PROCEEDINGS OF THE INTEGRATED OCEAN DRILLING PROGRAM
VOLUME 327 EXPEDITION REPORTS
JUAN DE FUCA RIDGE-FLANK HYDROGEOLOGY

Expedition 327 of the riserless drilling platform from and to Victoria, British Columbia (Canada) Sites U1362, U1301, 1027, and U1363 5 July–5 September 2010

Volume authorship
Fisher, A.T., Tsuji, T., Petronotis, K., and the Expedition 327 Scientists

Published by
Integrated Ocean Drilling Program Management International, Inc., for the Integrated Ocean Drilling Program

Prepared by
U.S. Implementing Organization Science Services, Texas A&M University
Publisher’s notes

Funding for the program was provided by the following agencies at the time of this expedition:

- 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)
- Australian Research Council (ARC) and GNS Science (New Zealand), Australian/New Zealand Consortium
- Ministry of Earth Sciences (MoES) India

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Examples of how to cite this volume or part of this volume are available at publications.iodp.org/proceedings/327/327bib.htm.

Abbreviations for names of organizations and publications in IODP reference lists follow the style given in Chemical Abstracts Service Source Index (published by American Chemical Society).

The bulk of the shipboard-collected core data from this expedition is accessible from Integrated Ocean Drilling Program U.S. Implementing Organization (IODP-USIO) Science Services, Texas A&M University (TAMU), at iodp.tamu.edu/database/index.html. If you cannot access this site or need additional data, please contact:

Data Librarian, Integrated Ocean Drilling Program, Texas A&M University, 1000 Discovery Drive, College Station TX 77845-9547, USA. Tel: (979) 845-8495; Fax: (979) 458-1617; E-mail: database@iodp.tamu.edu

A complete set of the logging data collected by IODP-USIO Science Services, Lamont-Doherty Earth Observatory (LDEO), is available at 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; E-mail: logdb@ldeo.columbia.edu

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 Hole U1362A CORK on the rig floor of the JOIDES Resolution. Photograph by Bill Crawford.

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ISSN
- DVD:1930-1022; World Wide Web: 1930-1014
Foreword

By Integrated Ocean Drilling Program Management International, Inc.

The Integrated Ocean Drilling Program (IODP) is now in the latter half of its decadal program (2003–2013). As envisioned in the Initial Science Plan (ISP), IODP expeditions take advantage of three scientific ocean drilling platforms that enable us to cover unprecedented areas of wide oceans, from ice-covered shallow water to full ocean depths. Drilling miles of depth below seafloor, now part of IODP capabilities, is the major advance from the program predecessors, the Deep Sea Drilling Project and the Ocean Drilling Program. The living Earth is a dynamic system that is continuously evolving. IODP seeks to understand this complex and unique system through scientific ocean drilling, sampling, and experimenting in deep holes, along with advancement of related scientific disciplines. IODP is an international collaboration among scientists and nations with keen aspirations to attain the scientific goals of the ISP. IODP currently includes participating members from 24 nations.

The Proceedings present the scientific and engineering results of IODP drilling projects, each designed to better understand the past, present, and future of the Earth system.

IODP expeditions begin with scientists who submit research drilling proposals to test new and innovative ideas, then the proposals progress to international scientific advisors (Science Advisory Structure) who nurture, evaluate, rank, and prioritize proposals. Scientists also schedule the science operations, select science party members from scores of international scientists qualified to participate, plan platform operations, ready the drillship, and choose borehole locations. The science party, collectively and individually, conducts science on board and on shore. The co-chief scientists on each expedition are responsible for synthesizing the scientific results as hallmark of expedition.

Ocean-drilling achievements help us to understand and interpret phenomena in various parts of the Earth system. Achievements in the two legacy drilling programs have validated the scientific concepts behind plate tectonics, contributed to the understanding of ocean circulation changes, and extended our knowledge of long- and short-term climate change. IODP is truly an expansion and extension of the scientific research conducted by the legacy programs, engaging in cutting-edge research concerning topics of global importance.

IODP drilling platform operations are conducted by three Implementing Organizations (IOs). Riserless platform operations are conducted by the U.S. Implementing Organization (USIO), comprising the Consortium for Ocean Leadership, Inc., Texas A&M University through the Texas A&M Research Foundation, and Lamont-Doherty Earth Observatory of Columbia University. Riser platform operations are conducted by the Japan Agency for Marine-Earth Science and Technology through Japan's Center for Deep Earth Exploration in cooperation with the Center for Advanced Marine Core Research at Kochi University. Mission-specific platform operations are conducted by the European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO), comprising the British Geological Survey, the University of Bremen, and the European Petrophysics Consortium. The European IO currently represents the ocean-drilling efforts of 16 nations in Europe, plus Canada.

