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**US Army Corps
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Construction Engineering
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Training Management and Geographic Decision Support System

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Sources of Digital Spatial Data for Geographic Information Systems

by
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Several computer programs are available to help Army installations plan military training activities while ensuring environmental quality and protecting natural resources. One such system, the Geographic Resources Analysis Support System (GRASS), requires digital spatial information for developing area-specific databases. This information previously was available only on a limited basis.

Today, many more digital spatial data sources have come into existence. Use of such sources, compared with generating new data, can usually save an installation a large amount of time and money. In addition, these sources ensure minimum standards for accuracy and quality.

This report identifies digital data sources to help installations evaluate the feasibility of implementing systems such as GRASS. Included is a list of the following characteristics for each source: format, scale/resolution, coverage, media, costs, and a textual description.

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characteristics for each source: format, scale/resolution, coverage, media, costs, and a textual description.

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FOREWORD

This work was performed by the U.S. Army Construction Engineering Research Laboratory (USA-CERL) under Project 4A162720A896, "Environmental Quality Technology"; Task A, "Installation Environmental Management Strategy"; Work Unit 041, "Training Management and Geographic Decision Support System." The work was conducted for the U.S. Army Engineering and Housing Support Center (EHSC). Mr. D. Bandel (CEHSC-ER) was the Technical Monitor.

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SOURCES OF DIGITAL, SPATIAL DATA FOR GEOGRAPHIC INFORMATION SYSTEMS

1 INTRODUCTION

Background

The Army is responsible for vast amounts of land that supports the military training mission. To ensure that training realism is optimal while protecting the environment and its natural resources, installation land managers and training planners must coordinate activities based on information about the local geography. In the past, it was nearly impossible to consider all critical factors in analyzing environmental impact because of the tremendous volume of data that had to be integrated manually. Now, however, computer technology allows quick, efficient data retrieval and manipulation, allowing planners to assess more information faster than was ever possible using manual methods.

The U. S. Army Construction Engineering Research Laboratory (USA-CERL) has developed several automated systems for evaluating environmental impact. Among these products is the Geographic Resources Analysis Support System (GRASS),¹ a geographic information system. GRASS provides efficient, comprehensive storage, retrieval, display, updating, and manipulation of environmental landscape data. The system produces graphic output based on maps and imagery. This type of output is especially useful to the installation because it offers visual representation to managers who are used to dealing with graphics. Critical information can be generated early enough in the planning process to ensure effective land use and resource management.

To use a computer system for this purpose, a database must be created which is tailored to conditions at the specific installation. In the case of GRASS, a digital data set must be obtained or generated for the region of interest. An earlier study by USA-CERL showed that existing digital information sources were limited.² Since that time, the availability of digital sources has increased markedly.

Installations considering the use of these systems must analyze the cost and time required to build an adequate database. For this reason, there is a need to document these new sources of digital data in terms of status, scope of information provided, procurement method, and cost. Incorporating existing data sources into the system usually saves a great amount of time and money. In addition, use of standard sources ensures a baseline for accuracy and quality.

Objective

The objective of this work is to identify the major sources of national and global digital landscape data and to provide status, coverage, and acquisition information about these sources.

¹J. Westervelt, et al., *GRASS User's Manual*, ADP Report N-87/22 (U.S. Army Construction Engineering Research Laboratory [USA-CERL], September 1987).

²W. D. Goran and R. E. Riggins, *Graphic Materials to Support Biophysical Quantitative Environmental Impact Analysis--Sources of Existing Materials*, Technical Report N-68/ADA069097 (USA-CERL, March 1979).

Approach

Sources were identified from existing documentation at USA-CERL and interviews with personnel experienced in digital database development. These data sources were contacted by telephone or correspondence to obtain the needed information. This information was then compiled to provide the following data characteristics: format, scale/resolution, coverage, media, costs, and textual descriptions and comments.

Scope

Information in this report is current as of the last quarter in FY87.

Mode of Technology Transfer

The information in this report will serve as an analytical tool in transferring USA-CERL's Geographic Information System (GIS). The GIS is being transferred to the field through hands-on experience, training programs, a user support center, newsletters, and other methods.

