DEEP SEA DRILLING PROJECT

DATA FILE DOCUMENTS

Ocean Drilling Program

Texas A&M University

Technical Note 9
First printing January 1988

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Technical Note 9
First Printing 1988

Distribution

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D I S C L A I M E R

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 is provided by the following agencies:

Department of Energy, Mines and Resources (Canada)
Deutsche Forschungsgemeinschaft (Federal Republic of Germany)
Institut Français de Recherche pour l'Exploitation de la Mer (France)
Ocean Research Institute of the University of Tokyo (Japan)
National Science Foundation (United States)
Natural Environment Research Council (United Kingdom)
European Science Foundation Consortium for the Ocean Drilling Program (Belgium, Denmark, Finland, Iceland, Italy, Greece, the Netherlands, Norway, Spain, Sweden, Switzerland, and Turkey)

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.

ACKNOWLEDGMENTS

We would like to acknowledge those at the Deep Sea Drilling Project who prepared these databases, especially Lillian Musich, Donna Hawkins, Barbara Long, Steve Bearman, Thomas Birtley, Don Marcy, Barbara Pinkston, and Peter Woodbury. Also, we acknowledge those at the Ocean Drilling Program who incorporated these databases into the Ocean Drilling Program database system: Dennis Duval, May Ling, Kathe Lighty, and Patricia Brown.

TABLE OF CONTENTS

I. INTRODUCTION

This publication represents over 15 years of data collection by the Deep Sea Drilling Project (DSDP). DSDP collected geological data generated from studies of ocean cores recovered on Legs 1-96 of the DSDP drillship, the "Glomar Challenger". Most of these data were computerized into various databases such as Sedimentary Descriptions, Chemistry, Igneous/Metamorphic Descriptions, Physical Properties, etc. Each database was documented and available for inquiry.

At the end of the DSDP, the computerized DSDP databases were turned over to the Ocean Drilling Program (ODP) to be included in the ODP database and to the National Geophysical Data Center (NGDC) for archiving and distribution. For copies of the data in the original DSDP format address requests to:

National Geophysical Data Center
NOAA Code D64
325 Broadway
Boulder, CO 80303

The DSDP databases have been incorporated into the ODP database management system in order to facilitate their comparison with data from ODP cruises. To do this, some restructuring of the data items was necessary; however, the data values themselves were not changed. Some examples of the restructuring done are:

- --Added explicit decimal points to the Top and Bottom Interval data items
- --Integer lengths of the Leg and Site data items were increased to be compatible with the ODP data
- --Extracted the Core Character from the Core data item to improve search capability
- --Several data items were loaded as text fields to preserve floating decimal points
- --For some databases, multiple data cards or data and comment cards were combined into one record to improve search capability

The following documents are revised versions of the documents prepared by DSDP for each of the computerized databases developed by DSDP. These documents were revised by ODP to reflect the restructuring needed to incorporate the data into the ODP database management system.

The documents in this publication along with their corresponding databases are the product of the DSDP, but are available to the public as part of the ODP database through the ODP Data Base Group. We are able to provide data searches using one or several databases on almost any specified criteria related to the database. Eventually we will have an on-line copy of these databases available to those who would like to call into the ODP Vax system and perform data searches from their own terminals.

Data are currently available from ODP in the following formats:

a) on hard copy (paper) print outs.
b) on magnetic tape. Tapes will be in ASCII format, 9 track 1600 BPI, and unlabelled. Each tape will be accompanied by a sheet with additional information needed to read the tape.
c) Through the BITNET network. The ODP Bitnet address is %DATABASE@TAMODP.

For more information about the DSDP/ODP databases or to request data, contact:

Data Librarian, Data Base Group
Ocean Drilling Program
1000 Discovery Drive
College Station, Texas 77840-9547 U.S.A.

(409) 845-8495, 845-2673
Telex Number: 792779 ODP TAMU
Easylink Number: 62760290

Small requests can be answered quickly and free of charge. If a charge must be made to recover expenses, an invoice will be sent and must be paid before the request is processed.

II. TABLE OF DATA

AVAILABLE DSDP DATA FILES

DATA FILE (LEGS AVAILABLE)	DESCRIPTION	COMMENTS
	Chemistry Data Files	
Carbon/Carbonate (1-96)	Percent by weight of the total carbon, organic carbon and carbon carbonate content of a sample. Bomb data has carbonate only.	No data for Legs 46, 83, 88, 91, 92.
Interstitial Water Chem (1-96)	Quantitative ion and/or pH, salinity, alkalinity analyses of interstitial water and surface sea water samples.	No data for Legs 46, 83.
	Igneous/Metamorphic Data Files	
Thin Section Descriptions - Igneous/Metamorphic (4-92)	Petrographic descriptions of igneous and metamorphic rocks. Includes information on mineralogy, texture, alteration, vesicles, etc.	No data for Legs 1-3, 5, 8, 9, 15, 20-21, 24, 27, 40-41, 42B, 44, 47-48, 50, 56, 71-72, 75-76, 78, 80, 95, 96.
Visual Core Descriptions - Igneous/Metamorphic (4-94)	Igneous and metamorphic rock lithology, texture, structure, mineralogy, alteration, etc.	No data for Legs 40, 42B, 44, 47-48, 50, 56, 95, 96.
Major-Element Chemical Analyses (13-92)	Major-element chemical analyses of igneous, metamorphic and some sedimentary rocks composed of volcanic material.	No data for Legs 20, 21, 31, 40, 42B, 44, 47, 48, 50, 56, 71, 93-96.
Minor and Trace-Element Chemical Analyses (13-92)	Minor-element chemical analyses of igneous, metamorphic and some sedimentary rocks composed of volcanic material.	No data for Legs 20, 21, 27, 35, 40, 42B, 44, 47, 48, 50, 56, 57, 66, 67, 71, 93-96.
	Paleontology Data Files	
Agecodes	Numeric and letter codes used to indicate a given geological age.	
Ageprofile (1-96)	Definition of age layers downhole.	
Paleontology (1-96) and Fossil Code Dictionary	Data for 26 fossil groups. Code names, abundance and preservation data for all Tertiary fossils found in DSDP material. The fossil dictionary comprises more than 12,000 fossil names and codes.	Does not include Mesozoic fossils. No data for Leg 83.
	Paleomagnetic Data Files	
Alternating Field Demag. - Sediment (4-96)	Paleomagnetic measurements of sediments on which alternating field demagnetization is carried out.	Rotary cores: Legs 4-73. HPC cores: Legs 72-79.
Paleomag. Measurements - Igneous/ Metamorphic (14-92)	Paleomagnetic and rock magnetic measurements of igneous and metamorphic rocks and a few sedimentary rocks composed of volcanic material.	No data for Legs 1-13, 17, 18, 20-22, 24, 30, 31, 35, 36, 39, 40, 47, 48, 50, 56, 57, 67, 68, 74, 93-96.

Long-Core Spinner Magnetometer - Sediment (43, 68, 70-72, 75, 90)	Paleomagnetic measurements: declination and intensity of magnetization. Data from hydraulic piston cores only.	Cores were discovered to by rust-contaminated and disturbed. Quality of the data for each core clarified by documenation.
Paleomag. Measurements - Sediment (1-94)	Paleomagnetic measurements: declination, inclination, and intensity of magnetization. NRM measurements and AFD measurements when available.	Rotary cores: Legs 1-76, 78. HPC cores: Legs 71-75. No data for Legs 95, 96.
	Physical Properties Data Files	
Density-Porosity (1-96)	Measurements by syringe method from known volumes of sediment.	No data for Leg 41.
Grain Size (1-79)	Sand-silt-clay content of sample.	No data for Legs 16, 64, 65.
G.R.A.P.E. (1-96)	Continuous core density measurements.	No data for Leg 46.
Penetrometer (4, 6-15)	Qualitative indicator of sediment strength.	
Sonic Velocity (2-95)	Hamilton frame and 'ear muff' methods.	No data for Legs 1, 13, 96.
Vane Shear (31-94)	Sediment shear strength measurements using Wykeham Farrance 2350 and Torvane instruments.	No data for Legs 32-37, 39-40, 45-46, 49, 52-56, 59-60, 62, 65-67, 70, 77, 79, 81-84, 86, 88-89, 92.
	Sedimentary Data Files	
Processed Smear Slide (1-96)	Information about the nature and abundance of sediment components.	No data for Leg 83 hard rock cores.
Screen (1-96)	Computer generated lithologic classifications. Basic composition data, average density, and age of layer.	
Visual Text (1-96)	Created from shipboard descriptions of the core sections. Information about core color, sedimentary structures, disturbance, etc.	
	Summary Data Files	
Cored Interval and Recovery (1-96)	Depth of each core. Allows determination of precise depth (in m) of a particular sample.	
Site Summary (1-96)	Information on general hole characteristics (i.e. location, water depth, sediment nature, basement nature, etc.).	
	X-Ray Data Files	
X-ray (1-37)	X-ray diffraction data	No data for Legs after Leg 37.

III. EXPLANATORY NOTES

The Explanatory Notes defines the DSDP methods for naming Leg, site, hole, and core, the process of cutting the core into sections, how samples are labeled, and the formulas used to calculate sample depth. This section will be referenced by many of the data file documents that follow.

A. DEFINITION OF LEG, SITE, HOLE, CORE, SECTION

LEG NUMBER:

LEG was the term used by the Deep Sea Drilling Project to define a cruise of the Glomar Challenger. A leg normally lasted 8 weeks and usually was directed toward solving geologic problems in a specific ocean area.

SITE:

A location, defined by latitude and longitude, where a positioning beacon was dropped.

HOLE:

Each new penetration of the sediment/water interface at a site defined a HOLE. All holes drilled using the same positioning beacon were considered to be part of the same site. The first hole drilled at a site is identified by the site number alone. Additional holes are identified by the site number followed by a letter (A,B,C,..etc.).

CORE:

A core number was designated each time the core barrel made a trip through the drill string and drilling was done. The cores are numbered consecutively, beginning with 1. A core barrel recovered empty after drilling is still considered a core. Section C of the explanatory notes outlines the special core types and their designations.

SECTION:

During the first 46 legs of drilling, sections were labeled consecutively, with the first section at the top of the core and the sixth at the bottom. However, the sections were measured from the bottom up (i.e. the juncture of the top of the core catcher and the core barrel). Consequently, when recovery was slightly less than 9.2 meters (30 feet) the first section of each core would be less than 150 cms long. When less than 7.5 meters (24.6 ft) of core were recovered, the core could be divided into only five or fewer 150 cm sections, yet the top of a short core would still be labeled section 1. On some occasions more than 9.0 meters were obtained, so that a small remainder, 10-20 cm long would be left after six sections were cut from a core. This remainder is called section zero, denoting its position above section one. The core catcher section (CC), which is normally 10-15 cm in length, is the material left in the core catcher after the core barrel and core catcher are separated.

In the event that there were gaps in the core which resulted in empty sections, these sections were still given numbers in sequence.

Diagrammatically this can be explained as follows:

Core Cutting and labeling for legs 1-46

CC = Core Catcher, nominally 0.2 meter
%% = Recovered material

Example 1 : 9.2 meters cored, 9.2 meters recovered,
6 sections and Core Catcher

```
Section 1 |Section 2 |Section 3 |Section 4 |Section 5 |Section 6 |CC
--------- | ---------|----------|----------|----------|----------|--
%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%
%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%
%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%
----------|----------|----------|----------|----------|----------|--
0        1.5        3.0        4.5        6.0        7.5        9.0
                    Meters from top of core
```

Example 2 : 9.2 meters cored, 9.4 meters recovered
6 sections, Zero Section, and Core Catcher

ZZ = Zero Section

```
ZZ|Section 1 |Section 2 |Section 3 |Section 4 |Section 5 |Section 6 |CC
--|----------|----------|----------|----------|----------|----------|--
%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%
%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%
%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%
--|----------|----------|----------|----------|----------|----------|--
 0.2        1.7        3.2        4.7        6.2        7.7        9.2
                      Meters from top of core
```

```
Example 3 : 9.2 meters cored, 5.2 meters recovered
            4 sections and Core Catcher

                         Section 1 |Section 2 |Section 3 |Section 4 |CC
-----------------------|----------|----------|----------|----------|--
empty liner discarded  |       %%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%
                       |       %%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%
                       |       %%%|%%%%%%%%%%|%%%%%%%%%%|%%%%%%%%%%|%%
-----------------------|----------|----------|----------|----------|--
                       0         1.5        3.0        4.5        6.0
                          Meters from top of core
```

Beginning with leg 47, cores were measured and numbered from the top down. The top of the core was designated as the point where sediment began. Empty core liner was cut off and discarded. The first section became section one and subsequent sections were numbered consecutively to the bottom of the core. Therefore, in theory, the occurrence of a zero section was eliminated. In practice, however, on rare occasions, a piece of sediment would be found in the core barrel above the beginning of core. In order to curate the material and place it in its proper relationship to the rest of the core, it was designated as section zero.

B. METHOD OF SAMPLE LABELING

Samples were numbered before being processed. The numbering system includes a designation for Leg, Site, Hole, Core, Section, Interval within the section. Therefore, sample 56, 434A,10,5,23-24 refers to Leg 56, Site 434, Hole A (second hole drilled at the site), Core 10, Section 5, 23-24 centimeters.

C. DESIGNATIONS FOR SPECIAL CORE TYPES (CORE_CAR)

Core Type	Code	Description
Center bit	C	The center bit is a device placed in the bottom hole assembly to keep material out of the drill string when no core is desired. This insert has a small orifice and a chamber behind the orifice which collects some cuttings and washings from drilled intervals. Samples from the center bit are labeled C and are assigned consecutive numbers. Their depths correspond to the drilled interval.

Drill Bit	B	Upon completion of a hole and retrieval of the drill string, materials caught within the teeth of the drill bit or splines of the bottom hole assembly were collected and marked B for drill bit sample.
Sidewall Sample	S	The sidewall sampling device is attached to the bottom of the core barrel. Its main purpose is to take small samples of sediment from the side of a hole as the drill string is being raised. Several samples could be obtained from one hole by repeated lowerings of the sample device and progressively raising the drill string to the depth of each sample required. The location of the required sample was judged quite accurately by the length of the drill string. Samples from the sidewall sampler are labeled S and are numbered consecutively within a hole except on Legs 16 and 42 where they are numbered according to their relationship with the drilled cores.
Site Survey Cores	MP & SP	Any core labeled with 2 letters is a site survey core. These were piston cores taken by a vessel other than Challenger, and then delivered to Challenger unopened so that they could be cut, described, and sampled at the same time as the drilled cores for that site. The piston cores represent the top-most layers of sediment which, at the time, could not be successfully sampled by Glomar Challenger drilling equipment.
Wash Cores	H	When "washing" down a hole, drilling rates are higher if a core barrel is used rather than blocking the drill bit with a center bit device, even though a core is not desired. Consequently, the driller would "wash" down a hole as many meters as desired without retrieving a core. The material collected in the core barrel represents a melange of the

		sediments occurring in the washed interval.
In-Situ Water Sample	W	An attempt to extract interstitial water from the mud below the bit using a special tool instead of the standard core barrel. No core was taken; any mud retrieved was scraped from the tool's probe.
Misc. Material and/or Drilling Rubble	X	This represents material that could not be labeled with a standard core number.
Gravity Piston Core	P	Only one gravity piston core was taken from Glomar Challenger.

D. FORMULA USED FOR ABSOLUTE DEPTH CALCULATIONS OF SAMPLES

ZSL = Zero Section Length
SECT = Section Number
INT = Interval in centimeters within the section
LSL = Length of last section (cm)
TCD = Depth to top of core (M)
LS = Number of last section

If sample occurs in:	Formula used is:
Zero section	TCD + (INT/100)
Sections 1,2,3, etc.	TCD + ZSL/100 +(SECT#-1)*1.5 + INT/100
Core Catcher (pre-leg47)	TCD + ZSL/100 + LS*1.5 + INT/100
Core Catcher (post-leg47)	TCD + ZSL/100 + (LS-1)*1.5 + LSL + INT/100

NOTE: Occasionally no explicit centimeter interval is assigned to a sample taken from within a core catcher. In these cases, a length of 10cm is assigned.

revised by ODP
October 1987

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=   DEEP SEA DRILLING PROJECT    =
=  CARBON/CARBONATE DATA BASE    =
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I. INTRODUCTION

A. BACKGROUND AND METHODS

The Deep Sea Drilling Project (DSDP) Carbon/Carbonate data base contains the results of chemical analyses designed to determine the weight percentage of total carbon, organic carbon, and calcium carbonate in deep sea sediments. Although other carbonates may be present, all acid-soluble carbon is calculated as calcium carbonate. Included in the data set are carbonate bomb data collected independently by Drs. T.C. Moore, B. Simoneit, R. Kidd, D.S. Cronan, A.P. Lisitzen and Tj. van Andel. Below is a list of methods and the legs on which they were used.

Method	Legs
LECO 70-Second Analysis	1-9,15-23,28-31,33-34
LECO WR-12 Analysis	35-79
LECO Acid-Base Analysis	7,9-16,24-28,32
LECO (type unknown)	75
Wet Combustion	6
Gravimetric	16
Gasometric Technique	75
CHN Analysis	75,93
Carbonate Bomb Analysis	3,8,9,12,16,18-21,24,29-32, 41,42,47,49,50,63,64,68, 70-82,84-87,89,90,93-96

A short description of each method appears below, for a more extensive explanation consult the reference section of this document.

LECO METHODS:

The total carbon content of a sediment sample is determined by measuring the thermal conductivty of the gaseous products of pyrolysis of the sample. The analysis may also be conducted on an acidified sample to determine the organic carbon content. The weight percentages of total carbon (TC), organic carbon (OC), and calcium carbonate ($CaCO_3$) are related by the equation: (TC - OC) * 8.33 = CaCO3. The actual file value for CaCO3 may vary from this formula by as much as 1.67 percent (0.2 * 8.33) due to an early procedural error which truncated rather than rounded the values reported for total carbon and organic carbon.

LECO 70-Second Analyzer:
Measures the thermal conductivity of a set volume of all the gaseous products liberated from the sample.

LECO WR-12 Analyzer:
Separates the liberated CO_2 from the other combustion products then measures it using a gas chromatograph equipped with a thermal conductivity detector.

LECO Acid-Base Semi Automatic Carbon Determinator:
The liberated gas of carbon dioxide and oxygen is volumetrically measured (corrected for STP) and then passed through a potassium hydroxide solution which preferentially absorbs carbon dioxide. The volume of gas is measured a second time. The volume of the carbon dioxide gas is the difference of the two volumetric measurements.

Note: "LECO" is an abbreviation for Laboratory Equipment Corporation of St. Joseph, Michigan.

CARBONATE BOMB METHOD:

The calcium carbonate content of a sample is determined by measuring the increase in gas pressure caused by acidifying a dried sediment sample in a closed vessel. The percent carbonate is then read from a pressure-concentration curve constructed from standard runs.

GASOMETRIC METHOD:

This method of measuring the percent calcium carbonate was used only on leg 75 sediments. It employed a volumetric technique outline by Hulsemann (1966).

GRAVIMETRIC METHOD:

This method of measuring the percent calcium carbonate was used only on on leg 16 sediments. It employed a technique outlined by Cronan and Bode (1973).

CHN METHOD:

A Carbon-Hydrogen-Nitrogen (CHN) analyzer was used only on legs 75 and 93 to measure the percent organic carbon in a sample.

WET COMBUSTION METHOD:

The technique as mentioned in Lisitzin (1971) uses a Knopp-Frezenius device to measure calcium carbonate and organic carbon by the wet combustion method. This method was used only on leg 6 sediments.

B. LEGS IN DATA SET

The data base contains data for legs 1-96 with the exception of legs 46, 83, 88, 91 and 92.

C. REFERENCES

Appendix III: Shore-based Laboratory Procedures. In: Bader, R.G. et al., 1970. Initial Reports of the Deep Sea Drilling Project, Volume IV. Washington (U.S. Government Printing Office) pp. 745-753.

Boyce, R.E. and Bode, G.W., 1972, Carbon and Carbonate Analyses, Leg 9, Deep Sea Drilling Project. In: Hays, J.D. et al., 1972, Initial Reports of the Deep Sea Drilling Project, Volume IX. Washington (U.S. Government Printing Office) pp. 797-816.

Cronan, D.S. and Bode, G.W., 1973. Carbon and Carbonate Analyses, Leg 16. In: van Andel, T.H., Heath, G.R., et al., 1973, Initial Reports of the Deep Sea Drilling Project, Volume XVI. Washington (U.S. Government Printing Office) pp. 521-528.

Hulsemann, J., 1966. On the Routine Analysis of Carbonates in Unconsolidated Sediments. J. Sediment. Petrol., Volume 36, pp. 622-625.

Lisitzin, A.P., et al., 1971. Geochemical, Mineralogical, and Paleontological Studies. In: Fischer, A.G., et al., 1971, Initial Reports of the Deep Sea Drilling Project, Volume VI. Washington (U.S. Government Printing Office) pp. 840-841.

Muller, G. and Gastner, M.,1971. The "Karbonat-Bombe", a

Simple Device for the Determination of Carbonate Content in Sediment, Soils, and Other Materials. Neues Jahrbuch Minearalogie. Volume 10, pp. 466-469.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL DEPTH (centimeters)	F5.1
BOTTOM INTERVAL DEPTH (centimeters)	F5.1
TOP OF CORE DEPTH (meters)	F8.2
SAMPLE DEPTH (meters)	F8.2
PERCENT TOTAL CARBON	F6.1
PERCENT ORGANIC CARBON	F6.1
PERCENT CALCIUM CARBONATE (CaCO3)	F6.1
METHOD CODE	A15
DATA SOURCE CODE	A10

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (Core_char), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

The depth, in centimeters, within a section at which the top or bottom of a measurement was taken.

CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the point of measurement.

PERCENT TOTAL CARBON:

The weight percent of total carbon measured by one of the LECO analyzers.

PERCENT ORGANIC CARBON:

The weight percent of organic carbon measured by a LECO analyzer, CHN analyzer or by the wet combustion method.

PERCENT CALCIUM CARBONATE:

The weight percent of calcium carbonate (CaCO3) may be measured directly by the carbonate bomb, gasometric, gravimetric or wet combustion methods. It may also be calculated from values determined for total and organic carbon.

METHOD CODE:

CODE	METHOD (parameter measured)
LECO	LECO (TYPE UNKNOWN) (total and/or organic)
LECO70	LECO 70-SECOND ANALYZER (total and/or organic)
LECO12	LECO WR-12 ANALYZER (total and/or organic)
LECOAB	LECO ACID-BASE ANALYZER (total and/or organic)
BOMB	CARBONATE BOMB (CaCO3 only)
CHN	CARBON-HYDROGEN-NITROGEN ANALYZER (organic)
GAS	GASOMETRIC ANALYSIS (CaCO3 only)
CHN/BOMB	CHN ANALYZER (organic carbon)/BOMB (CaCO3)
LECO/GAS	LECO (organic carbon)/GASOMETRIC (CaCO3)
GRAVIMETRIC	GRAVIMETRIC ANALYSIS (CaCO3 only)
WETCOMBUSTION	WET COMBUSTION (organic carbon and/or CaCO3)
LECOAB/LECO70	LECOAB (total carbon)/LECO70 (organic carbon)
LECO70/LECOAB	LECO70 (total carbon)/LECOAB (organic carbon)

DATA SOURCE CODE:

CODE	SOURCE	LEGS
DSDP/SHORE	DSDP Shore laboratory	1-45,47-71,73,74,76-79
DSDP/CHAL	DSDP Shipboard	50,63,68,70-82,84-87, 89,90,93-96
LISITZIN	Dr. A.P. Lisitzin	6

CRONAN	Dr. David S. Cronan	16
KIDD	Dr. Robert Kidd	42
SIMONEIT	Dr. Bernd R. Simoneit	64
GARDNER	Dr. James V. Gardner	75
VANANDEL	Dr. Tjeerd H. Van Andel	19,20,21,30,31,32
MOORE	Dr. Theodore C. Moore	3,8,9,12,16,18,21,24, 29,30,31,32,41,47,49

revised by ODP
February 1988

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= DEEP SEA DRILLING PROJECT =
= INTERSTITIAL WATER CHEM =
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I. INTRODUCTION

A. BACKGROUND AND METHODS

Interstitial water was extracted aboard the R/V Glomar Challenger from sediment samples that were evenly spaced down the hole. The expressed fluids were normally divided into several aliquots, one of which was used immediately for shipboard determination of any or all of the following: pH, alkalinity, salinity, chlorinity, calcium, magnesium and rarely, ammonia, phosphate and silica. Remaining aliquots were packaged and shipped to participating investigators ashore. Please refer to the individual contributions from these investigators printed in the Initial Reports (see field= REFERENCE) and to the article listed in the bibliography below for detailed information about techniques of pore fluid extraction and analysis.

The information recorded in this database represents the overwhelming majority of pore water chemistry data published in the Initial Reports. However, certain types of results (e.g. isotope data) were not encoded, therefore reference to the Initial Reports is essential when utilizing these data. When no data or limited data from a site was published in the Initial Report then data was entered into the database directly from the lab notebook compiled aboard the vessel. Microfilm of most of these notebooks is available from the National Geophysical Data Center in Boulder, Colorado.

B. LEGS IN THE DATA SET

This database contains data from every Leg except:
46, 66, 83, 88, 90, and 94.

C. REFERENCES

Gieskes, J. M., 1973. Interstitial water studies Leg 15. Alkalinity, pH, Mg, Ca, Si, PO4, and NH4. In Initial Reports of the Deep Sea Drilling Project, Vol 20, pp 813-829.

II. FORMAT AND FIELD DESCRIPTIONS

The data is divided into 2 datasets. One contains quantitative results and the other contains comments. The comments can be linked to the data records by matching the identification fields LEG through RECORD NUMBER.

A. DATA FORMAT

IW DATA

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL (cm)	F5.1
BOTTOM INTERVAL (cm)	F5.1
DEPTH TO CORE (meters)	F8.2
DEPTH TO SAMPLE (meters)	F8.2
RECORD NUMBER	I1
pH ELECTRODE TYPE	A1
pH	F5.2
ALKALINITY MEASUREMENT TYPE	A1
ALKALINITY (meq/l)	F5.2
SALINITY (0/00)	F5.1
CHEM DATA #1	F7.2
CHEM DATA #2	F7.2
CHEM DATA #3	F6.2
CHEM DATA #4	F6.2
CHEM DATA #5	F6.2
CHEM DATA #6	F7.2
REFERENCES	A5

IW COMMENTS

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1

CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL (cm)	F5.1
BOTTOM INTERVAL (cm)	F5.1
DEPTH TO CORE (meters)	F8.2
DEPTH TO SAMPLE (meters)	F8.2
RECORD NUMBER	I1
COMMENTS	A54
REFERENCES	A5

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labelling and calculating absolute sample depths are discussed.

TOP INTERVAL and BOTTOM INTERVAL:

The depth, in centimeters, within a section to the top or bottom of the sediment sample.

DEPTH TO CORE:

The subbottom depth in meters to the top of the core.

DEPTH TO SAMPLE:

The subbottom depth in meters to the center of the sampled interval.

RECORD NUMBER:

In the IW DATA dataset the CHEM DATA identifiers are RECORD NUMBER specific, as show under CHEM DATA below. In the IW COMMENTS dataset the RECORD NUMBER is used in conjunction with the other identifying fields (LEG through DEPTH TO SAMPLE) to link the comments to the correct IW DATA record.

Records exist with duplicate identifiers (LEG through RECORD NUMBER), however these records are unique in that they have different REFERENCES, indicating different sources. If the RECORD NUMBER is greater than 4 then it will contain only additional pH and/or alkalinity values.

pH ELECTRODE TYPE:

"R" = combination "P" = punch-in "F" = flow-thru
See Gieskes, 1973 for further explanation.

pH:

Measured value of pH in units of pH.

ALKALINITY MEASUREMENT TYPE:

"C" = colorimetric "P" = potentiometric
See Gieskes, 1973 for further explanation.

ALKALINITY:

Calculated value of alkalinity.

SALINITY:

Salinity as measured with a hand-held Goldberg refractometer.

CHEM DATA #1 through #6:

Shown below are the ion name and the unit for each of the 24 RECORD NUMBER-specific data fields. For example, if the RECORD NUMBER was 3 the value in CHEM DATA #5 would be for aluminum in the units um/l.

CHEM DATA #	RECORD NUMBER 1	2	3	4
1	Ca (mm/l)	Sr (mm/l)	P2O5 (um/l)	Br (mm/l)
2	Mg (mm/l)	K (mm/l)	Cu (um/l)	B (mm/l)
3	Cl (o/oo)	Mn (um/l)	Fe (um/l)	Rb (um/l)
4	NH4 (mm/l)	SO4 (mm/l)	Li (um/l)/10	Ni (um/l)

5	PO4 (um/l)	Ba (um/l)	Al (um/l)	unused
6	Si (um/l)	Zn (um/l)	Na (mm/l)	NO3 (um/l)

REFERENCES:

This five character string holds the reference to the source of the data in the record. "LABNB" denotes values taken directly from the chemistry technician's shipboard notebook.

