# Proceedings of the International Ocean Discovery Program

## Volume 365

## NanTroSEIZE Stage 3: Shallow Megasplay Long-Term Borehole Monitoring System

Expedition 365 of the riser drilling platform
from and to Shimizu, Japan
Site C0010
26 March–27 April 2016

**Volume authorship**
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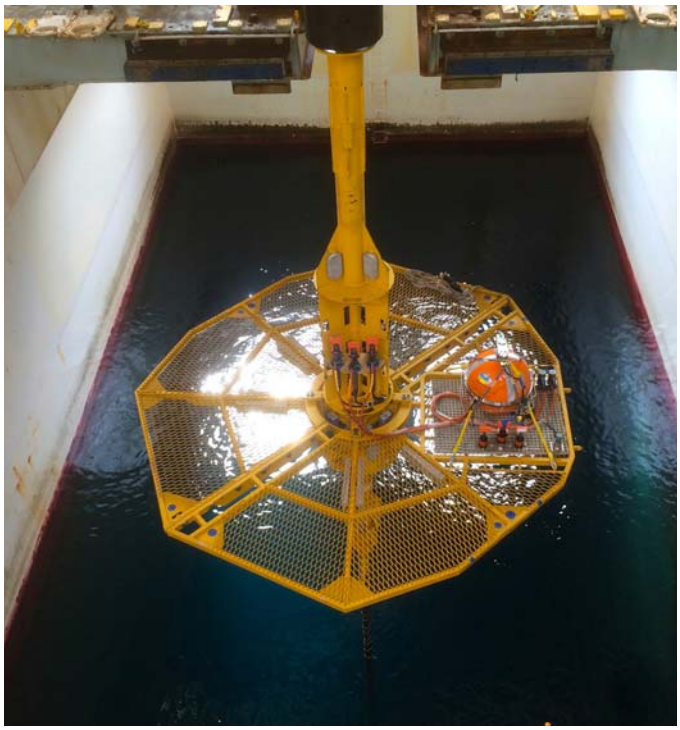

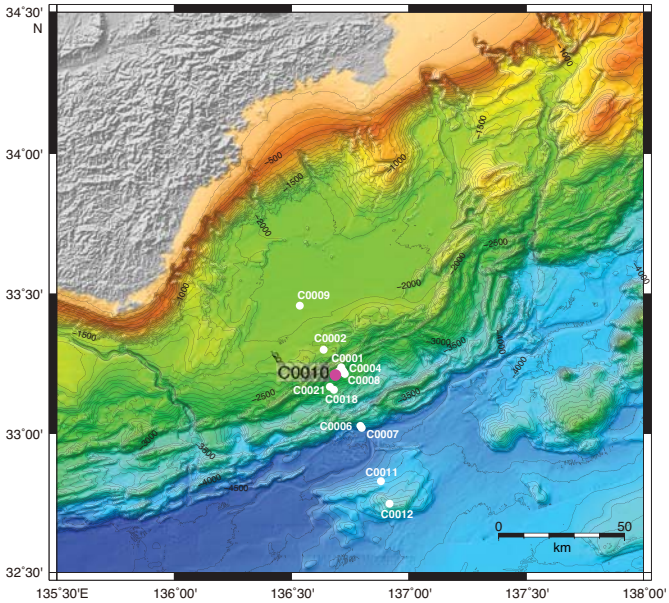


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# Publisher's notes

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Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the participating agencies, TAMU, or Texas A&M Research Foundation.

Shipboard-collected data from this expedition are accessible at **http://sio7.jamstec.go.jp**.

Supplemental data were provided by the authors and may not conform to IODP publication formats.

Some core photographs have been tonally enhanced to better illustrate particular features of interest. High-resolution images are available upon request.

Cover photograph shows the Hole C0010A long-term borehole monitoring system (LTBMS) CORK head being lowered into the moonpool. Copyright JAMSTEC.

