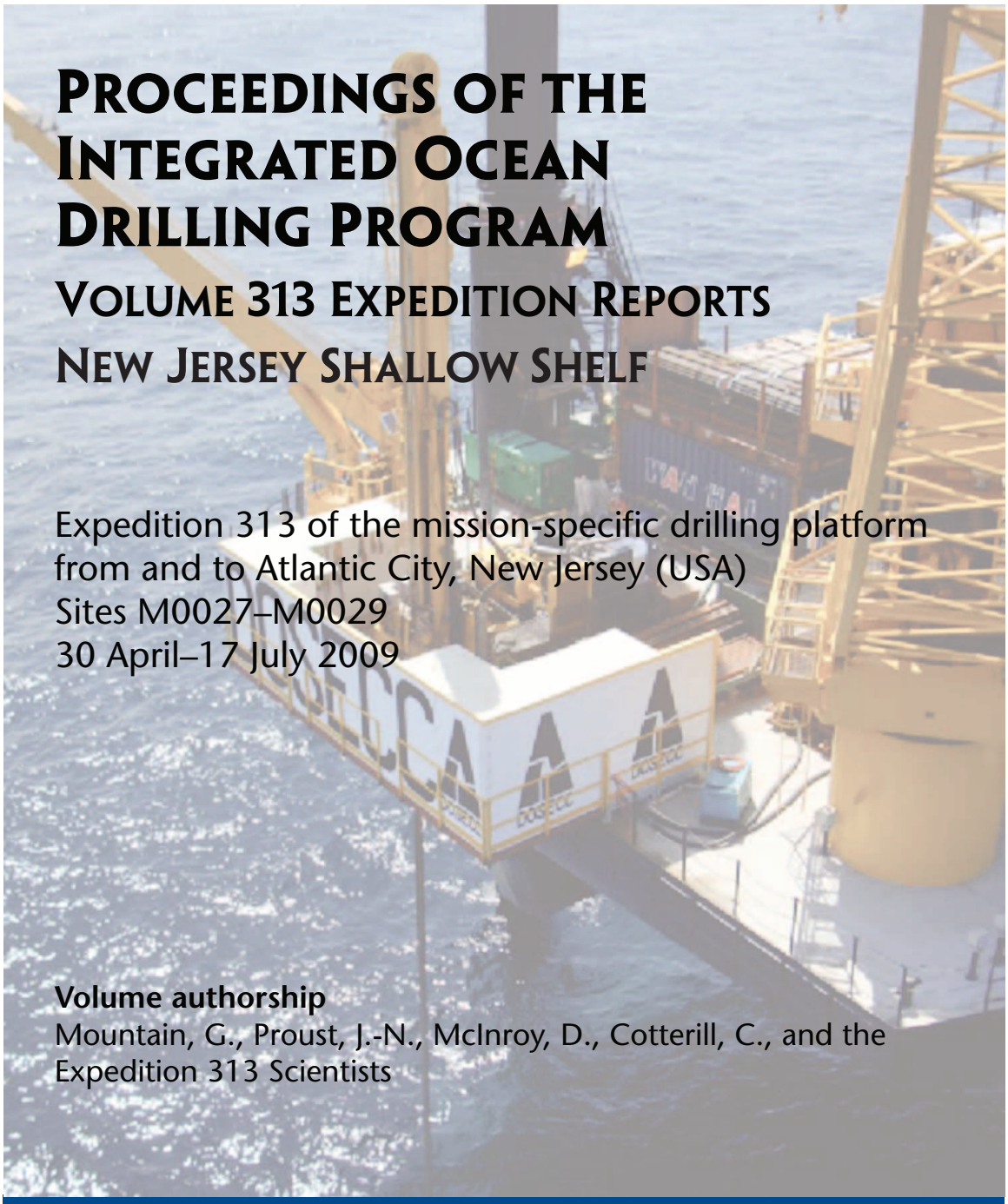

Proceedings of the Integrated Ocean Drilling Program

Volume 313 Expedition Reports

New Jersey Shallow Shelf

Expedition 313 of the mission-specific drilling platform
from and to Atlantic City, New Jersey (USA)
Sites M0027–M0029
30 April–17 July 2009

Volume authorship
Mountain, G., Proust, J.-N., McInroy, D., Cotterill, C., and the
Expedition 313 Scientists

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

Prepared by
ECORD Science Operator (ESO) and 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 New Zealand Institute for Geological and Nuclear Sciences (GNS), Australian/New Zealand Consortium

