

HYDROLOGIC IMPACT OF AGRICULTURAL MANAGEMENT AND CLIMATE IN THE LITTLE RIVER EXPERIMENTAL WATERSHED

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Science has evolved toward a new era of data abundance, where empirical evidence is available more than ever to build and support conclusions about agricultural biophysical systems that are increasingly subject to spatiotemporally varying climate and land management drivers. Research in the USDA Little River Experimental Watershed (LREW) in Tifton, GA has provided more than 50 years of hydrological, climatological, and agricultural data, which has been frequently applied to enhance our collective understanding of agroecological systems across scales. Ongoing LREW research data are integrated with modeling efforts to help improve regional and national characterizations of agriculturally relevant data products. These products have important implications for evaluating physical and biological responses to alternative agricultural management practices as well as climate change impacts. In this study, we used our large multi-disciplinary datasets to evaluate how conservation management practices (i.e., conservation tillage and winter covers) and anticipated changes in rainfall and temperature will impact water quantity and quality in a sub-basin of the LREW across time and space. These relationships were modeled statistically for the purpose of informing and refining process-based models, like SWAT, and to advance our comprehensive understanding of the hydroclimatic-agronomic system at both local and regional scales.

PRESENTER BIO: Dr. Pisarello is a research scientist and lead modeler for the Southeast Watershed Research Laboratory at USDA-ARS in Tifton, GA. She specializes in statistically evaluating agricultural, hydroclimatological, and socioeconomic systems from an interdisciplinary, multiscale perspective. She also supervises the unit's multi-disciplinary database management effort.