Otherwise:

CHARACTER	FIELD	FORMAT
1-2	Initial Report volume (1.. 96)	I2
3	modifier for 2-part volume eg: '1', '2', 'A' or 'B'	A1
4-5	chapter number	I2

revised by ODP
October 1987

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==================================================
=          DEEP SEA DRILLING PROJECT             =
=          THIN SECTION DESCRIPTIONS             =
=   IGNEOUS AND METAMORPHIC ROCKS DATA FILE      =
==================================================
```

I. INTRODUCTION

A. BACKGROUND

This file contains encoded descriptions of 4391 thin sections made from igneous and metamorphic rocks and a few sedimentary rocks composed of volcanic material. The vast majority of the descriptions were encoded from shipboard Thin Section Description forms. Thin section descriptions also were encoded from the "Initial Reports of the Deep Sea Drilling Project". A variety of forms to record DSDP thin sections were used in the early legs. This data file was designed in the format of the data form in use from Leg 51 to the project end.

B. METHODS

The descriptions were encoded with a minimum of editing unless there were instructions to edit from the shipboard petrographer or the DSDP staff representative. No summaries of thin section descriptions, only descriptions of individual thin sections, were encoded.

An attempt was made to be consistent in terminology and in organization of the data. See Table 3 for special abbreviations used in this file.

A code for the describer's name, when available, was included with each description. See Table 1 for the index to describers' codes.

Each description contains a code for rock type, whether it is of igneous, sedimentary, or metamorphic origin. Rock type can be further specified by the codes for tuff, volcanic breccia, and hyaloclastite. See Table 2 for the rock type codes.

C. LEGS IN DATA SET

The data set contains data from legs 4, 6-7, 11-14, 16-19, 22-23, 25-26, 28-39, 42-43, 45-46, 49, 51-55, 57-70, 73-74, 77, 79, 81-84, 86, 88-89, and 91-92.

D. BIBLIOGRAPHY

Natland, James, 1978. Cruise Objectives and Major Results, Analytical Procedures, and Explanatory Notes. In Melson, W. G., Rabinowitz, P. D., et al., Initial Reports of the Deep Sea Drilling Project, Volume 45. Washington (U.S. Government Printing Office), pp. 19-20.

For information about the igneous and metamorphic rocks classification used during a DSDP leg, consult the Explanatory Notes chapter of the Initial Reports.

II. FORMAT, FIELD DESCRIPTIONS, AND CODES

A. RECORD FORMATS

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL (centimeters)	F5.1
BOTTOM INTERVAL (centimeters)	F5.1
TOP OF CORE DEPTH (meters)	F8.2
SAMPLE DEPTH (meters)	F8.2
DESCRIBER	A4
ROCK TYPE	A1
PIECE NUMBER	A9
NUMBER OF RECORDS	I2
GENERAL INFORMATION CODE	A1
DATA FIELD	A53
RECORD NUMBER	I2

Many records may be used to completely describe one thin section. Each record in a thin section description set contains:

1) identifying fields (LEG through NUMBER OF RECORDS)
2) the GENERAL INFORMATION CODE
   - S = Thin section general information
   - P = Phenocrysts
   - G = Groundmass
   - A = Alteration
   - V = Vesicles
3) the DATA FIELD

The DATA FIELD is organized according to it's associated GENERAL INFORMATION CODE. Listed below is each GENERAL INFORMATION CODE and the format of it's DATA FIELD.

For GENERAL INFORMATION CODE S

a. Sub-codes begin the field
   - RT = Rock type
   - PCE = Piece number
   - TEX = Texture
   - WS = Where sampled

   or

b. % for comment

For GENERAL INFORMATION CODE P

CHARACTER		
1-8	a.	Mineral
9-13	b.	Percent
14-23	c.	Size range (mm)
24-53	d.	Morphology
		or
1	e.	% for comment

For GENERAL INFORMATION CODE G

1-8	a.	Mineral
9-13	b.	Percent
14-23	c.	Size range (mm)
24-53	d.	Morphology
		or
1	e.	% for comment

For GENERAL INFORMATION CODE A

1-8	a.	Alteration mineral
9-13	b.	Percent
14-26	c.	Location
27-53	d.	Replacing

		or
1	e.	% for comment

For GENERAL INFORMATION CODE V

1-8	a.	Size range (mm)
9-13	b.	Percent
14-26	c.	Location
27-41	d.	Filling
42-53	e.	Shape
		or
1	f.	% for comment

B. FIELD DESCRIPTIONS AND CODES

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

Refers to the depth in centimeters within the section at which the rock was sampled.

TOP OF CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the level at which the core was sampled.

DESCRIBER:

TABLE 1 - DESCRIBERS' CODES

LEG	CODE	DESCRIBER
4	WB	Benson, W. E.
6	ML	Melson, W.
7	HEAT	Heath, R.
11	LANC	Lancelot, Y.
	HATH	Hathaway, J. C.

	PAUL	Paulus, F. J.
12	AU	Aumento, F.
	RYAL	Ryall, P.
13	HSU	Hsu, K.
14	WB	Benson, W. E.
16	YEAT	Yeats, R. S.
17	BASS	Bass, M.
	MOB	Moberly, R.
18	MACL	MacLeod, N. S.
19	NAT	Natland, J.
22	HEK	Hekinian, R.
23	COLM	Coleman, R.
	KD	Kidd, R.
25	ERLK	Erlank, A. J.
	VAL	
26	MY	McKelvey, B. C.
	KEMP	Kempe, D.
28	FORD	Ford, A.
	BRT	Barrett, P. J.
29	RI	Ridley, W.
	OVEN	Ovenshine, A. T.
	ANDW	P. B. Andrews
30	STOS	Stoeser, D.
31	HAIL	Haile, N.
	MOOR	Moore, C.
	MG	MacGregor, I.
	MEIJ	Meijer, A.
32	MAR	Marshall, M.
33	JACK	Jackson, E. D.
34	BASS	Bass, M.
	BUNC	Bunch, T.
	DON	Donaldson, C. H .
	SCOT	Scott, R.
	VAL	Vallier, T.
	KEMP	Kempe, D.
	BCE	Bence, A. E.
35	VENM	Vennum, W.
36	TARN	Tarney, J.
37	WG	Wright, T.
	FRJ	Fischer, J.
	ML	Melson, W.
	FLOW	Flower, M.
	RB	Robinson, P.
	CLK	Clarke, D. B.
	HILL	Hill, R. E.
38	KH	Kharin, G.
39	BT	Bonatti, E.
	KH	Kharin, G.
	FD	Fodor, R.
42	EMRN	Emmermann, R.
43	HOUG	Houghton, R.
45	GH	Graham, A.
	FJ	Fujioka, K.

	PRS	Prosser, E.
	ZOL	Zolotarev, B.
	NAT	Natland, J.
46	DUG	Dungan, M.
	SO	Sato, H.
	KK	Kirkpatrick, J.
	HDG	Hodges, F.
	HON	Honnorez, J.
	DI	Dick, H.
	SHM	Schmincke, H.
49		available on DSDP microfilmed source data.
51	JUT	Juteau, T.
	STN	Sinton, J.
	UI	Ui, Tadahide
	RUS	Rusinov, V.
52	SWN	Swanson, D.
	RIC	Ricou, L.
	BRY	Bryan, W.
	EMRN	Emmermann, R.
	RB	Robinson, P.
	PV	Pertsev, N.
	BY	Byerly, G.
53	MTZ	Mathez, E.
	MEV	Mevel,C.
	FLOW	Flower, M.
	STAU	Staudigel, H.
	PV	Pertsev, N.
	RB	Robinson, P.
54	FD	Fodor, R.
	DMI	Dmitriev, Y.
	SRI	Srivastava, R. K.
	MTY	Mattey, D.
	HUM	Humphris, S.
55	KK	Kirkpatrick, J.
	AVD	Avdeiko, G.
	DAL	Dalrymple, G.
	CLAG	Clague, D.
57	FUJ	Fujioka, K.
58	DT	Dmitriev, L.
	NIST	Nisterenko, G.
	MRSH	Marsh, N.
	DI	Dick, H.
59	SCOT	Scott, R.
	ZAK	Zakariakze, G.
	ISH	Ishi, T.
	MTY	Mattey, D.
60	SRN	Sharaskin, A.
	MJR	Meijer, A.
	MEIJ	Meijer, A.
	NAT	Natland, J.
	FYR	Fryer, P.
61	BAT	Batiza, R.
	SHKA	Shcheka, S. A.

	MOB	Moberly, R.
	TOK	Tokuyama, H.
	RCH	Riech, V.
	SEIF	Seifert, K.
	VAL	Vallier, T.
	WIN	Windom, K.
62	VAL	Vallier, T.
	WIN	Windom, K.
	SEIF	Seifert, K.
63	SHIB	Shibata, T.
	GRCH	Grechin, V.
	NIEM	Niem, A.
	PITO	Pisciotto, K.
64	SAUN	Saunders, A.
	KELT	Kelts, K.
	FOR	Fornari, D.
65	RB	Robinson, P.
	SHM	Schmincke, H.
66	NL	Lundberg, N.
	JS	Stephan, J-F
67	DSC	Cowan, D. S.
68	PV	Pertsev, N.
	CA	Cann, J.
69	PV	Pertsev, N.
	ADA	Adamson, A. C.
	NO	Noack, Y.
70	SDR	Schrader, E. L.
	LAV	Laverne, C.
73	CAR	Carman, M.
74	RICH	Richardson, S. H.
	OCON	O'Connell, S.
77	PIRO	Pisciotto, K.
	PITO	Pisciotto, K.
79	MOOR	Moore, C.
81	MORT	Morton, A. C.
	DES	Desprairies, A.
82	TIE	Christie, D. M.
	JCB	Brannon, J.
	RID	Ridley, W.
	NEU	Neuser, R.
	WEAV	Weaver, B.
	MILL	Mills, W.
83	KEM	Kempton, P.
	ADA	Adamson, A. C.
	LAV	Laverne, C.
	EMRN	Emmermann, R.
	ALT	Alt, J. C.
84	HELM	Helm, R.
	OGA	Ogawa, Y.
	BOU	Bourgois, J.
	BLMR	Bloomer, S.
	BELL	Bellon, H.
	BAL	Baltuck, M.

86	FOUN	Fountain, J. C.
88	NAT	Natland, J.
89	FLOY	Floyd, P.
91	ROS	Rosencrantz, E.
92	PEA	Pearce, J. A.
	GOL	Goldberg, D.

ROCK TYPE CODE:

TABLE 2 - ROCK TYPE CODES

I = Igneous
S = Sedimentary
M = Metamorphic
T = Tuff (sedimentary)
V = Volcanic breccia (igneous)
H = Hyaloclastite (igneous)

PIECE NUMBER:

The sample number assigned to the rock is included when available.

NUMBER OF RECORDS:

The total number of records which together comprise a complete thin section description.

RECORD NUMBER:

Each record in a thin section description set is numbered sequentially.

PETROGRAPHIC DATA:

TABLE 3 - ABBREVIATIONS USED IN DATA RECORDS

The following abbreviations are used in the igneous rocks data bases. Other abbreviations were borrowed from the soft rocks data bases. For a key to these abbreviations consult the documentation for the soft rocks lithological data bases.

ACTINOLITE	ACTINOL
ALKALI FELDSPAR	ALK.SPAR
ALL MINERALS	ALL.MINS
ALTERED GLASS	ALT.GLASS
ALTERED MINERALS	ALT.MINS

AMPHIBOLE	AMPH
ANHYDRITE	ANHYD
ANTHOPHYLLITE	ANTHOPHL
ANTIGORITE	ANTIGORI
ARAGONITE	ARAGONIT
BOWLINGITE	BWLGITE
CARBONATE	CARB
CELADONITE	CELAD
CHABAZITE	CHABAZIT
CHALCOPYRITE	CHALPYR
CHLOROPHAEITE	CHLOROPH
CHROME SPINEL	CR.SPIN
CHRYSOTILE	CHRYSOTI
CLAY MINERALS	CLAY.MINS(S)
CLINOPYROXENE	CPX
CLINOZOISITE	CLZOIS
CORDIERITE	CORD
CRYPTOCRYSTALLINE	CRYPTXLN
CRYSTALS	XTLS
DEVITRIFIED GLASS	DEVT.GLS
DIKTYTAXITIC	DIKTYTAXIT
FE-TI OXIDE	FE.TI.OX
FELDSPAR	FELD
FERRIC MINERALS (PHENOS)	FE.MINS
FERROMAGNESIUM	FE.MG
FERROUS HYDROXIDE MINERALS	FE.HYDRX
FERROUS MANGANESE OXIDE	FE.MN.OX
FERROUS OXIDE	FE.OXIDE
FIBROUS CHLORITE	FIBROUS.CHLOR
GROUNDMASS	GNDMASS
HORNBLENDE	HBL
HYDROBIOTITE	HYD.BIOT
HYDROMICA	HYD.MICA
HYDROXIDE	HYDROXID
HYPERSTHENE	HY
IDDINGSITE	IDDINGS
IRON ORE	FE.ORE
KAERSUTITE	KAERSUT
KAOLINITE	KAOLIN
LABRADORITE	LABRADOR
LAUMONTITE	LAUMON
LAWSONITE	LAWSONIT
LEUCOXENE	LEUCOX
MAGNETITE	MAGN
MANGANESE HYDROXIDE	MN.HYDRX
MANGANESE OXIDE	MN.OXIDE
MARCASITE	MARCASIT
MESOSTASIS	MESOSTAS
MICROCRYSTALLINE GROUNDMASS	MICROXLN
MICROLITE	MICROLIT
MONTMORILLONITE	MONT
MORDENITE	MORDENIT
MUSCOVITE	MUSC

NATROLITE	NATROL
NEPHELINE	NEPHELIN
NONTRONITE	NONTRON
OLIVINE	OL
ORE MINERALS	ORE.MINS
ORTHOAMPHIBOLE	ORTHAMPH
ORTHOCLASE	OR
ORTHOPYROXENE	OPX
OXYHORNBLENDE	OXY.HBL
PALAGONITE	PALAG
PHENOCRYSTS	PHENOS
PHILLIPSITE	PHIL
PIGEONITE	PIGEONIT
PLAGIOCLASE	PLAG
PSILOMELANE	PSILOMEL
PUMPELLYITE	PUMPELLY
PYROXENE	PYX
PYRRHOTITE	PYRRHOT
SAUSSURITE	SAUSSUR
SCAPOLITE	SCAPOLIT
SCOLECITE	SCOLECIT
SERPENTINITE	SERP
SIDEROMELANE	SIDEROM
SMECTITE	SMEC
SPHERULITES	SPHERUL
SPHERULITIC MESOSTASIS	SPHR.MES
STILPNOMELANE	STILPNOM
TITANAUGITE	TI.AUGIT
TITANOMAGNETITE	TI.MAG
TITANOMAGNETITE	TITAN.MT
TREMOLITE	TREMOL
UNIDENTIFIED	UNIDENT
UNIDENTIFIED	UNIDENT.MINS

revised by ODP
November 1987

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==================================================
=            DEEP SEA DRILLING PROJECT           =
=           VISUAL CORE DESCRIPTIONS             =
=   IGNEOUS AND METAMORPHIC ROCKS DATA FILE      =
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I. INTRODUCTION

A. BACKGROUND

This file contains encoded megascopic descriptions of drill core sections of igneous and metamorphic rocks and a few core sections containing sedimentary rocks composed of volcanic material. The vast majority of the descriptions were encoded from shipboard Visual Core Descriptions - Igneous Rocks forms. Some descriptions were encoded from the "Initial Reports of the Deep Sea Drilling Project".

B. METHODS

The descriptions were encoded with a minimum of editing unless there were instructions to edit from the shipboard petrographer or the DSDP staff representative. No summaries of visual core descriptions, only descriptions of individual core sections, were encoded.

A 12x binocular microscope was used in the shipboard hand sample studies.

An attempt was made to be consistent in terminology and in organization of the data. See Table 2 for special abbreviations used in this file.

A code for the describer's name, when available, was included with each description. See Table 1 for the index to describers' codes.

Each core section description can be organized into ten categories of information. The categories are represented by the codes for DATA CODE. Each visual core description must have at least one record with DATA CODE = L containing the rock name.

C. LEGS IN DATA SET

The data set contains data from legs 2-9, 11-39, 41-43, 45-46, 49, 51-55, 57-86, 88-89, 91-92, and 94.

D. BIBLIOGRAPHY

Natland, James, 1978. Cruise Objectives and Major Results, Analytical Procedures, and Explanatory Notes. In Melson, W. G., Rabinowitz, P. D., et al., Initial Reports of the Deep Sea Drilling Project, Volume 45. Washington (U.S. Government Printing Office), pp. 19-20.

For information about the igneous and metamorphic rocks classification used during a DSDP leg, consult the Explanatory Notes chapter of the Initial Reports.

II. FORMAT, FIELD DESCRIPTIONS, AND CODES

A. RECORD FORMATS

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL (centimeters)	F5.1
BOTTOM INTERVAL (centimeters)	F5.1
TOP OF CORE (meters)	F8.2
TOP OF SECTION (meters)	F8.2
SAMPLE DEPTH (meters)	F8.2
DESCRIBER	A4
NUMBER OF RECORDS	I2
RECORD NUMBER	I2
DATA CODE	A1
DATA FIELD	A53

Many records may be used to completely describe one hard rock unit. Each record in the description set contains:

1) identifying fields (LEG through RECORD NUMBER)
2) the DATA CODE
   - L = Rock name
   - N = Piece number

S = Structure
V = Vesicles
T = Texture
P = Phenocrysts
G = Groundmass
R = Alteration or replacement minerals
A = Degree of alteration
O = Other information

3) the DATA FIELD

The DATA FIELD is organized according to it's associated DATA CODE. Listed below is each DATA CODE and the format of it's DATA FIELD.

For DATA CODE S

CHARACTER	
1-53	ROCK NAME

For DATA CODE N

1-53	PIECE NUMBERS Length of core segment (in cm) is enclosed in parentheses.

For DATA CODE T

1-53	TEXTURAL DATA

For DATA CODE S

1-53	STRUCTURAL DATA

For DATA CODE A

1-53	ALTERATION DATA

For DATA CODE O

1-53	OTHER INFORMATION DATA

For DATA CODE V

1-8	a. Size range (mm)
9-13	b. Percent
14-26	c. Location
27-41	d. Filling
42-53	e. Shape
	or
1-53	% for comment

For DATA CODE P

1-8	a. Mineral
9-13	b. Percent
14-23	c. Size range (mm)
24-53	unused
	or
1-53	% for comment

For DATA CODE G

1-8	a. Mineral
9-13	b. Percent
14-23	c. Size range (mm)
24-53	unused
	or
1-53	% for comment

For DATA CODE R

1-8	a. Mineral
9-13	b. Percent
14-23	c. Size range (mm)
24-53	d. Mineral(s) replaced
	or
1-53	% for comment

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL:

Refers to the depth in centimeters within the section at which the rock was sampled.

TOP OF CORE:

The subbottom depth in meters to the top of the core.

TOP OF SECTION:

The subbottom depth in meters to the top of the section being described.

SAMPLE DEPTH:

The subbottom depth in meters to the level at which the core was sampled.

DESCRIBER:

The following codes are common to the DSDP igneous and metamorphic rocks data bases.

TABLE 1 - DESCRIBERS' CODES

CODE	DESCRIBER
ADA	Adamson, A. C.
AL	Ali, S.
ALT	Alt, J. C.
AN	Anoshin, G.
AOKI	Aoki, K.
ARA	Arakeljanz, M.
ARAI	Arai, S.
ARM	Armstrong, R. L.
ARN	Arnott, R.
AU	Aumento, F.
AVD	Avdeiko, G.
AZE	Azema, J.
BAL	Baltuck, M.
BAN	Bannich, L.
BAR	Baragar, W. R. A.
BARB	Barberi, F.
BART	Barrett, T.
BASS	Bass, M.
BAT	Batiza, R.
BCE	Bence, A. E.
BDR	Bender, J.
BEL	Belyi, A. A.
BELL	Bellon, H.
BIJN	Bijon, J.
BING	Bingham, E.
BLEI	Bleil, U.
BLG	Bollinger, C.
BLMR	Bloomer, S.
BOG	Bougault, H.
BORN	Bornhold, B.
BOTT	Botts, S.
BOU	Bourgois, J.
BREC	Brecher, A.
BRLA	Borella, P. E.
BRT	Barrett, P. J.
BRY	Bryan, W.
BT	Bonatti, E.
BUNC	Bunch, T. F.

BY	Byerly, G.
CA	Cann, J.
CAB	Cambon, P.
CAN	Cande, S.
CAR	Carman, M.
CARM	Carmichael, C.
CHE	Chernogorova, S.
CHK	Churkin, M.
CK	Crocket, J.
CKM	Cockerham, R.S.
CLAG	Clague, D.
CLK	Clarke, D. B.
COLE	Cole, D.
COLM	Coleman, R.
COOK	Cook, H. E.
COR	Corliss, J.
COUL	Coulbourn W.
CR	Cronan, D.
CRRE	Corre, O.
CTLN	Cotillon, P.
CTR	Carter, A. M.
CUR	Curtis, D. M.
DAL	Dalrymple, G.B.
DAV	Davies, T. A.
DAY	Day, R.
DEA	Dean, W.
DEG	DeGraciansky, P. C.
DEN	Denham, C.
DES	Desprairies, A.
DEUT	Deutsch, E.
DGR	Roberts, D. G.
DI	Dick, H.
DIET	Dietrich, V.
DIN	Din, V.
DK	Kinsman, D. J. J.
DKR	Rea, D. K.
DMI	Dmitriev, Y.
DN	Donnelly, T.
DON	Donaldson, C. H.
DOS	Dostal, J.
DRA	Drake, N.
DSC	Cowan, D. S.
DT	Dmitriev, L.
DUEE	Duee, G.
DUFF	Duff, W.
DUG	Dungan, M.
DUNC	Duncan, J. R.
DUNN	Dunn, D.
DUR	Durasova, H.
DYM	Dymond, J.
ECK	Eckhardt, F.-J.
EJ	Jarosewich, E. J.
ELL	Ellwood, B.

ELMR	Elmore, P.
EMRN	Emmermann, R.
ER	Eremeev, V.
ERLK	Erlank, A. J.
ERZ	Erzinger, J.
ET	Elliot, D. H.
ETOU	Etoubleau, J.
EVAN	Evans, J.
FAB	Fabbi, B. P.
FACY	Facey, D.
FAL	Faller, A.
FD	Fodor, R.
FJ	Fujii, T.
FJN	Fujii, N.
FLOW	Flower, M.
FLOY	Floyd, P.
FM	Maurrasse, F.
FOR	Fornari, D.
FORD	Ford, A.
FOUN	Fountain, J. C.
FREY	Frey, F. A.
FRJ	Fischer, J.
FUJ	Fujioka, K.
FUR	Furuta, T.
FUTR	Futterer, D.
FYR	Fryer, P.
GAL	Galehouse, J.
GH	Graham, A.
GO	Gostin, V.
GOL	Goldberg, D.
GRCH	Grechin, V.
GRD	Gardner, J. V.
GRIF	Griffin, B. J.
GROM	Gromme, S.
GUNN	Gunn, B.
HAIL	Haile, N.
HAJ	Hajash, A.
HALL	Hall, J.M.
HAM	Hamilton, N.
HAMY	Hamano, Y.
HARA	Haramura, H.
HATH	Hathaway, J. C.
HDG	Hodges, F.
HEAT	Heath, R.
HEK	Hekinian, R.
HELM	Helm, R.
HERO	Heropoulos, C.
HILL	Hill, R. E.
HJR	Rose, H. J. Jr.
HK	Hickey, R. L.
HLEY	Halley, R.
HO	Horvath, G.
HOLM	Holmes, K. A.

HON	Honnorez, J.
HOUG	Houghton, R.
HOUS	Housden, J.
HP	Hampton, M. A.
HRN	Hoernes, S.
HSU	Hsu, K. J.
HT	Hart, S.
HUB	Hubberten, H.-W.
HUM	Humphris, S.
HUT	Hutchison, D.
ISH	Ishi, Teruaki
JACK	Jackson, E.D.
JAN	Jansa, L. F.
JBK	Keene, J.
JCB	Brannon, J.
JCG	Guerrero, J.
JCRO	Crouch, J.
JOH	Johnson,Paul
JON	Johnson, D.
JOR	Joron, J. L.
JP	Jip, D.
JR	Jarrard, R.
JS	Stephan, J-F
JUT	Juteau, T.
JWN	Niemitz, J.
KAY	Kay, R.
KD	Kidd, R.
KEA	Keating, B.
KEIG	Keigwin, L. D.
KELT	Kelts, K.
KEM	Kempton, P. D.
KEMP	Kempe, D.
KENT	Kent, D.
KH	Kharin, G.
KHAN	Khan, M. J.
KIR	Kirshenbaum, H.
KK	Kirkpatrick, J.
KLEE	Kleeman, J. D.
KLOK	Klock, P. R.
KMP	Kemp, F. M.
KNS	Kinoshita, H.
KONO	Kono, M.
KOS	Kostecki, J. A.
KR	Rodolfo, K.
KRIS	Krissek, L.
KRMK	Krumsiek, K.
KRZR	Kreuzer, H.
KUDO	Kudo, A.
KZP	Kazpe, G.
LAB	LaBorde, R.
LAM	Lambert, R.
LAN	Lanphere, M. A.
LANC	Lancelot, Y.

LARS	Larson, R.
LAV	Laverne, C.
LBR	Loubere, P.
LEB	Lebedkova, A.
LEIN	Leinen, M.
LEVR	Lever, A.
LIE	Lienert, B.
LN	Van der Lingen, G.
LOG	Logothetis, J.
LOW	Lowrie, W.
LV	Levi, Shaul
LW	Lawrence, J.
LYLE	Mitchell, W. L.
MAA	Murdmaa, I
MACL	MacLeod, N. S.
MAN	Manheim, F.
MAR	Marshall, M.
MARG	Margolis, S.
MAUR	Maury, R. C.
MAYS	Mays, R. E.
MCEL	McElhinny, M. W.
MDG	Masson, D. G.
MEIJ	Meijer, A.
MEV	Mevel, C.
MG	MacGregor, I.
MILL	Mills, W. M.
MIN	Minami, H.
MJB	Bradshaw, M. J.
MKN	McKnight, B. K.
ML	Melson, W.
MOB	Moberly, R.
MONT	Montgomery, A. F.
MOOR	Moore, C.
MOR	Morrison, M. Ann
MORG	Morgan, S.
MORS	Morris, J.
MORT	Morton, A. C.
MRSH	Marsh, N.
MT	Matter, A.
MTY	Mattey, D.
MTZ	Mathez, E.
MURP	Murphy, J.
MUY	Muysson, J.
MY	McKelvey, B. C.
NAK	Nakamura, K.
NAT	Natland, J.
NEST	Nesteroff, W. D.
NEU	Neuser, R.
NEW	Newmark, R.
NIEM	Niem, Alan
NIL	Nilsen, T. H.
NISH	Nishitani, T.
NIST	Nisterenko, G.

NL	Lundberg, N.
NM	Niitsuma, N.
NO	Noack, Y.
NOR	Norberg, J.
NOT	Notsu, K.
OCON	O'Connell, S.
ODON	O'Donovan, J. B.
OGA	Ogawa, Y.
OGG	Ogg, J.
OHN	O'Hearn, T.
OKA	Okamoto, K.
ON	O'nions, R.
OTS	Otsuka, K.
OV	Ovenshine, A. T
PA	Andrews, P.
PARY	Parry, S.
PAUL	Paulus, F. J.
PEA	Pearce, J. A.
PECH	Pechersky, D. M.
PEIR	Peirce, J. W.
PET	Petersen, N.
PI	Pimm, A. C.
PITO	Pisciotto, K.
PONO	Ponomarev, A. I.
POP	Popolitov, E.
PP	Piper, D. J. W.
PRH	Hill, P. R.
PRIT	Pritchard, R. G.
PRP	Propach, G.
PRS	Prosser, E.
PUC	Puchelt, H.
PV	Pertsev, N.
QFT	Quisefit, J.
RB	Robinson, P. T.
RBRT	Roberts, W.
RCH	Riech, V.
RHD	Rhodes, M.
RI	Ridley, W.
RIC	Ricou, L.
RICD	Richardson, C.
RICE	Rice, S.
RICH	Richardson, S. H.
RID	Rideout, M.
RIG	Rigotti, P.
ROB	Garrison, R.
ROS	Rosencrantz, E.
RUFF	Ruffman, A.
RUS	Rusinov, V.
RYAL	Ryall, P.
SAL	Salloway, J.
SALS	Salisbury, M.
SAUN	Saunders, A.
SAV	Savinova, E.

SCAR	Scarfe, C. M.
SCH	Schilling, J-G.
SCHD	Scheidegger, K.
SCHK	Schlocker, L.
SCHL	Schlanger, S.
SCHW	Schwartz, E.
SCON	Scoon, J.
SCOT	Scott, R.
SDR	Schrader, E. L.
SEIF	Seifert, K.
SEY	Seyfried, W.
SG	Sigurdsson, H.
SHEV	Shevalevsky, I.
SHIB	Shibata, T.
SHIH	Shih, Chi-Yu
SHIK	Shiki, T.
SHIM	Shimizu, H.
SHKA	Shcheka, S. A.
SHM	Schmincke, H.
SHOR	Shor, A.
SID	Siddiquie, H. N.
SMIT	Smith, G. M.
SO	Sato, H.
SRI	Srivastava, R. K.
SRN	Sharaskin, A.
STAU	Staudigel, H.
STG	Strong, D. F.
STN	Sinton, J.
STO	Stow, D.
STOS	Stoeser, D.
STR	Steiner, M.
SUR	Pal Verma, Surendra
SUT	Sutter, J. F.
SWN	Swanson, D.
SWTZ	Schwartz, L.J.
SYR	Sayre, W.
TAK	Takigami, Y.
TARA	Tarasiewicz, G.
TARN	Tarney, J.
TAY	Taylor, S. R.
TD	Thiede, J.
TE	Edgar, N. T.
TEMP	Templeman, J. H.
TEST	Testarmata, M.
THO	Thomas, E.
THOM	Thompson, R.N.
THP	Thompson, R. W.
TIE	Christie, D. M.
TOK	Tokuyama, H.
TOM	Thompson, G.
TUAL	Tual, C.
TYS	Tyson, R.
UI	Ui, Tadahide

UVR	Von Rad, U.
VAC	Vacquier, V.
VAL	Vallier, T.
VARE	Varet, J.
VDB	Von der Borch, C.
VENM	Vennum, W.
VIER	Viereck, L. G.
VV	Veevers, J. J.
WB	Benson, W. E.
WEAV	Weaver, B.
WEIB	Weibel, M.
WEIN	Weinreich, N.
WEIS	Weissert, H.J.
WESR	Weser, O. E.
WG	Wright, T.
WHIT	Whitney, J.
WHT	White, S. M.
WIL	Wilson, D.
WIN	Windom, K
WIT	Whitmarsh, R. B.
WOLE	Wolejszo, J.
WOOD	Wood, D.
WP	Prell, W.
YEAT	Yeats, R. S.
ZAK	Zakariadze, G.
ZHV	Zhivago, V. N.
ZOL	Zolotarev, B.

NUMBER OF RECORDS:

The total number of records which together comprise a complete visual core description for a given lithology.

RECORD NUMBER:

Each record in a visual core description set is numbered sequentially.

VISUAL CORE DESCRIPTION DATA:

TABLE 3 - ABBREVIATIONS USED IN DATA FIELD

The following abbreviations are used in the igneous rocks data bases. Other abbreviations were borrowed from the soft rocks data bases. For a key to these abbreviations consult the documentation for the soft rocks lithological data bases.

ACTINOLITE	ACTINOL
ALKALI FELDSPAR	ALK.SPAR

ALL MINERALS	ALL.MINS
ALTERED GLASS	ALT.GLASS
ALTERED MINERALS	ALT.MINS
AMPHIBOLE	AMPH
ANHYDRITE	ANHYD
ANTHOPHYLLITE	ANTHOPHL
ANTIGORITE	ANTIGORI
ARAGONITE	ARAGONIT
BOWLINGITE	BWLGITE
CARBONATE	CARB
CELADONITE	CELAD
CHABAZITE	CHABAZIT
CHALCOPYRITE	CHALPYR
CHLOROPHAEITE	CHLOROPH
CHROME SPINEL	CR.SPIN
CHRYSOTILE	CHRYSOTI
CLAY MINERALS	CLAY.MINS(S)
CLINOPYROXENE	CPX
CLINOZOISITE	CLZOIS
CORDIERITE	CORD
CRYPTOCRYSTALLINE	CRYPTXLN
CRYSTALS	XTLS
DEVITRIFIED GLASS	DEVT.GLS
DIKTYTAXITIC	DIKTYTAXIT
FE-TI OXIDE	FE.TI.OX
FELDSPAR	FELD
FERRIC MINERALS (PHENOS)	FE.MINS
FERROMAGNESIUM	FE.MG
FERROUS HYDROXIDE MINERALS	FE.HYDRX
FERROUS MANGANESE OXIDE	FE.MN.OX
FERROUS OXIDE	FE.OXIDE
FIBROUS CHLORITE	FIBROUS.CHLOR
GROUNDMASS	GNDMASS
HORNBLENDE	HBL
HYDROBIOTITE	HYD.BIOT
HYDROMICA	HYD.MICA
HYDROXIDE	HYDROXID
HYPERSTHENE	HY
IDDINGSITE	IDDINGS
IRON ORE	FE.ORE
KAERSUTITE	KAERSUT
KAOLINITE	KAOLIN
LABRADORITE	LABRADOR
LAUMONTITE	LAUMON
LAWSONITE	LAWSONIT
LEUCOXENE	LEUCOX
MAGNETITE	MAGN
MANGANESE HYDROXIDE	MN.HYDRX
MANGANESE OXIDE	MN.OXIDE
MARCASITE	MARCASIT
MESOSTASIS	MESOSTAS
MICROCRYSTALLINE GROUNDMASS	MICROXLN
MICROLITE	MICROLIT

MONTMORILLONITE	MONT
MORDENITE	MORDENIT
MUSCOVITE	MUSC
NATROLITE	NATROL
NEPHELINE	NEPHELIN
NONTRONITE	NONTRON
OLIVINE	OL
ORE MINERALS	ORE.MINS
ORTHOAMPHIBOLE	ORTHAMPH
ORTHOCLASE	OR
ORTHOPYROXENE	OPX
OXYHORNBLENDE	OXY.HBL
PALAGONITE	PALAG
PHENOCRYSTS	PHENOS
PHILLIPSITE	PHIL
PIGEONITE	PIGEONIT
PLAGIOCLASE	PLAG
PSILOMELANE	PSILOMEL
PUMPELLYITE	PUMPELLY
PYROXENE	PYX
PYRRHOTITE	PYRRHOT
SAUSSURITE	SAUSSUR
SCAPOLITE	SCAPOLIT
SCOLECITE	SCOLECIT
SERPENTINITE	SERP
SIDEROMELANE	SIDEROM
SMECTITE	SMEC
SPHERULITES	SPHERUL
SPHERULITIC MESOSTASIS	SPHR.MES
STILPNOMELANE	STILPNOM
TITANAUGITE	TI.AUGIT
TITANOMAGNETITE	TI.MAG
TITANOMAGNETITE	TITAN.MT
TREMOLITE	TREMOL
UNIDENTIFIED	UNIDENT
UNIDENTIFIED	UNIDENT.MINS

revised by ODP
October 1987

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=            DEEP SEA DRILLING PROJECT              =
=         MAJOR-ELEMENT CHEMICAL ANALYSES           =
=     IGNEOUS AND METAMORPHIC ROCKS DATA FILE       =
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I. INTRODUCTION

A. BACKGROUND

The file contains major-element analyses of igneous and metamorphic rocks and of a few sedimentary rocks composed of volcanic material. A separate file contains minor and trace-element analyses. Data were encoded primarily from the "Initial Reports", although authors' manuscripts or the shipboard "Hole Summary Book" also were sources. The file contains both shipboard analyses and analyses from onshore laboratories. Shipboard analyses, using x-ray fluorescence methods, were made during DSDP Legs 37, 45, 46, 51-55, 61, 65, 68, 69, 82 and 83.

B. METHODS

Data for the elements Si, Al, Fe, Mg, Ca, Na, K, Ti, Mn, P, S, the volatiles, and the magnesium number are stored in this file. The element concentrations are given in oxide weight percent, except for sulfur which may be listed either as an element weight percent or as the oxide SO3. Major element concentrations given in the source in ppm were converted to oxide weight percent by the DSDP encoders for this data file.

Each record represents a single chemical analysis of a sample. The analyses are not necessarily complete for each sample.

Each record includes an identifying code for the analyst's or the first author's name. See Table 1 for the index to analysts' codes.

Each record has a code indicating whether the rock is igneous, sedimentary or metamorphic. Up to three analytical methods used in the determinations may be identified, e.g., x-ray fluorescence (XF), atomic absorption (AA).

Lithological information about the rock sample, including the rock name and a visual estimate of the degree of alteration, is taken from the Visual Core Descriptions for Igneous Rocks forms, which are completed by the shipboard scientists soon after core recovery. The sample number assigned to the rock is included when available.

Fifteen characters are reserved for analytical information codes, such as whether the Fe oxide partitioning has been done by analysis or by calculation for a given Fe+++/Fe++ or whether or not the analysis was done onboard ship, or if the total water is directly determined.

Blank fields mean not determined. 0.00 means not detected.

A "-" preceding a concentration means "less than". However, a "-" preceding the LOI (Loss on Ignition) means weight was taken up during the heating of the sample.

C. LEGS IN DATA SET

The data set contains data from Legs 12-19, 22-30, 32-39, 41-43, 45-46, 49, 51-55, 57-70, 72-76, 78-84, 86, 89, 91-92.

D. BIBLIOGRAPHY

References to analytical methods for shipboard analyses

Bougault, H., 1977. Major Elements: Analytical Chemistry Onboard and Preliminary Results, DSDP Leg 37. In Aumento, F., Melson, W. G. et al., Initial Reports of the Deep Sea Drilling Project, Volume 37: Washington (U.S. Government Printing Office), pp. 643-652.

Natland, J. et al., 1978. Chemical data for Sites 395 and 396: Analytical Procedures and Comparison of Interlaboratory Standards. In Melson, W. G., Rabinowitz, P. D., et al., Initial Reports of the Deep Sea Drilling Project, Volume 45: Washington (U.S. Government Printing Office), pp. 681-705.

Shipboard Scientific Party, 1978. Holes 396A and 396B. In Dmitriev, L., Heirtzler, J., et al., Initial Reports of the Deep Sea Drilling Project, Volume 46: Washington (U.S. Government Printing Office), pp. 15-85.

For analytical methods used in a shore-based study, consult the paper in the Initial Reports. The results and analytical information of shipboard analyses similarly are published in the Initial Reports. See Table 1 for the index to analysts' codes.

II. FORMAT, FIELD DESCRIPTIONS, AND CODES

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL	F5.1
BOTTOM INTERVAL	F5.1
TOP OF CORE DEPTH	F8.2
SAMPLE MIDPOINT DEPTH	F8.2
ANALYST CODE	A4
PIECE NUMBER	A4
ANALYTICAL METHODS	A6
ALTERATION	A1
ROCK TYPE	A1
ROCK NAME	A45
ELEMENTS (TR=Trace)	A6

SiO2
Al2O3
Fe2O3 (total)
FeO (total)
Fe2O3
FeO
MgO
CaO
Na2O
K2O
TiO2
MnO
P2O5
LOI
H2O+
H2O-
CO2
SO3
S
TOTAL
Magnesium number

ANALYTICAL INFO.	A15
COMMENTS	A109

B. FIELD DESCRIPTIONS AND CODES

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

Refers to the depth in centimeters within the section at which the the rock was sampled.

TOP OF CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE MIDPOINT DEPTH:

The subbottom depth in meters to the level at which the core was sampled.

ANALYST CODE:

TABLE 1 - ANALYSTS'/AUTHORS' CODES

This table is common to both the major and the minor-elements files. "VOL" refers to the "Initial Reports of the Deep Sea Drilling Project".

LEG	CODE	ANALYST/AUTHOR	VOL	CHAPTERS	COMMENTS
12	AU	Aumento, F.	12	4, 6, 8, 9	
12	MURP	Murphy, J.	12	8	
13	HON	Honnorez, J.	13	26	
13	WEIB	Weibel, M.	13	28	
13	CA	Cann, J.	13	28	
14	EJ	Jarosewich, E. J.	14	23	
14	HJR	Rose, H. J., Jr.	14	23	
14	HT	Hart, S.	14	23	
15	DN	Donnelly, T.	15	30	
15	KAY	Kay, R.	15	30	

16	SCHD	Scheidegger, K.	16	22
16	YEAT	Yeats, R. S.	16	22
16	DYM	Dymond, J.	16	25
17	RHD	Rhodes, M.	17	14
17	SHIH	Shih, Chi-Yu	17	14
18	MACL	MacLeod, N. S.	18	31
19	ELMR	Elmore, P.	19	14
19	NAT	Natland, J.	55	29
19	SCHK	Schlocker, L.	55	29
19	MAYS	May, R. E.	19	14
22	CAB	Cambon, P.	22	17
22	TOM	Thompson, G.	22	19
22	BOG	Bougault, H.	22	18
23	BOTT	Botts, S.	23	16
23	COLE	Cole, D.	23	16
23	MAYS	Mays, R. E.	23	16
24	LEB	Lebedkova, A.	24	13
24	BING	Bingham, E.	24	14
25	ERLK	Erlank, A. J.	25	22
26	KEMP	Kempe, D.	26	14
26	KLEE	Kleeman, J. D.	26	14
26	FREY	Frey, F. A.	26	23
27	RB	Robinson, P. T.	27	26
28	FORD	Ford, A.	28	29, 30
29	KIR	Kirshenbaum, H.	29	37
