

Proceedings of the International Ocean Discovery Program

Volume 381

Corinth Active Rift Development

Expedition 381 of the mission-specific drilling platform D/V *Fugro Synergy*

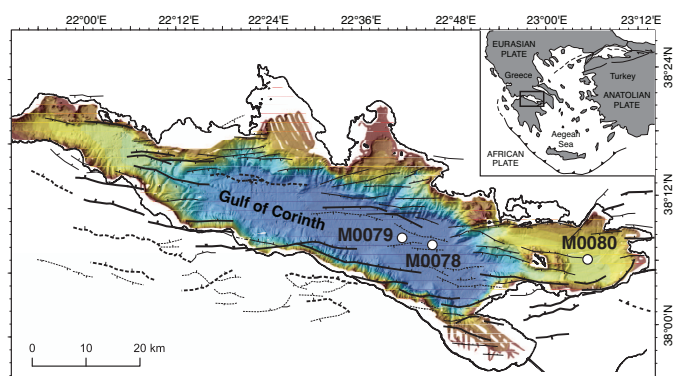
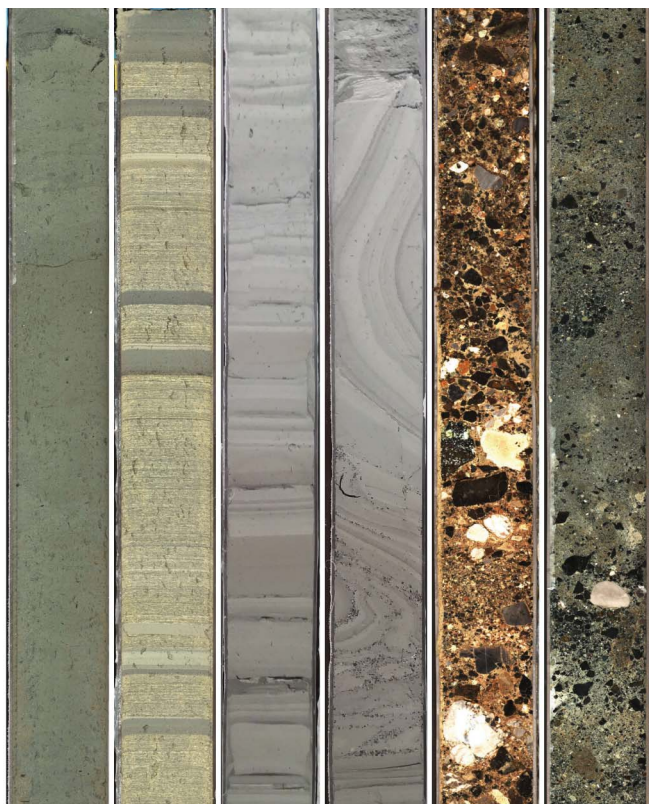
from and to Corinth, Greece

Sites M0078–M0080

19 October–18 December 2017

Volume authorship

McNeill, L.C., Shillington, D.J., Carter, G.D.O., and the Expedition 381 Participants



Publisher's notes

This publication was prepared by the European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO) and 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 or TAMU.

IODP mission-specific platform data are accessible at <http://iodp.pangea.de>. If you cannot access this site or need additional data, please contact Data Librarian, PANGAEA, University of Bremen, MARUM, Leobener Strasse 8, 28359 Bremen, Germany. Tel: (40) 421-218-65592; Fax: (49) 421-218-65505.

A complete set of the logging data collected during the expedition is available at http://mlp.ldeo.columbia.edu/logdb/scientific_ocean_drilling. 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.

ESO expedition photos are the property of IODP and are public access.

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

Cover photographs show (left) representative cores from all three sites and (top right) the D/V *Fugro Synergy*, the platform for the expedition. Photo credit: Giorgos Michas (part of core images), Donna Shillington (*Fugro Synergy*), and IODP ESO.

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Examples of how to cite this volume or part of this volume are available at <http://publications.iodp.org/proceedings/381/381title.html#bib>.