2 CATALOG OF DIGITAL DATA SOURCES

A good first step in determining the type and extent of digital data available for a specific region is to contact the National Cartographic Information Center (NCIC) and ask for a listing of data for your area. (National and regional addresses for NCIC are found in the Appendix.) NCIC maintains an updated list of all digital spatial data sources in the United States and offers a search service for specified geographic regions. NCIC also can supply indexes showing the status of coverage in your area.

Information collected in this study is presented in catalog format for quick reference. The Appendix also contains a cross reference for these sources.

DMA: Elevation

Data Source

Defense Mapping Agency (DMA) Aerospace Center
3200 S. 2nd St.
St. Louis, MO 63118-3399

Data Format

Raster

Scale

1:250,000

Data Coverage

Entire United States and many other parts of the world.

Data Description

Data consist of a regular array of elevation values, latitude/longitude, referenced with a spacing of 3 arc-seconds. Data were produced from digitizing 1:250,000 topographic maps. For more information, refer to U.S. Geological Survey (USGS) Circular 895-B, *Digital Elevation Models (DEMs)*, which describes both the USGS- and DMA-produced DEMs.

Media

Non-Government parties order data through USGS. The data are available on 9-track tape, 1600 bpi.

Acquisition Costs

USGS: \$75/1 deg. x 1 deg. block, plus \$25 service charge.

Comments

For more information or to receive a copy of circular 895-B, contact USGS (address is in the Appendix).

EOSAT: Multispectral—Satellite

Data Source

Earth Observation Satellite Co. (EOSAT)
4300 Forbes Blvd.
Landham, MD 20706
Telephone: 1-800-367-2801

Data Format

Multispectral scanner (MSS):

Band interleaved (through 1/79) (BIP)
Band sequential (BSQ) or band interleaved (BIL) corrected (1/79 to 5/81)
BSQ or BIL corrected or uncorrected (6/81 - present)

Thematic mapper (TM):

BSQ or BIL corrected or uncorrected (4/84 - present)

Reverse band video (RBV):

Scene sequential (SSQ) corrected (9/80 - present)

Scale/Resolution

MSS \approx 80m, TM \approx 30m, RBV \approx 80m

Data Coverage

Worldwide. Historical data can be obtained through the Earth Resources Observation System (EROS) Data Center.

Data Description

Standard 4-band MSS, 7-band TM data, or RBV data. Since the Landsat system has been commercialized, users must sign a form stating that they will not copy or distribute the data without authorization from EOSAT.

Media

9-track tape, 6250 or 1600 bpi.

Acquisition Costs

<u>Product</u>	<u>Cost</u>
MSS	\$660
MSS Copies	\$120*
RBV Sub-scene	\$660
RBV 4 Sub-scenes	\$1320
TM Full Scene	\$3300
TM Copies	\$720**
TM Quarter Scene	\$1650***

Comment

*Information is from pamphlet EOSAT 205-5, *Landsat Products and Services*.
Note: military users are now required to purchase EOSAT data through the DMA.

**Copies are available only at the time of the original order and no more than 10 copies are allowed.

***Quarter scenes are available only from stock in-house at the EROS Data Center.

EPA: Multispectral--Airborne

Data Source

Environmental Protection Agency (EPA)
Remote Sensing Branch
P.O. Box 15027
Las Vegas, NV 89114

Data Format

MSS--BIL

Scale

Customer-variable

Data Coverage

Customer-variable

Data Description

The EPA has an aircraft-mounted multispectral 12-channel scanner (Daedalus 2600 ATM) available for contract data collection. The customer has control over the area of coverage, resolution of data, and wavelengths to be collected.

Media

Custom flights

Acquisition Costs

A Corps of Engineers Southwest Division project yielded the following averages:

<u>Resolution</u>	<u>Price/Sq Mi</u>	<u>Price/acre</u>
5 m	\$75.84	\$0.12
10 m	\$14.15	\$0.022

Note: about half of the cost is due to acquiring one set of color infrared (IR) photographs.

