The Neoproterozoic-Cambrian transition in Abrantes Region (Central Portugal); Litostratigraphic correlation with the Cambrian Series of Ossa-Morena Zone

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Abrantes region (Fig. 1A) presents a litostratigraphic succession with clear similarities with typical sequences of Neoproterozoic-Cambrian transition in Ossa-Morena Zone (OMZ). Classical works have attributed Abrantes entire sequence to Neoproterozoic (*e.g.* Gonçalves *et al.*, 1979). Detailed characterization, based on fieldwork, of the stratigraphic succession allows to discriminate the presence of litostratigraphic units, attributed to lower Cambrian by correlation with other localities of the OMZ (Fig. 1B); these units overly Neoproterozoic series.

The Cambrian sequence (Abrantes Group; Fig. 1C) begins with a volcano-sedimentary unit composed by detrital rocks, which includes meta-arkoses, meta-pelites and meta-psamites; some rocks show immature content. The volcanic component is mostly composed by abundant felsic rocks, generally with rhyodacitic composition (Abrantes Felsic Unit). The previous characteristics are common in OMZ, where a clastic unit (often missing), sometimes with felsic volcanics and conglomerates, overlies the Serie Negra succession, previously deformed during the Cadomian orogeny at Neoproterozoic times (e.g. Oliveira *et al.*, 1991; Nance *et al.*, 2012).

Abrantes felsic unit gradually change to a carbonate unit (S. Miguel do Rio Torto Carbonates), with calcitic and dolomitic marbles and interbeded mafic volcanics. This unit can be correlated with a range of carbonated units present in all OMZ (Fig. 1C). These units represent a carbonate platform during lower Cambrian showing the beginning of an oceanization process that culminates with the opening of Rheic in lower Ordovician times (Pedro *et al.*, 2010). The lower Cambrian succession culminates with another volcano-sedimentary complex, poorly outcropping; the clastic succession of this complex is dominated by pelitic rocks, interbedded with bimodal volcanics. The transition between the carbonated sedimentation and the overlying volcano-sedimentary one is gradual. All the previous units have not fossiliferous content, mainly due to the action of metamorphic process, which reaches the amphibolitic facies.

With the aim of characterizing and correlating the lower Cambrian carbonate event in the OMZ, it is ongoing $^{87}Sr/^{86}Sr$, ^{13}C and ^{18}O isotopic analysis (Isotope Geology Laboratory of Aveiro University and in the Stable Isotopes Laboratory of Lisbon University).

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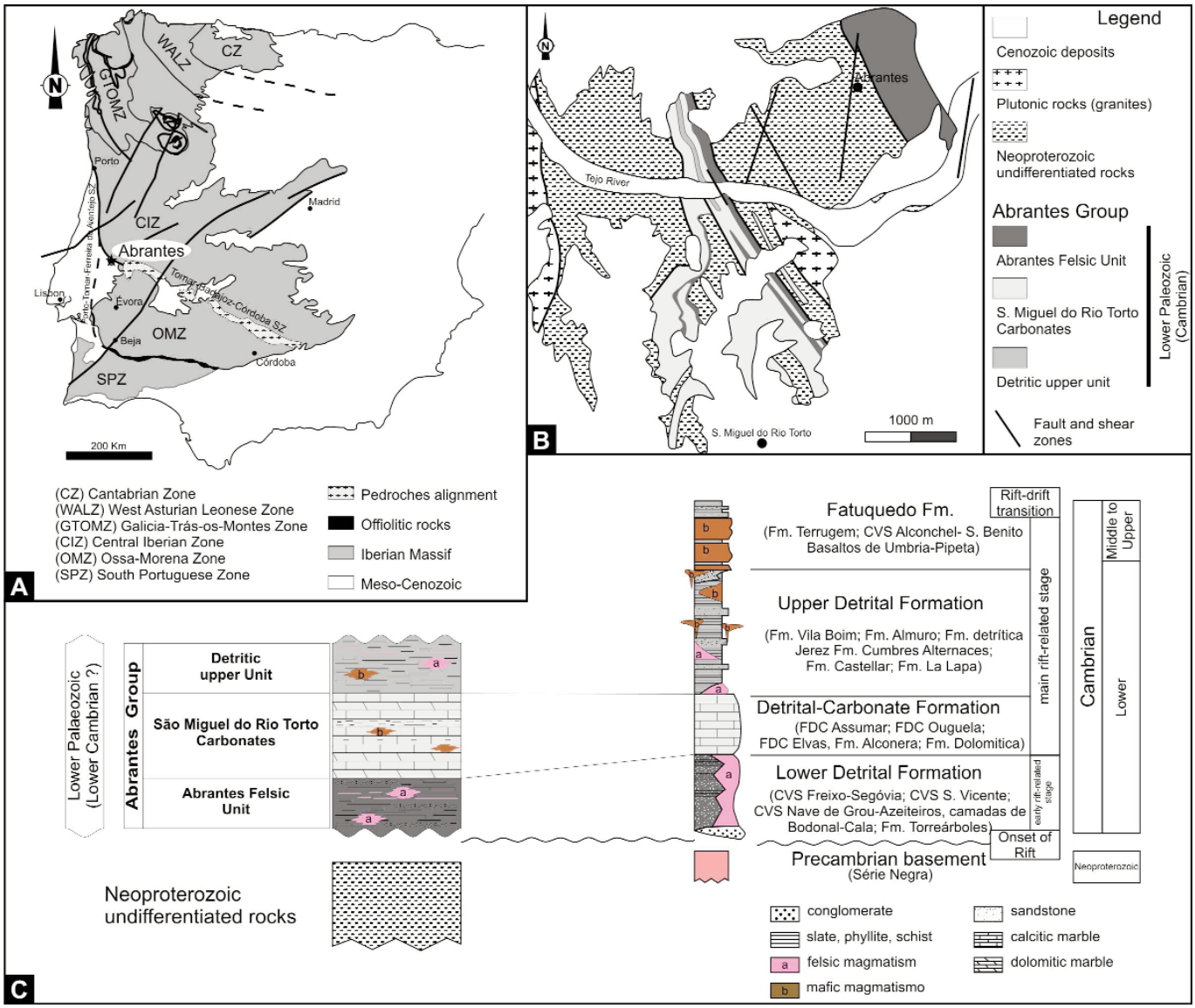

Fig. 1A.- Main divisions of Iberian Massif, signalizing the geographic localization of study area; (B) Simplified geological map of Abrantes region; (C) Litostratigraphic succession of Abrantes Group, attributed to lower Palaeozoic, and its comparison with generalized stratigraphic column of the OMZ (adapted from Nance et al.*, 2012).*