



**28<sup>th</sup> July 00:00 – 1<sup>st</sup> August 24:00 EDT Eastern Daylight Time (UTC -4)**

## **FINAL WEEKLY REPORT FROM EXPEDITION 501**

### **1. Operations**

The week started with operations having to be suspended to allow a lightning storm to pass early in the morning of the 28<sup>th</sup>. Over the remainder of the day steady progress was made on the borehole using the HPC & ALN core barrels.

Target Depth was reached in the borehole on the morning of the 29<sup>th</sup> and the drilling deck was quickly converted into a logging deck to enable the gamma probe to be run through the CHD string. The hole was flushed with drilling fluid to lift as much of the cuttings from the annulus as possible before replacing drilling mud with seawater and running the PVC pipe. The CHD was tripped out to deck, the logging deck replaced and logging recommenced, continuing past midnight.

The 30<sup>th</sup> of July saw the end to operations on the expedition. A full suite of logging was completed in the morning and the SCIMPI was deployed successfully into the borehole before midnight, hopefully providing long term monitoring capability of aquifer properties. Over the course of the day, the drilling crew worked exceptionally well to carry out various trips of CHD drill pipe and PVC casing.

Preparations were made to shut down the containers ready for transit to shore and onward shipping to the various European ESO sites.

Most of the day on the 31<sup>st</sup> was spent dismantling and making safe all of the ESO and Science Team equipment, packing the containers, labelling (and finding) packing trunks and readying everything for departure. The drilling team did likewise, only with heavier kit.

The L/B Robert jacked down and was floating free of the seabed at 1740 hrs on the 31<sup>st</sup>. The L/B Robert, with full complement comprising Expedition 501 Science Team members, the ESO team, project contractors from Matrix Offshore Services, drilling crew from Boart Longyear, mud engineering team from IMDEX, and the ship's crew from Seacor Marine, departed Site M0113 for Bridgeport, Connecticut.

The L/B Robert docked in Bridgeport, CT at 1800hrs on the 1<sup>st</sup> of August, 74 days after leaving, and the tremendously successful Offshore Operation phase of Expedition 501 officially came to an end.

### **2. Hole Summary – 28<sup>th</sup> to 31<sup>st</sup> of July**

<b>Hole</b>	<b>M0113A</b>
Latitude	40.618333°N
Longitude	70.136972°W
First Core	501_M0113_A_175R
Last Core	501_M0113_A_210R
Cores Recovered	36
Drilled Length (coring)	47.26
Drilled Length (open hole)	n/a
Recovered Length	38.47
Depth in Hole	325 mbsf
Hole Recovery	81%

### **3. Science**

During Week 11 the Expedition 501 Science Team wrapped up science operations at Site M0113 including through-liner core descriptions, multi-sensor core logging (MSCL), interstitial water analyses, microbiological sampling, wireline logging, and installation of a Simple Cabled Instrument for Measuring Parameters In-Situ (SCIMPI) monitoring system.

MSCL data and through-liner core descriptions from 260 mbsf to 325 mbsf allowed preliminary characterization of the sedimentary system to the bottom of Site M0113. Sediments in this interval included a thick package of tan/brown sand underlain by a darker mud-rich package. Shells were present occasionally in the sands. Larger clasts were rare in the mud package. Interstitial water over this interval showed a zone of freshened water, decreased ammonium, and increased alkalinity and pH.

Wireline logging in Hole M0113A provided a complete suite of natural gamma radiation, electrical resistivity (with multiple depths of investigation), porosity (from nuclear magnetic resonance), and magnetic susceptibility data. In addition, an inclination survey was conducted. Overall log quality is good and will help ties between core and seismic data and facilitate more detailed petrophysical analysis after final processing of the field data. Preliminary assessment of the inclination survey confirmed that the borehole was near-vertical.

Science operations at Site M0113, and for Expedition 501, concluded with the installation of a SCIMPI system in the borehole. This system will provide downhole time-series data of pressure, temperature, and electrical resistivity at three depths in the borehole. Data will be collected during a future, non-drilling operation.

The science team closed out operations for Expedition 501 by making sure all data were appropriately uploaded to the database and by helping the ESO team secure science and lab spaces for transit back to shore.

