

## Deck41 Surficial Sediment Descriptions Database Documentation

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*Instructions for coding and keypunching the geological sample information form for core, grab, and dredge samples. 1966. National Oceanographic Data Center Manual Series, Publication M-5, 35p.*

At that time, according to the preface of the manual:

*"The NODC is sponsored by U.S. Government agencies having an interest in the marine environment; it is governed by an Advisory Board composed of representatives of these activities and the National Academy of Sciences. The U.S. Naval Oceanographic Office is assigned responsibility for management of the National Oceanographic Data Center.*

*"The Sponsoring Agencies are:*

*Atomic Energy Commission  
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Environmental Science Services Administration  
Federal Water Pollution Control Administration  
Geological Survey  
Health, Education, & Welfare  
National Science Foundation"*

The Foreword and Introduction to Manual M-5 follow:

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### MANUAL M-5 FOREWARD

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"In keeping with its charter, the National Oceanographic Data Center (NODC) has undertaken development of a storage and retrieval system for marine geological information. The system is being developed in two steps. The first provides the basic identification of cruise, station, instrument used, and types of samples taken. The second will provide the actual data obtained through laboratory and other analyses.

"This manual provides instructions, codes, and conversion tables for completing the first step; i.e., for filling in the Geological Sample Information Form. It can be used also as an aid for interpreting the punch cards and Electronic Accounting Machine listings. Other manuals will be issued to include the instructions, codes, and conversion tables for step two when these data forms have been agreed upon by the responsible ad hoc committees and approved by the NODC Interagency Advisory Board."

W.C. Jacobs  
Director  
National Oceanographic Data Center

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## INTRODUCTION

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"The Interagency Advisory Board of the National Oceanographic Data Center (NODC) appointed Dr. Harris B. Stewart, Jr., of the Environmental Science Services Administration (Institute for Oceanography) as Chairman of an ad hoc committee to furnish guidance to the NODC for the development of a storage-retrieval system for geological information. The system outlined in this publication is based on the guidance of this committee and the opinions solicited from the scientific community. The manual's purpose is to indicate the procedure used by the NODC in coding data from core, grab, and dredge operations. Agencies and institutions are encouraged to use NODC systems when furnishing information to NODC.

"Because of the lack of standardization in laboratory and reporting techniques, it was suggested that the development of the geological system be accomplished in two phases. The system developed in the first phase will allow for the storage and retrieval of information concerning the where, who, what, and when of a marine geological survey. Although this initial step will provide only limited geological data per se, it will make easily accessible very useful information on what has been accomplished.

"The system developed during the second phase will allow for archiving actual data, including laboratory analyses. Schemes for handling the chemical analyses, physical properties, and mineralogy of bottom sediments and a scheme for handling the engineering properties of bottom sediments are being prepared, and a study is being made on a bottom mineral resources format. The progress of the development of these systems is given in the NODC technical report series."

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## GENERAL CODING INSTRUCTIONS

(quoted directly from the M-5 coding manual)

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"These general instructions have been prepared as an aid in making entries and to obtain uniformity in the coding of data on the Geological Sample Information Form. This form permits the coding of data for a [Master Identification Card](#) (Card Type 1), a [Sampling Information Card](#) (Card Type 2), and a [Sample Description Card](#) (Card Type 3).

"Card Type 1 used alone can serve as the Geological Sample Index, but the system used in this way provides only minimal information on the sampling method and sample obtained.

"The heading items on the upper part of the form are needed for index cards. An item need not be repeated on subsequent sheets, but new information should be provided as required.

"1. Columns 1 through 9 are coded at the NODC, except by special arrangement.

"2. On punch cards, Columns 1 through 15 of Card Types 2 and 3 will be machine reproduced from Card Type 1 during processing. If punched outside NODC, the reference number in Columns 1 through 5 should be obtained from the Data Center prior to processing or left blank and hand annotated.

"3. Leave columns blank if data are not available or observations are not made.

"4. Prefix zeros to fill a field; do not suffix zeros to fill a field of information, unless required for decimal positioning.

"5. Use the standard rounding procedures when rounding is necessary. Example: > 5, add one (1) to preceding column, < 5, drop, 5, round to nearest even number.

