

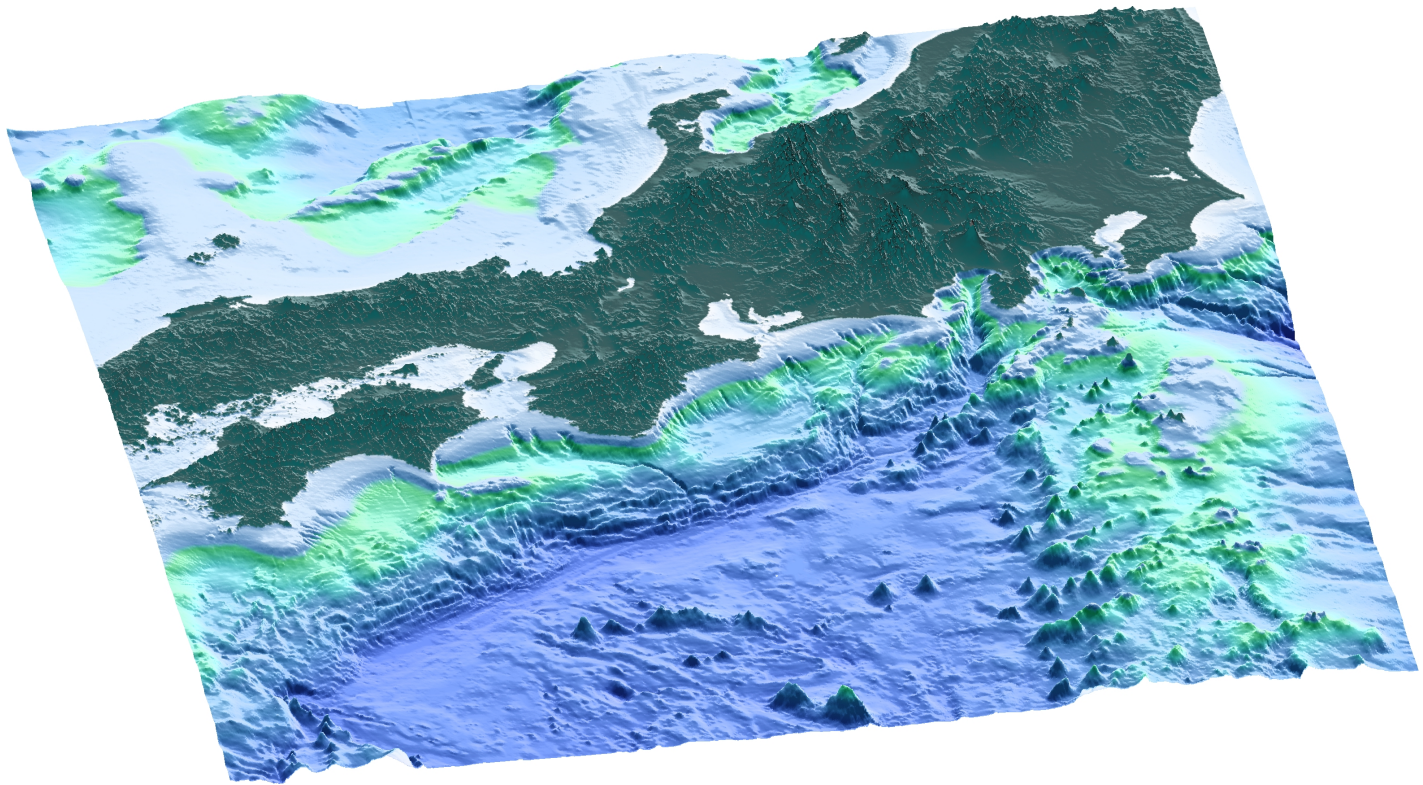


**VOLUME 190
INITIAL REPORTS**

**DEFORMATION AND FLUID FLOW PROCESSES
IN THE NANKAI TROUGH ACCRETIONARY PRISM
SITES 1173-1178**

**PROCEEDINGS OF THE
OCEAN DRILLING PROGRAM**

Prepared by the
OCEAN DRILLING PROGRAM, TEXAS A&M UNIVERSITY
in cooperation with the
NATIONAL SCIENCE FOUNDATION
and
JOINT OCEANOGRAPHIC INSTITUTIONS, INC.



