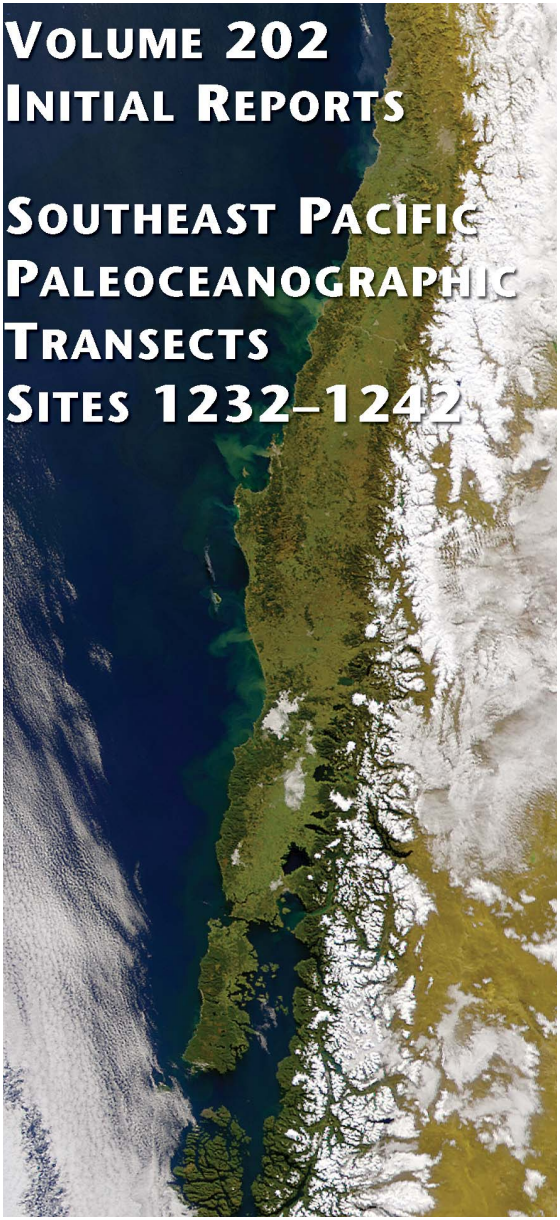

Volume 202
Initial Reports

Southeast Pacific Paleoceanographic Transects Sites 1232–1242

Proceedings of the Ocean Drilling Program

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

Proceedings of the Ocean Drilling Program

Volume 202
Initial Reports
Southeast Pacific Paleoceanographic Transects

Covering Leg 202 of the cruises of the Drilling Vessel *JOIDES Resolution*
Valparaiso, Chile, to Balboa, Panama
Sites 1232–1242
29 March–30 May 2002

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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**.

Supplemental data on the volume CD-ROM were provided by the authors and may not conform to ODP publication formats.

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. These maps were produced using Generic Mapping Tools (GMT) of Paul Wessel and Walter H.F. Smith (**gmt.soest.hawaii.edu**).

Cover photograph is a SeaWiFS image of central Chile that shows visible plumes of river outflow. The sediment-laden plumes extend ~70 km into the Pacific Ocean, boosting phytoplankton production as they pass. The snow-covered Andes Mountains are visible along the right side of the image. The capital city of Santiago is the grayish sploch west of the Andes at ~33.5°S. Image provided by ORBIMAGE. © Orbital Imaging Corporation and processing by NASA Goddard Space Flight Center.

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 18 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
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University of Texas at Austin, Institute for Geophysics

*At time of publication. See **Publisher's Notes,** p. 5, 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

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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

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A large number of scientists participated in site survey operations and other regional studies that led to Leg 202. We particularly thank Larry Mayer, Dave Anderson, David Lea, Steve Bloomer, Chris Goldfinger, Gary Klinkhammer, Jim McManus, Ann Morey-Ross, Mysti Weber, Bill Rugh, Debbie Colbert, Jennifer McKay, Jorge Ruben Valdes Saavedra, Hernán Vergara, Carlos Jose Orbegoso Pandal, Federico Velasco Castillo, Brian West, Dave Hulett, Mitch Lyle, Lee Liberty, Aleksandra Janik, Peter Kalk, Chris Moser, Maziet Cheseby, Adolfo Molina-Cruz, Stacy Kish, Nicklas G. Pisias, Melissa Feldberg, Brit Perlet, Elizabeth Kujawinski, Stephanie Kienast, Tara Ivanochko, Peter Eiler, Anthony Hager, Kenji Wright, Jennifer Taylor, Natalie Speck, Ignacio Martinez, Ligia L. Perez-Cruz, Carlos Gutierrez, Steve Hovan, Gene Pollard, Seth Mogk, Bob Wilson, Dierk Hebbeln, and Gerold Wefer.

