

New biostratigraphic data for the Lower–Middle Jurassic Los Molles Formation in the Picún Leufú area, Argentina

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The Los Molles Formation in the Neuquén Basin, Argentina, is one of the few southern latitude locations that can shed light on the diversity of Early–Middle Jurassic calcareous nannofossil assemblages. The recent establishment of a biostratigraphic framework based upon nannofossils allows us to evaluate the response of southern hemisphere environments to global changes, such as the early Toarcian Oceanic Anoxic Event (T-OAE) or the turnover in the nanoplankton community through the Early to Middle Jurassic, which occurred along with stable carbon isotope perturbations. Previous investigations examined the expression of the T-OAE in the northern part of the basin and illustrated well-preserved calcareous nannofossil assemblages in the south where there is a continuous record from the Pliensbachian to the Aalenian.

The new Kalemén section in the Picún Leufú area, near the already known El Matuasto section, was studied for calcareous nannofossils and geochemical analyses, including elemental composition, stable carbon isotopes measured on organic matter, and total organic carbon (TOC) weight percent. Calcareous nannofossil assemblages show low diversity and abundance with some barren levels. However, identification of some events like the first occurrence (FO) of *Watznaueria britannica* suggests that this outcrop is late Toarcian–Aalenian in age. Total organic carbon values fluctuate and can attain values as high as 5% in the studied interval, despite the overall high siliciclastic input. The carbon isotope ratio that was measured on organic matter also has significant fluctuations, making it difficult to identify any clear trends. When compared to El Matuasto, Kalemén represents a deeper depositional environment with turbidite deposits. Our approach adds a new piece to the paleoenvironmental puzzle of the Los Molles Formation, revealing important variations in sedimentation zones in close proximity to each other.