### **4. HSE Activity**

The ship's deck was checked regularly for stranded seabirds. A Leach's Storm Petrel was found on the main deck on the 28<sup>th</sup> in some distress after the heavy rain of the previous night. ESO team member Vera Bender kept it safe until it had dried out and regained strength and was able to fly away.

Lightning paused operations on the 28<sup>th</sup>, and the hot weather this week meant the team were reminded to stay hydrated and use sunscreen.

### **5. Outreach Activity**

- 3 blog posts and corresponding stories
- several social media posts incl collab posts/reposts on X/Twitter (2), Bluesky (3), Instagram (4) and Mastodon (3) linking the blogsite plus corresponding stories
- Feature in ZEIT online by Maike Rademaker the on board Outreach Officer (in German, paywall)

## 6. Figures

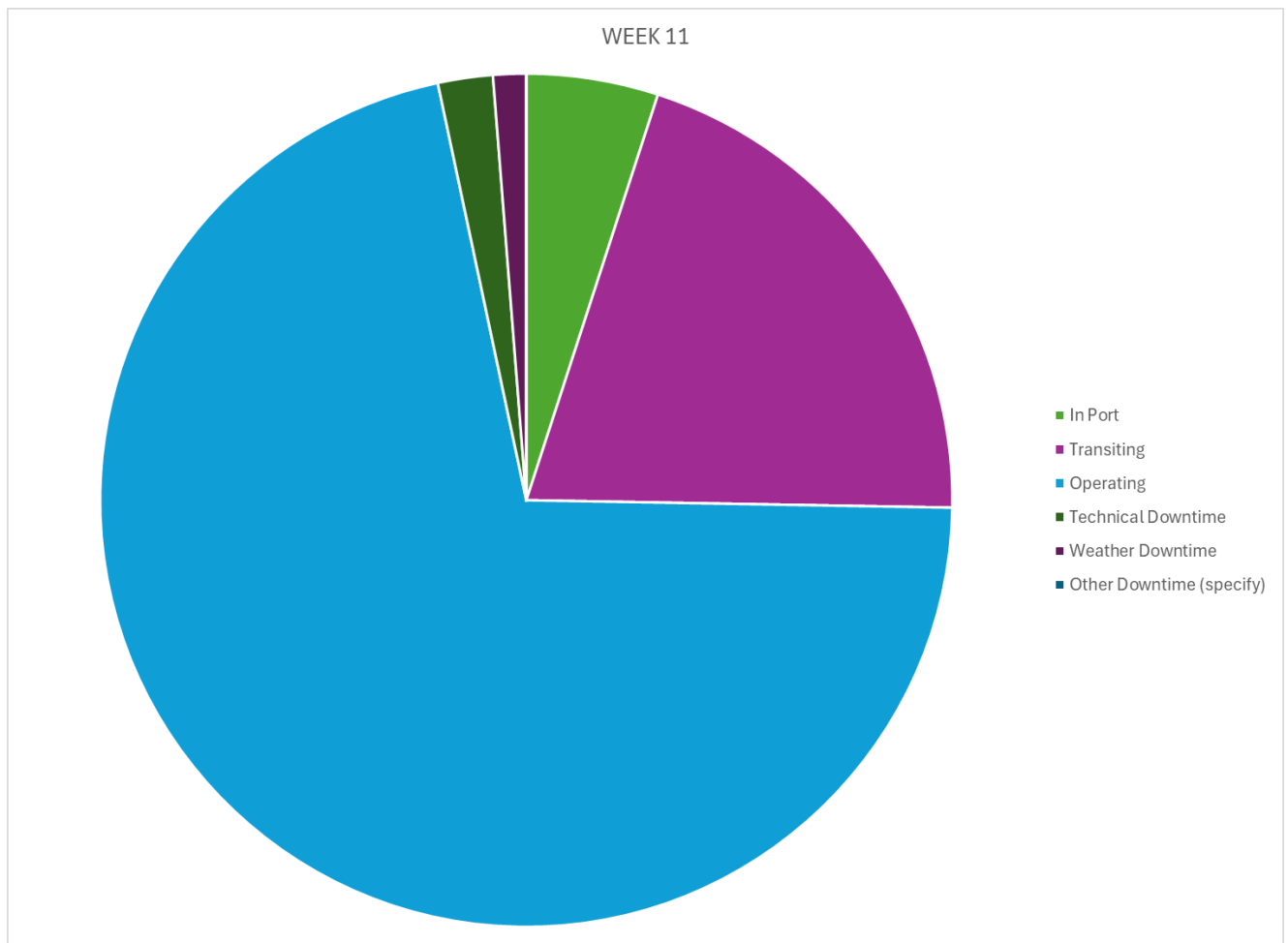


Figure 1: Breakdown of hours for week 11 (28<sup>th</sup> to 1<sup>st</sup> of August).

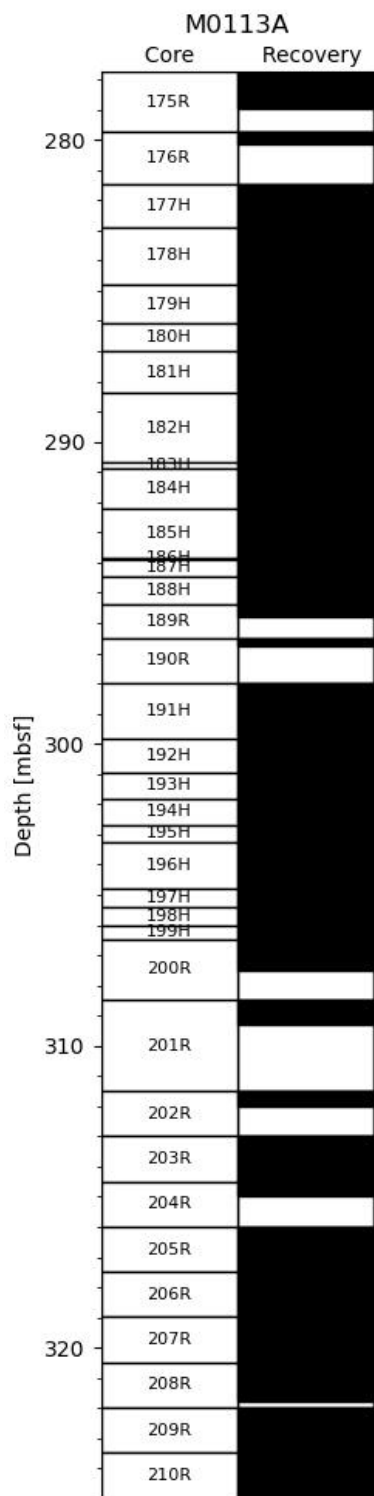