"6. Convert local time to Greenwich Mean Time (GMT). This may require an adjustment to the day, month, and year.

"7. For new dredge data (underway sampling), the position given should be the midpoint of the dredge run or the position where the sample was known to have been taken. For historic dredge data, this usually is the initial position. If otherwise, please annotate in Remarks space."

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## DETAILED INSTRUCTIONS

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"These instructions, codes, and conversion tables have been assembled to assist in the coding of the specific information on the Geological Sample Information Form (Figure 1). This form contains three categories referred to as Card Types 1, 2, and 3."

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**Note:** From this point forward, the M-5 manual instructions have been modified to past tense and are not quoted directly. Conversion tables and Marsden square tables have not been included from the original manual. Links to translations of abbreviations for descriptions, and links to country codes have been included.

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## THE MASTER IDENTIFICATION CARD

(CARD TYPE 1)

The completed Master Identification Card (1) contains the identification information for the cruise and its related stations, as well as basic data on the nature of the sample obtained. The first 15 columns contain the processing information required by the NODC and need not be coded by the originator. These columns have not been included on the coding form for Card Types 2 and 3; the information was duplicated into these cards from the Master Identification Card at the machine reproduction stage.

Columns 16 through 75 of Card Type 1 provide the time of sampling; the originator's identification information, his country and institution; the sampling position and depth; bottom sediment type; whether photographs were taken; sampling device; and the source (laboratory or field description) of the data. Columns 76 through 80 were used for subject-sequencing information completed prior to keypunching.

**Columns 1-5: NODC REFERENCE NUMBER**

These columns provide a cumulative identification reference number which were assigned by the NODC prior to processing. This number was obtained from the NODC for cards punched outside the NODC or left blank and hand annotated.

**Columns 6-9: NODC CONSECUTIVE NUMBER**

Consecutive numbers were assigned and coded by the NODC, unless the card was keypunched outside the NODC. Stations or samples included within a single NODC reference number are consecutively numbered, starting with 0001 regardless of originator's numbering and then consecutively in the order in which they appear in the source. One consecutive number includes two samples only if both are taken during one lowering. Additional samples from the same position but from another lowering were assigned a new NODC consecutive number.

**Columns 10-12: MARSDEN SQUARE**

The number identifying the Marsden Square containing the station located by geographic coordinates in Columns 41 through 53 was entered in these columns.

**Columns 13-14: ONE-DEGREE SQUARE**

The number identifying the degree square of the Marsden Square within which the station is located was entered in these columns. Note that the degree square was obtained by combining the unit numbers of the degrees of latitude and longitude.

Example: 25 degrees 20 minutes N and 137 degrees 49 minutes W was coded 57.

**Column 15: DEPTH RANGE**

The depth range within which the sample was taken in meters according to the following code:

<b>Depth Range (Meters)</b>	<b>Code</b>
0-49	0
50-99	1
100-199	2
200-499	3
500-999	4
1000-1999	5
2000-2999	6
3000-3999	7
4000-5999	8
>6000	9

**Columns 16-17: YEAR**

The last two digits of the year as determined by GMT. For nineteenth century data, a red dash was placed above the entry in Column 16 and X was overpunched in Column 16 on the card. (NGDC note: no samples from the twentyfirst century exist in deck41). For nineteenth century samples, a letter was entered in column 16 indicating the overpunch as follows:

J	1810s
K	1820s

L	1830s
M	1840s
N	1850s
O	1860s
P	1870s
Q	1880s
R	1890s

**Columns 18-19: MONTH**

The month as determined by GMT, using Arabic numerals 01 through 12.

**Columns 20-21: DAY**

The day of the month as determined by GMT, using Arabic numerals 01 through 31.

**Columns 22-23: HOUR**

The station time to the nearest hour as determined by GMT, using Arabic numerals 01 through 24.

**Columns 24-25: SHIP**

The code designation for the ship collecting the sample was entered at the NODC.

**Columns 26-29: ORIGINATOR'S CRUISE NUMBER**

The originator's cruise number was entered at the NODC.

