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# Lithogeochemistry of metabasites from the Moura Phyllonitic Complex (Ossa Morena Zone, SW Portugal)

José Roseiro (1,2), Noel Moreira (1,2), Rita Fonseca (1,2), Alexandre Araújo (1,2), Miguel Maia (1,2), Jorge Pedro (1,2), Pedro Nogueira (1,2)

(1) University of Évora, School of Sciences and Technology, (2) Institute of Earth Sciences - Évora Pole

The Moura Phyllonitic Complex (MPC) is interpreted as a tectonic mélange that extends along the Montemor - Ficalho sector, overlaying the Relative Autochthone of the Ossa Morena Zone (Iberian Variscides, SW Portugal) [1, 2, 3]. Its northern boundary with the Estremoz-Barrancos sector is demarked by the Sto. Aleixo da Restauração Thrust [1, 2]. Generally, the MPC comprises several sericitic-chloritic and siliceous metasedimentary and metavolcanic rocks in a sheared matrix with unknown age, possible ranging from Cambrian to lower Devonian [1, 2]. Frequent imbrications of mafic suites with tholeiitic affinities are known within the MPC: obduction-related sequences [3], HP metamorphic rocks [2, 3] and dismembered volcanics interpreted as parautochthonous imbrications variably metamorphosed from lower-medium grade greenschist to amphibolite facies [2, 3]. Several of these metabasites were sampled for major and trace element ICP-OES analysis (prepared with alkaline fusion, acid digestion and cation-exchange chromatography), in order to characterize their geochemical variability and attempt to correlate with other autochthonous volcanic rocks, thus inferring their geodynamic setting.

The metabasites display tholeiitic affinities and transitional chemistry features ($SiO_2$ = 43–52wt%; $Na_2O+K_2O$ = 2.7–5.12wt%; Mg# = 29-47), and are divided in two distinct groups according to their trace element content and chondrite-normalized REE patterns: (1) metabasites depleted in $TiO_2$ (0.74-1.7wt%; Ti/V = 22-36), with higher Zr/Hf ratio (26-87), and slightly enriched in LREE ($La_{CN}/Lu_{CN}$ = 1.4-2.2; $La_{CN}/Sm_{CN}$ = 1.5-2; $La_{CN}/Yb_{CN}$ = 1.5-2.3), with negative Eu/Eu* (0.88-0.92); (2) the second group contrasts with higher $TiO_2$ content (1.69-2.1wt%; Ti/V 25-45) and Zr/Hf ratios (18-42), and display a considerable enrichment in LREE ($La_{CN}/Lu_{CN}$ = 2.8-3.7; $La_{CN}/Sm_{CN}$ = 1.6-2.2; $La_{CN}/Yb_{CN}$ = 2.7-3.8), with low Eu/Eu* (0.92-1.04),

All these multi-elemental variations suggest (1) a transitional MOR to within-plate eruptive environment, which is consistent with the lower Cambrian volcanism event recorded in several mafic rocks throughout the Ossa Morena Zone [4], (2) both groups possibly developed from the same igneous event, although in different stages of the rifting process, and (3) an apparent stratigraphic correlation inferred between the autochthonous volcanic rocks to the metabasites found within the MPC.

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