

WATERSHED MANAGEMENT AND GIS: THE AUTOMATED GEOSPATIAL WATERSHED ASSESSMENT TOOL (AGWA) 2.0

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Abstract Utilizing GIS for the delineation, discretization, and parameterization of distributed hydrologic models is not new, but it is just as effective as ever. The Automated Geospatial Watershed Assessment (AGWA) tool was an early groundbreaker in GIS-based hydrologic modeling, incorporating the event-based Kinematic Runoff and Erosion (KINEROS2) and the daily time step, continuous Soil Water Assessment Tool (SWAT) models to perform hydrologic modeling and watershed assessments at a range of spatiotemporal scales. AGWA was originally developed as an extension for ESRI ArcView 3.x, but has continually evolved to meet the needs and demands of its users and has been available for ESRI ArcGIS 9.x since late 2007. Watershed and natural resource managers, scientists, and stakeholders with a technical background ranging from the beginner to the expert in GIS, hydrology, or related fields can all take advantage of the tools AGWA has to offer because of its intuitive interface designed to make the user experience as transparent as possible. A digital elevation model (DEM) is used for watershed delineation and discretization, standardized soils (SSURGO, STATSGO, or FAO) and land cover data (MRLC, NALC, SWGAP, or user-defined) layers are used for model element parameterization, and observed or generated rainfall data is used to drive the models. The chosen model is then executed and the results are imported back into the GIS for visualization and analysis of areas of interest. AGWA is designed for relative change analysis and includes several powerful tools and features to facilitate this such as tools for land cover and weather/climate change, post-fire watershed assessment, and the ability to difference results from alternative input scenarios. These tools facilitate planning, predicting, and managing responses to climate, vegetation, and urban (development) change. AGWA 2.0 for ArcGIS 9.x will be presented with demonstrations of several tools and features.