



USDA-CSREES 2006 National Water Quality Conference

[Airborne Remote Sensing for Watershed-Scale Assessments of Land Use and Conservation Practices on Water Quality](#)

To evaluate the impact of conservation practices within the southern Coastal Plain, a collaborative relationship between the Flint River Water Planning and Policy Center at Albany State University and the USDA-ARS Southeast Watershed Research Lab (SEWRL) has been established. Many of the potential conservation benefits can only be evaluated through watershed-scale computer modeling. To provide the most accurate models, detailed data regarding hydrology, soil, weather and land use must be collected. While many of these variables are readily available, timely and accurate land use information often limits the application of watershed models. Airborne and satellite remote sensing applications show great promise as tools to capture land use changes throughout the year. Thus a major focus of this research is to evaluate satellite and aircraft derived land use maps as input for watershed scale models. Monthly airborne and bimonthly satellite data are collected in the Little River Experimental Watershed (LREW) in south-central Georgia using the aircraft mounted SpectraView® Multi-Spectral Imaging System and NASA's Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER). The LREW covers nearly 130 square miles and is subdivided with stream gage and precipitation stations at each of seven sub-watersheds. Intensive agricultural production near-year round necessitates frequent land use assessments that extend beyond the traditional growing season. Monthly land use surveys in three sub-watersheds are being used to provide additional ground cover information and assess the derived land use maps. Once satisfactory land use maps have been produced, these data will be used to calibrate watershed models. Further, we can begin to assess trends in carbon sequestration by soil, crop management practice, calibrate water quality models, and assess the relative impact of conservation practices on water quality and quantity. Most importantly, data will provide policy makers with accurate information regarding the economic and environmental effects of conservation practices.

Author: Mark Masters

Coauthor(s): Dana Sullivan Marty McKimmey