

METRIC
MIL-D-89010
4 MARCH 1994

MILITARY SPECIFICATION
DIGITAL BATHYMETRIC DATA BASE
5-MINUTE (DBDB5)

This specification is approved for use by all
Departments and Agencies of the United States
Department of Defense

1. SCOPE

1.1 Scope. Conformance to these specifications will ensure uniformity of treatment among all mapping and charting elements engaged in a coordinated production and maintenance program for this product.

1.2 Purpose. The purpose of this document is to specify the format, content, related product design and details necessary for the production of the unclassified and classified 5-Minute Digital Bathymetric Data Base, DBDBU and DBDBC, respectively.

1.3 Security. This Specification is UNCLASSIFIED. DBDBU is UNCLASSIFIED. DBDBC is classified CONFIDENTIAL because of the detailed surveys incorporated into the source material.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to:
Director, Defense Mapping Agency, ATTN: PR, ST A-13
8613 Lee Highway, Fairfax, VA, 22031-2137 by using the
Standardization Document Improvement Proposal (DD Form
1426) appearing at the end of this document or by
letter.

AMSC N/A

AREA MCGT

DISTRIBUTION STATEMENT A. Approved for public release;
distribution is unlimited.

2. APPLICABLE DOCUMENTS

2.1 Government documents. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the current Department of Defense Index of Specifications and Standards (DODISS) and the supplement thereto, cited in the solicitation (see 6.2).

Military Standards

MIL-STD-129 Marking for Shipping and Storage

MIL-STD-600010 Department of Defense, DMA Stock Number
Bar Coding

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094).

2.2 Non-Government publications. The following document forms a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

American National Standards Institute Magnetic Tape Labels for Information Interchange X3.27-1969.

(Application for copies should be addressed to the American National Standards Institute (ANSI), Inc., 1430 Broadway, New York, N.Y. 10018.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specification sheets, or MS standards) the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3.

3.2 Accuracy. There are no horizontal or vertical accuracy requirements for DBDB5 or DBDBC. The relatively coarse resolution of the grid provides only a generalized portrayal of the bottom configuration. The accuracy of this data base shall be consistent with a 1:4 million scale nautical product, and therefore shall not be used for surface or subsurface navigation.

3.3 Datum.

3.3.1 Vertical sounding datum. The vertical sounding datum shall be Mean Sea Level (MSL), uncorrected for sound velocity to 1,500 meters per second(m/s).

3.3.2 Horizontal datum. The DBDB5 and DBDBC are not required to be referenced to any specific horizontal datum.

3.4 General format.

a. Formats for DBDBU and DBDBC shall be identical except for classification. DBDB5 shall consist of depth values in meters and provided on magnetic tape (see FIGURE 1).

b. DBDB5 stores 6,158,642 depth values. The data base shall be written as one 6,250 BPI magnetic tape or two 1,600 BPI magnetic tapes.

3.5 Physical characteristics of magnetic tape.

a. On magnetic tape, DBDB5 shall be written and formatted sequentially in separate, word-addressable mass storage files. Each file shall contain a file header followed by data records (see TABLE I).

b. When put on magnetic tape in the standard format, 1,012 files shall be included in the Northern Hemisphere and 1,011 files in the Southern Hemisphere.

c. The physical characteristics of the magnetic tape shall be as follows:

- (1) Length: 2,400 feet
- (2) Width: 0.5 inches
- (3) Recording Format: 9 Track
- (4) Parity: Odd
- (5) Density/Recording Method:
 - (a) 6,250 BPI/GCR- Preferred DMA exchange format
 - (b) 1,600 BPI/Phase Encoded- Provided upon request
 - (c) 800 BPI/NRZI- Provided upon request
- (6) Inter-Record Gap: 6,250 BPI-0.3 inches, 800/1,600

BPI-0.6 inches.

(7) Tape Markers: Beginning-/End-of-tape markers

d. Data records shall be labeled using the American National Standards Institute Magnetic Tape Labels for Information Interchange X3.27-1969. All records shall be recorded in ASCII code.