Frontispiece. Three-dimensional view of the Nankai Trough subduction zone that marks the plate boundary between the Shikoku Basin and the Japan Arc (Eurasian plate). The Shikoku Basin oceanic crust (blue in the lower center), which is part of the Philippine Sea plate and the Izu-Bonin arc (north trending high on the lower right), is subducting to the northwest beneath Japan at $\sim 2\text{--}4$ cm/yr. Active sediment accretion is taking place at the Nankai Trough. This plate boundary has historically generated earthquakes larger than M8 at intervals of ~ 180 yr. See Figure F6, p. 47, in the “Leg 190 Summary” chapter, for detailed location of the Leg 190 Nankai Trough drilling area and drill sites. Data for the map is from Japan Maritime Safety Agency.

PROCEEDINGS OF THE OCEAN DRILLING PROGRAM

Volume 190

Initial Reports

Deformation and Fluid Flow Processes
in the Nankai Trough Accretionary Prism

Covering Leg 190 of the cruises of the Drilling Vessel *JOIDES Resolution*

Sydney, Australia, to Yokohama, Japan

Sites 1173–1178

6 May–16 July 2000

SHIPBOARD SCIENTISTS

Gregory F. Moore, Asahiko Taira, Adam Klaus,

Keir Becker, Luann Becker, Babette Boeckel, Barry A. Cragg, P. Allison Dean, Christopher L. Fergusson,

Pierre Henry, Satoshi Hirano, Toshio Hisamitsu, Sabine Hunze, Miriam Kastner, Alex J. Maltman,

Julia K. Morgan, Yuki Murakami, Demian M. Saffer, Mario Sánchez-Gómez, Elizabeth J. Screaton,

David C. Smith, Arthur J. Spivack, Joan Steurer, Harold J. Tobin, Kohtaro Ujiie, Michael B. Underwood,

Moyra Wilson

SHIPBOARD STAFF SCIENTIST

Adam Klaus

VOLUME EDITOR

Lori J. Cagle

VOLUME GRAPHIC DESIGNER

Kathryn Kozelsky

VOLUME PRODUCTION EDITOR

Kenneth R. Sherar

Reference to the whole or to part of this volume should be made as follows:

Print citation for Chapter 1:

Shipboard Scientific Party, 2001. Leg 190 summary. *In* Moore, G.F., Taira, A., Klaus, A., et al., *Proc. ODP, Init. Repts.*, 190: College Station TX (Ocean Drilling Program), 1–87.

CD-ROM volume citation:

Moore, G.F., Taira, A., Klaus, A., et al., 2001. *Proc. ODP, Init. Repts.*, 190 [CD-ROM]. Available from: Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA.

CD-ROM chapter citation:

Shipboard Scientific Party, 2001. Site 1173. *In* Moore, G.F., Taira, A., Klaus, A., et al., *Proc. ODP, Init. Repts.*, 190, 1–147 [CD-ROM]. Available from: Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA.

Effective publication dates of ODP *Proceedings*

According to the International Code of Zoological Nomenclature, the date of publication of a work and of a contained name or statement affecting nomenclature is the date on which the publication was mailed to subscribers, placed on sale, or when the whole edition is distributed free of charge, mailed to institutions and individuals to whom free copies are distributed. The mailing date, *not the printing date*, is the correct one.

The printing date of this volume: July 2001

The mailing dates of recent *Proceedings of the Ocean Drilling Program*:

Volume 187 (*Initial Reports*): January 2001

Volume 188 (*Initial Reports*): March 2001

Volume 189 (*Initial Reports*): May 2001

Volume 170 (*Scientific Results*): February 2001

Volume 171A (*Scientific Results*): December 2000

Volume 171B (*Scientific Results*): April 2001

Copies of this publication may be obtained from Publications Distribution Center, Ocean Drilling Program, Texas A&M University, 1000 Discovery Drive, College Station TX 77845-9547, USA. See the ODP publication list at www-odp.tamu.edu/publications or contact ODP for prices and ordering information. Orders for copies require advance payment.

ISSN

Printed booklet: 0884-5883; CD-ROM volume: 1096-2522; World Wide Web volume: 1096-2158
Library of Congress 87-642-462

PUBLISHER'S NOTES

This volume also appears on the World Wide Web. Any corrections, revisions, or additions will be noted in the chapter (see "Chapter Notes") at www-odp.tamu.edu/publications.