**Columns 30-35: ORIGINATOR'S STATION OR SAMPLE NUMBER**

The originator's station or sample number placing the first character in Column 30.

**Columns 36-37: COUNTRY**

The code designation for the country or the agency sponsoring or operating the vessel regardless of the ship registry was entered at the NODC.

**Columns 38-39: INSTITUTION**

The code designation for the sponsoring institution was entered at the NODC.

**Column 40: POSITIONAL ACCURACY**

The estimated accuracy of the position reported or of the navigational system used according to the following code. Enter system used in upper right-hand heading of coding form.

<b>Category</b>	<b>Code</b>
Less than 0.2 nautical miles	1
Between 0.2 and less than 1 nautical mile	2
Between 1 and less than 3 nautical miles	3
Between 3 and less than 10 nautical miles	4
Between 10 and less than 20 nautical miles	5
Greater than or equal to 20 nautical miles	6

**Columns 41-46: LATITUDE**

The latitude in degrees, minutes, and hundredths of a minute where the sampler touched bottom. If reported to tenths of a minute, entered in Column 45 and Column 46 left blank. N or S was entered in the column headed B following Column 46; if S was entered on the coding form, X was overpunched in Column 44 on the card. For dredge operations, see note 7, General Instructions.

**Columns 47-53: LONGITUDE**

The longitude in degrees, minutes, and hundredths of a minute where the sampler touched bottom. If reported to tenths of a minute, entered in Column 52 and Column 53 left blank. E or W entered in the column headed B following Column 53; if E was entered on the coding form, X was overpunched in Column 51 on the card. For dredge operations, see note 7, General Instructions.

**Column 54: SOUNDING DEVICE**

The type of device used to determine the depth to the bottom according to the following code.

Type	Code
Echo sounder	1
Wire sounder	2
Both echo and wire sounder	3
Chart	4
Other (Identify in Remarks space)	9

#### Columns 55-58: DEPTH

The sounding depth in meters of the geographic position reported in Columns 41 through 53. Uncertain soundings and those given as a range entered in Remarks space. Prefix zeros fill the field. If depth is greater than 9,999 meters, the letter code given below was entered in Column 55 (on both the coding form and punch card) and the hundreds, tens, and units digits were entered in Columns 56-58.

Example: Code 10,999 meters as A999.

Depth Range	Code
10,000 through 10,999 meters	A
11,000 through 11,999 meters	B

#### Column 59: CORRECTION

The numeral 1 if the depth value coded in Columns 55 through 58 has been corrected. The numeral 2 if depth is uncorrected. The numeral 3 if the depth is questionable. Left blank if unknown. Correction system annotated in Remarks space.

#### Columns 60-61: SAMPLE OBTAINED

The general nature of the sample obtained according to the following code in Column 61. Second dominant fraction in Column 60. Card Type 3 was used for a more detailed sample description.

	Code
Coarser than sand	0
Sand	1
Silt	2
Clay	3
Ooze	4
Mud	5
Rocks, rock fragments	6
Organic material (shell, peat, wood, coral, etc.)	7
Nodules, slabs, or concretions (manganese, phosphate, iron, glauconite)	8
Hard bottom (No recovery or only trace amount recovered-not resulting from equipment failure)	9

Code for nature of trace material entered in Column 61.

#### Column 62: TYPE OF ANALYSIS

Category	Code
Laboratory	1
Megascopic (Shipboard, log sheets, etc.)	2
Other (Identify in Remarks)	3

**Column 63: SAMPLING METHOD**

Method of sampling entered according to the following code.

<b>Sampling Method</b>	<b>Code</b>
Core	1
Grab	2
Dredge (underway sampling)	3
Sounding sample (lead line, anchor, etc.)	4
Unknown-sediment description available (charts, etc.)	5
Other (Report in Remarks space)	9

**Columns 64-65: PHOTOGRAPHY**

The numeral 1 in Column 64 if a bottom photograph was taken during sampling. The numeral 1 in Column 65 if a photograph of a sample was taken. Left blank if not taken or unknown. Photo identification number entered in Remarks space if known.

**Columns 66-75: BLANK**

Columns 66 through 75 were not coded.

