

Proceedings of the International Ocean Discovery Program

Volume 379

Amundsen Sea West Antarctic Ice Sheet History

Expedition 379 of the R/V *JOIDES Resolution*

from and to Punta Arenas, Chile

Sites U1532–U1533

18 January–20 March 2019

Volume authorship

Gohl, K., Wellner, J.S., Klaus, A., and the Expedition 379 Scientists



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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.

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://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.

JRSO 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 photograph shows *JOIDES Resolution* during Expedition 379. Photo credit: Phil Christie, SIEM Offshore, and IODP JRSO.

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Contents

Expedition reports

Chapters

[Expedition 379 summary](#)

K. Gohl et al.

[Expedition 379 methods](#)

K. Gohl et al.

[Site U1532](#)

J.S. Wellner et al.

[Site U1533](#)

J.S. Wellner et al.

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 U1532](#)

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

[Site U1533](#)

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

Supplementary material

Supplementary material for the Volume 379 expedition reports includes DESClogik workbooks and water temperature profiles in

Microsoft Excel format and grain mount logs, handwritten smear slide logs, and handwritten barrel sheets in PDF. A full list of directories can be found in SUPP_MAT in the volume zip folder or on the [Supplementary material for Volume 379 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 379 site map](#)

[IODP map](#) (Expeditions 349–372, 374–376, and 379–381)

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

[ODP map](#) (Legs 100–210)

[DSDP map](#) (Legs 1–96)

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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 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 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

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: mare3-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 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 379 participants*

Expedition 379 scientists

Karsten Gohl

Co-Chief Scientist

Department of Geosciences
Alfred Wegener Institute Helmholtz—Center for Polar and
Marine Research
Germany
karsten.gohl@awi.de

Julia S. Wellner

Co-Chief Scientist

Earth & Atmospheric Sciences
University of Houston
USA
jwellner@uh.edu

Adam Klaus

Expedition Project Manager/Staff Scientist

International Ocean Discovery Program
Texas A&M University
USA
aklaus@iodp.tamu.edu

Thorsten Bauersachs

Organic Geochemist/Geomicrobiologist

Institute of Geosciences
Christian-Albrechts-University
Germany
thorsten.bauersachs@ifg.uni-kiel.de

Steven M. Bohaty

Paleontologist (diatoms)

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

Margot Courtillot

Paleontologist (foraminifers)

Centre of Education and Research on Mediterranean
Environments (CEFREM) Laboratory
University of Perpignan
France
margot.courtillot@hotmail.com

Ellen A. Cowan

Sedimentologist

Department of Geological and Environmental Sciences
Appalachian State University
USA
cowanea@appstate.edu

Marcelo A. De Lira Mota

Palynologist

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

Also at

Technological Institute of Micropaleontology
University of Vale do Rio dos Sinos (UNISINOS)
Brazil
mal546@bham.ac.uk

Mariana S.R. Esteves

Sedimentologist

Centre for Arctic Gas Hydrate, Environment and Climate
(CAGE)
The Arctic University of Norway—UiT
Norway
mariana.esteves@uit.no

John M. Feggyveresi

Physical Properties/Downhole Measurements Specialist

Cold Regions Research and Engineering Laboratory (CRREL)
Engineer Research and Development Center, US Army Corps
USA

Present affiliation:

School of Earth and Sustainability
Northern Arizona University
USA
john.feggyveresi@nau.edu

Thomas Frederichs

Paleomagnetist

Faculty of Geosciences
University of Bremen
Germany
frederichs@uni-bremen.de

Liang Gao

Paleomagnetist

School of the Earth Sciences and Resources
China University of Geosciences
China
lgao@cugb.edu.cn

Anna Ruth Halberstadt

Sedimentologist

Geosciences
University of Massachusetts-Amherst
USA
ahalberstadt@umass.edu

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

Claus-Dieter Hillenbrand

Sedimentologist

British Antarctic Survey
United Kingdom
hilc@bas.ac.uk

Keiji Horikawa

Sedimentologist

Graduate School of Science and Engineering for Research
University of Toyama
Japan
horikawa@sci.u-toyama.ac.jp

Masao Iwai

Paleontologist (diatoms)

Kochi Core Center (KCC)/Center for Advanced Marine Core
Research
Kochi University
Japan
iwaim@kochi-u.ac.jp

Ji-Hoon Kim

Inorganic Geochemist

Petroleum and Marine Research Division
Korea Institute of Geoscience & Mineral Resources (KIGAM)
Republic of Korea
save@kigam.re.kr

Theresa M. King

Physical Properties/Downhole Measurement Specialist

College of Marine Science
University of South Florida
USA
theresaking@mail.usf.edu