This publication was prepared by the Ocean Drilling Program, Texas A&M University, as an account of work performed under the international Ocean Drilling Program, which is managed by Joint Oceanographic Institutions, Inc., under contract with the National Science Foundation. Funding for the program was provided by the following agencies at the time of this cruise:

Australia/Canada/Chinese Taipei/Korea Consortium for Ocean Drilling: Department of Primary Industries and Energy (Australia), Natural Resources Canada, National Taiwan University in Taipei, and Korean Institute for Geology, Mining and Minerals

Deutsche Forschungsgemeinschaft (Federal Republic of Germany)

European Science Foundation Consortium for Ocean Drilling (Belgium, Denmark, Finland, Iceland, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland)

Institut National des Sciences de l'Univers–Centre National de la Recherche Scientifique (INSU–CNRS) (France)

Marine High-Technology Bureau of the State Science and Technology Commission of the People's Republic of China

National Science Foundation (United States)

Natural Environment Research Council (United Kingdom)

University of Tokyo, Ocean Research Institute (Japan)

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 National Science Foundation, the participating agencies, Joint Oceanographic Institutions, Inc., Texas A&M University, or Texas A&M Research Foundation.

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

The bulk of the shipboard-collected data from this leg is available on the World Wide Web and is accessible at www-odp.tamu.edu/database. If you cannot access this site or need additional data, please contact the ODP Data Librarian, Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA. E-mail: database@odpemail.tamu.edu.

The map at the front of this volume was produced using Generic Mapping Tools (GMT) of Paul Wessel and Walter H.F. Smith (gmt.soest.hawaii.edu). A site map showing the drilling locations for this leg and maps showing the drilling locations of all Ocean Drilling Program (ODP) and Deep Sea Drilling Project (DSDP) drilling sites are available on the volume CD-ROM in PDF format.

Cover photograph is of the “steel beach” and sunset off the bow of the *JOIDES Resolution*, by Photographer Mark Hagerty.

FOREWORD

BY JOINT OCEANOGRAPHIC INSTITUTIONS, INC.

This volume presents scientific and engineering results from the Ocean Drilling Program (ODP). These results address the scientific and technical goals of the program, which are focused on the study of the dynamics of Earth's interior and environment, the evolution of oceanic crust, and the fluctuations of climate. In addition, study of the Earth's deep biosphere is an emergent research objective.

ODP, an international partnership of scientists and research institutions from 22 countries, operates the drillship *JOIDES Resolution*. This state-of-the-art research vessel contains eight levels of laboratories and other scientific facilities required for carrying out the program's objectives.

The management of ODP involves a partnership of scientists and governments. International oversight and coordination are provided by the ODP Council, which is made up of representatives from the member countries. Overall scientific and management guidance is provided by representatives from the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES).

Joint Oceanographic Institutions, Inc. (JOI), a nonprofit consortium of 14 U.S. oceanographic institutions, serves as the National Science Foundation's prime contractor for ODP. JOI implements scientific objectives, plans, and recommendations of the JOIDES committees through major subcontracts to Texas A&M University (TAMU) for science operations and to Lamont-Doherty Earth Observatory (LDEO) of Columbia University for geochemical and geophysical well-logging services.

JOI, TAMU, and LDEO have worked together successfully for many years to manage the Ocean Drilling Program. We look forward to many exciting discoveries and continued international collaboration as we further our scientific mission, especially the planning for the future of ocean drilling beyond 2003.

Steven R. Bohlen

President of the Joint Oceanographic Institutions and Executive Director of the Ocean Drilling Programs
Washington, D.C.

OCEAN DRILLING PROGRAM*

National Science Foundation
 4201 Wilson Boulevard
 Arlington VA 22230, USA
 Tel: (703) 306-1581; Fax: (703) 306-0390
 Web site: www.nsf.gov

MEMBER ORGANIZATIONS OF THE JOINT OCEANOGRAPHIC INSTITUTIONS FOR DEEP EARTH SAMPLING (JOIDES)

University of California at San Diego, Scripps
 Institution of Oceanography

University of California, Santa Cruz

Columbia University, Lamont-Doherty Earth
 Observatory

University of Florida

University of Hawaii, School of Ocean and Earth
 Science and Technology

University of Miami, Rosenstiel School of Marine
 and Atmospheric Science

University of Michigan, College of Literature,
 Science, and the Arts

Rutgers, The State University of New Jersey,
 Institute of Marine and Coastal Sciences and
 Faculty of Arts and Sciences

Oregon State University, College of Oceanic and
 Atmospheric Sciences

University of Rhode Island, Graduate School of
 Oceanography

Texas A&M University, College of Geosciences
 University of Texas at Austin, Institute for
 Geophysics

*At time of publication. See [Publisher's Notes](#), p. 6, for list of funding agencies at time of cruise. For an up-to-date list of current member organizations and office contact information, see the ODP Web site: www.oceandrilling.org.

