

Author's Accepted Manuscript

The Açú Reef morphology, distribution, and inter reef sedimentation on the outer shelf of the NE Brazil equatorial margin

Luzia Liniane do Nascimento Silva, Moab Praxedes Gomes, Helenice Vital



www.elsevier.com/locate/csr

PII: S0278-4343(17)30157-7
DOI: <https://doi.org/10.1016/j.csr.2018.03.011>
Reference: CSR3745

To appear in: *Continental Shelf Research*

Received date: 3 April 2017
Revised date: 9 March 2018
Accepted date: 29 March 2018

Cite this article as: Luzia Liniane do Nascimento Silva, Moab Praxedes Gomes and Helenice Vital, The Açú Reef morphology, distribution, and inter reef sedimentation on the outer shelf of the NE Brazil equatorial margin, *Continental Shelf Research*, <https://doi.org/10.1016/j.csr.2018.03.011>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

The Açú Reef morphology, distribution, and inter reef sedimentation on the outer shelf of the NE Brazil equatorial margin

Luzia Liniane do Nascimento Silva, Moab Praxedes Gomes, Helenice Vital
Programa de Pós-Graduação em Geodinâmica e Geofísica, Departamento de Geologia,
Universidade Federal do Rio Grande do Norte, C.P:1596 Natal-RN 59072-970, Brasil
luzialiniane@yahoo.com.br
gomesmp@geologia.ufrn.br
helenice@geologia.ufrn.br

Abstract

Submerged reefs, referred to as the Açú Reefs, have been newly observed on both sides of the Açú Incised Valley on the north eastern equatorial Brazilian outer shelf. This study aims to understand the roles of shelf physiography, its antecedent morphologies, and its inter reef sedimentation on the different development stages of the biogenic reef during last deglacial sea-level rise. The data sets consist of side-scan sonar imagery, one sparker seismic profile, 76 sediment samples, and underwater photography. Seven backscatter patterns (P1 to P7) were identified and associated with eleven sedimentary carbonate and siliciclastic facies. The inherited relieves, the mouth of the paleo incised valley, and the inter reef sediment distribution play major controls on the deglacial reef evolution. The reefs occur in a depth-limited 25 to 55 m water depth range and in a 6 km wide narrow zone of the outer shelf. The reefs crop out in a surface area over 100 km² and occur as a series of NW-SE preferentially orientated ridges composed of three parallel ridge sets at 45, 35, and 25 m of water depth. The reefs form a series of individual, roughly linear ridges, tens of km in length, acting as barriers in addition to scattered reef mounds or knolls, averaging 4 m in height and grouped in small patches and aggregates. The reefs, currently limited at the transition between the photic and mesophotic zones, are thinly covered by a red algae and scattered coral heads and sponges. Taking into account the established sea-level curves from the equatorial Brazilian north eastern shelf / Rochas Atoll and Barbados, the shelf physiography, and the shallow bedrock, the optimal conditions for reef development had to occur during a time interval (11-9 kyr BP) characterized by a slowdown of the outer shelf flooding, immediately following Melt Water Pulse-1B. This 2 kry short

Download English Version:

<https://daneshyari.com/en/article/8884047>

Download Persian Version:

<https://daneshyari.com/article/8884047>

[Daneshyari.com](https://daneshyari.com)