

## Estimation of hourly nitrogen flux in a suburban watershed using SWAT model

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The objective of this study is to estimate hourly nitrogen flux from a suburban watershed, using Soil Water Assessment Tool (SWAT). SWAT, which is a model developed by USDA-ARS and Texas A&M University, is a river basin-scale model to simulate the quality and quantity of surface and ground water. The model is widely used in assessing soil erosion prevention and control, non-point source pollution control and regional management in watersheds because one of the reason is that it can estimate reasonable result even if data is limited. However it is not suit for estimation of nitrogen flux in flood condition because the time step of the model is basically calculated in daily. On the other hands, the model has an option for hourly estimation of runoff if sub-daily precipitation data are inputted. So we tried to estimate hourly nitrogen flux in Takaya watershed located on Hiroshima prefecture using the option. Monthly water quality data in ordinary condition and hourly data in flood condition which are observed by authors' group were used for validation. A result show that although the reproductively of hourly runoff was slightly decreased than daily estimation in validation period, estimated runoff peaks were fitted to observed. It was found that improvement of the model for hourly estimation of nitrogen flux, however, the result of the estimation was almost acceptable.

Keywords: Nitrogen flux, Hourly estimation, SWAT model, suburban watershed