

## SEQUENCE STRATIGRAPHY FROM THE DRIFT PHASE OF MUNDAÚ SUB-BASIN USING WELL LOGS DATA

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**ABSTRACT:** The Ceará Basin is an offshore basin located in Northeast Brazil and is part of a series of basins of the equatorial margin of Brazil. This basin is subdivided according to tectono-sedimentary aspects in four sub-basins. In this work, we study the Mundaú sub-basin, which concentrates oil and gas exploration activities and has a thick and complete sedimentary record. The distribution of depositional environments in a sedimentary basin reflects the spatial and temporal variations in physical processes at the shoreline and the relationship between the sediment supply rate and the accommodation development space. A complete stratigraphic cycle was studied from the recognition of the stratigraphic sequence, which typically includes two or more systems tracts. This work aims to define and characterize these stratigraphic discontinuities in well logs and from this provide a stratigraphic model for the Ceará Basin. The standard log data (i.e. gamma ray-GR, sonic-DT and density-RHOB) were used to interpret the stratigraphic units. All the data was provided by ANP. The methods consist of identify key surfaces bounding, subdivide the sediment packages and correlate their continuities. The recognition of systems tracts and their relation to the depositional processes were based on the identification and interpretation of key surfaces, such as; maximum flooding surface (MFS), maximum progradation surface (MPS), marine condensed interval (MCI), downlap surface (DS) and sequence boundary (SB). Some key surfaces of regional expression were recognized in the two major units. Unit 1 marks beginning of the drift sedimentation. This unit includes the Uruburetama and Itapajé members, both belonging to the Ubarana Formation. Uruburetama member comprises mainly retrograde patterns and its base is comprised of shales and an abrupt upward increasing in the GR. These two members are distinguished by a SB described as steeply rising upwards in the GR and DT logs. Itapajé member has retrograde and prograde intervals recognized by coarsening upward patterns, which constitute DS. Bow and blocky trend also occur as thick stratigraphic unit. In general, the prograde sequences are less thick at the top of the unit. Thus, this unit ends up with fining upward and followed by a coarsening upward pattern. The latter sequence of Unit 1 marks a subsequent process of progradation. This sequence is delimited at its base by a MPS and marks the SB that begins the aggrading phase. Unit 2 comprises the Tibau and Guamaré Formations and is initially marked by irregular trends which are interpreted as aggrade intervals. Usually these aggrade intervals are followed by fining upward patterns that point out transgressive patterns interpreted as MFS. In general, Unit 2 is less thick than the other sequences found in Unit 1. In conclusion, these stratigraphic information are parameters for interpreting and measuring depositional processes in Ceará Basin.

**KEYWORDS:** KEY SURFACES, SYSTEMS TRACTS, CEARÁ BASIN.