Tectonics of the Espinho–Albergaria-a-Velha metamorphic belt (NW Portugal): geodynamic implications

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The NW border of the Iberian Massif is transected by a dextral wrench-fault, the Porto–Tomar shear zone. This major fault constitutes the boundary between the Ossa-Morena Zone, in the west block, and the Central Iberian Zone in the east block. Alongside this major structure, in the Ossa-Morena Zone, the Espinho–Albergaria-a-Velha metamorphic belt is a part of a NW-SE narrow strip, which has been studied in detail. This sector is composed by autochthonous tectonostratigraphics units of low- to high-grade metamorphic rocks and by allochthonous units of medium- to high-grade. Both units are bounded by major dextral wrench-faults developed during D_3 variscan fold phase and present a penetrative foliation (D_1) and well-developed stretching lineation with several meso- and micro-kinematics criteria. However, according to our data, the Ossa-Morena Zone was accretionated to the Central Iberian Zone in a pre-variscan tectonic event. This collision was characterised by the development of the Espinho quartz-mylonites in a tangential regime. These quartz-mylonites have elongate shaped garnets rounded by quartz ribbons in matrix, where prism <c> slip operates and causes a *c*-axis maximum subparallel to the attractor, clearly indicating very high temperature and hydrous conditions. The regional geodynamic implications of our results are referred in the context of the Ibero-Armorican Arc. (This work was supported by a PhD scholarship from PRAXIS XXI to HIC and by grants from DGE 95/PB1052 to FJF and TECTIBER to PEF & AR).