Comments

Information was obtained from *Southwest Division Remote Sensing Bulletin*, Remote Sensing Activities and Status Report (23 October 1984). Cost estimates were provided by Mr. Gary Earls, Southwest Division Remote Sensing Coordinator.

NCDC: Weather—Statistics and Imagery

Data Source

National Climatic Data Center (NCDC)
Federal Bldg.
Asheville, NC 28801
Telephone: 704-CLIMATE

Data Format

Digital products--tabular records

Satellite products--raster

Scale

Variable

Data Coverage

Mostly United States. Some global and regional data also available.

Data Description

Digital products--surface marine and air observations, hourly precipitation data, lightning statistics from storm data, U.S. soil temperatures, world monthly weather record (surface and upper air), and more.

Satellite products--AVHRR, SEASAT Altimeter and SAR, sea surface temperature, TIR OS-N, and more.

Media

9-track American Standard Code for Information Interchange (ASCII) or EBCDIC tape, 1600 or 6250 bpi

Acquisition Costs

Magnetic tape data--\$99/order minimum.

Comments

For more information, contact the above address for the *Selective Guide to Climatic Data Sources*.

NGDC: Terrestrial and Marine Geophysical Data

Data Source

National Geophysical Data Center (NGDC)
ATTN: Christine Schomaker
325 Broadway
Boulder, CO 80303
Telephone: (303) 497-6474; FTS 320-6376

Data Format

Varies

Scale

Varies

Data Coverage

Mostly worldwide; some data specific to U.S. coastal waters

Data Description

Aeromagnetic and geomagnetic data; oil and gas lease data; ocean core sample locations; ocean bottom characteristics; dangers to navigation; coastal, deepwater, or gridded bathymetry; land and marine seismic data; geothermal data; land and marine geology; satellite data (Aurora, GEOS/NOAA, LANDSAT, MAGSAT); solar data; land and marine topography. All data are latitude/longitude referenced.

Media

9-track tape (ASCII or EBCDIC), computer listing, or plots

Acquisition Costs

Varies; call/write for quotes.

Comments

NGDC is part of the National Environmental Satellite Data and Information Service (NESDIS). Information was obtained from the following NGDC publications: *Solar-Terrestrial Physics Services and Publications*; *Terrestrial Geophysics Data Services*; *Marine Geology and Geophysics Data Services and Publications*; and *Earthquake Data Services and Publications*.

NGIC: Geodetic Control Information

Data Source

National Geodetic Information Center (NGIC)
Rockville, MD 20852
Telephone: (301) 443-8631 (geodetic data), or - 8316 (Digital Data Catalog)

Data Format

Tabular

Scale

Not applicable

Data Coverage

Entire United States

Data Description

A digital database of geographic control points on the Earth's surface with specified latitude, longitude, and elevation values. Horizontal, vertical, and gravimetric data can be referenced by maximum/minimum latitude/longitude, state, or quad identifications (IDs).

Media

Information can be supplied on computer tape, printout, or, for horizontal data, direct access is available (see *Comments* below).

Acquisition Costs

Approximately \$150-200/format for a state on 9-track tape. Computer printouts of the same data are less expensive. For costs associated with direct access, call the telephone number given below.

Comments

For information on direct access, call National Geodetic Survey (NGS) Systems Development Branch at (301) 443-8380. For more information about formats, costs, and availability, write/call the NGIC at the above address and ask for the *National Geodetic Survey—Digital Data Base Products*.

NODC: Marine—Physical, Biological, and Chemical Data

Data Source

National Oceanographic Data Center (NODC)
ATTN: Albert Bargeski--Chief of User Services
Page Bldg 1
2001 Wisconsin Ave., N.W.
Washington, DC 20235
Telephone: (202) 634-7500

Data Format

Mostly tabular records. Digital file format examples can be found in the *NODC Users Guide*.

Scale

Not applicable

Data Coverage

Mostly regional (Gulf Coast, Alaskan Coast, etc.). A considerable amount of global data is also available. See *NODC Users Guide* for specific areas and time periods.

