

TABLE OF CONTENTS

VOLUME 170—INITIAL REPORTS

Dedication	1
Acknowledgments	3
SECTION 1: INTRODUCTION	
1. Introduction	7
Shipboard Scientific Party	
2. Explanatory notes	19
Shipboard Scientific Party	
SECTION 2: SITE CHAPTERS	
3. Site 1039	45
Shipboard Scientific Party	
Site summary	45
Principal results	46
Background and scientific objectives	49
Operations	50
Lithostratigraphy and structures	52
Biostratigraphy and magnetostratigraphy	61
Geochemistry	71
Physical properties	79
4. Site 1040	95
Shipboard Scientific Party	
Site summary	95
Principal results	96
Background and scientific objectives	99
Operations	100
Lithostratigraphy and structures	103
Biostratigraphy and magnetostratigraphy	116
Geochemistry	127
Physical properties	141
5. Site 1041	153
Shipboard Scientific Party	
Site summary	153
Principal results	153

Background and scientific objectives	155
Operations	157
Lithostratigraphy and structures	158
Biostratigraphy and magnetostratigraphy	163
Geochemistry	170
Physical properties	178
6. Site 1042	189
Shipboard Scientific Party	
Site summary	189
Principal results	189
Background and scientific objectives	191
Operations	192
Lithostratigraphy and structures	194
Biostratigraphy and magnetostratigraphy	199
Geochemistry	201
Physical properties	206
7. Site 1043	215
Shipboard Scientific Party	
Site summary	215
Principal results	215
Background and scientific objectives	217
Operations	218
Lithostratigraphy and structures	219
Biostratigraphy and magnetostratigraphy	227
Geochemistry	233
Physical properties	238

SECTION 3: CORES

Core-description forms and core photographs for:

Site 1039	251
Site 1040	315
Site 1041	387
Site 1042	425
Site 1043	431

SECTION 4: SMEAR SLIDES (CD-ROM)

Smear-slide data in both PDF and ASCII formats are on the “*Proceedings, Initial Reports*” CD-ROM (see back pocket).

Site 1039	459
Site 1040	467
Site 1041	477

Site 1042	482
Site 1043	483

SECTION 5: THIN SECTIONS (CD-ROM)

Thin-section data in both PDF and ASCII formats are on the “*Proceedings, Initial Reports*” CD-ROM (see back pocket).

Site 1039	487
Site 1040	502

SECTION 6: SHORE-BASED PROCESSED LOGS (CD-ROM)

Shore-based processed logging data and descriptions are on the “*Proceedings, Initial Reports*” CD-ROM (see back pocket).

Site 1039	508
Site 1040	515
Site 1042	530
Site 1043	533

SECTION 7: APPENDIX (CD-ROM)

The appendix to the “Explanatory Notes” chapter (this volume) is on the “*Proceedings, Initial Reports*” CD-ROM (see back pocket).

Explanatory Notes Appendix	540
----------------------------------	-----

CD-ROM MATERIALS

Two CD-ROMs are located in the back of the volume. The “*Proceedings, Initial Reports*” CD-ROM includes an electronic version of the Leg 170 *Initial Reports* volume in Adobe Acrobat, as well as ASCII tab-delimited versions of tables that are printed either as samples or in full in the printed volume (see directory structure below), smear-slide data tables, and thin-section data tables. The “Log and Core Data” CD-ROM contains depth-shifted and processed logging data provided by the Borehole Research Group at the Lamont-Doherty Earth Observatory, Wireline Logging Operator for ODP. The log and core data CD-ROM also contains shipboard GRAPE (gamma-ray attenuation porosity evaluator), index properties, magnetic susceptibility, *P*-wave, natural gamma, and color reflectance data of cores collected on board the *JOIDES Resolution* during Leg 170.

PROCEEDINGS, INITIAL REPORTS CD

The *Initial Reports* volume is designed for Adobe Acrobat Reader 3 software. All files with a .PDF extension should be viewed through Acrobat. Data tables in an ASCII format (files with a .TXT extension) on this CD should be opened through a spreadsheet or text-editing software application.

There are three starting points for this CD:

README.TXT is an ASCII file that explains how to install Adobe Acrobat on any of the available platforms. This file is in the root directory.

READ170.PDF is an Acrobat file that contains information about the CD, lists available files and how to use them, and describes how the core images were created. This file is in the root directory.

