

## **Application of an XML-based genetic algorithm to a rainfall–runoff erosion model**

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**Abstract** Optimization is a common problem in hydrological sciences and Genetic Algorithms (GA) are one approach to manage this problem. This paper presents an application of a configurable and portable GA that uses the eXtensible Markup Language (XML) to solve an optimization problem. The paper describes an application for the calibration of the Watershed Erosion Simulation Program (WESP) model to optimize erosion parameters for estimating sediment yield. The calibration of a rainfall–runoff–erosion model requires finding optimal model parameters. The results show that the XML-based GA tool efficiently defined the WESP erosion parameters. Since any application or platform capable of processing XML could utilize this tool, it may be an important alternative for solving other water resources problems.

**Key words** XML; genetic algorithms; rainfall–runoff–erosion simulation; WESP model; optimization of parameters

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