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## Volcanic unrest: Faults and uplift at active calderas

A. Folch and J. Gottsmann

Institute of Earth Sciences "Jaume Almera", CSIC, Lluís Solé Sabarís s/n, Barcelona 08028, Spain

Sub-surface volume and pressure increases triggering surface inflation at active volcanoes are generally quantified via the inversion of ground deformation time series. Here we investigate the effects of boundary faults on ground deformation at calderatype volcanoes using finite element modelling. We show that employing homogenous half-space models (HM) for inversion may lead to erroneous results on source parameter values such as source location and pressure changes if lateral discontinuities are neglected. Pressure increases may be overestimated by a factor of up to three when compared to results obtained from HM considering a spherical source of dilatation. The discrepancy in results may lead to a biased assessment of hazards associated with ground uplift. Applying our model, we investigate the period of ground uplift at the Campi Flegrei caldera in Italy between 1982 and 1984 and provide a brief discussion on the effect of lateral discontinuities for gravimetric data inversion and resulting hazard assessment.