

# **Daily Operational and Science Report**

## **UT-GOM2-2 Coring Expedition**

### **Terrebonne Basin, Gulf of Mexico Outer Continental Slope**

**1. DATES:** 21-September-2023 to 23-September-2023

**2. DESCRIPTION OF OPERATIONS:** Scientists continued working at Geotek Coring, measuring physical properties, collecting geomechanical samples, splitting whole core, scanning and describing the core, and sampling from the split core. Details are below.

- Sept 21:
  - UW researchers finished setting up the pore water labs and began squeezing samples.
- Sept 22
  - Geotek received, set up, and tested a new loop magnetic susceptibility sensor for scanning whole round conventionalized core, which was not scanned on the MSCL-S.
  - UW researchers squeezed several pore water whole rounds.
- Sept 21-23:
  - Core sections from conventional core H003-10H-1a1 through -26H-CC were weighed. MDW (e.g. moisture and density with grain size, XRD, and other basic properties) and GEOM (e.g. geomechanics plus permeability, porosity, and other physical properties) whole rounds were cut, whole rounds were weighed again, table vane and fall cone measurements were made (one per section), and thermal conductivity measurements were made (at least one per core). Conventionalize core sections were held until loop magnetic susceptibility scans could be completed. All conventional core have now been processed.
  - Sections from conventional core H003-10H-1a1 through -26H-CC were split, imaged including color spectrophotometry, laid out and described. Smear slides were created and reviewed.
  - Working halves of cores H003-10H-1a1 through -24H-CC were sampled for a range of further measurements (e.g. TOC, CHNS, grain size, moisture and density, XRPD, X-ray fluorescence, rock magnetism, anomalies of magnetic susceptibility, and paleontology). All conventional core have been processed.
  - Archival halves of sections H003-02H-4a through -03H-5a were logged, measuring magnetic susceptibility and x-ray fluorescence.
- Sept 23
  - Geotek scanned all conventionalized whole rounds using the loop magnetic susceptibility scanner.
  - UW researchers squeezed several pore water whole rounds.

### **3. Forward Look:**

- Microbiology researchers will arrive and set up the Core Processing Lab for sub-coring of cryo-cores for cell counts and DNA analysis.
- Researchers will continue making strength and thermal conductivity measurements, and cutting whole rounds
- Researchers will continue splitting, logging, describing, and sampling core sections.
- Researchers will continue squeezing and preserving IW samples.
- Geotek will scan all conventionalized core from H002 using the loop magnetic susceptibility scanner

### **4. Science**



University of Washington researchers working in the pore water labs. Left: Man-Yin Tsang prepping a sample for pore water squeezing in the Pore Water Reefer. Right: Taylor Walton making a refractometer measurement.

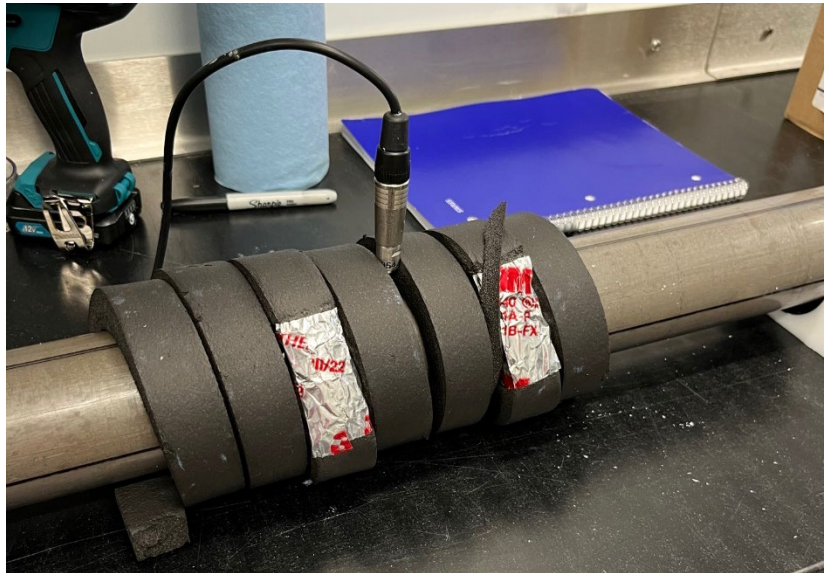
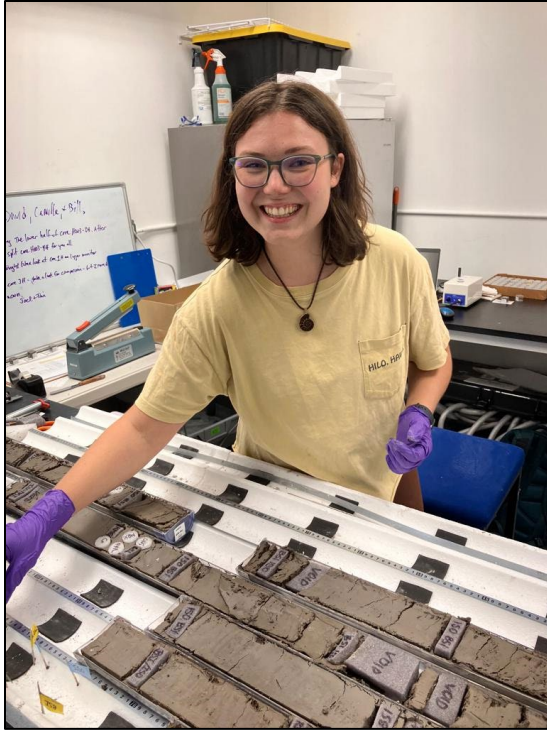
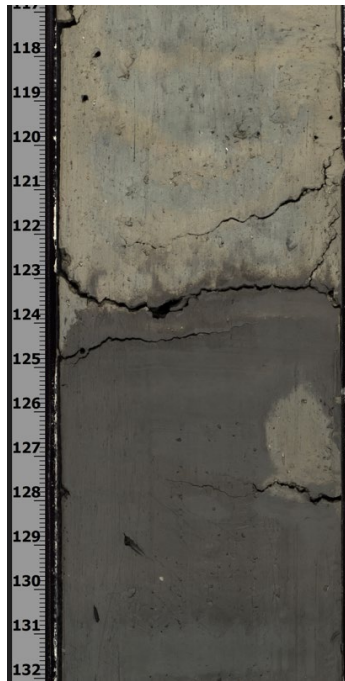


Photo of a thermal conductivity measurement in progress. A hole is drilled through the core liner and the probe is inserted. The core is wrapped with insulation before starting the test. Thermal conductivity measurements are progressing. All the conventional cores have been measured.



University of New Hampshire researchers and many others continue working in on the split core. Left: Kayla Tozier at the split core sampling table. Researchers bagged their 1,700th split core discrete sample marking the completion of sampling all conventional core. Right: Joel Johnson looking at smear slides and Camille Sullivan working on core description.



Core Section H003-14-1 with possible sequence boundary. Lighter colored area at 127 cm within the darker lithogenic clay (123.5 cm and lower) is indicative of a burrow dug by an organism and filled with the lighter color overlaying biogenic pelagic ooze on top (123.5 cm and higher).





Science Team celebrates the birthdays of Athma Bhandari and Carla Thomas.