

The State of the State Data: An End-User's Perspective

By Mark Zellman, David Slayter, Ranon Dulberg, Marco Ticci, Kevin Whaley, Jeff Hemphill, and Jason Finley

William Lettis and Associates, Inc.
433 Park Point Dr., Suite 250
Golden, CO 80401
Telephone: (720) 836-4891
Fax: (720) 836-4881
email: zellman@lettis.com

State-scale geologic data, in a format that can be used in a geographic information system (GIS), are an integral dataset for geologic consulting projects. These data, now available for each State except Alaska, often provide the best source for regional geologic coverage. State geologic maps, most commonly at 1:500,000-scale, are useful when more detailed geologic maps (ideally, 1:24,000-scale, or greater) are not available. Geologic data at a larger scale than coarsely scaled national coverage GIS geologic datasets, such as the GIS representation of King and Beikman's 1974 Geologic Map of the United States (Schruben and others, 1994; <http://pubs.usgs.gov/dds/dds11/>), provide a more useful aggregated level of detail.

The purpose of this report is to provide the end-user perspective on obtaining state-scale bedrock geologic map data. As part of our project, these map data were identified and downloaded for every State. During this process, information such as availability of metadata, symbology, source map information, and web links for where the data can be downloaded were compiled into a data sheet for every State (Appendix A); this is a catalog of what appears to be the most recent GIS database of each State's bedrock geologic map and where it can be found. We hope you will find it useful, and insightful.

There are a few options available to the end-user for finding and downloading State bedrock geology in GIS format. For individual States, data can be downloaded from State geological survey websites, U.S. Geological Survey (USGS) Open-File Reports, and certain other websites. Searching can be especially difficult when acquiring data for multiple States. The search becomes challenging because the downloading processes is often different for each State, and organizations serving the data are different from State to State. A second option for acquiring this data is through the USGS

Integrated Geologic Map Databases for the United States (IGMDB; http://pubs.usgs.gov/of/2005/1323/index_map.htm). The IGMDB is a collection of seven USGS Open-File Reports, which group State bedrock geology by region. These data have standardized data attribute tables, metadata, and have been edge-matched along State boundaries. Through the IGMDB, bedrock geologic data are available for every State except Alaska and Hawaii. A third choice is to use the web links provided in the Geoscience Map Catalog maintained by the National Geologic Map Database (NGMDB, http://ngmdb.usgs.gov/ngmdb/ngm_catalog.ora.html). The NGMDB's Map Catalog is an online resource for finding and downloading geologic and geology-related maps, in paper, image, or GIS format. The NGMDB provides links to data created by the U.S. Geological Survey, State geological surveys, and other organizations that have created geologic data. The site provides access to GIS files and a scanned copy of the State geologic map for almost every State. In some cases the data record for specific States is not complete, but based on conversations with people involved with the NGMDB, they are striving to fill these gaps and provide a complete data record. Many of the gaps in NGMDB records of available data usually involve the data provided by State agencies. This is a point of concern because in some instances the GIS files from individual States are the most recent versions. Several States have revised their geologic data since the USGS IGMDB Open-File Reports were last updated.

Metadata and attribute consistency contribute greatly to the overall usefulness of any map data. Metadata provide users with important information such as an originator reference, source group or agency, date of creation, and a scale for which the maps and data are intended. For projects which adhere to strict Quality Assurance (QA) plans, if any of this information is missing or inadequate it is possible that the dataset can be

regarded as unusable. For GIS data developers who utilize the Environmental Systems Research Institute's (ESRI) ArcGIS applications, it is also helpful if the GIS data are provided with metadata formatted according to existing standards such as Federal Geographic Data Committee (FGDC). This permits the metadata to be imported and viewable through ESRI's ArcCatalog and thereafter can remain with the data and be updated if they are modified, copied, or renamed. Having the metadata included with the GIS data helps to ensure that it is readily available when the data are used.

