Weekly Coring and Scientific Report for IODP Expedition 389
Hawaiian Drowned Reefs 2023

31st August 17:50 – 7th September 24:00
All times in HST Hawaii Standard Time (UTC -10)

1. Operations

The *MMA Valour* departed Barbers Point Harbor, Kapolei at 17:50 on the 31st August and transited 5 nautical miles outside the port to conduct deep water (c. 2000 mbsl) wet tests for the seafloor corer. The vessel arrived on station at 19:30 and DP was activated. Preparations for the wet test continued until 22:00 on 1st September.

Various systems were checked, including the launch and recovery system (LARS) and the HPU; lights were added to improve H&S around the system. Over the next two days tests to 1400m water depth were carried out and the removal of torque in the cable beyond the expected maximum water depth of the expedition was completed. All tests were finalized by 06:10 on 3rd September and the corer was recovered to deck and sea fastened for transit to the USBL (Ultra Short Baseline) calibration site.

On arrival at the USBL calibration site at 23:25 on 3rd September, the calibration beacon was deployed to the seabed and the seafloor corer deployed to 625 m for the sound velocity profile (SVP) test; data was uploaded to the Survey Team. The seafloor corer was recovered to deck and USBL calibration carried out. An issue with the calibration data required further processing until 20:40. At 20:40 the vessel moved to site KAW-06A, arriving at 23:20.

At 02:55 on 5th September, the seafloor corer was deployed to the seabed in ~740 m of water. At 09:40 the seafloor corer was recovered to deck due to magazine movement during barrel loading. A further redeployment in the early afternoon and a 1.78 m borehole was cored at borehole M96A before a clamp misalignment and further magazine adjustments required the corer to be recovered to deck in the early evening.

At 02:40 on 6th September, the seafloor corer was deployed to the seabed and borehole M96B advanced by washbore from 0.0 to 0.95 m before recovery for further adjustments to the magazine and drive head. The seafloor corer was re-deployed in the early evening and borehole M96C advanced by washbore and rotary coring from to 1.8 m. At 23:50 the seafloor corer was recovered to deck due to a dropped drill rod inside the corer.

At 01:50 on 7th September, the seafloor corer was deployed to the seabed and borehole M96D advanced by rotary coring from 0.0 to 7.4 m before recovery to deck for checks on the drill head and transit to site KAW-04B. The seafloor corer was deployed at 22:05 and by midnight hole M97A was advanced by rotary coring from 0.0 to 1.1 m.

2. Hole summary

Hole	M96A	M96B	M96C	M96D
Latitude	20°02.1833 N	20°02.1863 N	20°02.1854 N	20°02.2160 N
Longitude	156°03.9432 W	156°03.9432 W	156°03.9413 W	156°03.9366 W
Cores recovered	2	0	1	4
Drilled length (Coring)	1.78	0	1.74	7.4
Drilled Length (Open Hole)	0	0.99	0.86	0
Recovered length	1.62	0	0.45	2.24
Depth in hole	1.78	0.99	1.74	7.4
Hole recovery %	91.1	N/A	52.3	30.3

3. Science

The 11-member science party joined the vessel in Barbers Point Harbor on the 30th August and started training and familiarisation with the containerised labs onboard the *MMA Valour*. The labs had been set up by ESO staff during an initial mobilisation in Singapore and the final mobilisation at Barbers Point Harbor, Kapolei. For this MSP expedition, the cores will not be split, so only minimal sedimentological, paleontological, geochemical and physical properties description and analysis will be conducted.

