

AMS FABRICS AND FLUID INCUSION PLANES RELATIONS IN GRANITES FROM NORTHERN PORTUGAL: PRELIMINARY INSIGHT

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Variscan granites were characterized through a multidisciplinary methodology: Anisotropy of Magnetic Susceptibility (AMS) and geometry of the Fluid Inclusion Planes (FIP). Two types of granites were studied: post-tectonic biotite granites (Vila Pouca de Aguiar pluton) and two-mica syntectonic granites (Porto massif). In the Vila Pouca de Aguiar (VPA) pluton two facies are defined: the Pedras Salgadas granite (PSG), in the core-zone, characterized by leucocratic rocks, with a magnetic susceptibility less than 90×10^{-6} SI; and the Vila Pouca de Aguiar granite (VPAG), at the periphery, composed by mesocratic rocks, richer in biotite, with susceptibility between 90 and 220×10^{-6} SI. The Porto massif is constituted by two main facies: a fine-grained granite (Afurada granodiorite) and a coarse to medium-grained granite (Porto granite) with similar susceptibility between 42 and 52×10^{-6} SI.

In VPA pluton magnetic lineations are organized in two main groups of trends with consistently low plunges; NNE-SSW and NW-SE respectively in VPAG and PSG. In the Afurada granodiorite, magnetic lineations are subhorizontal with E-W trends while in Porto granite, they are subvertical with NW-SE trends.

The FIP corresponding to healed microcracks in quartz and are organized in VPA pluton in two main directions: NW-SE in VPAG and NNE-SSW in PSG. In Afurada granodiorite, the FIP main family is organized in a NE-SW trend and in Porto granite in two directions, NW-SE and NE-SW (less represented).

In the studied granites, magnetic lineations represent the magmatic stretching during the emplacement. According to several authors, FIP correspond to a stress field where the minimum stress, σ_3 , is normal to the FIP that materialized the vertical plane $\sigma_1\sigma_2$. Our data shows that FIP directions and magnetic lineations trends are subperpendicular. It may be assumed that the FIP records the same stress constraints that were recorded by the magnetic structures and this is based on a quick crystallization for these magmas.

Anisotropy of Magnetic Susceptibility, Fluid Inclusion Planes, granites

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