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Abstract title

CHRONOLOGY OF GRANITIC STRUCTURES IN VARISCAN "FOLDED" GRANITE ASSOCIATED TO A SHEAR ZONE (NW PORTUGAL)

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Abstract

In the North of Portugal and NW of Spain the emplacement of biotite granitoids is related to the last ductile deformation phase (D3) of the Variscan orogeny in association with important shear zones. Located in the Central Iberian Zone the Sameiro massif is a good example for establish a chronological sequence of structures in a massif spatially associated to a shear zone. The massif presents an internal structure that is essentially magmatic. In the central sector of the massif, the Kf megacrysts foliation show variable dipping, revealing an interesting "fold" shape in this sector. This "fold" shape is interpreted as magma adaptation to the folds D3 of the metasedimentary enclosed rocks.

The massif presents the following structures:

i) planar and linear structures given by the orientation of Kf megacrysts, biotite and enclaves; ii) vertical metric deformation bands characterized by the flattening of quartz grains and mafic microgranular enclaves, with vertical foliation of biotite and deformation of Kf megacrysts; iii) intragranitic mylonites; iv) N-S dextral shears.

Kf megacrysts and biotite define subfabrics that permit to establish a precise chronological sequence for the structure of the massif:

1. Magmatic phase (principal phase, < 65% crystallization)

1a) beginning and development of the Kf megacryst fabric N150 (principal and magmatic structure, associated to the emplacement of the massif).

1b) beginning of the biotite fabric, parallel or almost parallel to the orientation of the Kf megacrysts.

2. Rheological transition phase

2a) Kf megacryst fabric is almost set, only with internal fracturation

2b) biotite fabric continue to evolve:

- parallel to the Kf megacryst fabric's in the massif body;
- discordant to the Kf megacryst fabric, in shear bands N140 parallel to the major shear zone

2c) Formation of granitic intramytonites of high temperature.

3. Late to post- crystallization

Biotite foliation, non penetrative, associated to N-S ductile-fragile shears.

We concluded that the fabric is the result of the magma deformation by flattening with a reduced rotational component in a transpressive tectonic regime dominated by a NE-SW sub-horizontal compressive component.

ACCEPTED as Poster Presentation

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