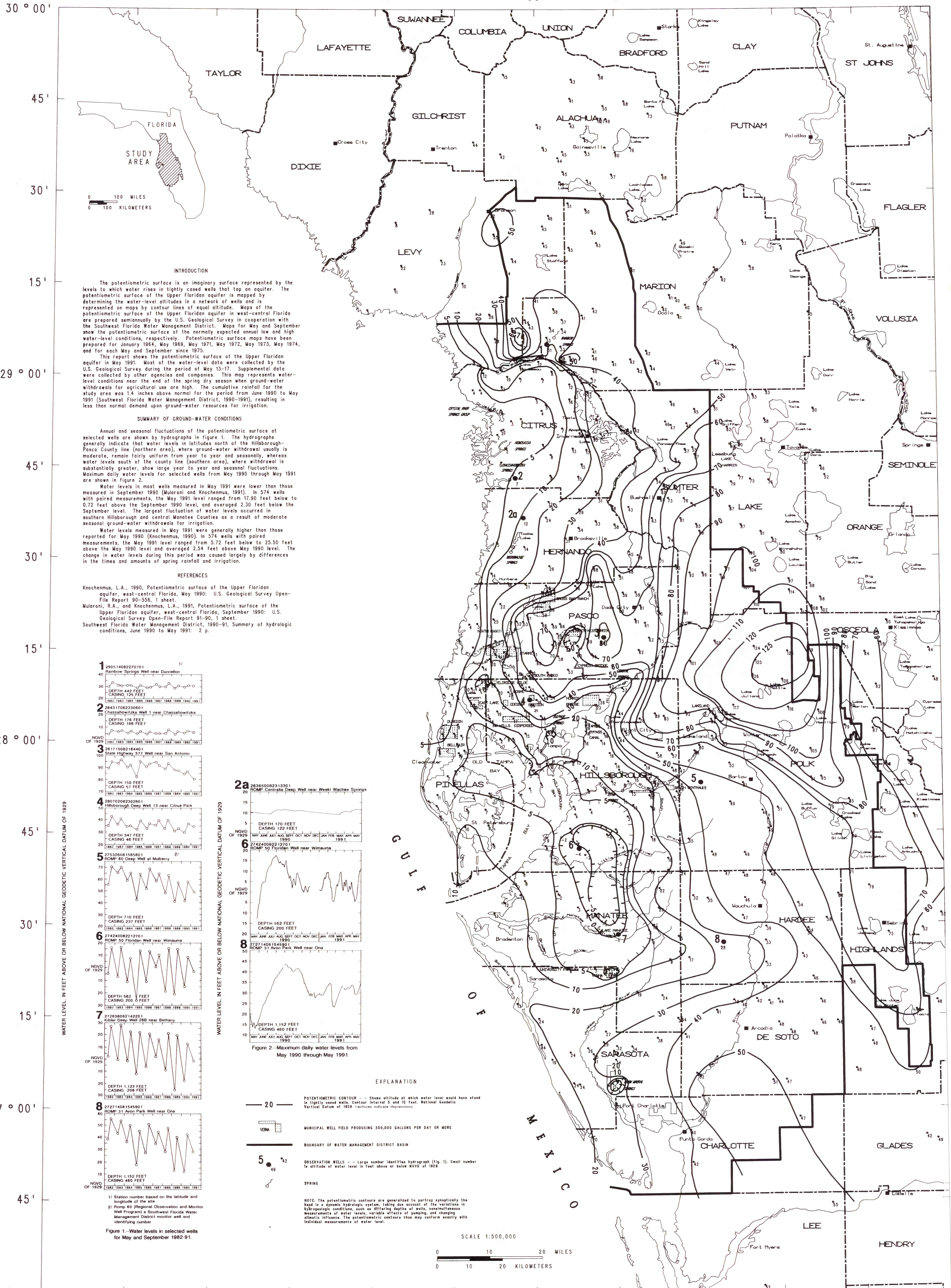


84° 00' 45' 30' 15' 83° 00' 45' 30' 15' 82° 00' 45' 30' 15' 81° 15'



