

Interpretation of basaltic-trachytic units of the Miocene Tetir volcano, Fuerteventura (Canary Islands, Spain)

O. SIMANCAS¹ AND C. DE IGNACIO²

¹Facultad C.C.Geológicas, Univ., Complutense, C/José Antonio Novais, 2. 28034 Madrid, Spain
(*correspondence; olgasimancas@ucm.es)

²Facultad C.C.Geológicas, Univ., Complutense, C/José Antonio Novais, 2. 28034 Madrid, Spain
(*correspondence; cris@ucm.es)

Although ocean magmatism in the Canary Islands is chiefly moderately to strongly alkaline, some differentiates of the basaltic magmas are silica oversaturated, containing igneous modal quartz. This is the case of the Tindaya trachyte dome, emplaced 18 Ma ago in the basaltic, Tetir volcano in northern Fuerteventura. Lavas from this volcano show bimodality in composition (Daly gap), as they comprise basalts and trachytes with almost no intermediate types (Figure 1). The joint study of those volcanic compositions and shallow intrusions cropping out near them, have allowed us to propose a model for explaining both features mentioned above. This model connects crystallization processes taking place in the shallow feeding magma chambers of the Tetir volcano with the observed volcanic compositions and takes into account the effects of fO_2 and volatile concentration in the fractionating mineral assemblage, which results in a different degree of silica saturation in the residual liquids.

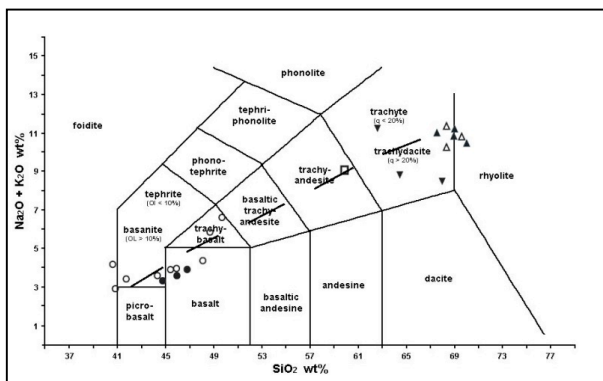


Figure 1: Total alkalis – silica diagram for basaltic and trachytic rocks of the Tetir volcano, northern Fuerteventura.