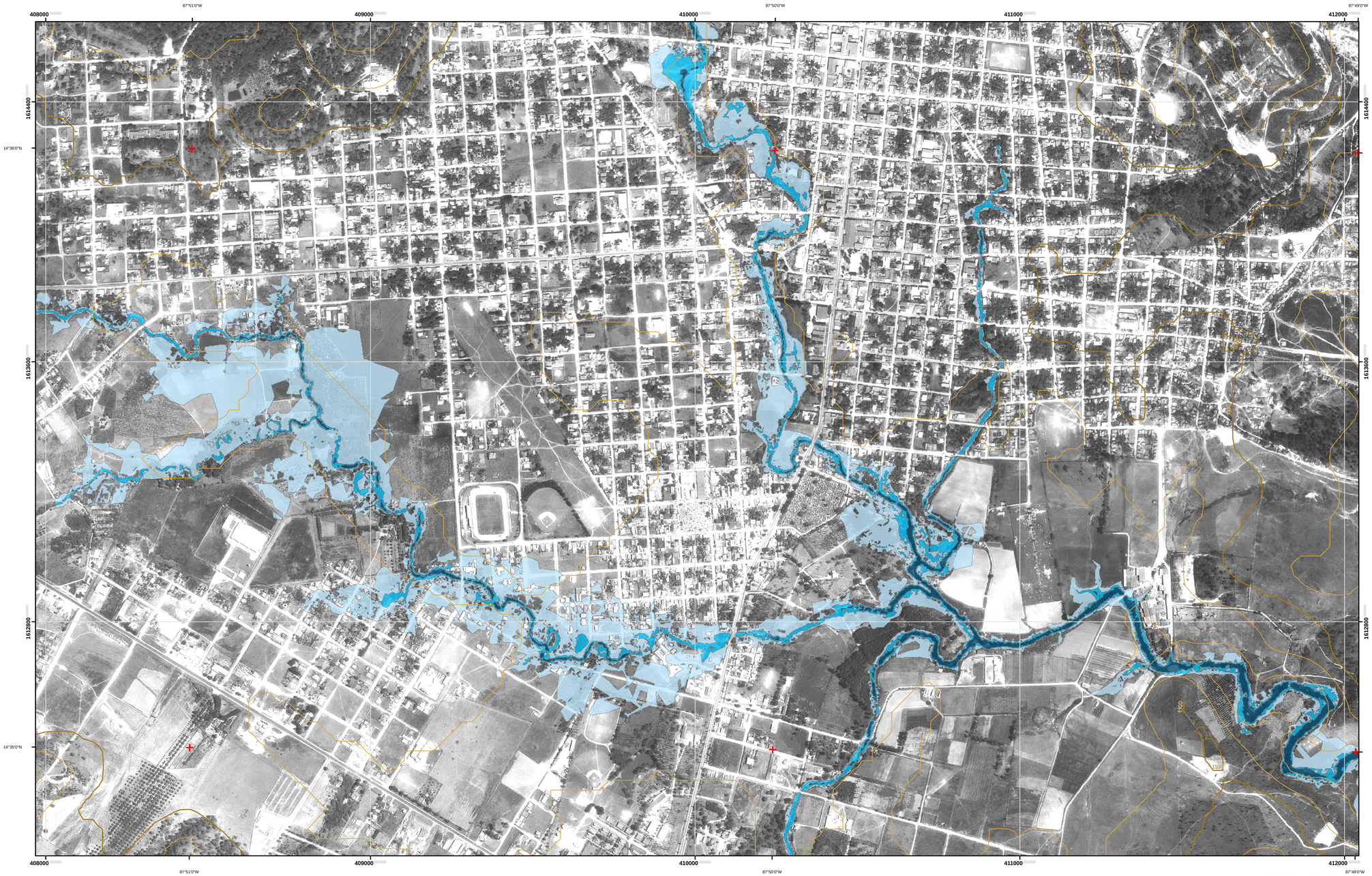
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

OPEN FILE REPORT
Draft



EXPLANATION OF MAP

This map shows the calculated flood inundation polygons for the 50-year flood, for Siguatepeque, Honduras overlain upon a USGS digital orthophoto derived from aerial photography. The data shown on this map were collected after Hurricane Mitch, which affected Central America in 1998, and were designed to assist municipal governments in hazard preparedness and planning.

Water-surface elevations for an estimated 50-year-flood discharge were determined using HEC-RAS, a one-dimensional step-backwater computer program. The channel and floodplain cross section geometry used in HEC-RAS were developed from an airborne light detection and ranging (LIDAR) topographic survey of the area. The 50-year-flood discharge was estimated using a regression equation that relates the 50-year-flood discharge to drainage area and mean annual precipitation. The area of inundation and depth of flood coverage was created with the HEC-RAS output and topographic TIN using HEC-geo-RAS software.

The 50-year flood depth maps provide a basis for land-use planning and for engineering design of structures near or within the floodplain of Siguatepeque.

Orthophotos combine the image characteristics of a photograph with the geometric qualities of a map. This digital orthophoto has a 0.5 - meter ground resolution. Original scanned aerial photography (scanned at .7 micron) was acquired from the USGS EROS Data Center. Ground control was acquired from field surveys performed by personnel and contractors from the USGS Mapping and Water Resources Divisions. Orthorectification was performed using ERDAS Imagine 8.5 Orthobase Pro. Digital elevation models used in orthorectification were prepared with ARCINFO from digital vector layers following standard USGS DEM production procedures.

The orthophoto serves a variety of purposes, from interim maps to field references for earth science investigations and analysis and is useful as a layer of a geographic information system and as a tool for revision of both digital and paper maps. This orthophoto was originally produced to help support to hazard prevention activities and serve as basic level GIS data for municipalities involved in the Mitch reconstruction efforts and to support the municipalities planning efforts.

The contours were digitized from 1:50,000 scale topographic maps by the Instituto Geográfico Nacional of the Republic of Honduras. Data have not been altered to match the field checked orthophotos and may be less accurate than the orthophoto imagery.

DESCRIPTION OF MAP UNITS

Depth of Flood Inundation Approximately 0 to 2 Meters - Calculated using HEC-RAS surface water model data collected in 2000 to model channel geometry.

Depth of Flood Inundation Approximately 2 to 4 Meters - Calculated using HEC-RAS surface water model data collected in 2000 to model channel geometry.

Depth of Flood Inundation over 4 Meters - Calculated using HEC-RAS surface water model data collected in 2000 to model channel geometry.

No Data Available

EXPLANATION OF MAP SYMBOLS

Topographic Contours - Digitized from 1:50,000 scale topographic maps produced by the Instituto Geográfico Nacional of the Republic of Honduras.

Base from U.S. Geolgocial Survey, Reston VA, 2002.
Digital Orthophoto of Siguatepeque, Honduras

Universal Transverse Mercator projection Zone 16 N
WGS 1984

1°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 2007

Scale 1:6,000

0.25 0.125 0 0.25 0.5 0.75 1 Miles

0.25 0.125 0 0.25 0.5 0.75 1 Kilometers

CONTOUR INTERVAL 20 METERS

Map Location

Source of Flood Data: David L. Kresch, Mark C. Mastin, and Theresa D. Olsen. 2001. Fifty-Year Flood-Inundation Maps for Siguatepeque, Honduras. U.S. Geological Survey Open-File Report 02-259.

INTERIOR - GEOLOGICAL SURVEY, RESTON, VA - 2007

50-year Flood Inundation Map and Digital Orthophoto of Siguatepeque, Honduras

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