

**INTRODUCTION**

Map of the potentiometric surface of the Floridan aquifer in southwestern Florida was prepared 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 for the normally expected annual low and high-water level conditions. Potentiometric surface maps show how pressure for January 1982, May 1982, and May 1973 to 1975 and for the September 1982.

The potentiometric surface is the level to which water will rise in tightly cased wells that tap the Floridan aquifer. The surface is shown by connecting the altitude of water levels in a network of wells and is represented on maps by contour lines of equal altitude.

This report shows the potentiometric surface of the Floridan aquifer for September 1982. Data for the map were collected during the week of September 13-17. The map represents conditions when ground-water withdrawal for agricultural use are low, near the end of the summer water season. Hence, the potentiometric surface is near its highest level for the year.

**SUMMARY OF OBSERVATIONS**

Seasonal and annual fluctuations of the potentiometric surface are shown by hydrographs in figure 1. The hydrographs generally indicate that water levels in northern areas remain fairly constant from year-to-year and during each year, whereas water levels in southern areas show large year-to-year and annual ranges in elevation.

Water levels in most wells measured in September 1982 were higher than those measured in May 1982. September water levels from hydrographs shown in figure 1 averaged about 12 feet higher than May levels in the north and about 5 feet higher in the south. Normally, an average increase in water levels from May to September would be about 12 to 15 feet in the north and 5 to 7 feet in the south. Large differences in altitudes of water levels in southwestern Florida are affected by irrigation canals and normally large fluctuations between the dry and wet seasons are observed. In agricultural areas of southwestern Florida, Manatee, southern Polk, Hardee, southern DeSoto, and southern Alachua Counties, increases in water levels from May 1982 to September 1982 ranged from 1 to 27 feet in individual wells. In most northern counties, increases in water levels from May 1982 to September 1982 ranged from 1 to 3 feet. In parts of northern, Citrus, northern Polk, and northern southern Alachua Counties, water levels from May to September 1982 ranged from 1 to 3 feet. In parts of northern, Citrus, northern Polk, and northern southern Alachua Counties, water levels from May to September 1982 showed an average increase of about 1 foot from September 1981 to September 1982. In many parts of the study area, the above annual rainfall, reduced irrigation canals, and reduction in pumping by the phosphate industry caused water levels to rise to near or above normal elevations.

Normally, water levels in September 1982 were higher in most of the study area when compared to September 1981. Areas that had the largest increases in water levels were northern Levy, northern southern Polk, northern Citrus, northern Hardee, northern Polk, southern Alachua, southern DeSoto, southern Polk, southern Hardee, and southern Alachua. Water levels in these counties increased from 10 to 22 feet. Other parts of the study area had only slight increases or decreases in water levels.

In southwestern Alachua, southern Polk, southern Hardee, northern and western Highlands Counties, water levels from hydrographs 5 and 8 showed an average increase of more than 11 feet from September 1981 to September 1982. In southern Alachua and Manatee Counties, water levels from hydrographs 6 and 7 showed an average increase of about 1 foot from September 1981 to September 1982. Water levels from hydrographs 1, 2, 3, and 4, representative of the northern areas, showed an average increase of about 5 feet.

**SELECTED REFERENCES**

Barr, G. L., and Schiner, G. R., 1981, Potentiometric surface of the Floridan aquifer, Southwest Florida Water Management District, May 1981. U.S. Geological Survey Open-File Report 81-497, 1 sheet.

Yeh, G. T. F., and Schiner, G. R., 1982, Potentiometric surface of the Floridan aquifer, Southwest Florida Water Management District, September 1981. U.S. Geological Survey Open-File Report 82-1011, 1 sheet.