University of Washington, College of Ocean and Fishery Sciences

Woods Hole Oceanographic Institution

Australia/Canada/Chinese Taipei/Korea Consortium for Ocean Drilling: Department of Primary Industries and Energy (Australia), Natural Resources Canada, National Taiwan University in Taipei, and Korean Institute for Geology, Mining and Minerals

European Science Foundation Consortium for Ocean Drilling (Belgium, Denmark, Finland, Iceland, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland)

Federal Republic of Germany, Bundesanstalt für Geowissenschaften und Rohstoffe

France, Institut National des Sciences de l'Univers—Centre National de la Recherche Scientifique (INSU—CNRS)

Japan, University of Tokyo, Ocean Research Institute

People's Republic of China, Marine High-Technology Bureau of the State Science and Technology Commission of the People's Republic of China

United Kingdom, Natural Environment Research Council

OCEAN DRILLING PROGRAM (ODP)

Web site: www.oceandrilling.org

ODP SCIENCE ADVISORY STRUCTURE (JOIDES)

JOIDES Office

University of Miami—RSMAS
4600 Rickenbacker Causeway
Miami FL 33149, USA

Tel: (305) 361-4668; Fax: (305) 361-4632

E-mail: joides@rsmas.miami.edu

Web site: joides.rsmas.miami.edu

ODP PROGRAM MANAGER

Joint Oceanographic Institutions, Inc.
1755 Massachusetts Avenue, NW, Suite 700
Washington DC 20036-2102, USA
Tel: (202) 232-3900; Fax: (202) 462-8754
E-mail: joi@brook.edu
Web site: www.joi-odp.org

ODP SCIENCE OPERATOR

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: odp@odpemail.tamu.edu
Web site: www-odp.tamu.edu

ODP LOGGING SERVICES OPERATOR

Borehole Research Group
Lamont-Doherty Earth Observatory
Columbia University
Route 9W
Palisades NY 10964, USA
Tel: (845) 365-8341; Fax: (845) 365-3182
E-mail: borehole@ldeo.columbia.edu
Web site: www.ldeo.columbia.edu/BRG/ODP

ODP SITE SURVEY DATA BANK

Lamont-Doherty Earth Observatory
Columbia University
Route 9W
Palisades NY 10964, USA
Tel: (845) 365-8542; Fax: (845) 365-8159
E-mail: odp@ldeo.columbia.edu
Web site: www.ldeo.columbia.edu/databank

LEG 190 PARTICIPANTS*

SHIPBOARD SCIENTIFIC PARTY

Gregory F. Moore

Co-Chief Scientist

Department of Geology and Geophysics/SOEST
University of Hawaii at Manoa
1680 East-West Road, POST 813
Honolulu HI 96822
USA

gmoore@hawaii.edu

Asahiko Taira

Co-Chief Scientist

Ocean Research Institute
University of Tokyo
1-15-1, Minamidai
Nakano-ku, Tokyo 164-8639
Japan

ataira@ori.u-tokyo.ac.jp

Adam Klaus

Staff Scientist

Ocean Drilling Program
Texas A&M University
1000 Discovery Drive
College Station TX 77845-9547
USA

aklaus@odpemail.tamu.edu

Keir Becker

Downhole Tools Specialist

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

*Addresses at time of cruise, except where updated by the leg participants before publication.

Luann Becker**Organic Geochemist**

Hawaii Institute of Geophysics and Planetology
University of Hawaii at Manoa
1680 East-West Road
Honolulu HI 96822
USA

lbecker@soest.hawaii.edu

Babette Boeckel**Paleontologist (nannofossils)**

Universitaet Bremen
FB 5 Geowissenschaften
Klagenfurterstrasse
Postfach 330440
28334 Bremen
Federal Republic of Germany

bboeckel@uni-bremen.de

Barry A. Cragg**Microbiologist**

Department of Earth Sciences
University of Bristol
Wills Memorial Building
Queens Road
Bristol BS8 1RJ
United Kingdom

b.cragg@bristol.ac.uk

P. Allison Dean**Paleomagnetist**

Department of Geology
Western Washington University
516 High Street
Bellingham WA 98225
USA

allison@ancientseas.com

Christopher L. Fergusson**Sedimentologist**

School of Geosciences
University of Wollongong
Wollongong NSW 2522
Australia

chris_fergusson@uow.edu.au

Pierre Henry**Physical Properties Specialist**

Département de Géologie
École Normale Supérieure
24 rue Lhomond
75231 Paris Cedex 05
France

henry@geologie.ens.fr

Satoshi Hirano
Sedimentologist

Institute for Frontier Research on Earth Evolution
(IFREE)
Japan Marine Science and Technology Center
(JAMSTEC)
2-15, Natsushimacho
Yokosuka, Kanagawa 237-0061
Japan
hiranos@jamstec.go.jp

