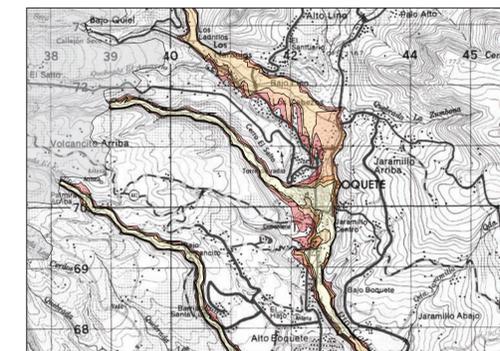




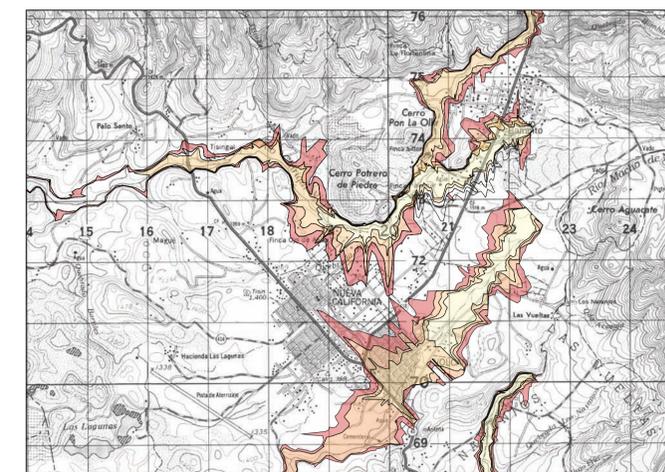
The hazard zones shown here are defined broadly. Particular sites that might be affected within each zone cannot be specified in advance. Once precursory activity or an eruption begins, scientists can better define areas likely to be affected.

