

Proceedings of the International Ocean Discovery Program

Volume 360

Southwest Indian Ridge Lower Crust and Moho

Expedition 360 of the riserless drilling platform

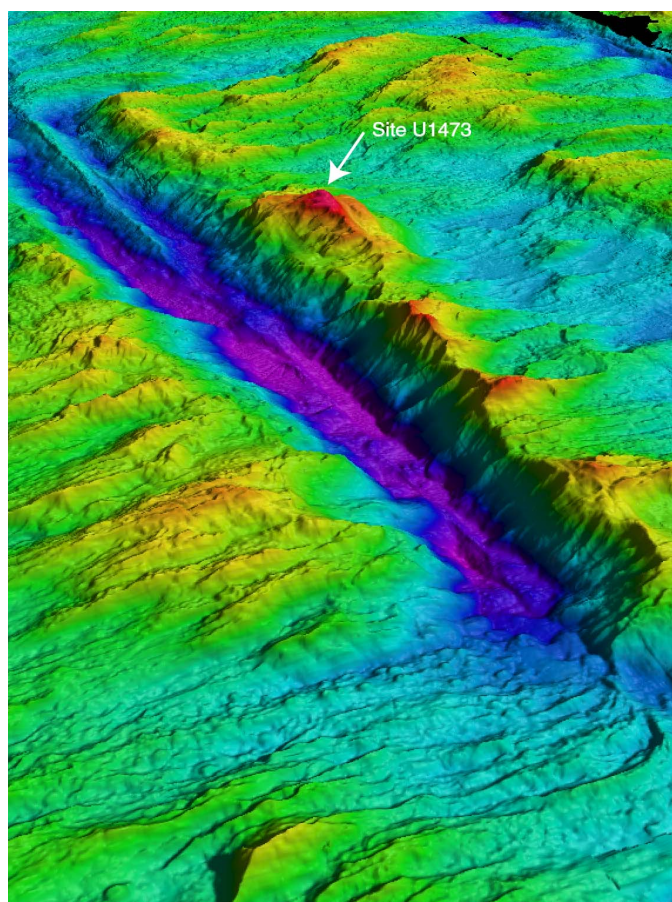
Colombo, Sri Lanka, to Port Louis, Mauritius

Site U1473

30 November 2015–30 January 2016

Volume authorship

MacLeod, C.J., Dick, H.J.B., Blum, P., and the Expedition 360 Scientists



Publisher's notes

This publication was prepared by 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)
Ministry of Science and Technology (MOST), People's Republic of China
Korea Institute of Geoscience and Mineral Resources (KIGAM)
Australia-New Zealand IODP Consortium (ANZIC)
Ministry of Earth Sciences (MoES), India
Coordination for Improvement of Higher Education Personnel (CAPES), Brazil

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.

The bulk of the shipboard-collected core data from this expedition is accessible at <http://iodp.tamu.edu/database/index.html>. If you cannot access this site or need additional data, please contact Data Librarian, International Ocean Discovery Program *JOIDES Resolution* Science Operator, Texas A&M University, 1000 Discovery Drive, College Station TX 77845-9547, USA. Tel: (979) 845-8495; Fax: (979) 458-1617; Email: database@iodp.tamu.edu.

A complete set of the logging data collected during the expedition is available at <http://brg.ldeo.columbia.edu/logdb>. If you have problems downloading the data, wish to receive additional logging data, or have questions regarding the data, please contact Database Administrator, Borehole Research Group, Lamont-Doherty Earth Observatory of Columbia University, PO Box 1000, 61 Route 9W, Palisades NY 10964, USA. Tel: (845) 365-8343; Fax: (845) 365-3182; Email: logdb@ldeo.columbia.edu.

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

JRSO expedition photos are the property of IODP and are in the public domain.

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 R/V *JOIDES Resolution* at night. Cover site map shows oblique view of the Atlantis II Transform fault looking north-northeast; Atlantis Bank and Site U1473 (red) form the northernmost and shallowest portion of the transverse ridge on the eastern flank of the transform. Photo credit: Chris MacLeod and IODP JRSO.

