Proceedings of the International Ocean Discovery Program

Volume 358

NanTroSEIZE Plate Boundary Deep Riser 4: Nankai Seismogenic/Slow Slip Megathrust

Expedition 358 of the D/V Chikyu
from and to Shimizu, Japan
Sites C0002, C0024, and C0025
7 October 2018–31 March 2019

Volume authorship
Publisher’s notes

This publication was prepared by the D/V Chikyu Science Operator, the Institute for Marine-Earth Exploration and Engineering (MarE3), at the Japan Agency for Marine-Earth Science and Technology (JAMSTEC) and the JOIDES Resolution Science Operator (JRSO) at Texas A&M University (TAMU) as an account of work performed under the International Ocean Discovery Program (IODP). Funding for IODP is provided by the following international partners:

- National Science Foundation (NSF), United States
- Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan
- European Consortium for Ocean Research Drilling (ECORD)

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 view of Mount Fuji from the D/V Chikyu helideck while offshore in Suruga Bay at the end of IODP Expedition 358. Copyright JAMSTEC.

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Examples of how to cite this volume or part of this volume are available at http://publications.iodp.org/proceedings/358/358title.html#bib.

ISSN

World Wide Web: 2377-3189

Volume DOI

https://doi.org/10.14379/iodp.proc.358.2020

Publication date

18 July 2020
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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.

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Supplementary material
Supplementary material for the Volume 358 expedition reports includes cuttings/bit sample images in JPG format and information in Microsoft Excel format; event bed and mud gas data in Microsoft Excel format; daily morning and geomechanics reports and scanned visual core description sheets in PDF; smear slide and thin section images and descriptions in JPG, TIF, Microsoft Excel, and PowerPoint formats and PDF; and scanned structural geology sheets and data in PDF and Microsoft Excel format. A full list of directories can be found in SUPP_MAT in the volume zip folder or on the Supplementary material for Volume 358 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.

IODP Expedition 358 site map
IODP map (Expeditions 349–372, 374–376, and 380–381)
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Dedication

Congratulations to Captain Yukio Dowaki on his retirement after so many years of service supporting the Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) project on board the D/V Chikyu.
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 an intense 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 current IODP phase 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 Institute for Marine-Earth Exploration and Engineering (MarE3), 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 current 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 current 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 current IODP also has a second internationally integrative level for high-level discussion and consensus-building: the IODP Forum. The Forum is not only charged with assessing program-wide progress toward achieving the current Science Plan, but also with overseeing approaches toward a new bright future of scientific ocean drilling post 2023. 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 current IODP represents a remarkable level of international collaboration that remains one of the greatest ongoing strengths of scientific ocean drilling.

Dick Kroon
Chair, IODP Forum
International Ocean Discovery Program

JOIDES Resolution Science Operator

Website: http://iodp.tamu.edu

IODP JRSO
International Ocean Discovery Program
Texas A&M University
1000 Discovery Drive
College Station TX 77845-9547
USA
Tel: (979) 845-2673; Fax: (979) 845-4857
Email: information@iodp.tamu.edu

IODP JRSO Curation and Laboratories
IODP Gulf Coast Repository (GCR)
Texas A&M University
1000 Discovery Drive
College Station TX 77845-9547
USA
Tel: (979) 845-8490; Fax: (979) 845-1303
Email: curator@iodp.tamu.edu

European Consortium for Ocean Research Drilling, Science Operator (ESO)

Website: http://www.ecord.org

IODP ESO Coordinator: Science, Logistics, and Operations
British Geological Survey
The Lyell Centre
Research Avenue South
Edinburgh EH14 4AP
United Kingdom
Tel: (44) 131-667-1000; Fax: (44) 131-668-4140
Email: eso@bgs.ac.uk

IODP ESO Petrophysics
European Petrophysics Consortium
Department of Geology
University of Leicester
Leicester LE1 7RH
United Kingdom
Tel: (44) 116-252-3611; Fax: (44) 116-252-3918
Email: sjd27@leicester.ac.uk

