

Simulation of carbon and hydrological cycles in Mongolian semiarid region

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Century ecosystem model has been calibrated and applied first to five locations in Kherlen river watershed in semiarid region of Mongolia to understand and clarify the influence of environmental changes of mainly carbon cycles. Sensitivity analysis was also carried out. Secondly, the model was used together with GIS to simulate those components over the entire watershed. The results of this present study can be summarized as: (i) ecological components are more accurately simulated than the hydrological components and thus hydrological part of Century model has to be improved; (ii) grazing intensity parameter (GI) within the model can be determined from government statistics of farmland animal numbers, and this allowed application of the model to the whole watershed region. (iii) the ecological outputs of the model is sensitive to environmental factors, particularly to precipitation and grazing pressure, and for some component to air temperature also.