EXPLANATION

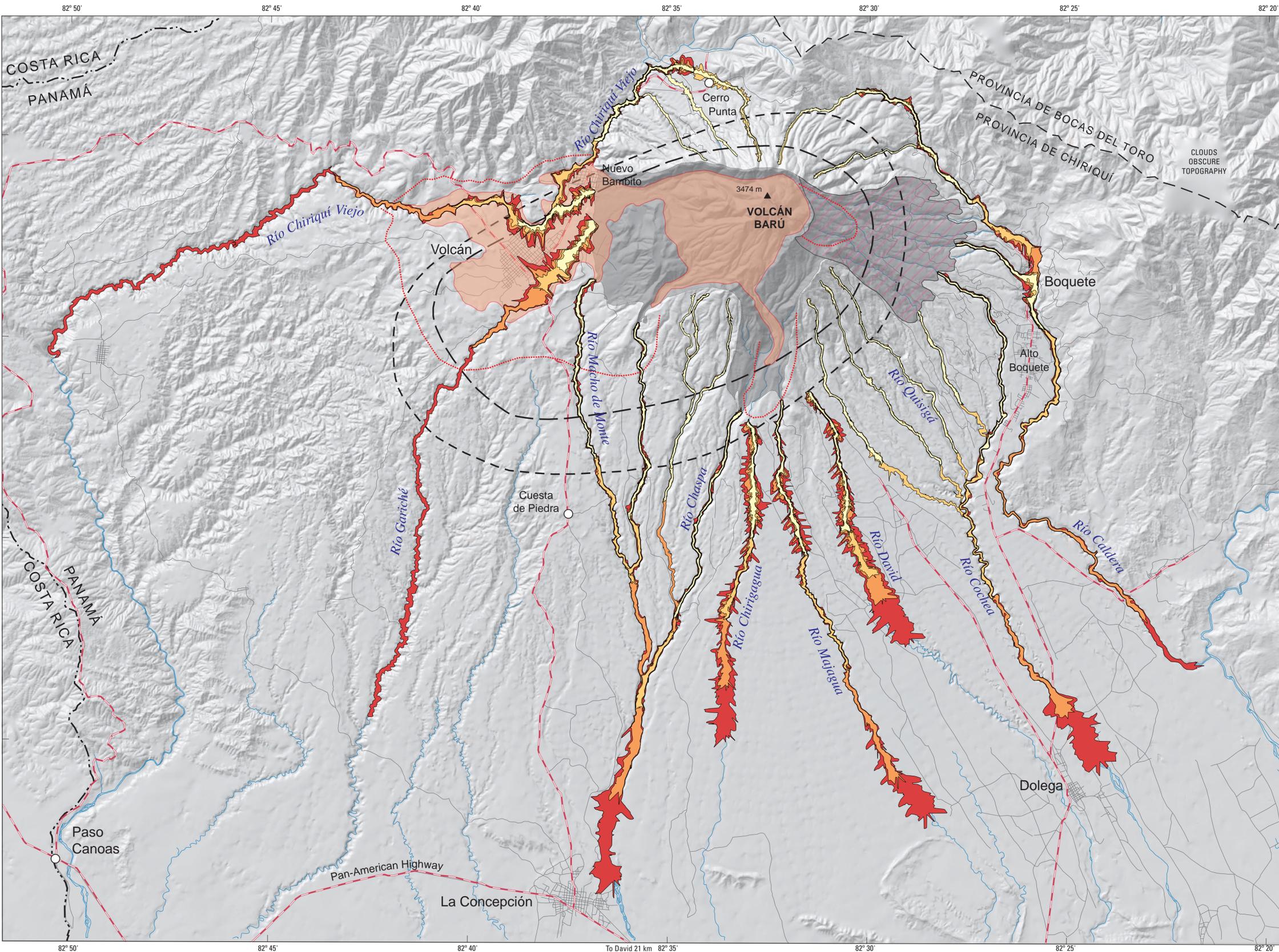
- Pyroclastic-Flow Hazard Zone**
 Area subject to inundation by pyroclastic flows. Zone defined on basis of existing deposits and topographic setting. Overlaps substantially with proximal lahar hazard zone on volcanic edifice
- Pyroclastic-Surge Hazard Zone**
 Likely extent beyond pyroclastic flow hazard zone that surges may deposit fine ash
- Proximal Lahar Hazard Zone**
 Area that could be affected by slope failure, avalanche, and lahars from Volcán Barú. During any single rainfall event or earthquake, some drainages may be affected by slope failures and lahars while others may be unaffected. Debris avalanches and lahars originate within the proximal hazard zone but are likely to move farther downstream beyond the flanks of the volcano and beyond the limit of this zone.
 Includes:
 Area likely to become part of proximal zone as dome growth overwhelms east amphitheater rim.
- Distal Lahar Hazard Zones**
 Channels that head within the proximal lahar hazard zone of Volcán Barú are subject to lahars generated by landslides, debris avalanches, torrential rains, and earthquakes. Divided using a range of hypothetical lahar volumes into:
 Area that could be inundated by a lahar having a volume of 0.3 million cubic meters
 Area that could be inundated by a lahar having a volume of 1 million cubic meters
 Area that could be inundated by a lahar having a volume of 3 million cubic meters
 Area that could be inundated by a lahar having a volume of 10 million cubic meters
- Tephra-Fall Deposit**
 Distribution of fallout from recent eruption, using isotherickness lines
 10 cm
 3 cm



Enlargement showing Boquete area and distribution of distal lahar hazard zones.



Enlargement showing Volcán area and distribution of distal lahar hazard zones.



Base from Republic of Panamá's Instituto Geográfico Nacional, 1:50,000-scale quadrangle maps. Edition 1: Cerro Punta, La Unión, Río Changuinola. Edition 2: Boquete (1993), Gualaca (1992), La Concepción (1992), Villa Neilly (1992), Volcán (1995). Edition 3: Plaza de Caisán (2002)
 Base used here is hillshade relief map made from 10-m digital elevation model. Topographic and hydrographic data scanned from clear-film separates by Titan Avestar Inc., 2007



Volcano-hazards interpretation from geologic mapping and stratigraphic investigations Jan-Feb 2007 by D.R. Sherrod and J.W. Vallance, assisted by S. Lasso, A. Tapia, and E. Chichaco. Lahar hazard zones by A. Tapia from output of LAHARZ software, Sept 2007

Universal Transverse Mercator, North American datum 1927, zone 17

Volcano Hazards of Volcán Barú, Republic of Panamá
 By
David R. Sherrod, James W. Vallance, Arkin Tapia Espinosa, and John P. McGeehin
 2008

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic Code. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

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