

Facies Probably Related to Bottom Currents in Espirito Santo Basin.

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Urucutuca Fm (Late Cretaceous to Recent) consists of deep water marine siliciclastic deposits, composed by shales and interbedded turbiditic sandstones. It occurs in Espirito Santo Basin, a passive margin basin located on Brazil eastern coast.

Fine-grained sandstones observed in Upper Cretaceous to Oligocene cores of Urucutuca Fm have been considered as fine-grained turbidite and interpreted as distal lobes or overbank.

However, a specific facies of fine-grained sandstone can be interpreted as bottom currents reworked deposit. This facies is characterized by grains varying from very fine to medium-grained, absence of larger grains, very well sorting, presence of tractive structures, as horizontal lamination or climbing ripples, with internal discontinuous mud thin laminae. Normal grading, bioturbation, and deformational structure can or not occur. Various authors have already mentioned some of these features as indicative of reworking by bottom currents.

Such facies can occur in two different contexts: overlying coarse-grained turbiditic sandstone through a sharp contact or simply interbedded into shales. In the first case the sharp contact indicates distinct depositional processes.

This facies is widespread in Urucutuca Fm occurring in different scenarios, as canyon filling, slope, or basin floor deposits.

The presence of thin, fragile mud laminae inside tractive structures, denoting spans of settling during dominant traction processes, is the main criteria that lead us to interpret a deposit generated by bottom currents. If that mud laminae is not observed, it will be difficult to discern fine-grained turbidites with tractive structures (Bouma Tb-c divisions) from bottom currents reworked deposits.