IODP ESO Curation and Laboratories
IODP Bremen Core Repository (BCR)
Center for Marine Environmental Sciences (MARUM)
University of Bremen
Leobener Strasse
28359 Bremen
Germany
Tel: (49) 421-218-65560; Fax: (49) 421-218-98-65560
Email: bcr@marum.de

Japan Agency for Marine-Earth Science and Technology (JAMSTEC)

Website: http://www.jamstec.go.jp/chikyu/e

IODP Japan Science Operator
Institute for Marine-Earth Exploration and Engineering (MarE3)
Japan Agency for Marine-Earth Science and Technology
Yokohama Institute for Earth Sciences
3175-25 Showa-machi
Kanazawa-ku, Yokohama
Kanagawa 236-0001
Japan
Tel: (81) 45-778-5643; Fax: (81) 45-778-5704
Email: marc3-exp@jamstec.go.jp

IODP Japan Curation and Laboratories
IODP Kochi Institute for Core Sample Research (KCC)
Japan Agency for Marine-Earth Science and Technology
200 Monobe Otusu
3175-25 Showa-machi
Nankoku City, Kochi 783-8502
Japan
Tel: (81) 88-864-6705; Fax: (81) 88-878-2192
Email: kcc.contact@jamstec.go.jp
Expedition 358 participants*

Expedition 358 scientists

Takehiro Hirose
Science Leader
Kochi Institute for Core Sample Research
Japan Agency for Marine-Earth Science and Technology
Japan
hiroset@jamstec.go.jp

Matt Ikari
Science Leader
Center for Marine Environmental Sciences (MARUM)
University of Bremen
Germany
mikari@marum.de

Kyuichi Kanagawa
Science Leader
Department of Earth Sciences
Graduate School of Science/Faculty of Science
Chiba University
Japan
kyu_kanagawa@faculty.chiba-u.jp

Gaku Kimura
Science Leader
Tokyo University of Marine Science and Technology
Japan
gkimur0@kaiyodai.ac.jp

Masataka Kinoshita
Science Leader
Earthquake Research Institute
University of Tokyo
Japan
masa@eri.u-tokyo.ac.jp

Hiroko Kitajima
Science Leader
Department of Geology and Geophysics
Texas A&M University
USA
kitaji@tamu.edu

Demian Saffer
Science Leader
Department of Geosciences
The Pennsylvania State University
USA

demian@ig.utexas.edu

Harold Tobin
Science Leader
Department of Earth and Space Sciences
University of Washington
USA
htobin@uw.edu

Asuka Yamaguchi
Science Leader
Atmosphere and Ocean Research Institute
University of Tokyo
Japan
asuka@aori.u-tokyo.ac.jp

Sean Toczko
Lead Expedition Project Manager
Institute for Marine-Earth Exploration and Engineering
Japan Agency for Marine-Earth Science and Technology
Japan
sean@jamstec.go.jp

Nobuhisa Eguchi
Expedition Project Manager
Institute for Marine-Earth Exploration and Engineering
Japan Agency for Marine-Earth Science and Technology
Japan
neguchi@jamstec.go.jp

Lena Maeda
Expedition Project Manager
Institute for Marine-Earth Exploration and Engineering
Japan Agency for Marine-Earth Science and Technology
Japan
maedal@jamstec.go.jp

John Bedford
Physical Properties Specialist
Department of Earth, Ocean and Ecological Sciences
University of Liverpool
United Kingdom
jbedford@liverpool.ac.uk

Tobias August Colson
Real-Time Geomechanics
Santos Ltd.
Australia
tobias.colson@santos.com

Marianne Conin
Logging Specialist
Georesources
University of Lorraine
France
marianne.conin@univ-lorraine.fr

*Affiliations at time of expedition, except where updated by participants.
Yuzuru Yamamoto
Structural Geologist
Center for Mathematical Science and Advanced Technology
Japan Agency for Marine-Earth Science and Technology
Japan
Present affiliation (20 February 2020):
Graduate School of Science
Kobe University
Japan
yuzuru-y@harbor.kobe-u.ac.jp