ISSN

World Wide Web: 2377-3189

Volume DOI

<https://doi.org/10.14379/iodp.proc.381.2019>

Publication date

28 February 2019

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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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[Visual core descriptions](#) · [Smear slides](#) · [Thin sections](#)

[Site M0079](#)

[Visual core descriptions](#) · [Smear slides](#) · [Thin sections](#)

[Site M0080](#)

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Supplementary material

Supplementary material for the Volume 381 expedition reports includes core-log-seismic integration output velocity profile and time-depth relationship data files in 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 381 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 381 site map](#)

[IODP map](#) (Expeditions 349–357, 359–371, and 381)

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

[ODP map](#) (Legs 100–210)

[DSDP map](#) (Legs 1–96)

Acknowledgments

The members of the Expedition 381 science party sincerely thank all of the personnel aboard the D/V *Fugro Synergy* for their skill, hard work, and professionalism. We specifically acknowledge the Fugro drilling team for their can-do attitude, dedication, and patience throughout the expedition, even as we encountered difficult drilling conditions. All International Ocean Discovery Program (IODP) staff are gratefully acknowledged for their support and hard work before, during, and after the expedition. We especially wish to thank the European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO) scientific, technical, and operational staff who participated in the preparation of the expedition and the offshore and onshore parts of the program and whose knowledge, hard work, and dedication were essential to the success of the expedition. We recognize and greatly appreciate the extraordinary time and energy invested by ESO staff who participated in both the offshore and onshore phases of the expedition and thus spent long periods of time away from home. This expedition was made possible by financial and logistical support from IODP program members and IODP committees. A very large number of scientists working in the region are thanked for their long-term intellectual input, motivation, and continued support to the project and for site survey data to aid development of the project. Funding organizations in Greece, the United Kingdom, USA, and France are acknowledged for enabling the collection of offshore geophysical and geological data that underpin this project. For the drill sites selected, we specifically utilized seismic and bathymetric data collected by the R/V *Maurice Ewing* (courtesy of Brian Taylor, University of Hawaii, USA) and R/V *Aegaeo* (courtesy of Dimitris Sakellariou, Hellenic Center for Marine Research, Greece). We thank Brian Taylor, Andrew Goodliffe, and Tim Henstock for their assistance with seismic reflection and navigation data before the expedition. We particularly wish to thank Dimitris Sakellariou for assistance with logistics and permitting in advance of and during the expedition.

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.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 381 participants*

Expedition 381 scientists

Lisa C. McNeill[†]

Co-Chief Scientist

Ocean and Earth Science
University of Southampton
National Oceanography Centre Southampton
United Kingdom
lcmn@noc.soton.ac.uk

Donna J. Shillington[†]

Co-Chief Scientist

Lamont-Doherty Earth Observatory
Columbia University
USA
djs@ldeo.columbia.edu

Gareth D.O. Carter[†]

Expedition Project Manager

British Geological Survey
The Lyell Centre
United Kingdom
gcarter@bgs.ac.uk

Jeremy (Jez) D. Everest[†]

Expedition Project Manager

British Geological Survey
The Lyell Centre
United Kingdom
jdev@bgs.ac.uk

Erwan Le Ber[†]

Petrophysics Staff Scientist

School of Geography, Geology and the Environment
University of Leicester
United Kingdom
elb51@leicester.ac.uk

Richard E.L.L. Collier

Sedimentologist

Basin Structure Group
School of Earth and Environment
University of Leeds
United Kingdom
r.e.l.collier@leeds.ac.uk

Aleksandra Cvetkoska

Micropaleontologist (diatoms)

Department of Animal Ecology and Systematics
Justus Liebig University
Germany
acvetkoska@yahoo.com

Gino De Gelder

Structural Geologist

Institut de Physique du Globe de Paris
Sorbonne Paris Cité
Université Paris Diderot
France
gelder@ipgp.fr

Paula Diz[†]

Micropaleontologist (foraminifers)

Departamento Geociencias Marinas y Ordenación del
Territorio
Facultad de Ciencias del Mar
Universidad de Vigo
Spain
pauladiz@uvigo.es

Mai-Linh Doan

Petrophysicist (physical properties)

