

---

# Hole U1415A<sup>1</sup>

---

K.M. Gillis, J.E. Snow, A. Klaus, G. Guerin, N. Abe, N. Akizawa, G. Ceuleneer, M.J. Cheadle, Á. Adrião, K. Faak, T.J. Falloon, S.A. Friedman, M.M. Godard, Y. Harigane, A.J. Horst, T. Hoshide, B. Ildefonse, M.M. Jean, B.E. John, J.H. Koepke, S. Machi, J. Maeda, N.E. Marks, A.M. McCaig, R. Meyer, A. Morris, T. Nozaka, M. Python, A. Saha, and R.P. Wintsch<sup>2</sup>

## Chapter contents

<a href="#">Operations</a> .....	1
<a href="#">References</a> .....	3
<a href="#">Table</a> .....	4

## Operations

### Port call in Puntarenas, Costa Rica

Integrated Ocean Drilling Program (IODP) Expedition 345 officially began when the ship arrived in Puntarenas at 0500 h on 11 December 2012. All times reported in this operations section are in ship local time. Ship local time initially was UTC – 6 h. During the transit to Hess Deep, ship local time changed to UTC – 7 h at 1400 h on 20 December. Ship local time was UTC – 7 for all operations at Hess Deep during Expedition 345.

After the ship was secured to the dock, we started our port call activities, including customs and immigration, IODP-United States Implementing Organization (USIO) crew change and crossover, boarding of chief scientists, and loading of airfreight. Because dock space was shared with cruise ships for the first 3 days of port call, most port call activities were limited to evening hours.

Activities on 12 December included the ship's crew change, offloading of temperature-controlled sample shipments and all departing sea freight, and loading of three containers of freight for the ship's crew and a hydraulic pump required to repair a crane.

Early on the morning of 13 December, we moved to anchorage because of the arrival of two cruise ships. Key USIO staff met with the chief scientists to plan initial Expedition 345 operations. Expedition 345 scientists boarded the ship by water taxi and underwent safety orientation. In the evening, the cruise ships had departed, so we returned to the dock and resumed normal port call activities, including loading of arriving shipments and preparing for loading of drilling mud on the following day.

Following the introductions of Hess Deep scientists and technical staff on 14 December, the Co-Chief Scientists presented an overview of the expedition science objectives. Scientists were given a tour of the laboratories and also underwent orientation to ship-board computing and communications technology. Loading and storing of supplies continued, including drilling mud.

On 15 December, the Hess Deep scientists were given a presentation covering the expedition science expectations, procedures, deliverables, and obligations. Following this, the final tours of the laboratories and personal computer setup were conducted. Loading of the final drilling supplies and drilling mud were completed.

<sup>1</sup>Gillis, K.M., Snow, J.E., Klaus, A., Guerin, G., Abe, N., Akizawa, N., Ceuleneer, G., Cheadle, M.J., Adrião, Á., Faak, K., Falloon, T.J., Friedman, S.A., Godard, M.M., Harigane, Y., Horst, A.J., Hoshide, T., Ildefonse, B., Jean, M.M., John, B.E., Koepke, J.H., Machi, S., Maeda, J., Marks, N.E., McCaig, A.M., Meyer, R., Morris, A., Nozaka, T., Python, M., Saha, A., and Wintsch, R.P., 2014. Hole U1415A. In Gillis, K.M., Snow, J.E., Klaus, A., and the Expedition 345 Scientists, *Proc. IODP, 345*: College Station, TX (Integrated Ocean Drilling Program).  
doi:10.2204/iodp.proc.345.104.2014

<sup>2</sup>Expedition 345 Scientists' addresses.



Port call operations continued on 16 December, with dock cleanup after the bulk loading operation. One 40 ft container of refrigerated food was loaded along with another 20 ft container of frozen food. The drill crew also began spooling on the new aft core line.

On 17 December, the drill crew completed spooling the new drill line. This process took much longer than anticipated (>24 h) because of poor spooling of the line by the vendor. The installation would not have been possible without the recent modifications to the spooling tensioner that included replacement of the drum brakes with significantly better disc brakes. The last 20 ft container of dry goods was loaded along with a replacement shipment of local fresh food, as half of the original fresh food delivery had been rejected because of poor quality.

### Departure from Puntarenas

The pilot boarded the ship at 1715 h on 17 December 2012 for the scheduled departure; however, after a captain and pilot conference, the pilot elected to delay departure until slack tide at 1800 h. In the interim, a second tug was also brought over from the nearby container port of Caldera. All lines were singled up in preparation for an imminent departure. A few minutes before departure, the Schlumberger hazmat/tools airfreight shipment arrived dockside. The tools were quickly lifted aboard with the crane and the last line was cast off at 1818 h on 17 December. The pilot disembarked at 1832 h, and we got under way at full speed for Site U1415 (proposed Site HD-01B). This was 0.6 days ahead of the originally scheduled 0800 h departure on 18 December.

The transit to Site U1415 was uneventful and operations and drilling personnel and Co-Chief Scientists used the time to conduct multiple meetings to discuss the specifics of the planned Hess Deep operations. The drill crew began testing the readiness of all drilling equipment. The 1117 nmi distance from Puntarenas to Site U1415 was covered in 4.2 days at an average speed of 11.0 nmi/h.

