



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

7th March 2010 (0000-2400, local time)

1. Location

HYD_02A Site 2 (M0042A)

Time zone: Brisbane Australia Time, UTC +10

Position at midnight (drill string):

Latitude: 19° 50.6388 S

Longitude: 150° 26.8818 E

2. Activity summary

Coring operations continued at site M00042A initially using API. Use of the HQ system was attempted but recovery was poor and the API was sinking due to the presence of relatively soft sediments. Therefore, the decision was taken to return to using API.

3. Science report

Core advanced 2 m, recovering recent gravel and sand sediments along with a 10cm piece of dark stained branching coral (*Pocillopora*) with a thin crust of microbialite. Cores 2R and 3R advanced to 5.5mbsf, recovering broken massive coral framestones composed of a range of coral types (*Faviidae*, *Acropora*, *Montipora*). A well preserved, in-situ corymbose *Acropora* was observed in the core catcher of 3R. Lithologies and coral types indicate a shallow, higher energy reef environment. Core 4R advanced to 7mbsf and recovered 1.1 m of continuous framestones composed of in-situ massive and branching corals (*Acropora*, *Porites?*), thick coralline algal crusts and cm scale crusts of microbialite. Core 5R recovered about 30cm of broken microbialite and coral material.

Core 6R was the first core run using the HQ system. No sediments were recovered and this was same to Cores 7R and 8R. Due to operational reasons, coring continued with API, with pieces of massive coral and coralline algal crust found in Core 9R framestone. Core 10R was also framestone. A 40cm section of *Halimeda* rudstone was recovered in Core 11R, with some pieces of fractured corals preserved at the top of section 1. A 5cm cored massive coral is observed on top of the *Halimeda* rudstone. This may represent the basal section of the upper coral framestone unit.

Core 12R was also rudstone with fractured *Halimeda* included. The grain size of Core 13R was slightly decreased, and it was consisted of fractured coral

pieces and lime pebbles. The core catcher of 13R contained framestone. However, it was difficult to identify original pebbles from rubble produced during drilling. Cores 14R to 16R were similar, with section 1 consisting of lime pebbles and the core catchers containing framstone with fractured coral. Core 17R advance to 25mbsf, but had poor recovery. The core catcher contained lime pebbles with brownish stained rhodoliths. Core 18R consisted of broken *Halimeda* grainstone and coral fragments with about 30cm of carbonate gravels.

4. Core recovery details

Hole	M0042A
LAT water depth	50.78m
Cores recovered	18
Drilled length	26.5m
Recovered length	6.12m
Recovery	23.09%
Depth at midnight	26.5mbsf

5. Weather

Sea state: smooth (2) with swell of <1m; wind direction variable force 1 becoming SE force 3 (<10 knots) by mid afternoon; partly cloudy; 30°C.

Next 24 hrs: Sea state slight with swell of 1.2m, increasing to 1.7m (moderate) from the south; wind direction S/SE 5 - 10 knots increasing to E/SE 15 - 20 knots in the afternoon; scattered showers with increasing rain from the south throughout the day.