170IR.PDF lists the table of contents for the volume and ASCII tables. It also contains links to the volume chapters. This file is in the root directory.

Directory Structure:

README.TXT (readme file for Acrobat Reader)

- READ170.PDF (readme file for Leg 170 *Initial Reports* volume)
- NDX_READ.PDF (readme file for Compiled Electronic Index of the *Proceedings of the Ocean Drilling Program*)
- 170IR.PDF (volume table of contents)
- ACROBAT (Acrobat software)
- VOLUME
 - PRELIM.PDF (volume preliminary pages)
 - DEDICA.PDF (volume dedication)
 - ACKNOWLEDG.PDF (volume acknowledgments)
 - CHAP_01.PDF
 - CHAP_02.PDF
 - CHAP_03.PDF
 - CHAP_04.PDF
 - CHAP_05.PDF
 - CHAP_06.PDF
 - CHAP_07.PDF
 - VCD####.PDF (visual core descriptions by site)
 - SS####.PDF (smear slides in PDF format by site)
 - TS####.PDF (thin sections in PDF format by site)
 - LOGGING.PDF (shore-based processed logs)

APPENDIX.PDF (appendix to the “Explanatory Notes” chapter)

TSS (thin sections in ASCII format by site)

TABLES (see below for list of files)

INDEX (Acrobat catalog of this volume)

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

List of TABLES files:

CHAP_03 (Chapter 3, Site 1039):

03_02.TXT: Table 2. Coring section summary for Site 1039.

03_04.TXT: Table 4. Site 1039 smear-slide descriptions.

03_05.TXT: Table 5. Thin-section summary for gabbros.

03_06.TXT: Table 6. Calcareous nannofossil range distribution chart for Hole 1039B.

03_07.TXT: Table 7. Diatom range distribution chart for Site 1039.

03_08.TXT: Table 8. Planktonic foraminifer range distribution chart for Site 1039.

03_10.TXT: Table 10. Composition of headspace gases from Site 1039.

03_12.TXT: Table 12. Inorganic carbon, calcium carbonate, total carbon, total organic carbon, and total sulfur contents in sediments at Site 1039.

03_16A.TXT, 03_16B.TXT, 03_16C.TXT: Table 16. Gamma-ray attenuation (GRA) bulk density data for Site 1039.

03_17.TXT: Table 17. Moisture and density data, and calculated phase relationships from discrete core specimens, Site 1039.

03_18.TXT: Table 18. Shipboard composite logging-while-drilling data from Hole 1039D.

03_19.TXT: Table 19. *P*-wave velocities obtained from the PWL using the MST on unsplit cores from Site 1039.

03_20.TXT: Table 20. *P*-wave velocities obtained from the PWS3 on split cores from Site 1039.

03_21A.TXT, 03_21B.TXT, 03_21C.TXT: Table 21. Magnetic susceptibility values obtained on unsplit cores using the MST, Site 1039.

03_22.TXT: Table 22. Vane shear strength data for Holes 1039A and 1039B.

03_23.TXT: Table 23. Electrical resistivity measurement data collected from Holes 1039A and 1039B.

03_24.TXT: Table 24. Thermal conductivity data for Site 1039.

CHAP_04 (Chapter 4, Site 1040):

04_02.TXT: Table 2. Coring section summary for Site 1040.

04_04.TXT: Table 4. Site 1040 smear-slide descriptions.

04_06.TXT: Table 6. Site 1040 structural summary.

04_07.TXT: Table 7. Calcareous nannofossil range distribution chart for Hole 1040B.

04_08.TXT: Table 8. Calcareous nannofossil range distribution chart for Hole 1040C.

04_09.TXT: Table 9. Diatom range distribution chart for Holes 1040B and 1040C.

04_10.TXT: Table 10. Planktonic foraminifer range distribution chart for Holes 1040B and 1040C.

04_12.TXT: Table 12. Composition of headspace gases.

04_15.TXT: Table 15. Inorganic carbon, calcium carbonate, total carbon, total organic carbon, total nitrogen, total sulfur, and TOC/TN in sediments.

04_22A.TXT, 04_22B.TXT, 04_22C.TXT: Table 22. Gamma-ray attenuation (GRA) bulk density data for Site 1040.

04_23.TXT: Table 23. Moisture and density data, and calculated phase relationships from discrete core specimens, Site 1040.