### Arrival at Hess Deep and initial near-bottom survey

We arrived at Site U1415 (see Fig. F8 in the “Expedition 345 summary” chapter [Gillis et al., 2014b]) at 2350 h on 21 December 2012 and began the process of switching from the bridge “cruise” mode to dynamic positioning control. By 0040 h on 22 December, all thrusters were deployed and the dynamic positioning system was in full control of the ship. The drill crew spent the remainder of the day picking up drill collars and assembling the drill string. This required removing collars from the forward main deck

rack and making them up into stands as well as drifting and strapping (measuring) all tubulars. After deploying 130 stands of 5 inch drill pipe, the tripping operation was suspended at 1130 h to raise the upper guide horn and deploy the subsea camera system. We deployed the camera system, to which we had attached a seafloor positioning beacon, so that it could be released in a precise position from just above the seafloor. A 3.5 kHz subbottom pinger for surveying the thickness of sediments (see the “**Bench site survey**” chapter [Gillis et al., 2014a]) was also attached to the camera system but was not turned on. Our highest priority was to deploy the seafloor positioning beacon, and we wanted to minimize the chances that another sound source (e.g., 3.5 kHz pinger) might cause problems with this.

Our initial operations were designed to verify our position relative to the site survey microbathymetric data. Once the drill pipe arrived just above the seafloor, we offset the ship 300 m south of the site coordinates. This allowed the drill string to be extended to 4886 meters below rig floor (mbrf), or 20 m below the estimated seafloor depth of the first proposed drill site located on the bench. Once the vibration-isolated television subsea camera system was in position just above the seafloor, we moved the ship to the north, upslope of the site coordinates. From there the ship was moved an additional 35 m north where the depth began to decrease, consistent with the site survey bathymetry. By monitoring the changes in water depth we were able to confirm that the drill site was indeed located in the area of interest on the target bench. The ship was then moved back to the site coordinates and from there west 100 m, where a seafloor positioning beacon attached to the subsea camera was released without difficulty. Once again the ship returned to the site coordinates, where a drill string seafloor depth of 4848.5 mbrf was visually observed. The subsea camera was then recovered to turn on the previously mounted 3.5 kHz subbottom profiling system (pinger).

### Drilling operations

Our objective in this hole was to get an initial idea of sediment thickness in preparation for surveying. The camera system was redeployed to the seafloor with the ship positioned over the Hole U1415A coordinates and the hole was spudded at 0255 h on 23 December 2012. We conducted a jet-in test by lowering the drill string and circulating but not rotating. This test penetrated 10.3 m into the seafloor (4848.5–4858.8 mbrf). After the test was completed, we continued the 3.5 kHz pinger and camera survey to determine sediment distribution and thickness continued along the length of the bench as per the

arranged Co-Chief Scientists' survey plan (see Table T1 and Fig. F3 in the "Bench site survey" chapter [Gillis et al., 2014a]). Operations in Hole U1415A are summarized in Table T1.

## References

- Gillis, K.M., Snow, J.E., Klaus, A., Guerin, G., Abe, N., Akizawa, N., Ceuleneer, G., Cheadle, M.J., Adrião, Á., Faak, K., Falloon, T.J., Friedman, S.A., Godard, M.M., Harigane, Y., Horst, A.J., Hoshide, T., Ildfonse, B., Jean, M.M., John, B.E., Koepke, J.H., Machi, S., Maeda, J., Marks, N.E., McCaig, A.M., Meyer, R., Morris, A., Nozaka, T., Python, M., Saha, A., and Wintsch, R.P., 2014a. Bench site survey. *In* Gillis, K.M., Snow, J.E., Klaus, A., and the Expedition 345 Scientists, *Proc. IODP*, 345: College Station, TX (Integrated Ocean Drilling Program). doi:10.2204/iodp.proc.345.103.2014
- Gillis, K.M., Snow, J.E., Klaus, A., Guerin, G., Abe, N., Akizawa, N., Ceuleneer, G., Cheadle, M.J., Adrião, Á., Faak, K., Falloon, T.J., Friedman, S.A., Godard, M.M., Harigane, Y., Horst, A.J., Hoshide, T., Ildfonse, B., Jean, M.M., John, B.E., Koepke, J.H., Machi, S., Maeda, J., Marks, N.E., McCaig, A.M., Meyer, R., Morris, A., Nozaka, T., Python, M., Saha, A., and Wintsch, R.P., 2014b. Expedition 345 summary. *In* Gillis, K.M., Snow, J.E., Klaus, A., and the Expedition 345 Scientists, *Proc. IODP*, 345: College Station, TX (Integrated Ocean Drilling Program). doi:10.2204/iodp.proc.345.101.2014

**Publication:** 12 February 2014  
**MS 345-104**

**Table T1.** Operations summary, Hole U1415A.

---

<b>Hole U1415A (jet-in test only; no coring):</b>
Latitude: 2°15.1757'N
Longitude: 101°32.5695'W
Time at site (h): 28.0 (2345 h, 21 December–0345 h, 23 December 2012)
Seafloor (drill pipe measurement below rig floor, m DRF): 4848.5
Distance between rig floor and sea level (m): 11.2
Water depth (drill pipe measurement from sea level, mbsl): 4837.3
Total penetration (drilling depth below seafloor, m DSF): 10.3

---

Local ship time was UTC – 7 h. DRF = drilling depth below rig floor, DSF = drilling depth below seafloor.