

New FTIR data from the Gutai Mts. and post eruption effects on the hydroxyl content of phenocrysts focused on the Firiza-basalts.

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We studied calc-alkaline volcanic rocks from the Oas-Gutai Mts. The major goal of our research was the determination of ‘water’ content in the phenocrysts of the nominally anhydrous minerals (NAMs) and also to uncover the possible post eruptive changes [1],[4], in the structural hydroxyl content of NAMs. The selected volcanic rocks were studied by petrography, EMPA, LA-ICP-MS, ICP-OES, ICP-MS and FTIR.

Our assumption is that by studying the FTIR spectra of clinopyroxenes [5] enables to estimate original ‘water’ contents since clinopyroxene is resistant to weathering and the diffusion of structural hydroxyl (H⁺) is slower in clinopyroxenes than in other phenocrysts [2],[3].

We found that the clinopyroxenes from the Firiza calc-alkaline basalt likely retained their original ‘water’ content therefore we could make calculations regarding the magmatic water content in their source region.

References:

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