

INTRODUCTION

The Floridan aquifer system consists of the Upper and Lower Floridan aquifers separated by a middle confining unit. The middle confining unit and the Lower Floridan aquifer generally contain highly mineralized water in west-central Florida. In most reports on the hydrology of west-central Florida, the term "Floridan aquifer" has been applied to the water-bearing units herein referred to as the Upper Floridan aquifer. The Upper Floridan aquifer is a highly productive aquifer and supplies more than 10 times the amount of water pumped from either the surficial aquifer system or the intermediate aquifer system in most of the study area (Duerr and others, 1988).

This map report shows the potentiometric surface of the Upper Floridan aquifer in west-central Florida measured in May 2001. The potentiometric surface represents the level to which water will rise in tightly-cased wells that tap a confined aquifer system. The surface is mapped by measuring the altitude of water levels in a network of wells and is represented on maps by contours that connect points of equal water-level altitude. This map represents water-level conditions near the end of the dry season, when ground-water levels usually are at an annual low and withdrawals for agricultural use typically are high. The cumulative average rainfall (41.11 inches) for west-central Florida (from June 2000 through May 2001) was 11.28 inches below the historical mean of 52.39 inches (Southwest Florida Water Management District, May 2001).

This report, prepared by the U.S. Geological Survey in cooperation with the Southwest Florida Water Management District, is part of a semi-annual series of Upper Floridan aquifer potentiometric-surface map reports of west-central Florida. Potentiometric-surface maps have been prepared for January 1964, May 1969, May 1971, May 1973, May 1974, and for each May and September since 1975. Water-level data are collected in May and September each year to show the near annual low and high water-level conditions, respectively. Most of the water-level data for this map were collected by the U.S. Geological Survey during the period May 14-18, 2001. Supplemental water-level data were collected by other agencies and companies. A potentiometric-surface map was prepared for areas east and north of the Southwest Florida Water Management District boundary by the U.S. Geological Survey office in Altamonte Springs, Florida. Because most water-level measurements were made during a 5-day period in mid-May, measurements may not represent a "snapshot" of conditions at a specific time, nor do they necessarily coincide with the seasonal low water-level condition.

WATER-LEVEL CHANGES FROM MAY 2000 TO MAY 2001

Water levels in about 53 percent of the wells measured in May 2001 were lower than the May 2000 water levels (Duerr, 2001a). In 426 wells with paired measurements, the May 2001 levels ranged from about 16 feet below to about 12 feet above the May 2000 levels (fig. 1). The largest decrease in water levels was in north-central Pasco and

south-central Hernando Counties. The largest increase in water levels was in southeastern Hillsborough County. Generally, water levels decreased in the northern part of the area and increased in the southern part.

WATER-LEVEL CHANGES FROM SEPTEMBER 2000 TO MAY 2001

Water levels in about 99 percent of the wells measured in May 2001 were lower than the September 2000 water levels (Duerr, 2001b). In 419 wells with paired measurements, the May 2001 levels ranged from about 38 feet below to about 16 feet above the September 2000 levels. The largest decrease in water levels was in central Manatee County and the largest increase in water levels was in northeastern Pinellas County.