29	SCH	Schilling, J.-G.	29	38
29	HERO	Heropoulos, C.	29	37
30	STOS	Stoeser, D.	30	8
30	BAT	Batiza, R.	61	26
31	MEIJ	Meijer, A.	31	26
32	MAR	Marshall, M.	32	31
33	FAB	Fabbi, B. P.	33	20
33	HERO	Heropoulos, C	33	20
33	SWTZ	Schwartz, L. J.	33	20
34	COR	Corliss, J.	34	18
34	TOM	Thompson, G.	34	10
34	HT	Hart, S.	34	16
34	LAB	LaBorde, R.	34	14
34	RI	Ridley, W.	34	15
34	DIN	Din, V.	34	9
34	CA	Cann, J.	34	17
34	RHD	Rhodes, M.	34	12
34	SCOT	Scott, R.	34	25
34	SEY	Seyfried, W.	34	27
35	NOR	Norberg, J.	35	15
36	TARN	Tarney, J.	36	23
37	AU	Aumento, F.	37	2, 3, 4, 5
37	GUNN	Gunn, B.	37	2, 3, 4, 5
37	BOG	Bougault, H.	37	2, 3, 4, 5
37	STG	Strong, D. F.	37	2, 3, 4, 5
37	RB	Robinson, P. T.	37	2, 5
37	LEB	Lebedkova, A.	37	2, 4
37	SHEV	Shevalevsky, I.	37	2, 4

37	SG	Sigurdsson, H.	37	2, 5
37	LAM	Lambert, R.	37	2, 3, 4, 5
37	ML	Melson, W.	37	2, 3, 4, 5
37	BAR	Baragar, W. R. A.	37	2, 5
37	TOM	Thompson, G.	37	2, 3, 4, 5
37	DT	Dmitriev, L.	37	2, 4
37	SCH	Schilling, J.-G.	37	2, 4, 5
37	WG	Wright, T.	37	2
37	SCAR	Scarfe, C. M.	37	2, 5
37	BCE	Bence, A. E.	37	2
37	FLOW	Flower, M.	37	2, 3, 4
37	SAV	Savinova, E.	37	2, 4
37	PONO	Ponomarev, A. I.	37	2
37	SCOT	Scott, R.	37	2
37	ZAK	Zakariadze, G.	37	3, 5
37	BAN	Bannich, L.	37	2, 4
37	DUR	Durasova, H.	37	2
37	POP	Popolitov, E.	37	2
37	CHE	Chernogorova, S.	37	2, 4
37	PUC	Puchelt, H.	37	2, 5
37	MUY	Muysson, J.	37	2, 3, 4
37	AN	Anoshin, G.	37	2, 4
37	CK	Crocket, J.	37	2
37	ON	O'nions, R.	37	2, 5
37	DOS	Dostal, J.	37	4
38	KH	Kharin, G.	38	10
38	ECK	Eckhardt, F.-J.	38	2-5, 8-9
38	RI	Ridley, W.	38	13
38	SCH	Schilling, J.-G.	38	14
39	KH	Kharin, J.	39	23
39	KZP	Kazpe, G.	39	18
39	BT	Bonatti, E.	39	18
39	FD	Fodor, R.	39	19
41	ER	Eremeev, V.	41	44
41	NAT	Natland, J.	41	45
42A	BARB	Barberi, F.	42A	18
42A	DIET	Dietrich, V.	42A	19
42A	KRZR	Kreuzer, H.	42A	20.1
43	HOUG	Houghton, R.	43	33
45	BOG	Bougault, H.	45	Appendix I
45	RHD	Rhodes, M.	45	Appendix I
45	ZOL	Zolotarev, B.	45	Appendix I
45	PRP	Propach, G.	45	Appendix I
45	ML	Melson, W.	45	Appendix I
45	GH	Graham, A.	45	Appendix I
45	HRN	Hoernes, S.	45	Appendix I
45	FJ	Fujii, T.	45	Appendix I
46	HON	Honnorez, J.	46	20
46	FLOW	Flower, M.	46	8
46	CAB	Cambon, P.	46	2, 13
46	DUG	Dungan, M.	46	3
46	AOKI	Aoki, K.	46	4
46	SO	Sato, H.	46	4

46	MEV	Mevel, C.	46	6
46	HOG	Hodges, F.	46	10
46	EMRN	Emmermann, R.	46	12
46	OKA	Okamoto, K.	46	4
49	VARE	Varet, J.	49	Appendix II
49	ZOL	Zolotarev, B.	49	27
49	FLOY	Floyd, P.	49	23
49	TARN	Tarney, J.	49	22
49	BOG	Bougault, H.	49	Appendices II, IV
49	WOOD	Wood, D.	49	21, II, IV
49	PRIT	Pritchard, R. G.	49	24
49	TEMP	Templeman, J. H.	49	28
51	HUM	Humphris, S.	51	47
51	QFT	Quisefit, J.	51	32
51	UI	Ui, Tadahide	51	26
51	DN	Donnelly, T.	51	54
51	RICE	Rice, S.	51	33
51	PV	Pertsev, N.	51	48
51	ARA	Arakeljanz, M.	51	40
51	FLOW	Flower, M.	51	21
51	BY	Byerly, G.	51	22
51	MEV	Mevel, C.	51	53
51	STAU	Staudigel, H.	51	24
51	EMRN	Emmermann, R.	51	25
51	BLG	Bollinger, C.	51	32
51	JOR	Joron, J. L.	51	32
51	SHIM	Shimizu, H.	51	34
52	BLG	Bollinger, C.	51	32
52	EMRN	Emmermann, R.	51	25
52	FLOW	Flower, M.	51	21
52	STAU	Staudigel, H.	51	24, 38
52	DN	Donnelly, T.	51	54
52	RICE	Rice, S.	51	33
52	BY	Byerly, G.	51	22
52	MTZ	Mathez, E.	51	31
52	MEV	Mevel, C.	51	53
52	UI	Ui, Tadahide	51	26
52	HUM	Humphris, S.	51	47
52	ARA	Arakeljanz, M.	51	40
52	THOM	Thompson, R. N.	51	23
52	JOR	Joron, J. L.	51	32
53	BY	Byerly, G.	51	22
53	FLOW	Flower, M.	51	21
53	EMRN	Emmermann, R.	51	25
53	THOM	Thompson, R. N.	51	23
53	PUC	Puchelt, H.	51	3
53	MTZ	Mathez, E.	51	31
53	STAU	Staudigel, H.	51	24
53	HUM	Humphris, S.	51	47
53	ARA	Arakeljanz, M.	51	40
53	PRIT	Pritchard, R. G.	51	27
54	SRI	Srivastava, R. K.	54	27
54	HUM	Humphris, S.	54	34

54	JOR	Joron, J. L.	54	30
54	ML	Melson, W.	54	29
54	DMI	Dmitriev, Y.	54	28
54	FD	Fodor, R.	54	31
54	SDR	Schrader, E. L.	70	23
54	SCON	Scoon, J.	54	33
54	MTY	Mattey, D.	54	33
55	CAB	Cambon, P.	55	23
55	KK	Kirkpatrick, J.	55	20
55	KLOK	Klock, P. R.	55	28
55	TAY	Taylor, S. R.	55	24
55	BCE	Bence, A. E.	55	24
55	AVD	Avdieko, G.	55	22
55	MORS	Morris, J.	55	31
55	CLAG	Clague, D.	55	25
57	FUJ	Fujioka, K.	57	42
58	TARN	Tarney, J.	58	33
58	WOOD	Wood, D.	58	35
58	NIST	Nisterenko, G.	58	32
58	DI	Dick, H.	58	34
59	TARN	Tarney, J.	59	37
59	ZAK	Zakariadze, G.	59	29
59	MRSH	Marsh, N.	59	37
59	ISH	Ishi, T.	59	31
59	ARM	Armstrong, R. L.	59	32
59	HARA	Haramura, H.	59	31
59	HAJ	Hajash, A.	59	34
59	SCOT	Scott, R.	59	30
59	SUT	Sutter, J. F.	59	33
60	TARN	Tarney, J.	60	33
60	SNR	Sharaskin, A.	60	34
60	BOG	Bougault, H.	60	35
60	HK	Hekinian, R.	60	40
60	MEIJ	Meijer, A.	60	38
60	HARA	Haramura, H.	60	39
60	ARM	Armstrong, R. L.	60	32
61	BIJN	Bijon, J.	61	2
61	BAT	Batiza, R.	61	26
61	HARA	Haramura, H.	61	25
61	SHKA	Shcheka, S. A.	61	22
61	SAUN	Saunders, A.	89	18
61	FJN	Fujii, N.	61	27
61	SEIF	Seifert, K.	61	29
62	MORG	Morgan, S.	62	49
62	SCOT	Scott, R.	62	50
63	GRCH	Grechin, V.	63	27
63	MIN	Minami, H.	63	25, 26
63	SUR	Pal Verma, S.	63	28
64	SAUN	Saunders, A.	64	12
64	SUR	Pal Verma, S.	64	15
64	FOR	Fornari, D.	64	13
64	JOR	Joron, J. L.	64	12
65	CAB	Cambon, P.	65	2, 3, 5, 29

65	SAUN	Saunders, A.	65	28
65	FLOW	Flower, M.	65	26
65	OHN	O'Hearn, T.	65	25
65	GRIF	Griffin, B. J.	65	24
65	ZOL	Zolotarev, B.	65	27
65	KUDO	Kudo, A.	65	30
66	DMI	Dmitriev, Y.	66	33
66	ARAI	Arai, S.	66	34
66	JOR	Joron, J. L.	66	36
66	HARA	Haramura, H.	66	34
66	BELL	Bellon, H.	66	35
67	BOG	Bougault, H.	67	23
67	DMI	Dmitriev, Y.	67	24
68	OHN	O'Hearn, T.	69	54
68	ETOU	Etoubleau, J.	69	50
68	RHD	Rhodes, M.	69	48
68	NAT	Natland, J.	69	54
68	NO	Noack, Y.	69	25
69	OHN	O'Hearn, T.	69	54
69	RHD	Rhodes, M.	69	48
69	HUB	Hubberten, H.-W.	69	36, 52
69	ETOU	Etoubleau, J.	69	50
69	MRSH	Marsh, N.	69	49
69	EMRN	Emmermann, R.	69	25
69	NO	Noack, Y.	69	25
69	TUAL	Tual, C.	83	7
69	BART	Barrett, T.	69	38
70	OHN	O'Hearn, T.	69	54
70	RHD	Rhodes, M.	69	48
70	HUB	Hubberten, H.-W.	69	36, 52
70	MRSH	Marsh, N.	69	49
70	CRRE	Corre', O.	69	50
70	LAV	Laverne, C.	69	26
70	LAV	Laverne, C.	70	22
70	SRN	Sharaskin, A.	69	51
70	TUAL	Tual,C.	83	7
70	SDR	Schrader, E. L.	70	23
70	EMRN	Emmermann, R.	70	24
70	BART	Barrett, T.	69	38
72	WEAV	Weaver, B.	72	14
72	TOM	Thompson, G.	72	15
73	DIET	Dietrich, V.	73	21
74	TOM	Thompson, G.	74	26
74	RICH	Richardson, S. H.	74	25
75	HUM	Humphris, S.	75	40
76	LOG	Logothetis, J.	76	34
78	MRSH	Marsh, N.	78	18
78	BOG	Bougault, H.	78	19
78	OHN	O'Hearn, T.	78	18
79	SHM	Schmincke, H.	79	19
80	MAUR	Maury, R. C.	80	42
81	JOR	Joron, J. L.	81	31
81	RICD	Richardson, C.	81	32

81	HUT	Hutchison, D.	81	29	
81	DES	Desprairies, A.	81	28	
81	HOLM	Holmes, K. A.	81	29	
81	PARY	Parry, S.	81	29	
81	EVAN	Evans, J.	81	29	
82	DRA	Drake, N.	82	Appendix VI	
82	WEAV	Weaver, B.	82	Appendix VI	
82	BOG	Bougault, H.	82	Appendix VI	
82	SHM	Schmincke, H.			Author's ms.
82	DT	Dmitriev, L.	82	Appendix VI	
82	BT	Bonatti, E.	82	Appendix VI	
82	PUC	Puchelt, H.	82	Appendix VI	
82	JCB	Brannon, J. C.	82	Appendix VI	
83	EMRN	Emmermann, R.	83	6	
83	KNS	Kinoshita, H.	83	16	
83	KEM	Kempton, P.	83	4	
83	ALT	Alt, J. C.	83	9	
83	TUAL	Tual, C.	83	7	
84	HELM	Helm, R.	84	15, 16	
84	BOU	Bourgois, J.	84	20	
84	BELL	Bellon, H.	84	22	
86	FOUN	Fountain, J. C.	86	32	
89	FLOY	Floyd, P.	89	15, 16, 17	
89	SAUN	Saunders, A.	89	18	
89	TAK	Takigami, Y.	89	19	
89	NOT	Notsu, K.	89	20	
89	VIER	Viereck, L. G.	89	21	
91	SAUN	Saunders, A.	91	15	
92	PEA	Pearce, J. A.	92	26	
92	ERZ	Erzinger, J.	92	28	
92	STAU	Staudigel, H.	92	31	

PIECE NUMBER:

The sample number assigned to the rock is included when available.

ANALYTICAL METHODS:

TABLE 2 - ANALYTICAL METHODS CODES

a.	Wet (classical wet chemical techniques)	WT
b.	XRF (X-Ray fluorescence)	XF
c.	Electron microprobe	PR
d.	Flame photometry	FP
e.	Energy dispersion	ED
f.	Instrumental neutron activation analyses	NA
g.	Fission track	FT
h.	Atomic absorption	AA
i.	Isotope dilution	ID
j.	Spectrometry, UV and IR	SP

(also spectrophotometry)

k. Emission spectrometry — ES
   1. Spark spectrometry
   2. Arc spectrometry
   3. Plasma spectrometry

l. CHN analyser — CH

m. Other — OT

In the 6 characters provided there is room for 3 analytical methods codes.

ALTERATION:

TABLE 3 - ALTERATION CODES

F = Fresh
S = Slightly altered
M = Moderately altered
E = Extensively altered
T = Almost totally altered

This information is obtained from the alteration column on the Visual Core Description - Igneous Rocks form. If alteration information is not given in the alteration column, the text of the Visual Core Description is scanned for information on alteration. Frequently there is no reliable alteration information.

ROCK TYPE:

TABLE 4 - ROCK TYPE CODES

I = Igneous
S = Sedimentary
M = Metamorphic

ROCK NAME:

Lithological information about the rock sample, including the rock name and a visual estimate of the degree of alteration is taken from the Visual Core Description for Igneous Rocks forms, which are completed by the shipboard scientists soon after core recovery. The rock names are based on the mineralogy of the visible minerals in hand specimens and on texture. Occasionally the rock was described as grading from one type rock to another. In this case, the rock name is a range, for example, "aphyric to plag sparsely phyric basalt".

FE2O3(TOTAL), FEO(TOTAL), FE2O3, FEO:

In any sample the iron (Fe) exists in combination with oxygen both as Fe_2O_3 and FeO. When the total amount of iron in the sample is determined, it is a convention often to express it either as Fe_2O_3 (total) or FeO (total). All shipboard analyses for Fe are expressed as Fe_2O_3.

When the partitioning has been done by calculation, i.e., when the analyst assumes a given percentage of the total Fe oxide in the sample is Fe_2O_3 with the remainder FeO, character 9 in the analytical information codes is set to true(1).

LOSS ON IGNITION (LOI):

LOI's given in the source as "LOI at 110 degrees and 1050 degrees were encoded in the H_2O- and H_2O+ fields respectively. The analytical information character 5 was set to true(1). A "-" preceding the LOI means weight was taken up during the heating of the sample.

H2O+:

H_2O+ is the bound water driven off when the sample is heated in an oven at 1050 degrees C. If only "total water" was given in the source, it was entered in the H_2O+ field. Analytical information character 3 was set to false(2) and analytical information character 4 was set to true (1).

H2O-:

H_2O- is the amount of water on the grains of the sample driven off when the sample is heated in an oven overnight at 110 degrees C.

MAGNESIUM NUMBER:

The magnesium number is the atomic ratio Mg/(Mg + Fe), where Fe is total iron. For some analyses the analyst has either measured or calculated Fe^{++}. The magnesium number for these analyses is derived from $Mg/(Mg + Fe^{++})$. Analytical information character 15 is set to true(1) for the Mg^{++} number and set to false(2) for the Mg number where Fe is total iron.

ANALYTICAL INFORMATION:

TABLE 5 - ANALYTICAL INFORMATION CODES

Char. 1:	Analysis normalized to 100% in source.
Char. 2:	Analyses in table are on a volatile-free basis (e.g., samples analyzed after ignition or analyses recalculated to 100% without the volatiles.)
Char. 3:	Total water not directly determined.
Char. 4:	H2O not partitioned.
Char. 5:	H2O is LOSS ON IGNITION
Char. 6:	Essential oxides quoted to .01%.
Char. 7:	Fe oxide partitions not specified or analysed.
Char. 8:	H2O+ uncorrected for iron oxidation.
Char. 9:	Values for iron partitioning (Fe+++/Fe++) have been calculated.
Char. 10:	Shipboard analysis.
Char. 11:	Data Source 1=Initial Reports 2=Hole Summary Book 3=Initial Core Description 4=Author's manuscript
Char. 12:	Results are averages for multiple analyses of the specimen.
Char. 13:	Sample (or sample split) was analyzed more than once, e.g., both onboard ship and at one or more shore laboratories or by different techniques, e.g., XRF and gravimetric.
Char. 14:	Partial analysis.
Char. 15:	Magnesium number. See author's data in published paper. 1 = Magnesium number is atomic ratio Mg/(Mg + Fe++). Analyst either measured or calculated Fe++. 2 = Magnesium number is atomic ratio Mg/(Mg + Fe), where Fe is total iron.

The codes used for analytical information are true (T), false (F) or don't know or doesn't apply (blank).

revised by ODP
October 1987

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==================================================
=            DEEP SEA DRILLING PROJECT           =
=  MINOR AND TRACE-ELEMENT CHEMICAL ANALYSES     =
=   IGNEOUS AND METAMORPHIC ROCKS DATA FILE      =
==================================================
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I. INTRODUCTION

A. BACKGROUND

The file contains minor and trace-element analyses of igneous and metamorphic rocks and of a few sedimentary rocks composed of volcanic material. Data were encoded primarily from the "Initial Reports", although authors' manuscripts or the shipboard "Hole Summary Book" also were sources. The file contains both shipboard analyses and analyses from onshore laboratories. Shipboard analyses, using x-ray fluorescence methods, were made during DSDP Legs 37, 45, 46, 51-55, 61, 65, 68, 69, 82 and 83. The shipboard minor-element determinations were for Ni, Sr, Zr, and Cr only.

B. METHODS

Concentrations and other information about fifty-five elements are stored in this file. The element concentrations are given in parts per million (ppm). Minor-element concentrations given in the source in oxide weight percent were converted to parts per million by the DSDP encoders for this file.

Each record represents a single chemical analysis of a sample. The analyses are not necessarily complete for each sample.

Each record includes an identifying code for the analyst's or the first author's name. See Table 1 for the index to analysts' codes. Each record has a code indicating whether the rock is igneous, sedimentary or metamamorphic. Up to three analytical methods used in the determinations may be identified, e. g., x-ray fluorescence (XF), atomic absorption (AA). Lithological information about the rock sample, including the rock name and a visual estimate of the degree of alteration, is taken from the Visual Core Descriptions for Igneous Rocks forms, which are completed by the shipboard scientists soon after core recovery. The sample number assigned to the rock is included when available.

This file does not specify whether the analysis was performed onboard ship or at a shore facility. However, the sample number and the analyst's code can be used to find additional information either in the data source or the DSDP Major-Element Chemical Analyses file.

Blank fields mean not determined. 0.00 means not detected. A "-" preceding a concentration means "less than".

C. LEGS IN DATA SET

The data set contains data from Legs 12-19, 22-26, 28-34, 36-39, 41-43, 45-46, 49, 51-55, 58-70, 72-76, 78-84, 86, 89, 91-92.

D. BIBLIOGRAPHY

References to analytical methods for shipboard analyses

Bougault, H., 1977. Major Elements: Analytical Chemistry Onboard and Preliminary Results, DSDP Leg 37. In Aumento, F., Melson, W. G. et al., Initial Reports of the Deep Sea Drilling Project, Volume 37: Washington (U.S. Government Printing Office), pp. 643-652.

Natland, J. et al., 1978. Chemical data for Sites 395 and 396: Analytical Procedures and Comparison of Interlaboratory Standards. In Melson, W. G., Rabinowitz, P. D., et al., Initial Reports of the Deep Sea Drilling Project, Volume 45: Washington (U.S. Government Printing Office), pp. 681-705.

Shipboard Scientific Party, 1978. Holes 396A and 396B. In Dmitriev, L., Heirtzler, J., et al., Initial Reports of the Deep Sea Drilling Project, Volume 46: Washington (U.S. Government Printing Office), pp. 15-85.

For analytical methods used in a shore-based study, consult the paper in the Initial Reports. The results and analytical information of shipboard analyses similarly are published in the Initial Reports. See Table 1 for the index to analysts' codes.

II. FORMAT, FIELD DESCRIPTIONS, AND CODES

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL	F5.1
BOTTOM INTERVAL	F5.1
TOP OF CORE DEPTH	F8.2
SAMPLE DEPTH	F8.2
ANALYST CODE	A4
PIECE NUMBER	A4
ANALYTICAL METHODS	A6
ALTERATION	A1
ROCK TYPE	A1
ROCK NAME	A45
ELEMENTS	A7 (with TR for Trace)
LI	
BE	
B	
F	
CL	
SC	
V	
CR	
CO	
NI	
CU	
ZN	
GA	
GE	
AS	
SE	
BR	
RB	
SR	
Y	
ZR	
NB	
MO	
PD	

AG
CD
SN
SB
CS
BA
LA
CE
PR
ND
SM
EU
GD
TB
DY
HO
ER
TM
YB
LU
HF
TA
W
IR
PT
AU
TL
PB
BI
TH
U

COMMENTS A109

B. FIELD DESCRIPTIONS AND CODES

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

Refers to the depth in centimeters within the section at which the the rock was sampled.

TOP OF CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the level at which the core was sampled.

ANALYST CODE:

TABLE 1 - ANALYSTS'/AUTHORS' CODES

This table is common to both the major and the minor-elements files. "VOL" refers to the "Initial Reports of the Deep Sea Drilling Project".

LEG	CODE	ANALYST/AUTHOR	VOL	CHAPTERS	COMMENTS
12	AU	Aumento, F.	12	4, 6, 8, 9	
12	MURP	Murphy, J.	12	8	
13	HON	Honnorez, J.	13	26	
13	WEIB	Weibel, M.	13	28	
13	CA	Cann, J.	13	28	
14	EJ	Jarosewich, E. J.	14	23	
14	HJR	Rose, H. J., Jr.	14	23	
14	HT	Hart, S.	14	23	
15	DN	Donnelly, T.	15	30	
15	KAY	Kay, R.	15	30	
16	SCHD	Scheidegger, K.	16	22	
16	YEAT	Yeats, R. S.	16	22	
16	DYM	Dymond, J.	16	25	
17	RHD	Rhodes, M.	17	14	
17	SHIH	Shih, Chi-Yu	17	14	
18	MACL	MacLeod, N. S.	18	31	
19	ELMR	Elmore, P.	19	14	
19	NAT	Natland, J.	55	29	
19	SCHK	Schlocker, L.	55	29	
19	MAYS	May, R. E.	19	14	
22	CAB	Cambon, P.	22	17	
22	TOM	Thompson, G.	22	19	
22	BOG	Bougault, H.	22	18	
23	BOTT	Botts, S.	23	16	
23	COLE	Cole, D.	23	16	
23	MAYS	Mays, R. E.	23	16	
24	LEB	Lebedkova, A.	24	13	
24	BING	Bingham, E.	24	14	
25	ERLK	Erlank, A. J.	25	22	
26	KEMP	Kempe, D.	26	14	
26	KLEE	Kleeman, J. D.	26	14	

26	FREY	Frey, F. A.	26	23
27	RB	Robinson, P. T.	27	26
28	FORD	Ford, A.	28	29, 30
29	KIR	Kirshenbaum, H.	29	37
29	SCH	Schilling, J.-G.	29	38
29	HERO	Heropoulos, C.	29	37
30	STOS	Stoeser, D.	30	8
30	BAT	Batiza, R.	61	26
31	MEIJ	Meijer, A.	31	26
32	MAR	Marshall, M.	32	31
33	FAB	Fabbi, B. P.	33	20
33	HERO	Heropoulos, C	33	20
33	SWTZ	Schwartz, L. J.	33	20
34	COR	Corliss, J.	34	18
34	TOM	Thompson, G.	34	10
34	HT	Hart, S.	34	16
34	LAB	LaBorde, R.	34	14
34	RI	Ridley, W.	34	15
34	DIN	Din, V.	34	9
34	CA	Cann, J.	34	17
34	RHD	Rhodes, M.	34	12
34	SCOT	Scott, R.	34	25
34	SEY	Seyfried, W.	34	27
35	NOR	Norberg, J.	35	15
36	TARN	Tarney, J.	36	23
37	AU	Aumento, F.	37	2, 3, 4, 5
37	GUNN	Gunn, B.	37	2, 3, 4, 5
37	BOG	Bougault, H.	37	2, 3, 4, 5
37	STG	Strong, D. F.	37	2, 3, 4, 5
37	RB	Robinson, P. T.	37	2, 5
37	LEB	Lebedkova, A.	37	2, 4
37	SHEV	Shevalevsky, I.	37	2, 4
37	SG	Sigurdsson, H.	37	2, 5
37	LAM	Lambert, R.	37	2, 3, 4, 5
37	ML	Melson, W.	37	2, 3, 4, 5
37	BAR	Baragar, W. R. A.	37	2, 5
37	TOM	Thompson, G.	37	2, 3, 4, 5
37	DT	Dmitriev, L.	37	2, 4
37	SCH	Schilling, J.-G.	37	2, 4, 5
37	WG	Wright, T.	37	2
37	SCAR	Scarfe, C. M.	37	2, 5
37	BCE	Bence, A. E.	37	2
37	FLOW	Flower, M.	37	2, 3, 4
37	SAV	Savinova, E.	37	2, 4
37	PONO	Ponomarev, A. I.	37	2
37	SCOT	Scott, R.	37	2
37	ZAK	Zakariadze, G.	37	3, 5
37	BAN	Bannich, L.	37	2, 4
37	DUR	Durasova, H.	37	2
37	POP	Popolitov, E.	37	2
37	CHE	Chernogorova, S.	37	2, 4
37	PUC	Puchelt, H.	37	2, 5
37	MUY	Muysson, J.	37	2, 3, 4

37	AN	Anoshin, G.	37	2, 4
37	CK	Crocket, J.	37	2
37	ON	O'nions, R.	37	2, 5
37	DOS	Dostal, J.	37	4
38	KH	Kharin, G.	38	10
38	ECK	Eckhardt, F.-J.	38	2-5, 8-9
38	RI	Ridley, W.	38	13
38	SCH	Schilling, J.-G.	38	14
39	KH	Kharin, J.	39	23
39	KZP	Kazpe, G.	39	18
39	BT	Bonatti, E.	39	18
39	FD	Fodor, R.	39	19
41	ER	Eremeev, V.	41	44
41	NAT	Natland, J.	41	45
42A	BARB	Barberi, F.	42A	18
42A	DIET	Dietrich, V.	42A	19
42A	KRZR	Kreuzer, H.	42A	20.1
43	HOUG	Houghton, R.	43	33
45	BOG	Bougault, H.	45	Appendix I
45	RHD	Rhodes, M.	45	Appendix I
45	ZOL	Zolotarev, B.	45	Appendix I
45	PRP	Propach, G.	45	Appendix I
45	ML	Melson, W.	45	Appendix I
45	GH	Graham, A.	45	Appendix I
45	HRN	Hoernes, S.	45	Appendix I
45	FJ	Fujii, T.	45	Appendix I
46	HON	Honnorez, J.	46	20
46	FLOW	Flower, M.	46	8
46	CAB	Cambon, P.	46	2, 13
46	DUG	Dungan, M.	46	3
46	AOKI	Aoki, K.	46	4
46	SO	Sato, H.	46	4
46	MEV	Mevel, C.	46	6
46	HOG	Hodges, F.	46	10
46	EMRN	Emmermann, R.	46	12
46	OKA	Okamoto, K.	46	4
49	VARE	Varet, J.	49	Appendix II
49	ZOL	Zolotarev, B.	49	27
49	FLOY	Floyd, P.	49	23
49	TARN	Tarney, J.	49	22
49	BOG	Bougault, H.	49	Appendices II, IV
49	WOOD	Wood, D.	49	21, II, IV
49	PRIT	Pritchard, R. G.	49	24
49	TEMP	Templeman, J. H.	49	28
51	HUM	Humphris, S.	51	47
51	QFT	Quisefit, J.	51	32
51	UI	Ui, Tadahide	51	26
51	DN	Donnelly, T.	51	54
51	RICE	Rice, S.	51	33
51	PV	Pertsev, N.	51	48
51	ARA	Arakeljanz, M.	51	40
51	FLOW	Flower, M.	51	21
51	BY	Byerly, G.	51	22

51	MEV	Mevel, C.	51	53
51	STAU	Staudigel, H.	51	24
51	EMRN	Emmermann, R.	51	25
51	BLG	Bollinger, C.	51	32
51	JOR	Joron, J. L.	51	32
51	SHIM	Shimizu, H.	51	34
52	BLG	Bollinger, C.	51	32
52	EMRN	Emmermann, R.	51	25
52	FLOW	Flower, M.	51	21
52	STAU	Staudigel, H.	51	24, 38
52	DN	Donnelly, T.	51	54
52	RICE	Rice, S.	51	33
52	BY	Byerly, G.	51	22
52	MTZ	Mathez, E.	51	31
52	MEV	Mevel, C.	51	53
52	UI	Ui, Tadahide	51	26
52	HUM	Humphris, S.	51	47
52	ARA	Arakeljanz, M.	51	40
52	THOM	Thompson, R. N.	51	23
52	JOR	Joron, J. L.	51	32
53	BY	Byerly, G.	51	22
53	FLOW	Flower, M.	51	21
53	EMRN	Emmermann, R.	51	25
53	THOM	Thompson, R. N.	51	23
53	PUC	Puchelt, H.	51	3
53	MTZ	Mathez, E.	51	31
53	STAU	Staudigel, H.	51	24
53	HUM	Humphris, S.	51	47
53	ARA	Arakeljanz, M.	51	40
53	PRIT	Pritchard, R. G.	51	27
54	SRI	Srivastava, R. K.	54	27
54	HUM	Humphris, S.	54	34
54	JOR	Joron, J. L.	54	30
54	ML	Melson, W.	54	29
54	DMI	Dmitriev, Y.	54	28
54	FD	Fodor, R.	54	31
54	SDR	Schrader, E. L.	70	23
54	SCON	Scoon, J.	54	33
54	MTY	Mattey, D.	54	33
55	CAB	Cambon, P.	55	23
55	KK	Kirkpatrick, J.	55	20
55	KLOK	Klock, P. R.	55	28
55	TAY	Taylor, S. R.	55	24
55	BCE	Bence, A. E.	55	24
55	AVD	Avdieko, G.	55	22
55	MORS	Morris, J.	55	31
55	CLAG	Clague, D.	55	25
57	FUJ	Fujioka, K.	57	42
58	TARN	Tarney, J.	58	33
58	WOOD	Wood, D.	58	35
58	NIST	Nisterenko, G.	58	32
58	DI	Dick, H.	58	34
59	TARN	Tarney, J.	59	37

59	ZAK	Zakariadze, G.	59	29
59	MRSH	Marsh, N.	59	37
59	ISH	Ishi, T.	59	31
59	ARM	Armstrong, R. L.	59	32
59	HARA	Haramura, H.	59	31
59	HAJ	Hajash, A.	59	34
59	SCOT	Scott, R.	59	30
59	SUT	Sutter, J. F.	59	33
60	TARN	Tarney, J.	60	33
60	SNR	Sharaskin, A.	60	34
60	BOG	Bougault, H.	60	35
60	HK	Hekinian, R.	60	40
60	MEIJ	Meijer, A.	60	38
60	HARA	Haramura, H.	60	39
60	ARM	Armstrong, R. L.	60	32
61	BIJN	Bijon, J.	61	2
61	BAT	Batiza, R.	61	26
61	HARA	Haramura, H.	61	25
61	SHKA	Shcheka, S. A.	61	22
61	SAUN	Saunders, A.	89	18
61	FJN	Fujii, N.	61	27
61	SEIF	Seifert, K.	61	29
62	MORG	Morgan, S.	62	49
62	SCOT	Scott, R.	62	50
63	GRCH	Grechin, V.	63	27
63	MIN	Minami, H.	63	25, 26
63	SUR	Pal Verma, S.	63	28
64	SAUN	Saunders, A.	64	12
64	SUR	Pal Verma, S.	64	15
64	FOR	Fornari, D.	64	13
64	JOR	Joron, J. L.	64	12
65	CAB	Cambon, P.	65	2, 3, 5, 29
65	SAUN	Saunders, A.	65	28
65	FLOW	Flower, M.	65	26
65	OHN	O'Hearn, T.	65	25
65	GRIF	Griffin, B. J.	65	24
65	ZOL	Zolotarev, B.	65	27
65	KUDO	Kudo, A.	65	30
66	DMI	Dmitriev, Y.	66	33
66	ARAI	Arai, S.	66	34
66	JOR	Joron, J. L.	66	36
66	HARA	Haramura, H.	66	34
66	BELL	Bellon, H.	66	35
67	BOG	Bougault, H.	67	23
67	DMI	Dmitriev, Y.	67	24
68	OHN	O'Hearn, T.	69	54
68	ETOU	Etoubleau, J.	69	50
68	RHD	Rhodes, M.	69	48
68	NAT	Natland, J.	69	54
68	NO	Noack, Y.	69	25
69	OHN	O'Hearn, T.	69	54
69	RHD	Rhodes, M.	69	48
69	HUB	Hubberten, H.-W.	69	36, 52

69	ETOU	Etoubleau, J.	69	50	
69	MRSH	Marsh, N.	69	49	
69	EMRN	Emmermann, R.	69	25	
69	NO	Noack, Y.	69	25	
69	TUAL	Tual, C.	83	7	
69	BART	Barrett, T.	69	38	
70	OHN	O'Hearn, T.	69	54	
70	RHD	Rhodes, M.	69	48	
70	HUB	Hubberten, H.-W.	69	36, 52	
70	MRSH	Marsh, N.	69	49	
70	CRRE	Corre', O.	69	50	
70	LAV	Laverne, C.	69	26	
70	LAV	Laverne, C.	70	22	
70	SRN	Sharaskin, A.	69	51	
70	TUAL	Tual,C.	83	7	
70	SDR	Schrader, E. L.	70	23	
70	EMRN	Emmermann, R.	70	24	
70	BART	Barrett, T.	69	38	
72	WEAV	Weaver, B.	72	14	
72	TOM	Thompson, G.	72	15	
73	DIET	Dietrich, V.	73	21	
74	TOM	Thompson, G.	74	26	
74	RICH	Richardson, S. H.	74	25	
75	HUM	Humphris, S.	75	40	
76	LOG	Logothetis, J.	76	34	
78	MRSH	Marsh, N.	78	18	
78	BOG	Bougault, H.	78	19	
78	OHN	O'Hearn, T.	78	18	
79	SHM	Schmincke, H.	79	19	
80	MAUR	Maury, R. C.	80	42	
81	JOR	Joron, J. L.	81	31	
81	RICD	Richardson, C.	81	32	
81	HUT	Hutchison, D.	81	29	
81	DES	Desprairies, A.	81	28	
81	HOLM	Holmes, K. A.	81	29	
81	PARY	Parry, S.	81	29	
81	EVAN	Evans, J.	81	29	
82	DRA	Drake, N.	82	Appendix VI	
82	WEAV	Weaver, B.	82	Appendix VI	
82	BOG	Bougault, H.	82	Appendix VI	
82	SHM	Schmincke, H.			Author's ms.
82	DT	Dmitriev, L.	82	Appendix VI	
82	BT	Bonatti, E.	82	Appendix VI	
82	PUC	Puchelt, H.	82	Appendix VI	
82	JCB	Brannon, J. C.	82	Appendix VI	
83	EMRN	Emmermann, R.	83	6	
83	KNS	Kinoshita, H.	83	16	
83	KEM	Kempton, P.	83	4	
83	ALT	Alt, J. C.	83	9	
83	TUAL	Tual, C.	83	7	
84	HELM	Helm, R.	84	15, 16	
84	BOU	Bourgois, J.	84	20	
84	BELL	Bellon, H.	84	22	

86	FOUN	Fountain, J. C.	86	32
89	FLOY	Floyd, P.	89	15, 16, 17
89	SAUN	Saunders, A.	89	18
89	TAK	Takigami, Y.	89	19
89	NOT	Notsu, K.	89	20
89	VIER	Viereck, L. G.	89	21
91	SAUN	Saunders, A.	91	15
92	PEA	Pearce, J. A.	92	26
92	ERZ	Erzinger, J.	92	28
92	STAU	Staudigel, H.	92	31

PIECE NUMBER:

The sample number assigned to the rock is included when available.

ANALYTICAL METHODS:

TABLE 2 - ANALYTICAL METHODS CODES

a.	Wet (classical wet chemical techniques)	WT
b.	XRF (X-Ray fluorescence)	XF
c.	Electron microprobe	PR
d.	Flame photometry	FP
e.	Energy dispersion	ED
f.	Instrumental neutron activation analyses	NA
g.	Fission track	FT
h.	Atomic absorption	AA
i.	Isotope dilution	ID
j.	Spectrometry, UV and IR (also spectrophotometry)	SP
k.	Emission spectrometry	ES
	1. Spark spectrometry	
	2. Arc spectrometry	
	3. Plasma spectrometry	
l.	CHN analyser	CH
m.	Other	OT

In the 6 characters provided there is room for 3 analytical methods codes.

ALTERATION:

TABLE 3 - ALTERATION CODES

F = Fresh
S = Slightly altered
M = Moderately altered
E = Extensively altered
T = Almost totally altered

This information is obtained from the alteration column on the Visual Core Description - Igneous Rocks form. If alteration information is not given in the alteration column, the text of the Visual Core Description is scanned for information on alteration. Frequently there is no reliable alteration information.

ROCK TYPE:

TABLE 4 - ROCK TYPE CODES

I = Igneous
S = Sedimentary
M = Metamorphic

ROCK NAME:

Lithological information about the rock sample, including the rock name and a visual estimate of the degree of alteration is taken from the Visual Core Description for Igneous Rocks forms, which are completed by the shipboard scientists soon after core recovery. The rock names are based on the mineralogy of the visible minerals in hand specimens and on texture. Occasionally the rock was described as grading from one type rock to another. In this case, the rock name is a range, for example, "aphyric to plag sparsely phyric basalt".

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October 1987

DEEP SEA DRILLING PROJECT AGECODES

I. INTRODUCTION

The age codes are integer values which represent specific geological ages. The construct of the code in eight digits allows immediate recognition of age level, i.e. era, period, epoch, etc. The codes are used in several DSDP data bases which contain age information. The file contains all of the numeric age codes, age names and age mnemonics used by the Deep Sea Drilling Project.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
AGE MNEMONIC	A6
AGE CODE	I8
AGE LEVEL (1-7)	I1
AGE NAME (full name)	A20
UPPER AGE (million years)	A5
LOWER AGE (million years)	A5

B. FIELD DESCRIPTIONS

AGE CODE:

An eight digit integer which represents a specific age. The hierarchial code is designed to provide age level information as shown below.

CODE DIGIT	AGE LEVEL
1	(1) ERA
2-3	(2) PERIOD
4	(3) SUBPERIOD

5	(4) EPOCH
6	(5) SUBEPOCH
7	(6) STAGE
8	(7) SUBSTAGE

AGE MNEMONIC:

An abbreviation of the age name.

AGE (million years):

The upper and lower absolute age assigned by the DSDP to each geological age. Absolute ages were assigned for internal DSDP use only and may be outdated.

revised by ODP
October 1987

DEEP SEA DRILLING PROJECT
AGEPROFILE

I. INTRODUCTION

A. BACKGROUND

The AGEPROFILE presents age assignments for each DSDP hole as determined by investigators. The term "section" refers to an AGE section not a core section. The data has been selected from one of three sources: the Initial Reports (the blue books), the Initial Core Descriptions or the shipboard site summaries.

B. LEGS IN DATA SET

The database contains age assignments for legs 1-96. The assigned ages are updated with the publication of each Initial Report.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
AGE MNEMONIC	A6
AUXILIARY AGE MNEMONIC	A6
TOP OF SECTION DEPTH (meters)	F6.1
BOTTOM OF SECTION DEPTH (meters)	F6.1
SPECIAL CONDITION FLAG ("I","*")	A1
AGE CODE	I8
AUXILIARY AGE CODE	I8
AVERAGED AGE CODE	I8
AGE TOP OF SECTION (million years)	A5
AGE BOTTOM OF SEC. (million years)	A5
AVERAGE AGE (million years)	A5

DATA SOURCE ("IR","ICD","SITESUM")   A7

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

AGE MNEMONIC:

