Geophysical Research Abstracts,
Vol. 10, EGU2008-A-10348, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-10348
EGU General Assembly 2008

A new view of the Neogene to Quaternary evolution of the Maldives carbonate platform (Indian Ocean)

C. Betzler (1), C. Huebscher (2), T. Luedmann (3), J.J.G. Reijmer (4), A. Droxler (5), S. Lindhorst (1), M. Roemer (1), D. Jaramillo (1) and Shipboard Scientific Party Cruise M 74/4

(1) Institute of Geology and Paleontology, University of Hamburg, (2) Institute of Geophysics, University of Hamburg, (3) Institute of Geochemistry and Marine Chemistry, University of Hamburg, (4) Dept. of Sedimentology and Marine Geology, Vrije Universiteit Amsterdam, (5) Dept. of Earthy Science, Rice University Houston

The Maldives carbonate platform in the Indian Ocean is the second largest isolated carbonate platform in the worlds ocean. The archipel consists of two N-S oriented rows of atolls enclosing the up to 500 m deep Inner Sea. New seismic and hydroacoustic data recorded during the Meteor cruise M 74/4 (NEOMA) in December 2007 show that atolls and drowned atolls are lined by active giant drift bodies separated from the atolls by a current moat and covered by migrating submarine dunes. Dune and moat facies can be traced back into time, thus allowing tracing the signatures of bottom currents in the sediments back to the early Pliocene or even the late Miocene. Therefore, these strong currents were a major controlling factor of platform evolution. It is proposed that currents are responsible for the empty bucket geometry of the atolls, because neritic carbonate produced in the inner platform is continuously exported out of the atolls and re-distributed in the drift bodies. Ultimately this implies that the Maldives are a current-controlled carbonate platform and that its peculiar geometry is directly linked to the oceanographic setting. It also results that the platform is a reliable recorder of the climatically-induced Cenozoic palaeoceanographic evolution.