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Merapi deposits jointly responsible for the Bantul Earthquake 2006 disaster.

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Volcanic hazards are multifaceted and primary related to eruption phases including lava flows, ash fall, glowing avalanches, or gas escape. But, there exist secondary hazards like a flank collapse, lahars or even ground water contamination. New findings from Merapi volcano show that also very distal apron of a volcano, faraway from summit and steep flanks, may also be exposed to specific hazard during earthquakes.
On May 26, 2006 (UTC) a disastrous earthquake hit the southernmost apron of Merapi, hosting the urban regions of Bantul and Yogyakarta, an area densely populated with around 1,000 inhabitants per square kilometer. The quake damaged not only profane houses but also historical buildings, such as the Hindu temple of Prambanan (9th century) and the Sultan cemetery at Imogiri (17th century). No historical records exist about comparable destructive earthquake in that region close to Merapi volcano. The catastrophic event killed around 5750 people, destroyed more than 127,000 houses, and left >0.45 Million people homeless. The event was detected close to the south coast of Java, with a shallow hypocentre at around 10 km depth. The rupture motion was strike slip, and therefore, was not directly related to thrust tectonics between the Indo-Australian and the Eurasian Plate.
Largest destructions were concentrated parallel to the river Opak between Parangtritis at the shore line of the Indian Ocean up to Klaten, east of Yogyakarta. The same region was found to be the site of thick volcaniclastic sediments. Investigation of aftershock data collected by a local seismic network, installed during a rapid response mission clarified the location of the activated fault to be located over 10 km away from this damage zone.
On the first point of view destructions were related to unsafe constructions, and topographic effects in the Gunung Kidul mountain region. However, a more detailed view reveals that strong ground acceleration and site amplification on unconsolidated volcaniclastic sediments enhanced the shaking. These deposits, originated from Merapi, were transported as lahars and by rivers down the flanks and finally accumulated along the river Opak. The locations of volcaniclastic sediments therefore have been identified as those sites where earthquake damage was largest. Therefore, secondary volcanic hazards, which may include earthquakes, and especially associated risks in commonly densely urbanized volcanic aprons, need to be considered. Risk assessment in the neigbourhood of volcanoes requires consideration of earthquake site effects and ground amplification, even in areas tens of kilometres far from the summit of volcanoes at locations were unconsolidated alluvial sediments are deposited.