



Burdigalian coral bioconstructions of Sperone (southern Corsica)

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This study reports the facies analysis of a Burdigalian mixed carbonate-siliciclastic coastal system characterized by coral bioconstructions. These deposits, assigned to the Cala di Labra Fm, represent the sedimentation occurred in the Bonifacio Basin during the Sardinia-Corsica block rotation (Ferrandini et al., 2002; Brandano et al., 2009). Although recent studies focused on the deposits of Cala di Labra Fm (Tomassetti et al., in press; Tomassetti and Brandano, in press), the Burdigalian coral bioconstructions and mixed carbonate-siliciclastic coastal systems remain poorly investigated.

At Sperone, the Cala di Labra Fm is well exposed along the sea-cliff allowing an accurate investigation and mapping of coral bioconstructions and lateral facies transition.

Four principal facies have been recognized: a) siliciclastic, b) quartz-rich calcarenite, c) calcarenite and d) coral facies.

The siliciclastic facies comprises crude stratified coarse- to medium-grained sandstones to hybrid sandstones with swaley cross stratification. Bioturbation traces (*Thalassinoides*) are present and occasionally abundant. These are composed of predominant quartz grains, associated with feldspars and rare mafic minerals. Abundant *Amphistegina* and fragments of bivalve and echinoid mostly represent the poor biotic assemblage.

The quartz-rich calcarenite facies shows nodular thin bedding and cross lamination, moderate well sorting and an abundant terrigenous content. It consists of a packstone with red algae debris and large benthic foraminifera (*Amphistegina* and *Miogyopsina*).

The calcarenite facies consists of a moderate sorted packstone with a negligible siliciclastic content. The biotic fraction is made up of *Miogyopsina*, *Amphistegina*, red algae debris and accessory bryozoans, small benthic and rare planktonic foraminifera.

The coral facies is characterized by the presence of massive and platy coral colonies in living position. Two principal growth fabric styles occur: domestone and platestone (sensu Insalaco, 1998). *Porites*, *Tarbellastraea* and less common faviids constitute the coral fauna. Corals

are closely intergrown forming a dense framework, which constitute build-ups up to 10 m in height. The scarce inter-coral sediment consists of a bioclastic floatstone with packstone matrix, dominated by red algae (crusts and nodules) and common large benthic foraminifera (*Miogyopsina* and *Amphistegina*).

The siliciclastic facies represents the more proximal facies of the reconstructed depositional model. These sandstones were deposited in an energetic to moderate energetic zone of the shoreface under elevated terrigenous input. The siliciclastic facies grades basinward to the quartz-rich calcarenite facies, which occupied a slightly deeper portion of the shoreface zone. Quartz-rich calcarenite facies interfingers and passes to the coral facies. The bioconstruction developed in a well-lit moderately energetic zone. The calcarenite facies represents the sediments between the coral build-ups in a slightly deeper and more distal position.

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