~~3.0 FILE DESCRIPTION.~~

a. All files shall contain a header record indicating the geographic limits covered by the file, grid spacing, and the number of rows and columns of data in the file. Following the header record are 376 data records, each numbering 80 characters.

b. Data values shall be written sequentially beginning with the minimum latitude and longitude value. The data shall be ordered by incrementing the longitude by the grid size (5 minutes) until the maximum longitude is obtained, at which time the longitude returns to the minimum value. Then latitude shall be incremented by the grid size (5 minutes). This procedure continues until the maximum latitude and longitude values are obtained. Each file shall include data values for all four boundaries of the specified area.

c. Each file shall cover a 5° square and written as one block (see FIGURE 2). A 5° area shall contain 3,721 values (61 rows X 61 columns), while the block configuration shall contain space for 3,760 values (10 values X 376 records). The last 39 values of each block will be set to zero. The extraction software shall create a unique reference from user-supplied geographic limits. Look-up table functionality shall enable the software to extract the data values for the desired area. Rows and columns 1 and 61 are redundant for adjoining cells.

Medium: Magnetic Tape

Contents: Bathymetric values to the nearest meter for each 5-minute by 5-minute geographic position in the world's oceans

Description: Depths for each 5° by 5° geographic area are sorted as an individual file consisting of one header record and 376 data records. All logical records are 80 characters in length. Blocking is 30,160 characters, or 377 records, written in ASCII FORTRAN

Header Format: (5f10.1,2I5,11X,'D',7X,"")

<u>Variable</u>	<u>Units</u>	<u># Characters</u>	<u>Type</u>	<u>Range of Values</u>
Min Lat	Degrees	10	F	-75, 85 (+N, -S)
Min Lon	Degrees	10	F	0, 355 (+E)
Max Lat	Degrees	10	F	-80, 90 (+N, -S)
Max Lon	Degrees	10	F	5, 360
Grid Spacing	Minutes	10	F	5
No. Rows	n/a	5	I	61
No. Columns	n/a	5	I	61
Char Info	n/a	1	A	'D'

Data Format:

<u>Variable</u>	<u>Units</u>	<u># Characters</u>	<u>Type</u>	<u>Range of Values</u>
Depth*	Meters	8	F	>0 (depth) -10.0 (land) 0 (no data)

*10 values per logical record

TABLE I. Digital Bathymetric Data Base (DBDB5).

4. QUALITY ASSURANCE

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements; however, this does not authorize submission of known defective

material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 First article inspection. When a first article inspection is required (see 3.1 and 6.2), it shall be examined for defects specified in 4.4.1 and tested as specified in 4.4.2.

4.4 Quality conformance inspection. All items shall be examined for defects specified in 4.4.1 and tested as specified in 4.4.2.

4.4.1 Classification of defects. A defect is defined as any missing file from the generated item.

4.4.2 Tests. Each item after generation shall be readback to ensure all files have been transferred.

4.5 Government furnished material. The contractor shall not duplicate, copy, or otherwise reproduce the MC&G property for purposes other than those necessary for performance of the contract.

4.6 Government property surplus. At the completion of performance of the contract, the contractor, as directed by the contracting officer, shall either destroy or return to the Government all government-furnished MC&G property not consumed in the performance of the contract.

5. PACKAGING

5.1 General. Each finished package will include the magnetic tapes, a paper copy of the FORTRAN program for accessing the files and an attributes list covering the makeup of each file.

5.2 Packaging. Packaging for the magnetic tape shall be level C (see 6.2) unless otherwise specified. This packaging provides minimum protection, and it is needed to protect material under known favorable conditions. The following criteria determine the requirements for this degree of protection:

- a. Use or consumption of the item at the first destination.
- b. Shock, vibration, and static loading during the limited transportation cycle.
- c. Favorable warehouse environment for a maximum of 18

months.

d. Effects of environmental exposure during shipment and intransit delays.

e. Stacking and supporting superimposed loads during shipment and temporary storage.

5.3 Marking. In addition to any special markings required by the contract or order markings shall be in accordance with requirements of MIL-STD-129 for military levels of protection.

5.4 Bar code markings. Bar code markings are required and shall be applied in accordance to MIL-STD-600010.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use.

a. The Digital Bathymetric Data Base (DBDB5) is a worldwide (north of 78°S) 5-minute by 5-minute digital gridded bathymetric data base maintained as an UNCLASSIFIED data base (DBDBU) and as a CLASSIFIED data base (DBDBC).

b. DBDBC and DBDBU were developed by the Naval Oceanographic Office (NAVOCEANO) in 1982 and 1984, respectively. DBDBC is classified due to the detailed nature of the surveys incorporated into the source material. The designed use of DBDB5 is to provide bathymetric data to be integrated with other geophysical parameters for ocean modeling. However, other uses of DBDB5 data may include the display of bathymetric contours (as either a digital display or hard copy plot), and/or as a bathymetric layer of a Geographic Information System (GIS) at a scale of 1:4 million.