Toshio Hisamitsu
Paleomagnetist

Ocean Research Institute
University of Tokyo
1-15-1, Minamidai
Nakano-ku, Tokyo 164-8639
Japan

Present address (18 May 2001):
Marine and Core Research Center
Kochi University
Akebono-cho 2-5-1
Kochi City, Kochi 780-8520
Japan
hisa@cc.kochi-u.ac.jp

Sabine Hunze
Physical Properties Specialist

Geowissenschaftliche Gemeinschaftsaufgaben-
GGA
Stilleweg 2
30631 Hannover
Federal Republic of Germany
s.hunze@gga-hannover.de

Miriam Kastner
Inorganic Geochemist

Geoscience Research Division
Scripps Institution of Oceanography
University of California, San Diego
9500 Gilman Drive
La Jolla CA 92093-0212
USA
mkastner@ucsd.edu

Alex J. Maltman
Structural Geologist

Institute of Geography and Earth Sciences
University of Wales, Aberystwyth
Aberystwyth SY23 3DB
United Kingdom
ajm@aber.ac.uk

Julia K. Morgan**Structural Geologist**

Department of Geology and Geophysics
Rice University
MS-126
6100 South Main Street
Houston TX 77005-1892
USA

Present address (21 May 2001):
Department of Earth Science
Rice University
morganj@rice.edu

Yuki Murakami**Microbiologist**

Graduate School of Biosphere Sciences
Hiroshima University
1-4-4 Kagamiyama
Higashi-Hiroshima 739-8528
Japan
yukinm@hiroshima-u.ac.jp

Demian M. Saffer**Physical Properties Specialist**

Earth Sciences Department
University of California
1156 High Street
Santa Cruz CA 95064
USA

Present address (17 May 2001):
Department of Geology and Geophysics
University of Wyoming
Laramie WY 82071-3006
dsaffer@uwyo.edu

Mario Sánchez-Gómez**Structural Geologist**

Departamento de Geología
Universidad de Jaén
Virgen de la Cabeza, 2
23071 Jaén
Spain
msgomez@ujaen.es

Elizabeth J. Screaton
Physical Properties Specialist

Department of Geology
University of Florida
PO Box 112120
241 Williamson
Gainesville FL 32611
USA

screaton@geology.ufl.edu

David C. Smith
Microbiologist

Graduate School of Oceanography
University of Rhode Island
South Ferry Road
Narragansett RI 02882-1197
USA

dcsmith@gso.uri.edu

Arthur J. Spivack
Inorganic Geochemist

Department of Earth Sciences
University of North Carolina at Wilmington
7205 Wrightsville Avenue
Wilmington NC 28403-3297
USA

Spivack@uncwil.edu

Joan Steurer
Sedimentologist

Department of Geological Sciences
University of Missouri, Columbia
101 Geological Sciences Building
Columbia MO 65211
USA

rhianwen@pop.missouri.edu

Harold J. Tobin
Structural Geologist/Logging Staff Scientist

Department of Earth and Environmental Science
New Mexico Institute of Mining and
Technology
801 Leroy Place
Socorro NM 87801
USA

tobin@nmt.edu

Kohtaro Ujiie
Structural Geologist

Department of Geology
National Science Museum
3-23-1 Hyakunin-cho
Shinjuku-ku, Tokyo 169-0073
Japan

k_ujiie@kahaku.go.jp

Michael B. Underwood**Sedimentologist**

Department of Geological Sciences
University of Missouri, Columbia
101 Geology Building
Columbia MO 65211
USA
underwoodm@missouri.edu

Moyra Wilson**Sedimentologist**

Department of Geological Sciences
University of Durham
South Road
Durham DH1 4EL
United Kingdom
moyra.wilson@durham.ac.uk

TRANSOCEAN SEDCO FOREX OFFICIALS**Captain Tom Ribbens****Master of the Drilling Vessel**

Overseas Drilling Ltd.
707 Texas Avenue South, Suite 213D
College Station TX 77840-1917
USA

Scott Pederson**Drilling Superintendent**

Overseas Drilling Ltd.
707 Texas Avenue South, Suite 213D
College Station TX 77840-1917
USA

SHIPBOARD PERSONNEL**David Becker**

Information Services Department Manager

Timothy Bronk

Marine Laboratory Specialist (Chemistry)