04_24.TXT: Table 24. Shipboard composite logging-while-drilling data from Hole 1040D.

04_25.TXT: Table 25. Shipboard composite logging-while-drilling data from Hole 1040E.

04_26.TXT: Table 26. Composite wireline logging data from Hole 1040C.

04_27.TXT: Table 27. *P*-wave velocities obtained from the PWL using the MST on unsplit cores from Site 1040.

04_28.TXT: Table 28. *P*-wave velocities obtained from the PWS3 on split cores from Site 1040.

04_29A.TXT, 04_29B.TXT, 04_29C.TXT: Table 29. Magnetic susceptibility values obtained on unsplit cores using the MST, Site 1040.

04_30.TXT: Table 30. Vane shear strength data for Holes 1040A and 1040B.

04_31.TXT: Table 31. Electrical resistivity measurement data collected from Site 1040.

04_32.TXT: Table 32. Thermal conductivity data for Site 1040.

CHAP_05 (Chapter 5, Site 1041):

05_02.TXT: Table 2. Coring section summary for Site 1041.

05_04.TXT: Table 4. Site 1041 lithologic summary.

05_05.TXT: Table 5. Site 1041 smear-slide descriptions.

05_08.TXT: Table 8. Site 1041 structural summary.

05_09.TXT: Table 9. Calcareous nannofossil range distribution chart for Hole 1041A.

05_10.TXT: Table 10. Calcareous nannofossil range distribution chart for Holes 1041B and 1041C.

05_11.TXT: Table 11. Diatom range distribution chart for Site 1041.

05_12.TXT: Table 12. Planktonic foraminifer range distribution chart for Site 1041.

05_13.TXT: Table 13. Depths of biostratigraphic and magnetostratigraphic datums observed in Site 1041 cores.