Ministry of Earth Sciences (MoES) India

Examples of how to cite this volume or part of this volume are available at **publications.iodp.org/proceedings/313/313bib.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 central portal for all IODP data, including Expedition 313 data, is the Scientific Earth Drilling Information Service (**sedis.iodp.org/**). IODP mission-specific platform data are also downloadable from **iodp.wdc-mare.org/.** Downhole wireline data are archived at **brg.ldeo.columbia.edu/logdb/.** If you cannot access this site or need additional data, please contact:

Data Librarian, Dr. H.-J. Wallrabe-Adams
WDC-MARE/PANGAEA
University of Bremen
Marum, Leobener Strasse
28359 Bremen
Germany
Tel: (40) 421-218-65592; Fax: (49) 421-218-65505

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

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

Cover photograph shows aerial view of the drill floor, *L/B Kayd.* Photograph by Dave Smith.

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, comprising the British Geological Survey, Bremen University, 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

Columbia University, Lamont-Doherty Earth Observatory, USA

Federal Institute of Technology (ETH), Switzerland

Florida State University, USA

Hokkaido University, Japan

Liebniz, Institute of Marine Sciences (IFM-GEOMAR), University of Kiel, Germany

Institut de Physique du Globe de Paris, France

Institut Universitaire Européen de la Mer (IUEM), France

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

Kochi University, Japan

Kyushu University, Japan

National Institute of Advanced Industrial Science (AIST), Japan

Rutgers University, USA

Texas A&M University, USA

Tohoku University, Japan

Tokai University, Japan

Universität Bremen, Germany

University of Bergen, Norway

University of California at San Diego, Scripps Institution of Oceanography, USA

University of California at Santa Cruz, USA

University of Florida, USA

University of Hawaii, USA

University of Leicester, United Kingdom

University of Miami, USA

University of Southampton National Oceanography Centre, United Kingdom

University of Texas at Austin, USA

University of Tokyo, Japan

University of Washington, USA

Vrije Universiteit, The Netherlands

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
Bremen University
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, Suite 400
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 313 science party*

Expedition 313 scientists

Gregory Mountain†
Co-Chief Scientist
Department of Earth and Planetary Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
gmtn@rci.rutgers.edu

Jean-Noël Proust†
Co-Chief Scientist
Géosciences, CNRS
Université Rennes 1
Campus de Beaulieu
35042 Rennes
France
jean-noel.proust@univ-rennes1.fr

David McInroy†
Staff Scientist/Expedition Project Manager
British Geological Survey
Murchison House
West Mains Road
Edinburgh EH9 3LA
United Kingdom
dbm@bgs.ac.uk

Hisao Ando
Sedimentologist
Department of Earth Science, College of Science
Ibaraki University
2-1-1 Bunkyo
Mito 310-8512
Japan
ando@mx.ibaraki.ac.jp

Christophe Basile†
Petrophysicist/Physical Properties Specialist
Maison des Géosciences
Laboratoire de Géodynamique des Chaînes Alpines
1381 rue de la Piscine
Université Joseph Fourier, BP 53
38041 Grenoble
France
cbasile@ujf-grenoble.fr

Maria Angela Bassetti†
Modeler/Stratigraphic Correlator
Laboratoire Images (Bat U)
University of Perpignan
52 Avenue Paul Alduy
66860 Perpignan
France
maria-angela.bassetti@univ-perp.fr

Christian Bjerrum†
Petrophysicist/Physical Properties Specialist
Department of Geography and Geology
University of Copenhagen
Oester Voldgade 10
DK-1350 Copenhagen K.
Denmark
cjb@geo.ku.dk

James V. Browning†
Sedimentologist
Department of Earth and Planetary Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
jvb@rci.rutgers.edu

Takeshi Hayashi†
Inorganic Geochemist
Akita University
Tegata-gakuen-mach; 1-1
Akita City
Akita 010-850 2
Japan
t.hayashi@ed.akita-u.ac.jp

Stephen Hesselbo
Sedimentologist
Department of Earth Science
University of Oxford
Parks Road
Oxford OX1 3PR
United Kingdom
stephen.hesselbo@earth.ox.ac.uk

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

†Participated in shipboard operations.

