



IODP Expedition 359: Maldives Monsoon and Sea Level

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Drilling the carbonate platforms and drifts in the Maldives aimed to recover the marine tropical record of the Neogene sea-level changes and the onset of the monsoon related current system in the Indian Ocean. To reach this goal, eight sites were drilled along two transects in the Kardiva Channel in the Inner Sea of the Maldives during IODP Expedition 359. The recovered cores and log data retrieved the material to achieve all the objectives set for the expedition. The most arresting accomplishment is the documentation of how the sea level controlled the carbonate platform system that was thriving during the Miocene Climate Optimum abruptly transitioned into a current-dominated system in the late Middle Miocene. This transition is linked to the onset of an early intensification of the Indian monsoon and the coeval demise of some of the Maldivian platforms.

Cores and downhole logs allowed producing a solid record and reconstructing the Neogene environmental changes in the central Indian Ocean. Preliminary shipboard analyses allow a precise dating of this major paleoclimatological and paleoceanographical changes, as it also applies for the extension of the Oxygen Minimum Zone (OMZ) into this part of the Indian Ocean. Coring produced a solid framework to foster the post-cruise research of these distinct topics. In addition, complete spliced sections and logging at key sites during Expedition 359 provide the potential to assemble a cycle-based astrochronology for the Neogene section in the Maldives. This high-resolution chronology will allow: 1) independent ages to be assigned to key biostratigraphic events in the Maldives for comparison with those from other tropical regions; 2) more precise ages for the major sequence boundaries and unconformities; and 3) evaluation of higher-resolution sedimentation rate variations.