- 05_14.TXT: Table 14. Molecular composition of headspace gases.
- 05_17.TXT: Table 17. Inorganic carbon, calcium carbonate, total carbon, total organic carbon, total nitrogen, total sulfur, and TOC/TN in sediments.
- 05_20.TXT: Table 20. Gamma-ray attenuation (GRA) bulk density data for Site 1041.
- 05_21.TXT: Table 21. Moisture and density data, and calculated phase relationships from discrete core specimens, Site 1041.
- 05_22.TXT: Table 22. Natural gamma-ray data obtained on unsplit core with the MST, Site 1041.
- 05_23.TXT: Table 23. *P*-wave velocities obtained from the PWS3 on split cores from Site 1041.
- 05_24.TXT: Table 24. Magnetic susceptibility values obtained on unsplit cores using the MST, Site 1041.
- 05_25.TXT: Table 25. Vane shear strength data for Hole 1041A.
- 05_26.TXT: Table 26. Thermal conductivity data for Site 1041.
- CHAP_06** (Chapter 6, Site 1042):
- 06_02.TXT: Table 2. Coring section summary for Site 1042.
- 06_04.TXT: Table 4. Site 1042 lithologic summary.
- 06_05.TXT: Table 5. Site 1042 smear-slide descriptions.
- 06_06.TXT: Table 6. Calcareous nannofossil range distribution chart for Holes 1042A and 1042B.
- 06_07.TXT: Table 7. Diatom range distribution chart for Holes 1042A and 1042B.
- 06_08.TXT: Table 8. Planktonic foraminifer range distribution chart for Hole 1042A.
- 06_09.TXT: Table 9. Composition of headspace gases at Site 1042.
- 06_12.TXT: Table 12. Inorganic carbon, calcium carbonate, total carbon, total organic carbon, total nitrogen, total sulfur, and TOC/TN in sediments in Hole 1042A.
- 06_15.TXT: Table 15. Moisture and density data, and calculated phase relationships from discrete core specimens, Site 1042.
- 06_16.TXT: Table 16. Gamma-ray attenuation (GRA) bulk density data for Site 1042.
- 06_17.TXT: Table 17. Natural gamma-ray data obtained on unsplit core with the MST, Site 1042.
- 06_18.TXT: Table 18. Shipboard composite logging-while-drilling data from Hole 1042B.
- 06_19.TXT: Table 19. *P*-wave velocities obtained from the PWS3 on split cores from Site 1042.
- 06_20.TXT: Table 20. Magnetic susceptibility values obtained on unsplit cores using the MST, Site 1042.
- CHAP_07** (Chapter 7, Site 1043):
- 07_02.TXT: Table 2. Coring section summary for Site 1043.
- 07_04.TXT: Table 4. Site 1043 lithologic summary.
- 07_05.TXT: Table 5. Site 1043 smear-slide descriptions.
- 07_06.TXT: Table 6. Site 1043 structural summary.
- 07_07.TXT: Table 7. Calcareous nannofossil range distribution chart for Site 1043.
- 07_08.TXT: Table 8. Diatom range distribution chart for Site 1043.
- 07_09.TXT: Table 9. Planktonic foraminifer range distribution chart for Site 1043.
- 07_11.TXT: Table 11. Composition of headspace gases at Site 1043.
- 07_13.TXT: Table 13. Inorganic carbon, calcium carbonate, total carbon, total organic carbon, total nitrogen, total sulfur, and TOC/TN in sediments at Site 1043.
- 07_14.TXT: Table 14. Gamma-ray attenuation (GRA) bulk density data for Site 1043.
- 07_15.TXT: Table 15. Moisture and density data, and calculated phase relationships from discrete core specimens, Site 1043.
- 07_16.TXT: Table 16. Shipboard composite logging-while-drilling data from Hole 1043B.
- 07_17.TXT: Table 17. Natural gamma-ray data obtained on unsplit core with the MST, Site 1043.
- 07_18.TXT: Table 18. *P*-wave velocities obtained from the PWL using the MST on unsplit cores from Site 1043.
- 07_19.TXT: Table 19. *P*-wave velocities obtained from the PWS3 on split cores from Site 1043.
- 07_20.TXT: Table 20. Magnetic susceptibility values obtained on unsplit cores using the MST, Site 1043.
- 07_21.TXT: Table 21. Vane shear strength data for Hole 1043A.
- 07_22.TXT: Table 22. Electrical resistivity measurement data collected from Site 1043 cores.
- 07_23.TXT: Table 23. Thermal conductivity data for Site 1043.
- APPENDIX** (Explanatory Notes Appendix [CD-ROM only]):
- APP_02.TXT: Moisture and density measurement data for oven-dried (OD) and freeze-dried (FD) specimens for Hole 1039A.
- APP_03.TXT: Moisture and density measurement data for oven-dried (OD) and freeze-dried (FD) specimens for Hole 1039B.
- APP_04.TXT: Moisture and density measurement data for oven-dried (OD) and freeze-dried (FD) specimens for Hole 1039C.
- APP_05.TXT: Moisture and density measurement data for oven-dried (OD) and freeze-dried (FD) specimens for Hole 1040A.
- APP_06.TXT: Moisture and density measurement data for oven-dried (OD) and freeze-dried (FD) specimens for Hole 1040B.

APP_07.TXT: Moisture and density measurement data for oven-dried (OD) and freeze-dried (FD) specimens for Hole 1040C.

APP_08.TXT: Moisture and density measurement data for oven-dried (OD) and freeze-dried (FD) specimens for Hole 1043A.

ODP LEG 170 LOG & CORE DATA

This CD-ROM is a “data-only” CD-ROM containing both depth shifted and processed logging data provided by the Borehole Research Group at the Lamont-Doherty Earth Observatory as well as shipboard GRAPE (gamma-ray attenuation porosity evaluator), index properties, magnetic susceptibility, *P*-wave, natural gamma, and color reflectance data of cores collected on board the *JOIDES Resolution* during Leg 170. CD-ROM production was carried out by the Borehole Research Group at the Lamont-Doherty Earth Observatory, Wireline Logging Operator for ODP.

Directory Structure:

- COREDATA directory
 - README document
 - SITE number subdirectory
 - HOLE number subdirectory
 - GRAPE data file
 - INDEX data file
 - MAGSUS data file
 - NATGAM data file
 - PWAVE data file
 - GRAPE documentation file
 - Index properties documentation file
 - Magnetic susceptibility documentation file
 - Natural gamma documentation file
 - P*-wave documentation file
- GEN_INFO directory
 - ACRONYMS.DOC (list of acronyms)
 - FIGURES.DOC (log summary figure documentation)
 - FORMAT.DOC (CD-ROM format documentation)
 - INDEX.DOC (CD-ROM file summary)
 - README.DOC (information on whom to contact)
 - SOFTWARE.DOC (information for software packages, graphics software, and data compression)
- LOG_DATA directory
 - HOLE number subdirectory
 - BASICLOG
 - Standard logs subdirectory
 - Acronyms and units file
 - Log data subdirectories
 - Individual tool data files
 - Processing documentation
 - Log summary figures (postscript and portable document format files)

