RECENT PALEO-CORAL REEFS OF THE NORTHWESTERN PENINSULA OF TRINIDAD: IMPLICATIONS FOR MARINE OCEANOGRAPHIC CONDITIONS IN THE GULF OF PARIA

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ABSTRACT

The Gulf of Paria is a shallow, semi-enclosed water body between Trinidad and Venezuela with an area of 8,500 square kilometers. It is connected to the Equatorial Atlantic in the south by a shallow channel called the Bocas del Serpiente, and to the Caribbean Sea in the north by a series of deep passages called the Bocas del Dragon. At present, oceanographic conditions in the Gulf of Paria are dominated by seasonal sediment-laden brackish water from the Orinoco River, entering through the Bocas del Serpiente. This Orinoco flow leads to considerable seasonal variation in surface salinity, ranging from 34 ppt in the dry season to 14 ppt in the wet season.

Earlier studies of the Gulf of Paria recorded the presence of dredged coral debris in the Chaguaramas area of the NW Peninsula. This study records, for the first time, in-situ paleo-coral reefs at several offshore sites on the NW peninsula, consisting of hermatypic scleractinian reef-building corals that are no longer living in the Gulf of Paria. The corals are well preserved, but are heavily bio-eroded and covered in epibenthic organisms. Occurrence of these paleo-corals implies that the recent oceanographic environment of the Gulf of Paria was dominated by high salinity, low turbidity marine conditions. This could only occur if circulation was dominated by the Caribbean Sea through the Bocas del Dragon and the Orinoco outflow bypassed Trinidad to the east. Work in progress includes isotopic dating of these corals, which should provide more accurate timing of this dramatic environmental change.