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CD-ROM Contents: Chapters

CD-ROM Contents: Appendix

CD-ROM Contents: Core Descriptions

Visual core descriptions (VCDs) and smear slide and thin section data tables are included in this section. ASCII versions of the smear slide data tables are also available (see "ASCII Tables").

Site 1232
Visual Core Descriptions · Smear Slides

Site 1233
Visual Core Descriptions · Smear Slides

Site 1234
Visual Core Descriptions · Smear Slides

Site 1235
Visual Core Descriptions · Smear Slides

Site 1236
Visual Core Descriptions · Smear Slides

Site 1237
Visual Core Descriptions · Smear Slides

Site 1238
Visual Core Descriptions · Smear Slides

Site 1239
Visual Core Descriptions · Smear Slides

Site 1240
Visual Core Descriptions · Smear Slides

Site 1241
Visual Core Descriptions · Smear Slides

Site 1242
Visual Core Descriptions · Smear Slides

CD-ROM Contents: ASCII Tables

This CD-ROM contains ASCII versions of composite depth scale, splice tie point, magnetic susceptibility, and age model data tables from the site chapters and all of the **smear slide data tables** presented under "Core Descriptions." A complete listing of the ASCII tables can be found listed below.

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

PC computers

By default, double-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, 2000, ME, and XP systems: View > Folder Options > File Types.

Macintosh 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 3, Site 1232

Chapter 4, Site 1233

Chapter 5, Site 1234

Chapter 6, Site 1235

Chapter 7, Site 1236

Table T2. Composite depth scale, Site 1236.
Table T3. Splice tie points, Site 1236.
Table T4. OSUS-MS measurements, Hole 1236B.
Table T5. OSUS-MS measurements, Hole 1236C.
Table T14. Age-depth model, linear sedimentation rates, and mass accumulation rates, Site 1236.

Chapter 8, Site 1237

Table T2. Composite depth scale, Site 1237.
Table T3. Splice tie points, Site 1237.
Table T4. OSUS-MS measurements, Hole 1237A.
Table T5. OSUS-MS measurements, Hole 1237B.
Table T6. OSUS-MS measurements, Hole 1237C.
Table T7. OSUS-MS measurements, Hole 1237D.
Table T21. Age-depth model, linear sedimentation rates, and mass accumulation rates, Site 1237.

Chapter 9, Site 1238

Table T2. Composite depth scale, Site 1238.
Table T3. Splice tie points, Site 1238.
Table T4. OSUS-MS measurements, Hole 1238A.
Table T5. OSUS-MS measurements, Hole 1238B.
Table T6. OSUS-MS measurements, Hole 1238C.
Table T16. Age-depth model, linear sedimentation rates, and mass accumulation rates, Site 1238.

Chapter 10, Site 1239

Table T2. Composite depth scale, Site 1239.
Table T3. Splice tie points, Site 1239.
Table T4. OSUS-MS measurements, Hole 1239A.
Table T5. OSUS-MS measurements, Hole 1239B.
Table T6. OSUS-MS measurements, Hole 1239C.
Table T16. Age-depth model, linear sedimentation rates, and mass accumulation rates, Site 1239.

Chapter 11, Site 1240

Chapter 12, Site 1241

Chapter 13, Site 1242

Smear Slide Data Tables

Site 1239 smear slide table.
Site 1240 smear slide table.
Site 1241 smear slide table.
Site 1242 smear slide table.

CD-ROM Contents: Supplementary Material

The Initial Reports CD-ROM contains supplementary data files of equivalent logging depths for Sites 1238 and 1239 and secondary splice and affine data files for Site 1233. The equivalent logging depth data are presented in FORTRAN-formatted ASCII files in a form readable by Sagan software (version 1.2). The splice and affine data are ASCII files in a format readable by the software program Splicer (version 2.2).

