

Abstract

Upper Cretaceous (Santonian) rudist- and coral-dominated carbonate platforms crop out at Les Collades de Basturs in the southern limb of Sant Corneli anticline (Catalonian Pyrenees). The succession exhibits subvertical layers enabling the study of facies architecture from drone orthoimagery. A high-resolution 3D model was created, and six stratigraphic sections were logged to ensure accurate facies control. This integration yielded a 2D panel correlation and a 1:5000 scale facies distribution map. The succession comprises four transgressive-regressive cycles (A-E) mainly characterized by transgressive distal marly units and regressive episodes of carbonate platform development. The regressive platform carbonates are made up of a combination of skeletal grainstones, rudist and coral limestones, hippuritid biostromes, and coral nodular limestones. The carbonate episodes show aggradational and progradational stacking patterns, indicative of highstand normal regressive units. Marly packages, associated with local and very reduced in extent platforms showing a backstepping stacking pattern, represent the transgressive units. The entire succession is interpreted to have been deposited in a ramp depositional profile, where inner platform grainstone textures, limestones with corals and rudists, and rudist biostromes pass basinwards to nodular coral limestones. These inner and proximal outer platform facies change laterally and vertically into distal marls and limestones. Moreover this platform constitutes an excellent analogue for the study of the facies belt distribution in rudist-dominated platforms in order to predict the heterogeneities in the subsurface.

Keywords: sequence stratigraphy, depositional models, carbonate platforms, Santonian, Basturs.