Attribute data are another important component which dictates the overall usefulness of the bedrock GIS data. A detailed attribute table changes a dataset from simply being a cartographic representation to a dataset that can be used for analysis. Basic information such as geologic unit abbreviations, geologic unit descriptions, and age should be considered minimal requirements for the attribute table. When information such as the unit description or age has not been included, the user is unable to draw much useful information from the data. Unit abbreviations and definitions, geologic age, etc., are defined as part of properly completed metadata. Another important, and often excluded, component of metadata is a full source citation. In many cases the citation for the paper source map(s) from which the shapefiles were digitized is not included in the metadata. Sometimes the citation is included but has been found to be incomplete or even incorrect. When this information is not correctly documented in the metadata of the original GIS file, this omission or error will be passed along to all subsequent derivative datasets.

Spatial reference information is provided for every bedrock geology dataset that I obtained for this study, but in some cases the spatial reference is not predefined. In these few cases the user must define the spatial reference based on information contained in the metadata or gleaned from ancillary information provided with the source data. This is generally a simple process, but the potential to incorrectly enter spatial reference information does exist. To prevent this, it would be helpful if the data being provided would have spatial reference information predefined for ArcGIS users through the use of a projection parameters file. The fields in formatted metadata exist to record spatial reference and other projection-related information.

While compiling the statewide geologic GIS files, it was found that some States have multiple versions of the statewide geology available. In many cases the State geology was mapped by two separate organizations and is made available through separate websites. Discerning which version is the "preferred," or most up-to-date, representation can often be very challenging. In many cases no documentation exists that compares the two (or more) versions. When no clear documentation is provided, or when data are being provided by two separate organizations, it is very difficult for the user to determine which dataset to use, or to understand the differences between the competing datasets.

One suggestion for making data easier to find would be to provide current links to all State geologic GIS data through a single website. This website would be updated with the most recent versions of the GIS data and maps as revisions are made to these data. This information was compiled and provided by the National Surveys and Analysis Projects: Digital State Geologic Maps, Version 1.00 web page (http://minerals.usgs.gov/projects/surveys_and_analysis/dig_geol_maps.html). Many of the data links are now broken or outdated; at the time of writing this summary it appears that this Web portal is no longer maintained. The NGMDB has been designed as a central hub for many kinds of geologic data. It provides links to some bedrock GIS data, but in some cases it is not the newest or preferred version. More recently the USGS's Mineral Resources Program has published a web page "State Geologic Maps of US States: Digital geologic maps of the US States with consistent lithology, age, GIS database structure, and format" (<http://tin.er.usgs.gov/geology/state/>). As the title indicates this page is a gateway to GIS data representing geologic features for every State. At this site, each State has its own data page that can be accessed using an intuitive interactive map interface. Each State page is loaded with data such as: links for downloading Google Earth files (.kml, .kmz) representing State geology, metadata, zipped GIS data packages, and citations for the source data. Many of the GIS files offered to the users through this gateway are links to data offered through the USGS IGMDB. This is helpful, but users might benefit if reliable links were also provided to obtain data from the individual State agencies.

Finally, the establishment of minimal requirements for metadata and attribute table completeness would be of great benefit to the data user. Setting, or suggesting, minimum requirements would help to ensure that the data download would be useful. Such information makes it possible for the user to gain information from the data rather than to simply cartographically represent the geology.

The authors would like to thank all the State agencies, federal agencies, universities, and everyone else contacted while compiling this information. Everyone I spoke with was very courteous and extremely helpful. We would have never been able to piece this compilation together without their help.

Reference

- Schruben, P.G., Arndt, R.E., and Bawiec, W.J., 1994, Geology of the conterminous United States at 1:2,500,000 scale; a digital representation of the 1974 P.B. King and H.M. Beikman map: U.S. Geological Survey Digital Data Series DDS-11, 1 CD-ROM.

