ONLINE ISSN : 1882-4897
PRINT ISSN : 0021-5104

Japanese Journal of Limnology (Rikusuigaku Zasshi)
Vol. 67 (2006) , No. 3 pp.231-234

[PDF (297K)] [References]

Prospects for simulation models in watershed studies

Takahito YOSHIOKA[1)], Ryunosuke TATENO[1)2)] and Muneoki YOH[3)]

1) Research Institute for Humanity and Nature
2) Faculty of Agriculture, Kagoshima University
3) Institute for Symbiotic Science and Technology, Tokyo University of Agriculture and Technology

(Received July 30, 2005)
(Accepted April 3, 2006)

Abstract

Any one who studies the watershed environments cannot ignore the strong link between terrestrial and freshwater ecosystems through material cycling. Simulation models of material and water cycling are useful tools not only for planning and practicing sustainable uses of forest and water resources and the adaptive management of forested watershed environments, but also for scientific researches. At the 70th annual meeting of the Japanese Society of Limnology (Kashihara, Osaka, September 2005), we discussed the validity and limitations of watershed simulation models in the section “Watershed biogeochemistry: Simulation models for the watershed environment based on material cycling and hydrologic processes”. Biogeochemical and hydrologic models for forest, river and lake environments were introduced in the section. During the discussion, it was recognized that simulation models were valid and powerful for understanding and predicting environmental changes in the watershed. However, their applicability should be carefully checked when they are used for regions under different climatic and environmental conditions. We also recognized that the introduction of the general characteristics of each model would be helpful understand the significance of the simulation model in the limnological sciences. Titles of presentations were as follows: 1. Biogeochemical model in forest ecosystem; Application and problem of PnET model, 2. The influence of forest disturbance and examination of applying the PnET model for the long term influences, 3. Necessity for consideration on hydrological controls of biogeochemical cycling to develop a catchment scale ecosystem model, 4. Quantitative

approach and problems of river hydrological simulation models, and 5. Biogeochemical model coupled with hydrodynamic model in lake environment. In this special issue, these five reviews are featured. Although each review is based on the presentation at the annual meeting, the content has been expanded and detailed.

Key Words: Simulation model, watershed, biogeochemistry, material cycling

To cite this article:

Takahito YOSHIOKA, Ryunosuke TATENO and Muneoki YOH (2006): Prospects for simulation models in watershed studies . Japanese Journal of Limnology (Rikusuigaku Zasshi), 67: 231-234 .

doi:10.3739/rikusui.67.231

JOI JST.JSTAGE/rikusui/67.231