Microprobe settings for files:

2022-12-19\_Silicates

2023-01-17\_silicates

2023-03-14\_silicates

Compositional analyses of volcanic glasses and crystals were acquired using a JEOL JXA 8530F Plus field emission electron microprobe analyzer at the Central Science Laboratory, University of Tasmania. The instrument was set up with a field emission source and an accelerating voltage of 15kV, a beam current of 10nA and a beam size of 5 µm. The instrument has 5 wavelength dispersive spectrometers and is operated using the Probe Software Inc. "Probe For EPMA" software package. Elements were measured using Kα lines and analyzing crystals LiFL for Mn, Fe, Cr and V. The elements P, S, Cl, K, Ca and Ti were analyzed on PETL using Kα lines and Sr and Ba using Lα lines. Si, Na, Al and Mg were analyzed on TAP using Kα lines and F was analyzed on LDE1L using Kα lines. Peak (background) counting times were 10 (10) seconds for Mg, Al, Si, Ca, Ti, Fe, Cl, P, Cr, V and S, 20 (10) seconds for Na and K, 20 (20) seconds for Mn, Sr and Ba, 30 (30) seconds for F. F was analyzed with slope (Lo) to avoid interferences. The elements Al, Si, P, Cl, K, Ca, Cr, Fe and V were analyzed with a linear background correction and the elements Na, Mg, Sr, Ti, Mn, Ba and S were analyzed with an exponential background correction. Interference corrections for Fe on F, Ba on Ti, Cr on Mn, V on Cr and Ti on V were applied (Donovan et al., 1992). A time-dependent intensity correction was applied to Na, K, Cl and F if applicable. Oxygen was calculated by cation stoichiometry and included in the matrix correction. Oxygen equivalent from halogens (F and Cl), was subtracted in the matrix correction. The matrix correction algorithm utilized was Armstrong/Love Scott (Armstrong, 1988) and the mass absorption coefficients dataset was LINEMU (Henke, 1985) <10 keV and CITZMU >10 keV (Heinrich, 1966).