

SIMULATION OF THE GROUNDWATER BUDGET IN SOUTHWESTERN GEORGIA AND PARTS OF ALABAMA AND FLORIDA, 2008-12

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REFERENCE: *Proceedings of the 2017 Georgia Water Resources Conference*, held April 19-20, 2007, at the University of Georgia

In the lower part of the Apalachicola–Chattahoochee–Flint River (ACF) basin, groundwater in the Upper Floridan aquifer is the primary source for agricultural irrigation and public supply, and is vital to the regional economy. The primary goal of the ACF Basin Focus Area Study of the USGS Water Census is to evaluate water availability in the watershed in as fine detail as possible. A MODFLOW groundwater model is being developed to better understand the dynamics of the groundwater-flow system and to assess the flow of water in the Upper Floridan aquifer to and from streams and to pumped wells. The groundwater model will simulate aquifer-stream flow to and from the main-stem rivers and to 118 tributary streams represented as flow boundaries. Monthly estimates of recharge to the Upper Floridan aquifer in the lower ACF will be obtained from a PRMS (Precipitation-Runoff Modeling System) watershed model of the entire ACF basin. Groundwater-withdrawal rates for irrigation in Georgia will be estimated using an extensive network of agricultural water meters. Agricultural groundwater use in Florida and Alabama will be estimated using available meter data and user-supplied records. Monthly groundwater budget components for 2008–12 will be simulated for the entire model area and for six subbasins within the ACF. Groundwater storage loss and inflows from recharge, surface waters (rivers and lakes), and regional boundaries will be balanced with groundwater storage gain and outflows to surface waters (rivers, streams, swamps, and lakes), wells, and regional boundaries. Preliminary results of the groundwater model will be presented.

Program reference: 3.3.3