

Tectonic evolution of the northern block Phyllite Quartzite Group, South Portuguese Zone, Spain

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The evolution of sedimentary rocks associated with orogenic development potentially records changes in regional tectonics and deformation with time. The geology of Southern Iberia is dominated by rocks that record the amalgamation of Pangea, which formed during the late Paleozoic with the collision between Laurussia and Gondwana. The middle to late Devonian Phyllite Quartzite Group contains the oldest exposed rocks in Southern Iberia. These rocks are thought to be continental shelf deposits deformed during Pangean orogenesis. Therefore, the Phyllite Quartzite Group is an ideal candidate to study the relationship of sedimentation to the evolution of the collision. In order to study these processes related to the formation of the Phyllite Quartzite Group, two field sections were studied in detail. The first section is in the core of the Iberian Pyrite Belt and is considered to represent a classic example of Phyllite Quartzite Group deposition. The second section is poorly studied and crops out in the northern section of an unmineralized part of the Iberian Pyrite Belt. By studying these sections, we hope to: (i) record the final stages of ocean closure and deformation associated with the formation of Pangea; and (ii) provide important insight into the development of the coeval Iberian Pyrite belt (host to some of the world's largest copper, lead, and zinc deposits). Field observations and detailed structural analysis are complemented by detrital zircon geochronology of various samples and clasts to constrain the potential sources of the metasedimentary rocks and to assess potential changes in deposition with time. Preliminary results suggest that the metasedimentary unit of the northern section is lithologically distinct from the classic Phyllite Quartzite Group, and indeed may have a genetic link to units not exposed in the Iberian Pyrite Belt. Taken together these observations and data may greatly improve our knowledge of one of the most contentious geologic areas in the world.