David Hodgson[†]
Sedimentologist
Department of Earth and Ocean Sciences
University of Liverpool
4 Brownlow Street
Liverpool L69 3GP
United Kingdom
hodgson@liv.ac.uk

Baoqi Huang
Paleontologist (planktonic foraminifers)
School of Earth and Space Science
Peking University
5 Yiheyuan Road
Beijing 100871
People's Repulic of China
bqhuang@pku.edu.cn

Jenny Inwood[†]
Petrophysics Staff Scientist
Borehole Research
University of Leicester
Department of Geology
University Road
Leicester LE17RH
United Kingdom
ji18@le.ac.uk

Denise Kulhanek
Paleontologist (nannofossils)
Florida State University
Department of Geological Sciences
909 Antarctic Way
Room 108 CAR
PO Box 306410
Tallahassee FL 32306-4100
USA

Present address (April 2014):
International Ocean Discovery Program
Texas A&M University
1000 Discovery Drive
College Station TX 77845
kulhanek@iodp.tamu.edu

Miriam E. Katz
Paleontologist (benthic foraminifers)
Earth & Environmental Sciences
Rensselaer Polytechnic Institute
1W08 JRSC
Troy NY 12180
USA
katzm@rpi.edu

Ulrich Kotthoff
Palynologist (terrestrial)
Geologisch—Paläontologisches
University of Hamburg
Institutu Museum
Bundesstrasse 5 5
20146 Hamburg
Germany
ulrich.kotthoff@uni-hamburg.de

Youn Soo Lee
Paleomagnetist
Department of Geology and Geoinformation
Korea Institute of Geoscience and Mineral Resources (KIGAM)
30 Gaejong-dong Yuseong-gu
Daejeon 305-350
South Korea
leeys@kigam.re.kr

Johanna Lofi[†]
Petrophysics Staff Scientist
Geosciences Montpellier CC 60
Université Montpellier 2 - 34095
Montpellier Cedex 5
France
Johanna.Lofi@gm.univ-montp2.fr

Francine McCarthy
Palynologist (dinocysts)
Department of Earth Sciences
Brock University
500 Glenridge Avenue
St. Catharines ONT L2S 3A1
Canada
francine@brocku.ca

Kenneth G. Miller[†]
Modeler/Stratigraphic Correlator
Department of Earth and Planetary Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
kgm@rci.rutgers.edu

Donald H. Monteverde
Modeler/Stratigraphic Correlator
New Jersey Geological Survey
PO Box 427
Trenton NJ 07640
USA
don.monteverde@dep.state.nj.us

Michael James Mottl[†]
Inorganic Geochemist
Department of Oceanography
University of Hawaii
1000 Pope Road
Honolulu HI 96822
USA
mmottl@soest.hawaii.edu

Andreas Nilsson
Paleomagnetist
Lund University
Geobiosphere Science Center
Sölvegatan 12
S-223 62 Lund
Sweden
andreas.nilsson@geol.lu.se

Hironori Otsuka[†]
Petrophysicist
Atmosphere and Ocean Research Institute
The University of Tokyo
5-1-5 Kashiwanoha, Chiba
Tokyo 277-8564
Japan
otsuka@ori.u-tokyo.ac.jp

Marina Rabineau[†]
Sedimentologist
CNRS
UMR6538, Institut Universitaire Européen de La Mer
Place Nicolas Copernic
29280 Plouzané
France
mrabinea@univ-brest.fr

Susanne Stadler[†]
Microbiologist
Federal Institute for Geosciences and Natural Resources (BGR)
Stilleweg 2
30655 Hannover
Germany
Susanne.Stadler@bgr.de

Peter J. Sugarman
Sedimentologist
New Jersey Geological Survey
PO Box 427
Trenton NJ 07640
USA
Pete.Sugarman@dep.state.nj.us

Henna Valppu
Petrophysicist/Physical Properties Specialist
Thule Institute
University of Oulu
PO Box 7300
Oulu
FI-90014 Finland
henna.valppu@gmail.com
henna.valppu@oulu.fi

Operational and technical staff

ECORD Science Operator personnel and technical representatives

Dave Smith†
Operations Manager

Ursula Röhl
Laboratory and Curation Manager

Lee Baines†
Drilling Coordinator

Leigh-Anne Baker
Yeoperson in Training

Simon Barry†
Logging Engineer

Frank Bosch†
EPC Petrophysicist

Carol Cotterill†
Staff Scientist in Training

Julia Crummy†
Database Manager

Dayton Dove†
Staff Scientist in Training

Lucas Duerksen†
VSP Engineer/Technician

Gar Esmay
Core Technician/Consultant

Annick Fehr†
EPC Petrophysicist

Thomas Frederichs
ESO Paleomagnetist

Tim Fulton
Publications Specialist (USIO)