Appendix A. State Bedrock Geology Data Sources

EXAMPLE STATE

Agency Providing GIS data

Abstract: Provides a brief explanation of the representative geologic data in GIS format.

INFORMATION

Date Assessed: Approximate date the data were downloaded

Reference ID: Reference ID assigned by distribution agency

Projection: Defined projection of data

Scale: Largest (most detailed) scale at which data are usable

Symbology: Format and status of symbology

Metadata: Format and status of metadata

SOURCE

The citation for the source map used to create the GIS files.

WEB LINKS

GIS Data: Web link for downloading GIS data of the State's geology.

Source map: Web link for downloading a digital copy of the map that was used as the digitizing source for the GIS files. If the source map is not available, this link will be for an alternative geologic representation.

NGMDB: The web link provided in this space will take the reader to the National Geologic Map Database's page for the specified State. For most States, GIS data and a digital copy of the State geologic map may be downloaded from this link.

COMMENTS

Comments marked with a "*" are described in this section.

ALABAMA

Geological Survey of Alabama (GSA)

Abstract: The Geological Survey of Alabama provides State geologic data in GIS format. This dataset includes bedrock geology, fault data, dikes, map symbology and metadata. This dataset was compiled under a cooperative effort between GSA and USGS. Image files of the “Geologic Map of Alabama” can be downloaded in three parts from a University of Alabama website listed below.

INFORMATION

Date Assessed: 2/19/2008

Reference ID: Special Map 220A

Projection: NAD 1927 UTM Zone 16 N

Scale: 1:250,000

Symbology: Available as .lyr

Metadata: Available and importable

PAPER SOURCE

Szabo, E.W., Osborne, W.E., Copeland, C.W., Jr., and Neathery, T.L., 1988, Geologic map of Alabama: Geological Survey of Alabama, Special Map 220, scale 1:250,000.

WEB LINKS

GIS Data* (Last visited 1-21-2009): http://www.ogb.state.al.us/gsa/gis_data.aspx

Source map (Last visited 1-21-2009): <http://www.geo.ua.edu/Documentation/geology1.html>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=AL&search.x=62&search.y=13

COMMENTS

*To find the GIS version of the Alabama geologic data, click on the link titled “Digital Geologic Map of Alabama”.

ARIZONA

Arizona Geological Survey (AGS)
U.S. Geological Survey (USGS)

Abstract: Two versions of the digital geology of Arizona are available. The AGS provides a 1:1,000,000 scale dataset which can be purchased from their website. The USGS (USGS Open-File Report 00-409) provides 1:500,000 scale data, free of charge. GIS layer symbology is not available for the GIS files distributed by the USGS. Metadata is available for the USGS files representing Arizona geology in a format that can be imported into the GIS files.

INFORMATION

Date Assessed (AGS): 3/12/2008
Reference ID (AGS): DGM17
Projection (AGS): Lambert Conformal Conic
Scale (AGS): 1:1,000,000
Symbology (AGS): Not Available
Metadata (AGS): Not Available

Date Assessed (USGS): 3/12/2008
Reference ID (USGS): USGS Open-File Report 2000-0409
Projection (USGS): NAD 1927 Lambert Conformal Conic
Scale (USGS): 1:500,000
Symbology (USGS): Not Available
Metadata (USGS): Available in importable format

PAPER SOURCE

Arizona Geological Survey

Richard, S.M., Reynolds, S.J., Spencer, J.E., and Pearthree, P.A., 2000, Geologic map of Arizona: Arizona Geological Society, Map 35, scale 1:1,000,000.

U.S. Geological Survey

The source is the database derived from the 1983 map:

Hirschberg, D.M., and Pitts, G.S., 2000, Digital geologic map of Arizona: a digital database derived from the 1983 printing of the Wilson, Moore, and Cooper, 1:500,000-scale map: U.S. Geological Survey Open-File Report 2000-409, scale 1:500,000.

