



**CONTROLS ON MICROBIAL
COMMUNITIES IN
DEEPLY BURIED SEDIMENTS,
EASTERN EQUATORIAL
PACIFIC AND PERU MARGIN
SITES 1225-1231**

**VOLUME 201
INITIAL REPORTS**

**PROCEEDINGS OF THE
OCEAN DRILLING PROGRAM**

Prepared by the
OCEAN DRILLING PROGRAM,
TEXAS A&M UNIVERSITY,
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and
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PROCEEDINGS OF THE OCEAN DRILLING PROGRAM

Volume 201

Initial Reports

Controls on Microbial Communities in Deeply Buried
Sediments, Eastern Equatorial Pacific and Peru Margin

Covering Leg 201 of the cruises of the Drilling Vessel *JOIDES Resolution*
San Diego, California, to Valparaiso, Chile
Sites 1225–1231
27 January–29 March 2002

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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 by ODP Photographer John Beck is of the *JOIDES Resolution* under way.

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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The operations were carefully planned under the guidance of ODP Operations Manager Mike Storms. They were conducted under the guidance of Mike Storms and Brian Jonasson. Led by Brad Julson, the ODP supervisor of technical support, the ODP technical staff greatly enhanced the microbiology and biogeochemistry laboratories in the months leading up to the cruise.

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2. **Drilling Contamination Tests during ODP Leg 201 Using Chemical and Particulate Tracers**
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3. **The Pressure Core Sampler (PCS) on ODP Leg 201: General Operations and Gas Release**
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12. Site 1231

Shipboard Scientific Party

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Site 1226

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CD-ROM CONTENTS: ASCII TABLES

This CD-ROM contains ASCII versions of geochemistry data tables from the text 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.

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Table T3. Concentrations of dissolved species in interstitial waters, Holes 1231B and 1231E.

Table T4. Oxygen concentrations by microelectrode, Hole 1231D.

Table T5. Iron concentrations of replicate interstitial waters passed through different filters, Hole 1231E.

Table T6. Hydrogen concentrations, Hole 1231B.

Table T7. Methane concentrations in headspace, Hole 1231B.

Smear Slide Data Tables

Site 1225 smear slide table.

Site 1226 smear slide table.

Site 1227 smear slide table.

Site 1228 smear slide table.

Site 1229 smear slide table.

Site 1230 smear slide table.

Site 1231 smear slide table.

CD-ROM CONTENTS: SUPPLEMENTARY MATERIAL

The *Initial Reports* CD-ROM contains supplementary X-ray diffraction (XRD) data files presented in ASCII. The files present raw instrument XRD data values. Supplementary material files are located in the SUPP_MAT directory.

XRD_DATA

XRD_1225

1225A

01H2R0.UDF
01H2W94.UDF
02H1W123.UDF
02H5W114.UDF
03H22R13.UDF
04H1W10.UDF
05H2W49.UDF
05H6W54.UDF
06H2W90.UDF
11H3R0.UDF
13H3R0.UDF
14H1W0.UDF
15H4W53.UDF
19H3R135.UDF
20H7W53.UDF
26H1W119.UDF
27H3R135.UDF
30H5W69.UDF
33H2W28.UDF
33H3R135.UDF
34H1W4.UDF

34H2W140.UDF
35X3W47.UDF
35X3W80.UDF
35X4W142.UDF
35X5R12.UDF

1225C

01H1WR37.UDF
01H3WR65.UDF
01H4WR0.UDF
01H5WR0.UDF
02H6W56.UDF
04H1W36.UDF
05H3W57.UDF
07H1W75.UDF
10H5W98.UDF
22H1W21.UDF
27H4W63.UDF
27H4W63A.UDF
27H5W127.UDF
27H5W12A.UDF
29H3W97.UDF
29H3W97A.UDF

STANDARD

QTZ0210.UDF

QTZ0210A.UDF
QTZ0211.UDF
QTZ0211A.UDF
QTZ0212.UDF
QTZ0213.UDF
QTZ0213A.UDF
QTZ0214.UDF
QTZ0215.UDF
QTZ0215Z.UDF

XRD_1226

1226B

01H1W3.UDF
06H4W20.UDF
06H7W57.UDF
08H6W113.UDF
12H7W53.UDF
29H6W104.UDF
29H7W56.UDF
30X2W111.UDF
30X4W90.UDF
30X6W99.UDF
30X7W36.UDF
31X3W19.UDF
31X5W120.UDF
32X4W111.UDF
32X4W117.UDF
33X3W125.UDF
33X5W80.UDF
34X1W110.UDF
36X1W105.UDF