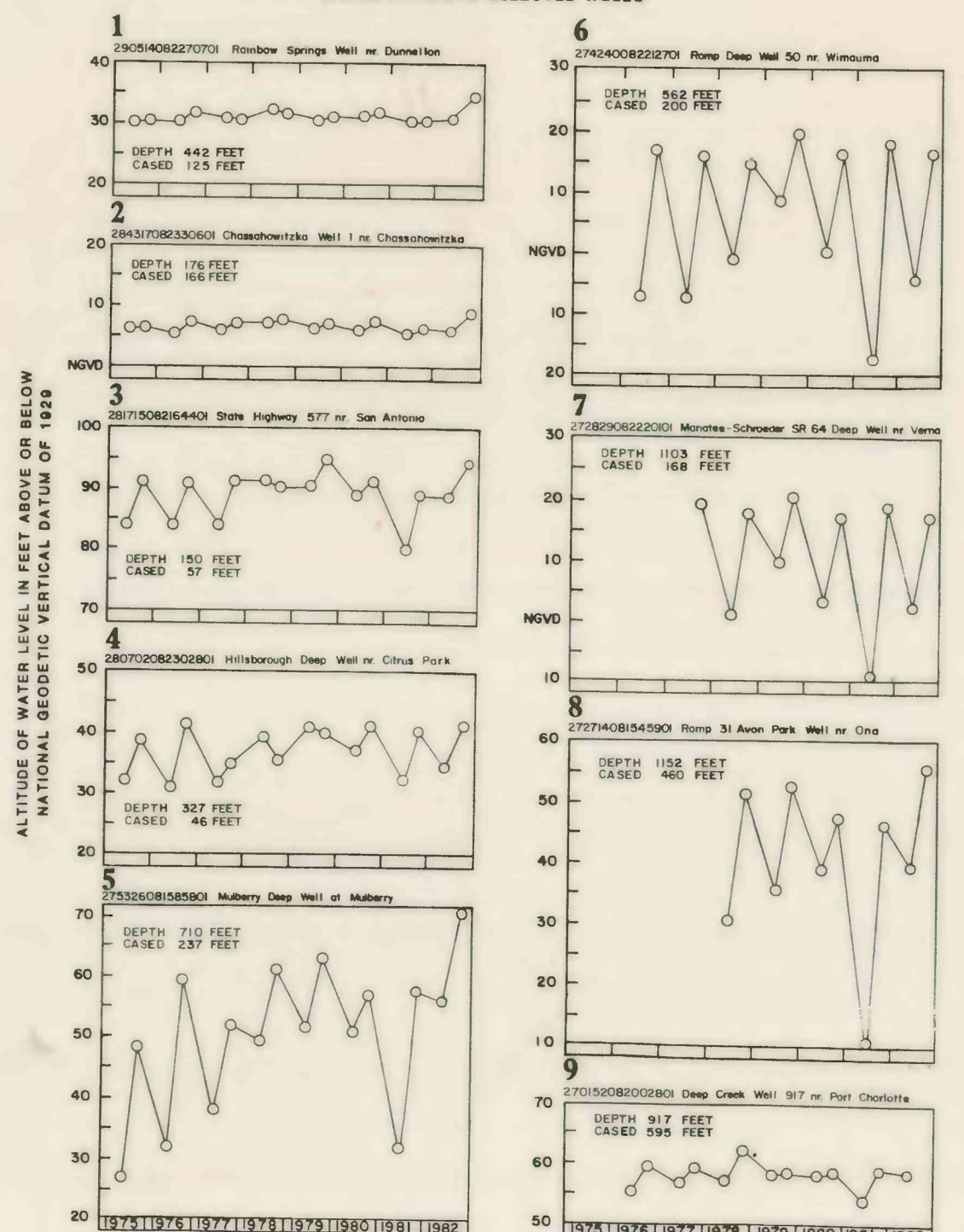


Figure 1.— Hydrographs showing May and September water levels in selected wells

**EXPLANATION**

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

20 • 2 • 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

**POTENTIOMETRIC SURFACE OF THE FLORIDAN AQUIFER  
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT  
SEPTEMBER 1982**

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

Copies of this map can be purchased from  
Open-File Services Section  
U.S. Geological Survey  
Box 25425  
Denver, Colorado 80225