POTENTIOMETRIC MAP OF THE FLORIDAN AQUIFER AND TERTIARY SAND AQUIFER IN SOUTH CAROLINA - 1998

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ABSTRACT

The potentiometric surface of the Floridan aquifer is highly variable, with some regions displaying seasonal or interannual changes due to recharge from surface water. This report presents a map of the potentiometric surface of the Floridan aquifer in South Carolina, using water-level data from 364 wells measured during late 1998. The map shows the general trend of ground-water flow from north to south, with declines in water levels occurring in Barnwell, Beaufort, Berkeley, Charleston, and Charleston counties. The potentiometric surface is lower than -70 ft msl near Savannah and is the lowest measured near Savannah, Salkehatchie, and Little Salkehatchie Rivers, and the North and South Forks of the Edisto River. In the southeastward regional ground-water flow. Water levels in Aiken, Barnwell, and northern Allendale Counties are not the greatest. Elsewhere, data were used from wells in the Tertiary sand aquifer.

INTRODUCTION

The Floridan aquifer is the principal aquifer in the southeastern Coastal Plain of the United States. It extends from North Carolina to Florida and is composed of carbonate rocks of the late Cretaceous and younger ages that were deposited on a pre-Cretaceous basement complex of metamorphic, igneous, and consolidated sedimentary rocks. The Floridan aquifer generally includes the Cooper Formation, the Ocala Limestone, and the Santee Limestone and is overlaid by Tertiary sediments.

The boundaries of the Floridan aquifer and the Tertiary sand aquifer used in this investigation are those defined by Aucott and Speiran (1985a, 1985b) and Aucott (1996). Regional maps presented were constructed by using data from 1991-1993, published by Gawne (1997).

METHOD OF INVESTIGATION

The potentiometric surface shown on this map was defined by Aucott, Davis, and Speiran (1984), the first definition of the potentiometric surface in this area. In 1998, the potentiometric surface was defined by Aucott, Davis, and Speiran (1998) using data collected in late 1998.

GEOHIDROLOGIC FRAMEWORK

The Coastal Plain Formation of South Carolina has a entrenched channel system that begins from the fall line and extends seaward to include a number of sand ridges. The ridges are separated by depressions that are filled with sand and gravel. The Coastal Plain Formation is composed of sand and gravel that are primarily of eolian origin, and it is overlain by Tertiary sediments.

The potentiometric surface of the Floridan aquifer in South Carolina shows the general trend of ground-water flow from north to south, with declines in water levels occurring in Barnwell, Beaufort, Berkeley, Charleston, and Charleston counties. Water levels in Aiken, Barnwell, and northern Allendale Counties are not the greatest. Elsewhere, data were used from wells in the Tertiary sand aquifer.

GROUND-WATER FLOW

The potentiometric surface of the Floridan aquifer is highly variable, with some regions displaying seasonal or interannual changes due to recharge from surface water. This report presents a map of the potentiometric surface of the Floridan aquifer in South Carolina, using water-level data from 364 wells measured during late 1998. The map shows the general trend of ground-water flow from north to south, with declines in water levels occurring in Barnwell, Beaufort, Berkeley, Charleston, and Charleston counties. The potentiometric surface is lower than -70 ft msl near Savannah and is the lowest measured near Savannah, Salkehatchie, and Little Salkehatchie Rivers, and the North and South Forks of the Edisto River. In the southeastward regional ground-water flow. Water levels in Aiken, Barnwell, and northern Allendale Counties are not the greatest. Elsewhere, data were used from wells in the Tertiary sand aquifer.

REFERENCES


SUMMARY AND CONCLUSIONS

The potentiometric map for the Floridan aquifer in South Carolina is based on water-level data from 1991-1993, published by Gawne (1997). The potentiometric surface was defined by Aucott, Davis, and Speiran (1984) using data collected in late 1998. The map shows the general trend of ground-water flow from north to south, with declines in water levels occurring in Barnwell, Beaufort, Berkeley, Charleston, and Charleston counties. Water levels in Aiken, Barnwell, and northern Allendale Counties are not the greatest. Elsewhere, data were used from wells in the Tertiary sand aquifer.

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