Site M96 (KAW-06A, H4 reef, 737 m)			
M96A	1R-2R	Mixed volcanoclastic & carbonates, large basalt cobbles (rounded?) and finer volcanoclastic sediments, with abundant consolidated, and unconsolidated carbonate sediments (coralline algal, larger benthic forams) and large coral fragments.	Several pieces of massive *Porites*?, and foliaceous coral with CCA crusts, and abundant larger benthic forams (*Amphistegina radiata*?), Halimeda rich intraclasts and picrite basalts, possible littoral deposits?
M96B	NA	N/A	Open Hole to 0.99 m, then abandoned.
M96C	1R	Mixed volcanoclastic & carbonates, cobble sized basalt clasts, several large coral fragment.	Robust branching *Porites*? clasts with CCA crusts.
M96D	1R	Mixed volcanoclastic & carbonate clasts, granule to pebble sized, several pebble sized coral fragments, unconsolidated.	Crushed & twisted plastic liner(s); coring disturbance; halimeda interclast.
M96D	2R	Mixed volcanoclastic & carbonate clasts, granule to pebble sized, several pebble sized coral fragments, unconsolidated.	Some clasts look fragmented due to drilling; carbonate in lower 5 cm, hard to identify if there are corals.
M96D	3R	Mixed volcanoclastic & carbonate clasts, granule to pebble sized, several pebble sized coral fragments, unconsolidated. ~20 cm consolidated carbonate grainstone; 30 cm of massive basalt at bottom.	Some clasts look fragmented due to drilling; coral fragments and possible coralline algae.
M96D	4R	Mixed volcanoclastic & carbonate clasts, granule to pebble sized, several pebble sized coral fragments, unconsolidated.	Branching coral (?) piece bored and encrusted.

No interstitial pore water samples have been extracted from the cores as no unconsolidated matrices have been recovered to date.

All cores from M96A have been run through the Multi Sensor Core Logger (MSCL), which measures natural gamma ray, magnetic susceptibility, resistivity, density and P-wave velocity. Due to the nature of the core recovered, less than 20% of acquired data passed QC checks and were retained. As the cores were also drained, a contact gap between transducers in the core prohibited transmission of P-waves. Cores from M96C and M96D will be run through the MSCL on September 8th.

4. HSE Activity

A Muster drill was completed on 1st September by all science party and ESO personnel.

Covid tests for all personnel were completed on 3rd September, no positive tests.

ESO HSE introductions were completed on 4th September (day shift) and 5th September for the night shift.

Daily toolbox talks take place with the contractor at 11:30 for the outgoing night shift and at 23:30 for the outgoing day shift. Every Sunday a ship safety meeting is held at 11:00 (night shift) and 13:00 (day shift).

5. Outreach Activity

A press release about the start of the expedition was issued on 29th August to local and national media agencies, participating scientist institutes, and within IODP and PMOs. A media event was held the

same day at the Marisco shipyard in Kapolei. A blog-site has also been set up, publishing more informal blogs on a range of subjects before and after the expedition departure. In the week from 31st August - 7th September, it received 793 views and is being followed in 10 countries. Expedition posts have been uploaded to the social media platforms X, Facebook, Instagram and Mastodon. Daily reports from 31st August to 7th September have been released to the ECORD JISCMAIL distribution list and posted on the ECORD Expedition 389 webpage.

Onboard the *MMA Valour*, Jody Webster (Co-Chief Scientist) gave a presentation to the on-shift contractor crew on September 3rd and 4th about the expedition science background and objectives. Pankaj Khanna, a sedimentologist in the science party, has published videos on YouTube and Instagram.