ELD

1238.TXT
1239.TXT
README.TXT

SPLICER

1233_AFF.TXT
1233_SPL.TXT
README.TXT

CD-ROM Contents: Drilling Location 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 202 Site Map

ODP Map (Legs 100–202)

DSDP Map (Legs 1–96)

Related Leg Data

Downhole Logging and Core Data

A CD-ROM containing processed logging data and a subset of core data is included with the printed version of this volume. However, a more complete set of the logging data collected by ODP Logging Services is available online at **www.ldeo.columbia.edu/BRG/ODP/DATABASE/DATA/search.html**. If you have problems downloading the data, wish to receive additional logging data, or have questions regarding the data, please contact: Data Services Manager, ODP Logging Services, 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**.

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

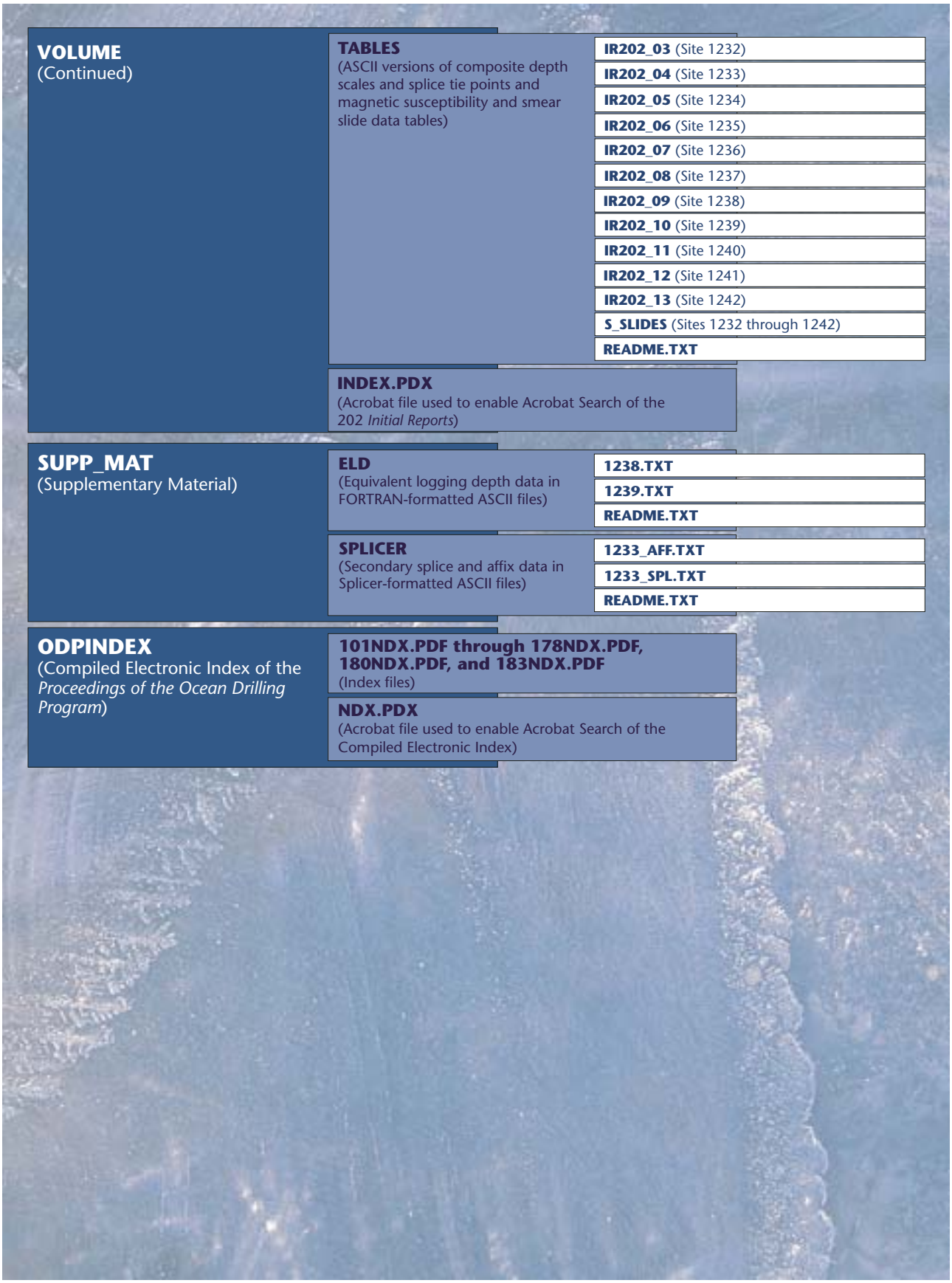
The Compiled Electronic Index of the *Proceedings of the Ocean Drilling Program* included on the volume CD-ROM contains individual indexes of Volumes 101–178, 180, and 183. The indexes are contained in the directory titled ODPINDEX and are named ###NDX.PDF (### = the leg number). These indexes can be searched individually or collectively.

