

Syn-orogenic units in the NW Iberian Variscan Massif: a regional approach based on new field work and detrital zircon evidences

Emilio González Clavijo (1), Ícaro Dias da Silva (2), José Ramón Martínez Catalán (3), Juan Gómez Barreiro (3), Alejandro Díez Montes (1), Ulf Linnemann (4), Mandy Hofmann (4), Andreas Gartner (4), and Pedro Castiñeiras (5)

(1) Instituto Geológico y Minero de España, Investigación y Prospectiva Geocientífica, Spain (e.clavijo@igme.es), (2) Instituto Dom Luiz, Faculty of Science – University of Lisbon, Campo Grande, Edifício C8, Piso 3, 1749-016 Lisbon, Portugal, (3) Dept. of Geology, University of Salamanca, 37008, Salamanca, Spain, (4) Senckenberg Naturhistorische Sammlungen Dresden, Königsbrücker Landstr. 159, D-01109 Dresden, Germany, (5) Universidad Complutense de Madrid, Facultad de Ciencias Geológicas, 28040, Madrid, Spain

The Galicia-Trás-os-Montes Zone (GTMZ) of NW Iberia, is a rootless nappe stack collectively known as the Allochthon. It was formed during the Variscan plate convergence as an accretionary wedge and then emplaced in a piggy-back way above the northern Gondwana platform. The lowermost and latest imbricate, called the Parautochthon, has been divided in two sub-units based on structural, stratigraphic and chronological data: the Upper (UP) and Lower (LP) Parautochthon. The former is a low-grade tectonic segment of the outer Gondwanan margin thrust onto the later, constituted by Variscan syn-orogenic sequences trapped between the UP and the autochthonous Gondwanan hinterland of the Central Iberian Zone (CIZ).

Recent field work in the southeastern part of the GTMZ (Morais and Bragança complexes) reveals that some lithostratigraphic units of the Parautochthon, previously considered part of a thick anomalous Silurian sequence, are syn-orogenic units belonging to the LP. This new adscription is based on the stratigraphic characteristics and detrital zircon studies yielding sedimentary ages younger than Upper Devonian, which fit the age of Variscan syn-orogenic deposits. The LP imbricates continued the piggy-back propagation mode incorporating a group of tectonics slices with the younger syn-orogenic sequences placed at lower structural positions. This reflects the progressive incorporation to the orogenic wedge of foreland syn-orogenic materials, deposited in peripheral troughs following the propagation of the Variscan front towards the passive margin of Gondwana.

The geometry of the LP is that of a carpet of imbricate units forming the base of the GTMZ and consisting of syn-orogenic sediments separating the autochthonous CIZ from the rest of the GTMZ allochthon. Its occurrence reinforces the previously acknowledged rootless nature of the GTMZ, and it can be traced further north, to the base of the Cabo Ortegal Complex. Furthermore, the studied region is located at the core of the recently re-discovered Central Iberian Orocline, increasing its eye-catching individuality. Complementary research is being performed to understand the unrooting mechanism of this part of the Variscides and their correlation with other European segments.