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THE UPPER JURASSIC VACA MUERTA BASAL DEPOSITS IN THE PICÚN LEUFÚ AREA, NEUQUÉN BASIN: EVIDENCE OF A RAPID TRANSGRESSION

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The Vaca Muerta Formation basal deposits constitute an example of a marine transgression over the continental Tordillo Formation in the Neuquén Basin, Argentina during the Tithonian. We have integrated the sedimentological and ichnological datasets of the basal transgressive deposits in order to better understand the sedimentary evolution of this interval. Analysis of six stratigraphic sections (20 m each) of the Tordillo-Vaca Muerta formation transition was coupled with petrographic description of seven thin sections in the Picún Leufú area (Southern Neuquén Basin). The sedimentary evolution can be summarized as follows: (1) a deformational phase generated a topographic high in the Picún Leufú anticline, (2) an early phase of high water table triggered liquefaction, early stabilization and coastal eolian dune reworking, (3) an embayment phase with deposition of mud flat, bay margin and distal bay facies showing the *Glossifungites* Ichnofacies delineating transgressive surfaces, and (4) a late stage of siliciclastic basinal condensation recording hemipelagic deposition and oxygen-deficient conditions, which ended with a Maximum Flooding Surface on top. Sedimentologic and ichnologic evidence indicates that the transgression did not constitute a catastrophic flooding over the eolian deposits, and rather records a low-energy and rapid flooding event that promoted preservation of a reworked eolian relief and the analyzed marginal marine transitional deposits.