The discoveries presented in this volume build upon layers of knowledge and science developed over roughly the last fifty years. Expedition Proceedings are published by IODP Management International for IODP under the sponsorship of the U.S. National Science Foundation (NSF), Japan’s Ministry of Education, Culture, Sports, Science and Technology, and other IODP members. The material is based upon research supported under Contract OCE-0432224 from NSF.

Kiyoshi Suyehiro
President & Chief Executive Officer
Integrated Ocean Drilling Program Management International, Inc.
Tokyo
www.iodp.org/
Integrated Ocean Drilling Program

Integrated Ocean Drilling Program Management International, Inc.

Web site: www.iodp.org/

IODP-MI
1001 Connecticut Avenue, NW, Suite 504
Washington DC 20036
USA
Tel: (202) 465-7500; Fax: (202) 955-8363
E-mail: info@iodp.org

IODP-MI
Tokyo University of Marine Science and Technology
Office of Liaison and Cooperative Research, 3rd Floor
2-1-6, Etchujima, Koto-ku, Tokyo 135-8533
Japan
Tel: (81) 3-6701-8-3181; Fax: (81) 3-6701-3189

IODP-MI member organizations*

Alfred-Wegener-Institute für Polar und Meeresforschung, Germany
British Geological Survey, United Kingdom
Cardiff University, United Kingdom
Columbia University, Lamont-Doherty Earth Observatory, USA
Federal Institute of Technology (ETH) Zurich, Switzerland
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University of Texas at Austin, USA
University of Tokyo, Japan
University of Washington, USA
Woods Hole Oceanographic Institution, USA

*At time of expedition.
Implementing organizations

IODP European Implementing Organization: European Consortium for Ocean Research Drilling, Science Operator (ESO)
Web site: www.eso.ecord.org/

IODP-ESO Coordinator: Science, Logistics, and Operations
British Geological Survey
Murchinson House
West Mains Road
Edinburgh EH9 3LA
United Kingdom
Tel: (44) 131-667-1000; Fax: (44) 131-668-4140
E-mail 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
E-mail: sjd27@leicester.ac.uk

IODP-ESO Curation and Laboratories
Integrated Ocean Drilling Program
Bremen Core Repository
Center for Marine Environmental Sciences
DFG Research Center for Ocean Margins
University of Bremen
Leobener Strasse
28359 Bremen
Germany
Tel: (49) 421-218-65561; Fax: (49) 421-218-98-65565
E-mail: bcr@marum.de

IODP Japanese Implementing Organization: Japan Agency for Marine-Earth Science and Technology (JAMSTEC)
Web site: www.jamstec.go.jp/chikyu/eng/index.html

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
E-mail: cdex@jamstec.go.jp
IODP U.S. Implementing Organization
Web site: www.iodp-usio.org/

IODP-USIO Systems Integration Contractor
Consortium for Ocean Leadership
1201 New York Avenue, NW, Fourth Floor
Washington DC 20005
USA
Tel: (202) 232-3900; Fax: (202) 462-8754
E-mail: info@oceanleadership.org

IODP-USIO Science Services, LDEO
Lamont-Doherty Earth Observatory
of Columbia University
PO Box 1000, 61 Route 9W
Palisades NY 10964
USA
Tel: (845) 365-8672; Fax: (845) 365-3182
E-mail: borehole@ldeo.columbia.edu

IODP-USIO Science Services, TAMU
Integrated Ocean Drilling Program
Texas A&M University
1000 Discovery Drive
College Station TX 77845-9547
USA
Tel: (979) 845-2673; Fax: (979) 845-4857
E-mail: information@iodp.tamu.edu
Expedition 327 scientists

Andrew Fisher
Co-Chief Scientist
Earth and Planetary Sciences Department
University of California, Santa Cruz
1156 High Street
Santa Cruz CA 95064
USA
afisher@ucsc.edu

Takeshi Tsuji
Co-Chief Scientist
Graduate School of Engineering
Kyoto University
C1-1-110 Kyotodaigaku-Katsura
Nishikyo-ku, Kyoto 615-8540
Japan
tsuji@earth.kumst.kyoto-u.ac.jp

