

FLOODPLAIN MAPPING IN GEORGIA USING DIGITAL ORTHOPHOTO QUARTER QUADRANGLE BASE MAPS

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REFERENCE: *Proceedings of the 2003 Georgia Water Resources Conference*, held April 23–24, 2003, at the University of Georgia. Kathryn J. Hatcher, editor, Institute of Ecology, The University of Georgia, Athens, Georgia.

Abstract. The U.S. Geological Survey (USGS), in cooperation with the Georgia Emergency Management Agency, is working to develop a new base map for mapping flood hazards using color-infrared (CIR), Digital Orthophoto Quarter Quadrangle (DOQQ) imagery now available for the State of Georgia. Approximately 4,000 quarter quadrangles are needed to provide full coverage for the State of Georgia.

Each map is approximately 34 by 44 inches and contains a 1:12,000-scale CIR DOQQ (1999 photography, where available, otherwise a 1993 panchromatic DOQQ is used) and a Digital Raster Graphic of the associated USGS 7.5-minute topographic quadrangle map. Available statistical floodplain (Q3) boundaries from the Federal Emergency Management Agency (FEMA) are shown. FEMA developed the digital Q3 floodplain boundaries at a 1:24,000 scale by scanning existing Flood Insurance Rate Maps and vectorizing a thematic overlay of flood risks. These boundaries represent the 100-year recurrence interval

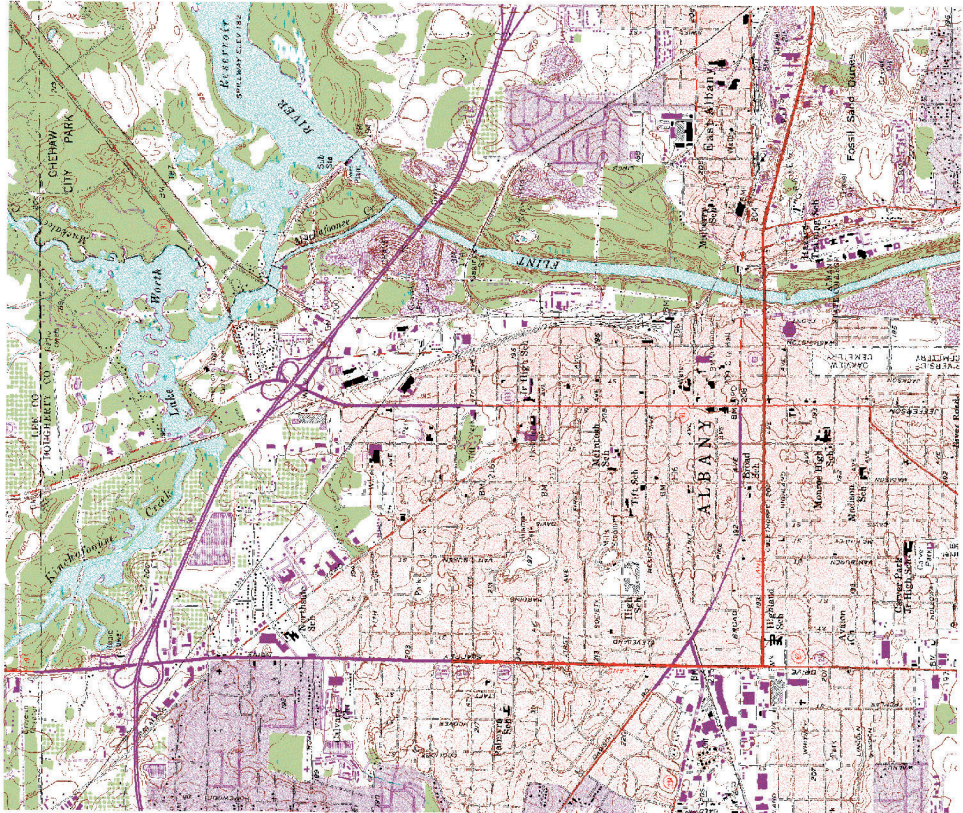
flood, 500-year recurrence interval flood, and floodway information within the quarter quadrangle, where available. Figure 1 shows the Albany West Northeast (NE) Quarter Quadrangle map.

A complementary countywide PC-based Topographic map and DOQQ viewer also is being prepared. The viewer and associated data for a given county will be distributed on a DVD-ROM. The viewer is being developed to provide countywide information views and a digital database framework layer. This format facilitates adding information in future years; for example, the addition of important community infrastructure. The viewer will permit search by Geographic Names Information System features, seamless pan and zoom, and an informative county inset map showing roads and towns.

The Georgia Geologic Survey's Maps and Publications Office (19 Martin Luther King, Jr. Drive, Room 400, Atlanta, Georgia 30334) will distribute the maps (scheduled for publication by late Spring 2003).



Albany West (NE)



Explanation

- 100 Year Floodplain (Q3)
- 500 Year Floodplain (Q3)
- Floodway (Q3)
- County Boundary
- Major Roads

Albany West (SE)
 County boundary from 1:250,000-scale USGS 7.5-minute topographic map
 Major Roads from 1:250,000-scale USGS 7.5-minute topographic map

QUANTILE ANALYSIS OF SPATIAL FLOOD RISK
 The spatial floodplain data, derived from the 100-year and 500-year floodplains, were analyzed to determine the distribution of flood risk across the study area. The analysis was conducted using the following steps:
 1. The 100-year and 500-year floodplains were converted to binary (flooded/not flooded) data.
 2. The binary data were combined to create a single floodplain layer.
 3. The floodplain layer was analyzed to determine the distribution of flood risk.
 4. The results of the analysis are shown in the map above.

Prepared by the USGS, National Center for Earthquake Preparedness, 1225 National Center Drive, Reston, VA 20192

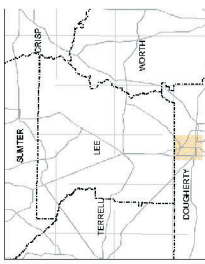
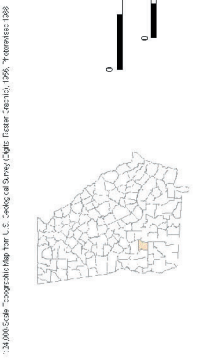


Figure 1. Albany West northeast quarter quadrangle.