

INTRODUCTION

The potentiometric surface is an imaginary pressure surface represented by 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 level in a network of wells and is represented on maps by contour lines of equal altitude. Maps of the potentiometric surface of the Upper Floridan aquifer in west-central Florida were prepared originally by the U.S. Geological Survey in cooperation with the Southwest Florida Water Management District. Maps for May and August 1986, respectively, the potentiometric surface of the normally expected ground-water level and high water-level conditions. Potentiometric-surface maps have been prepared for January 1986, May 1986, May 1991 to 1994, and for May and September 1986.

This report shows the potentiometric surface of the Upper Floridan aquifer for September 1986. Most of the water-level data were collected during September 1986. 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 recharge 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 at selected wells are shown by hydrographs in figure 1. The hydrographs generally indicate that water levels in the south of the Hillsborough-Pasco County line (southern area) were higher than water level in the north (northern area) from year-to-year and seasonally. Water levels south of the county line (southern area) were higher than water levels in the north (northern area) in September 1986. Daily maximum water levels in selected wells from September 1985 to September 1986 are shown in figure 2. Water levels in most wells measured in September 1986 were higher than those measured in May 1986 (Barr, 1986). September water levels averaged about 1 foot higher than water levels in the north were about 2 feet or less along coastal regions and were about 4 feet or less in inland areas. Declines in water levels of 2 feet or less were observed in scattered parts of all the northern counties. In the south, rises of about 2 feet or less were observed along coastal and western southern regions and occurred in southern Hillsborough County where irrigation seepage contributed to large seasonal fluctuations.

The average water-level change between September 1985 (Barr, 1986) and September 1986 in west-central Florida was less than 1 foot. Average 1986 levels were less than 1 foot lower than 1985 levels in the north and less than 1 foot higher in the south. Water levels in individual wells in the north showed changes of 0.5 foot or less. Water levels in wells in the south showed annual declines of about 0.5 foot or less in interior regions and rises of about 1 foot or less in coastal and western southern regions.

SELECTED REFERENCES

Barr, C. L., 1985. Potentiometric surface of the Upper Floridan aquifer, west-central Florida, September 1985. U.S. Geological Survey Open-File Report 85-275, 1 sheet.

Barr, C. L., and Lewelling, B. R., 1986. Potentiometric surface of the Upper Floridan aquifer, west-central Florida, May 1986. U.S. Geological Survey Open-File Report 86-603, 1 sheet.

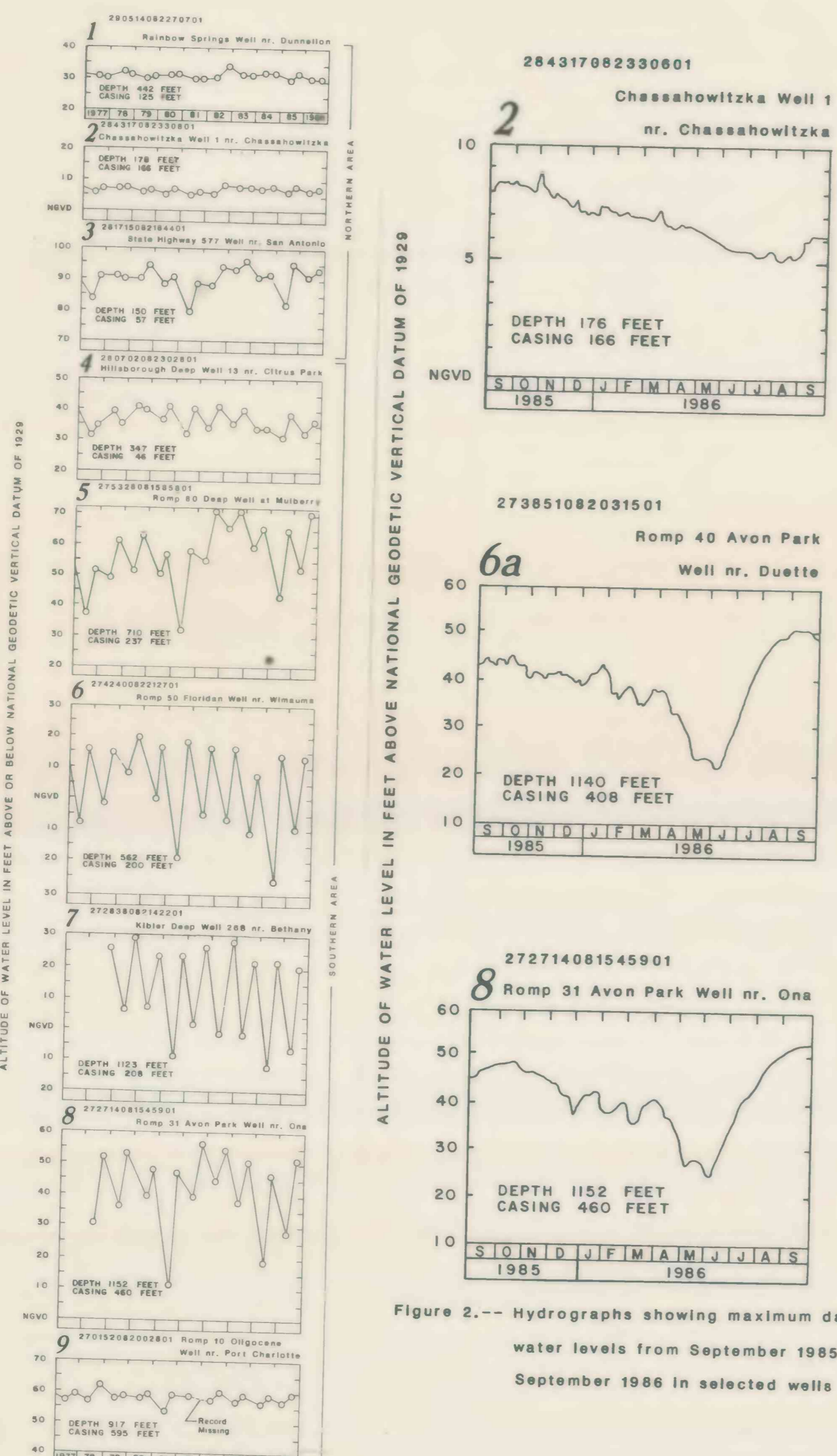


Figure 1.-- Hydrographs showing May and September water levels in selected wells, 1977-86

Figure 2.-- Hydrographs showing maximum daily water levels from September 1985 to September 1986 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.

1 32 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

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

POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER,
WEST-CENTRAL FLORIDA, SEPTEMBER 1986

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