Katerina Petronotis
Expedition Project Manager/Staff Scientist
Integrated Ocean Drilling Program
Texas A&M University
1000 Discovery Drive
College Station TX 77845-9547
USA
petronotis@iodp.tamu.edu

Stefan Mrozewski
Logging Staff Scientist
Borehole Research Group
Lamont-Doherty Earth Observatory of Columbia University
PO Box 1000, Route 9W
Palisades NY 10964
USA
stefan@ldeo.columbia.edu

Keir Becker
CORK Specialist/Hydrologist
Division of Marine Geology and Geophysics
Rosenstiel School of Marine and Atmospheric Science
University of Miami
4600 Rickenbacker Causeway
Miami FL 33149-1098
USA
kbecker@rsmas.miami.edu

James P. Cowen
Microbiologist/Organic Geochemist
Department of Oceanography/SoEST
University of Hawaii at Manoa
Marine Sciences Building
Honolulu HI 96822
USA
jcowen@soest.hawaii.edu

Michelle Harris
Petrologist
National Oceanography Centre
University of Southampton
European Way
Southampton SO14 3GR
United Kingdom
michelle.harris@noc.soton.ac.uk

Samuel M. Hulme
Inorganic Geochemist/CORK Specialist
Hawaii Institute of Geophysics and Planetology
University of Hawaii at Manoa
1680 East-West Road
Postal Building, Room 504
Honolulu HI 96822
USA
Present address (May 2011):
Geological Oceanography
Moss Landing Marine Laboratories
8272 Moss Landing Road
Moss Landing CA 95039
USA
shulme@mlml.calstate.edu

Katherine Inderbitzen
Physical Properties Specialist
Division of Marine Geology and Geophysics
Rosenstiel School of Marine and Atmospheric Science
4600 Rickenbacker Causeway
University of Miami
Miami FL 33149-1098
USA
kinderbitzen@rsmas.miami.edu

*Addresses at time of expedition, except where updated by the participants.
Fuwu Ji  
Inorganic Geochemist  
School of Ocean and Earth Science  
Tongji University  
1239 Siping Road  
Shanghai 200092  
People's Republic of China  
jifuwu@tongji.edu.cn

Reona Masui  
Geophysicist/Physical Properties Specialist  
Graduate School of Engineering  
Kyoto University  
C1-1-118 Kyotodaigaku-Katsura  
nishihyo-ku, Kyoto 615-8540  
Japan  
r_masui@earth.kumst.kyoto-u.ac.jp

Hiroki Miyamoto  
Logging Scientist/Structural Geologist  
Graduate School of Engineering  
Kyoto University  
C1-1-118 Kyotodaigaku-Katsura  
nishihyo-ku, Kyoto 615-8540  
Japan  
h_miyamoto@earth.kumst.kyoto-u.ac.jp

Sylvain Morvan  
CORK Engineer  
Laboratoire de Géologie  
École Normale Supérieure  
24 Rue Lhomond  
75231 Paris  
France  
morvan@geologie.ens.fr

Beth Orcutt  
Microbiologist/Organic Geochemist  
Center for Geomicrobiology  
Arhus Universitet  
Ny Munkegade 114-116, Building 1540  
8000 Arhus  
Denmark  
beth.orcutt@biology.au.dk

Education and outreach

Leslie Peart  
Staff Educator  
Consortium for Ocean Leadership  
1201 New York Ave NW, Fourth Floor  
Washington DC 20005  
USA  
lpeart@oceanleadership.org

Nora Dinah Bowman  
Outreach Officer  
Dinah Bowman Studio and Gallery  
312 5th Street  
Portland TX 78374  
USA  
dinah@dinahbowman.com
Jean Marie Gautier
Outreach Officer
College Jean Vilar
St. Sever Calvados
14500 Calvados
France
Ronbleud@hotmail.com

Jacqueline Kane
Outreach Officer
St. Ursula Academy
4025 Indian Road
Toledo OH 43606
USA
jkane@toledosua.org

Stephanie Keske
Outreach Officer
Department of Visualization
Texas A&M University
College Station TX 77840
USA
skeske@gmail.com

Bejonty Richardson
Outreach Officer/HBCU Fellow
Science, Engineering, and Technology Department
Virginia State University
1 Hayden Drive
Petersburg VA 23806
USA
chaostheory18@comcast.net

Brigitte Thiberge
Outreach Officer
Lycée Alain Chartier
30 Rue Froide
14400 Ryes
France
brigitte.thiberge@libertysurf.fr

Operational and technical staff

Transocean officials

Alexander Simpson
Master of the Drilling Vessel
Overseas Drilling, Ltd.

