

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 1983. Water-level measurements were made during May 16-27. The map represents water-level conditions when ground-water withdrawals for agricultural use are high, before the beginning of the summer rainy season. 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 remain fairly uniform from year-to-year and seasonally, whereas water levels in southern areas show large year-to-year and seasonal fluctuations. Hydrographs 1 through 9 indicate that water levels have generally recovered to near average from record low levels of May 1981.

Water levels in most wells measured in May 1983 were lower than those measured in September 1982. May water levels averaged about 1 foot lower than September levels in areas north of Hillsborough County and about 7 feet lower in southern areas. Water-level declines in the north ranged from zero to 3 feet along coastal regions and from zero to 5 feet in portions of Hernando and Pasco Counties. In the south, along coastal and extreme southern regions, water-level declines ranged from about zero to 3 feet. Water-level declines greater than 25 feet occurred in southern Hillsborough County where irrigation pumpage contributes to large seasonal fluctuations.

Generally, water levels in May 1983 were higher when compared to May 1982. Water levels in all wells measured in May 1983 averaged about 3 feet higher than May 1982 levels in the north and about 2 feet higher in the south. Water-level increases in most wells in the north ranged from zero to 2 feet along coastal regions and from zero to 9 feet in other areas. Water-level declines in the south in most wells ranged from zero to 5 feet along coastal and extreme southern regions. In other southern areas, water-level increases ranged from zero to 13 feet, with the greatest rises occurring in southwestern Polk County.

SELECTED REFERENCES

Barr, G. L., and Schiner, G. R., 1982, Potentiometric surface of the Floridan aquifer, Southwest Florida Water Management District, May 1982: U.S. Geological Survey Open-File Report 82-597.

Barr, G. L., and Schiner, G. R., 1982, Potentiometric surface of the Floridan aquifer, Southwest Florida Water Management District, September 1982: U.S. Geological Survey Open-File Report 82-1011.

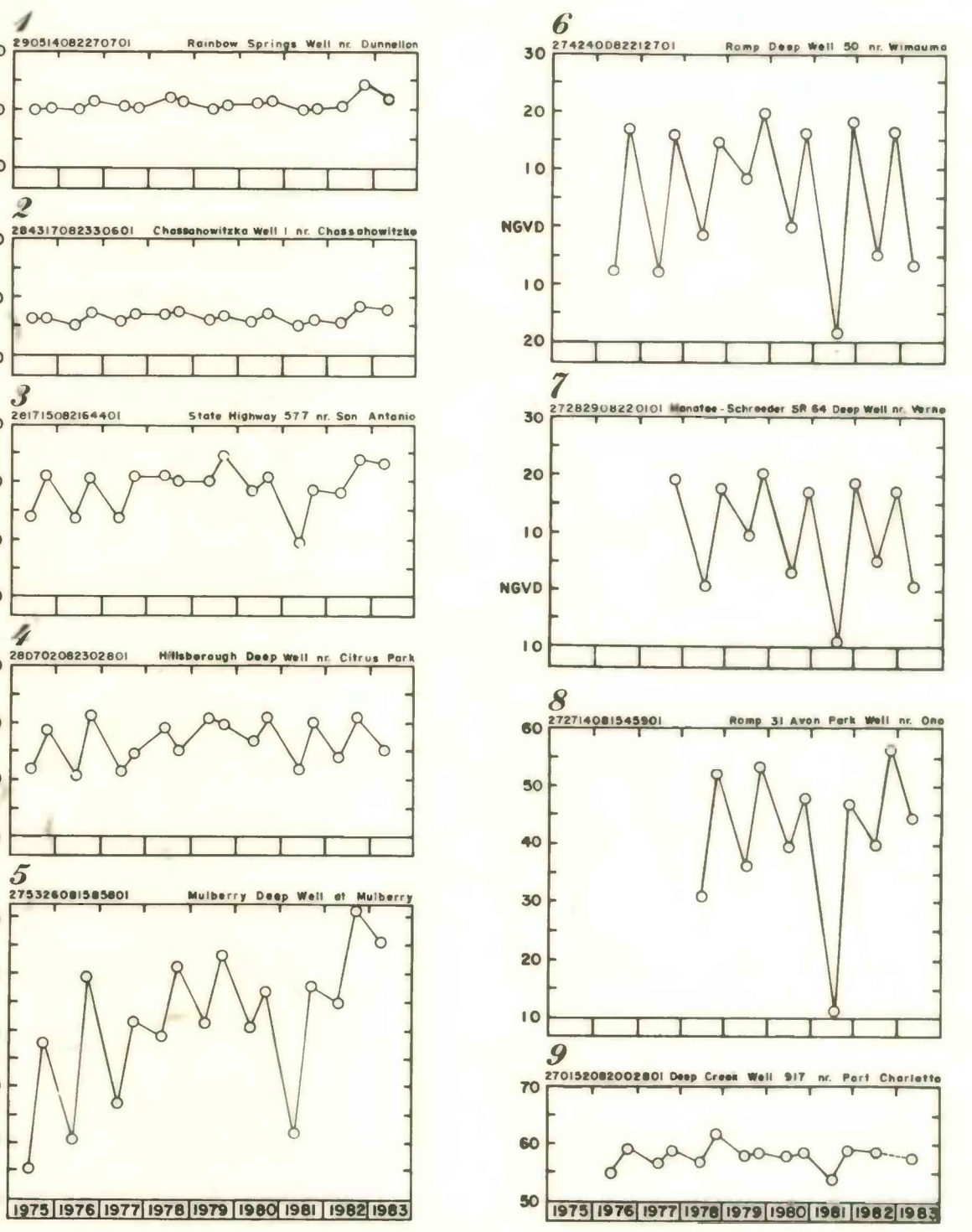


Figure 1.-- Hydrographs showing May and September water levels in selected wells

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

● 20 ● 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

**POTENTIOMETRIC SURFACE OF THE FLORIDAN AQUIFER,
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT,
MAY 1983**

By

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State of Florida map 1967 1:500 000