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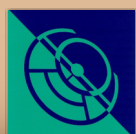
Abstract Book

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Can the Iberian Finisterra Terrane extends until Central Europe Variscides?

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The Finisterra Terrane is located in the western sector of the Iberian Variscides and its eastern boundary is a N-S to NNW-SSE lithospheric structure, the Porto-Tomar-Ferreira do Alentejo Shear Zone (PTFSZ). The PTFSZ makes the contact between the Finisterra Terrane and two distinct paleogeographic zones of the Iberian Terrane: Central Iberian and Ossa-Morena Zones.

The Finisterra Terrane is characterized by three low to high-grade tectono-metamorphic units:

- A lower gneiss-migmatite unit, mainly composed by para-derived gneisses, highly deformed migmatites and mylonites, with lenses of micaschists and ortho-derived gneisses and amphibolites (Lourosa, S. Pedro de Tomar and Foz do Douro gneiss-migmatite complexes);
- An upper micaschist unit, mainly composed by garnet-staurolite-biotite micaschists with some meta-quartzwackes, quartzites, mylonites and ortho-derived mafic rocks, presenting high-strain patterns (Junceira-Tramagal and Espinho Units);
- A low-grade tectono-metamorphic unit (Arada Unit), with probable Neoproterozoic age, composed by black to green phyllites and quartzites with some mafic rocks, being imbricated with very low-grade black shales, Frasnian-Serpukhovian in age (Machado et al., 2011).

Geochronological studies in the HT metamorphic Units (Pereira et al., 2010; Almeida et al., 2014) point a Lower Palaeozoic-Neoproterozoic age for the siliciclastic protolith, although some youngest (Ordovician to Devonian) zircons are obtained. In both units, a Mississippian (ca. 340-320 Ma) HT metamorphic episode is described, being associated to the PTFSZ dextral shearing.

In Berlengas Islands, for similar gneiss-migmatite unit, an Upper Devonian metamorphic age (ca. 380 Ma) was obtained, emphasizing the presence of an early Variscan HT metamorphic episode (Valverde-Vaquero et al., 2010). Late Silurian-Early Devonian ages (ca. 420 Ma) was obtained in the gneissic granite bodies included in gneiss-migmatite unit (Chaminé et al., 1998), which were also affected by the Mississippian tectono-metamorphic episode. The Late Silurian-Devonian zircon ages, obtained in previous described HT tectono-metamorphic units, could be result of such early Variscan metamorphic episode, extending from 430 to 360 Ma.

Similar geological features, with Late Silurian-Devonian tectono-metamorphic and magmatic episodes, preserved in Mississippian high-grade tectono-stratigraphic units are also described in León Block (Ballèvre et al., 2009) and in Mid-German Crystalline Rise (Zeh and Will, 2010). The correlation between León Block and Mid-German Crystalline Rise has already been proposed due to their tectono-metamorphic and magmatic similarities. We propose that this Terrane could extends until Finisterra Terrane, however the nature and evolution of this Terrane is still dubious, not only concerning the extension, significance and meaning of its boundaries and tectonostratigraphic units, but also its relation with the Peri-Gondwana Terranes and neighbouring major plates.

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Mineralization process affecting groundwater quality in coastal Chaouia, Morocco

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The groundwater of Coastal Chaouia area constitutes the essential and vital water resource for the population. It is recognized by its intensive pumping operation for irrigation purposes, which increase the vulnerability of groundwater quality. This study combined hydrochemical and geoelectrical methods in order to determine processes inducing groundwater salinization in the region of coastal Chaouia.

The coastal Chaouia represents an important hydrogeological unit from Moroccan coastal Meseta. The only available water resource in this area is the unconfined aquifer. Consequently, groundwater exploitation for agricultural activities and population supply were favoured. The region stratigraphy includes Paleozoic and Cretaceous formations, which are covered by the Plio-quaternary deposits (Lecointre and Gigout, 1950; Bentayeb, 1972). In the southwestern part, between Azemmour and Tnine Chtouka cities, Plio-quaternary formations rest on the Cenomanian limestone (Cretaceous). Plio-quaternary deposits are generally composed of marine sandstones and consolidated dunes, and they form the important hydrogeological unit of the coastal Chaouia.

The seawater intrusion was significant in the coastal fringe at 3000 m from the ocean. This area regroups highly mineralized wells, with water ECs ranging between 2.3 mS/cm and 11.2 mS/cm, where Mg²⁺, Na⁺, and Cl⁻ ions dominate. These wells are characterized by the presence of brackish to saltwater and the dominance of Na-Cl and Mg-Cl water type. In the upstream area, water salinization become weak with Ca²⁺ and HCO₃²⁻ ions dominance, where water ECs vary from a minimum of 0.5 mS/cm to a maximum of 1.7 mS/cm. These waters are fresh to brackish indicating a dominance of Ca-Cl, Na-Cl, Na-HCO₃ and Ca-HCO₃ water type as a consequence of ion exchange and anthropogenic activity. waters are fresh to brackish indicating a dominance of Ca-Cl, Na-Cl, Na- HCO₃ and Ca-HCO₃ water type as a consequence of ion exchange and anthropogenic activity.

Hydrochemical results were confirmed by the ERT investigation, which provided more details about seawater intrusion extension. The obtained results showed that seawater effect was represented by a conductive level with resistivity less than 36? m. The correlation between different ERT profiles indicated that the conductive level, assigned to seawater intrusion contamination, remains limited at a maximum of 3000 m from the ocean.

Keywords: *Hydrochemical, seawater intrusion, electrical tomography resistivity, coastal Chaouia, Morocco*