Joana Gafeira†
Database Manager

Lydia Gerullis
Photography/Database

Eileen Gillespie†
Drilling Coordinator/Yeoperson

Colin Graham†
Operations Superintendent/Database Manager

Sophie Green
Staff Scientist in Training

Gabriele Greiff
Palynology Laboratory Technician

Walter Hale†
Core Curator

Vanessa Hebert†
Logging Engineer

Eleanor John
EPC Petrophysics Technician

Tom Knotts
EPC Petrophysics Technician

Brit Kockisch
LECO Operator

Martin Kölling†
ESO Geochemist

Holger Kuhlmann
Core Curator†/Assistant Laboratory Manager

Gerard Lods†
Logging Engineer

Dave Long†
Drilling Coordinator

Vera Lukies
ESO Petrophysics Technician

Sally Morgan†
EPC Petrophysicist

Mary Mowat†
Database Manager

Denis Neyens†
Logging Engineer

Scott Renshaw
Core Technician

Simon Ritson†
Electronics Engineer

Johanna Schietke
Photography/Database

Heather Schijins†
VSP Acquisition

Doug Schmitt†
CSP Team Leader

Luzie Schnieders
ESO Geochemist

Ali Skinner†
Drilling Coordinator

†Participated in shipboard operations.

Len Tober[†]
VSP Engineer/Technician

Graham Tulloch[†]
Drilling Coordinator

Christoph Vogt
XRD Specialist

Dave Wallis[†]
Electronics Engineer

Hans-Joachim Wallrabe-Adams[†]
Database Operator

Thomas Westerhold
ESO Petrophysicist

Michael Wilson[†]
Electronics Engineer

Alex Wülbers[†]
Core Curator/Logistics

University of Bremen (temporary assistants)

Jasmin Asendorf
Core Laboratory Technician (student)

Katharina Hochmuth
Core Laboratory Technician (student)

Jan Hoffman[†]
ESO Geochemist (student)

Andrea Gaede-Koehler[†]
Core Laboratory Technician (student)

Katrin Hirschmann
Core Laboratory Technician (student)

Michael Jünemann
Core Laboratory Technician (student)

Jennifer Kuhr
Core Laboratory Technician (student)

Kim Maertel
Core Laboratory Technician (student)

Carl Peters[†]
Core Laboratory Technician (student)

Malte Pryzbilla[†]
Chemistry Laboratory Technician (student)

Florian Riefstahl
Photography (student)

Simone Sauer[†]
Chemistry Laboratory Technician (student)

Christian Sommerfeld[†]
Core Laboratory Technician (student)

Jasper Quenzel
Core Laboratory Technician (student)

DOSECC personnel

Chris Delahunty
Director of Operations

Beau Marshall
Operations Manager

Joe Bolin
Driller

Steve Cole
Driller

Eric Hatch
Helper

Jesus Higuera
Driller

Jerry Jensen
Field Supervisor

Shaun LaGrange
Driller

Kyle Petro
Helper

Dave Riechman
Helper

Doug Schnurrenberger
Shift Supervisor

Jay Stanyer
Driller

Jess Valeda
Driller/Trainer

Montco personnel

Clem Darda
Captain

Farrel Charpentier
Captain

Matt Beavers
Engineer

Tyler Breaux
Deck Hand

Wayne Breaux
First Mate

Linton Charpentier
First Mate

Thomas Charpentier
Deck Hand

David Cook
Deck Hand

Pat Hayden
Deck Hand

Craig Knoll
Cook

Allen Prestenbach
Cook

James Reed
Cook/Deck Hand/Crane Operator

Eric Robertson
Deck Hand

Keith Schuster
Cook

Tony Smith
Deck Hand

IODP-USIO Publication Services staff*

Karen Benson
Production Specialist II

Molly Chamberlin
Student Assistant

Gudelia ("Gigi") Delgado
Senior Publications Coordinator

Patrick H. Edwards
Production Specialist III

Lindsey Falco
Student Assistant

Tim Fulton
Graphics Specialist II

Jaime A. Gracia
Supervisor of Production

Sarah Gracia
Student Assistant

Kirstin Hein
Student Assistant

Jenni Hesse
Editor III

Rhonda Kappler
Graphics Specialist II

Laura Koehler
Graphics Specialist II

Shana C. Lewis
Editor III

Ginny Lowe
Reports Coordinator

Amy McWilliams
Editor III

Angeline T. Miller
Manager of Publication Services

Erin L. O'Roke
Editor II

Deborah L. Partain
Supervisor of Graphics

Lorri Peters
Supervisor of Editing

Paul Pleasant
Graphics Specialist II

Kenneth Sherar
Production Specialist II

Jamie Smidt
Graphics Specialist II

Alyssa Stephens
Graphics Specialist II

Kelly VonDrehle
Graphics Specialist II

Crystal Wolfe
Production Specialist II

Ann Yeager
Distribution Specialist

*At time of publication.