41X1W2.UDF
43X1W19.UDF
44XCCW9.UDF
47X1W7.UDF
47X2W53.UDF
47XCC42.UDF
47XCCW0.UDF

1226E

06H6W137.UDF
06H6W19.UDF
08H4W45.UDF
18H2W87.UDF
18H6W104.UDF
18H6W77.UDF
19H3W28.UDF
22X3W35.UDF
22X3W91.UDF
25X3W104.UDF
25X3W108.UDF

STANDARD

QTZ0221.UDF
QTZ0222.UDF
QTZ0223.UDF
QTZ0224.UDF
QTZ0226.UDF
QTZ0228.UDF
QTZ0304A.UDF
QTZ0307.UDF

XRD_1227**1227A**

01H2W32.UDF
01H2W74.UDF
01H2W97.UDF
02H4W92.UDF
04H5W74.UDF
05H1W45.UDF
06H3W90.UDF
07H3W135.UDF
08HCCW20.UDF
08HCCW21.UDF
08HCW21A.UDF
12H1W85.UDF
12H1W96.UDF

1227D

02H2W139.UDF
04H5W100.UDF
05H4W94.UDF
06H1W15.UDF
06H1W30.UDF
06H3W25.UDF

STANDARD

QTZ0302.UDF
QTZ0302A.UDF
QTZ0303.UDF
QTZ0303A.UDF
QTZ0304.UDF
QTZ0305.UDF

XRD_1228**1228A**

01H2W121.UDF
04H5W125.UDF
04H5W54.UDF
05H1W64.UDF
06H2W85.UDF
06H4W137.UDF
06H4W17.UDF
06H5W117.UDF
06H6W14.UDF
06H6W61.UDF
07H1W32.UDF
07H1W53.UDF
07H6W100.UDF
08H5W48.UDF
16H1W83.UDF
16H2W97.UDF

STANDARD

QTZ0305.UDF
QTZ0306.UDF
QTZ0306A.UDF

XRD_1229**1229A**

01H2W70.UDF
01H3W84.UDF
02H1W105.UDF
03H1W56.UDF
08H1W62.UDF

10H1W111.UDF
13H2W103.UDF
19H2W40.UDF
19H3W60.UDF
21H1W30.UDF

1229E

01H2W13.UDF
01H3W114.UDF
01H3W89.UDF

STANDARD

CHKMAG_1.UDF
CHKMAG_2.UDF
QTZ0308.UDF
QTZ0309.UDF
QTZ0310.UDF
QTZ0315.UDF

XRD_1230**1230A**

02H6W15.UDF
12H2W112.UDF
26H1W39.UDF
26H2W33.UDF
30X1W93.UDF
31X1W25.UDF
31X1W93.UDF
33X2W14.UDF
33X3W100.UDF
33XCCW16.UDF
35X1W94.UDF

35X4W40.UDF
35X4W80.UDF
35X5W68.UDF

1230B

01H4W15.UDF
01H4W16.UDF
05H4W64.UDF
05H4W72.UDF
07H1W144.UDF
07H5W96.UDF
12H7W30.UDF

STANDARD

QT031702.UDF
QT031802.UDF
QTZ0315.UDF
QTZ0316.UDF
QTZ0316A.UDF
QTZ0319.UDF

XRD_1231**1231B**

02H1W45.UDF
02H6W45.UDF
03H5W105.UDF
03H5W94.UDF
05H1W3.UDF
05H6W100.UDF
06H3W43.UDF
06H6W40.UDF
07H1W60.UDF

07H3W60.UDF
07H6W60.UDF
08H4W60.UDF
08H4W77.UDF
08H5W60.UDF
09H1W10.UDF
11H4W80.UDF
13H3W132.UDF

1231D

03H2W30.UDF
03H6W70.UDF
05H1W20.UDF
05H1W30.UDF
06H3W135.UDF
06H4W83.UDF
06H5W135.UDF
06H6W135.UDF

08H1W27.UDF
08H5W30.UDF

1231E

04H7W51.UDF
14H2W59.UDF

STANDARD

CK0322.UDF
QTZ0322A.UDF
QTZ0323.UDF
QTZ0323A.UDF
QTZ0323B.UDF
QTZ0323C.UDF
QTZ0324.UDF
QTZ0325.UDF

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 201 Site Map

ODP Map (Legs 100–201)

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.ideo.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@ideo.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, and 180. 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.

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README.TXT (ASCII version of information about the volume CD-ROM)		
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	DSDPMAP.PDF (DSDP map, Legs 1 through 96)	
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		IR201_02.PDF (Drilling Contamination Tests)
		IR201_03.PDF (Pressure Core Sampler)
		IR201_04.PDF (Infrared Thermal Imaging)
		IR201_05.PDF (Explanatory Notes)
		IR201_06.PDF (Site 1225)
		IR201_07.PDF (Site 1226)
		IR201_08.PDF (Site 1227)
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(Supplementary material)

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(ASCII X-ray diffraction raw instrument
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