Data Description

Measurements versus depth of: temperature, salinity, dissolved oxygen, and other physical parameters. Environmental parameters include metals, hydrocarbons, and other pollutants. Biological observations cover fish, marine birds and mammals, plankton, and other organisms. For detailed information about NODC holdings, see the *NODC Users Guide*.

Media

9-track magnetic tape, computer printout, or computer-generated plots.

Acquisition Costs

1. Magnetic tapes:
 - \$85 minimum computer charge for 800 to 1600 bpi
 - \$100 minimum computer charge for 6250 bpi
 - \$20 for blank tapes (user can provide own tapes)
2. Computer printout: \$0.05/sheet plus computer charges
3. Plotter operations: \$20/hr plus \$30/roll or \$1/plot
4. Handling charges: \$3 (nondigital products), \$10 (digital products)

Comments

The NODC can provide specific information about data based on combinations of the following parameters: data type, geographic area, time period, cruise number, ship or platform, country, institution, minimum depth, effective depth, and taxonomy. The Oceanographic Station Data File and the Marine Toxic Substances and Pollutants File can also be searched by parameters such as pH and dissolved oxygen. See Section 5.0, page 2, of the *NODC Users Guide*. The NODC is part of NESDIS. This information was obtained from the *NODC Users Guide*.

NTIS: Small Scale World Boundaries, Major Rivers

Data Source

National Technical Information Service (NTIS)
U.S. Dept. of Commerce
5285 Port Royal Rd.
Springfield, VA 22161
Telephone: (703) 487-4650

Data Format

Vector (points, lines)

Scale/Resolution

1:12,000,000; 1:3,000,000, and larger

Data Coverage

Worldwide

Data Description

World Data Bank I--coast lines, national boundaries, and place names at 1:12,000,000 scale. World Data Bank II*--coast lines, major rivers, national boundaries, state/province boundaries, and place names at 1:3,000,000 or larger. Data are latitude/longitude referenced.

Media

9-track, 1600-bpi, odd parity, EBCIDIC magnetic tape

Acquisition Costs

Data are available free of charge from the Central Intelligence Agency (CIA) to Federal agencies (see *Comments* below). You must send a letter of request on official letterhead from your organization designating area of interest and enough 1/2-in. tapes to hold the data (the whole data base will take 10 tapes). Non-Government parties may obtain current price information by calling NTIS.

Comments

Data were originally collected by the CIA Office of Geographic and Cartographic Research. Information about this source was obtained from a report entitled

*Note: according to sources in the CIA, the copy of World Data Bank II distributed by NTIS is not as complete as that of the CIA's.

U.S. National Report to ICA, 1984, Section 5, "Automation in Cartography," subsection "Data Bases." In addition, the following individual provided information by telephone:

Mr. Russ Carter
CIA
Office of Geographic and Cartographic Research
Room GH55
OCPAS/CDPG
Washington, DC 20505

ORNL: County Level Data

Data Source

Oak Ridge National Laboratory (ORNL)
ATTN: R. J. Olson, C. J. Emerson, or M. K. Nungesser
Oak Ridge, TN 37830

Data Format

Tabular--Statistical Analysis System (SAS) format

Scale

Stored at county level

Data Coverage

Conterminous United States

Data Description

This database contains a single representative county value for these categories:

1. Agriculture--crop and livestock sales, yields, etc.
2. Base data--state and county names, Federal and State landownership, etc.
3. Climate--monthly average (temperature, precipitation), growing season length, etc.
4. Vegetation--tree species ranges, potential and adjusted vegetation, etc.
5. Forestry--major types, sawtimber volumes, growing stock volumes, etc.
6. General--supporting data
7. Air quality--ambient air quality, air quality nonattainment areas, etc.
8. Land--land use, seismic risk ratings, land surface mining, etc.
9. Natural areas--national parks, wilderness areas, etc.
10. Population--by sex and 5-yr age classes, projected for 1985 and 2000
11. Water resources--water quality National Stream Quality Accounting Network (NASQAN)
12. Terrain (East only)--lithology, elevation, geology, soils, etc.
13. Wildlife--bird routes, mammal information, endangered species information, etc.

