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Tremadocian (Lower Ordovician) sedimentary record from the Iberian peninsula (Spain and Portugal) – A reappraisal with new data

GUTIÉRREZ-MARCO, Juan C.[1], SÁ, Artur A.[2], GARCÍA-BELLIDO, Diego C.[3], RÁBANO, Isabel[4], SARMIENTO, Graciela N.[5]

[1] Instituto de Geociencias (CSIC, UCM), Facultad de Ciencias Geológicas, José Antonio Novais 12, E-28040 Madrid, Spain, email: jcgrapto@ucm.es
[2] Departamento de Geologia and Centro de Geociências, Universidade de Trás-os-Montes e Alto Douro, 5000-801 Vila Real, Portugal, email: asa@utad.pt
[3] The Environment Institute, School of Biological Sciences, University of Adelaide, SA 5005, Australia, email: Diego.Garcia-Bellido@adelaide.edu.au
[4] Museo Geominero, Instituto Geológico y Minero de España, Ríos Rosas 23, 28003 Madrid, Spain, email: i.rabano@igme.es
[5] Departamento de Paleontología, Facultad de Ciencias Geológicas, Universidad Complutense de Madrid, José Antonio Novais 12, E-28040 Madrid, Spain, email: gsarmien@ucm.es

Tremadocian rocks are poorly characterized and discontinuously recorded in the Iberian Peninsula, where the existence of major erosive unconformities and diachronic stratigraphic gaps around the Cambrian/Ordovician boundary, is mainly associated to the denudation of rift shoulders during a multistage rifting through the Furongian and the Lower Ordovician epochs. This rifting was connected to the opening of the Rheic Ocean, which also generated thick volcano-sedimentary sequences and plutonism related to the long-lived Ollo de Sapo Magmatic Event, ranging in age between *ca*. 490 and 465 Ma, with a maximum at about 477 Ma and a youngest age of approximately 479 Ma for the massive metavolcanic sequences. In the south-central part of the Central Iberian Zone, unfossiliferous stratigraphic units with volcaniclastic imput occur below the ubiquitous Armorican Quartzite and may be in part of a late Tremadocian age. In the West Asturian-Leonese Zone, the eastern Iberian Ranges and partly in the Cantabrian Zone of northern Spain, the Ordovician conformably overlies Cambrian sequences: the Lower Ordovician strata may reach up to 2,500 m in thickness and are always developed in shallow-water siliciclastic facies, almost devoid of shelly faunas but rich in trace fossils. The extent of Tremadocian rocks were mainly defined on the base of scarce acritarch data, due to the absence of a diagnostic chitinozoan record. However, the Lower Ordovician sequence of the Iberian Ranges yielded several Tremadocian trilobite assemblages that are represented in the upper half of the Borrachón Formation, near the top of the succeeding Dere Formation and also in the lower part of the Santed Formation, being representative of the middle and late Tremadocian. The first record of late Tremadocian graptolites is presented here for the lowermost part of the Dere Fm.
In the SW of the Iberian Peninsula, reworked Tremadocian conodonts occur in Middle Ordovician boulders within a Carboniferous olistostrome in the Obejo-Valsequillo parautochtonous domain. In the Ossa Morena Zone, the transgressive Barriga Shale yielded rich late Tremadocian acritarch and graptolite assemblages from the *Araneograptus murrayi* and *Hunnegraptus copiosus* biozones.
The trilobites and conodonts recorded from the Iberian Tremadocian show affinities with coeval records on the Montagne Noire of SE France, but strengthening some biogeographical links with South America, ?Bohemia and Avalonia, before latter lost all its faunal ties from Gondwana.

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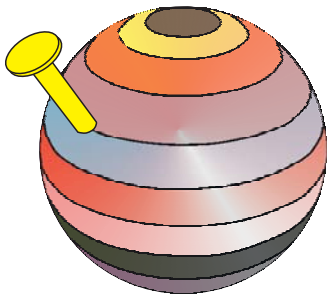

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