Sandy Dillard

Marine Laboratory Specialist (Downhole/Thin Sections/Storekeeper)

Gavin Eppard

Temporary Marine Laboratory Specialist

David Fackler

Database Developer

Tim Fulton

Temporary Marine Laboratory Specialist
(Photographer)

Margaret Hastedt

Marine Computer Specialist

Dale Hrabovsky

Temporary Marine Laboratory Specialist

Juan Jaramillo

Temporary Marine Laboratory Specialist

Brad Julson

Laboratory Officer

Steve Kittredge

Schlumberger Engineer

Eric Meissner

Temporary Marine Electronics Specialist

Rakesh Mithal

Database Services Supervisor

Erik Moortgat

Marine Computer Specialist

Matt O'Regan

Marine Laboratory Specialist (Paleomagnetism)

Tom Pettigrew

Drilling Operations Manager

Anne Pimmel

Marine Laboratory Specialist (Chemistry)

Pieter Pretorius

Marine Electronics Specialist

Cyndi Prince

Marine Laboratory Specialist (Physical Properties)

Steve Prinz

Marine Laboratory Specialist (Underway
Geophysics/Curator)

Mads Radsted

Temporary Marine Laboratory Specialist

Jo Ribbens

Marine Laboratory Specialist (Yeoperson)

Johanna Suhonen

Marine Laboratory Specialist (X-ray)

ODP PUBLICATIONS STAFF*

Karen Benson
Production Editor

Brenda Bridges
Editor

Lori J. Cagle
Editor

Gudelia (“Gigi”) Delgado
Senior Publications Coordinator

Patrick H. Edwards
Production Editor

Edward W. Flax
Student Assistant

Jaime A. Gracia
Senior Production Editor

Mendy A. Harrison
Assistant Editor

Ann Klaus
Publication Services Manager

Kathryn M. Kozelsky
Graphic Designer

Jennie L. Lamb
Graphic Designer

Nancy H. Luedke
Graphic Designer

Cathy Martin
Production Editor

Krista L. May
Editor

Amy McLeod
Student Assistant

Angeline T. Miller
Senior Editor

Mary Elizabeth Mitchell
Production Assistant

Deborah L. Partain
Senior Graphic Designer

Lorri L. Peters
Editor

Katerina E. Petronotis
WWW Administrator

M. Kathleen Phillips
Publications Specialist

Jennifer Pattison Rumford
Electronic Publications
Specialist

John M. Scroggs
Editor

Kenneth Sherar
Production Editor

Ann Yeager
Distribution Specialist

*At time of publication.

ACKNOWLEDGMENTS

Leg 190 represents the first part of a two-leg study of the Nankai Trough accretionary prism. We thank the JOIDES science advisory structure for its commitment and support of this project. Leg 190 was highly successful because of the efforts of many people. In particular, we recognize that our scientific results were significantly enhanced by the acquisition and timely processing of the *Ewing 9907/9908* 3-D seismic-reflection data set. The efforts of N. Bangs, S. Kuramoto, T. Shipley, Z. Zhao, Y. Nakamura, and S. Gulick are especially appreciated. The tireless support of Captain Tom Ribbens and the ship's crew, Scott Pedersen and the drilling crew, and Tom Pettigrew, Brad Julson, and the other ODP staff aboard the *JOIDES Resolution* contributed greatly to our overall success. The hard work and competence of the ODP Publication Services staff have been instrumental in the timely production of this volume.

CD-ROM CONTENTS: CHAPTERS

1. Leg 190 Summary
2. Data Report: Structural Setting of the Leg 190 Muroto Transect
3. Explanatory Notes
4. Site 1173
5. Site 1174
6. Site 1175
7. Site 1176
8. Site 1177
9. Site 1178

CD-ROM CONTENTS: CORE DESCRIPTIONS

Visual core descriptions (VCDs), smear-slide data tables, and digital core images are included in this section. VCDs and smear-slide data tables are combined into one PDF file for each site. ACSII versions of the smear-slide data tables are also available (see [“ASCII Tables”](#)).

Site 1173

[Visual Core Descriptions](#) · [Smear Slides](#) · [Thin Sections](#)

Site 1174

[Visual Core Descriptions](#) · [Smear Slides](#) · [Thin Sections](#)

Site 1175

[Visual Core Descriptions](#) · [Smear Slides](#) · [Thin Sections](#)

Site 1176

[Visual Core Descriptions](#) · [Smear Slides](#)

Site 1177

[Visual Core Descriptions](#) · [Smear Slides](#)

Site 1178

[Visual Core Descriptions](#) · [Smear Slides](#)

CD-ROM CONTENTS: ASCII TABLES

This CD-ROM contains ASCII versions of biostratigraphic **data tables** presented in the volume chapters and **smear-slide data tables** presented under “Core Descriptions.” A complete listing of the ASCII data tables can be found on the next two pages.

