Geophysical Research Abstracts, Vol. 7, 09687, 2005
SRef-ID: 1607-7962/gra/EGU05-A-09687


# Combined CSD and Sr isotopic analysis of plagioclase phenocrysts from Stromboli volcano (Aeolian Islands)

D. Chertkoff (1), D. Morgan (1), D. Jerram (1), L. Francalanci (2), J. Davidson (1), D. Pearson (1), G. Nowell (1)

(1) University of Durham, Department of Earth Sciences, South Road, DH1 3LE, UK, (2) Dipartmento di Scienze della Terra, Via La Pira, 4, I-50121, University of Florence, Italy

Combined CSD and detailed Sr isotopic analysis was performed on plagioclase phenocrysts found within stratigraphically constrained samples from the Vancori eruptive period (26-13 ka) of Stromboli volcano, Aeolian Arc, southern Tyrrhenian Sea. Previous studies at Stromboli volcano have revealed that whole-rock $^{87}Sr/^{86}Sr$ for the Vancori series range from 0.70595-0.70659 [1]. Microsampling and $^{87}Sr/^{86}Sr$ analysis of core-to-rim transects across individual plagioclase phenocrysts, however, reveals the presence of distinct compositional zones within these phenocrysts with an even greater range in $^{87}Sr/^{86}Sr$ (0.70583-0.70684). In addition, CSD plots for plagioclase crystals in several samples produce kinked CSDs. These observations suggest that multiple crystal populations have evolved in environments isolated from each other and were mechanically mixed just prior to eruption. Finally, through combined CSD and micro-Sr analysis we hope to further constrain the crystallization histories and residence times of these plagioclase phenocrysts. This study is part of the ongoing EU-funded ERUPT (European Research on Understanding Processes and Timescales in magma systems) project.

**References**

[1] Francalanci L., Manetti, P., Peccerillo, A. (1989) BV **51**, 355-378.