

Comparing detrital zircon distribution patterns of the exhumed Porto – Viseu Metamorphic Belt to their Central Iberian Zone host rocks: implications on Variscan paleogeography

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The Porto-Viseu Metamorphic Belt (PVMB) is a variscan anatectic complex located in the central sector of the Central Iberian Zone (CIZ), Iberian Massif. These migmatites are usually interpreted as melted pelites/greywackes from correlated (and hosting) low-grade metasediments of the Beiras Supergroup and the Douro Group, located South and North of the PVMB, respectively.

LA-ICP-MS U-Pb data on detrital zircon obtained for the Beiras Supergroup and Douro Group reinforce the fact that the Beiras Supergroup tends to present older deposition ages, as maximum deposition ages (MDA) are Upper Ediacaran, whilst the Douro Group exhibits Lower Cambrian MDAs.

Preliminary LA-ICP-MS Hf isotopic data in detrital zircon from two samples (one from the Douro Group, and the other from the Beiras Supergroup), reveal distinct εHf_i values. The Beiras Supergroup shows more positive (or less negative) εHf_i values (-16.9 to +13.1), suggesting the existence of a more juvenile source, compared to the Douro Group (-23.1 to +4.3), which is consistent with what has previously been reported by whole-rock Nd isotopes [1].

Regarding the PVMB samples (a staurolite-bearing schist and a metatexite), they present Ediacaran and Cambrian MDAs, respectively. The metatexite also shows two age groups coeval with Ollo de Sapo magmatism, suggesting the existence of cryptic Ordovician magmatism.

These results reinforce the idea that Beiras Supergroup and Douro Group have distinct sources and ages, and that the boundary between them is located near the PVMB, i.e. is most likely the Douro-Beiras Shear Zone (DBSZ) [2]. However, this boundary might not be as sharp as it is usually considered, since the staurolite-bearing schist sample exhibits a zircon age distribution histogram more similar to that of the Beiras Supergroup, while the metatexite sample is more similar to the Douro Group, even though they are both located South of the DBSZ.

[1] Villaseca et al. (2014). *Precambrian Research*, 245, 131-145.

[2] Oliveira, J. T. coord. (1992). Carta Geológica de Portugal, escala 1:500 000, *Serviços Geológicos Portugal*, Lisboa.

This work is supported by the Portuguese Fundação para a Ciência e Tecnologia, FCT, I.P./MCTES through national funds (PIDDAC): UID/50019/2025 and LA/P/0068/2020 (<https://doi.org/10.54499/LA/P/0068/2020>) and through a PhD scholarship 2020.04436.BD (<https://doi.org/10.54499/2020.04436.BD>).

