



USDA-CSREES 2006 National Water Quality Conference

AUTOMATED GEOSPATIAL WATERSHED ASSESSMENT (AGWA): A GIS-BASED HYDROLOGIC MODELING TOOL FOR WATERSHED ASSESSMENTS

The Automated Geospatial Watershed Assessment (AGWA, see: www.tucson.ars.ag.gov/agwa) is a GIS interface jointly developed by the USDA Agricultural Research Service, the U.S. Environmental Protection Agency, the University of Arizona, and the Univ. of Wyoming to automate the parameterization and execution of the Soil Water Assessment Tool (SWAT) and KINEmatic Runoff and EROSIon (KINEROS2) hydrologic models. By employing these two models AGWA can conduct hydrologic modeling and watershed assessments at multiple time and space scales. AGWA uses commonly available, national, GIS data layers to fully parameterize, execute, and visualize results from both the SWAT and KINEROS2. Through an intuitive interface the user selects an outlet from which AGWA delineates and discretizes the watershed using a Digital Elevation Model (DEM). The watershed model elements are then intersected with soils and land cover data layers to derive the requisite model input parameters. The chosen model is then run, and the results are imported back into AGWA for graphical display. This allows managers to identify potential problem areas where additional monitoring can be undertaken or mitigation activities can be focused. AGWA can difference results from multiple simulations to examine relative change over a variety of input scenarios (e.g present conditions, future conditions, land cover change and application of best management practices). The AGWA tool is being further developed for online decision support (DotAGWA) to provide ready access to environmental decision-makers, resource managers, researchers, and user groups. In addition, a variety of new capabilities have been incorporated into AGWA. They include handling FAO soils for international application; pre- and post-fire watershed assessments; and, multiple options for user defined land cover change and implementation of different best management practices. An overview of AGWA and these capabilities will be presented and demonstrated.

Author: David Goodrich

Coauthor(s): D. Phillip Guertin William Kepner Darius Semmens Scott Miller