
Bio-sequence stratigraphy of Jurassic – Cretaceous transition in central Chile

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Abstract

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The Lo Valdés Formation is a marine unit assigned as a mixed carbonate-siliciclastic ramp of a back-arc basin context. This unit represents a transgressive system of the western margin of Gondwana during the upper Tithonian – upper Hauterivian (Salazar & Stinnesbeck 2015). This work integrates the sedimentary and tectonic dynamics with the bio-events marked during this time in central Chile.

The integration of microfacies and sequences stratigraphy with biostratigraphy and bio-events, shows that during the upper Tithonian was a relative increase in sea level, while in the Berriasian, a progressive deepening is suggested a middle ramp that extends to the end of the Berriasian. While, during the upper Tithonian to the upper Berriasian, fauna (ammonites and bivalves) similarity values increase gradually, showing coincidence with the gradual decline of the diversity and highest similarity values during the upper Tithonian, coincident with a high diversity; similarity declines during the lower Berriasian as most taxa (ammonites and bivalves) registered in the upper Tithonian are absent during the lower Berriasian (Salazar et al. 2020).

Then, at the base of the Valanginian, a shallowing would have been registered possibly as an internal ramp, characterized by the decrease of the pelagic material and an increase in the size of selection and rounding of the facies. Upsection, in the Hauterivian, the pelagic material increases progressively again, added also to the significant decrease in the content of bioclasts, representing a deepening and establishing an external ramp sub-environment, therefore an increase in the relative level of the sea to the upper Hauterivian.

References

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