6. Figures

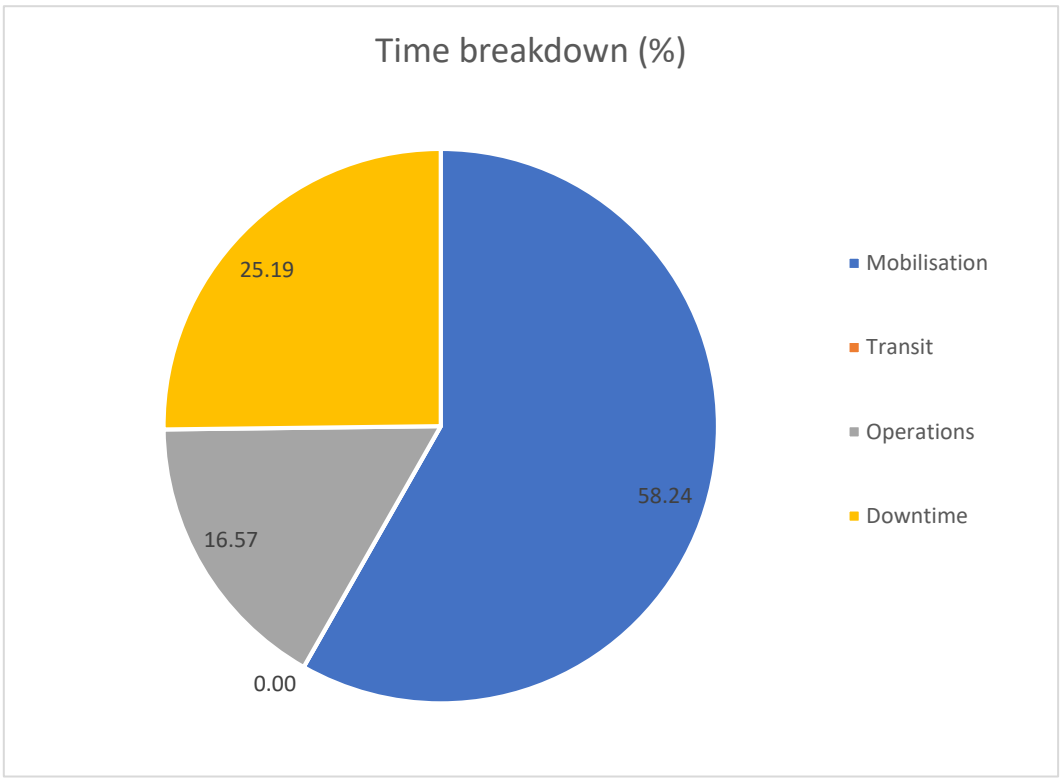
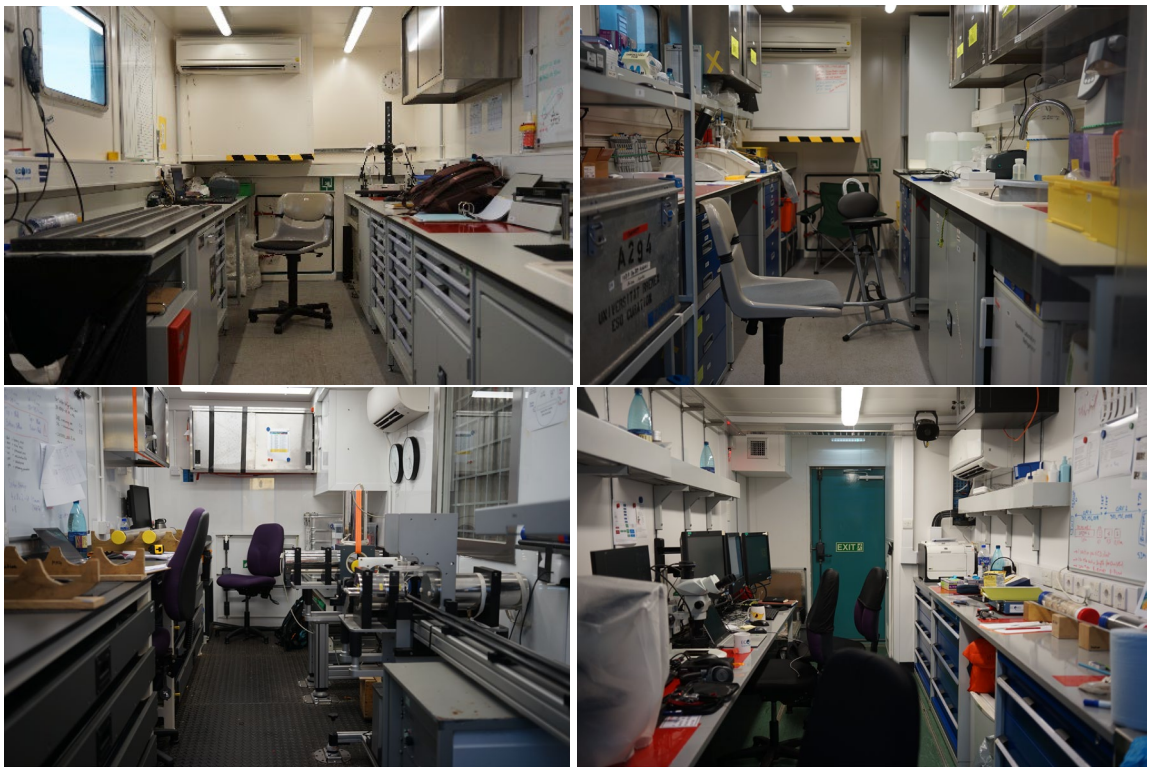


Figure 1: Breakdown of hours from 17:50 on 31st August to 7th September 2023 at 24:00.

7. Photographs



Photographs Erwan Le Ber@ECORD_IODP. Inside the ESO Containers.
Clockwise from top left: Curation, Geochemistry, Science and MSCL containers.