



SWAT calibration and uncertainty assessment in parallel using a Python tool

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The partly-deterministic and semi-distributed soil and water assessment tool (SWAT) is the most widely used model to quantify water resources changes in rural areas. Calibration and uncertainty assessment are fundamental when dealing with such complex model. There are many algorithms available to fulfill this necessity, however they differ in their underlying assumptions made. SPOTPY is a Python tool that enables the use of diverse techniques for calibration, uncertainty and sensitivity analysis of models in general. Once the user connects the model with SPOTPY, testing the effect of different strategies for model parameterization and analyzing the model performance is straightforward. Additionally, the possibility of running SPOTPY in parallel is crucial when dealing with complex projects. The tool is an open-source package that runs on Windows, Linux and Mac. This study presents a short way to link SPOTPY and SWAT and shows the outcomes of this integration. Our results illustrate the benefit of having one tool at hand to quantify different sources of uncertainty throughout the modelling. We further show the impact of the choice of different objective functions on the uncertainty estimation.