Figure 2: Recovery Plot for Week 11, 28<sup>th</sup> July to 3<sup>rd</sup> August.

## 7. Photographs



*Figure 1: Expedition 501 Science and ESO Team members, alongside expedition participants from Matrix Offshore, Seacor, Boart Longyear, IMDEX and SCIMPI, arriving in Bridgeport at the end of the expedition.*

*From left to right Chris Delahunty (MOS), Captain Alan Atkinson (Seacor), Antonio Ferreira (ESO), Verena Heuer, Chelsea Bambrick (ESO), Marisa Rydzy (ESO), Vera Bender (ESO), Jack Brickell (ESO), Alizé Longeau, Max Farrington (SCIMPI), Caitlin Delahunty (MOS), Patrizia Gepreags (ESO), Luzie Schnieders (ESO), Ian Kulin (SCIMPI), Leola Pfaffling (ESO), Mojgan Soleimani, Andrew McIntyre (ESO), Brandon Dugan, Steve Cole (MOS), Chandler Maine (BL), Nick Boehne (BL), Lalo Aguilar (BL), Arcey Yepiz (BL), Noah Bullard (BL), Carel Lewis (ESO), Linda Luquot (ESO), Graham Tulloch (ESO), Jez Everest (ESO), Ingmar Layton (BL), Tomas Sanchez(IMDEX). (photo EVEREST@ECORD\_IODP3\_NSF\_FINAL\_TEAM).*