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'Understanding volcanoes and society: the key for risk mitigation'



Volcanic ash fall hazard and risk in Guatemala

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Ash fall from daily activity and eruptive events at the volcanoes in Guatemala constitutes a direct and frequent hazard for the communities. Every day the flanks of the volcanoes are populating, because of lack of land use planning, lack of land for living, and poverty. The volcanic activity in the last 5 years has intensified, with more violent eruptions, affecting communities living between 5 and 7 km from the volcanoes. The effects are mainly from ash fallout causing respiratory problems, skin and eye conditions, stomach problems due to water contamination, roof collapses, and occasionally evacuations. Acid rain and the hot ash have affected the agriculture of corn, coffee, and vegetables.

The ash generated by eruptions and pyroclastic flows travels between 30 and 100 km. During the eruption of Pacaya volcano in 2010, ash traveled 450 km, causing roof collapses in a 20 km area and the closure of the international airport for 2 weeks. Fuego volcano has had strombolian and vulcanian eruptions. In 2015 Fuego had the highest number of paroxysmal eruptions (15), with abundant ash causing damage to agriculture and forcing the closure of the airport for one day. The communities are located 6 km from the crater, and the southwest and western flanks are the most affected by ash. Santiaguito volcano has changed its eruptive style in recent years, including a paroxysmal eruption, extrusion of lava flows, and a decrease in the number of daily explosions. In its most recent activity, there have been pelean and vulcanian eruptions, with abundant ash emission, generation of pyroclastic flows, and expulsion of ballistics to more than 3.5 km. The ash columns (up to elevations of 5,000 to 6,000 m above sea level) have traveled preferably to the west and southwest of the volcano, causing ash fall to distances of 15 km.