

Hydrologic Characteristics of the Little River Experimental Watershed

David Bosch, Joe Sheridan, Randy Williams

Abstract

The USDA-ARS, Southeast Watershed Research Laboratory (SEWRL) in Tifton, Georgia has collected over 30 years of hydrologic and climatic data from the 334 km² Little River Watershed (LRW). The SEWRL collects hydrologic and water quality data representative of the Gulf-Atlantic Coastal Plain region of the southeastern United States. The LRW is typical of the heavily vegetated, slow-moving stream systems in the region. Hydrologic data are available from up to eight watersheds ranging in area from 2.6 to 334 km². LRW long-term hydrologic budgets have established that approximately 30% of the watershed precipitation leaves as streamflow. This includes both surface runoff and shallow groundwater flow that contributes to streamflow. Field studies indicate the surface runoff component varies from 7 to 20% of precipitation while shallow return flow varies from 3% to 22%. Peak flow and minimum flow characterizations using standard USGS procedures show considerable variability in the streamflow. Flow distribution curves and basic statistical characterizations of extreme events on the watersheds have been determined. Generalizations relating watershed yield to watershed drainage area along with expressions relating annual streamflow to annual precipitation illustrate differences between this region and other areas of the U.S. The SEWRL is currently testing predictive relationships and physically-based watershed models to simulate the streamflow in the region.

Keywords: streamflow, watersheds, runoff

Bosch, Sheridan, and Williams are with the USDA-ARS, Southeast Watershed Research Lab, Tifton, GA 31794.

E-mail: dbosch@tifton.usda.gov.