**INTRODUCTION**

The potentiometric surface is an imaginary surface represented by the levels to which water rises in tightly cased wells that tap an aquifer. The potentiometric surface of the Upper Floridan aquifer is mapped by determining the water-level altitudes 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 are prepared semiannually by the U.S. Geological Survey in cooperation with the Southwest Florida Water Management District. Maps for May and September show the potentiometric surface of the normally expected annual low and high water-level conditions, respectively. Potentiometric surface maps have been prepared for January 1964, May 1969, May 1971, May 1972, May 1973, May 1974, and for each May and September since 1975.

This report shows the potentiometric surface of the Upper Floridan aquifer in May 1991. Most of the water-level data were collected by the U.S. Geological Survey during the period of May 13-17. Supplemental data were collected by other agencies and companies. This map represents water-level conditions near the end of the spring dry season when ground-water withdrawals for agricultural use are high. The cumulative rainfall for the study area was 1.4 inches above normal for the period from June 1990 to May 1991 (Southwest Florida Water Management District, 1990-1991), resulting in less than normal demand upon ground-water resources for irrigation.

**SUMMARY OF GROUND-WATER 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 latitudes north of the Hillsborough-Pasco County line (northern area), where ground-water withdrawal usually is moderate, remain fairly uniform from year to year and seasonally, whereas water levels south of the county line (southern area), where withdrawal is substantially greater, show large year to year and seasonal fluctuations. Maximum daily water levels for selected wells from May 1990 through May 1991 are shown in figure 2.

Water levels in most wells measured in May 1991 were lower than those measured in September 1990 (Mularoni and Knochenmus, 1991). In 574 wells with paired measurements, the May 1991 level ranged from 17.80 feet below to 0.72 feet above the September 1990 level, and averaged 2.30 feet below the September level. The largest fluctuation of water levels occurred in southern Hillsborough and central Manatee Counties as a result of moderate seasonal ground-water withdrawals for irrigation.

Water levels measured in May 1991 were generally higher than those reported for May 1990 (Knochenmus, 1990). In 574 wells with paired measurements, the May 1991 level ranged from 5.72 feet below to 25.50 feet above the May 1990 level and averaged 2.54 feet above May 1990 level. The change in water levels during this period was caused largely by differences in the times and amounts of spring rainfall and irrigation.

**REFERENCES**

Knochenmus, L.A., 1990, Potentiometric surface of the Upper Floridan aquifer, west-central Florida, May 1990: U.S. Geological Survey Open-File Report 90-556, 1 sheet.

Mularoni, R.A., and Knochenmus, L.A., 1991, Potentiometric surface of the Upper Floridan aquifer, west-central Florida, September 1990: U.S. Geological Survey Open-File Report 91-360, 1 sheet.

Southwest Florida Water Management District, 1990-91, Summary of hydrologic conditions, June 1990 to May 1991: 2 p.

