Ground-Water Information and Project Support

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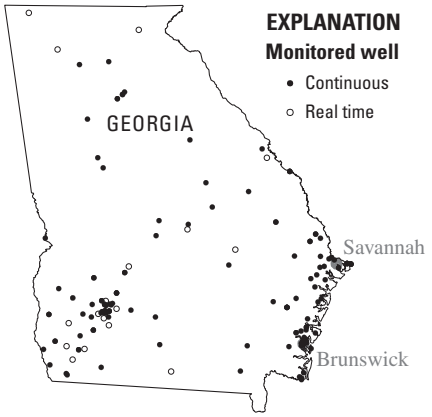
St. Johns River Water Management District, Florida

Year Started 1938



Problem

Ground water supplies about 22 percent of freshwater withdrawals in Georgia—more than 1.2 billion gallons per day during 1985. More than 1.9 million people are served by ground-water supplies, and 752 million gallons per day are withdrawn for irrigation (Fanning and Trent, 2009). The distribution and quality of ground water are highly variable and directly related to geology and natural and human stresses. Monitoring ground-water levels and ground-water quality is essential for the management and development of this resource.

Objectives

- Collect ground-water-level and ground-water-quality data to assess the quantity, quality, and distribution of ground water.
- Provide data to address water-management needs and evaluate the effects of national and local management and conservation programs.
- Contribute data to national databases that will be used to advance the understanding of regional and temporal variations in hydrologic conditions.

Progress and Significant Results, 2006–2007

- Continuous water-level recorders were operated in 186 wells during 2006 and 182 wells during 2007. An additional 10 wells were instrumented with real-time transmission (satellite relay) of continuous water-level records, increasing the network to 29 real-time sites. Three of the real-time sites in the coastal area were equipped to monitor specific conductance. All of the data can be accessed through the National Water Information System (NWIS) database on the Web at *http://waterdata.usgs.gov/ga/nwis/current/?type=gw*.
- Periodic water-level measurements were made in more than 3,615 wells to define potentiometric surfaces and to assess long-term trends.
- Water samples for chloride analyses were collected from 72 wells during 2006 and 68 wells during 2007 in the Brunswick area, and from 4 wells in the Savannah area and 8 wells in Camden County.
- Borehole geophysical logs were collected in 13 wells in northern Georgia and in 7 wells in southern Georgia. Data from these wells are available on the Web at *http://ga2.er.usgs.gov/geologs/*.
- Well-inventory, water-level, and geologic data were verified for entry into the NWIS database. Field inventories of well sites were conducted to assist projects, and 104 sites were added to the NWIS Ground-Water Site Inventory to improve ground-water data coverage in the State. The NWIS database can be accessed on the Web at *http://waterdata.usgs.gov/ga/nwis/inventory/*.

Reference

Fanning, J.L., and Trent, V.P., 2009, Water Use in Georgia by County for 2005; and Water-Use Trends, 1980–2005: U.S. Geological Survey Scientific Investigations Report 2009–5002, 186 p.; Web-only publication available at *http://pubs.usgs.gov/sir/2009/5002/*.

Leeth, D.C., Peck, M.F., and Painter, J.A., 2007, Ground-water conditions and studies in Georgia, 2004–2005: U.S. Geological Survey Scientific Investigations Report 2007–5017, 299 p., CD–ROM; also available at *http://pubs.usgs.gov/sir/2007/5017/*.

Hydrologic technicians set up a real-time continuous recorder in Glynn County, Georgia, to monitor water-levels and specific conductance. The site is a multipoint well completed in the upper and lower water-bearing zones of the Upper Floridan aquifer. The equipment consists of a data logger, two 30-pounds-per-square-inch transducers to record water levels, an electric pump, and a specific conductance probe. Water levels are measured hourly and specific conductance once-per-day and transmitted by satellite telemetry. Photo by Alan M. Cressler.

A hydrologic technician from the Ground Water Information and Project Support unit is monitoring the specific conductance prior to collecting a water sample for chloride analysis. The well is completed in the Lower Floridan aquifer and is allowed to free flow for 1 hour before a sample is collected. Samples are collected annually in support of the Brunswick and Glynn County Cooperative Water Resources Program. Photo by Alan M. Cressler.

A hydrologist prepares to open a well completed in the Upper Floridan aquifer to collect a water sample. The well, located along the East River in Brunswick, Georgia, can only be accessed during high tide and is allowed to flow for 24 hours before a sample is collected. Samples are collected annually in support of the Brunswick and Glynn County Cooperative Water Resources Program. Photo by Alan M. Cressler.

A hydrologic technician from the Ground Water Information and Project Support unit collects a water sample from a well in the Mayhaw Wildlife Management Area, Miller County, Georgia. The well is a reference site that is not affected by agricultural practices, and samples are analyzed for helium for age dating of the water. Photo by Alan M. Cressler.