Université Grenoble Alpes
Université Savoie Mont Blanc
CNRS, IRD, IFSTTAR, and ISTerre
France
Mai-Linh.Doan@univ-grenoble-alpes.fr

Mary Ford

Structural Geologist/Sedimentologist

CRPG
UMR 7358
France

Also at
Université de Lorraine
ENSG
INP
France
Mary.ford@univ-lorraine.fr

Robert L. Gawthorpe[†]

Sedimentologist

Department of Earth Science
University of Bergen
Norway
rob.gawthorpe@uib.no

Maria Geraga

Micropaleontologist (foraminifers)

Laboratory of Marine Geology and Physical Oceanography
Department of Geology
University of Patras
Greece
mgeraga@upatras.gr

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

†Participated in shipboard and shore-based operations.

Jack Gillespie

Structural Geologist/Sedimentologist

Center for Tectonics, Resources, and Exploration (TRaX)
Department of Earth Sciences
School of Physical Sciences
University of Adelaide
Australia

Jack.gillespie@adelaide.edu.au

Romain Hemelsdaël

Sedimentologist

Géosciences Montpellier
Université de Montpellier
France

romain.hemelsdael@gm.univ-montp2.fr

Emilio Herrero-Bervera

Paleomagnetist

Paleomagnetism and Petrofabrics Laboratory
SOEST-Hawaii Institute of Geophysics and Planetology
University of Hawaii at Manoa
USA

herrero@soest.hawaii.edu

Mohammad Ismaiel

Petrophysicist (physical properties)

University Centre for Earth and Space Sciences
University of Hyderabad
India

ismaiel@iitdalumni.com

Liliane Janikian

Sedimentologist

Sea Sciences Department
São Paulo Federal University
Brazil

lijanikian@gmail.com

Katerina Kouli

Micropaleontologist (palynology)

Department of Geology and Geoenvironment
National and Kapodistrian University of Athens
Greece

akouli@geol.uoa.gr

Shunli Li

Sedimentologist

School of Energy Resources
China University of Geosciences (Beijing)
China

lishunli@cugb.edu.cn

Malka Leah Machlus

Petrophysicist (physical properties)

Lamont-Doherty Earth Observatory
Columbia University
USA

Also at

Department of Physical Sciences
Kingsborough Community College
City University of New York
USA

machlus@ldeo.columbia.edu

Marco Maffione

Paleomagnetist

School of Geography Earth and Environmental Sciences
University of Birmingham
United Kingdom

m.maffione@bham.ac.uk

Carol Mahoney

Inorganic Geochemist

School of Earth and Environment
The University of Leeds
United Kingdom

c.mahoney@leeds.ac.uk

Georgios Michas

Petrophysicist (physical properties)

Laboratory of Geophysics and Seismology
Technological Educational Institute of Crete
Greece

gmichas@hotmail.com

Clint Miller[†]

Inorganic Geochemist

Department of Earth, Environmental and Planetary Sciences
Rice University
USA

clint.m.miller@rice.edu

Casey W. Nixon

Structural Geologist

Department of Earth Science
University of Bergen
Norway

casey.nixon@uib.no

Sabire Asli Oflaz

Micropaleontologist (foraminifers)

Graduate School "Human Development in Landscapes"
Christian-Albrechts-Universität zu Kiel
Germany

aoflaz@gshdl.uni-kiel.de

Abah Philip Omale[†]

Petrophysicist (physical properties)

Department of Geology and Geophysics
Louisiana State University
USA

abahphilipomale@yahoo.com

Konstantinos Panagiotopoulos

Micropaleontologist (palynology)

Institute of Geology and Mineralogy
University of Cologne
Germany

panagiotopoulos.k@uni-koeln.de

Sofia Pechlivanidou

Sedimentologist

Department of Earth Science
University of Bergen
Norway

sofia.pechlivanidou@uib.no

Marcie Purkey Phillips[†]
Micropaleontologist (nanofossils/diatoms)
Institute for Geophysics
University of Texas at Austin
USA
marciepurkey@gmail.com

Simone Sauer[†]
Inorganic Geochemist
Ifremer
Department of Marine Geosciences
Centre Bretagne
France

