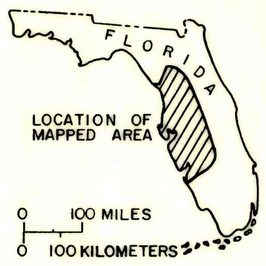
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

OPEN-FILE REPORT 84-620



INTRODUCTION

Maps of the potentiometric surface of the Floridan aquifer in west-central Florida are 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 surface of the normally expected annual low and high water-level conditions. 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 that tap the Floridan aquifer. 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 Floridan aquifer for May 1984. Data for the map were collected during May 7-18. The map represents water-level conditions before the beginning of the summer rainy season when ground-water withdrawals for agricultural use are high. Hence, the potentiometric surface is near its lowest 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, where water use is small, remain fairly uniform from year-to-year and seasonally, whereas water levels in southern areas, where water use is large, show large year-to-year and seasonal fluctuations.

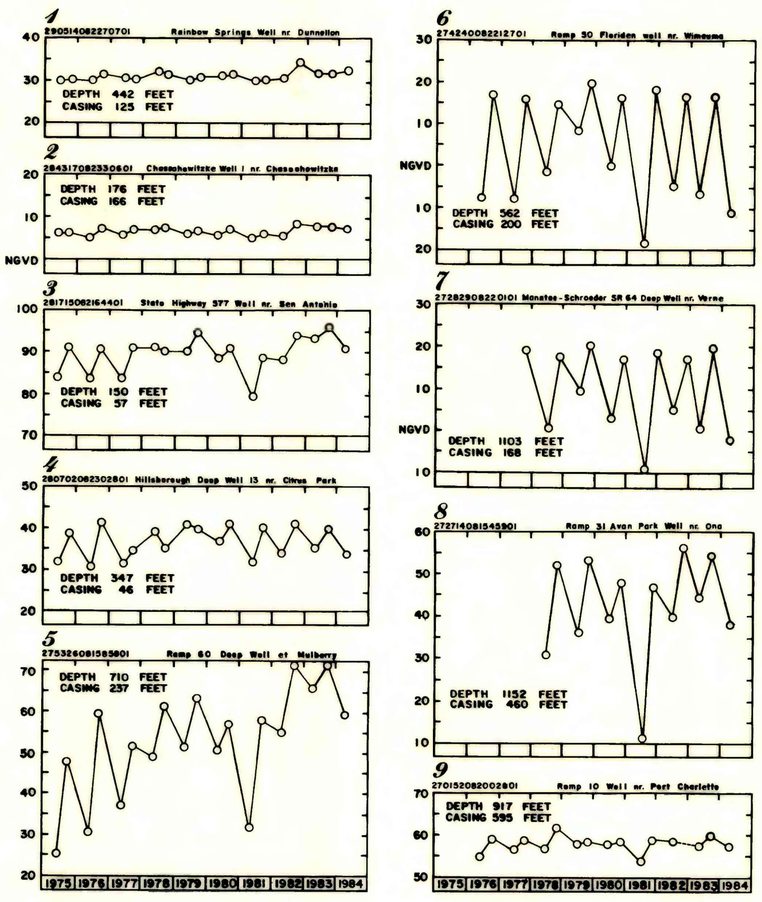
Water levels in most wells measured in May 1984 were lower than those measured in September 1983. May 1984 water levels averaged about 1 foot lower than September 1983 levels in areas north of latitude 28°07'10" and about 9 feet lower in southern areas. Water-level declines in the north ranged from zero to about 6 feet. The exceptions were water-level increases in some wells in parts of Pasco and Hernando Counties where water levels rose from zero to about 8 feet. In the south, water-level declines ranged from zero to about 5 feet along coastal and extreme southern areas and from about 5 to 39 feet in other southern areas. The largest declines occurred in southern Hillsborough County where irrigation pumpage contributes to large seasonal water-level fluctuations.

Water levels in May 1984 were generally lower than in May 1983 and averaged less than 1 foot lower than May 1983 levels in the north and about 2 feet lower in the south. Water-level changes in the north ranged from zero to declines of about 4 feet, whereas increases ranging from zero to about 6 feet were observed in some wells. Water-level declines in most wells in the south ranged from zero to about 5 feet along coastal and extreme southern regions and from zero to about 12 feet in other southern areas. The largest declines occurred in southeastern Hillsborough, southwestern Polk, northeastern Manatee, and northwestern Hardee Counties. The exceptions were water-level increases ranging from zero to 3 feet in northern Polk and most of De Soto Counties.

SELECTED REFERENCES

Barr, G. L., and Schiner, G. R., 1983, Potentiometric surface of the Floridan aquifer, Southwest Florida Water Management District, May 1983: U.S. Geological Survey Open-File Report 83-547, 1 sheet.

----- 1983, Potentiometric surface of the Floridan aquifer, Southwest Florida Water Management District, September 1983: U.S. Geological Survey Open-File Report 83-860, 1 sheet.



ALTITUDE OF WATER LEVEL IN FEET ABOVE OR BELOW NATIONAL GEODETIC VERTICAL DATUM OF 1929

Figure 1.-- Hydrographs showing May and September water levels in selected wells

EXPLANATION

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

2•8 OBSERVATION WELLS-- Large number identifies hydrograph (fig. 1) Small number is altitude 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.

SCALE 1:500 000

0 10 20 30 MILES
0 10 20 30 40 KILOMETERS

Base from U. S. Geological Survey
State of Florida map 1967 1:500 000

POTENTIOMETRIC SURFACE OF THE FLORIDAN AQUIFER, SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, MAY 1984

By
G.L. Barr and G.R. Schiner
1984

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Open-File Services Section
U.S. Geological Survey
Box 25425
Denver, Colorado 80225