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SELECTED REFERENCES

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EXPLANATION

Areas where potentiometric surface changed, in feet

- Greater than 5
- 0 to 5
- 5 to 0
- 10 to -5
- Greater than -10

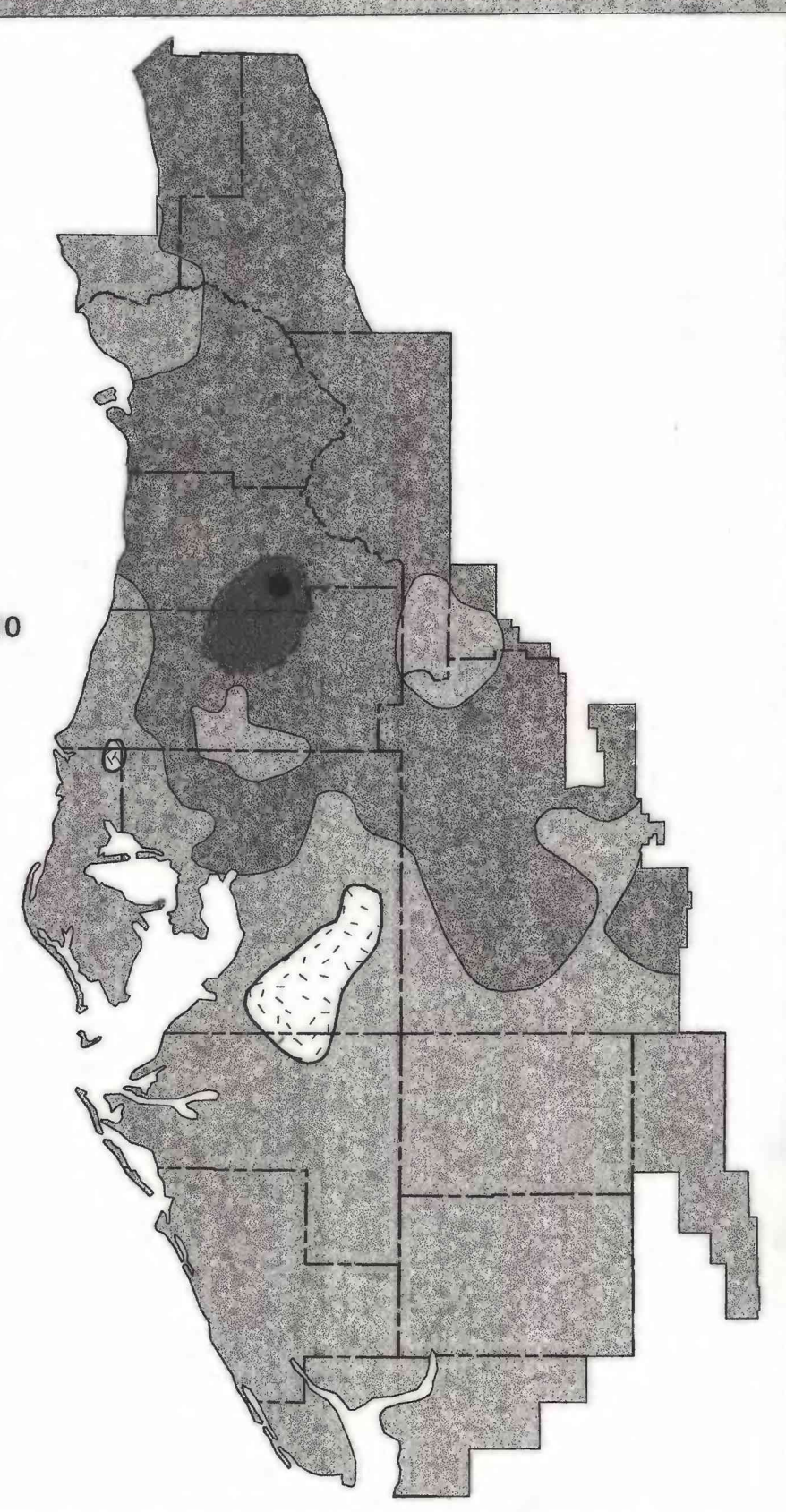


Figure 1. Change in potentiometric surface of the Upper Floridan aquifer from May 2000 to May 2001 in west-central Florida

EXPLANATION

- MUNICIPAL WELL FIELD
- POTENTIOMETRIC CONTOUR - - Shows altitude at which water would have stood in tightly cased wells. Contour interval is 10 feet. National Geodetic Vertical Datum (NGVD) of 1929. Hachures indicate depressions. Dashed where approximately located.
- BOUNDARY OF SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
- OBSERVATION WELL - - Number is altitude of water level in feet above or below NGVD of 1929.
- SPRING
- CITY OR TOWN

NOTE: The potentiometric contours are generalized to synoptically portray 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 may not conform exactly with the individual measurements of water level.