CD-ROM Directory Structure

- **202IR.PDF** (Preliminary pages and table of contents)
- **README.PDF** (Information about the volume CD-ROM)
- **README.TXT** (ASCII version of information about the volume CD-ROM)
- **ACROREAD** (Acrobat Reader installation software and instructions for different platforms)
  - **MAC**
  - **WINDOWS**
  - **UNIX**
  - **README.TXT**
- **MAPS** (Drilling location maps)
  - **202_MAP.PDF** (Leg 202 site map)
  - **ODPMAP.PDF** (ODP map, Legs 100 through 202)
  - **DSDPMAP.PDF** (DSDP map, Legs 1 through 96)
- **VOLUME** (Leg 202 *Initial Reports* volume)
  - **CHAPTERS** (Volume chapters)
    - **IR202_01.PDF** (Leg 202 Summary)
    - **IR202_02.PDF** (Explanatory Notes)
    - **IR202_03.PDF** (Site 1232)
    - **IR202_04.PDF** (Site 1233)
    - **IR202_05.PDF** (Site 1234)
    - **IR202_06.PDF** (Site 1235)
    - **IR202_07.PDF** (Site 1236)
    - **IR202_08.PDF** (Site 1237)
    - **IR202_09.PDF** (Site 1238)
    - **IR202_10.PDF** (Site 1239)
    - **IR202_11.PDF** (Site 1240)
    - **IR202_12.PDF** (Site 1241)
    - **IR202_13.PDF** (Site 1242)
  - **APPENDIX** (Volume appendix)
    - **APPENDIX.PDF** (Nonmagnetic Core Barrel)
  - **CORES** (Visual core descriptions and smear slide data tables and digital core images)
    - **COR_1232.PDF** (Site 1232)
    - **COR_1233.PDF** (Site 1233)
    - **COR_1234.PDF** (Site 1234)
    - **COR_1235.PDF** (Site 1235)
    - **COR_1236.PDF** (Site 1236)
    - **COR_1237.PDF** (Site 1237)
    - **COR_1238.PDF** (Site 1238)
    - **COR_1239.PDF** (Site 1239)
    - **COR_1240.PDF** (Site 1240)
    - **COR_1241.PDF** (Site 1241)
    - **COR_1242.PDF** (Site 1242)
    - **IMAGES** (PDF files of core images)

(Continued on next page)

CD-ROM Directory Structure (continued)



VOLUME
(Continued)

TABLES
(ASCII versions of composite depth scales and splice tie points and magnetic susceptibility and smear slide data tables)

- **IR202_03** (Site 1232)
- **IR202_04** (Site 1233)
- **IR202_05** (Site 1234)
- **IR202_06** (Site 1235)
- **IR202_07** (Site 1236)
- **IR202_08** (Site 1237)
- **IR202_09** (Site 1238)
- **IR202_10** (Site 1239)
- **IR202_11** (Site 1240)
- **IR202_12** (Site 1241)
- **IR202_13** (Site 1242)
- **S_SLIDES** (Sites 1232 through 1242)
- **README.TXT**

INDEX.PDX
(Acrobat file used to enable Acrobat Search of the 202 *Initial Reports*)

SUPP_MAT
(Supplementary Material)

ELD
(Equivalent logging depth data in FORTRAN-formatted ASCII files)

- **1238.TXT**
- **1239.TXT**
- **README.TXT**

SPLICER
(Secondary splice and affix data in Splicer-formatted ASCII files)

- **1233_AFF.TXT**
- **1233_SPL.TXT**
- **README.TXT**

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

101NDX.PDF through 178NDX.PDF, 180NDX.PDF, and 183NDX.PDF
(Index files)

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