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Determinations Of Volcanic Earthquakes Prior To The 2006 And 2011 Eruptions At Volcano Nyamuragira, Virunga Volcanic Area

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Earthquake swarms observed before the 2006 and 2011 Nyamulagira eruptions were analysed. The activities and hypocenter distributions of these earthquake swarms were mainly examined.

The former swarm was characterised by a higher seismic activity than the later. Although the two swarms accompanied eruptions, most of the swarms observed in 2006 and 2011 were not followed by any eruptions. These swarms probably represent an intrusion of magma at a shallow depth.

Hypocenters of these earthquake swarms show that most of the events are located in and around the crater of Nyamulagira summit at a shallow depth less than 5km. Some of events were located at a deep depth around 20-25km.

Numerical examinations of the hypocenter determination indicate that some small errors in arrival times make the hypocenters not re-located or relocated at a depth of 0km. This suggests that to obtain more reliable hypocenter distribution, it is necessary to deploy seismic stations on and around Volcano Nyamulagira. Such a dense seismic network will enable us to discuss more in detail the swarm activity preceding eruptions and differences between the swarms preceding eruptions and those caused only by magma intrusion at a shallow depth.

Promotional text

with this presentation, my contribution to the SnT2021 objectives is to explain to the participants the Nyamulagira volcano activity and in particular the 2006 and 2011 eruptions of this volcano. Indeed, this volcano is the very african active, one eruption every 2 or 3 years.

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