The use of gamma ray spectrometry and magnetic susceptibility as tools for interpreting environmental perturbations: the case of the Jenkyns Event (early Toarcian) from South Iberian Palaeomargin (Median Subbetic, SE Spain)

Matías Reolid [1*], Emanuela Mattioli [2,3], Jolanta Iwańczuk [4]; Isabel Abad [1]

1 Departamento de Geología, Universidad de Jaén, Spain
2 Univ Lyon, Univ Lyon 1, ENSL, CNRS, LGL-TPE, France
3 Institut Universitaire de France (IUF)
4 The Polish Geological Institute - National Research Institute, Poland

The Arroyo Mingarrón section (Median Subbetic, SE Spain) is composed by a marl-marly limestone alternation deposited during the Pliensbachian-Toarcian in the South Iberian Palaeomargin. This section shows evidences of hemipelagic influence due to the presence of ammonites and the abundance of radiolarians. The lower part of the section (uppermost Pliensbachian and Polymorphum Zone, NJT5 nannofossil Zone) is constituted by a yellowish marl and limestone alternation (wackestones to packstones of radiolarians). The Serpentinum Zone (NJT6 nannofossil Zone) is represented by blue-greyish marls with some levels of marly limestones (wackestones to packstones of radiolarians).
The application of magnetic susceptibility (MS) and gamma ray spectrometry (GR) to these deposits allows interpreting important environmental changes related to the fluctuations in the continental influx of terrigenous and phytodetritus in the base of the blue-greyish marls (NJT6a nannofossil Subzone). The increase of MS is related to the increment of terrigenous input and the abundance of pyrite framboids recrystallized to hematite. The increase of K, U and Th content from GR spectrometry is related to the enhanced input of terrigenous and phytodetritus from emerged areas as well as the organic matter accumulation.
The increase of terrigenous input was coincident with the negative carbon isotopic excrusion (CIE) at the base of the NJT6 nannofossil Zone that characterizes the Jenkyns Event. Changes in the calcareous nannofossil assemblages point to the incidence of the Jenkyns Event in the sea-water column. The decrease of the abundance of *Mitrolitus jansae* during the negative CIE is related to sea-water stratification and poor oxygenation in the deep photic zone during the event. The integration of data from microfacies, mineralogy, MS, GR spectrometry and calcareous nannofossils allows interpreting the incidence of the Jenkyns Event in hemipelagic settings of South Iberian Palaeomargin.

Key words: Gamma ray spectrometry, magnetic susceptibility, calcareous nannofossil, biostratigraphy, negative CIE, Betic Cordillera

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