



Agrochemical fate models applied in agricultural areas from Colombia

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The misuse application of pesticides in mainly agricultural catchments can lead to severe problems for humans and environment. Especially in developing countries where there is often found overuse of agrochemicals and incipient or lack of water quality monitoring at local and regional levels, models are needed for decision making and hot spots identification. However, the complexity of the water cycle contrasts strongly with the scarce data availability, limiting the number of analysis, techniques, and models available to researchers. Therefore there is a strong need for model simplification able to appropriate model complexity and still represent the processes. We have developed a new model so-called Westpa-Pest to improve water quality management of an agricultural catchment located in the highlands of Colombia. Westpa-Pest is based on the fully distributed hydrologic model Wetspa and a fate pesticide module. We have applied a multi-criteria analysis for model selection under the conditions and data availability found in the region and compared with the new developed Westpa-Pest model. Furthermore, both models were empirically calibrated and validated. The following questions were addressed i) what are the strengths and weaknesses of the models?, ii) which are the most sensitive parameters of each model?, iii) what happens with uncertainties in soil parameters?, and iv) how sensitive are the transfer coefficients?