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TDL, UV-DOAS, COSPEC and miniDOAS measurements of the degassing from the summit crater of Teide volcano, Tenerife, Canary Islands

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Recent analysis of Teide fumaroles gas revealed the presence of SO_2 content in the volcanic-hydrothermal discharges from the summit crater while his geochemical observation was not reported in the past. For to investigate SO_2 emission rates from the summit crater of Teide volcano, COSPEC and miniDOAS measurements were performed in a stationary mode on June, 2005 but the obtained results indicated that SO_2 emission rates from the summit crater of Teide volcano were lower than the detection limit. TDL and UV-DOAS were used at Teide volcano in September, 2005, August, 2006 and May, 2010 for remote measurements of chemical composition of the crater atmosphere. Parallel to these measurements a CO_2 diffuse flux emission campaign was performed inside the crater containing 140 points and also samples were taken of fumaroles. The concentrations obtained by remote sensing systems were used to calculate the CO_2/H_2S and CO_2/SO_2 ratios in the crater atmosphere of Teide volcano. These molar ratios calculated were 1200 for CO_2/H_2S and 150E+03 for CO_2/SO_2 during September, 2005 and 920 and 42E+03 in the same order for August, 2006. During this study, a maximum total output emission, diffuse and visible, of SO_2 was estimated in 1.87 $Kg{\cdot}day^{-1}$ for the Teide's summit crater. These geochemical observations about the low rates of emission of SO_2, not support at present the reawakening of Teide volcano as others scientists have described.