

THE IMPACTS OF THE 2004 INDIAN OCEAN TSUNAMI WITHIN THE MALDIVES ISLANDS

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ABSTRACT

A post-tsunami field survey was carried out in seven islands within the Central Maldives Island Chain, approximately 6 weeks after the 2004 Indian Ocean Tsunami. The area studied had damage ranging from extreme to light, dependent upon proximity to the atoll barrier reef. We examined the island in order to document damage to structures as well as changes in the geomorphology and geology of the islands. We found that record of pervasive erosion that stripped corals and sands from the littoral zone and beach. The coral blocks were left in the vicinity of the back beach. The sand was washed over the islands (particularly on the islands closest to the barrier reef) and left a sand sheet, which generally did not bury the grass on the island, but did fill harbors...The drainback from the tsunami flooding and currents associated with the tsunami passage deeply eroded beaches on the lagoon side of islands. There was a net transport of sand from the islands, offshore into deep waters of the lagoon during the tsunami. There was heavy damage to vegetation adjacent to the beach, due to undermining and stripping of the vegetation and due to salt-water damage to vegetation.

Tsunami inundation reached 1-3 m on these islands and the islanders reported that the wave came first from the east and then from the west and met near the center of the island. The water was reported to have retreated first, resulting in turbulent waters prior to the tsunami flooding. While a strong erosional event occurred in the Maldives Islands, it would be difficult to differentiate the traces of the tsunami from a storm deposits and it is likely that the traces of the tsunami will be entirely removed by normal coastal processes in a few years time, leaving little geologic evidence of this major tsunami event.