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PUERTO RICO WATER AND SEWER AUTHORITY - PUERTO RICO DEPARTMENT OF NATURAL RESOURCES

POTENTIOMETRIC SURFACE OF THE ALLUVIAL AQUIFER AND HYDROLOGIC CONDITIONS NEAR CAGUAS, PUERTO RICO, MARCH 1988

By Juan Carlos Puig, Félix Rodríguez-del-Río and José M. Rodríguez

The Caguas alluvial aquifer is a water-table system composed of interconnected clay, sand, and gravel layers. The alluvial deposits overlay igneous rock formations. The thickness of the alluvial deposits ranges from less than a meter to about 50 meters.

A survey of hydrologic conditions was conducted on March 25, 1988. The objective of the survey was to simultaneously obtain hydrologic data that included: ground-water level measurements at wells under static conditions; estimates of ground-water withdrawal rates; and instantaneous discharge measurements at selected sites along the principal streams. The survey was conducted during low flow conditions.

Water-table level contours represent a two-dimensional approximation of the more complex aquifer system. Also shown on the map is the direction of regional ground-water flow. Streamflow measurements indicate a substantial surface-water-ground-water relation in the alluvial aquifer. Generally, the streams seem to be receiving water from the aquifer in the upper reaches, but losing water to the aquifer in the lower reaches. In Río Grande de Loiza, Río Turabo, Río Caguitas, and Río Bairoa the net effect is an increase in discharge of about 0.44 cubic meters per second. Total ground-water withdrawal rate was estimated at 1.1 million liters per day. Precipitation at the National Weather Service climatological station at Caguas and the daily mean discharge of Río Grande de Loiza at the U.S. Geological Survey gaging station are shown for the month of March, 1988 in figure 1.