Media

9-track tape in SAS format or EBCDIC tape files

Acquisition Costs

No information available

Comments

For more information, write to ORNL at the above address for the report *GEOECOLOGY--A County-Level Environmental Data Base for the Conterminous United States*.

SCS: Soils

Data Source

Soil Conservation Service (SCS)
National Cartographic Center
ATTN: Richard Folsche
South Technical Service Center
P.O. Box 6567
Fort Worth, TX 76115

Data Format

Raster encoded as ASCII

Scale/Resolution

Vector: mostly 1:24,000

Raster: mostly 4-hectare cells

Data Coverage

Scattered. Call/write SCS at the above address for a current edition of *Status of Detailed Soil Survey Digitizing* or *Status of Soil Survey Digitizing*.

Data Description

This is an experimental program to provide vector and grid-cell soils data. Data are available on a county basis. The program was funded by state SCS offices; thus, extensive data are available for some states, and none for others.

Media

9-track tape, 800 bpi

Acquisition Costs

The SCS has not established a distribution system, so data are provided on a case-by-case basis. For areas that have not been digitized, cost-sharing information may be available from individual state soil conservationists.

Comments

Information was obtained from conversations and reports provided by Richard Folsche and Arnold Molina, SCS South Technical Service Center. For more information, write to the above address or contact:

National GIS Coordinator
Cartography and Geographic Information Systems Div.
14th and Independence Ave., SW
P.O. Box 2890
Washington, DC 20013
Telephone: FTS 447-5420

SPOT: Multispectral--Satellite

Data Source

SPOT Image Corp.
1897 Preston White Dr.
Reston, VA 22091-4326
Telephone: (703) 620-2200

Data Format

Raster

Scale/Resolution

10-m panchromatic or 20-m multispectral

Data Coverage

Worldwide, though historical data are not yet extensive.

Data Description

The SPOT satellite multispectral data are essentially the same as those used by bands 2, 3, and 4 of the Landsat-5 Thematic Mapper. However, SPOT's multispectral data have a resolution of 20 m versus Landsat's 30 m. SPOT also has a panchromatic band with a resolution of 10 m and stereo image acquisition capability.

Media

9-track tape, 6250/1600 bpi

Acquisition Costs

	<u>6250 bpi</u>	<u>1600 bpi</u>
Unreferenced (Level 1)	\$1475	\$1600
Georeferenced (Level 2)	\$2425	\$2550

Comments

Level 2 SPOT data can be referenced to several projections (e.g., Lambert Conformal, UTM, and Polyconic) or to another SPOT scene (Level S). If no maps of the area are available, the customer will be asked to supply maps at a scale of 1:100,000 or larger for ground control points.

The following nonstandard options are available for an additional \$100 per item:

- BSQ rather than BIL
- EBCIDIC rather than ASCII
- Split record size with maximum length of 3960 bytes (available only for 1600-bpi tapes)

For ordering and current prices, call/write the above address. This information was obtained from "SPOT Image Corporation--Forms Instructions."

EPA: Water Quality (STORET)

Data Source

U.S. Environmental Protection Agency (USEPA)
Office of Water and Hazardous Materials
401 M Street, SW
Washington, DC 20460
Telephone: (202) 426-7792

Data Format

Tabular

Scale

Not applicable

Data Coverage

Approximately 200,000 collection points nationwide

Data Description

STORET is a national system that can help users monitor water quality trends, measure compliance with water quality standards, trace pollutants, and file water quality reports, budget requests, and management basin plans.

Media

Direct terminal access, or data can be sent from Washington in report form and on machine-readable tapes.

Acquisition Costs

One-time requests can be processed at no charge. Regular users can set up interagency fund transfers or a time-sharing service with USEPA. Average charges per use are \$3 to \$6.

Comments

Additional documentation includes: *An Introduction to STORET for Water Quality Trend Analysis*, *STORET EPA's Computerized Water Quality Data Base*, and *STORET User Handbook*.

