

**Daily Drilling and Scientific Report for IODP/ICDP Expedition 364  
Chicxulub Impact Crater 2016**



**2<sup>nd</sup> May 00:00 - 24:00 CDT (UTC -5)**

**1. Location**

Position 21 Deg 27.009' N, 89 Deg 56.962' W  
IODP-MSP borehole M0077A  
Prospectus borehole Chix-03B  
Water Depth: 19.8 m

**2. Operations Report**

Downhole logging operations continued. The tool string comprising spectral natural gamma ray, caliper and acoustic borehole imager was run uphole from ~697 mwsf at very high resolution. While rig-up for VSP operations was ongoing, marine mammal and protected species observations were carried out. Following technical issues with the depth encoder, the VSP tool was lowered to 696 mwsf and run uphole at a high-resolution. Marine mammal and protected species observation continued throughout the duration, and after, VSP operations. Upon completion of downhole logging operations, maintenance of the drill rig continued for the remainder of the day.

**3. Science Report**

The acoustic imaging log looked of excellent quality, especially in the marlstone and limestone deposits, and the caliper showed that the hole was in good condition and of near-constant size. The VSP data looked of high quality to the 700 m depth; first arrivals were clear. Based on one-way travel time, the decrease in density at the top of the lithic wacke and melt bearing breccias corresponds to the bright reflector that caps the peak ring. By 700 m the drill bit was within the low-velocity zone at the top of the peak ring – which means that we expect ~50-100 m more of lower velocity impact breccias prior to reaching a depth where velocity modelling suggests an increase in velocity and thus a change in lithology.

**4. Core Recovery Details**

<b>Hole</b>	M0077A
<b>Cores recovered</b>	0
<b>Drilled length (Coring, m)</b>	0
<b>Drilled length (Open hole, m)</b>	0
<b>Recovered length (m)</b>	0
<b>Recovery (%)</b>	0
<b>Depth at midnight (mbsf)</b>	699.09

**5. Time Breakdown**

00:00 Logging continued  
07:40 Set up for VSP  
08:00 Start marine mammal and protected species observation  
17:10 Logging operations finished  
17:40 Marine mammal and protected special observations finished  
18:00 Carry out essential maintenance on the drill rig  
19:30 Crew vessel arrived with supplies  
00:00 Maintenance of the drill rig continues

**6. Hours (inc. cumulative total) – no contractual implications can be made from these figures**

<b>In port</b>	13.0
<b>Transiting</b>	3.0
<b>Operating</b>	509
<b>Technical downtime</b>	123
<b>Weather downtime</b>	0.0
<b>Other downtime (specify)</b>	0.0

**7. Weather**

Fair, sunny, good visibility, wave heights of 0.3 – 0.5 m; wind NE 15 Kts, Temperature 21-31°C.

**8. Planned Activity for the next 24 hours**

Continue logging and set up for coring.

**9. Health and Safety and Environmental**

N/A

**10. Photo of the day**



Team VSP during logging operations. Image: DSmith©ECORD\_IODP.