Johann P. Klages

Sedimentologist

Department of Geosciences
Alfred Wegener Institute Helmholtz—Center for Polar and
Marine Research
Germany
johann.klages@awi.de

Sandra Passchier

Sedimentologist

Earth and Environmental Studies
Montclair State University
USA
passchiers@mail.montclair.edu

Michelle L. Penkrot

Physical Properties/Downhole Measurement Specialist

Department of Geological Sciences
University of Florida
USA
mpenkrot09@gmail.com

Joseph G. Prebble

Palynologist

Paleontology Department
GNS Science
New Zealand
j.prebble@gns.cri.nz

Waliur Rahaman

Inorganic Geochemist

Cryosphere and Climate
National Centre for Antarctic and Ocean Research (NCAOR)
India

Present affiliation:

National Center for Polar & Ocean Research (NCPOR)
India
waliur@ncaor.gov.in

Benedict T.I. Reinardy

Sedimentologist

Institutionen för Naturgeografi
Stockholm University
Sweden
benedict.reinardy@natgeo.su.se

Johan Renaudie

Paleontologist (radiolarians)

Museum für Naturkunde
Leibniz-Institut für Evolutions und Biodiversitätsforschung
Germany
johan.renaudie@mf.n.berlin

Delaney E. Robinson

Sedimentologist

Earth & Atmospheric Sciences
University of Houston
USA
derobin3@central.uh.edu

Reed P. Scherer

Paleontologist (diatoms)

Geology and Environmental Geosciences
Northern Illinois University
USA
reed@niu.edu

Christine S. Siddoway

Sedimentologist

Department of Geology
Colorado College
USA
csiddoway@coloradocollege.edu

Li Wu

Sedimentologist

State Key Laboratory of Marine Geology
Tongji University
China
wuli@tongji.edu.cn
460743265@qq.com

Masako Yamane

Physical Properties/Downhole Measurement Specialist

Institute for Space-Earth Environmental Research
Nagoya University
Japan
yamane@nendai.nagoya-u.ac.jp

Outreach

Vivien Cumming
Outreach Officer
United Kingdom
viviencumming@gmail.com

Karen Romano Young
Outreach Officer
USA
wrenyoung@gmail.com

Ice observers

J. Garry N. MacCaul
Weather/Ice Observer
Canada

John L. Powell
Weather/Ice Observer
Canada

Operational and technical staff

SIEM Offshore AS officials

Jacob C. Robinson
Master of the Drilling Vessel

Mark Robinson
Drilling Supervisor

JRSO shipboard personnel and technical representatives

Elissa Barris
Marine Laboratory Specialist (temporary)

Chang Liu
Marine Laboratory Specialist

Susan Boehm
Marine Laboratory Specialist

Daniel Marone
Marine Laboratory Specialist

Ty Cobb
Marine Laboratory Specialist

Aaron Mechler
Marine Laboratory Specialist

Aaron De Loach
Assistant Laboratory Officer

Michael Meiring
Engineer

Tim Fulton
Senior Imaging Specialist

Stephen Midgley
Operations Superintendent

Clayton Furman
Logging Engineer

William Mills
Laboratory Officer

Randy Gjesvold
Marine Instrument Specialist

Beth Ann Novak
Marine Laboratory Specialist

Sandra Herrmann
Assistant Laboratory Officer

Catherine Smith
Curatorial Specialist

Michael Hodge
Marine Computer Specialist

Steven Thomas
Marine Computer Specialist

Jon Howell
Applications Developer

Garrick Van Rensburg
Marine Instrumentation Specialist

Rhonda Kappler
Publications Specialist

Hai (James) Zhao
Applications Developer

Nicolette Lawler
Marine Laboratory Specialist

IODP Publication Services staff*

Emily Britt
Editor II

Douglas Cummings
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Gudelia (“Gigi”) Delgado
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IODP publications

Scientific Prospectus

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Gohl, K., Wellner, J.S., Klaus, A., Bauersachs, T., Bohaty, S.M., Courtillot, M., Cowan, E.A., De Lira Mota, M.A., Esteves, M.S.R., Fegyveresi, J.M., Frederichs, T., Gao, L., Halberstadt, A.R., Hillenbrand, C.-D., Horikawa, K., Iwai, M., Kim, J.-H., King, T.M., Klages, J.P., Passchier, S., Penkrot, M.L., Prebble, J.G., Rahaman, W., Reinardy, B.T.I., Renaudie, J., Robinson, D.E., Scherer, R.P., Siddoway, C.S., Wu, L., and Yamane, M., 2021. Expedition 379 summary. In Gohl, K., Wellner, J.S., Klaus, A., and the Expedition 379 Scientists, *Amundsen Sea West Antarctic Ice Sheet History*. Proceedings of the International Ocean Discovery Program, 379: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.379.101.2021>

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Supplementary material

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