Present affiliation (1 March 2018):
Centre for Arctic Gas Hydrate, Environment and Climate
(CAGE)
Department of Geosciences,
UiT The Arctic University of Norway
Norway
simone11sauer@gmail.com

Joana Seguin
Organic Geochemist
Institute for Ecosystem Research
Christian-Albrechts-Universität zu Kiel
Germany
jseguin@ecology.uni-kiel.de

Spyros Sergiou[†]
Sedimentologist
Laboratory of Marine Geology and Physical Oceanography
Department of Geology
University of Patras
Greece
sergiou@upatras.gr

Natalia V. Zakharova
Core-Log-Seismic Integration
Department of Earth and Atmospheric Sciences
Central Michigan University
USA
n.zakh@cmich.edu

Operational and technical staff

ESO personnel and technical representatives

Ursula Röhl
Onshore Operations Manager/Laboratory and Curation Manager

Dave Smith[†]
Offshore Operations Manager

Malgorzata Bednarz
Petrophysics Technician

Vera B. Bender*
Data Manager

Liane Brück
Geophysics Technician

Laurent Brun[†]
Logging Engineer

Carol Cotterill
Outreach Manager

Douglas Cummings
IODP Publications Specialist (JRSO)

Nataliya Denchik
Petrophysics Technician

Volker Diekamp
Photographer

Alan Douglas*
IT Support

Thomas Friedrichs
Paleomagnetist

Patrizia Gepreags*
Core Curator/Assistant Laboratory Manager

Sophie Green*
Expedition Project Manager

Nicole Kniebel
Micropaleontology/Palynology Technician

Brit Kokisch
Sedimentology Technician/LECO Operator

Martin Kölling
Inorganic Geochemistry Laboratory Manager

Holger Kuhlmann
Core Curator/IODP Bremen Core Repository Superintendent

Johanna Lofi
Petrophysicist

Vera Lukies
Petrophysics Technician

Garry McGowan[†]
Drilling Coordinator

Mary Mowat
Data Manager

Leah Nolan
Petrophysics Technician

Silvana Pape
Inorganic Geochemistry Laboratory Technician

*Participated in shipboard and shore-based operations.

†Participated in shipboard operations only.

Laurence Phillpot*
Petrophysics Technician

Ulrike Prange
Outreach Officer/Media Relations

Connor Richardson⁺
Drilling Coordinator

Pascal Robert[†]
Logging Engineer

Luzie Schnieders*
Geochemist

Apostolis Tsiligiannis[†]
Electrical Engineer

Graham Tulloch[†]
Drilling Coordinator

Christoph Vogt
XRD Laboratory Manager

Alex Wülbers*
Core Curator/Logistics

BCR/MARUM, University of Bremen (temporary student assistants)

Roles included core handling, core splitting, sampling, data entry, outreach, and catering

Eena Dadwal

Maret Ellinghausen

Johann Hollop

Sipan Issa

Lara Jacobi

Alex Manthey

Philip Meister

Ngozi Okoye

Nina Rohlf

Lara Steinbrink

Katharina Wetterauer

Rezan Yusef

D/V Fugro Synergy, Fugro N.V. (operational staff)