c. Initial depth information, in the form of bathymetric contours, was put into digital form at the rate of 10 measurements per inch of contour. These digitally-rendered contours were then put through a gridding routine developed by NAVOCEANO. This routine takes the values within a cell and, utilizing a two-dimensional multistate minimum-curvature spline, interpolates the values to derive a single representative depth value. Upon completion of the grid, it is matched to the Central Intelligence Agency World Data Base II shoreline and any discrepancy is resolved to match WDBII shoreline. Any grid position falling on land is set to a value of -10.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.

b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).

c. When a first article is required (see 3.1, 4.3, and 6.3).

d. Levels of packaging (see 5.2).

6.3 First article. When a first article is required, it shall be inspected and approved under appropriate provisions of FAR 52.209. The first article shall be a reproduction sample. The contracting officer shall specify the appropriate type of first article and the number of units to be furnished. The contracting officer shall also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Currency standards. DBDBC became operational in 1982 and DBDBU went on-line in 1984. The last change to the data was made in July 1985. DBDB5 is not maintained for currency by DMA Notice to Mariners, and there is no scheduled date for the compilation of a new edition of DBDB5.

6.5 International Standardization Agreements. This section is not applicable to this specification.

6.6 Other documentation.

Federal Information Processing Standards Publication (FIPS PUB):

FIPS PUB 3/1 Recorded Magnetic Tape For Information Interchange (800 CPI, NRZI, With ANSI X3.22-1983)

FIPS PUB 5 Recorded Magnetic Tape For Information Interchange (1600 CPI, Phase Encoded) (ANSI X3.39-1973)

FIPS PUB 50 Recorded Magnetic Tape For Information Interchange, 6250 CPI (246 CPMM), Group Coded Recording

6.7 Subject term (key word) listing.

5° square file
6250 BPI/GCR
Depth value
Magnetic tape

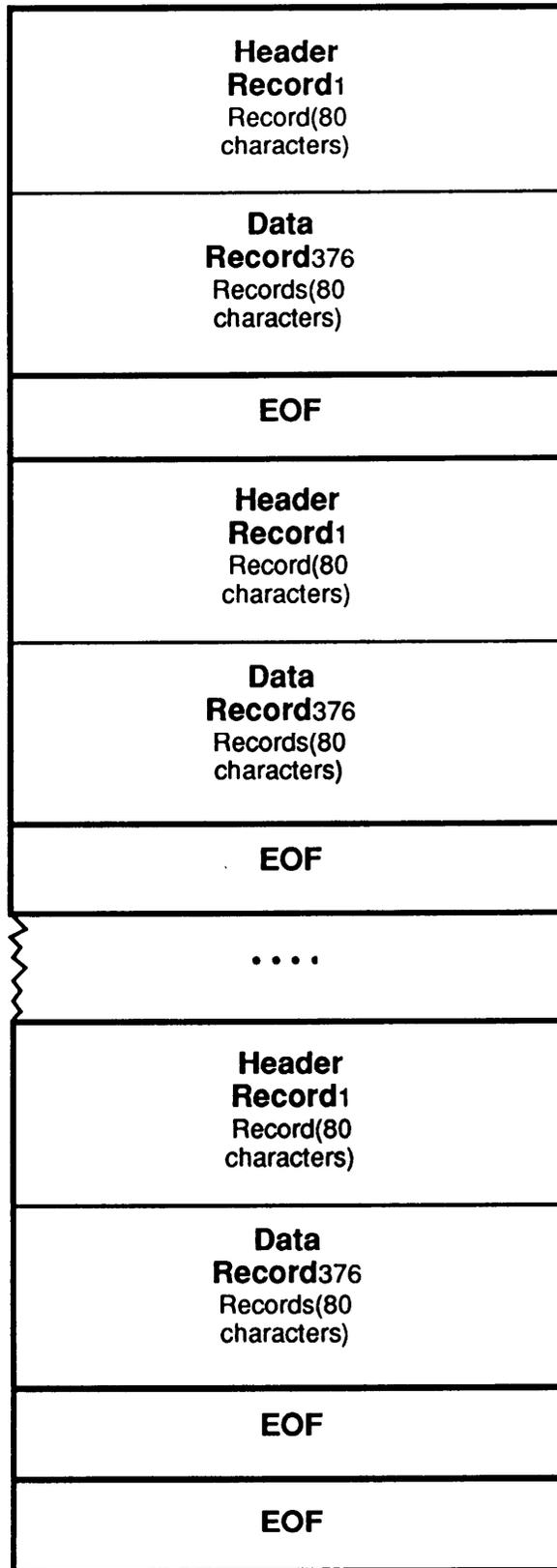


FIGURE 1. General File Design and Format (Magnetic Tape File).

