

Daily Operational and Science Report
UT-GOM2-2 Coring Expedition
Terrebonne Basin, Gulf of Mexico Outer Continental Slope

1. DATE: 18-August-2023, 0000-2400hr

2. LOCATION:

2400 hr, 18-August-2023

Hole: *Helix D/V Q4000* was located over Hole UT-GOM2-2-H002

Last Drill/Core depth: 7583 ft MD RKB

RKB to Mud line: 6506 ft on Drill pipe measurements

Water depth: 6454 ft

Per Datum: 52 ft

Lat 26°39'44.2229"N, Long 091°40'33.8972"W NAD27 BLM15 Feet

3. DESCRIPTION OF OPERATIONS:

0900-2400 At Hole UT-GOM2-2-H002

General Operations/Maintenance: General rig housekeeping. Paint spots on deck with first primer coat. Offload and backload supply connex from *M/V Harvey Hermes*.

0000-0700 Continued to drill ahead at 330 GPM, 50 RPM, w/ 150 psi, 0-2 k WOB, F/ 6924 to 7299 ft RKB. Pumped 10.5 ppg Hi-Vis sweeps as directed.

0700-0830 Service Topdrive, Block Equipment, and TDS Dolly Roller.

0830-1200 Continued to drill ahead at 330 GPM, 60 RPM, w/ 230 psi, 0-5 k WOB, F/ 7299 to 7489 ft RKB. Pumped 8.6 ppg Hi-Vis sweeps as directed.

1200-1830 Continued to drill ahead at 350 GPM, 70 RPM, w/ 300 psi, 0-5 k WOB, F/ 7489 to 7720 ft RKB. Pumped 8.6 ppg Hi-Vis sweeps as directed.

1830-2130 Prepare for third directional survey in **Hole UT-GOM2-2-H002**, RIH Gyro-Data Omega – 1.875 inch Battery Slickline Gyro and performed a gyro survey at 7667 ft RKB (1161 fbsf). POOH the gyro survey tool. Gyro inclination survey reading of 0.35°.

2130-2400 Continued to drill ahead at 350 GPM, 70 RPM, w/ 330 psi, 0-5 k WOB, F/ 7720 to 7853 ft RKB. Pumped 8.6 ppg Hi-Vis sweeps as directed.

4. OPERATIONAL PLAN (Next 24 Hours):

Continue to drill ahead to the first PCTB-FB core point at 8606 ft RKB (2100 fbsf). Switch over to the continuous use of drilling mud at ~8100 ft RKB (~1594 fbsf).

5. DOWNHOLE LOGGING OPERATIONS:

Hole: Hole UT-GOM2-2-H002

Wireline Totals (directional): The wireline deployed (memory sonde) gyroscopic logging services on the Q4000 are being provided by Gyro-Data, who used an Omega – 1.875 inch Battery Slickline Gyro to perform the directional surveys in **Hole UT-GOM2-2-H002** at a depth of 7667 ft RKB (1161 fbsf). It was determined that for the recorded survey at a depth of 7667 ft RKB (1161 fbsf) the borehole was inclined at 0.35° at an azimuth of 96.79°. This survey is again within the BSEE inclination limit of 3.0° for a deviated well classification.

6. CORE OPERATIONS AND DATA:

Hole: NA

G-APC Coring Totals: NA

G-XCB Coring Totals: NA

PCTB-CS Coring Totals: NA

PCTB-FB Coring Totals: NA

7. DOWNHOLE MEASUREMENTS

Hole: NA

Pressure and Temperature Tool Deployment (T2P): NA

Temperature Tool Deployment (APCT-3): NA

8. SCIENCE ACTIVITIES

Over the last 24 hours, **Hole UT-GOM2-2-H002** was advanced by drilling from a depth of 6924 to 7853 ft RKB (with a total drilled interval of 929 ft) without any significant problems. Because of the well deviation concerns associated with the previously drilled/cored **Hole UT-GOM2-2-H003**, the drilling program in the “top-hole” section of **Hole UT-GOM2-2-H002** was executed using controlled drilling parameters, which also limited the rate of bit penetration within the upper section of the well to about 30 to 60 ft per hour. After conducting a borehole direction survey at 7667 ft RKB (1161 fbsf) and determining that the borehole was very near vertical with an inclination 0.35° (with an azimuth of 96.79°), it was determined that it was now safe to increase the borehole drilling rate. By increasing the weight on bit (WOB) to ~5000 lbs, and increasing drilling fluid pump rates ~350 GPM, and similarly increasing the drill bit RPMs to over ~70, we experienced a drilling rate increase to as high as 120 ft per hour. We hope to reach the core point for the first PCTB-FB in **Hole UT-GOM2-2-H003** around 1600 hr on 19-AUG-23.

The Science Party completed the processing of all of the remaining PCTB-CS pressure cores that were acquired from **Hole UT-GOM2-2-H003** with the final conventionalization of two sections from Core H003-29CS (Figures 1 and 2) and the standard acquisition of microbiological (MBIO), pore-water (PW), and headspace gas samples (HS); along with vane-shear (VANE) and pocket penetrometer (PEN) measurements. The position along the cores for two additional physical property samples were also identified for future processing at the post-expedition shore-based laboratories to be established in Salt Lake City, Utah.