Wayne Malone
Drilling Superintendent
Overseas Drilling, Ltd.

IODP-USIO shipboard personnel and technical representatives

Robert Aduddell
Engineer

Lisa Crowder
Assistant Laboratory Officer

Chris Bennight
Chemistry Laboratory

Dean Ferrell
Engineering Electronics Technician

Timothy Blaisdell
Applications Developer

Paul Foster
Supervisor of Applications Development

Lisa Brandt
Chemistry Laboratory

Tim Fulton
Publications Specialist

Timothy Bronk
Assistant Laboratory Officer

Clayton Furman
Logging Engineer, Schlumberger

Trevor Cobine
Paleomagnetism Laboratory

Randy Gjesvold
Marine Instrumentation Specialist

James Cordray
Marine Computer Specialist

Thomas Gorgas
Physical Properties Laboratory

William Crawford
Imaging Specialist

Kevin Grigar
Engineer
Kristin Hillis
Underway Geophysics Laboratory

Dwight Hornbacher
Applications Developer

Jennifer Hutchinson
Marine Computer Specialist

Sarah-Jane Jackett
Core Laboratory

Eric Jackson
X-Ray/Microbiology Laboratory

J. Cecil Jones
Cementer, BJ Services Company

Mike Meiring
Engineering Electronics Technician

Stephen Midgley
Operations Superintendent

Lara Miles
Curatorial Specialist

William Mills
Laboratory Officer

Michael Storms
Operations Superintendent

Garrick Van Rensburg
Marine Instrumentation Specialist

IODP-USIO Publication Services staff*

Karen Benson
Production Specialist II

Gudelia (“Gigi”) Delgado
Senior Publications Coordinator

Patrick H. Edwards
Production Specialist III

Lindsey Falco
Student Assistant

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Fluid sampling from oceanic borehole observatories: design and methods for CORK activities (1990–2010)

Core descriptions

Visual core descriptions (VCDs), smear slides, thin sections, vein log, and core images are included in this section. VCDs, smear slides, thin sections, and vein log are combined into PDF files for each site. The entire set of core images in PDF is available in the IMAGES directory.

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Visual core descriptions · Thin sections · Vein log

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Expedition research results

Data reports
Titles are available in HTML pending completion of the volume.

Syntheses
See “Syntheses” in the Expedition-related bibliography.

Supplementary material

Supplementary material for this volume includes Hole U1362A alteration log in Excel format, 360° composite image of 327-U1362A-18R whole-round sections in TIF format, photographs of microbiology whole-round samples in PDF format, underwater VIT footage of selected Site U1362 operations in QuickTime format, CORK animation in QuickTime format, CORK assembly footage in MPEG4 format, overview of CORKs and scientific objectives in QuickTime format, selected thin section photomicrographs in TIF format, and Hole U1362A vein log in Excel format (PDF included in “Core descriptions”). See README.TXT in the SUPP_MAT directory for a full listing of directories and files, or see the Directory structure for the names of the main subdirectories.


CAD drawings of CORK components in PDF format are included for Wheat et al. (2011).

Drilling location maps

A site map showing the drilling locations for this expedition and maps showing the drilling locations of all Integrated Ocean Drilling Program (IODP), Ocean Drilling Program (ODP), and Deep Sea Drilling Project (DSDP) drilling sites are available in PDF format. These maps were produced using Generic Mapping Tools (GMT) of Paul Wessel and Walter H.F. Smith (gmt.soest.hawaii.edu/).

IODP Expedition 327 site map
IODP map (Expeditions 301–327)
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Expedition-related bibliography

IODP publications

**Scientific Prospectus**


**Preliminary Report**


**Scientific Drilling journal**

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*The Expedition-related bibliography is continually updated online. Please send updates to PubCrd@iodp.tamu.edu.*
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- **327.106.PDF** (Site U1363)
- **327.107.PDF** (CORK design, deployment, and status)
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- **CORU1362.PDF** (Site U1362)
- **CORU1363.PDF** (Site U1363)
- **U1362.TS.PDF** (Site U1362 thin sections)
- **U1362.VL.PDF** (Site U1362 vein log)
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- **IMAGES** (PDF files of core images)
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- **IODPMAP.PDF** (IODP map, Expeditions 301–327)
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- **327.CORK_ASSEMBLY.M4V**
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- **327.VIT.MOV**
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