

IODP Expedition 359: Maldives Monsoon and Sea Level

Week 1 Report (30 September–4 October 2015)

Operations

IODP Expedition 359 (Maldives Monsoon and Sea Level) officially began with the first line ashore Fort Hill Wharf, Berth 2W Darwin, Australia, at 1013 h on 30 September. The initial week of Expedition 359 consisted entirely of port call activities in Darwin. These included the routine resupply of consumables, offloading of the previous expeditions freight, and refueling. Unfortunately, no work could be conducted after dark due to noise restrictions.

The IODP *JOIDES Resolution* Science Operator (JRSO) staff and the Expedition 359 Co-Chief Scientists boarded the vessel at 1100 h on 30 September and immediately started the crossover meetings with the previous expedition participants. Other activities on the first day included loading of the ship operators air freight, the Schlumberger logging sources, and local fresh food. In addition, a press conference with the Expedition 356 Co-Chief Scientists and a public relations tour were conducted. The second day of port call (1 October) included the ship crew change, the arrival of the Expedition 359 scientists, a tour for VIPs and media, offloading of Expedition 356 cores, loading of frozen food, and we started loading drilling mud. On the third day of port call (2 October), loading of supplies continued including drilling mud, drill collars, arriving sea freight, and locally-sourced laboratory supplies. Expedition 356 outgoing shipments were dispatched, including remaining cores, scientists' personal samples, and JRSO/Schlumberger air freight.

Completion of activities on 3 October was critical to an on-time departure for Expedition 359 because the port side aft crane could not be used during the refueling process that was planned for the following day. Therefore all loading and storing of supplies that required the aft crane had to be completed before moving the ship to the bunkering pier. This was further complicated due to not being able to operate the cranes after dark (due to noise restrictions) as well as only being able to operate one crane at a time in the afternoon.

Science Results

The overall goal of the IODP Maldives Monsoon and Sea Level Expedition 359 is to core and log seven sites on two latitudinal transects in the Maldives Archipelago in order to achieve the following scientific objectives:

1. To decipher the record of Neogene sea level and environmental changes in the Maldives sediments and to place the Maldives current system into the larger scale ocean current framework present during Neogene global cooling and monsoon evolution;

2. To determine the onset of the modern depositional system driven by a mix of sea level changes and strong currents;
3. To reconstruct the pre- to post-drowning evolution of the carbonate bank by linking the seismic stratigraphic and sedimentary records;
4. To constrain the timing of this evolution by dating unconformities, sedimentary interruptions and turnovers as well as onset of drift sedimentation;
5. To obtain a continuous carbon isotopic record to calibrate a platform and platform margin record with the pelagic record.

During the first week of the expedition, the scientists started to become familiar with the ship's laboratories, core flow, sampling, core curation, research publication obligations and shipboard report procedures. All scientists and new JRSO personnel received safety training from the captain and JRSO Laboratory Officers. The scientists started to converge on their laboratory procedures and the sampling plans for shipboard analyses, and they started to document these methods for the expedition report.

Technical Support and HSE Activities

The first week involved the technical staff preparing for and implementing operations of the expedition.

Laboratories

- Scientists were introduced to their laboratory specialists and workflow.
- Incoming shipments and supplies were distributed and stored.
- NGR: replaced the noisy cooling fans for the NGR electronics with quiet fans. Installed temperature sensors with alarms to monitor the temperature inside the electronics case. The NGR system is operational.

Miscellaneous

- Facilitated laboratory tours for PR and VIP guests on 1 October.

Freight

- Offloaded:
 - Four 40 ft refrigerated containers with core and return IODP surface freight.
 - IODP JRSO air freight and foreign air freight.
- Received:
 - IODP JRSO shipment of H₂S sensors; given to ship operator for installation.
 - Two containers of D-Tubes and miscellaneous science and operations supplies.
 - Six flats with operations equipment and supplies.

- Two shipments of bulk material.

HSE Activities

- Safety tours were conducted for new IODP staff and all scientists on 1 October.
- Safety awareness sheets were completed for Chemistry, Physical Properties, Whole-Round Multisensor Track, and Paleomagnetism areas.
- Laser safety training given to new IODP staff.
- Safety showers and eyewash stations were tested.