Copyright

Except where otherwise noted, this work is licensed under a Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/deed.en_US). Unrestricted use, distribution, and reproduction are permitted, provided the original author and source are credited.

Examples of how to cite this volume or part of this volume are available at <http://publications.iodp.org/proceedings/360/360title.html#bib>.

ISSN

World Wide Web: 2377-3189

Publication date

30 January 2017

Contents

Expedition reports

Chapters

[Expedition 360 summary](#)

H.J.B. Dick et al.

[Expedition 360 methods](#)

C.J. MacLeod et al.

[Site U1473](#)

C.J. MacLeod et al.

[Hole 1105A redescription](#)

C.J. MacLeod et al.

[Hole U1473A remediation operations, Expedition 362T](#)

P. Blum et al.

Core descriptions

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

[Site U1473](#)

[Visual core descriptions · Thin sections](#)

[Site 1105](#)

[Visual core descriptions · Thin sections](#)

Supplementary material

Supplementary material for the Volume 360 expedition reports includes affine tables and shifting method in Microsoft Excel and CSV format, DESClogik workbooks in Microsoft Excel, web galleries of photomicrographs and thin section images in JPG, lithology

averaging information in Microsoft Word and Matlab, operations summary in Microsoft Excel, paleomagnetism data in Microsoft Excel and CSV format, petrophysics data in Microsoft Excel and ASCII, and filtering information in Microsoft Word and Matlab. A full list of directories can be found in SUPP_MAT in the volume zip folder or on the [Supplementary material for Volume 360 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), produced using QGIS (<http://www.qgis.org>), and 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 360 site map](#)

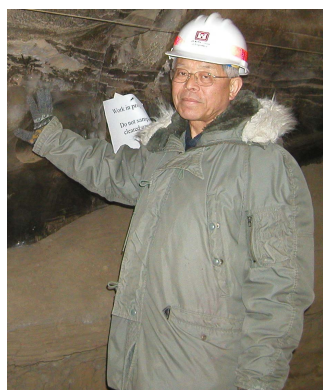
[IODP map](#) (Expeditions 349–357, 359, and 360)

[Integrated Ocean Drilling Program map](#) (Expeditions 301–348)

[ODP map](#) (Legs 100–210)

[DSDP map](#) (Legs 1–96)

Dedication



This volume is dedicated to Hajimu Kinoshita, whose leadership of three site survey cruises supported by the Japan Agency for Marine-Earth Science and Technology was critical to documenting the geology of Atlantis Bank, a key prerequisite for enabling the SloMo Project and for reaching the crust/mantle boundary. Photo credit: K. Akazawa, copyright JAMSTEC.

Acknowledgments

The members of the IODP Expedition 360 science party would like to thank the Siem Offshore crew and IODP support staff on board the R/V *JOIDES Resolution* during Expeditions 360 and 362T for their outstanding professionalism, skill, and extraordinary dedication at all stages of the project. The sense of camaraderie and shared mission of these individuals with the scientific party made the cruise a wonderful and noteworthy experience. The IODP JRSO Publications staff at TAMU are thanked for their help and particularly for their patience during the production of this document. The Japan Agency for Marine-Earth Science and Technology, UK Natural Environment Research Council, US National Science Foundation, and Canada National Sciences and Engineering Research Council are acknowledged with gratitude for their funding of the site surveys of Atlantis Bank.

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

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: rumford@iodp.tamu.edu

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

Website: <http://www.eso.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 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

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

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

Website: <http://www.jamstec.go.jp/chikyue>

IODP Japan Science Operator

Center for Deep Earth Exploration (CDEX)
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: cdex@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 Otsu
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 360 participants*

Expedition 360 scientists

Christopher J. MacLeod

Co-Chief Scientist

School of Earth and Ocean Sciences
Cardiff University
Main Building, Park Place
Cardiff CF10 3AT
Wales
United Kingdom
macleod@cardiff.ac.uk

Henry J.B. Dick

Co-Chief Scientist

Department of Geology and Geophysics
Woods Hole Oceanographic Institution
McLean Laboratory, MS 8
Woods Hole MA 02543-1539
USA
hdick@whoi.edu

