



Dike mechanism of the Etna May 2008 eruption

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After a recharge phase begun in 2007, on May 13, 2008 a new eruption started on Mt. Etna volcano. The final intrusion was very fast, accompanied by a violent seismic swarm and marked ground deformation changes recorded at the permanent tilt and GPS networks. The frame of the eruptive event and the associated phenomena (earthquakes, deformation, lava emission, fracture propagation) generated great concern and fears that the eruptive fractures might propagate dangerously downslope.

We modelled the ground deformation pattern and inferred a double phase dike which explains both the mechanism of the vertical intrusion and also the attempt of the dike to propagate in the northern sector in its shallower part. We show that the 2008 intrusion was characterized by a mechanism which is new and different to the ones modelled in previous eruptions.