynamics of vegetation biomass, trace gas flux, and hydrologic processes in semiarid area of Mongolia. The comparison of the simulated above and belowground biomass and soil carbon flux with measured data were agreed quite well. However, hydrologic components were overestimated by the water budget submodel of CENTURY ecosystem model. Finally, we tried to modify CENTURY ecosystem model for better representation of hydrologic components.