An abbreviation of the age name. An auxiliary age is also encoded when it is not possible to determine the precise age for the section. This field is often empty. If two ages are noted, it should not be inferred that they represent ages of the top and bottom of the section. The meaning of a dual assignment is that a precise age determination cannot be made and the age of the section is somewhere in that range.

SECTION DEPTH:

The subbottom depth in meters to either the top or bottom of the AGE section.

SPECIAL CONDITION FLAG:

I = A legitimate age inversion
* = Missing hole or drilled interval

AGE CODE:

The age code is an eight digit integer which represents a specific geological age. An age code dictionary is available as a separate file and normally accompanies this data base.

AGE:

The assigned age in millions of years that were calculated by one investigator and are not to be considered official DSDP values. They are included for user convenience only. Values were determined for the top and bottom of each section range and their average.

DATA SOURCE:

IR = DSDP Initial Reports
ICD = Initial core descriptions
SITESUM = Hole summaries

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October 1987

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=================================
=  DEEP SEA DRILLING PROJECT    =
=    PALEONTOLOGY DATA BASE     =
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I. INTRODUCTION

A. BACKGROUND AND METHODS

The Deep Sea Drilling Project (DSDP) paleontologic data base is prepared from data published in the DSDP Initial Reports. The data base contains all of the **Cenozoic paleo data from each Initial Report. Reworked material is not included as part of the data set.

All records within the data base have the same basic format. If multiple physical records are needed to complete a logical record (a complete slide description) then data items leg through page number reference are repeated on successive physical records. The last field stores the physical record number pertaining to each logical record.

Since there may be more than one investigator contributing studies for the same fossil group and leg, each investigator's name appears on the record along with an Initial Report volume number and page reference.

** For data on sediments older than the Cenozoic, contact:

Dr. Pavel Cepek
Bundesanstalt fur Geowissenschaften und Rohstoffe
3 Hannover 51, Postfach 510153
Federal Republic of Germany.

B. LEGS IN DATA SET

The database currently contains data for legs 1-96.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL (cm)	F5.1
BOTTOM INTERVAL (cm)	F5.1
DEPTH TO CORE (meters)	F8.2
SAMPLE DEPTH (meters)	F8.2
NUMBER OF OBSERVED FOSSILS	I2
INVESTIGATORS NAME(S)	A30
PUBLICATION DATE (month/year)	A5
DSDP INITIAL REPORT VOLUME NUMBER	I2
FOSSIL GROUP CODE	A1
GROUP ABUNDANCE	A1
CHEMICAL OVERGROWTH	I1
CHEMICAL DISSOLUTION	I1
MECHANICAL PRESERVATION	A1
AGE CODE	A8
PAGE NUMBER REFERENCE	A4
FOSSIL CODE 1	A9
FOSSIL ABUNDANCE 1	A2
FOSSIL PRESERVATION 1 (optional)	A2
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.	
.	
FOSSIL CODE 10	A9
FOSSIL ABUNDANCE 10	A2
FOSSIL PRESERVATION 10 (optional)	A2
RECORD JOIN CODE	A1
PHYSICAL RECORD NUMBER	I2

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

The depth in centimeters from the top of the core section.

CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the middle of the sample.

CHEMICAL OVERGROWTH:

A measure of the chemical deposition of material on the surface of the fossil(s). It is an integer scale from 0 to 6, where 0 represents no overgrowth, and 6 is maximum overgrowth.

CHEMICAL DISSOLUTION:

A measure of the amount of fossil dissolution which has taken place. It is an integer scale from 0 to 6 where 0 represents no dissolution and 6 maximum dissolution.

MECHANICAL PRESERVATION:

A measure of the physical condition of the fossil(s) in the sample.

G=GOOD	M=MODERATE	P=POOR

GROUP ABUNDANCE:

Gives the relative abundance of the fossil group using the following scale.

P=PRESENT	T=TRACE	R=RARE	F=FEW
C=COMMON	A=ABUNDANT	D=DOMINANT	

GROUP CODE:

There are twenty-six (A-Z) fossil group codes. Only twenty-one groups are currently represented.

GROUP CODE		GROUP NAME
A		APTYCHI
B		BENTHIC FORAMS
C		DINOFLAGELLATES
D		DIATOMS
E		CRINOID
F		PLANKTONIC FORAMS
G		ALGAE
H	*	PTEROPOD
I	*	MISCELLANEOUS FOSSILS
J		ARCHAEOMONADS
K		CALCISPHERULIDES
L	*	CALPIONELLIDS
M	*	MOLLUSCS
N		NANNOS
O		OSTRACODES
P		POLLEN AND SPORES
Q		EBRIDIANS & ACTINICIDIANS
R		RADIOLARIA
S		SILICOFLAGELLATES
T		TRACE FOSSILS
U	*	COPROLITHS
V		RHYNCOLLITES
W		AMMONITES
X		PHYTOLITHARIA
Y		FISH DEBRIS
Z		BRYOZOANS

* Not represented in the current data base.

AGE CODE:

The age code is an eight digit integer which represents the age that has been assigned to the interval from which the sample was taken. An age code dictionary is available as a separate file which normally accompanies the paleo data base.

PAGE NUMBER REFERENCE

Indicates the page number or appendix (APP) within the Initial Report from which the information was taken. It may also indicate that the information came from a supplemental (SUPP) publication.

FOSSIL CODE/ABUNDANCE/PRESERVATION GROUP

A thirteen character repeating data field which identifies each fossil and indicates relative abundance and state of preservation. The structure of this group code is outlined below.

CHARACTER	REPRESENTS
1	FOSSIL CODE: GROUP CODE (A-Z)
2-5	GENUS CODE
6-9	SPECIES NUMBER
10-11	FOSSIL ABUNDANCE
12-13	FOSSIL PRESERVATION (optional)

FOSSIL CODE (characters 1-9): The fossil code contains a group code (A-Z), a 4 letter genus code and a 4 digit species number. There is a fossil code dictionary, available as a separate data file, which lists the codes and the corresponding fossil names. Within the dictionary, any fossil whose name is followed by a parenthetically enclosed Q "(Q)" has a questionable identity. This allows for a fossil whose identity was not certain to be associated with a distinct code.

FOSSIL ABUNDANCE (characters 10-11): Equivalent to the group abundance field described earlier except that numerical percentages (0-99%) may also occur.

FOSSIL PRESERVATION (characters 12-13): If a letter is encoded (G,M,P) it represents the level of mechanical preservation mentioned earlier. If an integer is encoded the information is related either to chemical dissolution (-6 to 0) or chemical overgrowth (0 to +6) as described earlier.

RECORD JOIN CODE:

Indicates the treatment of duplicate source records. In most cases data from duplicate records represents data from the same slide examination which was displayed in different parts of the Initial Report. These records are joined with all data assigned to the page number representing the major source. An encoded "P" indicates that the logical record contains two or more observations of the same slide, eg. a range chart entry and a plate reference. An "I" code indicates the data manager felt the observations should remain independent.

FOSSIL CODE DICTIONARY FILE

The fossil code dictionary is an auxillary file which contains all of the fossil codes and their corresponding names. This dictionary is required to interpret the fossil codes used within the DSDP paleo data base. In order to accomodate instances where fossil identification is in question, there will be two codes for the same fossil. One code is used when a postive identification was made and the other whenever the identification was questionable. If the identification was questionable the fossil name is followed by a parenthetically enclosed Q "(Q)".

DICTIONARY FORMAT

FIELD	FORMAT
DICTIONARY FOSSIL CODE	A9
DICTIONARY FOSSIL NAME	A70

DICTIONARY FOSSIL CODE:

The dictionary fossil code coincides with the nine character fossil code described earlier in this document (see FOSSIL CODE/ABUNDANCE/PRESERVATION).

CHARACTER	REPRESENTS
1	GROUP CODE
2-5	GENUS CODE
6-9	SPECIES NUMBER

DICTIONARY FOSSIL NAME:

The complete fossil name. A fossil name followed by a parenthetically enclosed Q "(Q)" denotes instances when identification was questionable. Spelling of the names were recorded as they appeared in the Initial Reports. When conflicts in spelling did occur we attempted to resolve them by consulting with a paleontologist in the appropriate field. In cases where conflicts were not resolved, both names are included and both should be searched for if the user believes they are the same species. Occasionally, two numbers may appear for the same fossil. the user should be aware that both codes should be searched for to insure finding all occurrences of that particular species.

revised by ODP
October 1987

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=====================================================
=             DEEP SEA DRILLING PROJECT              =
=       ALTERNATING FIELD DEMAGNETIZATION            =
=       SEDIMENT PALEOMAGNETICS DATA FILE            =
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I. INTRODUCTION

A. BACKGROUND

The alternating field demagnetization file contains alternating demagnetization data on the sediments. The purpose of alternating field demagnetization is to remove soft magnetization acquired since the sediments were deposited. Often, this means removal of magnetization acquired during the present Brunhes Normal epoch. Pilot demagnetizations are usually carried out on a few samples to determine how strong a field is required to produce stable directions of magnetization. Once the optimum demagnetizing field has been determined, all of the samples are demagnetized in that field.

Data were encoded primarily from the shipboard "Hole Summary Book", the DSDP data archives and the "Initial Reports of the Deep Sea Drilling Project". The file contains both shipboard measurements and measurements made at onshore laboratories. Shipboard paleomagnetic apparatus included a Digico balanced fluxgate spinner magnetometer and a Schonstedt alternating field GSD-1 demagnetizer.

Paleomagnetic meaurements contained in this file are from core samples recovered by the punch core-rotary drilling and the hydraulic piston coring methods. Each record contains a code for the coring method.

B. METHODS

Magnetic properties recovered in this file include magnetic intensity, declination and inclination. The normalized intensity, a measure of magnetic stability, is included when available.

In many cases only one set of alternating field demagnetization results was reported for the sample. Fields in the data record of the Natural Remanent Magnetization - Sediment Paleomagnetics Data File have been reserved for these results.

In some cases thermal rather than alternating field demagnetization was used. Information about the heat demagnetization was stored in the comments field.

The following quote concerning data reliability is taken from the Hole Summary Book paleomagnetics section for Leg 79, "It is important to mention here a crucial limitation of the shipboard magnetometer. Magnetization intensity values are often not repeatable and can flucuate by up to 50% for samples with intensities one order of magnitude above noise level...Magnetization directions are generally repeatable."

Each record includes an identifying code for the analysts' or first author's name. See Table 1 for the index to analysts' codes.

A blank field means not determined.

Magnetic intensities are expressed in emu/cm3 in this file. In a few later DSDP reports data were expressed in SI units. The DSDP encoders converted these to CGS units. The following conversion was used: (A/m) X 10 -3 = emu/cm3.

C. LEGS IN DATA SET

The data set contains data from Legs 4, 7, 17, 23, 27, 33-34, 41-42, 47-49, 51-52, 59, 66, 72-73, 79, 81-82, 84, 86, and 90.

D. BIBLIOGRAPHY

Partial references to analytical methods for shipboard measurements

Barker, P. F. and R. L. Carlson. 1980. Hole Summary Book for Leg 72. Paleomagnetists: N. Hamilton and A. Suzyumov.

Hsu, K. J. and J. L. La Brecque. 1980. Hole Summary Book for Leg 73. Paleomagnetists: J. L. La Brecque, N. P. Petersen, L. Tauxe, and P. Tucker.

Hinz, K. and E. L. Winterer. 1981. Hole Summary Book for Leg 79. Paleomagnetist: J. E. T. Channell.

For methods used in a shore-based study, consult the paper in the Initial Reports. The results and analytical information of shipboard analyses similarly are published in the Initial Reports and the Hole Summary Book. See Table 1 for the index to analysts' codes.

II. FORMAT, FIELD DESCRIPTIONS, AND CODES

A. RECORD FORMATS

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL DEPTH (centimeters)	F5.1
BOTTOM INTERVAL DEPTH (centimeters)	F5.1
TOP OF CORE DEPTH (meters)	F8.2
SAMPLE MIDPOINT DEPTH (meters)	F8.2
CORING DEVICE CODE	A1
ANALYST CODE	A4
NUMBER OF AFD MEASUREMENTS	I2
REPEAT 1	I1
MAGNETIC INTENSITY EXPONENT 1	I1
ALTERNATING FIELD DEMAGNETIZATION 1	A4
MAGNETIC INTENSITY 1	A8
NORMALIZED INTENSITY 1	A8
DECLINATION 1	A8
INCLINATION 1	A8
COMMENTS 1	A16
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.	
REPEAT 15	I1
MAGNETIC INTENSITY EXPONENT 15	I1
ALTERNATING FIELD DEMAGNETIZATION 15	A4
MAGNETIC INTENSITY 15	A8
NORMALIZED INTENSITY 15	A8
DECLINATION 15	A8
INCLINATION 15	A8
COMMENTS 15	A16

B. FIELD DESCRIPTIONS AND CODES

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

Refers to the depth in centimeters within the section at which the rock was sampled.

TOP OF CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE MIDPOINT DEPTH:

The subbottom depth in meters to the level at which the core was sampled.

CORING DEVICE CODE:

H = Hydraulic Piston Corer
(includes Variable Length Piston Corer)
R = Conventional Rotary Drilling Corer
(includes Extended Core Barrel)

ANALYST CODE:

TABLE 1 - ANALYSTS'/AUTHORS' CODES

"IR" = Initial Reports of the Deep Sea Drilling Project
"HSB" = Hole Summary Book
"ARCH" = Data Archives of the Deep Sea Drilling Project

LEG	CODE	ANALYST/AUTHOR	SHIP	ONSHORE	DATA SOURCE
4	OP	Opdyke, N. D.		X	IR
7	SCLA	Sclater, J. G.		X	IR
17	JARR	Jarrard, R. D.		X	IR
23	HAM	Hamilton, N.		X	IR
27	JARR	Jarrard, R. D.		X	IR
	BREC	Brecher, A.		X	IR

33	JARR	Jarrard, R. D.		X	IR
34	JOH	Johnson, H. P.	X	X	IR
41	KENT	Kent, D. V.		X	IR
	HAWO	Hailwood, E. A.		X	IR
42	HAWO	Hailwood, E. A.		X	IR
47	HAM	Hamilton, N.	X	X	IR
48	HAWO	Hailwood, E. A.	X	X	IR
49	STR	Steiner, M.	X		HSB
51	BLEI	Bleil, U.	X		HSB
	KELT	Kelts, K.		X	IR
52	LV	Levi, S.	X		HSB
59	KEA	Keating, B.	X	X	IR
66	NM	Niitsuma, N.	X		IR
72	HAM	Hamilton, N.	X		HSB
73	PET	Petersen, N.	X		ARCH
79	CNL	Channell, J.	X		HSB
81	KRMK	Krumsiek, K.	X		ARCH
82	KHAN	Khan, M.	X		HSB
84	LIE	Lienert, B.	X		HSB
86	LV	Levi, S.		X	IR
90	BRTN	Barton, C.	X		HSB, ARCH

NUMBER OF AFD MEASUREMENTS:

The total number of AFD measurements for a sample.

REPEAT:

The paleomagnetist occasionally repeated demagnetization steps on a sample. A "0" was entered in REPEAT if there was only one measurement for an interval. There is a "1" for the first repeat measurement, a "2" for the next repeat and so on. AFD results belonging to a single sample with the same number in REPEAT are from the same measurement sequence.

MAGNETIC INTENSITY EXPONENT:

In this file magnetic intensity is recorded in scientific notation. Each magnetic intensity value should be multiplied by 10 to the negative value of this number.

ALTERNATING FIELD DEMAGNETIZATION:

Demagnetizing force in oersteds. "NRM" was entered in this field when the demagnetizing field is zero. In some cases thermal demagnetization was used. Information about heat demagnetization was stored in the comment field.

MAGNETIC INTENSITY:

Expressed here in CGS units and in scientific notation. The negative exponent of the power of ten is stored in "Magnetic Intensity Exponent" for each AFD measurement.

NORMALIZED INTENSITY J(H)/Jo:

This is the ratio of magnetic intensity measured after demagnetization to the NRM intensity. J(H) = magnetic intensity (J) after demagnetization in field H. Field H is the demagnetization force given in "Alternating Field Demagnetization". Jo = NRM intensity.

DECLINATION:

Units are degrees.

INCLINATION:

The sign (-, or blank for +) gives the polarity of the inclination. Units are degrees.

revised by ODP
November 1987

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=              DEEP SEA DRILLING PROJECT            =
=            PALEOMAGNETICS MEASUREMENTS            =
=     IGNEOUS AND METAMORPHIC ROCKS DATA FILE       =
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I. INTRODUCTION

A. BACKGROUND

The file contains paleomagnetic and rock magnetic measurements of igneous and metamorphic rocks and a few sedimentary rocks composed of volcanic material. Data were encoded primarily from the "Initial Reports of the Deep Sea Drilling Project". The shipboard "Hole Summary Book" and the DSDP data archives also were sources. The file contains both shipboard measurements and measurements made at onshore laboratories. Magnetic properties measured on the ship include magnetic intensity, declination, inclination, and initial susceptibility. Shipboard paleomagnetic apparatus included a Digico balanced fluxgate spinner magnetometer, a Schonstedt alternating field GSD-1 demagnetizer and a Bison magnetic susceptibility meter. Shipboard measurements of magnetic properties of igneous and metamorphic rocks were made during DSDP Legs 34, 37, 45-46, 49, 51-55, 58-66, 68-73, 75-78, 81-85, 89, and 92.

B. METHODS

Magnetic properties recorded in the file include natural remanent magnetization (NRM) intensity, declination, inclination, initial susceptibility, stable declination, stable inclination, mean demagnetizing field, Curie temperature, saturation intensity, saturation remanence, coercive force, and remanent coercive force. The Koenigsberger ratio (Q) when calculated also is included. In a few instances the paleomagnetist has indicated the quality of orientation and a field is available for this information. There is also a field for the grain-size or the grain-size range.

Each record includes an identifying code for the analyst's or first author's name. See Table 1 for the index to analysts' codes.

Most records contain a code for data source (Table 3). The codes indicate whether the source was the "Initial Reports of the Deep Sea Drilling Project", the Hole Summary Book, or the prime data archives. Each record has a code indicating whether the rock is igneous, sedimentary, or metamorphic. Rock type can be further specified by the codes for tuff (sedimentary), volcanic breccia (igneous), and brecciated (igneous). See Table 2 for rock type codes.

Codes indicate whether the measurements were done on board ship or at a shore laboratory.

A blank field means not determined.

NRM intensities and initial susceptibilities are expressed in scientific notation. The symbol @ is used to represent 10.

Units for the magnetic parameters follow:

a)	Magnetic intensity	emu/cm3
b)	Mean demagnetizing field	oersteds
c)	Initial susceptibility	gauss/oersteds
d)	Saturation intensity	emu/cm3
e)	Saturation remanence	emu/cm3
f)	Coercive force	oersteds
g)	Remanent coercive force	oersteds

In a few later DSDP reports data were expressed in SI units. The DSDP encoders converted SI units to CGS units. The following conversions were used:

(A/m) / 79.6 = oersteds
(A/m) X 10-3 = emu/cm3
mT X 10 = oersteds

Lithological information about the rock sample, including the rock name and a visual estimate of the degree of alteration, is taken from the Visual Core Description for Igneous Rocks forms, which are completed by the shipboard scientists soon after core recovery.

Each paleomagnetic measurement record contains routine measurements (NRM INTENSITY through KOENIGSBERGER RATIO) and up to four groups of extra measurements (THERMOMAGNETIC CURVE through GRAIN SIZE) which include the CURIE TEMPERATURE. Several temperatures may have been read from the thermomagnetic curve. This means that some of the extra measurement groups will contain only additional CURIE TEMPERATURE readings.

C. LEGS IN DATA SET

The data set contains data from Legs 14-16, 19, 23, 25-29, 32-34, 37-38, 41-43, 45-46, 49, 51-55, 58-66, 68-73, 75-78, 81-85, 89, 91-92.

D. BIBLIOGRAPHY

Partial references to analytical methods for shipboard measurements:

Ade-Hall, J. M. and H. P. Johnson, 1976. Paleomagnetism of Basalts, Leg 34. In Yeats, R. S., Hart, S. R., et al., Initial Reports of the Deep Sea Drilling Project, Volume 34: Washington (U.S. Printing Office), pp. 513-532.

Hall, J. M. and P. J. C. Ryall, 1977. Paleomagnetism of Basement Rocks, Leg 37. In Aumento, F., Melson, W. G. et al., Initial Reports of the Deep Sea Drilling Project, Volume 37: Washington (U.S. Government Printing Office), pp. 425-448.

For methods used in a shore-based study, consult the paper in the the Initial Reports. The results and analytical information of shipboard analyses similarly are published in the Initial Reports. See Table 1 for the index to analysts' codes.

II. FORMAT, FIELD DESCRIPTIONS, AND CODES

A. RECORD FORMATS

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL (centimeters)	F5.1
BOTTOM INTERVAL (centimeters)	F5.1
TOP OF CORE (meters)	F8.2
SAMPLE DEPTH (meters)	F8.2
ANALYST CODE	A4
PIECE NUMBER	A4
LITHOLOGY CODE	A1

MEASUREMENT CODE	A1
DATA SOURCE CODE	A1
NRM INTENSITY	A8
NRM INCLINATION	A5
NRM DECLINATION	A5
STABLE INCLINATION	A5
STABLE DECLINATION	A5
QUALITY OF ORIENTATION	A2
MEAN DEMAGNETIZING FIELD	A5
INITIAL SUSCEPTIBILITY	A8
KOENIGSBERGER RATIO	A5
THERMOMAGNETIC CURVE 1	A1
CURIE TEMPERATURE 1	I4
SATURATION INTENSITY 1	A8
SATURATION REMANENCE 1	A8
COERCIVE FORCE 1	A4
REMANENT COERCIVE FORCE 1	A4
GRAIN-SIZE 1	A10
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THERMOMAGNETIC CURVE 4	A1
CURIE TEMPERATURE 4	I4
SATURATION INTENSITY 4	A8
SATURATION REMANENCE 4	A8
COERCIVE FORCE 4	A4
REMANENT COERCIVE FORCE 4	A4
GRAIN-SIZE 4	A10
COMMENTS	A196

B. FIELD DESCRIPTIONS AND CODES

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

Refers to the depth in centimeters within the section at which the rock was sampled.

TOP OF CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the level at which the core was sampled.

ANALYST CODE:

TABLE 1 - ANALYSTS'/AUTHORS' CODES

LEG	CODE	ANALYST/AUTHOR
14	LOW	Lowrie, W.
15	LOW	Lowrie, W.
16	HALL	Hall, J. M.
19	WHIT	Whitney, J.
23	HAM	Hamilton, N.
25	WOLE	Wolejszo, J.
26	PEIR	Peirce, J. W.
27	MCEL	McElhinny, M. W.
28	LOW	Lowrie, W.
29	LOW	Lowrie, W.
32	LARS	Larson, R.
33	CKM	Cockerham, R. S.
34	HALL	Hall, J. M.
	TARA	Tarasiewicz, G.
	GROM	Gromme, S.
	ELL	Ellwood, B.
	DEN	Denham, C.
	LOW	Lowrie, W.
37	HALL	Hall, J. M.
	BLEI	Bleil, U.
	ELL	Ellwood, B.
	KENT	Kent, D.
	BREC	Brecher, A.
	DEUT	Deutsch, E.
	SCHW	Schwartz, E.
	CARM	Carmichael, C.
38	KENT	Kent, D.
41	KENT	Kent, D.
42	PET	Petersen, N.
43	PET	Petersen, N.
45	JOH	Johnson, P.
46	PET	Petersen, N.
49	DAY	Day, R.
51	BLEI	Bleil, U.
	LEVI	Levi, S.
	HAMY	Hamano, Y.
52	LEVI	Levi, S.
	BLEI	Bleil, U.
	HAMY	Hamano, Y.

	RIG	Rigotti, P.
53	RIG	Rigotti, P.
	HAMY	Hamano, Y.
	LEVI	Levi, S.
54	PET	Petersen, N.
55	KONO	Kono, M.
58	KNS	Kinoshita, H.
59	KEA	Keating, B.
60	BLEI	Bleil, U.
61	STR	Steiner, M.
	SYR	Sayre, W.
62	SYR	Sayre, W.
63	DEN	Denham, C.
	SUR	Pal Verma, S.
64	VAC	Vacquier, V.
	SUR	Pal Verma, S.
65	DAY	Day, R.
	PECH	Pechersky, D. M.
66	NM	Niitsuma, N.
68		unknown
69	PECH	Pechersky, D. M.
	FUR	Furuta, T.
	ODON	O'Donovan, J. B.
70	FUR	Furuta, T.
	PECH	Pechersky, D. M.
	LEVI	Levi, S.
71	SAL	Salloway, J.
72	HAM	Hamilton, N.
73	PET	Petersen, N.
	HOUS	Housden, J.
75	KEA	Keating, B.
76	TEST	Testarmata, M.
77	KNS	Kinoshita, H.
	TEST	Testarmata, M.
78	WIL	Wilson, D.
81	KRMK	Krumsiek, K.
82	SMIT	Smith, G. M.
83	SMIT	Smith, G. M.
	KNS	Kinoshita, H.
	NEW	Newmark, R.
	FACY	Facey, D.
84	LIE	Lienert, B.
85	WEIN	Weinreich, N.
89	OGG	Ogg, J.
91	MONT	Montgomery, A. F.
92	NISH	Nishitani, T.

PIECE NUMBER:

The sample number assigned to the rock is included when available.

LITHOLOGY CODE:

TABLE 2 - LITHOLOGY CODES

I = Igneous
S = Sedimentary
M = Metamorphic
T = Tuff (sedimentary)
V = Volcanic breccia (igneous)
B = Brecciated (igneous)

MEASUREMENTS CODE:

C = Shipboard
S = Onshore

DATA SOURCE CODE:

TABLE 3 - DATA SOURCE CODES

R = Initial Reports (IR)
S = Hole Summary Book (HSB)
A = Prime data archives

NATURAL REMANENT MAGNETIZATION INTENSITY:

NRM intensity is encoded in gauss or emu/cc units. It is always represented in scientific notation.

NATURAL REMANENT MAGNETIZATION INCLINATION:

Information about the polarity is contained in the sign preceding the inclination. Units are degrees. No absolute value should exceed 90 degrees.

NATURAL REMANENT MAGNETIZATION DECLINATION:

Values range from 0 to 360 degrees and are always positive.

STABLE INCLINATION:

The value after alternating field demagnetization.

STABLE DECLINATION:

The value after alternating field demagnetization.

QUALITY OF ORIENTATION:

TABLE 4 - QUALITY OF ORIENTATION CODES

G = good
MG = medium good
P = poor
VP = very poor
U = unstable
M = medium
R = reversed
N = none
F = fair
PC = polarity corrected
UC = unoriented
SI = shallow orientation

MEAN DEMAGNETIZING FIELD:

Symbols for greater than ">" and less than "<" may appear in the MDF field.

INITIAL SUSCEPTIBILITY:

Always represented in scientific notation.

KOENIGSBERGER RATIO:

Obtained by the formula: NRM intensity/(initial susceptibility x H), where H is the Earth's magnetic field at the sampling location.

THERMOMAGNETIC CURVE:

A "C" is encoded in this field if the Curie temperature is from the cooling curve, an "H" if it is from the heating curve.

CURIE TEMPERATURE:

Temperature read from the thermomagnetic curve.

SATURATION INTENSITY:

Entered as a decimal.

SATURATION REMANENCE:

Entered as a decimal.

COERCIVE FORCE:

Symbols for greater than ">" and less than "<" may appear in this field.

REMANENT COERCIVE FORCE:

Symbols for greater than ">" and less than "<" may appear in this field.

GRAIN-SIZE:

Grain-size may have been determined by a visual estimate. Units are microns. Often a range is given.

COMMENT RECORD:

The rock name, degree of alteration and comments about the results belong here. Lithological information about the rock sample, including the rock name and a visual estimate of the degree of alteration, is taken from the Visual Core Descriptions for Igneous Rocks forms, which are completed by the shipboard scientists soon after core recovery.

TABLE 5 - ALTERATION CODES

ALT FRESH	=	ROCK IS FRESH
ALT MOD	=	MODERATELY ALTERED
ALT EXT	=	EXTENSIVELY ALTERED
ALT INTENSE	=	INTENSELY ALTERED
ALT SLIGHT	=	SLIGHTLY ALTERED

revised by ODP
October 1987

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=       DEEP SEA DRILLING PROJECT       =
=    LONG-CORE SPINNER MAGNETOMETER     =
=  SEDIMENT PALEOMAGNETICS DATA BASE    =
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I. INTRODUCTION

A. BACKGROUND AND METHODS

The Deep Sea Drilling Project (DSDP) long-core spinner magnetometer file contains shipboard data taken by the Digico long-core spinner magnetometer. This instrument measures the direction (declination) and intensity of the horizontal component of magnetization of the sediment in unsplit 1.5 meter core sections. The measurements were made immediately after the cores were brought aboard.

Leg 47A measurements are from rotary drilled sediment cores. The remaining measurements are from sediments recovered by the hydraulic piston corer.

Listings of the computer-processed magnetometer data were usually included with the Hole Summary Book paleomagnetics report. On Legs 70 and 71 the paleomagnetists transcribed the data from the computer listings to data forms.

To insure compatibility with DSDP plotting routines, records containing all null data fields were discarded. For example, on Legs 68 and 70, measurements at a few levels yielded no recorded values, but under sedimentolgical notes "range" meaning "saturated" was printed. These records were discarded.

B. LEGS IN DATA SET

The data base contains data from Legs: 47A, 68, 70, 71, 72, 75 and 90.

C. BIBLIOGRAPHY

Ryan, W. B. F. and U. von Rad, 1976. Hole Summary Book for Leg 47A. Paleomagnetist: N. Hamilton.

Montadert, L., and D. G. Roberts, 1976. Hole Summary Book for Leg 48. Paleomagnetist: E. A. Hailwood.

Gardner, J. V. and W. L. Prell, 1979. Hole Summary Book for Leg 68. Paleomagnetists: D. Kent and D. Spariosu.

Honnorez, J. and R. P. Von Herzen, 1979. Hole Summary Book for Leg 70. Paleomagnetist: S. Levi.

Ludwig, W. J. and V. Krasheninnikov, 1980. Hole Summary Book for Leg 71. Paleomagnetists: J. Salloway and J. Bloemendal.

Barker, P. F. and R. L. Carlson, 1980. Hole Summary Book for Leg 72. Paleomagnetists: N. Hamilton and A. Suzyumov.

Hay, W. W. and J. C. Sibuet, 1980. Hole Summary Book for Leg 75. Paleomagnetist: B. Keating.

Kennett, J. R. and C. C. von der Borch, 1983. Hole Summary Book for Leg 90. Paleomagnetist: C. E. Barton.

D. DATA RELIABILITY

The user should refer to the Hole Summary Books for complete discussions of the results and their reliability.

Leg 47A

Site 397A: The paleomagnetist experimented with using the long-core spinning unit for Site 397A rotary-drilled cores. Two suitable 1.5 meter core sections were spun on separate occasions. The system worked according to specifications. It was concluded that major lithological changes could easily be recognized by intensity values and by swings in relative declination, which then could be used as a guide to sampling.