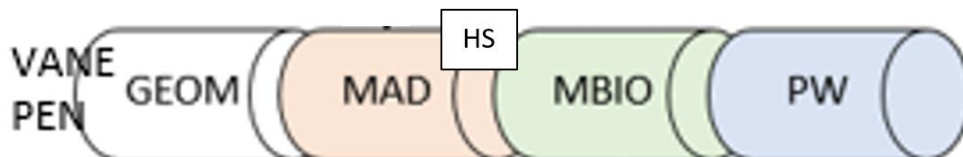


Figure 1. Display of acquired whole round core samples and associated core measurements as obtained from conventionalized PCTB-CS cores in Hole UT-GOM2-2-H003 (see text for further explanation).

There have been no new COVID cases on the *Q4000* in the last six days.

The Scientific Party is working on finalizing the “Methods” and “Results” section of the Expedition Report and processing samples and data that has been collected during the expedition.

9. ACRONYMS

bpm	Barrels per minute
Fish	The object to be recovered from the borehole/BHA
M/U	Make up
PCATS	Pressure Core Analysis and Transfer System
PCTB-CS	Pressure coring tool with ball-cutting shoe version.
POOH	Pull out of hole
psi	Pounds per square inch
RIH	Run in hole
RKB	Depth measured from the rig floor
SLB	Schlumberger
Slickline	Wireline used to deploy and recover core, etc.
TD	Total depth
TDS	Top drive system

UT-GOM2-2-
WR313- **H003-29CS, 964.0 ft BSF**
AS CUT IN PCATS AT SEA

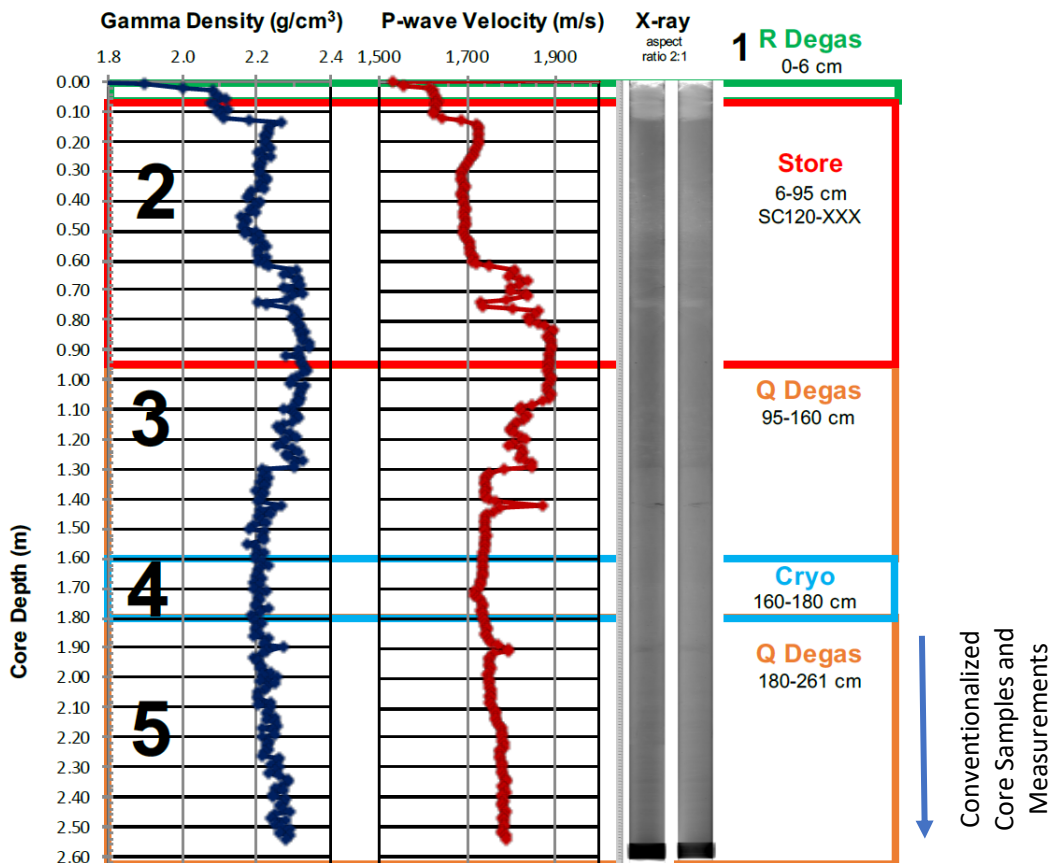


Figure 2: X-ray, P-wave velocity, and density of Core UT-GOM2-2-H003-29CS from the Geotek Pressure Core Analysis and Transfer System (PCATS). Gamma density and P-wave velocity logs along with the X-ray images and “as cut core in PCATS and position of conventionalized core samples and measurements.