Peter Blum

Expedition Project Manager/Staff Scientist

International Ocean Discovery Program
Texas A&M University
1000 Discovery Drive
College Station TX 77845-9547
USA
blum@iodp.tamu.edu

Natsue Abe

Physical Properties Specialist/Downhole Measurements

Institute for Research on Earth Evolution (IFREE)
Japan Agency for Marine-Earth Science and Technology
2-15 Natsushima-cho
Yokosuka Kanagawa 237-0061
Japan
abenatsu@jamstec.go.jp

Donna K. Blackman

Physical Properties Specialist/Downhole Measurements

Scripps Institution of Oceanography
University of California, San Diego
LaJolla CA 92093-0225
USA
dblackman@ucsd.edu

Julie A. Bowles

Paleomagnetist

Department of Geosciences
University of Wisconsin-Milwaukee
Lapham Hall 366
Milwaukee WI 53201
USA
bowlesj@uwm.edu

Michael J. Cheadle

Structural Geologist

Department of Geology and Geophysics
University of Wyoming
1000 University Avenue, Department 3006
Laramie WY 82071
USA
cheadle@uwyo.edu

Kyungo Cho

Inorganic Geochemist

Department of Environmental Exploration Engineering
Pukyong National University
Yongso-ro, Nam-Gu
Busan
Republic of Korea
whruddh@hanmail.net

Jakub Ciałęła

Inorganic Geochemist

Institute of Geology
Adam Mickiewicz University
ul. Maków Polnych 16
61-606 Poznań
Poland
cialela@amu.edu.pl

Jeremy R. Deans

Structural Geologist

Department of Geosciences
Texas Tech University
125 Science Building, MS 1053
Lubbock TX 79409
USA
jeremy.deans@ttu.edu

Virginia P. Edgcomb

Microbiologist

Department of Geology and Geophysics
Woods Hole Oceanographic Institution
McLean Laboratory, MS 8
Woods Hole MA 02543
USA
vedgcomb@whoi.edu

Carlotta Ferrando

Structural Geologist

Géosciences Montpellier
Université de Montpellier
34095 Montpellier Cedex 05
France
carlotta.ferrando@gm.univ-montp2.fr

*Addresses at time of expedition, except where updated by participants.

Lydéric France

Igneous Petrologist

Centre de Recherches Péetrographiques et Géoehimiques
(UMR 7358)