USBC: Political/Census Boundaries, Streets, and Names

Data Source

U.S. Bureau of the Census (USBC)
Geography Division
ATTN: Fred Broome
Washington, DC 20233

Data Format

GBF/DIME: vector--latitude/longitude, or state plane-referenced polygons, lines, and points

TIGER: vector--UTM referenced polygons, lines, and points

Scale

Mostly 1:24,000

Data Coverage

278 Standard Metropolitan Statistical Areas (SMSAs)

Data Description

GBF/DIME: political boundaries, streets, street names/addresses, zip codes, census divisions, railroads, and streams

TIGER: USGS digital line graph (DLG) data supplemented with GBF/DIME information. This data set is not scheduled for release until 1990.

Media

GBF/DIME: 1600- or 6250-bpi tapes

TIGER: proposed 6250-bpi tapes, CD packs

Acquisition Costs

Prices vary according to the size of the SMSA file, which can range from 3000 to 226,000 records. Contact Customer Service for prices in your area of interest. Prices have not yet been developed for TIGER.

Comments

The USBC Customer Service telephone number is (301) 763-4100.

USGS: Topological—Land Use/Land Cover, Watersheds

Data Source

National Cartographic Information Center
U.S. Geological Survey (USGS)
User Services Section
507 National Center
Reston, VA 22092
Telephone: (703) 860-6045

Data Format

Vector files in GIRAS format

Raster available in binary or character (ASCII or EBCDIC) form

Scale/Resolution

Vector--1:100,000; 1:250,000

Raster--200 meters

Data Coverage

For information on coverage, write/call NCIC for a copy of the latest edition of *Index to Land Use and Land Cover Information*.

Data Description

Separate data files are available for the following:

- Land use/land cover
- Political units
- Census county subdivisions
- Hydrologic units (watersheds)
- Federal land ownership (park, forest, etc.)

A Composite Theme Grid (CTG) is also available which contains all themes (land use, census, etc.) available for a given area. For more information about file format, contact USGS at the above address for Circular 895-E, *Land Use and Land Cover Digital Data*.

Media

9-track ASCII tapes and paper maps

Acquisition Costs

- Land use/land cover, \$100
- Census tracts, \$50
- Political boundaries, hydrologic units, and Federal lands, \$35
- CTG, \$250

Comments

Data are provided in an arc-node format known as GIRAS. Programs are available for converting this format to the DLG standard. For more information about GIRAS-to-DLG conversion, contact USGS at the above address.

USGS: Topological—Boundaries, Transportation

Data Source

National Cartographic Information Center
U.S. Geological Survey
User Services Section
507 National Center
Reston, VA 22092
Telephone: (703) 860-6045

Data Format

Vector files in DLG format

Scale

1:24,000; 1:100,000; 1:2,000,000

Data Coverage

1:2,000,000 data are available for the entire United States. 1:24,000 and 1:100,000 data are not as well developed. For current coverage, write/call NCIC for the latest edition of *Index to Digital Line Graph and Digital Elevation Model Data*.

Data Description

- Boundaries (state, county, Federal)
- Transportation (roads, railroads, airports)
- Hydrographic (streams and water bodies)

Media

9-track magnetic tape and/or paper maps

Acquisition Costs

- 1:2,000,000 boundary, transportation, or hydrography--\$100/section
- 1:24,000/100,000 boundary--\$20/section; transportation or hydrography--\$50/section
- Service charge of \$25/tape

Comments

Shared cost arrangements are possible for areas with no coverage. Source document: U.S. GeoData Price List (8/84), USGS Circulars 895-C and 895-D, *Digital Line Graphs From 1:24,000 and 1:2,000,000 Scale Maps*. For more information on USGS digital products and standards, contact the Survey for copies of the *USGS Digital Cartographic Data Standards* and the following USGS circulars:

- 895-A, *Overview and USGS Activities*
- 895-B, *Digital Elevation Models*
- 895-C, *Digital Line Graphs From 1:24,000 Scale Maps*
- 895-D, *Digital Lines Graphs From 1:2,000,000 Scale Maps*
- 895-E, *Land Use and Land Cover Digital Data*
- 895-F, *Geographic Names Information System*
- 895-G, *Digital Line Graph Attribute Coding Standards*.

