



Calcarenitic trough in a Lower Aptian carbonate platform (Aralar, N Spain)

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The Sarastarri Formation presents a continuous outcrop along 21.5 km in the Aralar Mountains (Basque-Cantabrian region, N Spain). It is dated as late Early Aptian (D. deshayesi–D. furcata transition Zone) and consists of micritic limestones with rudists (abundant requieniids among them Toucasia and rarer caprinids and Polyconites), massive and branching corals, Lithocodium–Bacinella consortium, miliolids, and rarer orbitolinids. It is interpreted as a typical shallow-water Urganian carbonate platform succession.

A calcarenitic lithosome 1 km wide and 172 m thick occurs as an isolated body within the Sarastarri Fm in the Desamendi area (Desamendi Member). Detailed field mapping and three vertical sections define a stratigraphic cross-section showing an intra-platform trough model. In the Sarastarri Formation the following units are distinguished from base to top: a basal calcarenitic unit, two lateral micritic units (platform margins) changing facies towards a central body of calcarenites (Desamendi trough), and a final expansive micritic unit capping both the trough and the platform margins.

The western platform margin facing the trough presents vertically superimposed micritic tongues with syn-depositional taluses. Each of them represents a phase of local minor sea level rise. Their trough equivalents are thinner marly limestone units. Intervals of well-developed calcarenites within the trough have no representation in the adjacent platform margins. The present large-scale cross-stratified calcarenites related to tidal action are attributed to episodes of local sea level fall.

The Desamendi intra-platform trough widened and deepened with time. Synsedimentary tectonics (basement faulting) played an important role in the origin and evolution of the trough.