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Comparative Assessment of a Distributed Model and a Lumped Model for Estimating of Sediments Yielding in Small Urban Areas

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Abstract : Increases in urbanization during XX century, have brought as one major problem the increased of sediment production. Hydraulic erosion is one of the major causes of increasing of sediments in small urban catchments. Such increments in sediment yielding in header urban catchments can caused obstruction of drainage systems, making impossible to capture urban runoff, increasing runoff volumes and thus exacerbating problems of urban flooding. For these reasons, it is more and more important to study of sediment production in urban watershed for properly analyze and solve problems associated to sediments. The study of sediments production has improved with the use of mathematical modeling. For that reason, it is proposed a new physically based model applicable to small header urban watersheds that includes the advantages of distributed physically base models, but with more realistic data requirements. Additionally, in this paper the model proposed is compared with a lumped model, reviewing the results, the advantages and disadvantages between the both of them.

Keywords : erosion, hydrologic modeling, urban runoff, sediment modeling, sediment yielding, urban planning
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