



Images of the volcano structure by the seismicity recorded during the 2018 Etna's unrest

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On 24 December 2018 the volcano Etna (Italy) produced an eruption preceded, accompanied and followed by an intense seismic activity, occurred in different sectors of the volcanic edifice, encompassing about 2500 events with a maximum magnitude $M_l = 4.8$. This was the most important seismic crisis that has affected the volcano in the last decades. The ascent of the magma, accompanied by a seismicity mainly located south to the summit area, caused a transfer of stress and the movements of numerous tectonic structures, many of which in the southeastern and southwestern flanks of the volcano.

We selected a dataset of earthquakes recorded since 2018 by the permanent local seismic network run by Istituto Nazionale di Geofisica e Vulcanologia (Osservatorio Etneo, Catania) and performed a tomographic inversion of the whole data in order to define the 3D P, S and VP/VS model. This tomography, obtained with a dense grid of measure nodes, allowed us to investigate in more detail the variations of elastic parameters and the crustal structure of Mt. Etna during the unrest and the eruptive phases.