

## Facies and Biostratigraphy of Late Cretaceous (Maastrichtian) in central Chile

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The Late Cretaceous Quiriquina Formation in Central Chile is well recorded around the Bay of Concepción and assigned to the late Early to Late Maastrichtian, based on a diverse ammonite assemblage. Species richness and abundance of ammonoids are high throughout the Quiriquina Formation but gradually decline in the uppermost 10 meters of the section. No ammonoids are recorded from the last 5 meters of the unit. The following three biozones are distinguished: Zone of *Baculites anceps*, Zone of *Eubaculites carinatus* (subdivided into the *Menuites fresvillensis* and *Kitchinites darwini* sub-biozones), and a Zone without baculitids (subdivided into the *Hoploscaphites constrictus* biozone and a zone without ammonites (Salazar et al. 2010). The assemblage shows an Indopacific character, but endemic, cosmopolitan as well as Europe-Tethyan elements are also present. Lithologies of the Quiriquina Formation are siliciclastic and consist of a basal conglomerate, between a few centimetres and 15 metres thick, overlain by yellow cross-bedded sandstone, green siltstone with bivalve coquina layers (*Cardium*, *Pacitrigonia*) and a unit of green mottled siltstone with limestone concretions (SALAZAR et al., 2010).

Four parasequences are identified by a retrogradational pattern of depositional facies. Parasequences 1 to 3 were determined at Las Tablas and are also recognized in numerous other sections in the area. They correspond to the basal conglomerate (parasequence 1), the yellow cross-bedded sandstone (parasequence 2) and the coquina unit (parasequence 3); they represent shoreface facies of decreasing energy. Parasequence 4 corresponds to the silty sandstone with calcareous sandstone concretions and reflects offshore transitional facies.

Based on the vertical stacking pattern of the 4 parasequences described above, a single depositional sequence is recognized in the Quiriquina Formation. It consists of a TST, which is characterized by a retrogradational stacking pattern of parasequences 1 to 3. Parasequence 3 contains the maximum flooding surface (mfs). The HST is formed by the retrogradational stacking pattern of parasequences 3 and 4. Parasequences 1 to 3 correspond to shoreface facies and parasequence 4 to offshore transition facies representing maximum water depths in the depositional area.

In consequence, parasequence 1 represents a retrogradational facies pattern in a shoreface high energy environment. This transgression resulted from sea level rise near the end of the Early Maastrichtian. Transgression continued through parasequences 2 to 3 which also reflect shoreface facies, but with gradually decreasing energy levels. During parasequence 4, this retrogradational system (transgression) continued in an offshore transition environment with low energy levels. A strong regression ended marine sedimentation either near the end of the Maastrichtian or cutting down from the Paleocene. The K/T boundary is thus incomplete due to erosion and an extended hiatus.

SALAZAR, C. et al., 2010. N. Jb. Geol. Palaeont. Abh., **257/2**, 181–236.