Leg 48

Sites 401 and 402: A total of seven 1.5 meter rotary-drilled core sections were measured. Measurements were usually taken at 1 cm intervals with triplicate measurements at each 10 cm point. The data were included in the Hole Summary Book paleomagnetics section. The data were described as mostly unreliable with inconsistent repeat readings most likely due to slippage of the core-section within the plastic liner during rotation. The results were not included in the data base.

Leg 68

Site 502: Shipboard personnel attempted to maintain relative orientation between successive cores, but the paleomagnetist reports they may have been only partially successful. They did maintain relative orientation between the sections cut from each 4.4 meter core. Cores were measured immediately after being brought aboard ship. "Very high values of remanent intensity often occur in the disturbed parts of the core and may be caused by magnetic grain alignment [due to] sediment shearing, by realignment of magnetic grains in a relatively strong magnetic field, perhaps associated with the steel drill string (or possibly we are detecting the shear pins that fall into the hole after each core)."

Site 503: Rust scale from the drill string was a serious problem. Dark flecks were concentrated at the top of virtually every core and the core was smeared inside the liner to several meters, even in undisturbed portions of the core. Rust scale, of course, is highly magnetic. This was a serious problem in Hole 503A, but less so in Hole 503B. Long-core magnetic data from the topmost 1.5 meters of most cores could not be used because of the rust contamination. Modification to the corer between Sites 502 and 503 greatly improved core to core orientation and at Site 503 greater attention was paid to handling the cores on deck.

In August, 1981, the Leg 68 co-chief scientists forwarded a list of orientation angles (phi) that go with each core for Sites 502 and 503. Phi is the rotation angle measured from the orientation ring for each core. The rotation angles have been entered in the remarks field of Leg 68 sediment paleomagnetics records.

Leg 70

Site 506: The paleomagnetist, S. Levi, states (personal communication) that he would not have confidence in Leg 70 long-core spinner magnetometer data (especially Site 506) because of rust contamination and physical disturbance of the sediment. However, the data might show trends and gross differences. Data for declination and intensity are usually good beyond the first section, sometimes beyond the top 50 cm of the first section.

Site 507: Very similar to Site 506.

Site 509: Hole 509 is composed of foram-nanno ooze. The results are similar to those at the previous sites. The manganese-oxide fragments show weak magnetization intensity. Hole 509B was composed of layers of MnO_2 fragments, "hydrothermal clays", and foram-nanno oozes.

Leg 71

Site 512: In most cases an approximate orientation was preserved between cores. However, orientation was lost on Cores 2, 12, and 13. Large quantities of gravel occurred in the upper parts of many cores. The gravel probably fell down the hole from above. It produced the relatively high intensities (often over 1000 microgauss) and the scattered declinations visible in Section 1 of many of the cores.

Site 514: Pipe-rust occurred frequently in the cores, particularly in Section 1, but also in variable quantities in the lower sections of the cores. "This problem constitutes a severe limitation on the use of the long-core spinner to measure weakly magnetized sediments."

Leg 72

Hole 515A: "Invariably the upper 50 cm or so of Section 1 from each core gives anomalous declination and intensity results. This appears to correlate with evidence of visible disturbance and is often reflected in the G.R.A.P.E. determination." Wildly fluctuating values for a single reading can occur below the first 50 cm of the first section. Rust was probably not a factor in the anomalous readings, as the drill pipe was used for rotary coring at Hole 515.

Site 517: Quality of the long-core data at Site 517 is inferior to that produced for the more cohesive sediments from Site 515. Anomalous changes in declination and intensity were most common in the upper part of a section of each core.

Results measured on Cores 1 and 2 cannot be directly compared with the discrete samples because the sections changed length when rotated. Sedimentologists in the core lab tried to reduce the sections to their original length.

Site 518: The sediments recovered here were generally firmer than at Site 517. Cores were carefully inspected for evidence of voids, soupy disturbance and excessive water between liner and sediment surface before selection for spinning.

Leg 75

Hole 530B: Paleomagnetic studies were unsuccessful except for Core 530B-8, Sections 2 and 3, which did give stable paleomagnetic directions. There were three reasons for the failure:

1) Much of the sediment consisted of debris flows and turbidites.

2) The sediments were weakly magnetized and in many cases the noise level of the magnetometer exceeded or was equal to sample magnetization. For these reasons no NRM intensity values are available for Site 530B.

3) There was considerable contamination of sediments with rust from the drill string.

Leg 90

The objective of the onboard studies was to obtain a detailed magnetic stratigraphy by making closely spaced long-core measurements of the horizontal component of NRM for all HPC cores. It was not always possible to achieve this objective and the cores were sampled for subsequent laboratory studies. Fluid sections and sections containing air pockets were not measured.

Hole 587: Contamination by rust was not a serious problem. High intensity spikes were attributed to grease spots/rust particles, although contamination was not always visible in the section. Measurements were discontinued after core 7 because of the poor quality of the results.

Site 588: All well-preserved cores from Holes 588, 588A and 588B were measured with the exception of Hole 588B, cores 10-19. The Digico magnetometer was noisy and much of the sediment failed to give a signal significantly higher than the noise level of the instrument (about 0.1 microgauss at 2**6 spins). Absolute orientations were obtained on most cores using the Kuster device. Declination plots for all the cores measured were presented in an appendix to the Hole Summary Book magnetics section.

The Site 588 results were summarized on Summary Paleomagnetic Measurements forms, copies of which are kept on microfilm in the ODP Data Archives. Measurements were made at 10 cm steps (2**6 spins). Below core 588B- 20, intervals of 20 cm were used. The Summary Paleomagnetic Measurements tabulation lists the mean NRM intensity value with standard deviation of the measurements taken in each section. The standard deviations are rather large because of the presence of a small number of high values in the section. Thus, the means are much higher than typical values. This data file lists the mean value for each section, but not the standard deviation.

Hole 589: Paleomagnetic properties are similar to those of Site 588. The better consolidated sections were measured at 20 cm intervals. The material in core 1 is more strongly magnetized than the lower cores. The scattered declinations of the lower cores are attributed to contamination and the effect of core liners rather than to instrument noise.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL DEPTH (cm)	F5.1
TOP OF CORE DEPTH (meters)	F8.2
SAMPLE DEPTH IN HOLE (meters)	F8.2
REPEAT COLUMN	I1
SEDIMENTOLOGICAL NOTES	A25
NRM INTENSITY (gauss x 10-6)	F10.3
NRM DECLINATION, ANGLES UNCORRECTED (degrees)	F7.1
NRM DECLINATION, ANGLES CORRECTED (degrees)	F7.1

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

Refers to the depth in centimeters within the section at which the top or bottom of a measurement was taken. No bottom interval depths are given for the measurements in this file.

Measurements are usally made at 10 cm intervals, however, measurements may be more closely spaced, at 2 cm or 5 cm intervals, for example.

CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the level at which the measurement was made.

REPEAT COLUMN:

The paleomagnetist often returned to make measurements at higher levels in the section or to repeat measurements following the usual sequence. A field has been reserved for recording repeat measurements. "0" is entered in the field if there is only one measurement for an interval. There is a "1" for the first repeat measurement, a "2" for the next repeat and so on. Records of a section with the same number in the repeat column are from a single measurement sequence.

SEDIMENTOLOGICAL NOTES:

Only 25 columns were available for the sedimentological notes. In encoding, the notes were abbreviated when necessary. A note may be continued from the sedimentological notes field of one record to the same field on the next record.

NATURAL REMANENT MAGNETISM (NRM) INTENSITY:

NRM intensity is encoded in gauss (c.g.s. units). Every value in the NRM intensity field should be multiplied by 10-6 to arrive at the NRM intensity value.

NRM DECLINATION, ANGLES UNCORRECTED:

The horizontal angle in any given location between true north and magnetic north. Values range from 0 to 360 and are always positive. The paleomagnetists tried to maintain relative orientation between successive cores. Attention was paid to handling the cores on deck to preserve relative orientation.

NRM DECLINATION, ANGLES CORRECTED:

This field was used only when the paleomagnetist noted corrected values.

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October 1987

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=           DEEP SEA DRILLING PROJECT           =
=         PALEOMAGNETICS MEASUREMENTS           =
=      SEDIMENT PALEOMAGNETICS DATA FILE        =
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I. INTRODUCTION

A. BACKGROUND

This file contains paleomagnetic measurements made on discrete sediment samples by the Digico computerized spinner magnetometer. This instrument measures the direction (inclination and declination) and intensity of magnetization of the sample. The file holds two sets of measurements for each sample: 1) Natural remanent magnetization (NRM) values. For some DSDP legs these will be the only available results. 2) Stable magnetic values. These are the results from optimally demagnetized samples. Usually pilot demagnetizations were carried out on a few samples to determine how strong a field was needed to produce stable directions of magnetization. Once the optimum demagnetizing field was determined, all of the samples were demagnetized in that field.

Data were encoded primarily from the shipboard "Hole Summary Book", the DSDP data archives and the "Initial Reports of the Deep Sea Drilling Project". The file contains both shipboard measurements and measurements made at onshore laboratories. Shipboard paleomagnetic apparatus included a Digico balanced fluxgate spinner magnetometer, a Schonstedt alternating field GSD-1 demagnetizer, and a Bison magnetic susceptibility meter.

Magnetic measurements contained in this file are from core samples recovered by the punch core-rotary drilling and the hydraulic piston coring methods. Each record contains a code for the coring method.

B. METHODS

Magnetic properties recorded in the file include natural remanent magnetization (NRM) intensity, declination, inclination, initial susceptibility, stable magnetization intensity, declination, inclination, and mean demagnetizing field.

Results of more than one demagnetization - pilot demagnetizations fall into this class - are contained in the Alternating Field Demagnetization file.

In some cases thermal rather than alternating field demagnetization was used. Information about the heat demagnetization was stored in the comment record.

The following quote concerning data reliability is taken from the Hole Summary Book paleomagnetics section for Leg 79, "It is important to mention here a crucial limitation of the shipboard magnetometer. Magnetization intensity values are often not repeatable and can flucuate by up to 50% for samples with intensities one order of magnitude above noise level... Magnetization directions are generally repeatable."

Each record contains an identifying code for the analyst's or first author's name. See Table 1 for the index to analysts' codes.

A blank field means not determined.

Magnetic intensities are expressed in emu/cm3. In a few later DSDP reports data were expressed in SI units. The DSDP encoders converted these to CGS units. The following conversions were used:

A/m X 10-3 = emu/cm3
mT X 10 = oersteds

C. LEGS IN DATA SET

The data set contains data from Legs 1-8, 13, 15, 17, 22-23, 27-28, 33, 37-38, 41-42, 47-48, 51-52, 54, 57-64, 66, 68, 71-82, 84-87, 89-91, and 93-94.

D. BIBLIOGRAPHY

Partial references to analytical methods for shipboard measurements

Ludwig, W. J. and V. Krasheninnikov. 1980. Hole Summary Book for Leg 71. Paleomagnetists: J. Salloway and J. Bloemendal.

Barker, P. F. and R. L. Carlson. 1980. Hole Summary Book for Leg 72. Paleomagnetists: N. Hamilton and A. Suzyumov.

Hsu, K. J. and J. L. La Brecque. 1980. Hole Summary Book for Leg 73. Paleomagnetists: J. L. La Brecque, N. P. Petersen, L. Tauxe, and P. Tucker.

Hay, W. W. and J.-C. Sibuet. 1980. Hole Summary Book for Leg 75. Paleomagnetist: B. Keating.

Roberts, D. G. and D. Schnitker. 1981. Hole Summary Book for Leg 81. Paleomagnetist: K. Krumsiek.

For methods used in a shore-based study, consult the paper in the Initial Reports. The results and analytical information about shipboard analyses similarly are published in the Initial Reports and the Hole Summary Books. See Table 1 for the index to analysts' codes.

II. FORMAT, FIELD DESCRIPTIONS, AND CODES

A. RECORD FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL DEPTH (centimeters)	F5.1
BOTTOM INTERVAL DEPTH (centimeters)	F5.1
TOP OF CORE DEPTH (meters)	F8.2
SAMPLE MIDPOINT DEPTH (meters)	F8.2
REPEAT	I1
CORING DEVICE CODE	A1
ANALYST CODE	A4
NRM INTENSITY	A7
EXPONENT NRM INTENSITY	I1
NRM DECLINATION	A6
NRM INCLINATION	A5
MEAN DEMAGNETIZING FIELD	I3
ALTERNATING FIELD DEMAGNETIZATION	I4
AFD INTENSITY	A7
EXPONENT AFD INTENSITY	I1
AFD DECLINATION	A6
AFD INCLINATION	A5
INITIAL SUSCEPTIBILITY	A7

EXPONENT SUS INTENSITY	I1
COMMENTS	A150

B. FIELD DESCRIPTIONS AND CODES

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

Refers to the depth in centimeters within the section at which the rock was sampled.

TOP OF CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE MIDPOINT DEPTH:

The subbottom depth in meters to the level at which the core was sampled.

REPEAT:

The paleomagnetist occasionally repeated the measurement. A "0" was entered in REPEAT if there was only one measurement for the interval. There is a "1" for the first repeat and so on.

CORING DEVICE CODE:

H = Hydraulic Piston Corer
(includes Variable Length Piston Corer)
R = Conventional Rotary Drilling Corer
(includes Extended Core Barrel)

ANALYST CODE:

TABLE 1 - ANALYSTS'/AUTHORS' CODES

"IR" = Initial Reports of the Deep Sea Drilling Project
"HSB" = Hole Summary Book

"ARCH" = Data Archives of the Deep Sea Drilling Project

LEG	CODE	ANALYST/AUTHOR	SHIP	ONSHORE	DATA SOURCE
1	OP	Opdyke, N. D.		X	IR
2	OP	Opdyke, N. D.		X	IR
3	OP	Opdyke, N. D.		X	IR
4	OP	Opdyke, N. D.		X	IR
5	DOEL	Doell, R. R.		X	IR
6	DOEL	Doell, R. R.		X	IR
7	SCLA	Sclater, J. G.		X	IR
8	DOEL	Doell, R. R.		X	IR
13	RYAN	Ryan, W. B. F.		X	IR
15	OP	Opdyke, N. D.		X	IR
17	JARR	Jarrard, R. D.		X	IR
22	JARR	Jarrard, R. D.		X	IR
23	HAM	Hamilton, N.		X	IR
27	BREC	Brecher, A.		X	IR
	JARR	Jarrard, R. D.		X	IR
28	ALL	Allis, R. G.		X	IR
33	JARR	Jarrard, R. D.		X	IR
37	HALL	Hall, J. M.	X		IR
38	LVL	Lovlie, R.		X	IR
41	HAWO	Hailwood, E. A.		X	IR
42	HAM	Hamilton, N.		X	IR
47	HAM	Hamilton, N.		X	IR
	MGAN	Morgan, G.		X	IR
48	HAWO	Hailwood, E. A.	X	X	IR
51	BLEI	Bleil, U.		X	IR
	KELT	Kelts, K.		X	IR
52	BLEI	Bleil, U.		X	IR
54	PET	Petersen, N.	X		IR
57	HALL	Hall, J. M.		X	IR
58	KNS	Kinoshita, H.	X	X	IR
59	KEA	Keating, B.	X	X	IR
60	BLEI	Bleil, U.	X	X	IR
61	STR	Steiner, M.	X	X	IR
62	SYR	Sayre, W. O.	X	X	IR, HSB
63	DEN	Denham, C. R.		X	IR
64	LV	Levi, S.		X	MANUSCRIPT
66	NM	Niitsuma, N.	X	X	IR
68	HAWO	Hailwood, E. A.	X		IR
71	SAL	Salloway, J.	X		HSB
72	HAM	Hamilton, N.	X		HSB
73	PET	Petersen, N.	X		ARCH
74	CHA	Chave, A.		X	MANUSCRIPT
75	KEA	Keating, B.	X	X	MANUSCRIPT
76	OGG	Ogg, J.		X	IR
77	TEST	Testarmata, M.	X		HSB
78	WIL	Wilson, D.	X		IR
79	CNL	Channell, J.	X		HSB
80	TOWN	Townsend, H. A.	X	X	IR

81	KRMK	Krumsiek, K.	X	X	IR
82	KHAN	Khan, M.	X		HSB
84	LIE	Lienert, B.	X		HSB
85	WEIN	Weinreich, N.	X	X	IR, HSB
86	BLEI	Bleil, U.	X		HSB
	LV	Levi, S.		X	IR
	(additional data available on magnetic tape from ODP)				
87	NM	Niitsuma, N.	X		IR
89	OGG	Ogg, J.	X	X	HSB, IR
90	BRTN	Barton, C.	X	X	ARCH, HSB, IR
91	MONT	Montgomery, A.		X	IR
93	OGG	Ogg, J.		X	IR
94	CLEM	Clement, B.	X		ARCH

NRM, AFD INTENSITY:

Expressed here in CGS units and in scientific notation. The negative exponent of the power of ten is stored in the appropriate intensity exponent field.

NRM, AFD, SUS INTENSITY EXPONENTS:

In this file magnetic intensity is recorded in scientific notation. Each magnetic intensity value should be multiplied by 10 to the negative value of the number in the appropriate intensity field.

DECLINATION:

Units are degrees.

INCLINATION:

The sign (-, or blank for +) gives the polarity of the inclination. Units are degrees.

MEAN DEMAGNETIZING FIELD:

Alternating field necessary to erase half the original magnetic intensity. It is a measure of stability of remanence.

ALTERNATING FIELD DEMAGNETIZATION:

Demagnetizing force in oersteds. In some cases thermal demagnetization was used. Information about heat demagnetization was stored in COMMENTS.

INITIAL SUSCEPTIBILITY:

Always represented in scientific notation. The negative exponent of the power of ten is stored in EXPONENT SUS INTENSITY. Units are gauss/oersteds.

COMMENTS:

The rock name and comments about the results belong here. Lithological information about the rock sample is taken from the Visual Core Descriptions forms, which are completed by the shipboard scientists soon after core recovery.

revised by ODP
October 1987

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=  DEEP SEA DRILLING PROJECT    =
=     DENSITY-POROSITY DATA     =
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I. INTRODUCTION

A. BACKGROUND AND METHODS

Water content and density measurements were regularly made aboard the Glomar Challenger on core samples selected by the shipboard party. These samples were completed at sea, nearly always by the chemistry technician. One of three different techniques was normally used but the specific method was not stored in the data record. The technique may be determined, if necessary, by examination of the prime data sheets or the appropriate chemistry laboratory notebook. These data are available on microfilm from ODP or the National Geophysical Data Center.

Typical records in this data set contain either a complete suite of values (Water Content, Porosity, Density, Grain Density) or Water Content only, dependent upon the existence of a volume measurement. All calculations were duplicated post-cruise by computer and discrepancies with shipboard values were rectified. Except for 5 sites from Leg 96 (see SALT CORRECTION LEG 96) all data were encoded directly from the worksheets used aboard the ship and calculations done without a salt correction.

Syringe Technique (Boyce, 1976)

Beginning with leg 1 the syringe technique was used for soft sediments until it was gradually supplanted by other techniques beginning at about Leg 30. The accuracy of the syringe technique was limited because the weight of the wet sediment plus its weighing container could not exceed one gram. It continued to be occasionally utilised for extremely unconsolidated sediments.

Chunk Technique (Boyce, 1976; Boyce, 1984)

The 'chunk' technique (Boyce,1976) was used initially for sediments that were too hard for the syringe technique; since volume was not measured it yielded only water content values. Sometime just prior to Leg 30 the introduction of a triple beam balance, modified for making direct weighings of irregularly-shaped samples in air and in water, permitted the determination of volume, and therefore density and porosity, of any sediment sample that would not rapidly disaggregate in water (Boyce, 1984.). Subsequently, appropriate sample size was limited only by the capacity of the balance used: ~300 grams.

Cylinder Technique (Boyce, 1984)

The cylinder technique involved sampling the sediments with sharpened stainless steel rings of known weight and volume and then proceeding as with the syringe technique. Until Leg 79 these samples were sent to the sediment laboratory at DSDP for processing. Subsequent to the closing of that facility they were processed aboard the vessel.

B. LEGS IN THE DATA SET

Data type	Legs
No Data	41
Water content	1-40, 42-96
Porosity and/or density	2-40, 42-49, 51-86, 88-96

C. REFERENCES

Boyce, R. E., 1976. Definitions and laboratory techniques of compressional sound velocity parameters and wet-water content, wet-bulk density, and porosity parameters by gravimetric and gamma ray attenuation techniques. In Schlanger, S. O., Jackson, E. D., et al., Initial Reports of the Deep Sea Drilling Project, Vol. 33: Washington (U.S. Govt. Printing Office), 931-958.

Boyce, R. E., 1984. Methods for laboratory-measured physical properties. In Hay, W. W., Sibuet, J. C., et al., Initial Reports of the Deep Sea Drilling Project, Vol. 75 Part 2: Washington (U.S. Govt. Printing Office), 1179-1187.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL DEPTH (centimeters)	F5.1
BOTTOM INTERVAL DEPTH (centimeters)	F5.1
TOP OF CORE DEPTH (meters)	F8.2
SAMPLE DEPTH (meters)	F8.2
WET WATER CONTENT (no units)	F8.2
POROSITY (no units)	F8.2
WET BULK DENSITY (g/cc)	F8.3
GRAIN DENSITY (g/cc)	F8.3
SALT CORRECTION LEG 96 (* or blank)	A1

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (Core_char), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

The depth, in centimeters, within a section at which the top or bottom of a measurement was taken.

CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the point of measurement.

WET WATER CONTENT:

Wet water content is the ratio of the mass of water in a sediment sample to the mass of that wet sample, multiplied by 100.

POROSITY:

Porosity is the ratio of the volume of the porespace in a sediment sample to the volume of that wet sample. The volume of the porespace is directly proportional to the mass of water in the sediment sample.

WET BULK DENSITY:

Wet bulk density is the ratio of the mass of a wet sediment sample to the volume of that wet sample, expressed in grams per cubic centimeter.

GRAIN DENSITY:

Grain density is the ratio of the bulk density minus the porosity to the complement of the porosity as shown in the following equation.

(Bulk Density - Porosity)/(1 - Porosity)

The grain density value is inherently inaccurate because of its sensitivity to errors in the porosity and density values from which it is calculated.

SALT CORRECTION LEG 96:

There was NO SALT CORRECTION used in calculating the data in this database, with one exception: for five sites drilled on Leg 96 the original work sheets were never returned to the Data Group. Therefore it was impossible to check or recalculate the data which was reported. It was labelled "SALT CORRECTED". The salt correction factor used in these calculations is unknown. This applies only to sites: 615, 617, 621, 623, and 624. The rest of the values in this database, including the remainder of Leg 96, were calculated using a pore fluid density of 1.0 grams/cc.

revised by ODP
October 1987

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=  DEEP SEA DRILLING PROJECT   =
=     GRAIN SIZE DATA BASE     =
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I. INTRODUCTION

A. BACKGROUND AND METHODS

Grain size distribution analyses were routinely performed on Deep Sea Drilling Project cores at the project's shore-based labs through leg 79. Samples were divided according to the Wentworth (1922) scale into the following sediment size fractions:

SAND > 0.062 millimeters
SILT 0.004 to 0.062 millimeters
CLAY < 0.004 millimeters

The sand fraction was separated with a 62.5 micron sieve; the fines were processed via standard pipette techniques following Stokes settling velocities (Boyce 1972).

Detailed discussions on lab procedures may be found in the references listed below.

B. LEGS IN DATA SET

The data base contains data from legs 1-15, 17-63, 66-79.

C. REFERENCES

Boyce, R.E., 1972, Leg 11, Grain Size Analysis, In: Hollister, C.D., Ewing, J.I. et al., 1972, Initial Reports of the Deep Sea Drilling Project, Volume XI. Washington (U.S. Government Printing Office) p. 1047.

Appendix III: Shore-based laboratory procedures. In Bader, R.G. Project. In: Hays, J.D. et al., 1972, Initial Reports of the Deep Sea Drilling Project, Volume IX. Washington (U.S. Government Printing Office) pp. 779-796.

Wentworth, C.K., 1922, A scale of grade and class terms for clastic sediments. J. Geol. Vol. 30, p. 377.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL DEPTH (centimeters)	F5.1
BOTTOM INTERVAL DEPTH (centimeters)	F5.1
TOP OF CORE DEPTH (meters)	F8.2
SAMPLE DEPTH (meters)	F8.2
PERCENT SAND	F8.1
PERCENT SILT	F8.1
PERCENT CLAY	F8.1

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (Core_char), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

The depth, in centimeters, within a section at which the top or bottom of a measurement was taken.

CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the point of measurement.

PERCENT SAND, SILT OR CLAY:

The relative percent of each component in the sample.

Revised by ODP
December 1987

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==        DEEP SEA DRILLING PROJECT             ==
== Gamma Ray Attenuation Porosity Evaluator ==
==                  DATA BASE                   ==
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I. INTRODUCTION

A. BACKGROUND AND METHODS

The Gamma Ray Attenuation Porosity Evaluator or GRAPE data base is the result of a project which standardized the processing and formatting of all DSDP GRAPE data. The data base allows data from different legs and holes to be compared directly if the investigator is satisfied with the following two presumptions:

1) Full core liners (no geometric corrections)
2) Grain density = 2.70

The method of re-calculating the GRAPE data when one or both of the above conditions is not appropriate is discussed below. The symbols and definitions used in the following discussion are:

Symbol	Definition	DSDP assigned value
RHOF	Sea water density	1.025 gm/cc
MUF	Associated attenuation for RHOF	0.110
RHOG	Grain density	2.70 gm/cc
MUG	Associated attenuation for RHOG	0.100
RHOBC	Initial bulk density estimate by linear interpolation with standards.	-- calculated --
MUQTZ	Presumed attenuation coefficient of bulk sample.	0.100
RHOB	Final bulk density (file value)	-- calculated --

PHI	Porosity (fractional)	-- NOT calculated --
Symbol	**Definition**	**DSDP historical value**
DIAM	Gamma path length through bulk sample	6.61 cm = full liner
RHOSL	Estimated density of material surrounding bulk sample when DIAM < 6.61 cm.	0.00 gm/cc = air 1.50 gm/cc = 'slurry'
MUSL	Associated attenuation for RHOSL	0.100

I. Calculation of Porosity from RHOB

(1) PHI = (RHOG-RHOB)/(RHOG-RHOF)

This is the standard equation for defining porosity. It can be used directly only when RHOG=2.70 and RHOF=1.025 since these are the same values used in deriving the file value RHOB.

II. Re-calculating RHOB with Chosen Values for RHOG and RHOF

(2) PHI = (RHOG*MUG-RHOBC*MUQTZ)/(RHOG*MUG-RHOF*MUF)

Equating relations (1) and (2) allows RHOBC to be derived from RHOB by using the above default values for RHOG, MUG, RHOF, MUF and MUQTZ. Porosity (PHI) can then be calculated as an intermediate step in re-calculating RHOB with new values assigned to any of the other variables.

III. Geometric (gamma path length) correction to RHOBC

RHOBC = RHOBC*(6.61/DIAM) - (6.61/DIAM - 1)*RHOSL*MUSL/MUQTZ

With DIAM=6.61(cm) the above equation reduces to RHOBC=RHOBC (no correction). Thus the correction is used only when the gamma path length DIAM is less than the standard core liner diameter.

The accuracy of calculated GRAPE bulk density and porosity values may be limited more by the accuracy to which the above defined independent parameters are known than by the inherent limitations of the apparatus itself. This is certainly true for a large percentage of the values calculated in the file described here where a full liner and a grain density of 2.70 gm/cc have been assumed. For this reason, it is important to discuss each of the independently specified parameters used in the GRAPE calculation from the viewpoint of their potential adverse effect in determining bulk density and porosity values.

