



Tracking of magma intrusion by integrated geophysical analysis for the 2018 Christmas eve eruption at Mt. Etna

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On 24 December 2018, a violent eruption took place at Mt. Etna from a fracture opened on the south-eastern flank of Mt. Etna. The intrusive phenomenon was accompanied by ground deformation and seismicity. The eruption consisted of a violent Strombolian activity from both several vents along the fracture and the summit craters, giving rise to a dense ash-rich plume, and of lava flows on the Valle del Bove and lasted for a few days. In this work, we show how an integrated investigation combining high rate GPS data, volcano-tectonic earthquakes, volcanic tremor, infrasound tremor and events allows to spatially and temporally track the magma intrusion phenomenon, as well as the changes taking place in the central plumbing system at the same time, with unprecedented resolution.