Geophysical Research Abstracts, Vol. 7, 09556, 2005
SRef-ID: 1607-7962/gra/EGU05-A-09556

Evidence of fast magma rising in explosive eruption of neapolitan areas (Campi Flegrei and Somma-vesuvio): a comparative analytical and numerical approaches.

G. Mastrolorenzo (1), L. Pappalardo (1)

(1) INGV-Osservatorio Vesuviano, Naples, Italy (mastro@ov.ingv.it/+39-081-6108351)

Results of comparative analytical studies (crystal and bubble size distribution and number density and glass inclusions and matrix glass volatile content) of rock samples from effusive and explosive eruptions of Campi Flegrei and Somma Vesuvio volcanoes, and numerical simulation based on the inferred pre-eruptive conditions have provided constraints on vesiculation processes, shallow magma rising dynamics and timing. Results from high magma ascent rate typical of highly explosive eruptions indicate that degassing occurs under diffusion regime. In this case vesiculation is not accompanied by microlite formation, being microlite growth likely inhibited by short decompression time. Consistently with simulation the features of the explosive rocks of the Neapolitan area indicate that magma rose in very short time, in the order of a few hours.