

INTRODUCTION
The potentiometric surface is the level to which water will rise in tightly cased wells that tap the Upper Floridan aquifer. The surface is mapped by determining the altitude of water levels in a network of wells and is represented by contours that connect points of equal altitude. Maps of the potentiometric surface of the Upper Floridan aquifer in west-central Florida are prepared seasonally 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 of the normally expected annual low and high water-level conditions. Potentiometric-surface maps have been prepared for January 1984, May 1985, May 1971 to 1974, and for May and September since 1975.

This report shows the potentiometric surface of the Upper Floridan aquifer for September 1985. Most of the water-level data were collected during September 9-13. 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, 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. Daily maximum water levels for selected wells from September 1984 to September 1985 are shown in figure 2. In this figure, hydrographs representative of selected areas show water levels recovering from drought conditions earlier this year.

Water levels in most wells measured in September 1985 were higher than those measured in May 1985. September water levels averaged about 4 feet higher than May levels in areas north of about latitude 28°07' and about 12 feet higher in southern areas. Rises in water levels in the north were about 3 feet or less along coastal regions and were about 9 feet or less in inland areas. Some declines in water levels occurred in scattered parts of all northern counties and ranged from zero to about 5 feet. In the south, rises in water levels were about 5 feet or less along coastal and extreme southern regions and about 5 to 40 feet in other southern areas. The greatest rises in water levels occurred in southern Hillsborough County where irrigation pumping contributed to large seasonal fluctuations.

The average water-level change between September 1984 and September 1985 in individual wells was less than 1 foot; average 1985 levels were less than 1 foot lower than 1984 levels in the north and less than 1 foot higher in the south. Water levels in wells in the north showed declines of about 5 feet or less, whereas water levels in other wells rose about 5 feet or less. Water levels in wells in the south showed declines of about 5 feet or less in inland regions, with the exception of water-level rises of about 9 feet in some southern Hillsborough County wells.

SELECTED REFERENCES
Barr, G. L., 1984, Potentiometric surface of the Upper Floridan aquifer, Southwest Florida Water Management District, September 1984: U.S. Geological Survey Open-File Report 84-812, 1 sheet.
—, 1985, Potentiometric surface of the Upper Floridan aquifer, west-central Florida, May 1985: U.S. Geological Survey Open-File Report 85-482, 1 sheet.

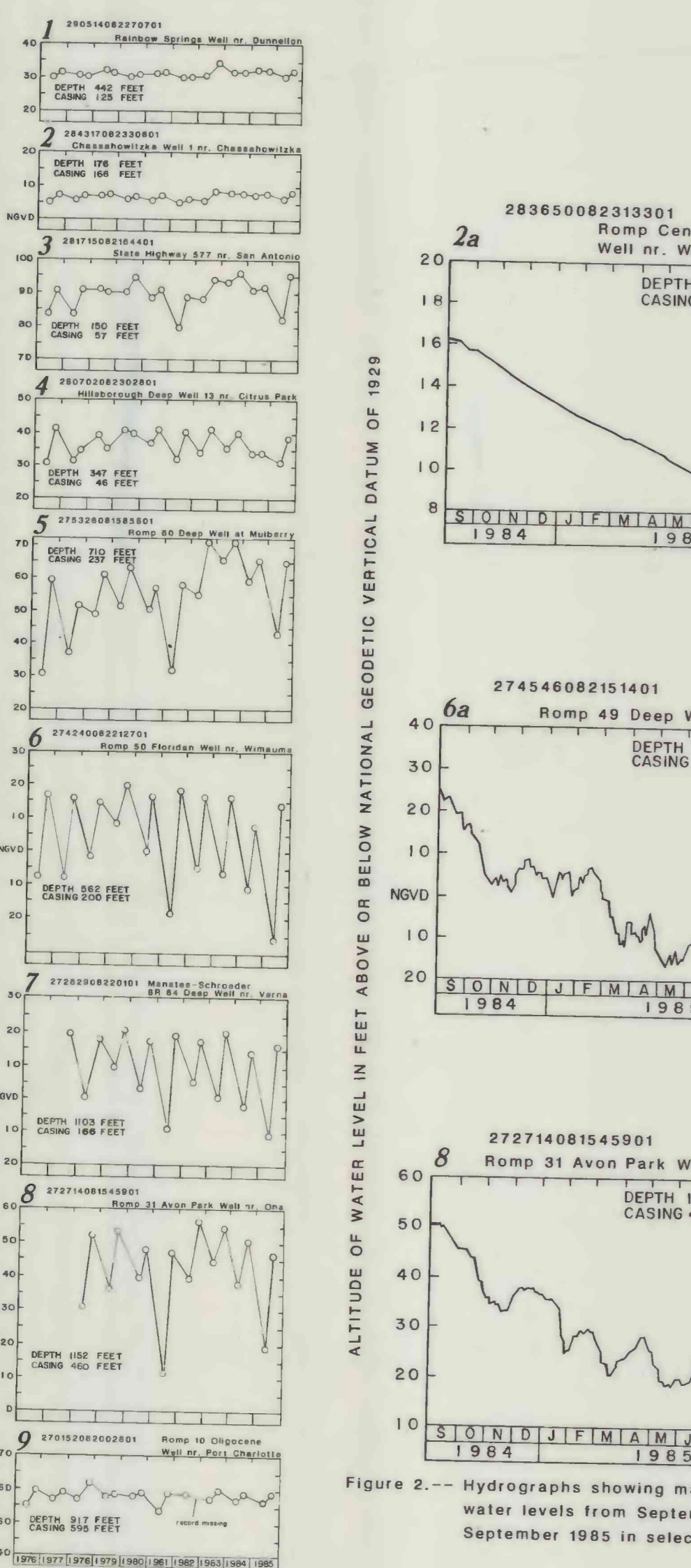


Figure 1.— Hydrographs showing May and September water levels in selected wells, 1976-85.
Figure 2.— Hydrographs showing maximum daily water levels from September 1984 to September 1985 in selected wells.

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. Dashed where approximated.
●33 OBSERVATION WELLS— Large number identifies hydrograph (fig. 1). Small number is altitude of water level in feet above or below (-) NGVD.
--- BOUNDARY OF THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
--- BOUNDARY OF WATER MANAGEMENT BASIN

NOTE: The potentiometric contours are generalized to portray synoptically the head in a dynamic hydrologic system taking due account of the variations in hydrogeologic conditions such as differing depths of wells, nonsimultaneous measurements of water levels, variable effects of pumping, and changing climatic influence. The potentiometric contours thus may not conform exactly with individual measurements of water level.

SCALE 1:500 000
0 10 20 30 40 MILES
0 10 20 30 40 KILOMETERS

POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER,
WEST-CENTRAL FLORIDA, SEPTEMBER 1985

By
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1985

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State of Florida map 1967 1:500 000