Acknowledgments

Many people too numerous to list contributed to the success of Expedition 313. The Captains and crew of the *L/B Kayd* provided a comfortable home above the waves. The DOSECC drillers worked tirelessly to provide excellent cores. The ESO staff, skilled in more ways than we can count, kept things on schedule and upbeat. The BCR team ensured that an ambitious shore-based operation remained organized and productive. The TAMU publications staff somehow read our handwriting and turned hasty edits into meaningful sentences. To all these people we are immensely grateful, but in particular we wish to acknowledge the following individual contributions:

Joel Watkins (Texas A&M University, ret.) helped convene the 1988 JOIDES Sea Level Workshop that developed strategies applied on Exp313;

Stephen Greenlee (ExxonMobil Upstream Research) provided proprietary data to proponents of ODP Proposal 548 and worked with them to sharpen methods for estimating eustatic change in shallow water sediments;

Nicholas Christie-Blick (Columbia University), James A. Austin, Jr., Craig Fulthorpe, and Peter Flemings (all University of Texas Inst. for Geophysics) were drilling proposal proponents and stimulating colleagues in the shared desire to use cores and logs to measure sea level and test sequence stratigraphic models;

The National Science Foundation (in particular Program Managers Bruce Malfait, Bilal Haq, Leonard Johnson, and Rodey Batiza) supported marine surveys and onshore drilling of the New Jersey margin, knowing that the full understanding of sea level history requires more than offshore drill cores;

Joseph Kravitz (U.S. Office of Naval Research, ret.) kept hope alive for drilling the New Jersey shelf by coordinating ONR support of surveys and sampling with that of the NSF;

Barry Katz and Craig Shipp (IODP Environmental Protection and Safety Panel) provided wise counsel to the proponents of Proposal 564 who were tasked with providing evidence that it was safe to drill on the New Jersey shelf;

Uli Harms (International Continental Drilling Program) faithfully stood by with a commitment of support from ICDP for the many years that proposal 564 was poised for drilling;

Catherine Mevel (ECORD Managing Agency) skillfully helped guide the complex budgeting for Expedition 313 through several years of volatile funding;

Tom Janecek (formerly IODP-MI) provided sure-handed guidance implementing new concepts of MSP operations into the IODP structure;

Dan Evans (ESO, ret.) worked tirelessly to get Expedition 313 out to sea in the right weather window, staffed with a skilled team of drillers, engineers and scientists; and

David Smith and Colin Graham (ESO) provided patient, clear-headed management of all aspects of the offshore operation.

Dedication

This volume is dedicated to the memory of Dr. John Diebold (Lamont-Doherty Earth Observatory). No other individual was more central to the development of high-resolution MCS technology in the U.S. research community. In particular, he helped design and collect much of the seismic data crucial to the planning and accomplishments of Expedition 313. These profiles challenged all of us to devise bold drilling strategies that could advance our understanding of how the Earth works. John's extraordinary talents and ease in sharing them will long be missed.

Contents

Expedition reports

Chapters

Core descriptions

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

Site M0027

Visual core descriptions · **Smear slides** · **Thin sections**

Site M0028

Visual core descriptions · **Smear slides** · **Thin sections**

Site M0029

Visual core descriptions · **Smear slides**

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 X-ray diffraction analysis results in Microsoft Excel format and the 2008 Geotek multisensor core logger manual in PDF format. 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.