Gamma Ray Path Length Through the Material (DIAMETER)

In the case of hard rock recovery where broken rubble or a uniformly small diameter section is recovered, the percentage DIAMETER deviation from the nominal 6.61 cm section diameter will result in a similar percentage discrepancy between the actual and calculated bulk density values. Thus, without specific information on the gamma ray path length through the sample, the calculated densities should be considered a lower bound on the actual bulk density. This same concept obviously applies to sedimentary recovery as well where, in addition, the material itself may have been seriously disturbed by drilling. Diameter correction measurements have been recorded for many DSDP legs in the 'GRAPE LOG' which is part of the DSDP microfilm collection maintained at the NGDC. Hardrock and consolidated sedimentary recovery are most likely to have had extensive diameter correction measurements. Here is a partial list of legs where such measurements have been made: 33, 35, 38, 42, 43, 50, 56, 58, 60, 61, 63, 65, 71, 75, 76, 78 and 79. The core photo collection can also be examined to determine the quality and character of core recovery.

RHOSL

This parameter is assigned a value only when a re-calculation is done with a DIAMETER value less than 6.61 centimeters. With no specific value provided by the 'GRAPE LOG' microfilm records or by any other resource, the most probable assigment is RHOSL = 0.0 gm/cc (i.e., the surrounding material is air).

Attenuation Coefficients (MUF,MUG,MUQTZ)

The attenuation coefficients of the major mineral components of most marine sediments can be represented by a single uniform value without introducing 'undue' error in calculating GRAPE bulk density and porosity values. This assumption requires that the gamma ray source be adjusted to the correct energy level. An investigator would have to be familiar with the particular GRAPE apparatus and its theory before using attenuation coefficient values different than the default values listed above.

Grain Density (RHOG)

The assumed file value of this parameter (2.70 gm/cc) is an approximate mean for much of the DSDP sedimentary recovery. The re-calculation of bulk density and porosity with different RHOG values shows that the bulk density value is far less responsive to changes in RHOG than is the porosity value. Each investigator must make his own quantitative assessment of the 'sensitivity' of these values from the viewpoint of his own research objectives.

Sea Water Density (RHOF)

The default value of this parameter is sufficiently precise with respect to the distribution of actual sea water densities that a replacement value should have no significant effect on the bulk density and porosity calculations.

Each record of the file represents a core section (nominal 1.5 meters) and is prefixed by the standard 11 character DSDP label. The GRAPE apparatus continously scans a single section from end to end and then halts until the operator manually intitates scanning for the next section. Standards may be run at any time and section densities are always calculated with respect to the most recently run standard of the appropriate type. Anomalously high isolated density values sometimes are found within an otherwise representative density profile. Such values should be considered suspect because of hardware and procedural errors that are known to so manifest themselves. In particular, a high density at the very beginning or very end of a section probably results from operator error in aligning the scanner with respect to the brass cylinders that are placed at both ends of a section. Because of these and other considerations, a straightforward averaging of the density values of this file would be a poor method of characterizing the actual density profile of a section; some simple algorithm based on 'highest sustained densities' within a section will undoubtedly yield better results.

B. LEGS IN THE DATA SET

The data base contains data from all legs except Leg 46. Approximately 1 of every 1.9 sections recovered by the DSDP were successfully scanned and processed for inclusion in the GRAPE data base.

C. REFERENCES

Boyce, R.E., 1976, Leg 33, Definitions and Laboratory Techniques of Compressional Sound Velocity Parmeters and Wet-Water Content, Wet-Bulk Density, and Porosity Parameters by Gravimetric and Gamma Ray Attenuation Techniques. In: Schlanger, S.O., Jackson, E.D., et al., 1976, Initial Reports of the Deep Sea Drilling Project, Volume XXXIII. Washington (U.S. Government Printing Office) pp. 931-958.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP_CORE (meters)	F8.2
CENTER OF FIRST DENSITY DEPTH (meters)	F8.2
DENSITY POINT INCREMENT (centimeters)	F6.3
SOURCE CODE ("T","E","L")	A1
STANDARD CODE ("S","D","A")	A1
GAMMA IDENTIFIER: LOW DENSITY STANDARD	A4
GAMMA IDENTIFIER: HIGH DENSITY STANDARD	A4
DENSITY VALUES	160 F4.2

The number of values per record varies with the data source (T,E,L):

T = TUCSON DATA	160 values
E = EARLY CHALLENGER DATA	150 values
L = LATE CHALLENGER DATA	135 values

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

TOP OF CORE:

The subbottom depth in meters to the top of the core.

CENTER OF FIRST DENSITY DEPTH:

The subbottom depth in meters to the center of the first averaged density.

DENSITY POINT INCREMENT:

The distance in centimeters between consecutive density points.

SOURCE CODE:

T = TUCSON DATA (Digitized from strip charts by *D.C.S.)
E = EARLY CHALLENGER DATA (Pre-leg 71)
L = LATE CHALLENGER DATA (Legs 71-96)

* Digitgraph Computer Systems
Box 5907
Tucson, Arizona 85703
U.S.A.

STANDARD CODE:

Each standard consists of two parts as outlined below. As a point of information, the gamma ray attenuation of 2.54 cm of aluminum is approximately equivalent to 6.61 cm of water.

CODE LOW DENSITY STANDARD HIGH DENSITY STANDARD ====
======================== =====================
S Sea water (6.61 cm) Aluminum (6.61 cm) D Distilled water (6.61 cm) Aluminum (6.61 cm) A Aluminum (2.54 cm) Aluminum (6.61 cm)

GAMMA IDENTIFIER FOR STANDARDS:

This value is derived from the standard calibration run that was used in processing the section. Taken together, the low and high density gamma identifiers should constitute a unique couple that allows the investigator to see when (sequentially) a new standard was run. For 'Challenger' data the file value is 1000*(LOG BASE 10 OF AVERAGE GAMMA COUNT). For 'Tucson' data the value represents the linear units of the strip chart trace of the standard.

DENSITY VALUES:

Density values are averaged to give approximately one value for every centimeter of section. Since the sampling interval was different for each of the three data sources (see DATA SOURCE), the number of samples averaged for each type of data varies. The table below lists for each data source the number of samples averaged, the length in centimeters represented by each averaged density and the number of averaged densities present in each data record. The length of every record is the same regardless of the number of density values calculated for a section. Records with less than 160 density values are completed with blank space. Any densities which did not fall between 1.03-4.50 g/cc were considered to be either voids or data spikes and were assigned a value of zero.

SOURCE	SOURCE CODE	NUMBER OF COUNTS AVERAGED	LENGTH (cm) PER AVERAGED DENSITY	NUMBER OF DENSITIES IN RECORD (one section)
Tucson	T	5	0.938	160
Pre-Leg 71 Challenger	E	3	1.023	150
Legs 71-96 Challenger	L	2	1.142	135

****NOTE: The DSDP Penetrometer Data Set is not available in the ODP computerized database. The data in the DSDP Penetrometer data file do not match the documentation provided by DSDP for these data. To obtain a copy of the DSDP Penetrometer data set, contact the National Geophysical Data Center, NOAA E/GC 3, 325 Broadway, Boulder, Colorado 80303.

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= Deep Sea Drilling Project =
=   Penetrometer Data Set    =
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I. INTRODUCTION

The Penetrometer test was performed onboard Glomar Challenger in the earlier Legs of DSDP. The test is generally considered to be only a qualitative indicator of sediment strength. The test was subsequently discontinued and to our knowledge no in depth studies of these results was ever undertaken. Digitized data is available only for Legs 4, 6-15. Data was probably taken on other Legs, but not digitized. Depths reported in this file were computed at the time of the cruise and will reflect and corrections to core depths.

Reference:
Bennett, R. H., Nastav, F. L., Bryant, W. R., Strength Measurements. 1984. In Heath, G. R., Ed., Sedimentology, Physical Properties, and Geochemistry in the Initial Reports of the Deep Sea Drilling Project Volumes 1-44: An Overview., National Geophysical Data Center, Boulder, Colorado, USA, 80303.

II. Record Format

Record length = 80 characters.

COLUMN	FIELD	FORMAT
1- 2	Leg	A2
3- 5	Site	A3
6	Hole	A1
7- 9	Core	A3
10-11	Section	A2
12-18	Top of Core Depth (m)	F7.1
19-27	Depth of Penetration #1 (m)	F9.3
28-36	Penetration #1 (cm)	F9.1
37-45	Depth of Pentration #2 (m)	F9.3
46-54	Penetration #2 (cm)	F9.1
55-63	Depth of Penetration #3 (m)	F9.3
64-72	Penetration #3 (cm)	F9.1

revised by ODP
October 1987

DEEP SEA DRILLING PROJECT
SONIC VELOCITY

I. INTRODUCTION

A. BACKGROUND AND METHODS

Sound velocity measurements were taken aboard the Glomar Challenger starting on Leg 2. Mention of 'sonic velocity' in early volumes of the Initial Reports (eg. McManus, 1970) often refers to several different methods for shipboard measurement of sonic velocity; this database contains only data derived via a "sonic velocimeter" used in the core lab to measure the sonic velocity of a whole core or a discrete sample of core.

Two sonic velocimeters were used. The first, borrowed from the Navy at the outset of the program, is the 'earmuff' transducer system; the name is descriptive of the transducers which were applied across the diameter of an unsplit core. On Leg 15 a 'Hamilton frame' was installed. Susequently sonic velocity measurements could be taken on whole or split core or on selected samples taken from a core.

B. LEGS IN DATA SET

The data base is complete and contains data from legs 2-12 and 14-95.

C. BIBLIOGRAPHY

Boyce, R. E., 1973. Appendix I. Physical Properties - Methods,. In: Edgar, N. T., Saunders, J. B. et al., 1973, Initial Reports of the Deep Sea Drilling Project, Volume 15, Washington (U.S. Government Printing Office) pp. 1115-1127.

Boyce, R. E., 1976. Appendix I - Definitions and Laboratory Techniques of Compressional Sound Velocity Parameters and Wet-Water Content, Wet-Bulk Density, and Porosity Parameters by Gravimetric and Gamma Ray Attenuation Techniques,. In: Schlanger, S. O., Jackson, E. D., et al., Initial Reports of the Deep Sea Drilling Project, Volume 33, Washington (U.S. Government Printing Office) pp. 931-958.

Gealy, E. L., 1971. Sound velocity, elastic constants, and related properties of marine sediments in the western Equatorial Pacific: Leg 7, Glomar Challenger. In: Winterer, E. L. et al., 1971, Initial Reports of the Deep Sea Drilling Project, Volume VII, Washington (U.S. Government Printing Office) p. 1105.

McManus, D. A., 1970. Comparison of three methods of measuring or estimating sonic velocity in sediments. In: McManus, D. A., et al., 1970, Initial Reports of the Deep Sea Drilling Project, Volume 5. Washington (U.S. Government Printing Office) p. 545.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL DEPTH (centimeters)	F5.1
BOTTOM INTERVAL DEPTH (centimeters)	F5.1
TOP OF CORE DEPTH (meters)	F8.2
SAMPLE DEPTH (meters)	F8.2
SONIC VELOCITY (kilometers/second)	F8.3
TEMPERATURE (degrees C)	F4.1
SPLIT CORE ("*" or blank)	A1
ORIENTATION ("V" or "H")	A1
INSTRUMENT CODE ("E" or "F")	A1

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (Core_char), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

The depth, in centimeters, within a section at which the top or bottom of a measurement was taken.

CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the point of measurement.

SONIC VELOCITY:

The sonic velocity in kilometers per second.

TEMPERATURE:

The room temperature measured in degrees centigrade. Although no effort was made to insure that the cores reached room temperature prior to any measurment, splitting a core usually allowed sufficient time for the core to equilibrate to the ambient lab temperature.

SPLIT CORE:

An encoded "*" means that the measurement was done on a split core. It should be noted that subsequent to leg 14 measurements were nearly always made upon split cores or pieces of split cores. This parameter was not always recorded and reference to the site summaries and Initial Reports is recommended.

ORIENTATION:

An encoded "V" indicates a vertical measurement (parallel to the core axis) and a "H" represents a horizontal measurement (perpendicular to the core axis).

INSTRUMENT CODE:

Indicates which of the two instruments was used to take the measurement.

E = EARMUFF DEVICE (Legs 2-14):

This system was borrowed from the Navy; a fair description of the principle of operation exists in Gealy, 1970. The sound transducers were held in 'earmuff' shaped devices which were placed on either side of an unsplit core.

F = HAMILTON FRAME (Legs 15-95):

Within a vertical framework one of two transducers was mounted on the lab bench with the other, adjustable, transducer attached to the end of a threaded rod above it. The distance between the two transducer heads could be accurately determined by reading a dial micrometer which monitored movement of the threaded rod (Boyce, 1973).

revised by ODP
October 1987

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= DEEP SEA DRILLING PROJECT =
= VANE SHEAR DATA BASE =
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I. INTRODUCTION

A. BACKGROUND AND METHODS

The Deep Sea Drilling Project (DSDP) vane shear data base was prepared directly from the shipboard records. Data was also taken from the Deep Sea Drilling Project Initial Reports, provided that sufficient information was given. Data which appears only on graphs within the Initial Reports was not used.

All shear strengths are encoded as grams per square centimeter. In order to convert to pounds per square inch, multiply by 0.01422. To convert to kilopascals, divide by 10. To convert to dynes per square centimeter multiply by 980.665.

B. LEGS IN DATA SET

The database contains data from legs: 31, 38, 41, 42, 43, 44, 47, 48, 50, 51, 57, 58, 61, 63, 64, 68, 69, 71-76, 78, 80, 85, 87, 90, 91, 93, and 94. Data from legs 31, 38, 51, 58, 72, 73, 80, and 93 contain only Torvane data. Legs 57 and 87 contain both Torvane and motorized vane data. The other legs consist only of motorized vane data.

C. BIBLIOGRAPHY

Boyce, R.E., 1977. Deep Sea Drilling Project procedures for shear strength measurement of clayey sediment using modified Wykeham-Farrance and laboratory vane apparatus, in: Baker, P.F., Dalziel, I.W., et al., Initial Reports DSDP, Vol. 36: Washington (U.S. Govt. Printing Office), p. 1059-1068.

Bennett, R.H., Nastav, F.L., and Bryant W.R., 1984. Strength Measurements, in: Sedimentology, Physical Properties, and Geochemistry in the Initial Reports of the Deep Sea Drilling Project, Volumes 1-44: an Overview. World Data Center A for Marine Geology and Geophysics. Report MGG-1. Chapter 8, p. 129-146.

Sibley E.A., and Yamane G., 1966 A Simple Shear Test for Saturated Cohesive Soils, in: Vane Shear and Cone Penetration Resistance Testing of In-Situ Soils. Special Technical Publication No. 399, American Society for Testing and Materials p. 39.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL DEPTH (cm)	F5.1
BOTTOM INTERVAL DEPTH (cm)	F5.1
TOP OF CORE DEPTH (meters)	F8.2
SAMPLE DEPTH IN HOLE (meters)	F8.2
DATA TYPE (R=Remolded,S=Shear,T=Torvane)	A1
SPRING CONSTANT (g-cm)	F8.5
VANE CONSTANT (cm-3)	F8.5
RATE OF VANE ROTATION (degrees/minute)	I2
DEPTH OF VANE BURIAL (cm)	F4.2
DEFORMATION TYPE ("S","R","D","I")	A1
ORIENTATION ("V","H","P","N")	A1
TAPED (Y=Yes,N=No)	A1
TEMPERATURE	F4.1
WAIT TIME (minutes) (Remolded only)	I3
TORVANE (L=Low, M=Middle, H=High capacity)	A1
TORVANE CALIBRATION HISTORY ("B","C","D","U")	A1
SHIPBOARD HAND CALCULATED VALUES	
SHEAR STRENGTH (g/cm2)	F6.1
REMOLDED STRENGTH (g/cm2)	F6.1
SENSITIVITY (no units)	F6.1
DSDP COMPUTER CALCULATED VALUES	
SHEAR STRENGTH (g/cm2)	F6.1
REMOLDED STRENGTH (g/cm2)	F6.1
SENSITIVITY (no units)	F6.1

STRESS-STRAIN DATA PAIRS (41 Pairs) A246
OBSERVER A8

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (Core_char), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

Refers to the depth in centimeters within the section at which the top or bottom of a measurement was taken.

CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the middle of the sample interval.

DATA TYPE:

There are three data types.

S = Shear data:
The initial shear strength measurement done on a sample using a motorized vane apparatus.

R = Remolded data:
A repeat shear strength measurement done on a sample which already had a shear (S) type measurement done. This test is run so that the sensitivity may be calculated. Even though the remolded (R) test is conducted after the shear (S) test, the data record for the remolded test will occur before the shear test record. There is always a shear (S) test associated with each remolded (R) test.

T = Torvane data:
A single shear strength measurement obtained from one of the Torvane instruments. Unlike a motorized vane apparatus used to collect the shear (S) and remolded (R)

data, the Torvane is hand held and provides a direct reading of shear strength in tons per square foot.

SPRING AND VANE CONSTANTS:

The measured constants for the springs and vanes used with the motorized vane apparatus. Calibration data for the springs and for vanes 1 to 4 can be found in Boyce(1977). Calibration data for vanes 5 to 8 are not available. Spring 5* is a torque cell used only on leg 78. The vane stem diameters are included for the sake of completeness. Although a correction may be made for the portion of the stem which is in contact with the sample, this correction has been ignored in this data base.

SPRING NUMBER	SPRING CONSTANT (g-cm)	VANE NUMBER	VANE CONSTANT (cm-3)	VANE STEM DIAMETER (cm)
1	9.1185	1	0.22858	0.32
2	20.219	2	0.22665	0.32
3	32.718	3	0.13264	0.310
4	51.106	4	0.13264	0.310
5*	35.338	5	0.2273	
		6	0.22367	
		7	0.23078	
		8	0.22115	
		9	0.2331	

RATE OF VANE ROTATION:

The rate of vane rotation was 89 degrees per minute for all the legs except leg 41 (90 deg/min) and leg 43 (60 deg/min). A rate of vane rotation is not encoded for Torvane data.

DEPTH OF VANE BURIAL:

The depth in centimeters that the vane blades were buried in the sample. Boyce's procedure calls for the vane to be buried 2.0 centimeters on unsplit cores and 1.0 centimeters on split cores. He goes on to say, "If the sample is too small to bury the blades 1.0 centimeters, then the depth of burial is measured and recorded". This would suggest that if this data field is blank, then one may assume that the burial depth is correct for the orientation.

DEFORMATION TYPE:

Four types of deformation may be recognized by looking at the stress versus strain plot. Deformation types are defined by how the slopes (delta-stress/delta-strain) behave between adjacent data points. Only the data up to the DSDP determined (see SHEAR STRENGTH) maximum stress value are considered. Deformation types are not determined for remolded data. The deformation types are encoded as follows:

S = Smooth deformation:
The slopes start at an initial high value and then continuously decrease.

R = Rough deformation:
The slopes do not continuously decrease but rather increase and decrease throughout the curve.

D = Discontinuous deformation:
The strain stops and starts even though the stress continued to increase steadily. This leads to a curve whose slopes repeatedly approach infinity.

I = Indeterminable deformation:
There are not enough data points present to determine the type of deformation. At least three slopes, or four stress-strain data points are required to determine the deformation type. Torvane data always has an indeterminable deformation type.

ORIENTATION:

Boyce (1977), outlined the procedure for operating the Wykeham-Farrance motorized vane apparatus. According to this procedure, the operator was instructed to record the orientation of the vane relative to the core. How this orientation was to be noted was not specifically discussed. Boyce also discusses the orientation of the vane apparatus itself in terms of being setup either vertically or horizontally. There is no indication that this information was meant to be recorded.

Unfortunately, these ambiguities were not clarified by the work sheet used at sea. The vane shear work sheet was designed as an aid in recording the various parameters used during each shear measurement. The work sheet simply asks, "vertical or horizontal?". This certainly led to confusion as to what was vertical or horizontal; the apparatus or the core? It failed to ask for an unambigous relative orientation between the vane and core.

Boyce does mention that the longer vanes (vane# 3 and 4) were to be used only on unsplit cores by inserting the vane in a core end. This is because these vanes could not be entirely buried in a split core. It can probably be assumed that any measurements which used either of these vanes, must have had the vane axis perpendicular to the plane of bedding. However, this assumption was not used in the developement of this data base.

Marine technicians who witnessed vane shear measurements on several legs have stated that the vast majority of the measurements were done on horizontal split cores with the apparatus set up in a vertical position. This would mean that for most of the tests, the axis of the vane was oriented perpendicular to the axis of the core or parallel to the plane of the bedding.

In order to clarify the orientation when it was explicitly noted by the observer, or in a DSDP Initial Report, this field is encoded as follows:

V = Vertical (Orientation is uncertain)
H = Horizontal (Orientation is uncertain)
P = Parallel (Vane axis is parallel to bedding plane)
N = Normal (Vane axis is normal to bedding plane).

TAPED:

Was the pointer taped to the pointer deflector?
Y = Yes N = No
If untaped, the pointer would remain on the maximum stress after shearing had occurred. The pointer had to be taped to the pointer deflector if the investigator wished to measure the stress and strain readings after shearing had occurred or anytime the apparatus was operated in a horizontal position.

TEMPERATURE:

Assumed to be room temperature, which in the case of a split core would usually match the temperature of the sample.

WAIT TIME:

According to Boyce(1977) this is the time which was allowed for the vane to sit stationary in the sample before the remolded test was begun. This parameter is encoded only on the remolded (R) data records.

TORVANE:

A Torvane is a hand-held device for the rapid determination of shear strength in cohesive soils. They are manufactured by SOILTEST, INC. (2205 Lee St., Evanston, Illinois, 60202).

The device gives a direct measurement of shear strength in tons per square foot (multiply by 976.486 to get g/cm*cm). There are three interchangable vane adapters which provide different ranges of operation. Since the dial on the device does not change, it is necessary to multiply the dial reading by the maximum capacity of the adapter. The vast majority of measurements were conducted using the middle range adapter. This field is encoded as follows:

L = Low: The range is 0-0.2 tons per square foot.

M = Middle: The range is 0-1.0 tons per square foot.

H = High: The range is 0-2.5 tons per square foot.

TORVANE CALIBRATION HISTORY:

The calibration history gives information regarding the use of a calibration curve provided with the instrument. The curve compares Torvane results with values derived from unconfined and triaxial compression tests. The curve applies only to the middle range Torvane. According to the manufacturer, curves are not available for the high and low range adapters. They also warn that the shape of the curve may change depending upon the material being tested. The curve labeled "fast rate of loading" was used when calculating the DSDP shear strength. A "fast rate of loading", had a time to failure of 10-20 seconds. The points along this curve that were used by the DSDP computer program are listed below.

The curve is a comparison of Torvane values to other shear strength methods. It is not always possible to tell whether an observer used the curve. In order to clarify when the curve was used this data field is encoded as follows:

B = Both:
The calibration curve was used by both the observer and DSDP. The observer reported the uncorrected Torvane readings. This allows the algorithm to use a digital representation of the curve to correct the readings. The digital representation is listed below. The program interpolates between the given points, and extrapolates beyond the points by using

the slope between the last two points. The shipboard shear strength is checked for errors if the observer recorded the values that he obtained from the curve.

C = Caution:
The calibration curve was used only by the observer, who reported only the calibrated values. Since the raw torvane readings were not recorded, calibration was not done by the algorithm when calculating the DSDP strength. The shipboard shear strength is corrected for math errors.

D = DSDP only:
The calibration curve was used only to calculate the DSDP shear strength. It is known for certain that the observer did not use it. The shipboard shear strength is corrected for any math errors.

U = Unknown:
It is not known if the calibration curve was applied to the original data. No corrective action is taken on the data prior to calculating the DSDP shear strength. The shipboard shear strength is corrected for math errors.

CALIBRATION CURVE USED BY DSDP COMPUTER PROGRAM

The points are given in Cartesian coordinates (x,y). The abscissa (x-axis) should be labeled TORVANE SHEAR STRENGTH (tons/ft*ft) and the ordinate (y-axis) should be labeled SHEAR STRENGTH (tons/ft*ft).

(0.0,0.00),(0.1,0.07),(0.2,0.165),(0.3,0.28),
(0.4,0.425),(0.5,0.605),(0.6,0.785),(0.7,0.965),
(0.8,1.145),(0.9,1.325),(1.0,1.505)

NOTE: A DSDP shear strength can not be calculated without primary data. Without the Torvane reading or a calibrated value, recalculation is not possible. In this case no DSDP strength is given and the shipboard value cannot be checked for math errors.

SHEAR STRENGTH:

The shear strength (SS) or remolded strength is calculated using the following equations condensed from Boyce(1977):

SS = (vane constant)(spring constant)(maximum stress).

Two values for shear strength are encoded on each record. These are the shipboard value, calculated by the observer, and the DSDP computed value. The shipboard value is encoded directly from the observers notes taken at sea. The DSDP shear strength is calculated using a DSDP computer algorithm. The algorithm uses the stress-strain data pairs to find the maximum stress value for each trial. Since the maximum stress value chosen to calculate the shipboard shear strengths is not known, minor descrepancies between the shipboard and DSDP shear strengths are not corrected. The algorithm compares strength values and flags any gross discrepancies. Flagged values are investigated and corrected as needed.

The maximum stress, as defined within the algorithm, is the last recorded stress value before the slope of the stress versus strain curve drops below a threshold value of one. This threshold was selected as being the most applicable to the entire data set. The vast majority of data showed an abrupt decrease in slope after reaching a value of one. In addition, very few trials had slopes which ever went to zero.

The curve, as viewed by the algorithm, is made up of a series of independent slopes between adjacent data points. As a caution, the slope must drop and remain below the threshold for at least two consecutive data points. If only one stress is recorded, then this value is used as the maximum stress. If the slope of the curve never drops below one, then the greatest stress value recorded is used. On occasion, the observer failed to record the strain value associated with the final stress value. In this case, if the slopes prior to the final slope were above the threshold, then the final slope is also considered to be above the threshold, and the final stress value is used to calculate the shear strength.

