



Degassing Characteristics in Strombolian Eruptions

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The physics of Strombolian eruptions is strongly related to the degassing mechanism involved within the shallow part of the volcanic plumbing system. Open vent volcanoes such as Stromboli and Villarrica, can show different styles of activity ranging from mild gas puffing to vigorous strombolian explosions. These observed differences could be associated with, for example, unequal gas discharges through foam slugs or large bubbles reaching the magma free surface. In order to study the characteristics of strombolian explosions in open vent volcanoes, high-resolution light spectra time series data has been acquired using FLYSPEC. These were then combined with the temperature field recorded by FLIR. By using several processing techniques for the data collected, it was possible to obtain specific parameters such as the SO₂ released, temperature distribution, and relative amount of ejected pyroclast, for each individual explosion. As demonstrated by research carried out to date, the combination of short time-scale measurements using FLYSPEC and FLIR with the calculation of gas, pyroclast mass and temperature related parameters, is an important new step in determining the mode and character of magma circulation in basaltic conduits and variations in behaviour of the rising gas flux.