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### Core descriptions

Visual core descriptions (VCDs) are presented in PDF files for each site. Smear slides and/or thin sections are presented in PDF and/or CSV files for each site and/or hole (CSV files are available in the CORES directory). The entire set of core images in PDF is available in the IMAGES directory.

**Site C0010**
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### Supplementary material

Supplementary material for the Volume 365 expedition reports includes curation data in Microsoft Excel, CSV, and JCT formats; daily morning reports in PDF, smear slide images and descriptions in JPG format and Microsoft Excel; scanned structural geology observation sheets in PDF; scanned visual core description sheets in PDF; 2-D X-ray computed tomography images in TIFF; and 3-D computed tomography images in MP4 format. A full list of directories can be found in SUPP_MAT in the volume zip folder or on the **Supplementary material for Volume 365 expedition reports** web page.

## Expedition research results

### Data reports

Titles are available in **HTML**.

### Syntheses

Titles are available in **HTML**.

## Drilling location maps

A site map showing the drilling locations for this expedition and maps showing the drilling locations of all International Ocean Discovery Program (IODP) expeditions, produced using QGIS (**http://www.qgis.org**), and all Integrated Ocean Drilling Program, Ocean Drilling Program (ODP), and Deep Sea Drilling Project (DSDP) expeditions, produced using Generic Mapping Tools (GMT) of Paul Wessel and Walter H.F. Smith (**http://gmt.soest.hawaii.edu**), are available in PDF.

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# Foreword

The International Ocean Discovery Program (IODP) represents the latest incarnation of almost five decades of scientific ocean drilling excellence and is generally accepted as the most successful international collaboration in the history of the Earth sciences. IODP builds seamlessly on the accomplishments of previous phases: the Deep Sea Drilling Project, Ocean Drilling Program, and Integrated Ocean Drilling Program. The 2013–2023 IODP Science Plan (*Illuminating Earth's Past, Present, and Future*) defines four themes and thirteen challenges for this decade of scientific ocean drilling that are both of fundamental importance in understanding how the Earth works and of significant relevance to society as the Earth changes, at least in part in response to anthropogenic forcing. This phase of IODP represents a renewed level of international collaboration in bringing diverse drilling platforms and strategies to increasing our understanding of climate and ocean change, the deep biosphere and evolution of ecosystems, connections between Earth's deep processes and surface manifestations, and geologically induced hazards on human timeframes.

The *Proceedings of the International Ocean Discovery Program* presents the scientific and engineering results of IODP drilling projects, expedition by expedition. As in the preceding Integrated Ocean Drilling Program, expeditions in the new IODP are conducted by three implementing organizations, each providing a different drilling capability. These are the US Implementing Organization (USIO; through September 2014) and the *JOIDES Resolution* Science Operator (JRSO; as of October 2014), providing the leased commercial vessel *JOIDES Resolution* for riserless drilling operations; JAMSTEC's Center for Deep Earth Exploration (CDEX), providing the drillship *Chikyu* for riser and occasional riserless operations; and the European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO), providing "mission-specific" platforms (MSPs) for expeditions that extend the IODP operational range where neither drillship is suitable, for example, in polar environments and in shallow waters. Scheduling decisions for each capability are made by three independent Facility Boards, each of which includes scientists, operators, and platform funding partners: the *JOIDES Resolution* Facility Board (JRFB), *Chikyu* IODP Board (CIB), and ECORD Facility Board (EFB). At the beginning of the new IODP, the three Facility Boards agreed to utilize Publication Services at the USIO and now the JRSO for production of all expedition *Proceedings* volumes and reports.

The new IODP differs from prior scientific ocean drilling programs in that it has neither a central management organization nor commingled funding for program-wide activities. Yet this phase of IODP retains a fundamental integrative structural element: a "bottom-up" evaluation of all proposals for drilling expeditions by a single advisory structure composed of scientists representing all international program partners. International scientists may submit drilling proposals to the Science Support Office; all submitted proposals are then evaluated by a Science Evaluation Panel in the context of the Science Plan.

