



USDA-CSREES 2007 National Water Quality Conference

Arizona NEMO: GIS Applications and AGWA Modeling for Integrated Watershed Management

The goal of Arizona Nonpoint Education for Municipal Officials (NEMO) is to facilitate better management of nonpoint source pollutants and land use decisions on a watershed scale throughout Arizona. In partnership with and funded by the Arizona Department of Environmental Quality (ADEQ), NEMO is also supported by the University of Arizona, Technology and Research Initiative Fund (TRIF), Water Sustainability Program through the Water Resources Research Center. NEMO provides watershed groups with technical support, GIS mapping, and watershed-based plans which characterize the watersheds and recommend best management practices. In addition, the watershed-based plans classify subwatersheds based on risk of water quality degradation using hydrologic modeling, ADEQ water quality data and geographic information systems (GIS) analysis. The hydrologic modeling is performed with the Automated Geospatial Watershed Assessment tool (AGWA) (www.tucson.ars.ag.gov/agwa) and the Soil and Water Assessment Tool (SWAT) (www.brc.tamus.edu/swat/) to model runoff and sediment yield. AGWA is an extension for ArcView 3.x that uses GIS data layers such as digital elevation models, soils, and land use, to parameterize and run the SWAT model. SEDMOD/RUSLE, used to determine erosion from mine sites for potential metals pollution, is run in ArcInfo Workstation. Decision support tools, including Fuzzy Logic and the Analytical Hierarchical Process (AHP) are incorporated into the subwatershed risk classification process. This presentation will highlight the AGWA modeling effort with examples from the Upper Agua Fria watershed in central Arizona.

Author: Kristine Uhlman
University Affiliation: University of Arizona
Co-Author(s): Phil Guertin and Lainie Levick