USGS: Elevation

Data Source

National Cartographic Information Center
U.S. Geological Survey
User Services Section
507 National Center
Reston, VA 22092
Telephone: (703) 860-6045

Data Format

Raster

Scale

1:24,000

Data Coverage

Scattered quads throughout the United States. For current coverage, write/call USGS for the *Index to Digital Line Graph and Digital Elevation Model Data*.

Data Description

A regular array of elevation values referenced to the universal transverse mercator (UTM) coordinate system with a spacing of 30 m. Data are collected either by digitizing 7.5-ft contour overlays or by scanning photographs. The data are available in one of three levels:

- Level 1--raw elevation data, only gross errors edited
- Level 2--data smoothed and edited to remove random errors
- Level 3--data edited and modified to ensure positional accuracy.

Media

9-track magnetic tape and/or paper maps

Acquisition Costs

\$100/quad with a \$25/tape service charge

Comments

NCIC/USGS also distributes digital elevation data produced by the DMA. These data have a scale of 1:250,000, are latitude/longitude referenced, and have a sampling interval of 3 arc-seconds. For more information, see the previous section on the DMA. This information was obtained from USGS Circular 895-B, *Digital Elevation Models*.

USGS: Names—Areas, Maps

Data Source

National Cartographic Information Center
U.S. Geological Survey
User Services Section
507 National Center
Reston, VA 22092
Telephone: (703) 860-6045

Data Format

Tabular

Scale

Not applicable

Data Coverage

Entire United States

Data Description

Geographic Names Information System (GNIS) is a database containing the following data elements:

- National Geographic Names Database--58 state files containing names and other information compiled from topographic maps for states, territories, and District of Columbia.
- USGS Topographic Map Names Database--57 separate files: 56 for 1:24,000 topographic map names of the states and territories, and one file for 1:100,000 and 1:250,000 scale maps.
- Generic Database--a research/reference tool and repository of reference information for the GNIS.
- National Atlas Database--designed to be an abridged version of the National Geographic Names Database.
- Board on Geographic Names Database--information regarding the investigations and decisions of the U.S. Board on Geographic Names.

Media

9-track tape, 1600 bpi

Acquisition Costs

\$50/state

Comments

For more information, write/call USGS at the above address for Circular 895-F, *Geographic Names Information System*.

3 CONCLUSION

This report has presented national and global sources of digital spatial data. More sources may be available at state agencies such as transportation, environmental, and natural resource management departments. Also, local planning offices, university geography, urban planning, and civil engineering departments may be able to provide digital data.

APPENDIX:**CROSS REFERENCE OF DATA SOURCES AND NCIC ADDRESSES**

CARTOGRAPHIC INFORMATION	
Major Category - Subdivision	References
Elevation <ul style="list-style-type: none">- Terrestrial- Marine (bathymetry)	DMA, USGS, NGDC NGDC
Imagery <ul style="list-style-type: none">- Satellite<ul style="list-style-type: none">> Multispectral> Weather- Airborne<ul style="list-style-type: none">> Multispectral	SPOT, EOSAT, NGDC NODC NGDC EPA
Geomorphic <ul style="list-style-type: none">- Seismic- Soils- Geology	NGDC SCS NGDC
Topological <ul style="list-style-type: none">- Land use/land cover- Political/census boundaries- Hydrologic units- Transportation	USGS USGS, USBC USGS USGS

TABULAR INFORMATION

Major Category - Subdivision	References
Elevation - Terrestrial	ORNL, NGIC
Geomorphic - Seismic - Soils - Geology	NGDC SCS NGDC
Topological - Land use/land cover - Political/census boundaries - Hydrologic units - Transportation	USGS USGS, USBC USGS USGS

National Cartographic Information Center Adresses

National

NCIC Information Center
U.S. Geological Survey
507 National Center
Reston, VA 22092
Telephone: (703) 860-6336

Regional

Eastern Mapping Center
U.S. Geological Survey
536 National Center
Reston, VA 22092
Telephone: (703) 860-6336

