

**DEMONSTRATING THE CAPABILITIES OF THE AGWA-KINEROS SUITE OF  
MODELING TOOLS: OPERATIONAL FLASH FLOOD FORECASTING AND  
ASSESSING THE IMPACTS OF MANAGEMENT ON NITRATE AND PESTICIDE  
RUNOFF FROM AN AGRICULTURAL WATERSHED**

**Carl L. Unkrich, Hydrologist, USDA Agricultural Research Service (ARS), Tucson, AZ,  
carl.unkrich@ars.usda.gov; Jamie Massart, The Univ. of Arizona (UA), Tucson, AZ,  
jmassart@email.arizona.edu; Shea Burns, USDA ARS, Tucson, AZ,  
shea.burns@ars.usda.gov; Roger E. Smith, Retired, USDA-ARS, Ft Collins, CO,  
gedrathsmith@q.com; David C. Goodrich, USDA ARS, Tucson, AZ,  
dave.goodrich@ars.usda.gov; Phil Guertin, UA, Tucson, AZ, phil@snr.arizona.edu;  
Michael Schaffner, NOAA National Weather Service, Johnson City, NY,  
mike.shaffner@noaa.gov.**

**Abstract** This poster and computer demonstration illustrates the wide range of applications that are possible using the KINEROS - AGWA suite of modeling tools. The first application is a site-specific real-time flash flood forecast model developed for use in National Weather Service Weather Forecast Offices (NWS WFOs). The demonstration will use the same graphical user interface as deployed in the NWS WFOs where the system is being evaluated. The time-compressed simulation will show how the model can adapt dynamically to forecasted changes in rainfall and storm characteristics. The second application is an assessment of how crop rotations and plowing, fertilizer and pesticide schedules can affect the nitrate and pesticide levels in runoff from a small agricultural watershed. A user interface will show concurrent time series of nitrate and pesticide concentrations in runoff produced by different management scenarios.