



Locating volcanic tremor at Sierra Negra volcano, Galapagos archipelago during the 26th June 2018 eruption

Ka Lok Li (1), Christopher J. Bean (1), Andrew Bell (2), Stephen Hernandez (3), Mario Ruiz (3), Martin Möllhoff (1), and Cynthia J. Ebinger (4)

(1) School of Cosmic Physics, Geophysics Section, Dublin Institute for Advanced Studies, Dublin, Ireland, (2) School of GeoSciences, University of Edinburgh, Edinburgh, UK, (3) Instituto Geofísico, Escuela Politécnica Nacional, Quito, Ecuador, (4) Department of Earth and Environmental Sciences, Tulane University, New Orleans, USA

Located about 1000 km west of continental Ecuador, Sierra Negra is a shield volcano with a large summit caldera and is one of the most active volcanoes in the Galapagos archipelago. The unrest of the volcano began when it started to inflate after the previous eruption in 2005. Seismic activity increased gradually during this period. The activity escalated with a magnitude 5.3 earthquake at 09:15 UTC on 26th June 2018. Following the earthquake was a few hours of seismic quiescence. At about 17:15 UTC, an intense seismic swarm commenced and later tremor became dominant. Since then, eruptive fissures were observed at the north flank of the volcano, which marked the onset of the eruption. The sequence of events was recorded by a temporary network of 14 broadband seismometers deployed in April 2018. Here we present results of volcanic tremor location using a seismic amplitude ratio method with data from the temporary network and 3 nearby permanent stations. Preliminary results show that the tremor source was located deep, the northwest of the caldera and was stable in space until the earthquake swarm commenced. After that, the source moved towards the caldera and became shallower. It finally localized at the north flank of the caldera where the eruptive fissures were observed. We aim to determine whether the tremor movement represents dike opening and/or magma migration.