1. An increasing trend of diffuse CO2 emission from Teide volcano (Tenerife, Canary Islands): geochemical evidence of magma degassing episodes

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Multiple soil CO2 efflux surveys have been undertaken at the summit cone of Teide volcano, Tenerife, from 1997 to 2011, to determine the total CO2 emissions from the summit cone and to evaluate the temporal variations of CO2 efflux and their relationships with volcano-seismic activity. Our results reveal significant fluctuations in degassing rate, which do not seem to be masked by atmospheric variations. These geochemical observations provide evidence for the unrest of the volcanic system, as has been suggested previously by anomalous seismic activity recorded in Tenerife during April 22-29, 2004. A new trend of increasing CO2 efflux and CO2/CH4 ratio in fumarolic gas discharges was observed from 2006 to 2009, suggesting that subsurface magma movement is the cause for the observed changes in the total output of diffuse CO2 emission at summit cone of Teide.