The above structure is identical in each site and/or hole. The INDEX.DOC file contains a summary of all the files loaded on the CD-ROM. The software documentation file in the GEN_INFO directory contains informa-

tion on which software packages work best to import PBM (portable bit map—8-bit binary) raster files. It also includes network sources for the graphics software and data compression information. The README file gives information on whom to contact with any questions about the production of or data on the CD-ROM.

All of the ASCII files (with the exception of the sonic waveform [SWF] files and log summary figures) are tab delimited for compatibility with most spreadsheet and database programs. Holes that have more than one logging pass with the same tools are labeled Main and Repeat for conventional logs, or Pass 1, Pass 2, etc., for FMS. If the files are not in separate directories they may just be annotated with “m” and “r” or “1” and “2” in the data filenames when there is room for only one character. Holes that have long logging runs are often divided into UPPER, MIDDLE, and LOWER directories. The files may just be annotated with “u”, “m”, or “l” in the data filenames where space permits. Check the documentation file for a given directory if it is not clear.

The log summary figures were created on the UNIX and have been saved as postscript (.PS) files and are made available in portable document format (.PDF). For more information regarding the figures, please see FIGURES.DOC in the GEN_INFO directory.

Summary of Log Data:

- Hole 1039D:
 - BASICLOG directory
 - Log summary figures
 - LWD log data
- Hole 1040C:
 - BASICLOG directory
 - High resolution logs
 - Log summary figures
 - Sonic waveforms
 - Standard logs
- Hole 1040D:
 - BASICLOG directory
 - Log summary figures
 - LWD log data
- Hole 1040E:
 - BASICLOG directory
 - Log summary figures
 - LWD log data
- Hole 1042C:
 - BASICLOG directory
 - Log summary figures
 - LWD log data
- Hole 1043B:
 - BASICLOG directory
 - Log summary figures
 - LWD log data

Summary of ODP Core Data

- Site 1039
 - Hole A:
 - GRAPE.DAT
 - INDEX.DAT

MAGSUS.DAT
PWAVE.DAT
REFLECT.DAT
Hole B:
GRAPE-1.DAT
GRAPE-2.DAT
GRAPE-3.DAT
GRAPE-4.DAT
GRAPE-5.DAT
GRAPE-6.DAT
GRAPE-7.DAT
INDEX.DAT
MAGSUS-1.DAT
MAGSUS-2.DAT
MAGSUS-3.DAT
PWAVE.DAT
REFLECT.DAT
Hole C:
GRAPE.DAT
INDEX.DAT
MAGSUS.DAT
REFLECT.DAT
Site 1040
Hole A:
GRAPE.DAT
INDEX.DAT
MAGSUS.DAT
PWAVE.DAT
REFLECT.DAT
Hole B:
GRAPE.DAT
INDEX.DAT
MAGSUS.DAT
PWAVE.DAT
REFLECT.DAT
Hole C:
GRAPE-1.DAT
GRAPE-2.DAT
GRAPE-3.DAT
INDEX.DAT
MAGSUS.DAT

Site 1041
Hole A:
GRAPE.DAT
INDEX.DAT
MAGSUS.DAT
NATGAM.DAT
PWAVE.DAT
REFLECT.DAT
Hole B:
GRAPE.DAT
INDEX.DAT
MAGSUS.DAT
NATGAM.DAT
REFLECT.DAT
Hole C:
GRAPE.DAT
INDEX.DAT
MAGSUS.DAT
NATGAM.DAT
REFLECT.DAT
Site 1042
Hole A:
GRAPE.DAT
INDEX.DAT
MAGSUS.DAT
NATGAM.DAT
REFLECT.DAT
Hole B:
GRAPE.DAT
INDEX.DAT
MAGSUS.DAT
NATGAM.DAT
REFLECT.DAT
Site 1043
Hole A:
GRAPE.DAT
INDEX.DAT
MAGSUS.DAT
NATGAM.DAT
PWAVE.DAT
REFLECT.DAT