

Geochemistry of the Floridan Aquifer System in Florida and in Parts of Georgia, South Carolina, and Alabama

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REGIONAL AQUIFER-SYSTEM ANALYSIS—FLORIDAN AQUIFER SYSTEM

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the Upper Floridan aquifer is dominated by the dynamic nature of the flow system. In unconfined areas, large volumes of dilute water recharge the system, dissolve minerals in the aquifer matrix, and enhance permeability. In coastal areas, mixing of freshwater with seawater creates the potential for calcite and dolomite dissolution or precipitation, depending on the ratio of freshwater to seawater in the mixture. In areas where flow is more sluggish, concentrations of major elements are increased by dissolution of gypsum or mixing with residual saline water. Ion exchange and sulfate reduction are plausible reaction models in parts of the system. Reaction models indicate that a nonzero carbon flux occurs in almost all parts of the system; this complicates the use of ^{14}C measurements to determine ground-water-flow velocities.

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