

Coccolithophore assemblages and paleoceanographic dynamics at IODP Site U1385: Insights from the Pliocene–Pleistocene transition (western Iberian margin)

María González-Martín

Universidad de Salamanca, Department of Geology, 37008, Salamanca, Spain; mariaglezmartin@usal.es

Patrizia Maiorano, Maria Marino

Università degli Studi di Bari Aldo Moro, Dipartimento di Scienze Della Terra e Geoambientali, 70125 Bari, Italy; patrizia.maiorano@uniba.it; maria.marino@uniba.it

Barbara Balestra

American University, Department of Environmental Science, Washington D.C. 20016, USA; balestra@american.edu

José A. Flores

Universidad de Salamanca, Department of Geology, 37008, Salamanca, Spain; flores@usal.es

<https://doi.org/10.58998/jnr3232>

This study investigates coccolithophore assemblages from the Pliocene–Pleistocene transition in an ocean sediment core from International Ocean Discovery Program (IODP) Site U1385 (Expedition 397), located on the western Iberian margin and retrieved at a depth of 2590 meters below sea level (mbsl). The samples, which were collected over 109 meters (215.5–324.5 meters below seafloor [mbsf]) with an average sedimentation rate of 10 cm/kyr, should allow us to identify the most relevant signatures of astronomical cycles. Samples were prepared using the random sedimentation technique described by Flores & Sierro (1997), and a quantitative analysis was carried out on the entire assemblage.

Biostratigraphic events based on the quantitative distribution of several species of the genus *Discoaster* (highest occurrences of *D. pentaradiatus*, *D. surculus*, and *D. tamalis*) were recognized and used to establish a preliminary age model for the studied interval. The coccolithophore assemblage is mainly composed of small placoliths (<3 μm), followed by medium-sized placoliths (3–5 μm), and *Florisphaera profunda*. The abundances of small and medium placoliths show clear anti-correlation, which, together with the patterns of N ratio (*Reticulofenestra* spp./*Reticulofenestra* spp. + *F. profunda*) and total coccolith abundance, may provide information about paleoproductivity and nutricline variations through time. The overall results will provide insight into the most important variations of coccolithophore assemblage productivity and oceanographic conditions during the Pliocene–Pleistocene transition that was a crucial time for Earth climate changes.

References:

Flores, J.A. & Sierro, F.J. 1997. Revised technique for calculation of calcareous nannofossil accumulation rates. *Micropaleontology*, **43**(3): 321–324.

<https://doi.org/10.2307/1485832>