Cities on Volcanoes 9
November 20-25, 2016
Puerto Varas, Chile
'Understanding volcanoes and society: the key for risk mitigation'

Earthquakes and eruptions in the Southern Volcanic Zone, Chile.

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Keywords: Southern Volcanic Zone, high-magnitude earthquakes, volcano explosivity index, released gases

Chronologic correlation between earthquakes of moderate and strong magnitude with volcanic eruptions up to eleven years after a seismologic event in the Southern Volcanic Zone of Chile is presented. The study considers seismic events from 1906 to the present and volcanoes with a volcanic explosivity index (VEI) of two or higher on a radius of 750 km from the epicenter. Based on the information provided, a research proposal is presented regarding the possible relation between the disturbance and susceptibility of chemical elements or compounds found in the magma chamber. Several authors have made similar observations after carrying studies and analyses of high-magnitude earthquakes (6.5–9.5 Ms) and volcanic eruptions from the last two centuries. According to the observed disturbance of seismic waves on the mantle melted rocks, fluids generated are incorporated into the magma chamber on crustal levels beneath a volcano. This causes the internal pressure of the magma chamber to increase, fracturing of wall rocks and fluid ascension to the surface triggering an eruption. It has been observed that a volcanic eruption would begin 48 hours after a major earthquake event, within a 750 km radius. The risk of significant eruptions would persist for about three years and up to eleven years for smaller eruptions. With the gas analyzer multi-competent or spectroscopy, one could measure the concentration of gases CO2/SO2 before and after an earthquake of medium and/or large scale, within a radius of 750 km. Thus it is known the gases in which a chemical imbalance occurs, and the change in concentration provided, as a result, a pressure rise and possible volcanic eruption.