CNRS

Université de Lorraine

54501 Vandœuvre les Nancy

France

lyde@crpg.cnrs-nancy.fr

Biswajit Ghosh

Igneous Petrologist

Department of Geology

University of Calcutta

35 Ballygunge Circular Road

Kolkata West Bengal 700019

India

bghosh_geol@hotmail.com

Benoit M. Ildefonse

Structural Geologist

Géosciences Montpellier

Université de Montpellier

34095 Montpellier Cedex 05

France

benoit.ildefonse@umontpellier.fr

Mark A. Kendrick

Inorganic Geochemist

Research School of Earth Sciences

The Australian National University, Acton

Acton ACT 2601

Australia

mark.kendrick@anu.edu.au

Juergen H. Koepke

Metamorphic Petrologist

Institut fuer Mineralogie

University of Hannover

Callinstrasse 3

30167 Hannover

Germany

koepke@mineralogie.uni-hannover.de

James A.M. Leong

Metamorphic Petrologist

School of Earth and Space Exploration

Arizona State University

550 East Tyler Mail PSF #686

Tempe AZ 85287

USA

jmleong@asu.edu

Chuanzhou Liu

Igneous Petrologist

Institut of Geology and Geophysics

Chinese Academy of Sciences

19 Western Beitucheng Road

Beijing 100029

China

chzliu@mail.iggcas.ac.cn

Qiang Ma

Metamorphic Petrologist

School of Ocean and Earth Science

Tongji University

1239 Siping Road

Shanghai

China

tongjimaqiang@hotmail.com

Tomoaki Morishita

Igneous Petrologist

Kanazawa University

College of Science and Engineering

Kakuma-machi

Kanazawa Ishikawa 920-1192

Japan

moripta@staff.kanazawa-u.ac.jp

Antony Morris

Paleomagnetist

School of Geography, Earth and Environmental Sciences

University of Plymouth

Drake Circus

Plymouth PL4 8AA

United Kingdom

a.morris@plymouth.ac.uk

James H. Natland

Igneous Petrologist

Rosenstiel School of Marine and Atmospheric Science

University of Miami

Miami FL 33156

USA

jnatland@rsmas.miami.edu

Toshio Nozaka

Metamorphic Petrologist

Okayama University

Department of Earth Sciences

Okayama 700-8530

Japan

nozaka@cc.okayama-u.ac.jp

Oliver Pluemper

Structural Geologist

Institute of Earth Sciences

Utrecht University

Budapestlaan 4

3584CD Utrecht

Netherlands

o.plumper@uu.nl

Alessio Sanfilippo

Igneous Petrologist

Kanazawa University

College of Science and Engineering

Kakuma Kanazawa 920-1192

Japan

spessio84@gmail.com

Jason B. Sylvan
Microbiologist

Department of Oceanography
Texas A&M University
Eller O&M Building, Room 716
College Station TX 77843
USA
jasonsylvan@tamu.edu

Maurice A. Tivey
Paleomagnetist

Department of Geology and Geophysics
Woods Hole Oceanographic Institution
360 Woods Hole Road
Woods Hole MA 02543
USA
mtivey@whoi.edu

Education and outreach

Lucas Kavanagh
Education/Outreach Officer

315 Arnold Avenue
Victoria BC V8S 3L6
Canada
l.kavanagh@me.com

Marion Burgio
Education/Outreach Officer

1291 Avenue de l'amiral
Landrin
64110 Jurancon
France
marion.burgio@gmail.com

Riccardo Tribuzio
Metamorphic Petrologist

Dipartimento scienze della Terra
Università degli studi di Pavia
Via Ferrata 1
27100 Pavia
Italy
tribuzio@crystal.unipv.it

Luis G.F. Viegas
Structural Geologist

Instituto de Geociencias
Universidade de Sao Paulo
Rua do Lago 562
Sao Paulo SP
Brazil
lgviegas@gmail.com

Alejandra Martinez
Education/Outreach Officer

2424 Elizabeth Circle
Eagle Pass TX 78852
USA
seafoamgreen@gmail.com

Jiansong Zhang
Education/Outreach Officer

Xinhua News Agency Shanghai Branch
Research Department
62 Hengshan Road
Shanghai
China
13311669691@163.com

