A Study of Modeling Using Linkage of Watershed Model and River Water Quality Model

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It is important to establish quantitative analysis in the non-point source for efficient management of water quality. Recently, we has been to have hard time with non-point quantitative analysis, a necessary and sufficient condition of total maximum daily load analysis, because of representing natural complex phenomena. For accurate water quality modeling, Watershed and water quality model were linked and applied to a Milyang River Basin located on the Nakdong river. Each of the model has advantages to simulate water quality. Especially, SWAT model simulates non-point source and QUALKO model simulates point source. A Watershed model of SWAT and a water quality model of QUALKO were applied to the study area.

The study watershed was divided into 2 sub-watershed such as Milyang A and Milyang B unit watershed. First, SWAT watershed model was estimated by using DEM(Digital Elevation Model), land use data, soil data, weather data, precipitation data and point load data. The SWAT simulation results show good agreements in terms of discharge, BOD, T-N, T-P. Secondly, the water quality model, QUALKO is a static model. It reflects head water, pollutant load and withdrawal very well. It consist of 3 head water source, 2 junction, 17 reach, 100 element, 27 point source. And it is connected to SWAT for non point source at the incremental flow section

Through this study, point source and non-point source quantitative analysis system construction will be accomplished. Then the methodologies presented in this study will contribute to basin-wide water quantity and quality management.

Keyword : Non-point source quantitative analysis system, SWAT, QUALKO

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