Junli Zhang
Mud Gas Specialist
Center for Marine Environmental Sciences (MARUM)
University of Bremen
Germany
jzhang@marum.de

Yoshinori Sanada
Logging Staff Scientist
Institute for Marine-Earth Exploration and Engineering
Japan Agency for Marine-Earth Science and Technology
Japan
sanada@jamstec.go.jp

Yukari Kido
Logging Staff Scientist
Institute for Marine-Earth Exploration and Engineering
Japan Agency for Marine-Earth Science and Technology
Japan
ykido@jamstec.go.jp

Erwan Le Ber
Logging Staff Scientist
University of Leicester
United Kingdom
elb51@leicester.ac.uk

Saneatsu Saito
Logging Staff Scientist
Institute for Marine-Earth Exploration and Engineering
Japan Agency for Marine-Earth Science and Technology
Japan
saito@jamstec.go.jp

Yohei Hamada
Logging Staff Scientist
Kochi Institute for Core Sample Research
Japan Agency for Marine-Earth Science and Technology
Japan
yhamada@jamstec.go.jp

Contributing author
Toshiya Kanamatsu
Research Institute of Marine Geodynamics
Japan Agency for Marine-Earth Science and Technology
Japan
toshiyak@jamstec.go.jp

Videographers
Dan Brinkhuis
Videographer
The Netherlands
dan@sciencemedia.nl

Dick Peterse
Videographer
The Netherlands
dick@sciencemedia.n

NanTroSEIZE chief project scientists
Masataka Kinoshita
Chief Project Scientist
Earthquake Research Institute
University of Tokyo
Japan
masa@eri.u-tokyo.ac.jp

Harold Tobin
Chief Project Scientist
Department of Earth and Space Sciences
University of Washington
USA
htobin@uw.edu

NanTroSEIZE science coordinators
Kyuichi Kanagawa
Structural Geology
Department of Earth Sciences
Graduate School of Science/Faculty of Science
Chiba University
Japan
kyu_kanagawa@faculty.chiba-u.jp

Gaku Kimura
Structural Geology
Tokyo University of Marine Science and Technology
Japan
gkimur0@kaiyodai.ac.jp
Achim Kopf  
Geochemistry  
Center for Marine Environmental Sciences (MARUM)  
University of Bremen  
Germany  
akopf@marum.de

Gregory F. Moore  
Geophysics  
Department of Earth Sciences  
University of Hawaii at Manoa  
Hawaii  
USA  
gmoore@hawaii.edu

Demian Saffer  
Geomechanics and Physical Properties  
Department of Geosciences  
The Pennsylvania State University  
USA  
Present affiliation (1 January 2020):  
University of Texas Institute for Geophysics (UTIG) and  
Department of Geological Sciences  
University of Texas  
USA  
demian@ig.utexas.edu

Michael Strasser  
Stratigraphy  
Department of Geology  
University of Innsbruck  
Austria  
michael.strasser@uibk.ac.at

Michael B. Underwood  
Lithostratigraphy  
Department of Earth and Environmental Science  
New Mexico Institute of Mining and Technology  
USA  
underwoodm@missouri.edu

Yasu Yamada  
Downhole Logging  
Research and Development Center for Ocean Drilling Science  
Japan Agency for Marine-Earth Science and Technology  
Japan  
Present affiliation (20 February 2020):  
Institute for Marine-Earth Exploration and Engineering  
Japan Agency for Marine-Earth Science and Technology  
Japan  
yyamada@jamstec.go.jp

Operational and technical staff

Shipboard personnel and technical representatives

Captains (Mantle Quest Japan)
Yukio Dowaki  
Takemasa Kobayashi  
Kaz Nishiyama  
Akio Suzuki

Offshore Installation Manager (Mantle Quest Japan)
Masayuki Kawasaki  
Teruyuki Koyama

Tool Pushers/Coring Supervisors (Mantle Quest Japan)
Michio Fukaya  
Charles Ronald Paul MacGregor  
Ikuo Matsuzawa  
Paul Thornton