Operational and technical staff

Siem Offshore AS officials

Terry Skinner
Master of the Drilling Vessel

James Samuel McLelland
Offshore Installation Manager

JRSO shipboard personnel and technical representatives

Expedition 360

Heather Barnes
Assistant Laboratory Officer

Susan Boehm
X-Ray Laboratory

Adam Bogus
Physical Properties Laboratory

Michael Cannon
Marine Computer Specialist

Etienne Claassen
Marine Instrumentation Specialist

William Crawford
Imaging Specialist

Roy Davis
Laboratory Officer

Aaron de Loach
Core Laboratory

David Fackler
Applications Developer

Edwin Garrett
Paleomagnetism Laboratory

Jan Jurie Kotze
Marine Instrumentation Specialist

Zenon Mateo
Core Laboratory

Aaron Mechler
Thin Section Laboratory

Stephen Midgley
Operations Superintendent

Erik Moortgat
Chemistry Laboratory

Chieh Peng
Assistant Laboratory Officer

Vincent Percuoco
Chemistry Laboratory

Alyssa Stephens
Publications Specialist

Expedition 362T

Heather Barnes
Assistant Laboratory Officer

Peter Blum
Expedition Project Manager/Staff Scientist

Michael Cannon
Marine Computer Specialist

Etienne Claassen
Marine Instrumentation Specialist

Roy Davis
Laboratory Officer

David Fackler
Applications Developer

Paul Foster
Applications Developer

Seth Frank
Marine Laboratory Specialist

Rachel Gray
Marine Laboratory Specialist

Margaret Hastedt
Marine Laboratory Specialist

IODP Publication Services staff*

Douglas Cummings
Graphics Specialist II

Gudelia ("Gigi") Delgado
Senior Publications Coordinator

Patrick H. Edwards
Production Specialist IV

Jaime A. Gracia
Supervisor of Production and Graphics

Jenni Hesse
Editor III

Rhonda Kappler
Graphics Specialist III

Shana C. Lewis
Editor III

Ginny Lowe
Reports Coordinator

Kerry Swain
Logging Engineer

Steven Thomas
Marine Computer Specialist

John Van Hyfte
Drilling Engineer

Rui Wang
Applications Developer

David Houpt
Marine Laboratory Specialist

Jon Howell
Applications Developer

Jan Jurie Kotze
Marine Instrumentation Specialist

Zenon Mateo
Marine Laboratory Specialist

Mike Meiring
Electronics Designer

Erik Moortgat
Marine Laboratory Specialist

Mike Storms
Operations Superintendent

Kerry Swain
Drilling/Logging Engineer

Steven Thomas
Marine Computer Specialist

Rui Wang
Applications Developer

Amy McWilliams
Editor IV

Lorri Peters
Manager of Publication Services

Kenneth Sherar
Production Specialist III

Alyssa Stephens
Graphics Specialist III

Crystal Wolfe
Production Specialist III

Jean Wulfson
Graphics Specialist III

Ann Yeager
Distribution Specialist

*At time of publication.

Expedition-related bibliography*

IODP publications

Scientific Prospectus

Dick, H.J.B., MacLeod, C.J., and Blum, P., 2015. *Expedition 360 Scientific Prospectus: Southwest Indian Ridge Lower Crust and Moho*. International Ocean Discovery Program.
<http://dx.doi.org/10.14379/iodp.sp.360.2015>

Preliminary Report

Dick, H.J.B., MacLeod, C.J., Blum, P., and the Expedition 360 Scientists, 2016. *Expedition 360 Preliminary Report: Southwest Indian Ridge Lower Crust and Moho*. International Ocean Discovery Program.
<http://dx.doi.org/10.14379/iodp.pr.360.2016>

Proceedings volume

MacLeod, C.J., Dick, H.J.B., Blum, P., and the Expedition 360 Scientists, 2017. *Southwest Indian Ridge Lower Crust and Moho*. Proceedings of the International Ocean Discovery Program, 360: College Station, TX (International Ocean Discovery Program).
<http://dx.doi.org/10.14379/iodp.proc.360.2017>

Expedition reports

Dick, H.J.B., MacLeod, C.J., Blum, P., Abe, N., Blackman, D.K., Bowles, J.A., Cheadle, M.J., Cho, K., Ciałęła, J., Deans, J.R., Edgcomb, V.P., Ferrando, C., France, L., Ghosh, B., Ildefonse, B.M., Kendrick, M.A., Koepke, J.H., Leong, J.A.M., Liu, C., Ma, Q., Morishita, T., Morris, A., Natland, J.H., Nozaka, T., Pluempner, O., Sanfilippo, A., Sylvan, J.B., Tivey, M.A., Tribuzio, R., and Viegas, L.G.F., 2017. Expedition 360 summary. *In* MacLeod, C.J., Dick, H.J.B., Blum, P., and the Expedition 360 Scientists, *Southwest Indian Ridge Lower Crust and Moho*. Proceedings of the International Ocean Discovery Program, 360: College Station, TX (International Ocean Discovery Program).
<http://dx.doi.org/10.14379/iodp.proc.360.101.2017>

MacLeod, C.J., Dick, H.J.B., Blum, P., Abe, N., Blackman, D.K., Bowles, J.A., Cheadle, M.J., Cho, K., Ciałęła, J., Deans, J.R., Edgcomb, V.P., Ferrando, C., France, L., Ghosh, B., Ildefonse, B.M., Kendrick, M.A., Koepke, J.H., Leong, J.A.M., Liu, C., Ma, Q., Morishita, T., Morris, A., Natland, J.H., Nozaka, T., Pluempner, O., Sanfilippo, A., Sylvan, J.B., Tivey, M.A., Tribuzio, R., and Viegas, L.G.F., 2017. Expedition 360 methods. *In* MacLeod, C.J., Dick, H.J.B., Blum, P., and the Expedition 360 Scientists, *Southwest Indian Ridge Lower Crust and Moho*. Proceedings of the International Ocean Discovery Program, 360: College Station, TX (International Ocean Discovery Program).
<http://dx.doi.org/10.14379/iodp.proc.360.102.2017>

