

## **Multiobjective procedure for calibration of hydrologic models using SWARM paradigm**

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**Abstract.** In any hydrologic model calibration is a must in order for the model to adapt to the particular catchment characteristics. A multiobjective optimization methodology is devised, tested, and applied for parameter estimation problems. The current approach extends a relatively new optimization algorithm, known as Particle Swarm Optimization (PSO), to deal with multiobjective problems. The new algorithm, known as Multiobjective Particle Swarm Optimization (MOPSO), has been applied on test problems as well as two very different kinds of modeling efforts in hydrology. In the first application a well-known conceptual rainfall-runoff (CRR) model, the Sacramento Soil Moisture Accounting (SAC-SMA) model for estimating streamflow is calibrated. MOPSO is further applied to calibrate three parameters of Support Vector Machines (SVM) model for predicting soil moisture. PSO algorithm though exhibits various properties common to genetic algorithms, has seen to perform better than GA's, and is relatively easier to implement.

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