



Temporal and spatial evolution of eruptive activity at Nyamulagira, RDC, and its implications for hazards

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Nyamulagira volcano (3058m a.s.l.), located in the Virunga volcanic province in the western branch of the East Africa Rift, is Africa's most active volcano with one eruption every 2-4 years, the most recent one starting in January 2010. Despite such an intense activity, Nyamulagira remains poorly studied. Based on up-to-date remote sensing imagery, a new map of the lava flows and eruptive fissures active since the early 1900's was produced. Estimation of the erupted volumes for the last 30 eruptions shows a marked increase in the average magma output rate since the early 1980's associated with an increased frequency in eruptive events. Striking variations in lava flow volume and eruption duration are also associated with the elevation at which the eruption opens or focuses. Integration of historical accounts of eruptive events and of existing data on lava flow petrology enable to obtain an exhaustive database illustrating the spatial and temporal variations of eruption characteristics in the last 100 years. This analysis enable to identify different eruption scenario's associated with contrasted potential hazards. Nyamulagira eruptions represent a serious hazard for the Virunga National Park (UNESCO World Heritage) as well as local population and key infrastructures along the shoreline of Lake Kivu.