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

OPEN-FILE REPORT 01-468
PLATE 3

87° 00′

12° 40′

Estero Real
San Jose del Obraje
Villa 15 de Julio
Tonala
Cerro Moyotepe
Loma Acastepe
Carretera 24
Loma La Teta
Volcán El Chonco
Volcán San Cristóbal
Río Atoya
Cráter La Ollada
Volcán Casita
Caldera La Pelona
Bella Vista
Argelia
Cerro La Pelona
El Viejo
Santa Narcisa
El Porvenir
Rolando Rodriguez
Chinandega
Colonia Cristo Rey
Carretera 12
El Mono Muerto
Río Los Zarpios
Chichigalpa
Posoltega

EXPLANATION

Proximal Lahar-Hazard Zone

Areas that could be affected by slope failures, avalanches, and lahars from San Cristóbal Volcano. During a single rainfall event, or earthquake, some drainages may be affected by avalanches and lahars, while others may be completely unaffected. Avalanches and lahars originate within the proximal hazard zone, but are likely to move farther downstream and beyond the limit of this zone.

Distal Lahar-Hazard Zones

Channels that head on San Cristóbal Volcano are subject to lahars triggered by torrential rains and earthquakes that generate landslides, avalanches, and lahars. Distal lahar-hazard zones are subdivided into four zones on the basis of a range of hypothetical lahar volumes [5]. A fifth zone includes areas likely to be inundated by floods and watery debris flows.

Area that could be inundated by a lahar having a volume of 125,000 cubic meters. Highest probability.

Area that could be inundated by a lahar having a volume of 250,000 cubic meters.

Area that could be inundated by a lahar having a volume of 500,000 cubic meters.

Area that could be inundated by a lahar having a volume of 1 million cubic meters. Lowest probability.

Area that could be inundated by watery debris flows and floods.

Location Map

NOTE: Although the map shows sharp boundaries for hazard zones, the degree of hazard does not change abruptly at these boundaries. Rather, the hazard decreases gradually as distance from the volcano increases (small volume events are more common than large volume events). The hazard decreases rapidly as elevation above the valley floor increases. Areas immediately beyond outer hazard zones should not be regarded as hazard-free, because the boundaries of hazard zones can be located only approximately, especially in areas of low relief. Many uncertainties about the source, size, and mobility of future events preclude locating the boundaries of zero-hazard zones precisely.

Numerals in brackets refer to end notes in the report.

Base maps from Nicaragua 1:50,000 scale series; Tonala quadrangle, 1964 (2754 II); Villa 15 de Julio quadrangle, 1971 (?) (2854 III); Chinandega quadrangle, 1971 (2753 I); Telica quadrangle, 1973 (2853 IV); from best available source; Digital Bases Maps from Titan Averstar, Inc. Universal Transverse Mercator projection, Zone 16, Horizontal Datum North American 1927, Vertical Datum Mean Sea Level, Spheroid Clarke 1866.

Scale 1:50,000

0 1 2 3 4 MILES
0 1 2 3 4 KILOMETERS

Contour Interval 20 Meters

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Lahar Hazards at San Cristóbal Volcano, Nicaragua

by

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