Artur Radomski[†]
Master

Sebastian Grzech[†]
Chief Officer

Stanislaw Gorniak[†]
1st Officer

Evert van den Berg[†]
2nd Officer

Vladislavs Leonovs[†]
2nd Officer

Krzysztof Jalowiecki[†]
Chief Engineer

Maksims Gerasimskis[†]
2nd Engineer

Tomasz Tchorzewski[†]
2nd Engineer

Gregorio Reyes[†]
3rd Engineer

Jonifer Orzal[†]
3rd Engineer

Christopher Boga[†]
3rd Engineer

Olivier Ouchene[†]
Survey

Golden Doe Bansah[†]
Survey

Grzegorz Przytarski[†]
Electrician

Roeland Baas[†]
Drilling Supervisor

Marcus Gerritse[†]
Electrician

Marcin Sos[†]
Rig Mechanic

Rafal Opelt[†]
Rig Mechanic

Gary Jago[†]
Party Chief

Tony Halliday[†]
Technical Lead

Rob Ammerlaan[†]
Senior Operator

Jeroen Kaandorp[†]
Senior Operator

Pieter van Leeuwen[†]
Operator

Tahsin Alkanat[†]
Operator

Eric Wessels[†]
Operator

Jeroen Stemmer[†]
Operator

James Bridge⁺
Drilling Supervisor

Max Harford⁺
Driller

Zander Kennie⁺
Driller

Matt Compton⁺
Driller

James Hood⁺
Driller

Geof Jelbert⁺
Driller

Sean Baxter⁺
Driller

Dan Williams⁺
Asst Driller

Chris Elliot⁺
Asst Driller

Adam Callaway⁺
Asst Driller

Matthew Rice⁺
Asst Driller

Thomas Mather⁺
Asst Driller

Liam Tregembo⁺
Asst Driller

Ronie Gutierrez⁺
A/B

Gilbert Amparo⁺
A/B

Marlon Bautista⁺
A/B

Rafael Monto⁺
A/B

Marvin Venturina⁺
A/B

Charlie Bardon⁺
Bosun

Pierre Sanidad⁺
Chief Cook

Neil Bandelaria⁺
Cook

Lim Leo⁺
Cook

Eric Elazegui⁺
Chief Steward

Rosenio Macabanti⁺
Steward

Zaldie Guerta⁺
Steward

Antonio Castro⁺
Steward

Zaldie Guerta⁺
Steward

Marvin Aguirre⁺
Steward

Romeo Romero⁺
Storekeeper

Elvin Octiza⁺
Storekeeper

IODP Publication Services staff[‡]

Douglas Cummings
Graphics Specialist II

Gudelia (“Gigi”) Delgado
Publications Coordinator

Ekanta Desai
Graphics Specialist II

Patrick H. Edwards
Production Editor 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

Amy McWilliams
Supervisor of Editing

Julie Myers
Production Editor II

Lorri Peters
Manager of Publication Services

Sandi Sherar Ruddick
Editor II

Kenneth Sherar
Production Editor III

Alyssa Stephens
Graphics Specialist III

Crystal Wolfe
Production Editor III

Jean Wulfson
Graphics Specialist III

Ann Yeager
Distribution Specialist

[‡]At time of publication.

Expedition-related bibliography*

IODP publications

Scientific Prospectus

McNeill, L., Shillington, D., and Carter, G., 2017. *Expedition 381 Scientific Prospectus: Corinth Active Rift Development*. International Ocean Discovery Program. <https://doi.org/10.14379/iodp.sp.381.2017>

Preliminary Report

Shillington, D.J., McNeill, L.C., Carter, G.D.O., and the Expedition 381 Participants, 2019. *Expedition 381 Preliminary Report: Corinth Active Rift Development*. International Ocean Discovery Program. <https://doi.org/10.14379/iodp.pr.381.2019>

Proceedings volume

McNeill, L.C., Shillington, D.J., Carter, G.D.O., and the Expedition 381 Participants, 2019. *Corinth Active Rift Development*. Proceedings of the International Ocean Discovery Program, 381: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.381.2019>

Expedition reports

McNeill, L.C., Shillington, D.J., Carter, G.D.O., Everest, J.D., Le Ber, E., Collier, R.E.L.L., Cvetkoska, A., De Gelder, G., Diz, P., Doan, M.-L., Ford, M., Gawthorpe, R.L., Geraga, M., Gillespie, J., Hemelsdaël, R., Herrero-Bervera, E., Ismaiel, M., Janikian, L., Kouli, K., Li, S., Machlus, M.L., Maffione, M., Mahoney, C., Michas, G., Miller, C., Nixon, C.W., Oflaz, S.A., Omale, A.P., Panagiotopoulos, K., Pechlivanidou, S., Phillips, M.P., Sauer, S., Seguin, J., Sergiou, S., and Zakharova, N.V., 2019. Expedition 381 summary. In McNeill, L.C., Shillington, D.J., Carter, G.D.O., and the Expedition 381 Participants, *Corinth Active Rift Development*. Proceedings of the International Ocean Discovery Program, 381: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.381.101.2019>

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