Underreamer Engineer (NOV)
Glyn Christopher Edwards

Operations Superintendents (MarE3)
Terumichi Ikawa  
Tomokazu Saruhashi

Drilling Engineers (MarE3)
Noriaki Sakurai  
Tao Shiotani  
Takahiko Yokoyama

Real-Time Geomechanics
Kan Aoike  
Emily Wisbey  
Adam Wspanialy

Drilling and MWD/LWD Engineers (Schlumberger)
Ikhsan Anugrah Putra Andhisa  
Fen Bin  
Zhou Cai  
Zhang Chen  
Liu Dilin  
He Zi Ding  
Li Fang Fang  
Dawute Humarbek  
Colin Ke  
Bian Kang Lei  
Zhang Hong Liang  
Takashi Monden  
Shota Moriyama  
Seiji Murakami  
Ye Pu  
Linag Jin Qing  
Achmad Rifai  
Marganda H. Sihite  
Yoshifumi Taniguchi  
Yos Vaisal  
Wang Yong
Geonext Engineers (Geoservices)
Aung Kaw Myint
Myint Win
Pravin Patil
Ya Wai

Mud Loggers (Geoservices)
Aung Kaung
Wai Phyoe
Zin Maung Maung Lwin
Rawikan Mojan

Sample Catchers (Geoservices)
Nurul Najihah
Samantha Usun
Tania Crocker
Mohammad Idris

Wireline Tool Engineers (Schlumberger)
Gan Lifeng
Kengo Tsuchida
Daigoro Watanabe
Yusuke Yoshii
Akira Yoshizawa

Laboratory Officer (Marine Works Japan)
Tomoyuki Tanaka

Assistant Lab Officers (Marine Works Japan)
Toru Fujiki
Soichi Moriya
Toshikuni Yabuki

Curators (Marine Works Japan)
Shigako Nigi
Masaru Yasunaga

Laboratory Technicians (Marine Works Japan)
Masayuki Abe
Nobuhiro Anraku
Akihiko Fujihara
Keiko Fujino
Kei Fujiya
Mikio Hasegawa
Kentaro Hatakeda
Ei Hatakeyama
Yuya Hitomi

Daiki Kawata
Yoshiki Kido
Susumu Konno
Reina Miyahara
Hirotaka Miyamoto
Koh Morita
Htet Naing Lin
Saori Nishino
Rui Nitahara
Yuta Oda
Yasusei Sato
Ritsuko Sawada
Yu Shimazaki
Yuta Shinomiya
Kazuma Takahashi
Hiromi Takeda
Tomonori Watai
Mika Yamaguchi
Hideki Yamamoto
Masahiro Yasuda
Kanako Yoshida
Paing Zu

Operation Geologists (MarE3)
Kan Aoike
Takamitsu Sugihara
Kentaro Takeda

Assistant Operation Geologist (Nippon Marine Enterprise Japan)
Takuya Onodera

Assistant Operation Geologists (Marine Works Japan)
Atushi Kurasawa
Masumi Sakaguchi

Technical Engineers (MarE3)
Junya Ishiwata
Yasuhiro Namba
Ryuta Tanaka

Coring Specialist (MarE3)
Yuichi Shinmoto

Publications Specialists (Marine Works Japan)
Akiko Fuse
Mika Saido
IODP Publication Services staff*

Emily Britt
Editor II

Douglas Cummings
Graphics Specialist II

Gudelia ("Gigi") Delgado
Publications Coordinator

Ekanta Desai
Graphics Specialist II

Patrick H. Edwards
Supervisor of Production

Willow Grosz
Editor II

Jenni Hesse
Editor IV

Rhonda Kappler
Graphics Specialist IV

Ginny Lowe
Reports Coordinator

Amy McWilliams
Supervisor of Editing

Julie Myers
Production Editor III

Lorri Peters
Manager of Publication Services

Kenneth Sherar
Production Editor III

Alyssa Stephens
Graphics Specialist III

Jean Wulfson
Supervisor of Graphics

Ann Yeager
Distribution Specialist

*At time of publication.
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