WEB LINKS

GIS Data (AGS) (Last visited 1-21-2009): <http://www.azgs.az.gov/publications.shtml>
Source map (AGS) (Last visited 1-21-2009): <http://www.azgs.az.gov/publications.shtml>

GIS Data (USGS) (Last visited 1-21-2009): <http://geopubs.wr.usgs.gov/open-file/of00-409/>
Source map (USGS) (Last visited 1-21-2009): <http://geopubs.wr.usgs.gov/open-file/of00-409/>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=AZ&search.x=50&search.y=26

ARKANSAS

U.S. Geological Survey (USGS)

Abstract: GIS data representing bedrock geology of Arkansas can be downloaded through the USGS Integrated Geologic Map Database. These files were created under USGS Open-File Report 2005-1351. A digital copy (.pdf) of the 1:500,000 scale "Geologic Map of Arkansas" (Haley and others, 1993) can be downloaded from the Arkansas Geological Survey. Map symbology is not available. Metadata is provided in an importable format.

INFORMATION

Date Assessed: 2/7/2008

Reference ID: USGS Open-File Report 2005-1351

Projection: NAD 1927 Albers Conical Equal Area

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Haley, B.R., Glick, E.E., Bush, W.V., Clardy, B.F., Stone, C.G., Woodward, M.B., and Zachry, D.L., 1993, Geologic map of Arkansas: U.S. Geological Survey, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2005/1351/>

Source map (Last visited 1-21-2009): http://www.geology.ar.gov/sms_maps/geologic_map_arkansas.htm

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=AR&search.x=41&search.y=8

CALIFORNIA

California Geological Survey (CGS)

Abstract: GIS data representing the “Geologic Map of California” (Jennings and others, 1977) can be purchased from the California Geological Survey. The data are delivered on CD, in ArcINFO export format (.e00). Included on the CD is a .TIFF copy of the Jennings and others (1977) map. Map symbology is not provided. Metadata is available, but is not provided in an importable format.

INFORMATION

Date Assessed: 2/2008

Reference ID: CD 2000-07

Projection: Lambert Conformal Conic NAD 1927*

Scale: 1:750,000

Symbology: Not Available

Metadata: Available, but not importable

PAPER SOURCE

Jennings, C.W., Strand, R.G., Rogers, T.H., Boylan, R.T., Moar, R.R., and Switzer, R.A., 1977, Geologic map of California: California Division of Mines and Geology, Geologic Data Map 2, scale 1:750,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): http://www.consrv.ca.gov/cgs/information/publications/pub_index/Pages/gis_data.aspx

Source map (Last visited 1-21-2009):** http://www.consrv.ca.gov/cgs/information/publications/pub_index/Pages/gis_data.aspx

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=CA&search.x=64&search.y=22

COMMENTS

This dataset can be purchased for \$30 from the State of California.

*A custom projection was created to fit the GIS files to the “irregular base” of the original published map.

**A digital copy of the State geologic map is included as a .TIFF file in the data package that can be purchased from the State geological survey.

COLORADO
U.S. Geological Survey (USGS)

Abstract: Bedrock geology for Colorado can be downloaded in ArcINFO format from the USGS. These files were created under USGS Open-File Report 92-0507. A digital copy of the “Geologic Map of Colorado” can be downloaded from the Colorado Geological Survey as a .pdf.

INFORMATION

Date Assessed: 10/2007

Reference ID: USGS Open-File Report 92-0507

Projection: Lambert Conformal Conic NAD 1927

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable.

PAPER SOURCE

Tweto, Ogden, 1979, Geologic map of Colorado: U.S. Geological Survey, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://pubs.usgs.gov/of/1992/ofr-92-0507/>

Source map (Last visited 1-21-2009): <http://geosurvey.state.co.us/portals/0/tweto.pdf>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=CO&search.x=48&search.y=32

CONNECTICUT

Connecticut Department of Environmental Protection (CTDEP)

Abstract: Bedrock and Quaternary geology GIS files are available for download as shapefiles from the Connecticut Department of Environmental Protection. Symbology for the GIS files is provided as an .avl file. Metadata is available online, but is not importable.