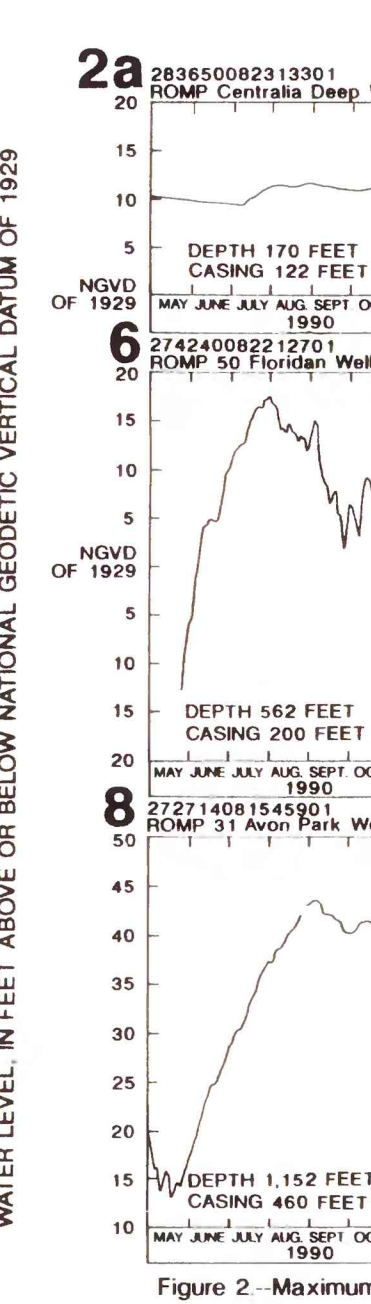
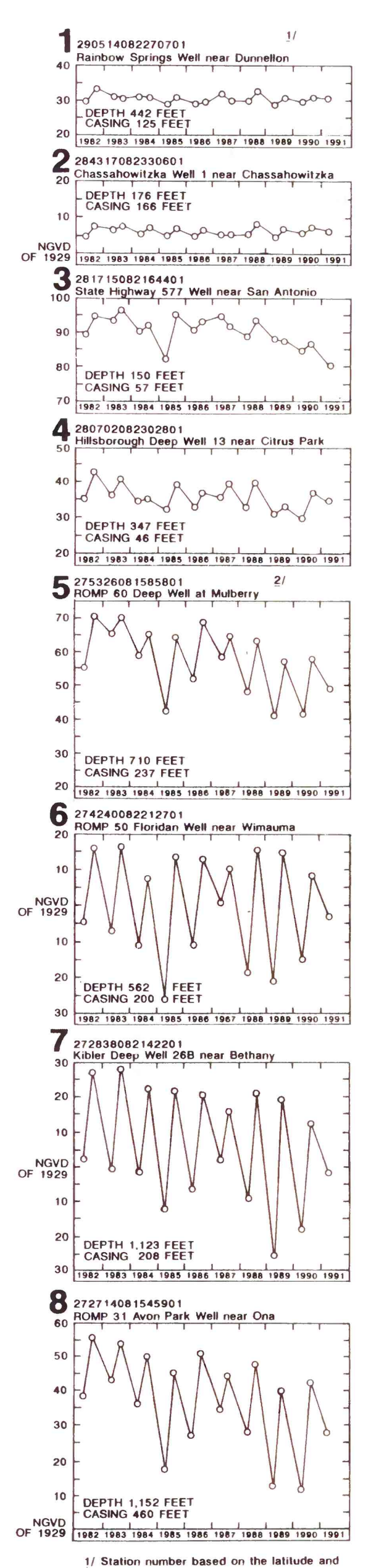


Figure 2--Maximum daily water levels from May 1990 through May 1991.

**EXPLANATION**

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. Numbers indicate depressions.

MUNICIPAL WELL FIELD PRODUCING 500,000 GALLONS PER DAY OR MORE

BOUNDARY OF WATER MANAGEMENT DISTRICT BASIN

OBSERVATION WELLS — Large number identifies hydrograph (fig. 1). Small number is altitude of water level in feet above or below NGVD of 1929.

SPRING

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, nonuniform measurements of water levels, variable effects of pumping, and changing climatic influence. The potentiometric contours thus may conform exactly with individual measurements of water level.

SCALE 1:500,000

0 10 20 MILES

0 10 20 KILOMETERS

**POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER,  
WEST-CENTRAL FLORIDA, MAY 1991**

By  
R.A. Mularoni

Copies of this map can be purchased from:  
U.S. Geological Survey  
Book and Open-File Reports Section  
Federal Center  
Box 25425  
Denver, Colorado 80225

Base from digital data derived from State  
base map of Florida 1:500,000, 1967  
Provided by Southwest Florida Water  
Management District