You can access these data directly from the PDF files. Depending on your computer platform, the following information applies.

PC COMPUTERS

By default, clicking on a filename with a .TXT extension will launch the Notepad application. You can configure your computer’s operating system so that files on this CD with .TXT extensions automatically open in other software, such as Microsoft Excel. Follow these steps from the pull-down menu: Windows 95 and NT operating systems: View > Options > File Types; and Windows 98 systems: View > Folder Options > File Types.

MAC COMPUTERS

All table files with .TXT extensions will automatically open into Excel. If you do not have Excel installed on your computer, you may view these files through other spreadsheet or text-editor programs. Open the application of your choice, select File > Open, and open the ASCII file.

UNIX COMPUTERS

You can open files with .TXT extensions in any text editor or spreadsheet program, but not directly from PDF files.

Chapter 4
Chapter 5

Chapter 6
Chapter 7

Chapter 8
Chapter 9

Smear-slide data tables
Thin-section data tables

Chapter 4, Site 1173

Table T2. Coring summary by section, Site 1173.

Table T4. Peak intensities and peak areas from X-ray diffraction analysis of bulk-powder sediment samples, Hole 1173A.

Table T5. Normalized relative mineral abundances based on X-ray diffraction of random bulk-sediment powders, Site 1173.

Table T7. Structural data, Hole 1173A.

Table T11. Calcareous nannofossil range chart, Zones NN21–NN19.

Table T12. Calcareous nannofossil range chart, Zones NN18–NN9.

Table T13. Calcareous nannofossil range chart, Zones NN9–NN6.

Table T22. Apparent formation factor from the needle-probe method, Hole 1173A.

Chapter 5, Site 1174

Table T2. Coring summary by section, Site 1174.

Table T5. Peak intensities and peak areas from X-ray diffraction analysis of bulk-powder sediment samples, Hole 1174A.

Table T6. Normalized relative mineral abundances based on X-ray diffraction of random bulk-sediment powders, Site 1174.

Table T7. Structural data, Hole 1174B.

Table T11. Calcareous nannofossil range chart, Zones NN21b–NN19.

Table T12. Calcareous nannofossil range chart, Zones NN18–NN9.

Table T22. Electrical conductivity and formation factor data for cubes, Hole 1174B.

Chapter 6, Site 1175

Table T2. Coring summary by section, Site 1175.

Table T7. Structural data, Hole 1175A.

Table T10. Calcareous nannofossil range chart, Site 1175.

Chapter 7, Site 1176

Table T2. Coring summary by section, Site 1176.

Table T10. Calcareous nannofossil range chart, Site 1176.

Chapter 8, Site 1177

Table T2. Coring summary by section, Site 1177.

Table T4. Peak intensities and peak areas from X-ray diffraction analysis of bulk-powder sediment samples, Hole 1177A.

Table T11. Calcareous nannofossil range chart, Zones NN18–NN2.

Chapter 9, Site 1178

Table T2. Coring summary by section, Site 1178.

Table T6. Structural data, Hole 1178A.

Table T10. Calcareous nannofossil range chart, Zones NN21a–NN10a.

Smear-Slide Data Tables

Site 1173 smear-slide table.

Site 1174 smear-slide table.

Site 1175 smear-slide table.

Site 1176 smear-slide table.

Site 1177 smear-slide table.

Site 1178 smear-slide table.

Thin-Section Data Tables

Site 1173 thin-section table.

Site 1174 thin-section table.

Site 1175 thin-section table.

CD-ROM CONTENTS: OVERSIZED FIGURES

Chapter 1, Figure F8. Correlation of facies units, magnetic susceptibility, and major time boundaries within stratigraphic successions of the reference and prism toe sites at the Muroto and Ashizuri Transects at Nankai margin.

Chapter 2, Figure F6. Regional seismic reflection line along the Muroto Transect.

Chapter 4, Figure F1. Location of the *JOIDES Resolution* seismic profile collected on the transit to Site 1173.

Chapter 4, Figure F2. Single-channel seismic profile collected on the transit to Site 1173.