INFORMATION

Date Assessed: 2/2008

Reference ID: Not Applicable

Projection: Connecticut State Plane Zone 3526 (feet) NAD 1983

Scale: 1:50,000

Symbology: Available as .avl

Metadata: Available, but not importable

PAPER SOURCE

Rodgers, John, 1985, Bedrock geological map of Connecticut: Connecticut Geological and Natural History Survey, Connecticut Natural Resources Atlas Series, scale 1:125000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.ct.gov/dep/cwp/view.asp?a=2698&q=322898>

Source map (Last visited 5-22-2009): See NGMDB link below

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=CT&search.x=55&search.y=21

DELAWARE

Delaware Geological Survey (DGS)

Abstract: Geologic coverage for the State of Delaware is available through the USGS integrated geologic mapping project (USGS Open-File Report 2005-1325). The Delaware Geological Survey (DGS) is currently mapping and digitizing geology at a scale of 1:24,000. A digital copy of the shapefile source map (Spoljaric and Jordan, 1966) is not available, but a digital copy (.pdf) of the "Generalized Geologic Map of Delaware" (Pickett et al., 1976, Delaware Geological Survey Special Publication 9, scale 1:282,000) is available for download through DGS. Metadata is provided with the shapefile. Map symbology is not provided for the shapefile.

INFORMATION

Date Assessed: 3/12/2008

Reference ID: Open-File Report 2005-1325

Projection: NAD 1927 Lambert Conformal Conic

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Spoljaric, N., and Jordan, R.R., 1966, Delaware geological map: Delaware Geological Survey, 1966, scale 1:300,000.

WEB LINKS

GIS Data (USGS) (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2005/1325/>

Source map* (Last visited 1-21-2009): <http://www.dgs.udel.edu/publications/pubs/SpecialPublications/sp9.pdf>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=DE&search.x=58&search.y=16

COMMENTS

*A digital copy of the source map, Spoljaric and Jordan, 1966, Delaware Geological Map, Delaware Geological Survey, 1966, 1:300,000, is not available. A generalized version of Delaware geology is available.

FLORIDA

Florida Department of Environmental Protection

Abstract: Geologic shapefiles for Florida can be downloaded from the Florida Department of Environmental Protection's website. Data are available as polygons. A digital copy of the source paper map is also included in the download package. Layer symbology is available in .avl format. Metadata is available, but is not in a format that can be imported into the shapefile.

INFORMATION

Date Assessed: 3/12/2008

Reference ID: Map Series 146

Projection: NAD 1927 Albers Equal Area Conic

Scale: 1:750,000

Symbology: Available as .avl.

Metadata: Available, but not importable.

PAPER SOURCE

Scott, T.M., Campbell, K.M., Rupert, F.R., Arthur, J.D., Missimer, T.M., Lloyd, J.M., Yon, J.W., and Duncan, J.G., 2001, Geologic map of the State of Florida: Florida Geological Survey, Map Series 146, scale 1:750,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): http://www.dep.state.fl.us/geology/gisdatamaps/state_geo_map.htm

Source map (Last visited 1-21-2009): http://www.dep.state.fl.us/geology/gisdatamaps/state_geo_map.htm

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=FL&search.x=58&search.y=23

GEORGIA

Georgia GIS Clearinghouse

Abstract: Coverage files representing Georgia bedrock geology can be downloaded from the Georgia GIS Clearinghouse. This dataset is an updated version of the 1996 "Digital Geologic Map of Georgia." The download package includes faults, shear and mylonite zones, the Brevard fault zone, and dikes. A digital version of the 1976 State geologic map can be found on a personal webpage (link provided below). Layer symbology is not provided with the data. Metadata is provided, but in a format that cannot be imported into the GIS data.

