Week 9 Drilling and Scientific Report for IODP Expedition 313

New Jersey Shallow Shelf

2nd July – 8th July 2009

1. Operations

This week has been one of steady and uninterrupted coring, with excellent core recovery. By midnight on July 8th, a total of 89 core runs had been made during the week and the hole advanced by 244m to 678.71 mbsf.

2. Hole summaries

Hole	M0027A	M0028A	M0029A	**Total**
Latitude	39° 38.04606 N	39° 33.94279' N	39° 31.1705' N	
Longitude	73° 37.30146' W	73° 29.83481' W	73° 24.7925' W	
First core	02/05/09 at 00:10	26/05/09 at 15:15	21/06/09 17:05	
Last core	18/05/09 at 22:10	16/06/09 at 02:40	Currently coring	
Core runs made	1H to 224R (224 runs)	1R to 170R (170 runs)	1R to 188R (188 runs)	**582 runs**
Drilled length	547.01 m	476.97 m	528.45 m	**1552.43 m**
Recovered length	471.59 m	385.5 m	385.08 m	**1242.17 m**
Core recovery	86.21 %	80.82 %	72.87 %	**80.01 %**
Final/current depth	631.01 mbsf	674.34 mbsf	678.71 mbsf	
Hole recovery	74.74 %	57.17 %		

3. Science

This third week at MAT3A (Hole M0029A) was characterized by continuous coring through the most offshore part of the large clinoforms of the Miocene platform on the New Jersey margin. We recovered 88 cores (100-188R) from 431 mbsf to 675 mbsf, with an excellent average drilling rate of 34.85 m/day and 94.3% recovery. The recovered sediment shows a composite architecture and large variability, but is basically made up of two main packages: a lower package, from 602 to 675 mbsf (cores 161-188R), rich in glauconite; and an upper package, from 395 to 602 mbsf (cores 100-160R), with only slight glauconite.

The lower package is comprised of a complex stack of three main sedimentary facies: (1) Dark, brownish-grey, burrowed, clayey silt with abundant diatoms, some forams and micas; (2) Dark greenish-brown, silty clayey sand, with detrital medium to coarse grained glauconite (c.30%), quartz (c.10%), and glauconite aggregates (c.20%) in a brownish sideritic clayey silt matrix; (3) Dark greenish grey, coarse to very coarse grained sandstone with subrounded glauconite grains (c.40-60%), and subangular quartz grains (c.10%), in a pyritized, sideritic and dolomitic silt matrix (184-185R). The latter represent hardgrounds that suggest long periods of sediment starvation at the toe of the clinoforms. Some of these hardgrounds show high impedance contrasts that can be tied to the high amplitude reflections at m5.2, m5.3, m5.4 Aquitanian-Burdigalian unconformities on the Oc270 529 seismic reference line.

The upper package is also comprised of three main facies : (1) Dark brownish-grey, bioturbated, micaceous, lignitic and bioclastic clayey silt; (2) Interlaminated, light grey, diatom-rich silty clay containing forams, and dark grey clayey silt to very fine-grained bioclastic, quartz sand; (3) Moderately to well-sorted, bioturbated, very fine to medium-grained quartz sand with bioclasts. All these facies contain a background of glauconite and heavy opaque minerals and may show significant changes in faunal diversity and abundance and irregular inputs of sub-angular coarse size quartz grains. The facies stacking pattern exhibits the superimposition of fining and coarsening upward trends bounded by unconformities that relate to relative sea-level changes through time. As an example, the prominent m5 Burdigalian-Langhian unconformity (early to mid Miocene) is characterized by a carbonate siltstone bed located at the top of a coarsening upward trend and below a fining upward succession (483 mbsf, core 118R).

By midnight on the 8th of July, we had reached the depth of 678.71. Holes M0027A and M0028A were closed at 631.01 and 674.34m respectively, making M0029A the deepest hole drilled on this expedition, and indeed the deepest hole cored with an ECORD mission specific platform and we are still going on for a few more days!

4. HSE Activities

Following severe thunderstorms on July 1st, DOSECC and ESO worked together to update the health and safety plan with respect to lightning. New guidelines were drawn up and shown to all personnel on the platform. A copy of the ESO guidelines were put in all containers. In addition, trained personnel were refreshed in the use of emergency equipment, such as defibrillators, and their location on the platform.

A boat safety drill was conducted on 18.30 on July 3rd for all personnel.

5. Figures

On next two pages:

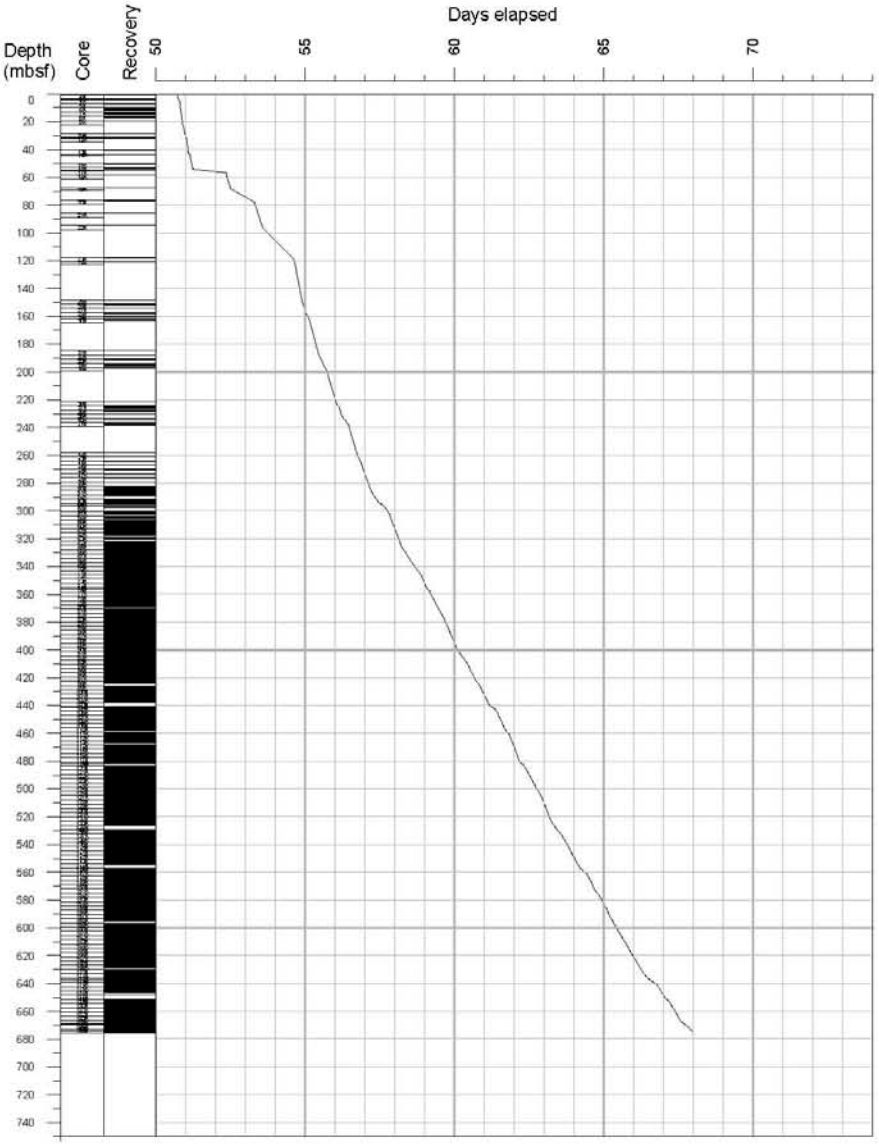
Figure 1 – Depth versus time plot and recovery for Hole M0029A, up to 2400 hrs on the 8th of July.

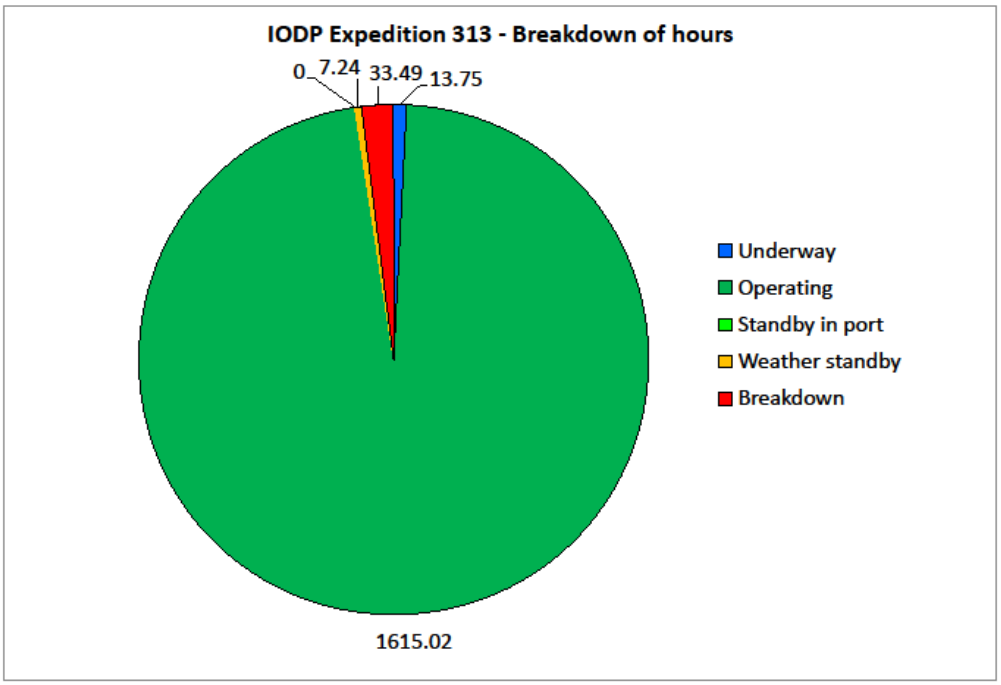
Figure 2 – Breakdown of hours up to 2400 hrs on the 1st of July.

IODP Expedition 313

Hole M0029A progress summary

Latitude: 39° 31.1705' N
Longitude: 24.7925' W
Water depth: 35.97 m




IODP Expedition 313 - Breakdown of hours
0
7.24
33.49
13.75
1615.02
Underway
Operating
Standby in port
Weather standby
Breakdown