Landslide and Debris Flow Detection - Mocoa, Colombia

Legend

Automated Landslide/Debris Flow Detection (GFZ)

Mudflow/Flood Mapping (UNITAR/UNOSAT)

no — **related to incoming western river channels** — **yes** — overlapping area

- Mocoa town (OpenStreetMap)
- watersheds (derived from SRTM 1arc digital elevation model)
- damage structure (UNITAR/UNOSAT)
- flow direction
- *Rio Mulato* river/watershed names

Description

Map shows landslides and debris flows triggered by locally heavy rainfall in Mocoa, Putumayo, Colombia on 1 April 2017. Remote sensing-based detection was performed by an automated landslide mapping approach developed at Remote Sensing Section of GFZ Potsdam (Behling et al. 2014, 2016). Satellite imagery was acquired by the RapidEye system and provided by Planet Labs Germany GmbH and DLR-RESA program. Before-image: 21 November 2013, After-image: 10 April 2017 (background image of map). Map depicts in red the more than 600 automatically detected landslides and debris flows that occurred in the three watersheds west of Mocoa draining east to the flood plain where the town is situated. Thus, large volumes of debris originating from spatially distributed sources created the terminal flash flood that caused the disastrous impact on Mocoa. Remote sensing-based flow mapping also shows that part of the flood was diverted to the east before entering town (bifurcation depicted by cyan arrows) possibly preventing an even bigger disaster. Detected landslides and debris flows are shown in combination with results of rapid damage and flood mapping carried out by UNITAR/UNOSAT in the frame of the Disaster Charter activation ID: 524.