The new IODP also has a second internationally integrative level for high-level discussion and consensus-building: the IODP Forum. The Forum is charged with assessing program-wide progress toward achieving the Science Plan. At present, IODP involves 26 international financial partners, including the United States, Japan, an Australia/New Zealand consortium (ANZIC), Brazil, China, India, South Korea, and the eighteen members of ECORD (Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, and the United Kingdom). This enhanced membership in the new IODP represents a remarkable level of international collaboration that remains one of the greatest ongoing strengths of scientific ocean drilling.

James A. Austin Jr.
Chair, IODP Forum

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# Expedition-related bibliography*

## IODP publications

### *Scientific Prospectus*

Kopf, A., Saffer, D., and Toczko, S., 2015. *Expedition 365 Scientific Prospectus: NanTroSEIZE Stage 3: shallow megasplay long-term borehole monitoring system (LTBMS)*. International Ocean Discovery Program. **http://dx.doi.org/10.14379/iodp.sp.365.2015**

### *Preliminary Report*

Kopf, A., Saffer, D., Toczko, S., and the Expedition 365 Scientists, 2016. *Expedition 365 Preliminary Report: NanTroSEIZE Stage 3: Shallow Megasplay Long-Term Borehole Monitoring System (LTBMS)*. International Ocean Discovery Program. **http://dx.doi.org/10.14379/iodp.pr.365.2016**

### *Proceedings* volume

Saffer, D., Kopf, A., Toczko, S., and the Expedition 365 Scientists, 2017. *NanTroSEIZE Stage 3: Shallow Megasplay Long-Term Borehole Monitoring System*. Proceedings of the International Ocean Discovery Program, 365: College Station, TX (International Ocean Discovery Program). **https://doi.org/10.14379/iodp.proc.365.2017**

### Expedition reports

Kopf, A., Saffer, D., Toczko, S., Araki, E., Carr, S., Kimura, T., Kinoshita, C., Kobayashi, R., Machida, Y., Rösner, A., and Wallace. L.M., 2017. Expedition 365 summary. With contributions by S. Chiyonobu, K. Kanagawa, T. Kanamatsu, G. Kimura, and M.B. Underwood. *In* Saffer, D., Kopf, A., Toczko, S., and the Expedition 365 Scientists, *NanTroSEIZE Stage 3: Shallow Megasplay Long-Term Borehole Monitoring System*. Proceedings of the International Ocean Discovery Program, 365: College Station, TX (International Ocean Discovery Program). **https://doi.org/10.14379/iodp.proc.365.101.2017**

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Saffer, D., Kopf, A., Toczko, S., Araki, E., Carr, S., Kimura, T., Kinoshita, C., Kobayashi, R., Machida, Y., Rösner, A., and Wallace, L.M., 2017. Site C0010. With contributions by S. Chiyonobu, K. Kanagawa, T. Kanamatsu, G. Kimura, and M.B. Underwood. *In* Saffer, D., Kopf, A., Toczko, S., and the Expedition 365 Scientists, *NanTroSEIZE Stage 3: Shallow Megasplay Long-Term Borehole Monitoring System*. Proceedings of the International Ocean Discovery Program, 365: College Station, TX (International Ocean Discovery Program). **https://doi.org/10.14379/iodp.proc.365.103.2017**

### Supplementary material

Saffer, D., Kopf, A., Toczko, S., and the Expedition 365 Scientists, 2017. Supplementary material, **https://doi.org/10.14379/iodp.proc.365supp.2017**. *Supplement to* Saffer, D., Kopf, A., Toczko, S., and the Expedition 365 Scientists, *NanTroSEIZE Stage 3: Shallow Megasplay Long-Term Borehole Monitoring System*. Proceedings of the International Ocean Discovery Program, 365: College Station, TX (International Ocean Discovery Program). https://doi.org/10.14379/iodp.proc.365.2017

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