Mid-Continent Mapping Center
U.S. Geological Survey
1400 Independence Rd.
Rolla, MO 65401
Telephone: (314) 341-0851

NCIC
U.S. Geological Survey
National Space Technology Laboratories
NSTL Station, MS 39529
Telephone: (601) 688-3544

Rocky Mountain Mapping Center
U.S. Geological Survey
Box 25046, Stop 504 Federal Center
Denver, CO 80225
Telephone: (303) 234-2326

Western Mapping Center
U.S. Geological Survey
345 Middlefield Rd.
Menlo Park, CA 94025
Phone: (415) 323-8111,
ext 2427

Alaska Office-NCIC
U.S. Geological Survey
Skyline Bldg., 218 "E" St.
Anchorage, AK 99501
Phone: (907) 271-4148

ABBREVIATIONS

ASCII:	American Standard Code for Information Interchange
BIL:	band interleaved (1/79 - 5/81)
BIP:	band interleaved (through 1/79)
BSQ:	band sequential
CIA:	Central Intelligence Agency
CTG:	composite theme grid
DEM:	digital elevation model
DLG:	digital line graph
DMA:	Defense Mapping Agency
EOSAT:	Earth Observation Satellite Co.
EROS:	Earth Resources Observation System
GBF:	Geographic Binary File
GIRAS:	Geographic Information Retrieval and Analysis System
GIS:	Geographic Information System
GNIS:	Geographic Names Information System
GRASS:	Graphic Resources Analysis Support System
IR:	infrared
MSS:	multispectral scanner
NASQAN:	National Stream Quality Accounting Network
NCDC:	National Climatic Data Center
NCIC:	National Cartographic Information Center
NESDIS:	National Environmental Satellite Data and Information Service
NGDC:	National Geophysical Data Center
NGIC:	National Geodetic Information Center
NGS:	National Geodetic Survey
NODC:	National Oceanographic Data Center
NTIS:	National Technical Information Service
OCE:	Office of the Chief of Engineers
ORNL:	Oak Ridge National Laboratory
RBV:	reverse band video
SAS:	Statistical Analysis System
SCS:	Soil Conservation Service
SMSA:	Standard Metropolitan Statistical Area
SSQ:	scene sequential

TM: thematic mapper
USA-CERL: U.S. Army Construction Engineering Research Laboratory
USBC: U.S. Bureau of the Census
USEPA: U.S. Environmental Protection Agency
USGS: U.S. Geological Survey
UTM: universal transverse mercator
bpi: bits per inch

USA-CERL DISTRIBUTION

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Computer Science
ATTN: DSCPER/MAEN-A

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USA AMCCOM 61299-6000
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ATTN: AMSMC-IS

AMC Dir., Inst., & Serv
ATTN: Environment/Natural Resources (23)

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Fitzsimons AMC 80240
Walter Reed AMC 20012

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MTMC
ATTN: MTMC SA 20315
ATTN: Facilities Engineer (3)

NARADCOM, ATTN: DRDNA-F 01760

TARCOM, Fac. Div. 48090

TRADOC
HQ, TRADOC, ATTN: ATEN-DEH
ATTN: Environment/Natural Resources (19)

TSARCOM, ATTN: STSAS-F 63120

USACC, ATTN: Facilities Engr (2)

WESTCOM
ATTN: DEH, Ft. Shafter 96858
ATTN: APEN-IM

SHAPE 09055
ATTN: Surv. Section, CCB-OPS
Infrastructure Branch, LANDA

HQ USEUCOM 09128
ATTN: ECJ 4/7-LOE

FORT BELVOIR, VA 22060 (7)
ATTN: Water Resources Support Ctr
ATTN: Engr Studies Center
ATTN: Engr Topographic Lab.
ATTN: ATZA-DTE-SU
ATTN: ATZA-DTE-EM
ATTN: R&D Command

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WES, ATTN: Library 39180

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and Fort Bragg
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Arnold Air Force Station, TN 37389

Chanute AFB, IL 61868
3345 CES/DE, Stop 27

Norton AFB, CA 92409
ATTN: AFRCE-MX/DEE

AFESC, Tyndall AFB, FL 32403

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