



**Daily Drilling and Scientific Report for IODP Expedition 325,
Great Barrier Reef Environmental Change**

9th March 2010 (0000-2400, local time)

1. Location

HYD_02A Site 2 (M0042A) and HYD_02A Site 12 (M0043A)

Time zone: Brisbane Australia Time, UTC +10

Position at midnight (drill string):

Latitude: 19° 47.93105 S

Longitude: 150° 28.76188 E

2. Activity summary

Wireline logging operations were completed soon after midnight. Following securing of the drill floor and recovery of the transponder beacon, the vessel moved to M0043A (Site 12) and commenced coring operations, which continued throughout the day.

3. Science report

Core 1R (M0043A) penetrated 2.2 m into the sea bed and recovered some recent carbonate sediments. Cores 2R-3R recovered mainly carbonate sands and gravels down to 5.7mbsf. Both core catchers contain broken coral fragments and 3R contained a 10 cm section of well preserved massive *Acropora palifera/cuneata*. Core 4R advanced 1.5 m but recovered nothing. Core 5R only recovered disturbed sediments and broken coral fragments down to 8.7mbsf. Core 6R advanced to 10.2mbsf, recovering lime pebbly framestone and some microbialite. Core 7R contained framestone and few pieces of microbialite. Distinct reef framework was captured in Core 8R and massive *Acropora palifera/cuneata* were observed. Core 9R continued robust framework facies - both massive *Acropora palifera/cuneata* and reddish *Tubipora* were found. Core 10R contained framestone but few massive corals. Small branching coral fragments coated by coralline algae were observed in the core catcher of 10R. Massive Faviid was captured in the core catcher of Core 11R, and the presence of coral framework continued into Core 12R where the rock also consisted of mildly cemented sediments.

Cores 13R - 15R also contained framestone, advancing to 23mbsf. Lesser corals were observed in Core 16R and microbialites were a dominant component. Core 17R consisted of fragments of framestone but had poor recovery. Faviid and another unidentified coral were observed in the core catcher. Approximately 30 cm of sand was recovered by Core 18R containing many benthic foraminifers. Massive coral (*Acropora* sp.?) was captured in the

core catcher. Only core catcher materials were retrieved in Core 19R, with fragments of branching *Pocillopora* sp. and *Acropora* sp. as well as massive *Acropora* sp. coated with grainstone. Core 20R advanced to 30.5mbsf and was composed of sand with pebbles. The grain size of this sand was slightly larger than that for the previous core. Core 21R was also sand, and *Halimeda* and benthic foraminifers were common. Core 22R contained grainstone and serpulides. It was decided to go with a 3m run to confirm this facies, being a stratigraphically important bed. Core 23R advanced to 35mbsf but recovered only fine carbonate sands.

4. Core recovery details

Hole	M0043A
LAT water depth	103.17m
Cores recovered	23
Drilled length	35m
Recovered length	5.94m
Recovery	16.97%
Depth at midnight	35mbsf

5. Weather

Sea state: moderate (4) with swell of 1.25 – 2.5 m; wind direction ESE becoming SE by mid morning, force 6 (22-27 knots); overcast with periods of heavy showers; 28°C.

Next 24 hrs: Sea state moderate with swell of 1.7 – 2.2m; wind direction SE 15 - 20 knots, increasing to 20 - 25 knots by the evening; scattered showers.