**Column 76: CARD TYPE**

The preprinted numeral 1 on the coding form indicates Card Type 1, the Master Identification Card; this numeral was entered on column 76 of the punch card.

**Columns 77-78: CARD NUMBER**

These numbers indicate sorting and print-out sequence within a station (NODC consecutive number).

**Columns 79-80: DECK NUMBER**

The preprinted numerals 41 were assigned by NODC to identify this deck as the NODC Geological Sample Information Deck; these numerals were entered in Columns 79 and 80 of the punch card.

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**Deck41 Card Type 2  
SAMPLING INFORMATION CARD**

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The second portion of the Geological Sample Information Form was devoted to the coding of sampling information. The second row was used for coding additional data obtained during the same lowering, such as would be obtained by a triggering mechanism.

**Columns 1-15: BLANK**

These columns do not appear on the coding form. The information was reproduced from Card Type 1 during the keypunching operation.

**Columns 16-17: DEVICE USED**

The type of device used to obtain the sample from the following code. Column 16 identifies a core, grab, or dredge sampler, and Column 17 indicates the particular type of sampler. The subsampler data are provided in the second row.

**Column 16:**

<b>Primary Sampler</b>		<b>Subsampler</b>	
Core	1	Secondary Core Sampler	4
Grab	2	Secondary Grab Sampler	5
Dredge	3	Secondary Dredge Sampler	6

**Column 17:**

<b>Corer</b>	<b>Grab</b>	<b>Dredge (Underway)</b>	<b>Code</b>
Undifferentiated (unknown)	Undifferentiated (unknown)	Undifferentiated (unknown)	0
Gravity	Orange Peel	Pipe	1
Piston	Hand or scuba diver (suited or nonsuited)	Chain bag	2
Suction	Eckman, Pettersson, etc.	Meta box	3
Vibrating	Lead line or anchor	Trawl	4
Impact	Submersible vehicle	Bucket	5
Hand (Hand driven or scuba)	Suspended sediment collector	Scoop	6
Expendable		Barge (Shovel)	7
Rotary		Suction	8
Other (Identify in Remarks space)	Other (Identify in Remarks space)	Other (Identify in Remarks space)	9

**Column 18: SAMPLER CONDITION**

The condition of the sampler when brought back on board according to the code given below.

	<b>Code</b>
Unreported or unknown	leave blank
Generally good	1
Barrel bent or broken	2
Piston malfunctioned	3
Core catcher damaged	4
Cutting edge damaged	5
Sampler lost or excessively damaged	6
Other (Identify in Remarks space)	9

**Columns 19-22: TOTAL WEIGHT**

For core operations only.: The total weight of the coring device (including all added weights) in kilograms to nearest kilogram. Prefix zeros complete the field.

**Columns 23-24: FREE-FALL DISTANCE**

The free-fall distance of the corer in meters to nearest meter. Prefix zeros fill the field.

**Columns 25-27: PENETRATION**

The ocean bottom penetration of the corer in meters to the nearest tenth. How penetration was determined reported in the Remarks space.

**Columns 28-30: DIAMETER**

The diameter of the core or the inside diameter of the corer to the nearest tenth of a centimeter. Prefix zeros fill the field.

**Columns 31-34: LENGTH**

The total length of the core obtained, including the disturbed portion, in centimeters to the nearest centimeter. Undisturbed length entered if total length is unknown. Prefix zeros fill the field. For trace amount the letter T entered in Column 34.

**Column 35: CORE CONDITION**

The condition of the core as initially obtained according to the code given below. Conditions other than those outlined listed in the Remarks space.

<b>Core Condition</b>	<b>Code</b>
Unknown	Leave blank
Entire core generally undisturbed	1
Upper portion missing, remainder generally undisturbed	2
Upper portion disturbed, remainder generally undisturbed	3
Lower portion sucked or disturbed, remainder generally undisturbed	4
Badly disturbed>	5
Unusable, excessive loss	6
No core	7
Other (Identify in Remarks space)	9

**Columns 36-39: DISTURBED PORTION**

Length of disturbed portion of core when known, in centimeters. Top or bottom position of this disturbed portion can be determined from preceding column (Column 35).