MacLeod, C.J., Dick, H.J.B., Blum, P., Abe, N., Blackman, D.K., Bowles, J.A., Cheadle, M.J., Cho, K., Ciałęła, J., Deans, J.R., Edgcomb, V.P., Ferrando, C., France, L., Ghosh, B., Ildefonse, B.M., Kendrick, M.A., Koepke, J.H., Leong, J.A.M., Liu, C., Ma, Q., Morishita, T., Morris, A., Natland, J.H., Nozaka, T., Pluempner, O., Sanfilippo, A., Sylvan, J.B., Tivey, M.A., Tribuzio, R., and Viegas, L.G.F., 2017. Site U1473. *In* MacLeod, C.J., Dick, H.J.B., Blum, P., and the Expedition 360 Scientists, *Southwest Indian Ridge Lower Crust and Moho*. Proceedings of the International Ocean Discovery Program, 360: College Station, TX (International Ocean Discovery Program).
<http://dx.doi.org/10.14379/iodp.proc.360.103.2017>

MacLeod, C.J., Dick, H.J.B., Blum, P., Abe, N., Blackman, D.K., Bowles, J.A., Cheadle, M.J., Cho, K., Ciałęła, J., Deans, J.R., Edgcomb, V.P., Ferrando, C., France, L., Ghosh, B., Ildefonse, B.M., Kendrick, M.A., Koepke, J.H., Leong, J.A.M., Liu, C., Ma, Q., Morishita, T., Morris, A., Natland, J.H., Nozaka, T., Pluempner, O., Sanfilippo, A., Sylvan, J.B., Tivey, M.A., Tribuzio, R., and Viegas, L.G.F., 2017. Hole 1105A redescription. *In* MacLeod, C.J., Dick, H.J.B., Blum, P., and the Expedition 360 Scientists, *Southwest Indian Ridge Lower Crust and Moho*. Proceedings of the International Ocean Discovery Program, 360: College Station, TX (International Ocean Discovery Program).
<http://dx.doi.org/10.14379/iodp.proc.360.104.2017>

Blum, P., MacLeod, C.J., Dick, H.J.B., Abe, N., Blackman, D.K., Bowles, J.A., Cheadle, M.J., Cho, K., Ciałęła, J., Deans, J.R., Edgcomb, V.P., Ferrando, C., France, L., Ghosh, B., Ildefonse, B.M., Kendrick, M.A., Koepke, J.H., Leong, J.A.M., Liu, C., Ma, Q., Morishita, T., Morris, A., Natland, J.H., Nozaka, T., Pluempner, O., Sanfilippo, A., Sylvan, J.B., Tivey, M.A., Tribuzio, R., and Viegas, L.G.F., 2017. Hole U1473A remediation operations, Expedition 362T. *In* MacLeod, C.J., Dick, H.J.B., Blum, P., and the Expedition 360 Scientists, *Southwest Indian Ridge Lower Crust and Moho*. Proceedings of the International Ocean Discovery Program, 360: College Station, TX (International Ocean Discovery Program).
<http://dx.doi.org/10.14379/iodp.proc.360.105.2017>

Supplementary material

MacLeod, C.J., Dick, H.J.B., Blum, P., and the Expedition 360 Scientists, 2017. Supplementary material.
<http://dx.doi.org/10.14379/iodp.proc.360supp.2017>. *Supplement to* MacLeod, C.J., Dick, H.J.B., Blum, P., and the Expedition 360 Scientists, *Southwest Indian Ridge Lower Crust and Moho*. Proceedings of the International Ocean Discovery Program, 360: College Station, TX (International Ocean Discovery Program).
<http://dx.doi.org/10.14379/iodp.proc.360.2017>

*The Expedition-related bibliography is continually updated online (<http://publications.iodp.org/proceedings/360/360title.html#bib>). Please send updates to PubCrd@iodp.tamu.edu.