The Torvane gives a direct measurement of shear strength in tons per square foot. If the Torvane reading was recorded by the observer, then a DSDP shear strength is calculated. If the Torvane reading was not recorded, recalculation is not possible and a DSDP shear strength is not given. The DSDP shear strength, for Torvane data, is simply a recalculation of the conversion from tons per square foot to grams per square centimeter. A Torvane calibration curve is used when calculating the DSDP shear strength whenever it is appropriate (see TORVANE CALIBRATION HISTORY).

REMOLDED STRENGTH:

The remolded strength is calculated the same way as the shear strength (see SHEAR STRENGTH). The remolded strength is determined for a sample which already had a shear strength measurement done. The sample is remolded by hand

and the vane is reinserted. The vane is allowed to sit stationary for about ten minutes (see WAIT TIME). The shear strength is then measured for the remolded sample. The remolded strength is used to determine the sensitivity (see SENSITIVITY). Remolded trials are not done on Torvane samples.

SENSITIVITY:

Defined as the ratio of shear strength to remolded strength.

STRESS-STRAIN DATA PAIRS:

Stress is the angle of spring rotation. Strain is the angle of vane rotation. Although not always explicitly encoded, each measurement begins with zero stress and strain.

revised by ODP
December 1987

****NOTE: Some of the data fields in the DSDP Processed Smear Slide Data Base did not appear to match the documentation provided by DSDP for these data. All data were loaded into the ODP computerized database according to the documentation and we are attempting to resolve the discrepancies.

DEEP SEA DRILLING PROJECT PROCESSED SMEAR SLIDE DATA BASE

I. INTRODUCTION

A. BACKGROUND AND METHODS

The Deep Sea Drilling Project (DSDP) processed smear slide data base was designed to act as a source file for the DSDP SCREEN computer program. The DSDP SCREEN file is a separate data base which contains computer generated lithologic classifications of DSDP sedimentary material (see Davies 1977). The file provides the user with a standardized lithologic data base.

The processed smear slide data is derived directly from the smear slide data collected on board the Glomar Challenger. Each smear slide represents a small portion of sediment distributed on a glass slide for microscopic evaluation of mineral and fossil composition. The information was recorded as either relative or numerical abundances depending on the preference of the shipboard party for a particular leg. Since the DSDP SCREEN program requires numeric values in order for it to calculate a lithologic code, the chief difference between the processed and unprocessed smear slide data is that the processed data contains only numeric abundances. Relative abundances are equated to numeric ranges as outlined below.

Since ranges cannot be used by the SCREEN program the approximate average of the numeric range was used.

Relative Scale	Abbrev.	Numeric Range	Value used
Trace	T	Less than 5%	3%
Rare	R	5 to 10%	7%
Common	C	10 to 30%	20%
Abundant	A	30 to 60%	45%
Dominant	D	60 to 100%	80%

Once a numeric value has been assigned to each relative abundance the conversion process normalizes the values to 100% for each smear slide. For example, if a describer reported five minerals to be common (5x20%), one to be abundant (45%) and one dominant (80%), the total would be 225% before normalization. Following normalization the component minerals would be reassigned numeric values of 9%, 20% and 35% respectively.

Since slide descriptions may involve lengthy component lists additional records may be employed as necessary.

B. LEGS IN DATA SET

The data base contains data for legs 1-96.

C. BIBLIOGRAPHY

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Supko, Peter R., Perch-Nielsen, Katharina, and Carlson, Richard L., 1977. Introduction and Explanatory Notes, Leg 39. Deep Sea Drilling Project, Appendix A - Classification of Sediments. In Supko, P.R., Perch-Nielsen, K. et al., 1977. Initial Reports of the Deep Sea Drilling Project, Volume 39. Washington (U.S. Government Printing Office) pp. 19-24.

van Andel, T.H., Winterer, E.L., and Duncan, J., 1973, Report of subcommittee on sediment classification, of advisory panel on sedimentary petrology and physical properties: Unpublished JOIDES Report.

II. FORMAT AND FIELD DESCRIPTIONS

A. RECORD FORMATS

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL (centimeters)	F5.1
TOP OF CORE (meters)	F8.2
SAMPLE DEPTH (meters)	F8.2
"MYSTERY"	A1
SLIDE DESCRIBER	A4
* SCREEN PROGRAM DATA FLAG	A1
SLIDE TYPE CODE ("S","C","T" or "A")	A1
PERCENT SAND	I3
PERCENT SILT	I3
PERCENT CLAY	I3
LITHOLOGY ("D" or "M")	A1
ABUNDANCE CODE ("R" or "N")	A1
LENGTH OF SEDIMENT NAME	I3
NUMBER OF COMPONENTS	I3
* TOTAL SILICEOUS COMPONENTS	I3
* TOTAL CALCEROUS COMPONENTS	I3
* TOTAL SLOW SEDIMENATION INDICATORS	I3
* TOTAL SHALLOW WATER INDICATORS	I3
* TOTAL VOLCANICS	I3
* DOLOMITE	I3
* EVAPORITES	I3
* TOTAL PERCENT COMPONENTS REPORTED	I3
NUMBER OF PHYSICAL RECORDS	I1
SEDIMENT NAME a. Additional records are used if name exceeds 72 characters. b. If no name then blank fill.	A72
NUMERIC AGE CODE	I8
PRIMARY COMPONENT CODE	I6
SECONDARY COMPONENT CODE	I6
UP TO 10 MORE COMPONENT CODES a. Additional records are used if necessary.	10 I6

* SCREEN RELATED DATA FIELDS
These data fields are not part of the original smear slide description but rather are used by the DSDP in the production of it's SCREEN data base.

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

The depth, in centimeters, within a section at which the top or bottom of a measurement was taken.

CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the point of measurement.

NUMBER OF RECORDS:

The total number of records which together comprise a complete smear slide description.

SLIDE DESCRIBER:

The initials of the person who described the smear slide.

SLIDE TYPE CODE:

CODE	TYPE OF SLIDE
A	ACID TREATED AND SIEVED
C	COARSE FRACTION SAMPLE
S	REGULAR SMEAR SLIDE
T	SEDIMENT THIN SECTION

PERCENT SAND, SILT OR CLAY:

The percent of each fraction as determined by the smear slide describer. The DSDP maintains a separate grain size data base which is available upon request.

DOMINANT OR MINOR LITHOLOGY:

The slide may be prepared from either a sample that was representative of the entire section (dominant=D) or a distinct small layer or bleb within the section (minor=M).

ABUNDANCE CODE:

This code indicates whether abundance was originally recorded as numerical abundance (N) or as relative abundance (R).

LENGTH OF SEDIMENT NAME:

The number of characters (including blanks) which are in the sediment name. Each record may contain up to 72 characters of the name. Additional records may be included as needed.

NUMBER OF COMPONENTS:

The number of components on the smear slide description. Each record may contain twelve component codes and as many records may be used as necessary.

COMPONENT CODES:

The six digit component codes identify a particular smear slide component and its absolute abundance. The first four digits represent one of the components from the list below. The fifth and sixth digits represent the abundance (100% abundance is represented by 99). For example, the component code 320315 would mean that 15 percent of the smear slide contained phosphorite.

CODE	ABBREV	COMPONENT NAME
1000	ESTCAR	ESTIMATED CARBONATE
1100	AUTCAR	AUTHIGENIC CARBONATE
1110	OTHCAR	CARBONATE
1120	OOLITE	OOLITE
1130	DOLOMI	DOLOMITE
1140	ARAGON	ARAGONITE
1200	UNICAL	UNIDENT CALC FOSSIL
1210	NANNOS	NANNOFOSSIL
1221	FORAMS	FORAMINIFERA
1300	PTEROP	PTEROPOD
1410	LAMELI	LAMELLIBRANCH
1420	CALSPI	CALCAREOUS SPICULE

1430	CORAL	CORAL
1440	BRYOZO	BRYOZOA
1450	ALGAE	ALGAE
1460	OSTRCO	OSTRACOD
1999	UNCOMP	MYSTERY COMPONENT
2000	OTHSI	OTHER SILICEOUS MTRL.
2100	AUTSIL	AUTHIGENIC SILICA
2110	CHALC	CHALCEDONY
2120	OPAL	OPAL
2130	CHFRA	CHERT FRAGMENT
2200	SIFOSS	SILICEOUS FOSSIL
2210	RADS	RADIOLARIA
2220	DIAT	DIATOM
2230	SIFLAG	SILICOFLAGELLATE
2240	OPALPH	OPAL PHYTOLITH
2300	OTHPAL	OTHER FOSSIL
2310	SPICUL	SPICULE
3000	MINS	OTHER MINERAL
3111	SIDERI	SIDERITE
3112	RDCHRO	RHODOCHROSITE
3113	FLOURI	FLOURITE
3151	ANHYD	ANHYDRITE
3152	GYPSUM	GYPSUM
3153	HALITE	HALITE
3200	PHOPHT	PHOSPHATE
3202	COLLOP	COLLOPHANE
3201	MONAZI	MONAZITE
3203	PHOSPH	PHOSPHORITE
3250	SULFID	SULFIDE
3251	BARI	BARITE
3311	QTZ	QUARTZ
3312	CRISTO	CRISTOBALITE
3320	FELD	FELDSPAR
3350	ZEOL	ZEOLITE
3351	ANAL	ANALCITE
3400	MICA	MICA
3402	BIOTIT	BIOTITE
3450	CLAMIN	CLAY MINERAL
3452	MONTMO	MONTMORILLONITE
3453	ILLITE	ILLITE
3500	SERPEN	SERPENTINE
3501	GLAUC	GLAUCONITE
3550	OPMINR	OPAQUE MINERAL
3551	PYRITE	PYRITE
3552	FE	IRON
3553	LIMONI	LIMONITE
3554	MAGNET	MAGNETITE
3555	ILMENI	ILMENITE
3600	HVYMIN	HEAVY MINERAL
3601	AUGITE	AUGITE
3604	RUTILE	RUTILE
3605	ZIR	ZIRCON
3606	TOUR	TOURMALINE
3607	GARNET	GARNET

3608	APAT	APATITE
3609	STAURO	STAUROLITE
3611	KYANIT	KYANITE
3612	EPID	EPIDOTE
3613	HORNBL	HORNBLENDE
3614	AMPH	AMPHIBOLE
3615	TOPAZ	TOPAZ
3616	SPHENE	SPHENE
3617	ZOISIT	ZOISITE
3620	SILMAN	SILLIMANITE
3621	HYPERS	HYPERSTHENE
3622	DIOPSI	DIOPSIDE
3623	TREMOL	TREMOLITE
3625	PYROXE	PYROXENE
3626	GLAUPH	GLAUCOPHANE
3627	SPINEL	SPINEL
3628	SPHALE	SPHALERITE
3629	ANATAS	ANATASE
3634	OLIVIN	OLIVINE
3651	GLAS	GLASS
3652	PALAG	PALAGONITE
3700	VOLFRA	VOLC MATERIAL FRAG
3705	VOLCLY	VOLCANIC CLAY
3710	BASALT	BASALT
3711	PUMICE	PUMICE
3712	SCORIA	SCORIA
3751	MANGAN	MANGANESE
3752	ISOAG	ISOTROPIC SILVER
3753	MOLYBD	MOLYBDENUM
3754	MAGNSM	MAGNESIUM
3800	ROCFRA	ROCK FRAGMENT
3850	ORGDEB	ORGANIC DEBRIS
3851	PLDEBR	PLANT DEBRI
3852	FSHDEB	FISH DEBRIS
3870	CHIT	CHITANOZOA
3871	FECPEL	FECAL PELLET
3872	CARBFR	CARBON FRAGMENT
3901	LIMNIC	LIMNIC
3902	AUTCRY	AUTHIGENIC CRYSTAL
3903	MESOST	MESOSTASIS
3903	OPMESO	OPAQUE MESOSTASIS
3904	MICAGG	MICROGRANULAR AGGREGATE
3905	MICPHE	MICROPHENOCRYST
3906	ISOMIN	ISOTROPIC MINERAL
3907	SPHERU	SPHERULITE
3908	TERDET	TERRIGENOUS DETRITUS
3909	ALTERI	ALTERITE
3910	MICRON	MICRONODULE
3911	DETMAT	DETRITAL MATERIAL
3912	DETMIN	DETRITAL MINERAL
3915	AMPHOX	AMORPHOUS OXIDE

SCREEN RELATED FIELD DESCRIPTIONS

The following data fields are not part of the original smear slide description but rather are used by the DSDP in the production of it's SCREEN data base. The SCREEN data base contains computer-generated lithologic classifications of the sedimentary material collected by the DSDP. The computer program outlined in Davies et al., 1977, uses a modified deep-sea sediment classification scheme developed by the JOIDES Advisory Panel on Sedimentary Petrology and Physical Properties (van Andel et al., 1973). The file provides the user with a standardized lithologic data base. The file also contains information on basic composition, average density, porosity, geologic age and the shipboard observer's lithologic description. The SCREEN data base is available upon request.

SCREEN PROGRAM DATA FLAG:

Special character used to relay data disposition information to the DSDP SCREEN production program.

TOTAL SILICEOUS COMPONENTS:

The sum of the biogenic silica component precentages.

TOTAL CALCAREOUS COMPONENTS:

The sum of the calcareous component precentages.

SLOW SEDIMENT INDICATORS:

The sum of the component percentages which imply the sediment was deposited at a slow depositional rate. These include manganese oxide, fish debris, limonite, etc.

SHALLOW WATER INDICATORS:

The sum of the component percentages which imply the sediment was deposited in shallow water. These include shell debris, glauconite, terrigenous material, etc.

TOTAL VOLCANICS:

The sum of the volcanic component percentages such as glass, pumice and palagonite.

DOLOMITE:

Since dolomite must be considered both as a mineral and a rock type, the percent dolomite was encoded separately in order for the SCREEN program to properly classify the sample.

EVAPORITES:

The sum of the evaporite component percentages. These include anhydrite, gypsum, halite, etc.

TOTAL PERCENT COMPONENTS REPORTED:

Ideally, the total components should always sum to 100%. However due to faulty reporting or when relative abundances necessitate conversion to numerical percentages this number may be more or less than 100%. In these cases the totals are normalized prior to their being processed by the SCREEN program.

SEDIMENT NAME:

The name given to the sediment by the describer on the corresponding visual core description.

NUMERIC AGE CODE:

An eight digit hierarchical code which represents a specific age. The code is designed to provide age level information as outlined below. Age assignments are determined by comparing the smear slide sample depth against the depths within the DSDP age profile data base. The corresponding age code is then transferred to the smear slide data base.

CODE DIGIT	AGE LEVEL
1	(1) ERA
2-3	(2) PERIOD
4	(3) SUBPERIOD
5	(4) EPOCH
6	(5) SUBEPOCH
7	(6) STAGE
8	(7) SUBSTAGE

revised by ODP
October 1987

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DEEP SEA DRILLING PROJECT
SCREEN DATA BASE
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I. INTRODUCTION

A. BACKGROUND AND METHODS

The SCREEN file contains computer-generated lithologic classifications of the sedimentary material collected by the Deep Sea Drilling Project (DSDP). The computer program outlined in Davies et al., 1977, uses a modified deep-sea sediment classification scheme developed by the JOIDES Advisory Panel on Sedimentary Petrology and Physical Properties (van Andel et al., 1973). The file provides the user with a standardized lithologic data base. The file also contains information on basic composition, average density and porosity, geologic age and the shipboard observer's lithologic description.

B. LEGS IN DATA SET

The data set currently contains data for legs 1-96.

C. BIBLIOGRAPHY

Davies, Thomas A., Musich, Lillian F. and Woodbury, Peter B., 1977, Automated Classification of Deep-Sea Sediments: Journal of Sedimentary Petrology, Vol. 47, No. 2, June 1977, pp. 650-656.

Supko, Peter R., Perch-Nielsen, Katharina, and Carlson, Richard L., 1977. Introduction and Explanatory Notes, Leg 39. Deep Sea Drilling Project Appendix A - Classification of Sediments. In Supko, P.R., Perch-Nielsen, K. et al., 1977. Initial Reports of the Deep Sea Drilling Project, Volume 39. Washington (U.S. Government Printing Office) pp. 19-24.

van Andel, T.H., Winterer, E.L., and Duncan, J., 1973, Report of subcommittee on sediment classification, of advisory panel on sedimentary petrology and physical

properties: Unpublished JOIDES Report.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL DEPTH (cm)	F5.1
BOTTOM INTERVAL DEPTH (cm)	F5.1
TOP OF LAYER (meters)	F7.2
BOTTOM OF LAYER (meters)	F7.2
THICKNESS OF LAYER (meters)	F7.2
LITHOLOGY CODE	A29
PROCESSING HISTORY FLAG	A8
LITHOLOGY NAME FROM SCREEN PROGRAM	A60
LITHOLOGY NAME FROM SHIPBOARD OBSERVER	A60
AVE. CALCAREOUS MATERIAL	A4
AVE. SILICEOUS MATERIAL	I4
AVE. DETRITAL MATERIAL	I4
AGE MNEMONIC AT TOP OF LAYER	A6
AGE MNEMONIC AT BOTTOM OF LAYER	A6
AGE CODE	I8
AVERAGE DENSITY FROM G.R.A.P.E.	F4.2
AVERAGE POROSITY FROM G.R.A.P.E.	A3
NUMBER G.R.A.P.E. MEASUREMENTS AVERAGED	I3

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

Refers to the depth in centimeters within a section to the top or bottom of a lithological layer (see TOP AND BOTTOM OF LAYER).

TOP AND BOTTOM OF LAYER:

The distance in meters from the ocean floor to the top or bottom of a layer. Layer is defined to be a lithological unit confined within a single core section. Since a layer has a maximum thickness of a single section, the data base provides at least one record per section.

THICKNESS OF LAYER:

The layer thickness is equal to the bottom layer depth minus the top layer depth. The layer thickness is limited to the length of the section.

LITHOLOGY CODE:

The SCREEN lithology code is devised to provide information on a sample's basic lithology, its primary component and any modifying components. A sample's basic lithology code (digits 1-4) is constructed according to the outline shown below. A primary component code (digits 5-8) is added as long as the major component represents at least half of the aggregate total of components within its class. For example if the basic lithology of a sample was 70% siliceous, radiolarians would have to make up at least 35% of the sample in order for them to be encoded as the primary component. Any other components (greater than 10%) are encoded, in descending order, as four-digit modifying component codes. The modifying component codes are separated from the primary component code and each other by decimal points.

An example of how these codes are combined to form a SCREEN code may be useful. Consider the sample above which was found to be 70% siliceous, and was 35% radiolarians. In addition, the basic lithology was described as being transitional, monogenic and soft. Following the outline below the sample would be given 2211 as its basic lithology code.

Since radiolarians make up at least 50% of the components within its class (35% of a 70% siliceous sample), the code for radiolarians (2210), taken from the code list below, would be appended to the basic lithology code. The SCREEN code at this point would be 22112210.

If the same sample was then found to contain both biotite (15%) and feldspar (11%) the code would contain modifying component codes. The codes for biotite (3402) and feldspar (3320) (separated by a decimal point) are appended to the SCREEN code above. The complete SCREEN code for this sample is 22112210.3402.3320.

BASIC LITHOLOGY CODE

Digit 1 designates :	calcareous	=	1
	siliceous	=	2
	detrital	=	3
Digit 2 designates :	pelagic	=	1
	transitional	=	2
	terrigenous	=	3
Digit 3 designates :	monogenic	=	1
	heterogenic	=	2
Digit 4 designates :	soft	=	1
	firm	=	2
	hard	=	3

MODIFYING COMPONENT CODES

CODE	ABBREV	COMPONENT
1999	UNCOMP	MYSTERY COMPONENT
1450	ALGAE	ALGAE
3909	ALTERI	ALTERITE
3614	AMPH	AMPHIBOLE
3915	AMOROX	AMORPHOUS OXIDE
3351	ANAL	ANALCITE
3629	ANATASE	
3151	ANHYD	ANHYDRITE
3608	APAT	APATITE
1140	ARAGON	ARAGONITE
3601	AUGITE	AUGITE
1100	AUTCAR	AUTHIGENIC CARBONATE
3902	AUTCRY	AUTHIGENIC CRYSTAL
2100	AUTSIL	AUTHIGENIC SILICA
3251	BARI	BARITE
3710	BASALT	BASALT
3402	BIOTIT	BIOTITE
1440	BRYOZO	BRYOZOA
1420	CALSPI	CALCAREOUS SPICULE
3872	CARBON FRAGMENT	
2110	CHALC	CHALCEDONY
2130	CH FRA	CHERT FRAGMENT
3870	CHIT	CHITANOZOA
3450	CLAMIN	CLAY MINERAL
3202	COLLOP	COLLOPHANE
1430	CORAL	CORAL
3312	CRISTO	CRISTOBALITE
3911	DETMAT	DETRITAL MATERIAL
3912	DETMIN	DETRITAL MINERAL
2220	DIAT	DIATOM

3622	DIOPSI	DIOPSIDE
1130	DOLOMI	DOLOMITE
3612	EPID	EPIDOTE
1000	ESTCAR	ESTIMATED CARBONATE
3552	FE	IRON
3871	FECPEL	FECAL PELLET
3320	FELD	FELDSPAR
3113	FLOURITE	
1221	FORAMS	FORAMINIFERA
3852	FSHDEB	FISH DEBRIS
3607	GARNET	GARNET
3651	GLAS	GLASS
3501	GLAUC	GLAUCONITE
3626	GLAUPH	GLAUCOPHANE
3152	GYPSUM	GYPSUM
3153	HALITE	HALITE
3613	HORNBL	HORNBLENDE
3600	HVYMIN	HEAVY MINERAL
3621	HYPERS	HYPERSTHENE
3453	ILLITE	ILLITE
3555	ILMENI	ILMENITE
3752	ISOAG	ISOTROPIC SILVER
3906	ISOMIN	ISOTROPIC MINERAL
3611	KYANIT	KYANITE
1410	LAMELI	LAMELLIBRANCH
3901	LIMNIC	LIMNIC
3553	LIMONI	LIMONITE
3754	MAGNSM	MAGNESIUM
3554	MAGNET	MAGNETITE
3751	MANGAN	MANGANESE
3903	MESOST	MESOSTASIS
3400	MICA	MICA
3904	MICAGG	MICROGRANULAR AGGREGATE
3905	MICPHE	MICROPHENOCRYST
3910	MICRON	MICRONODULE
3753	MOLYBD	MOLYBDENUM
3201	MONAZI	MONAZITE
3452	MONTMO	MONTMORILLONITE
1210	NANNOS	NANNOFOSSIL
3634	OLIVIN	OLIVINE
1120	OOLITE	OOLITE
2120	OPAL	OPAL
2240	OPALPH	OPAL PHYTOLITH
3903	OPMESO	OPAQUE MESOSTASIS
3550	OPMINR	OPAQUE MINERAL
3850	ORGDEB	ORGANIC DEBRIS
1460	OSTRCO	OSTRACOD
1110	OTHCAR	CARBONATE
2300	OTHPAL	OTHER FOSSIL
2000	OTHSI	OTHER SILICEOUS
3652	PALAG	PALAGONITE
3200	PHOPHT	PHOSPHATE
3203	PHOSPH	PHOSPHORITE
3851	PLDEBR	PLANT DEBRIS

1300	PTEROP	PTEROPOD
3711	PUMICE	PUMICE
3551	PYRITE	PYRITE
3625	PYROXE	PYROXENE
3311	QTZ	QUARTZ
2210	RADS	RADIOLARIA
3112	RDCHRO	RHODOCHROSITE
3800	ROCFRA	ROCK FRAGMENT
3604	RUTILE	RUTILE
3712	SCORIA	SCORIA
3500	SERPEN	SERPENTINE
3111	SIDERI	SIDERITE
2230	SIFLAG	SILICOFLAGELLATE
2200	SIFOSS	SILICEOUS FOSSIL
3620	SILMAN	SILLIMANITE
3628	SPHALE	SPHALERITE
3616	SPHENE	SPHENE
3907	SPHERU	SPHERULITE
2310	SPICUL	SPICULE
3627	SPINEL	SPINEL
3609	STAURO	STAUROLITE
3250	SULFID	SULFIDE
3908	TERDET	TERRIGENOUS DETRITUS
3615	TOPAZ	TOPAZ
3606	TOUR	TOURMALINE
3623	TREMOL	TREMOLITE
1200	UNICAL	UNIDENT CALC FOSSIL
3000	UNMINS	UNIDENTIFIED MINERAL
3705	VOLCANIC CLAY	
3700	VOLFRA	VOLC MATERIAL FRAG
3350	ZEOL	ZEOLITE
3605	ZIR	ZIRCON
3617	ZOISIT	ZOISITE

PROCESSING HISTORY FLAG:

This field contains one of the processing history flags listed below.

#UNCLAS# = Unclassified: Classification failed for unspecified reasons. Usually due to a lack of data.

##NSMR## = No Smear: Classification failed because no smear slide data exists.

SCREEN = Classification was successful.

*PRECODE = Precoded data: Data was incomplete but interpretation allowed manual encoding to be done. Classification was successful.

INF* = Inferred code: The lithologic code was inferred from the surrounding layers. Classification was successful.

PERCENT MATERIAL:

The relative percents of calcareous, siliceous and detrital material. (Normalized to 100%)

AGE MNEMONIC:

An abbreviation of the age assigned to that depth in the hole.

AGE CODE:

An eight digit hierarchical age code which represents the age that has been assigned to that depth. The age code dictionary is available as a separate data base. The dictionary contains the numeric age codes, age names and age mnemonics used by DSDP. The numeric code is designed to provide age level information as shown below.

CODE DIGIT	AGE LEVEL
1	ERA
2-3	PERIOD
4	SUBPERIOD
5	EPOCH
6	SUBEPOCH
7	STAGE
8	SUBSTAGE

G.R.A.P.E.:

Stands for Gamma Ray Attenuation Porosity Evaluator. The DSDP maintains the G.R.A.P.E. as a separate data base which is available upon request.

revised by ODP
November 1987

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DEEP SEA DRILLING PROJECT
VISUAL TEXT DATA BASE
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I. INTRODUCTION

A. BACKGROUND AND METHODS

This Deep Sea Drilling Project (DSDP) data base contains the visual core descriptions written by participating shipboard scientists during each cruise. The descriptions were written onboard the Glomar Challenger as the cores were retrieved from the ocean floor. Although the data base allows a record for every sediment layer described by the shipboard party, it requires that there be a minimum of one record per section. This means that the data base views each layer as having a maximum thickness of a single section (1.5 meters). If in fact the geologic layer is greater than 1.5 meters, it is then represented by two or more records.

B. LEGS IN DATA SET

The data base contains data for legs 1-96.

C. BIBLIOGRAPHY

The SHIPBOARD HANDBOOK, issued by the Deep Sea Drilling Project, contains information on current methodology. The following reference gives the classification scheme used by the Project.

Supko, Peter R., Perch-Nielsen, Katharina, and Carlson, Richard L., 1977. Introduction and Explanatory Notes, Leg 39, Deep Sea Drilling Project, Appendix A - Classification of Sediments. In Supko, P.R., Perch-Nielsen, K. et al., 1977. Initial Reports of the Deep Sea Drilling Project, Volume 39. Washington (U.S. Government Printing Office) pp. 19-24.

Davies, Thomas A., Musich, Lillian F. and Woodbury, Peter B., 1977, Automated Classification of Deep-Sea Sediments:

Journal of Sedimentary Petrology, Volume 47, No. 2, June 1977, pp. 650-656.

II. FORMAT AND FIELD DESCRIPTIONS

A. RECORD FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
TOP INTERVAL (centimeters)	F5.1
BOTTOM INTERVAL (centimeters)	F5.1
TOP OF CORE (meters)	F8.2
TOP OF LAYER (meters)	F8.2
BOTTOM OF LAYER (meters)	F8.2
DESCRIBER	A4
NUMBER OF RECORDS	I2
RECORD NUMBER	I2
DATA FIELD	A52

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

The depth, in centimeters, within a section marking the top or bottom of a layer.

CORE DEPTH:

The subbottom depth in meters to the top of the core.

LAYER DEPTH:

The subbottom depth in meters to the top or bottom of the layer.

DESCRIBER:

The initials of the core describer.

NUMBER OF RECORDS:

The number of records varies depending upon the number needed to hold the entire core description text.

RECORD NUMBER:

The sequence number of this record within the total NUMBER OF RECORDS for a single description.

DATA FIELD:

The DATA FIELD consists of a series of descriptive phrases separated by semi-colons. A single code letter (listed below) precedes each descriptive phrase and characterizes the type of data within the phrase. If there is a compound descriptive term within a phrase (for example color), the items are separated by a dash. The entire description is terminated with an asterisk on the last record.

CODE LETTER	DATA TYPE
L	Lithology
C	Color
S	Structures
D	Deformitions due to drilling
U	Unusual occurences
M	Minerals
P	Paleontology
O	Other observations
H	Hardness or induration
Z	Z-coding

Below are a few examples of what a DATA FIELD may look like.

L CLAY; (code letter "L" precedes a lithologic phrase)

L SILT,CLAY;C -RED; (data types "L" and "C")

L CLAY;C 5Y3/1-GREY; (data type "C" with compound terms)

L CLAY;C 5Y3/1-GREY;H FIRM* (final record denoted by "*")

D. DATA TYPE DESCRIPTIONS

L = Lithology:
There is a separate record for every core section or lithologic layer or section of core regardless of whether there is a lithologic change between sections. If the lithologies are mixed (i.e. clay lumps in sand), both lithologies are included on a single description. Pebbles of a unique lithology are not included within the lithology phrase (see data type U).

C = Color:
Colors are entered as a Munsell number and name when both are available (i.e. 5YR/1-GREY). If only the number is available, it is written alone. If only a name is available, it is written with a preceding dash (i.e -GREY).

S = Structures:
This data type includes such items as burrows, laminations, faults, mottles, load casts, bedding of all types, etc. It does not include structures resulting from drilling (see data type D).

D = Deformation:
This refers to deformation resulting from drilling.

U = Unusual occurrences:
This category includes such items as pebbles, manganese nodules, manganese crust, pyrite nodules, oxidized layers and etc.

M = Minerals:
List of any specific minerals mentioned in the description.

P = Paleontology:
Macrofossil and microfossil occurrences mentioned in the visual core description. Categories M and P do not include information from smear slide or paleontology studies and therefore are incomplete.

O = Other observations:
This catagory allows for comments and observations which do not fit into any of the other data types.

H = Hardness or induration:
Relative induration of the sediment.

Z = Z-coding:
Z-codes are manually supplemented sediment codes that are used to create the DSDP SCREEN* file. They classify the sediment in areas where no smear slides data is available. Z-codes are used most often in areas of homogenous sediment type where smear slides may not have been taken as

frequently.

* The DSDP SCREEN file is a separate data base which contains computer generated lithologic classifications of DSDP sedimentary material (see Davies 1977). The file provides the user with a standardized lithologic data base. The data base is available upon request.

revised by ODP
October 1987

DEEP SEA DRILLING PROJECT
CORED INTERVAL AND RECOVERY FILE
"DEPTH DECK"

I. INTRODUCTION

A. BACKGROUND AND METHODS

The Cored Interval and Recovery File ("depth deck") contains depth and recovery information for each core collected by the Deep Sea Drilling Project. Each record represents a single core which is identified by leg, site, hole, and core number. The subbottom depths for the top and bottom of the cored interval, the meters of material recovered and the last section number are included. In addition, the length of any "zero section" (see Explanatory Notes) and the method of coring are noted.

B. LEGS IN DATA SET

The data base contains data for all of the Deep Sea Drilling Project legs (1-96).

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
TOP OF CORE DEPTH (meters)	F8.2
BOTTOM OF CORE DEPTH (meters)	F8.2
MATERIAL RECOVERED (meters)	F5.2
NUMBER OF LAST SECTION IN CORE	I3
ZERO SECTION LENGTH (centimeters)	I3
LENGTH OF SECTIONS : Up to 9 sections	

measured to the nearest tenth of a cm.

LENGTH OF SECTION 1	F5.1
LENGTH OF SECTION 2	F5.1
LENGTH OF SECTION 3	F5.1
LENGTH OF SECTION 4	F5.1
LENGTH OF SECTION 5	F5.1
LENGTH OF SECTION 6	F5.1
LENGTH OF SECTION 7	F5.1
LENGTH OF SECTION 8	F5.1
LENGTH OF SECTION 9	F5.1
CORE TYPE	A1

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

CORE DEPTH:

The subbottom depth in meters to the top or bottom of the cored interval.

MATERIAL RECOVERED:

The meters of material recovered from the cored interval.

NUMBER OF LAST SECTION IN CORE:

The number of the last section cataloged and stored. Refer to the appended notes for a discussion on sections and how they were labeled.

ZERO SECTION LENGTH:

The length of the zero section (see appended notes) measured to the nearest centimeter.

LENGTH OF EACH SECTION:

