

## **NITROGEN LOAD MODELLING AT THE OUTLET OF A SMALL CATCHMENT : SENSITIVITY ANALYSIS OF A ELEMENTARY MODELLING SCHEME**

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The preservation of water quality can only be achieved through the integrated management of a whole catchment. The management of water quality requires tools capable to link land uses to the contaminants yielded on the watershed and transferred along the hydrographic network.

The model is constructed with a hydrologic point of view. We adopt a simple conceptual vision of nitrogen cycle on the catchment to avoid the calibration of many parameters. Nitrogen loads are directly calculated as a function of rain characteristics and land uses. An oriented object approach is used to represent the hydrological structure of catchment as a combination of subcatchments and reaches.

In this paper, we use a elementary modelling scheme composed of three subcatchments : one contributing subarea located at the upstream of the river source and two contributing subareas located respectively at the upstream and downstream of a pollution point source. Each subcatchment is assimilated to a tank and the Muskingum method is used to assess pollution transfer on the associated reach. Five parameters are introduced to model nitrogen yields for the contributing areas and nitrogen transfers through the reaches.

The purpose of this paper is to study the sensitivity of the model response to parameter changes. The tests are conducted on the total nitrogen loads estimation for a rainfall event.