Additional information is available at the

U.S. Geological Survey
Water Resources Division

GPO Box 4424, San Juan,
Puerto Rico, 00936

telephone (809) 749-4346

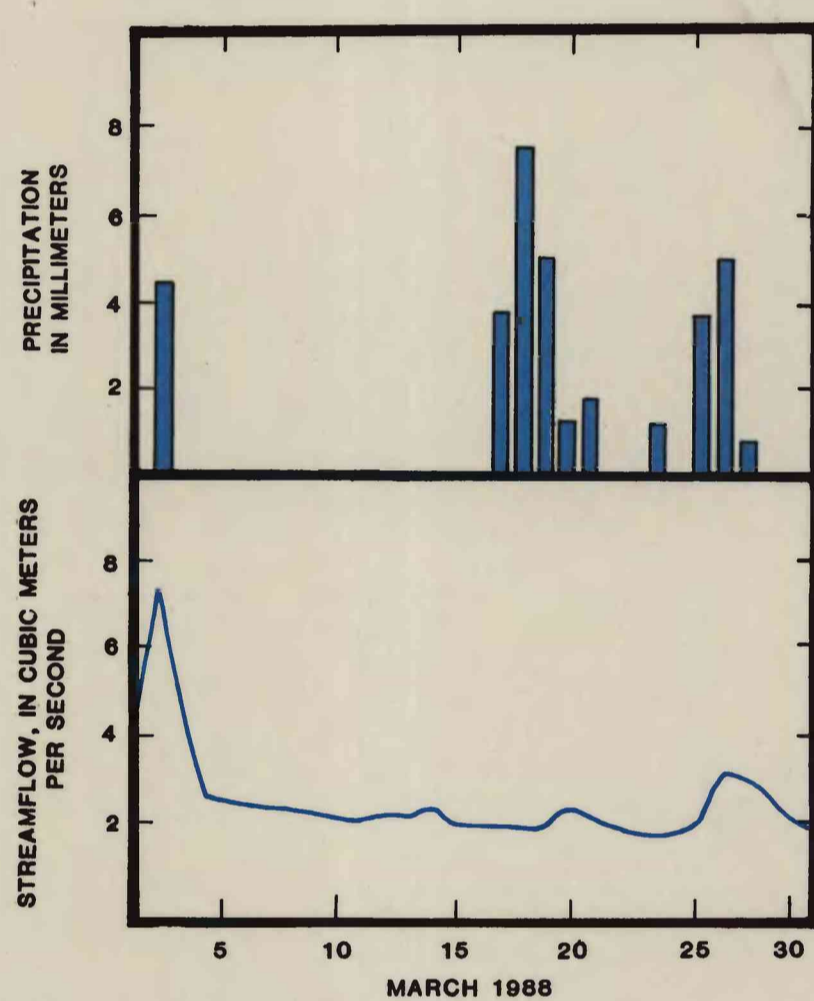
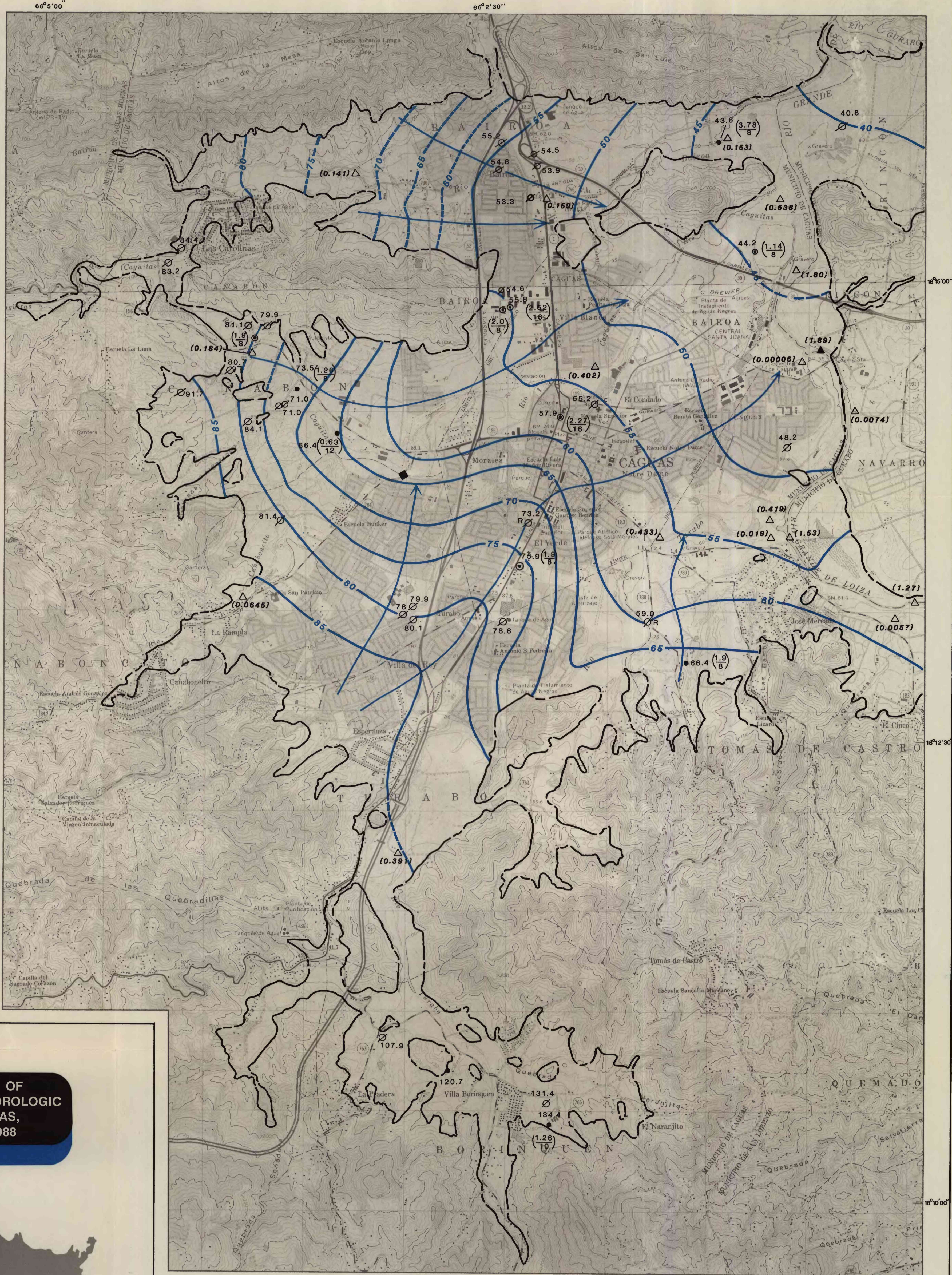


Figure 1 - Daily mean discharge at Río Grande de Loiza at Caguas station (50055000) and daily precipitation at Caguas 1W weather station during March, 1988.



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EXPLANATION

- 70— POTENTIOMETRIC CONTOUR - Shows altitude at which water level would have stood in tightly cased wells. Dashed where approximately located. Contour interval is 5 meters. Datum is mean sea level.
- GEOLOGIC CONTACT LINE - Delineates geologic contact between alluvial material and outcrop of igneous rocks.
- REGIONAL GROUND-WATER FLOW DIRECTION LINE
- 73.6 (1.26/8) WATER-LEVEL DATA CONTROL POINT - Number is altitude of water level, in meters above mean sea level. Upper number in parenthesis is the well discharge in liters per second, lower number is the well daily pumping time in hours.
- WELL USED FOR INDUSTRIAL-WATER SUPPLY
- WELL USED FOR DOMESTIC-WATER SUPPLY
- WELL USED FOR DAIRY FARM-WATER SUPPLY
- OBSERVATION WELL
- ^R OBSERVATION WELL EQUIPPED WITH A RECORDER
- ▲ GAGING STATION - Río Grande de Loiza U.S. Geological Survey surface water station.
- △ (1.53) STREAM FLOW MEASURING SITE - Number in parenthesis is the instantaneous discharge in cubic meters per second.
- ◆ WEATHER STATION - Caguas 1W National Oceanic and Atmospheric Administration Station.

FACTORS FOR CONVERTING INTERNATIONAL SYSTEM (SI) UNITS TO INCH-POUND UNITS.

Multiply si units	by	To obtain inch-pound units
millimeters (mm)	0.03937	inch (in)
cubic meters per second (m ³ /s)	35.3	cubic foot per second (ft ³ /sec)
liter per second (L/s)	15.85	gallon per minute (gal/min)

