



## **How seismicity and shear stress-generated tilt can indicate imminent explosions on Tungurahua**

Jurgen Neuberg (1), Patricia Mothes (2), Amy Collinson (1), and Luke Marsden (1)

(1) University of Leeds, Institute of Geophysics & Tectonics, School of Earth & Environment, Leeds, United Kingdom (j.neuberg@see.leeds.ac.uk), (2) Instituto Geofísico, Escuela Politécnica Nacional, Quito, Ecuador

Seismic swarms and tilt measurement on active silicic volcanoes have been successfully used to assess their eruption potential. Swarms of low-frequency seismic events have been associated with brittle failure or stick-slip motion of magma during ascent and have been used to estimate qualitatively the magma ascent. Tilt signals are extremely sensitive indicators for volcano deformation and their interpretation includes shear stress as a generating source as well as inflation or deflation of a shallow magma reservoir. Here we use data sets from different tiltmeters deployed on Tungurahua volcano, Ecuador, and contrast the two source models for different locations and time intervals. We analyse a simultaneously recorded seismic data set and address the question of shear stress partitioning resulting in both the generation of tilt and low-frequency seismicity in critical phases prior to Vulcanian explosions.