



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

2nd April 2010 (0000 - 2400 local time)

1. Location

NOG_01B Site 5

Time zone: Brisbane Australia Time, UTC +10

Position at midnight (on station M0056):

Latitude: 17° 06.13458 S

Longitude: 146° 34.4497 E

2. Activity summary

Coring operations were completed at M0055A. The vessel then transited ~66m to NOG_01B Site 5 M0056A, where HQ coring operations began, continuing until midnight.

3. Science report

Core 5R advanced to 16.29 mbsf and again recovered magnificent, continuous sections of coralg-al-microbialite framestone. However, the driller's log indicated that the last ~ 1m of 5R was either sand and/or cavities between ~15.29-16.29 mbsf. Core 6R continued to 19.29 mbsf but from ~15.29 to 18.48 mbsf the bit dropped very quickly indicating a continuation of the sand/cavity interval above in 5R. The base of 6R had 0.8 m of coral framestones with thick algal crusts. Core 7R advanced to 22.29 mbsf – the bit dropping quickly again from about 2m before encountering something hard – a 25 cm of cored rudstones composed of iron stained Halimeda, coralline algal crust, coral and bivalve fragments. Taken together, this indicates a major change in lithology from about Core 5R at ~ 15.29 mbsf.

Core 8R continued to 25.29 mbsf, and recovered small cored segments separated by intervals of no recovery, likely representing inter layered sands. From the top of the section at ~ 22.29 mbsf: 0-76 cm (no recovery), 72-92 cm (recovery), 93-205 cm (no recovery), 206-215 cm (recovery), 216-252 cm (no recovery), 253-261 cm (recovery), 262-269 cm (no recovery), and 270-300 cm (recovery). The recovered cored section was composed of light yellow (iron stained?) Halimeda rudstone/grainstones with abundant massive coral fragments. Some corals showed signs of large dissolution cavities. Core 9R continued to 28.29 mbsf but recovered no material. The drillers switched to a basket catcher for Core 10R in an attempt to recover more of the sediments.

The core recovered ~ 20 cm of white, partially lithified carbonate sediments (Halimeda grainstone?)

Core 1R (M0056A) covered the depths between 1.09 and 4.09 mbsf, recovering framestone with cavities and brown staining. Core 2R recovered 1.5 m of coral framestone. Core 3R advanced to 9.09 mbsf and retrieved coral framestone rubble. A massive Favid was present at the bottom of the section. Core 4R consisted of “white” grainstone rubble. Cores 5R and 6R also contained fragments of coral framework and grainstone. Core 7R advanced to 20.09 mbsf and recovered grainstone. Rudstone with partially dissolved Halimeda plate was also observed. Core 8R achieved 62 % recovery and captured framestone. Core 9R continued to 26.09 mbsf and recovered framestones, based on observation of the core catcher. The 1.5m main section of the core, consisting of white lithified material, was obscured by the liner making positive identification of the lithology impossible.

4. Core recovery details

| Hole | M0055A | M0056A |
|-------------------|-------------------------|-----------|
| LAT water depth | 87.33m | 81.22m |
| Cores recovered | 5R – 10R | 1R – 9R |
| Drilled length | 18.5m | 25m |
| Recovered length | 3.78m | 10.35m |
| Recovery | 20.43% | 41.4% |
| Depth at midnight | 31.29mbsf (final depth) | 26.09mbsf |

5. Weather

Sea state: moderate (4) with a swell of 1.25 – 2.5m; wind direction ESE becoming SE by early morning swinging back to ESE by midnight, force 5 (17 – 21 knots) occasionally 4; overcast; periodic heavy showers; 28°C.

Next 24 hrs: Sea state moderate with swell of 1.7 m in open waters; wind direction E/SE 15 – 20 knots; scattered showers and isolated thunderstorms.