CD-ROM CONTENTS: DRILLING LOCATIONS MAPS

A site map showing the drilling locations for this leg and maps showing the drilling locations of all Ocean Drilling Program (ODP) and Deep Sea Drilling Project (DSDP) drilling sites are available in PDF format.

[ODP Leg 190 Site Map](#)

[ODP Map](#) (Legs 100–190)

[DSDP Map](#) (Legs 1–96)

RELATED LEG DATA

DOWNHOLE LOGGING AND CORE DATA

A third CD-ROM is included with this volume. The “Log and Core Data” CD contains Leg 190 depth-shifted and processed downhole logging data and shipboard core logging data (gamma ray attenuation bulk density, natural gamma radiation, magnetic susceptibility, color reflectance, and moisture and density). The downhole logging data are provided by the Borehole Research Group at the Lamont-Doherty Earth Observatory, Wireline Logging Operator for ODP.

The majority of the logging data included on the CD are available on the World Wide Web at www.ldeo.columbia.edu/BRG/ODP. If you cannot access this site or want to order the CD, please contact: ODP Logging Services Operator, Lamont-Doherty Earth Observatory, Route 9W, Palisades NY 10964, USA; Tel: (845) 365-8341; Fax: (845) 365-3182; E-mail: borehole@ldeo.columbia.edu.

The majority of the core data on the CD are available on the Web at www-odp.tamu.edu/database. If you cannot access the ODP database or need additional data, please contact: ODP Data Librarian, 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@odpemail.tamu.edu.

COMPILED ELECTRONIC INDEX

The Compiled Electronic Index of the *Proceedings of the Ocean Drilling Program* included on the *Initial Reports* CD-ROM contains individual indexes of Volumes 101–171B. The indexes are contained in the directory titled ODPINDEX and are named ###NDX.PDF (### = the leg number). These indexes can be searched individually or collectively.

CD-ROM DIRECTORY STRUCTURE

190IR.PDF

(Preliminary pages and table of contents)

README.PDF

(Information about the volume CD-ROM)

README.TXT

(Information about the volume CD-ROM in ASCII format)

ACROREAD

(Acrobat Reader 4.0.5 installation software and instructions for different platforms)

MAC

WINDOWS

UNIX

README.TXT

MAPS

(Drilling locations maps)

190_MAP.PDF (Leg 190 site map)

ODPMAP.PDF (ODP map, Legs 100 through 190)

DSDPMAP.PDF (DSDP map, Legs 1 through 96)

VOLUME

(Leg 190 *Initial Reports* volume)

CHAPTERS

(Volume chapters)

IR190_01.PDF (Leg 190 Summary)

IR190_02.PDF (Data Report: Structural Setting of the Muroto Transect)

IR190_03.PDF (Explanatory Notes)

IR190_04.PDF (Site 1173)

IR190_05.PDF (Site 1174)

IR190_06.PDF (Site 1175)

IR190_07.PDF (Site 1176)

IR190_08.PDF (Site 1177)

IR190_09.PDF (Site 1178)

CORES

(Visual core descriptions, smear slide and thin section data tables, and digital core images)

COR_1173.PDF (Site 1173)

COR_1174.PDF (Site 1174)

COR_1175.PDF (Site 1175)

COR_1176.PDF (Site 1176)

COR_1177.PDF (Site 1177)

COR_1178.PDF (Site 1178)

IMAGES (PDF files of core images)

TABLES

(Selected tables in ASCII format of core summary, index properties, mineralogy, biostratigraphy, lithology, smear slide, and thin section data)

IR190_04 (Site 1173 files)

IR190_05 (Site 1174 files)

IR190_06 (Site 1175 files)

IR190_07 (Site 1176 files)

IR190_08 (Site 1177 files)

IR190_09 (Site 1178 files)

S_SLIDES (Smear slides from Sites 1173 through 1178)

T_SECT (Thin sections from Sites 1173 through 1175)

README.TXT

OVERSIZE

(Large-format figures)

IR190_01 (Chapter 1, Figure F8 file)

IR190_02 (Chapter 2, Figure F6 file)

IR190_04 (Chapter 4, Figure F1 and F2 file)

(Continued on next page)

CD-ROM DIRECTORY STRUCTURE (CONTINUED)

VOLUME
(Continued)**INDEX.PDX**

(Acrobat file used to enable Acrobat Search of the 190 Initial Reports)

ODPINDEX

(Compiled Electronic Index of the Proceedings of the Ocean Drilling Program)

101NDX.PDF through 171BNDX.PDF

(Index files)

NDX.PDX

(Acrobat file used to enable Acrobat Search of the Compiled Electronic Index)