Due to a fundamental change in the way each core was cut and labeled following leg 46 (see appended notes), the length of the sections were encoded only for legs 47-96. Following leg 46 the core was measured from the top. This change in procedure marked the end of the troublesome zero section and forced all odd-length sections to the bottom of each core. Since all of the sections except for the last are 150 cm long, only the length of the last section is encoded. The field may appear blank if the last section was 150 cm long or if the recovery was limited to the core-catcher. The lengths are measured to the nearest tenth of a centimeter.

Since sections may or may not be entirely filled with material, section lengths should not be confused with the amount of material recovered. Please refer to the appended notes for a complete discussion on how cores were cut and the sections labeled.

CORE TYPE:

This data item is used to denote what type of core was extracted from the hole. A blank field denotes that the core was a regular rotary core.

H = Hydraulic piston core
P = Pressure core barrel
X = Extended core barrel

HYDRAULIC PISTON CORE (HPC):

The HPC operates on the principle of a 4.5 meter core barrel which is lowered inside the drill string, hydraulically ejected into the sediment and retrieved. Since in stiff sediment the piston core was not always capable of driving itself to full extension, the drill string is lowered the amount the piston core extended into the sediment and the procedure repeated. The variable length HPC (VLHPC) operates on the same principle as the HPC except that the core barrel length is variable with a maximum reach of nine meters. This field denotes which cores were hydraulically piston cored but makes no distinction between the HPC and the VLHPC. The first HPC was taken on leg 64 and the first VLHPC was taken on leg 85.

PRESSURE CORE BARREL:

The pressure core barrel collected a reduced diameter core and was designed to maintain the in-situ hydrostatic pressure of the core. Cores were first collected using the pressure core barrel on leg 42.

EXTENDED CORE BARREL:

With a core barrel that extended beyond the bit, the system was designed to collect the core into the core barrel ahead of the drill bit. The core was full size and collection could be done while the pipe rotated.

revised by ODP
October 1987

DEEP SEA DRILLING PROJECT
SITE SUMMARY

I. INTRODUCTION

The site summary file contains information on each DSDP hole including drilling methods, site location, age of the oldest sediment recovered, presence of basement, water depth, hole depth and rock descriptions. By providing rapid access to various hole data it makes a good starting point for information gathering. A well orchestrated search of the site summary file will usually narrow the scope and increase the efficiency of any searches conducted on other DSDP data sets.

B. BIBLIOGRAPHY

Gary, M., McAfee, R., and Wolf, C.L., eds.: Glossary of Geology, American Geological Institute, Washington, D.C., 1977

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

FIELD	FORMAT
LEG	I3
SITE	I4
HOLE	A1
WELL LOGGING (L or blank)	A1
LATITUDE (south are negative)	F9.5
LONGITUDE (west are negative)	F10.5
OCEAN	A3
OCEAN AREA (north or south)	A1
SEA	A6
SEDIMENT FEATURE	A6
HARD ROCK FEATURE	A6
TA (YYMMDD)	I6
TD (YYMMDD)	I6
RE-ENTRY (R or blank)	A1

SITE SURVEY (X or blank)	A1
SITE TERMINATION (coded)	A1
CRUST (oceanic or continental)	A2
EQUIPMENT TEST (T or blank)	A1
HEAT FLOW (F or blank)	A1
IN SITU PORE WATER (W or blank)	A1
HYDRAULIC PISTON CORE (P or blank)	A1
VARIABLE-LENGTH HPC (V or blank)	A1
PRESSURE CORE BARREL (B or blank)	A1
PUNCH CORE (H or blank)	A1
EXTENDED CORE BARREL (X or blank)	A1
WATER DEPTH (meters)	F8.2
TOTAL PENETRATION (meters)	F8.2
DRILLED PENETRATION (meters)	F8.2
CORED PENETRATION (meters)	F8.2
NUMBER OF CORES RECOVERED	I3
METERS RECOVERED	F8.2
PERCENT RECOVERY	I3
METERS OF HARD ROCK CORED	F7.2
NUMBER OF HARD ROCK CORES	I3
METERS OF HARD ROCK RECOVERED	F7.2
DEPTH TO BASEMENT (meters)	F8.2
OLDEST SEDIMENT SUB-BOTTOM DEPTH	F8.2
OLDEST SEDIMENT DEPTH BELOW SEA LEVEL	I5
OLDEST SEDIMENT CORE NUMBER	I3
OLDEST SEDIMENT CORE_CHAR	A2
OLDEST SEDIMENT AGE CODE	I8
OLDEST SEDIMENT LITHOLOGY	A60
OLDEST SEDIMENT SCREEN CODE	I12
HARD ROCK DESCRIPTIONS AND COMMENTS	A55

B. FIELD DESCRIPTIONS

The definition of leg, site, and hole may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

WELL LOGGING:

L = Well logging was done; otherwise the field is blank.

LATITUDE:

Recorded in degrees and fractions of a degree where negative(-) indicates south. This data item is accurate only to 4 decimal places. The extra decimal place was added to conform to ODP conventions.

LONGITUDE:

Recorded in degrees and fractions of a degree where negative(-) indicates west. This data item is accurate only to 4 decimal places. The extra decimal place was added to conform to ODP conventions.

OCEAN:

ANT = Antarctic
ATL = Atlantic
IND = Indian
PAC = Pacific

OCEAN AREA:

N = North, S = South

SEA:

AEGEAN = AEGEAN
ARAB = ARAB
BERING = BERING
BLACK = BLACK
CARIB = CARIBBEAN
CORAL = CORAL
GADEN = GULF OF ADEN
GCALIF = GULF OF CALIFORNIA
GMEX = GULF OF MEXICO
GREENL = GREENLAND
JAPAN = JAPAN
MED = MEDITERRANEAN
NORWEG = NORWEGIAN
PHIL = PHILIPPINE
REDSEA = RED SEA
ROSS = ROSS
TASMAN = TASMAN

SEDIMENT FEATURE:

AB FLR = Abyssal floor:
Pertaining to ocean environment of 500 fathoms or deeper.

BANK = Bank:
A relatively flat-topped elevation of the sea at shallow depth (generally less than 200m) typically on the continental shelf or near an island.

BASIN = Basin:
A more or less equidimensional depression of the sea floor.

BENCH = Bench:
Strip of relatively level rock or earth raised and narrow.

C RISE = Continental rise:
That part of the continental margin that is between the continental slope and the abyssal plain, except in areas of an oceanic trench.

CANYON = Canyon (submarine):
A steep-sided, V-profile trench or valley winding along the continental shelf or continental slope, having tributaries and resembling unglaciated, river-cut land canyons.

CHANNL = Channel:
A linear current mark, larger than a groove, produced on a sedimentary surface, parallel to the current.

CNT SL = Continental slope:
That part of the continental margin that is between the continental shelf and the continental rise (or oceanic trench).

CONE = Cone:
A submarine fan (see FAN).

CREST = Crest:
A line that connects the highest points or culminations of a fold.

DIAPIR = Diapir:
A dome or anticlinal fold, the overlying rocks of which have been ruptured by the squeezing out of the plastic core material.

ESCARP = Escarpment:
A long, more or less continuous cliff or relatively steep slope facing in one general direction, breaking the general continuity of the land by separating 2 level or gently sloping surfaces, and produced by erosion or by faulting.

FAN = Fan:
A terrigenous, cone- or fan-shaped deposit located seaward of large rivers and submarine canyons (submarine cone).

FLANK = Flank:

The side of a fold (limb).

FRACT = Fracture zone:
On the deep-sea floor, an elongate zone of unusually irregular topography that often separates regions of different depths, often crosses and apparently displaces the mid-oceanic ridge by faulting.

GAP = Gap (Abyssal gap):
A passage that connects two abyssal plains of different levels, through which clastic sediments are transported.

GRABEN = Graben:
An elongate, relatively depressed crustal unit or block that is bounded by faults on its long sides (trough).

GUYOT = Guyot:
A type of seamount that has a platform top.

HILL = Hill.

KNOLL = Knoll:
A mound-like relief form of the seafloor, less than 1000m in height; less prominent than a seamount.

MOUND = Mound.

MTN = Mountain.

PLATU = Plateau:
A broad, more or less flat-topped and ill-defined elevation of the seafloor, generally over 200m in elevation.

RIDGE = Ridge:
An elongate, steep-sided elevation of the ocean floor, leaving rough topography.

RISE = Rise:
A broad, elongate, and smooth elevation of the seafloor.

SCARP = Scarp:
An escarpment, cliff or steep slope along a margin of a plateau, terrace or bench.

SD PND = Sediment pond:
A depression between 2 rising formations, filled with sediment; the filled sediment is of different geological boundaries than the surrounding physiological features.

SEAMNT = Seamount:
An elevation of the seafloor, 1000m or higher, either flat-topped (guyot) or peaked (seapeak).

SHELF = Continental shelf:
That part of the continental margin that is between the shoreline and the continental slope, characterized by its very gentle slope.

SLOPE = Slope.

SPUR = Spur:
A subordinate ridge projecting outward from a larger submarine feature or elevation.

SYNCL = Syncline:
A fold, the core of which contains the stratigraphically younger rocks.

TERR = Terrace:
A bench-like structure on the ocean floor.

TR ZON = Transition zone:
A region within the upper mantle bordering the lower mantle, at a depth of 410 - 1000 km, characterized by a rapid increase in density of about 20% and an increase in seismic-wave velocity.

TRENCH = Trench:
A narrow elongate depression of the deep-sea floor, with steep sides.

TROUGH = Trough:
An elongate depression of the seafloor that is wider and shallower than a trench, with less steeply dipping sides; a trough may develop from a trench by becoming filled with sediment.

VALLEY = Valley:
A wide, low-relief depression of the ocean floor with gently sloping sides, as opposed to a submarine canyon.

HARD ROCK FEATURE:

BRECIA = Breccia
A coarse-grained clastic rock composed of large, angular, and broken rock fragments that are cemented together in a finer-grained matrix and that can be of any composition, origin or mode of accumulation.

FLOW = Flow:
Any rock deformation that is not instantly recoverable without permanent loss of cohesion.

GRANIT = Granite:
Any holocrystalline, quartz-bearing plutonic rock.

LAMPRO = Lamprophyre:
A group of dark-colored, porphyritic, hypabyssal hard rock rocks.

PILLOW = Pillow:
Observed in certain extrusive hard rock rocks, that is characterized by discontinuous pillow-shaped masses ranging in size from a few centimeters to a meter or more in diameter.

SCHIST = Schist:
A strongly foliated crystalline rock formed by dynamic metamorphism which can be readily split into thin flakes or slabs.

SILLS = Sill:
A submarine ridge or rise at a relatively shallow depth, separating a partly closed basin from another or from an adjacent sea.

TA (YYMMDD):

Date of arrival on site (Year/Month/Day).

TD (YYMMDD):

Date of departure from site (Year/Month/Day).

RE-ENTRY:

Designation of a re-entry hole (R) indicates that a re-entry cone was positioned at that hole and re-entry was attempted. No evaluation of successful entry nor ability to later re-enter the hole has been made in this file. However, if site termination was a result of re-entry failure, that information is recorded in SITE TERMINATION with an "R".

SITE SURVEY CODE:

An X indicates that a site survey of the drilling area was done prior to the current cruise. Most likely this survey was conducted by another research ship other than the Glomar Challenger.

SITE TERMINATION CODE:

D = drill bit worn out
H = hydrocarbon hazard
I = illness or injury
L = operational limit reached
M = mechanical or equipment failure
O = objective reached
R = re-entry failure
S = chief scientist decision
T = time constraints
W = weather

CRUST:

Indicates the provenance of the sedimentary rocks drilled. Unless the investigator specifies continental crust the field defaults to oceanic. This term does not indicate the parentage of the basement material.

OC = ocean CT = continental

EQUIPMENT TEST:

An encoded T indicates that equipment testing took place, otherwise the field is blank. Refer to the Initial Report for specifics.

HEAT FLOW:

An encoded F indicates that heat flow measurements were taken, otherwise the field is blank. Refer to the Initial Report for methods and results.

IN SITU PORE WATER:

An encoded W indicates that pore water samples were taken, otherwise the field is blank. Refer to the Initial Report for methods and results.

HYDRAULIC PISTON CORE (HPC):

An encoded P indicates that hydraulic piston coring took place, otherwise the field is blank. The HPC operates on the principle of a 4.5 meter core barrel which is lowered inside the drill string, hydraulically ejected into the sediment and retrieved. Since in stiff sediment the piston core was not always capable of driving itself to full extension, the drill string is lowered the amount the piston core extended into the sediment and the procedure repeated. The first HPC was taken on leg 64.

VARIABLE-LENGTH HPC (VLHPC):

An encoded V indicates that variable-length hydraulic piston coring took place. The VLHPC operates on the same principle as the HPC except that the core barrel length is variable with a maximum reach of nine meters. The DSDP core depth data base contains information on which cores were piston cored but makes no distinction between the HPC and the VLHPC. The first VLHPC was taken on leg 85.

PRESSURE CORE BARREL:

An encoded B indicates that pressure core barrels were used in the hole, otherwise the field is blank. The pressure core barrel collected a reduced diameter core and was designed to maintain the in-situ hydrostatic pressure of the core. The DSDP core depth data base contains information on which cores were collected using the pressure core barrel. Cores were first collected using the pressure core barrel on leg 42.

PUNCH CORE:

An encoded H indicates that punch coring took place, otherwise the field is blank. Punch cores were collected by forcibly driving the pipe, without rotation, into fairly soft sediment. Punch cores have reduced diameters due to a narrow drill shoe which extended from the drill bit. Refer to the Initial Reports for specifics on which cores were collected by this method.

EXTENDED CORE BARREL:

An encoded X indicates that extended core barrels were used at some point in the drilling, otherwise the field is blank. With the core barrel extending beyond the bit, the system was designed to collect the core into the core barrel ahead of the drill bit. Unlike a punch core, the core was full size and collection could be done while the pipe rotated. The DSDP core depth data base contains information on which cores were collected with the extended core barrel.

WATER DEPTH:

The water depth measured, from sea level, by a precision depth recorder (PDR) which used hull-mounted transducers for echo sounding. Determining the water depth by the "felt by drill string" method was used only when other methods were not available. This data item is accurate only to the whole number. The extra decimal places were added to conform to ODP conventions.

TOTAL PENETRATION:

Sum of drilled (or washed) penetration plus cored penetration, in meters (includes sediment and hard rock rock). This data item is accurate only to the whole number. The extra decimal places were added to conform to ODP conventions.

DRILLED PENETRATION:

Drilled penetration refers to the portion of the hole drilled, washed or punched through without continuous coring taking place. For example, if a single 9 meter "wash core" (see appendix) is recovered for 50 meters drilled, then the drilled penetration is 50 meters. The meters of cored penetration would be zero. This data item is accurate only to the whole number. The extra decimal places were added to conform to ODP conventions.

CORED PENETRATION:

The portion of the hole in meters in which coring took place. See DRILLED PENETRATION for comparison. This data item is accurate only to the whole number. The extra decimal places were added to conform to ODP conventions.

NUMBER OF CORES RECOVERED:

The total number of cores taken within the hole.

METERS RECOVERED:

Total meters of core recovered (sediment and hard rock). This data item is accurate only to the whole number. The extra decimal places were added to conform to ODP conventions.

PERCENT RECOVERY:

[Meters recovered / Cored penetration] X 100

METERS OF HARD ROCK CORED:

The sum of all the hard rock cored, not restricted to "basement" coring. This data item is accurate only to the whole number. The extra decimal places were added to conform to ODP conventions.

NUMBER OF HARD ROCK CORES:

The number of cores in which hard rock was drilled.

METERS OF HARD ROCK RECOVERED:

The sum of hard rock recovered. This data item is accurate only to the whole number. The extra decimal places were added to conform to ODP conventions.

DEPTH TO BASEMENT:

The depth to basement in meters. This field is encoded only for those holes which have been designated as having reached basement. This data item is accurate only to the whole number. The extra decimal places were added to conform to ODP conventions.

Designating whether or not basement was reached is based upon a review of the core material and the investigators' interpretation. Basement was reached whenever a hole terminated in igneous or metamorphic rock and the investigator states that basement was reached. Although a hole may terminate in igneous or metamorphic rock, it will not receive a basement designation unless the investigator explicitly states that basement was reached. The term "acoustic basement" is disregarded and has no relevance in designating a hole as having reached basement. In addition, a basement designation only means that basement was attained and not that all of the hard rock recovered was cored from the basement.

OLDEST SEDIMENT SUB-BOTTOM DEPTH:

Depth in meters from the seafloor to the oldest sediment recovered. This data item is accurate only to the whole number. The extra decimal places were added to conform to ODP conventions.

OLDEST SEDIMENT DEPTH BELOW SEA LEVEL:

The water depth plus the sub-bottom depth to the oldest sediment recovered.

OLDEST SEDIMENT CORE NUMBER:

The specific core number containing the oldest sediment. Please refer to the appended explanatory notes regarding special core codes which may precede the core number.

OLDEST SEDIMENT CORE_CHAR:

The special core type of the core containing the oldest sediment. See the appended explanatory notes.

OLDEST SEDIMENT AGE CODE:

An eight digit hierarchical age code which represents the age that has been assigned to that depth. The age code glossary is available as a separate data base. The glossary contains the numeric age codes, age names and age mnemonics used by DSDP. The numeric code is designed to provide age level information as shown below.

CODE DIGIT	AGE LEVEL
1	ERA
2-3	PERIOD
4	SUBPERIOD
5	EPOCH
6	SUBEPOCH
7	STAGE
8	SUBSTAGE

OLDEST SEDIMENT LITHOLOGY:

The observed lithology of the oldest sediment recovered.

OLDEST SEDIMENT SCREEN CODE:

The observed lithology translated into a modified SCREEN code. Where "SCREEN" refers to the name of a computer-generated lithological classification system and data base devised by the DSDP. The SCREEN data base provides lithologic information to the core and interval level. This separate data set is available for general distribution.

The SCREEN lithology code is devised to provide information on a sample's basic lithology, a primary component and any modifying components. A primary component code (digits 5-8) is added as long as the major component represents at least half of the aggregate total of components within its class. For example, if the basic lithology was 70% siliceous then a radiolarian component of at least 35% would be needed to allow radiolarians to be encoded as the primary component. Any other components (greater than 10%) are encoded, in order of descending amounts, as four-digit modifying component codes which follow the primary component code. The modifying component codes are separated from the primary component code and each other by decimal points.

The modified SCREEN code which is used in this file is very similar to the code used within the SCREEN data base. Unlike the SCREEN code, the modified code allows for only a single modifying component code to be added. In addition, since the first digit of the code is always the same as the first digit of the primary component code, the first digit of the primary component code is dropped. In order to reconstitute a standard SCREEN lithology code as described above, simply repeat digit #1 between digits 4 and 5.

The actual codes are outlined below but an example of how these codes are used may be helpful. Consider a sample which was found to be 70% siliceous, and was 35% radiolarians. This sample may be encoded as follows:

The basic lithology was described as being siliceous, transitional, monogenic and soft. From this we determine that the basic lithology code = 2211.

The radiolarians make up at least 50% of the components within its class (35% of a 70% siliceous sample). The code for radiolarians (2210) may then be added to the basic code. The code now appears as follows:

Standard SCREEN code = 22112210
Modified SCREEN code = 2211210

If the same sample was then found to contain both biotite (15%) and feldspar (11%) the code would contain modifying component codes. Keep in mind that the modified SCREEN code may only contain a single modifying component code.

Biotite code = 3402
feldspar code = 3320

The standard SCREEN code = 22112210.3402.3320
The modified SCREEN code = 2211210.3402 (only one modifier)

The basic lithology code (digits 1-4) is derived as follows:

Digit 1 designates :	calcareous	= 1
	siliceous	= 2
	detrital	= 3
Digit 2 designates :	pelagic	= 1
	transitional	= 2
	terrigenous	= 3
Digit 3 designates :	monogenic	= 1
	heterogenic	= 2
Digit 4 designates :	soft	= 1
	firm	= 2
	hard	= 3

CALCAREOUS COMPONENT CODES

1000 = ESTIMATED CARBONATE
1100 = AUTHIGENIC CARBONATE
1110 = CARBONATE
1120 = OOLITE
1130 = DOLOMITE
1140 = ARAGONITE
1200 = UNIDENT CALC FOSSIL
1210 = NANNOFOSSIL
1221 = FORAMINIFERA
1300 = PTEROPOD
1410 = LAMELLIBRANCH
1420 = CALCAREOUS SPICULE
1430 = CORAL
1440 = BRYOZOA
1450 = ALGAE
1460 = OSTRACOD
1999 = MYSTERY COMPONENT

SILICEOUS COMPONENT CODES

2000 = OTHER SILICEOUS
2100 = AUTHIGENIC SILICA
2110 = CHALCEDONY
2120 = OPAL
2130 = CHERT FRAGMENT
2200 = SILICEOUS FOSSIL
2210 = RADIOLARIA
2220 = DIATOM
2230 = SILICOFLAGELLATE
2240 = OPAL PHYTOLITH
2300 = OTHER FOSSIL
2310 = SPICULE

DETRITAL COMPONENT CODES

3000 = UNIDENTIFIED MINERAL
3111 = SIDERITE
3112 = RHODOCHROSITE
3113 = FLOURITE
3151 = ANHYDRITE
3152 = GYPSUM
3153 = HALITE
3200 = PHOSPHATE
3201 = MONAZITE
3202 = COLLOPHANE
3203 = PHOSPHORITE
3250 = SULFIDE
3251 = BARITE
3311 = QUARTZ
3312 = CRISTOBALITE
3320 = FELDSPAR
3350 = ZEOLITE
3351 = ANALCITE
3400 = MICA
3402 = BIOTITE
3450 = CLAY MINERAL
3452 = MONTMORILLONITE
3453 = ILLITE
3500 = SERPENTINE
3501 = GLAUCONITE
3550 = OPAQUE MINERAL
3551 = PYRITE
3552 = IRON
3553 = LIMONITE
3554 = MAGNETITE
3555 = ILMENITE
3600 = HEAVY MINERAL
3601 = AUGITE
3604 = RUTILE
3605 = ZIRCON
3606 = TOURMALINE
3607 = GARNET
3608 = APATITE
3609 = STAUROLITE
3611 = KYANITE
3612 = EPIDOTE
3613 = HORNBLENDE
3614 = AMPHIBOLE
3615 = TOPAZ
3616 = SPHENE
3617 = ZOISITE
3620 = SILLIMANITE
3621 = HYPERSTHENE
3622 = DIOPSIDE
3623 = TREMOLITE
3625 = PYROXENE

3626 = GLAUCOPHANE
3627 = SPINEL
3628 = SPHALERITE
3629 = ANATASE
3634 = OLIVINE
3651 = GLASS
3652 = PALAGONITE
3700 = VOLC MATERIAL FRAG
3705 = VOLCANIC CLAY
3710 = BASALT
3711 = PUMICE
3712 = SCORIA
3751 = MANGANESE
3752 = ISOTROPIC SILVER
3753 = MOLYBDENUM
3754 = MAGNESIUM
3800 = ROCK FRAGMENT
3850 = ORGANIC DEBRIS
3851 = PLANT DEBRIS
3852 = FISH DEBRIS
3870 = CHITANOZOA
3871 = FECAL PELLET
3872 = CARBON FRAGMENT
3901 = LIMNIC
3902 = AUTHIGENIC CRYSTAL
3903 = MESOSTASIS
3903 = OPAQUE MESOSTASIS
3904 = MICROGRANULAR AGGREGATE
3905 = MICROPHENOCRYST
3906 = ISOTROPIC MINERAL
3907 = SPHERULITE
3908 = TERRIGENOUS DETRITUS
3909 = ALTERITE
3910 = MICRONODULE
3911 = DETRITAL MATERIAL
3912 = DETRITAL MINERAL
3915 = AMORPHOUS OXIDE

HARD ROCK DESCRIPTIONS AND COMMENTS:

The observed hard rock core descriptions. This field is also used to comment on any unusual procedures or tests that went on while drilling the hole.

revised by ODP
October 1987

DSDP/University of California at Riverside X-RAY DATA SET

I. INTRODUCTION

A. BACKGROUND AND METHODS

This data set results from x-ray diffraction analyses made by the University of California at Riverside X-ray Mineralogy Laboratory which operated from Leg 1 through Leg 37 under DSDP contract. There are 14,578 individual analyses in the data set. These are distributed among the three sample fractions as follows -

Bulk:	> 20 microns	= 7005 analyses
Silt:	20 - 2 microns	= 3645 analyses
Clay:	< 2 microns	= 3928 analyses

The silt and clay fractions are decalcified with buffered acetic acid and thus calcite and other such minerals will not be found in these fractions.

The x-ray data for each of the Legs 1 through 37 is published in the respective Initial Report of the Deep Sea Drilling Project along with useful ancillary information that is not included in the file described here. Because the Riverside laboratory used a variety of methods to assign subbottom depths to the samples, it is recommended that the Initial Reports be consulted whenever it is important to know how down-hole sample positions were determined on a particular leg.

B. LEGS IN DATA SET

The data set comprises analyses from Legs 1 through 37. Bulk fraction analyses exist for each leg. Legs which do not have analyses for either the silt or the clay fraction are listed below.

Silt: No analyses for Legs 1,2,3,5,7,10 and 11
Clay: No analyses for Legs 1,2,3,4,5 and 6

In the Initial Reports there are histograms and other non-numerical presentations for some of the above listed 'missing' fractions.

C. REFERENCES

The laboratory procedure for the x-ray analyses is discussed in Volume 28 of the Initial Reports of the Deep Sea Drilling Project.

For an overview of this data set see G. Ross Heath, 1984. X-ray Mineralogy Studies. In G. Ross Heath (Ed.), Sedimentology, Physical Properties, and Geochemistry in the Initial Reports of the Deep Sea Drilling Project Volumes 1-44: An Overview, World Data Center A for Marine Geology and Geophysics Report MGG-1, pp. 71-91.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

Field	FORMAT
LEG	I3
SITE	I4
HOLE	A1
CORE	I3
CORE_CHAR	A2
SECTION	A2
SUBBOTTOM TOP (meters)	F8.2
SUBBOTTOM BOTTOM (meters)	F8.2
FRACTION (B=bulk, S=silt, C=clay)	A1
NUMBER OF MINERALS	I2
ONE.MINERAL MNEMONIC	A4
ONE.WEIGHT PERCENT	F5.1
.	
.	
.	
FIFTEEN.MINERAL MNEMONIC	A4
FIFTEEN.WEIGHT PERCENT	F5.1

Note: The mineral/weight couplets will usually begin with the minerals DIFF and AMOR for the analyses from Legs 10 through 37. Although these are not minerals themselves (see table below), they are included in the "number of minerals" data field. The weights attached to the actual minerals are weight percents relative to the particular sample and fraction, but for some analyses these values have not been normalized to 100 percent. Despite the fact that percentages are written to 1/10 of 1 percent, this data set must be viewed as semiquantitative. In some cases, percentages are negative to indicate one of the following relative abundance codes.

-5.0 = TRACE
-25.0 = PRESENT
-65.0 = ABUNDANT
-99.0 = MAJOR

B. FIELD DESCRIPTIONS

The description of leg, site, hole, core and section may be found in the appended explanatory notes. In addition, the special core designations (CORE_CHAR), as well as the methods of sample labeling and calculating absolute sample depths are discussed.

SUBBOTTOM TOP:

The subbottom depth in meters to the top of the sample interval or top of cored interval.

SUBBOTTOM BOTTOM:

The subbottom depth in meters to the bottom or middle of the sample interval.

FRACTION:

Coded B for bulk, C for clay, or S for silt.

C. X-RAY MINERAL MNEMONIC LIST:

Inventory of DSDP/UC Riverside X-ray Minerals
Over All Legs and All Fractions
(ordered by frequency of occurrence)

Mineral	Four Character Mnemonic	No. of Occurences
'diffuse scattering' measure	DIFF	10192
'amorphous material' measure	AMOR	10171
QUARTZ	QUAR	11999
MICA	MICA	9160
PLAGIOCLASE	PLAG	9059

MONTMORILLONITE	MONT	7546
CHLORITE	CHLO	5420
CALCITE	CALC	4942
KAOLINITE	KAOL	4911
K-FELDSPAR	K-FE	4635
CLINOPTILOLITE	CLIN	2389
PYRITE	PYRI	2017
BARITE	BARI	1611
PALYGORSKITE	PALY	1402
AMPHIBOLE	AMPH	1148
PHILLIPSITE	PHIL	1145
CRISTOBALITE	CRIS	829
DOLOMITE	DOLO	762
AUGITE	AUGI	579
GOETHITE	GOET	371
MAGNETITE	MAGN	352
TRIDYMITE	TRID	349
GYPSUM	GYPS	329
HALITE	HALI	305
ANALCITE	ANAL	296
HEMATITE	HEMA	257
ARAGONITE	ARAG	177
ANATASE	ANAT	175
SIDERITE	SIDE	135
FELDSPAR (undifferentiated)	FELD	98
APATITE	APAT	75
GIBBSITE	GIBB	62
SEPIOLITE	SEPI	43
SANIDINE	SANI	29
RHODOCHROSITE	RHOD	28
MAGNESIAN CALCITE	MGCA	26
CALCIUM DOLOMITE	CADO	25
MIXED LAYER CLAY	MIXL	20
BEIDELLITE	BEID	16
TALC	TALC	8
ANHYDRITE	ANHY	6
"variety of MONTMORILLONITE"	2-MO	6
ILMENITE	ILME	5
ERIONITE	ERIO	4
CHABAZITE	CHAB	3
CUPRITE	CUPR	3
CELESTITE	CELE	2
PSILOMELANE	PSIL	2
BASSANITE	BASS	1
SPHALERITE	SPHA	1
ILLITE	ILLI	1
"UNKNOWNS"	U- 1	285
	U- 2	117
	U-1	116
	U-2	116
	U-10	66
	U- 4	55

U- 3	53
U-11	44
UNKN	16
U- 5	9
U-12	6
U- 6	5
U- 7	3
U- 9	3
U- 8	2