

PRESERVATION OF IN SITU REEF FRAMEWORK IN REGIONS OF LOW HURRICANE FREQUENCY: PLEISTOCENE OF CURAÇAO AND BONAIRE, SOUTHERN CARIBBEAN

MEYER, David L.¹, GREENSTEIN, Benjamin J.², and BRIES, Jill M.¹, (1) Geology, Univ of Cincinnati, Cincinnati, OH 45221, david.meyer@uc.edu, (2) Geology, Cornell College, Mt Vernon, IA 512314

The Lower Terrace Limestone (Pleistocene, ca. 125 ka) of Curaçao and Bonaire is remarkable for its spectacular preservation of coral colonies in growth position. Over the modern recorded history of tropical storms these islands are among the lowest in severe storm frequency within the tropical Atlantic region. We propose that the existence of similar conditions of low storm frequency during the late Pleistocene highstand were conducive to preservation of reef framework in growth position. Line transects across terrace exposures of seaward-marginal reef facies from both windward and leeward sides of Curaçao revealed 93% of colonies in growth position. As a test of the hypothesis, elevated reefs formed during the same highstand were examined in the Bahamas where some of the highest modern frequency of hurricanes is recorded. Fossil reefs with similar facies on Great Inagua, Bahamas, revealed 79% of colonies in growth position. On San Salvador, Bahamas, the coeval Cockburn Town Reef exposes considerable broken, collapsed rubble of *Acropora palmata* and *A. cervicornis* as well as numerous head corals in growth position. In another region of high hurricane frequency, the Florida Keys, the well-known Key Largo Limestone has an apparently high proportion of head corals in growth position, possibly a consequence of a more protected setting behind the shelf-marginal reef tract. Comparison of Holocene reef fabrics in high vs. low frequency hurricane regions of the Caribbean from previous coring studies may also support the hypothesis but are limited by problems of recognition of in situ corals in cores. Further regional quantitative comparisons between exposed fossil reefs are needed to test the role of hurricane frequency in reef coral taphonomy.

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