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Shallow intrusive processes during 2002-2004 and current volcanic activity on Mt. Etna : an integrated approach of geodetic and seismological data

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At Mt. Etna, our understanding of shallow intrusive processes during 2002-2004, as well as the causes of the volcano-tectonic seismicity, has been improved by comparing the inversion results from GPS data from the 14-stations permanent network with accurate 3D hypocentral locations of about 600 earthquakes, with Md $>$ 2.0. Our findings indicate that short periods of deflation (about six months) were followed by recharging phases after the end of both the 2001 and 2002-2003 flank eruptions. During the last recharging phase (June 2003 - September 2004), modelling results and seismic observations suggest a composite mechanism of re-injection of magma into the rift-zones (S and NE), similar to that leading to the 2002-2003 flank eruption, which could have triggered the summit eruption started the September, 7, 2004.