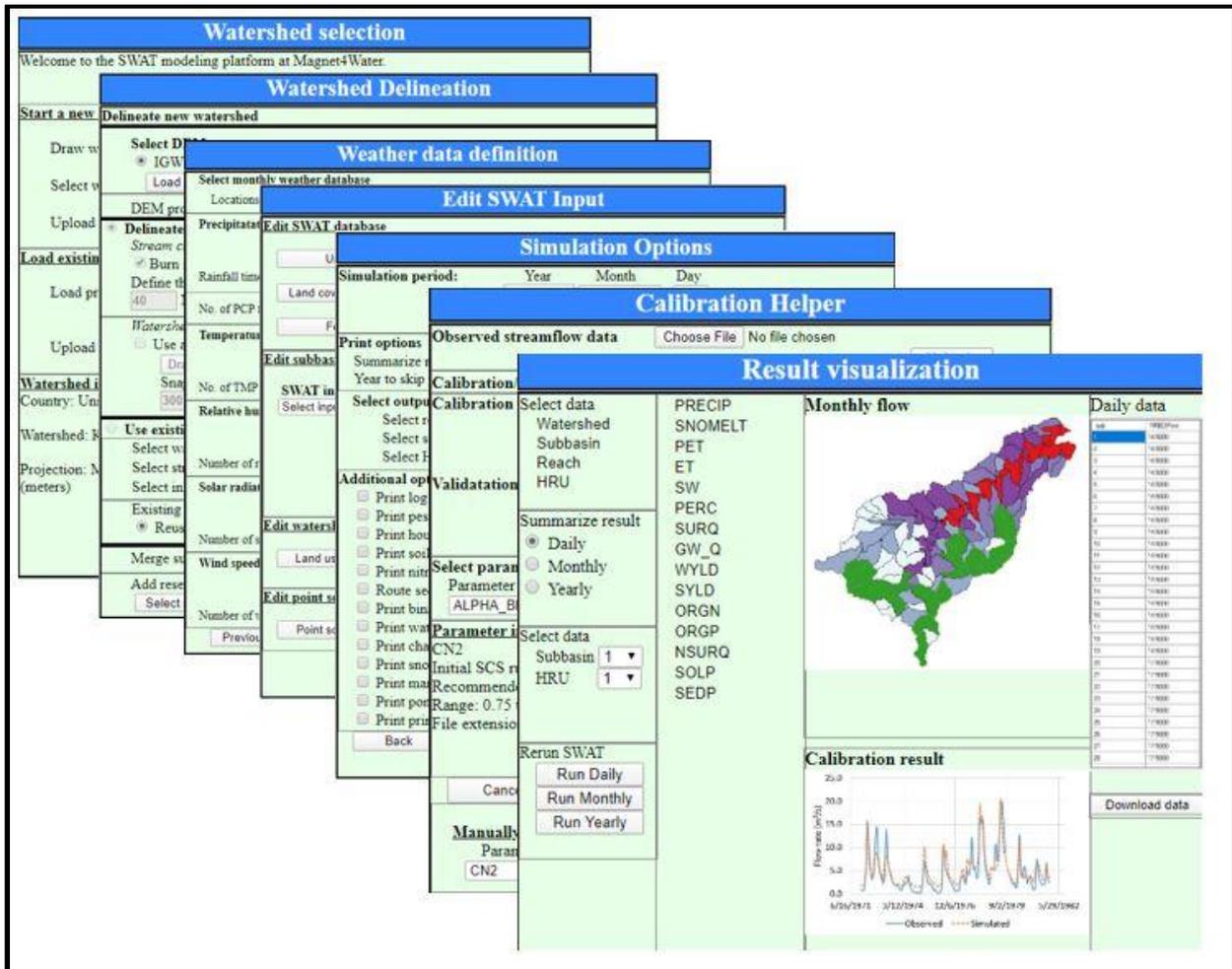# Realtime Interactive Watershed Modeling

A web-based, data-enabled, real-time interactive SWAT platform for watershed simulation

(Version 1 COMING SOON)

MAGNET-SWAT is a web-based data-enabled platform for realtime interactive use of the Soil and Water Assessment Tool (SWAT). SWAT is a small watershed to river basin-scale model used to simulate the quality and quantity of surface and subsurface water and predict the environmental impact of land use, land management practices, and climate change. The unique aspect of MAGNET-SWAT is that users spend very little time building the model, but can rather spend most of their time focusing on management scenario analysis, stress evaluation, and hypothesis testing, This is because MAGNET-SWAT is realtime interactive (model parameters, results, and analyses are displayed throughout the simulation process) and data enabled (pre-processed spatial framework data and calibration data are dynamically live-linking to the modeling tools).

There are three ways users can build models with MAGNET SWAT.
1. MAGNET-SWAT provides pre-processed watershed-level SWAT models, which user can select through an interactive map.
2. Users can create a new SWAT project and delineate their own watershed, similar to the SWAT desktop version.
3. Users can upload their own SWAT models for calibration and better visualization.

Once a watershed model is created, users can modify input parameters and update the model. Moreover, user can upload weather data, observed data streamflow or water quality data and perform model calibration through interactive process in real time. Finally, users can visualize and download results in desired format.

In short, MAGNET-SWAT allows users to:

- Select pre-processed SWAT models with predefined subbasins and HRUs
- Delineate a new watershed, similar to the desktop version of SWAT
- Upload own swat model for modification, calibration and visualization
- Upload observed data and perform calibratin in real-time
- Visualize the SWAT output results in an interactive way
- Download the final result in graphical or tabular format