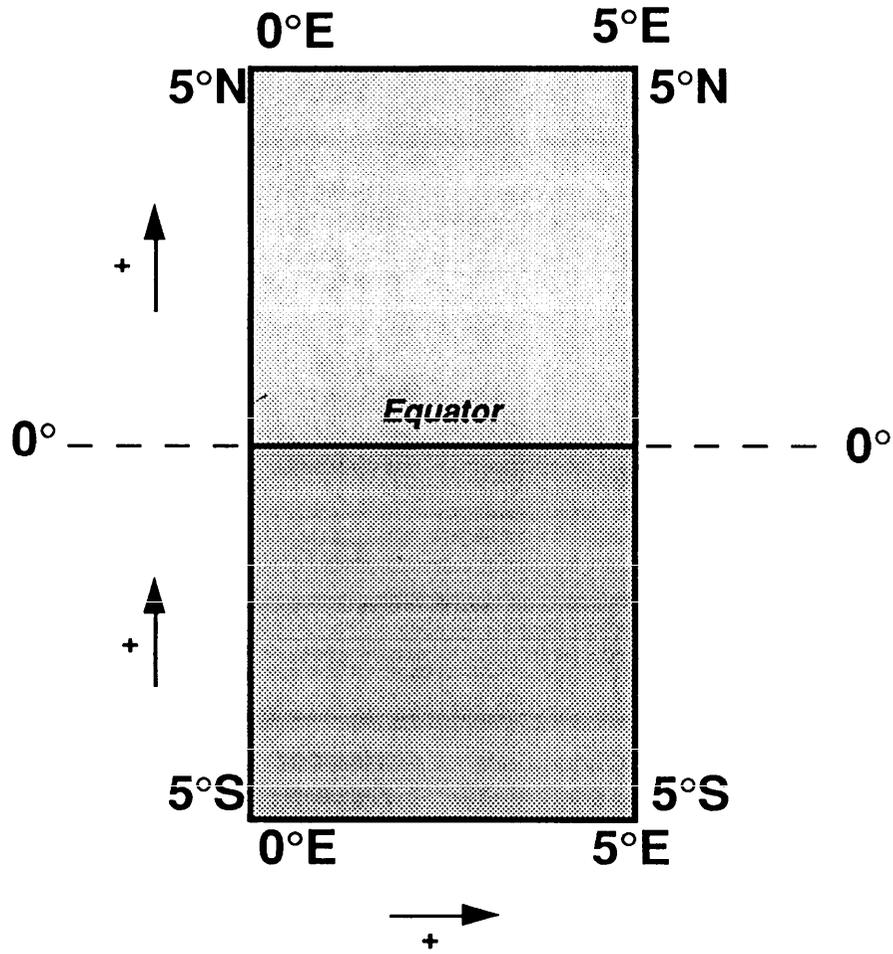


FIGURE 2. Cell Organization for DBDB5.

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CONCLUDING MATERIAL

Custodian:
DMA - MP

Preparing activity:
DMA - MP

Review activities:
Air Force - 09
Army -
Navy - NO, MC
Misc. - DC

(project MCGT-0013)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing anivity must provide a reply withIn 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-D-8910	2. DOCUMENT DATE (YYMMDD) 940304
3. DOCUMENT TITLE Military Specification for Digital Bathymetric Data Base 5-Minute (DBDB5)		
4. NATURE OF CHANGE <i>(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed)</i>		
5. REASON FOR RECOMMENDATION		
6. SUBMITTER		
a. NAME <i>(Last, First, Middle Initial)</i>	b. ORGANIZATION	
c. ADDRESS <i>(Include Zip Code)</i>	d. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (2) AUTOVON <i>(if applicable)</i>	7. DATE SUBMITTED <i>(YYMMDD)</i>
8. PREPARING ACTIVITY		
a. NAME Defense Mapping Agency ATTN: PR, ST A-13	b. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (703) 285-9238	(2) AUTOVON 356-9238
c. ADDRESS <i>(Include Zip Code)</i> 8613 Lee Highway Fairfax, VA 22031-2137	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA. 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	