

# Automated Geospatial Watershed Assessment Tool (AGWA)

USDA-ARS researchers and partners from the U.S. Environmental Protection Agency (EPA) and the University of Arizona developed a new computer model and tool that helps keep our nation's watersheds cleaner. More than 80 percent of our fresh water comes from watersheds. Watersheds collect water from various sources—like rain, snow, or runoff—which drains into nearby waterways such as lakes, streams and rivers.

The Automated Geospatial Watershed Assessment (AGWA) tool is a multipurpose computer system and software designed for managing and analyzing water quantity and quality. Prior to AGWA, no such tool existed. Today, there are more than 1,600 registered users in 146 countries.

AGWA is flexible—capable of using data from many sources. The team designed AGWA to facilitate the assessment of land use and climate change impacts on water yield and quality. It combines two other USDA-ARS-developed watershed runoff and erosion models, the Kinematic Runoff and Erosion Model and the Soil and Water Assessment Tool, and incorporates already available topographic, soil and land-cover data. AGWA uses internationally available datasets to characterize a particular watershed. AGWA enables the user to visualize and compare model results using a geographic information system (GIS) software package for display and analysis. With GIS, a user can link AGWA to other types of information, which permits the user to understand the impact of a certain practice on a given landscape.

AGWA can be used to predict land management practices on water. For example, AGWA can estimate the trends and magnitude of soil sediment effects and chemical yields. Land use in our nation's watersheds is complex and varied—ranging from crop production areas to rangelands, pastures, forests, meadows and even urban areas. How we manage the activities that take place on watersheds influences the quantity and quality of water available for domestic, industrial, agricultural and ecological uses. For the first time, decision makers, land managers, farmers, environmentalists and others have a single, comprehensive tool that can provide a long-range model to evaluate large, complex watersheds with varying soils, land uses and management conditions—and their related environmental and economic impact. AGWA is available free of charge at: [www.tucson.ars.ag.gov/agwa](http://www.tucson.ars.ag.gov/agwa).

EPA and USDA Natural Resources Conservation Service specialists use AGWA to develop sound policies for managing water. This technology supports the USDA Secretary's

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