**Column 40: CORE SECTIONING**

<b>Core Sectioning</b>	<b>Code</b>
Core unsectioned	0
Core in about 1-meter sections	1
Core in about 2-meter sections	2
Core in about 3-meter sections	3
Core in about 4-meter sections	4
Core in unequal sections	5
Other (Identify in Remarks space)	9

**Column 41: CORE EXTRACTION**

The numeral 1 if the core is removed from its casing, barrel, or liner. The numeral 2 if the core is not removed from its casing, barrel, or liner. Blank if unknown.

**Columns 42-44: PRESERVATION**

The sample preservation technique, coding water condition in Column 45, bacteria in Column 46, and structure in Column 47. The required information entered according to the codes given below:

<b>Water (Column 45)</b>	<b>Code</b>
No preservation technique applied or unknown	0
Sealed to preserve entire water content	1
Sealed to preserve partial water content	2

<b>Bacteria (Column 46)</b>	<b>Code</b>
No preservative added or unknown	0
Bacteriostatic agent added	1
Bactericide added	2
Frozen	3
Chilled but not frozen	4

Other (Identify in Remarks space)	9
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<b>Structure (Column 47)</b>	<b>Code</b>
No preservative added or unknown	0
Sediment-water interface preserved	1
Peel technique applied	2
Imbedded in plastic	3
Other (Identify in Remarks space)	9

#### Columns 48-75: SAMPLING REMARKS

Additional sampling information entered in the Remarks space above Columns 48-75. The information was entered into these columns by the NODC.

#### Column 76: CARD TYPE

The preprinted numeral 2 on the coding form indicates Card Type 2, the Sampling Information Card; this numeral was entered in Column 76 of the punch card.

#### Columns 77-78: CARD NUMBER

These numbers indicate sorting and print-out sequence within a station (NODC consecutive number).

#### Columns 79-80: DECK NUMBER

The preprinted numerals 41 were assigned by NODC to identify this deck as the Geological Sample Information Deck; these numerals were entered in Columns 79-80 of the punch card.

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### Deck41 Card Type 3 SAMPLE DESCRIPTION CARD

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The third portion of the Geological Sample Information Form is devoted to the coding of basic sample description. For core samples, the length of the uppermost segment described is given in Columns 16 through 23. Detailed chemical, physical, and mineralogical analyses, when available, was coded on other NODC forms.

Row 2 is used for coding sample data obtained by sampling equipment coded on row 2, Card Type 2.

#### Columns 1-15: BLANK

These columns do not appear on the coding form. The information was reproduced from Card Type 1 during the keypunching operation.

#### Columns 16-23: CORE INTERVAL

The top and bottom in centimeters of the uppermost core segment described.

#### Columns 24-32: COLOR

The Munsell color code number for the color of the wet sample beginning in Column 24. Zeros were not suffixed to fill the field.

#### Column 33: ODORS

	<b>Code</b>
Unknown or none	Leave blank
H2S odor present	1
Fetid non-H2S odor present (musty, earthy, bituminous)	2
Sharp, pungent odor present (formalin)	3

Columns 34-75: SEDIMENT DESCRIPTION

The description of the sediments was written in the space provided above Columns 34-75. This information was inserted in Columns 34-75 by NODC prior to keypunching. [Abbreviations](#) were used if necessary.

Column 76: CARD TYPE

The preprinted numeral 3 on the coding form indicates Card Type 3, the Sample Description Card; this numeral was entered in Column 76 of the punch card.

Columns 77-78: CARD NUMBER

These numbers indicate sorting and print-out sequence within a station (NODC consecutive number).

Columns 79-80: DECK NUMBER

The preprinted numerals 41 were assigned by NODC to identify this deck as the Geological Sample Information Deck; these numerals were entered in Columns 79 and 80 of the punch. Card.

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NODC  
REF.  
NO.

MAIN SOURCE

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- 00502 Smithsonian Institution, Raw data sheets, bottle samples from 1842-1844.
- 00503 U. S. Coast and Geodetic Survey, Oceanographic log sheet-M, bottom sediment data.  
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