

**INTRODUCTION**

A map of the potentiometric surface of the Upper Floridan aquifer in west-central Florida is prepared semiannually by the U.S. Geological Survey in cooperation with the Southwest Florida Water Management District. Maps for May and September show, respectively, the potentiometric surfaces at the times the annual low and high water-level conditions usually occur. Potentiometric surface maps have been prepared for January 1964, May 1969, May 1971 to 1974, and for May and September since 1975.

The potentiometric surface is the level to which water will rise in tightly cased wells. The surface is mapped by determining the altitude of water levels in a network of wells and is represented on maps by contours that connect points of equal altitude.

This report shows the potentiometric surface of the Upper Floridan aquifer for September 1984. Most of the water-level data were collected during September 10-14 by Survey personnel. Supplemental data were collected by other agencies and companies. The map represents water-level conditions near the end of the summer rainy season when ground-water withdrawals for agricultural use are low. Hence, the potentiometric surface is near its highest level for the year.

**SUMMARY OF CONDITIONS**

Annual and seasonal fluctuations of the potentiometric surface are shown by hydrographs in figure 1. The hydrographs generally indicate that water levels in northern areas remain fairly uniform from year-to-year and seasonally, whereas water levels in southern areas show large year-to-year and seasonal fluctuations. At the time of data collection, water levels were below the rainy season high water levels that occurred in August.

Water levels in most wells measured in September 1984 were higher than those measured in May 1984. September water levels averaged less than 1 foot higher than May levels in areas north of about latitude 28°07' and about 6 feet higher in southern areas. Rises in water levels in the north were about 2 feet or less along coastal regions and were about 7 feet or less in inland areas. Declines in water levels in the north ranged from zero to about 7 feet and occurred in scattered parts of all northern counties. In the south, rises in water levels were about 4 feet or less along coastal and extreme southern regions and about 5 to 31 feet in other southern areas. The greatest rises in water levels occurred in southern Hillsborough County where irrigation pumpage contributes to large seasonal fluctuations.

Generally, water-level changes were small between September 1983 and September 1984 in individual wells. Water levels in all wells measured in September 1984 averaged less than 1 foot lower than September 1983 levels in the north and about 2.6 feet lower in the south. Declines in water levels in most wells in the north were about 5 feet or less, whereas other wells had a rise of about 5 feet or less. Declines in water levels in most wells in the south were about 5 feet or less along coastal and extreme southern regions and about 33 feet or less in other southern areas. The largest declines occurred in southeastern Hillsborough, southwestern Polk, central Manatee, and northwestern Hardee Counties.

**SELECTED REFERENCES**

Barr, G. L., and Schiner, G. R., 1983, Potentiometric surface of the Floridan aquifer, Southwest Florida Water Management District, September 1983: U.S. Geological Survey Open-File Report 83-866, 1 sheet.

—, 1984, Potentiometric surface of the Floridan aquifer, Southwest Florida Water Management District, May 1984: U.S. Geological Survey Open-File Report 84-620, 1 sheet.

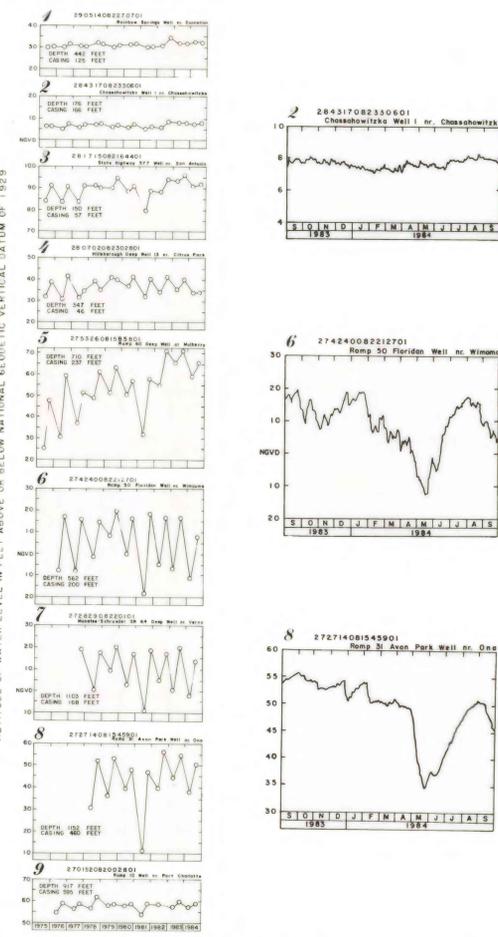


Figure 1.—Hydrographs showing May and September water levels (left column) and maximum daily water levels from September 1983 to September 1984 in selected wells (right column).

**EXPLANATION**

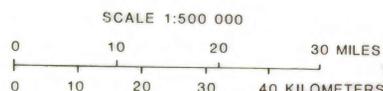
— POTENTIOMETRIC CONTOUR— Shows altitude of which water level would have stood in tightly cased wells. Contour interval 5 and 10 feet. National Geodetic Vertical Datum of 1929 (NGVD). Markures indicate depressions.

● OBSERVATION WELLS— Large number identifies hydrograph (fig. 1). Small number is altitude of 23 of water level in feet above or below NGVD.

— BOUNDARY OF SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

--- BOUNDARY OF WATER MANAGEMENT BASIN

**NOTE:** Potentiometric contours are generalized to show the water level at a point in time in a changing hydrologic system taking into account variations in hydrogeologic conditions. These include different depths of wells, nonsimultaneous measurements of water levels, variable effects of pumping, and changing climate. Potentiometric contours thus may not conform exactly with individual measurements of water levels.



**POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER,  
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT,  
SEPTEMBER 1984**

By  
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1984

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