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 313 site map

IODP map (Expeditions 301–316 and 320–321)

ODP map (Legs 100–210)

DSDP map (Legs 1–96)

Expedition-related bibliography

IODP publications

Scientific Prospectus

Mountain, G.S., Proust, J.-N., and McInroy, D., 2009. New Jersey shallow shelf: shallow-water drilling of the New Jersey continental shelf: global sea level and achitecture of passive margin sediments. *IODP Sci. Prosp.,* 313. **doi:10.2204/iodp.sp.313.2009**

Preliminary Report

Expedition 313 Scientists, 2010. New Jersey Shallow Shelf: shallow-water drilling of the New Jersey continental shelf: global sea level and architecture of passive margin sediments. *IODP Prel. Rept.,* 313. **doi:10.2204/iodp.pr.313.2010**

Scientific Drilling journal*

Mountain, G., Proust, J.-N., and the Expedition 313 Science Party, 2010. The New Jersey margin scientific drilling project (IODP Expedition 313): untangling the record of global and local sea-level changes. *Sci. Drill.,* 10: 26-34. **doi.10.2204/iodp.sd.10.03.2010**

Proceedings volume

Mountain, G., Proust, J.-N., McInroy, D., Cotterill, C., and the Expedition 313 Scientists, *Proc. IODP,* 313: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). **doi:10.2204/iodp.proc.313.2010**

Expedition 313 Scientists, 2010. Expedition 313 summary. *In* Mountain, G., Proust, J.-N., McInroy, D., Cotterill, C., and the Expedition 313 Scientists, *Proc. IODP,* 313: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). **doi:10.2204/iodp.proc.313.101.2010**

Expedition 313 Scientists, 2010. Methods. *In* Mountain, G., Proust, J.-N., McInroy, D., Cotterill, C., and the Expedition 313 Scientists, *Proc. IODP,* 313: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). **doi:10.2204/iodp.proc.313.102.2010**

Expedition 313 Scientists, 2010. Site M0027. *In* Mountain, G., Proust, J.-N., McInroy, D., Cotterill, C., and the Expedition 313 Scientists, *Proc. IODP,* 313: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). **doi:10.2204/iodp.proc.313.103.2010**

Expedition 313 Scientists, 2010. Site M0028. *In* Mountain, G., Proust, J.-N., McInroy, D., Cotterill, C., and the Expedition 313 Scientists, *Proc. IODP,* 313: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). **doi:10.2204/iodp.proc.313.104.2010**

Expedition 313 Scientists, 2010. Site M0029. *In* Mountain, G., Proust, J.-N., McInroy, D., Cotterill, C., and the Expedition 313 Scientists, *Proc. IODP,* 313: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). **doi:10.2204/iodp.proc.313.105.2010**

Syntheses*

Pending

Journals/Books*

Pending

Conferences*

Pending

*The **Expedition-related bibliography** is continually updated online. Please send updates to **PubCrd@iodp.tamu.edu.**

Directory structure*

- **313.PDF** (Preliminary pages and table of contents)
- **README.TXT** (Information about the Expedition Reports DVD-ROM)
- **ACROREAD** (Acrobat Reader installation software and instructions for different platforms)
  - **MAC_OS**
  - **WINDOWS**
  - **UNIX**
  - **README.TXT**
- **EXP_REPT** (Expedition Reports section of *Proc. IODP*, 313)
  - **CHAPTERS** (Expedition Reports chapters)
    - **313_101.PDF** (Expedition 313 summary)
    - **313_102.PDF** (Methods)
    - **313_103.PDF** (Site M0027)
    - **313_104.PDF** (Site M0028)
    - **313_105.PDF** (Site M0029)
  - **CORES** (Visual core descriptions, smear slides, thin sections, and digital core images)
    - **CORM0027.PDF** (Site M0027)
    - **CORM0028.PDF** (Site M0028)
    - **CORM0029.PDF** (Site M0029)
    - **SS_M0027.PDF** (Site M0027)
    - **SS_M0028.PDF** (Site M0028)
    - **SS_M0029.PDF** (Site M0029)
    - **TS_M0027.PDF** (Site M0027)
    - **TS_M0028.PDF** (Site M0028)
    - **IMAGES** (PDF files of core images)
  - **OVERSIZE** (Large-format files of data tables and figures)
    - **313_103** (Site M0027 files)
    - **313_104** (Site M0028 files)
    - **313_105** (Site M0029 files)
- **SUPP_MAT** (Supplementary material)
  - **GEOCHEM**
    - **XRDM0027.XLS**
    - **XRDM0028.XLS**
    - **XRDM0029.XLS**
  - **PHYSPROP**
    - **2008GEO.PDF**
  - **README.TXT**
- **MAPS** (Drilling location maps)
  - **313_MAP.PDF** (Expedition 313 site map)
  - **IODPMAP.PDF** (IODP map, Expeditions 301–316 and 320–321)
  - **ODPMAP.PDF** (ODP map, Legs 100–210)
  - **DSDPMAP.PDF** (DSDP map, Legs 1–96)

*Directory structure reflects the Expedition Reports content and volume material produced on DVD-ROM.