INFORMATION

Date Assessed: 2/2008

Reference ID: Not Applicable

Projection: Albers Conic Equal Area NAD 1927*

Scale: 1:500,000

Symbology: Not Available

Metadata: Available, but not in importable format

PAPER SOURCE

Lawton, D.E., Moye, F.J., Murray, J.B., O'Connor, B.J., Penley, H.M., Sandrock, G.S., Marsalis, W.E., Friddell, M.S., Hetrick, J.H., Huddleston, P.F., Hunter, R.E., Mann, W.R., Martin, B.F., Pickering, S.M., Schneeberger, F.J., and Wilson, J.D., 1976, Geologic map of Georgia: Environmental Protection Division, Georgia Department of Natural Resources, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://gis.state.ga.us/>

Source map (Last visited 1-21-2009):** <http://home.att.net/~cochran3/rocks01/ggmndx01.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=GA&search.x=56&search.y=29

COMMENTS

*Custom projection details are explained in the metadata.

**Clicking on the map will link to higher resolution images, which can be downloaded and saved. A digital copy can also be downloaded from the NGMDB.

HAWAI'I

U.S. Geological Survey (USGS)

Abstract: A USGS Open-File Report (Open-File Report 2007-1089) provides geologic data for the State of Hawai'i. GIS data are provided as Mapinfo, shapefiles, and .e00 export files. Digital copies (.pdf) of the source maps are provided in the download package. Symbology is not provided. Metadata is available and importable.

INFORMATION

Date Assessed: 3/2008

Reference ID: USGS Open-File Report 2007-1089

Projection: NAD 1983 UTM Zone 4

Scale: 1:100,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Sherrod, D.R., Sinton, J.M., Watkins, S.E., Brunt, K.M., 2007, Geologic map of the State of Hawai'i: U.S. Geological Survey Open-File Report 2007-1089, scale 1:100,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2007/1089/>

Source map (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2007/1089/>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=HI&search.x=62&search.y=24

IDAHO

Idaho Geological Survey (IGS)

Abstract: GIS files representing Idaho bedrock geology and faults can be downloaded through USGS Open-File Report 95-690 (<http://pubs.usgs.gov/of/1995/of95-690/>). These files were created from the "Geologic Map of Idaho" (Bond and others, 1978). Layer symbology is not available for these GIS files. Metadata is available but not importable. Also available is a 1:100,000 to 1:250,000 scale dataset which covers only the northern portion of the State. These files were created for USGS Open-File Report 2005-1235 (<http://pubs.usgs.gov/of/2005/1235/>). This dataset contains contacts, faults, folds, dikes, sills, veins, and geologic units. It is the preferred geologic representation for small-scale coverage.* Metadata and layer symbology are both included in the download package

INFORMATION

Date Assessed: 11/2007

Reference ID: USGS Open-File Report 95-0690

Projection: Lambert NAD 1927

Scale: 1:500,000

Symbology: Not Available

Metadata: Available but not importable

PAPER SOURCE

Bond, J.G., Kauffman, J.D., Miller, D.A., and Venkatakrishnan, Ramesh, 1978, Geologic map of Idaho: Idaho Bureau of Mines and Geology, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://pubs.usgs.gov/of/1995/of95-690/>

Source map: A digital version does not exist. A paper copy of the Bond and Wood (1978) geologic map of Idaho (which was used to compile the GIS data, above) can be purchased from the Idaho Geological Survey.

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=ID&search.x=72&search.y=32

COMMENTS

*The Idaho Geological Survey recommends using the USGS Open-File Report 2005-1235 as the default representation for Idaho and using the GIS version of the Bond and Wood (1978) geology as a supplement. The digital representation of Bond and Wood, 1978 provides the only full-State geologic coverage.

**A list of available geologic maps available through the IGS can be found at this link <http://www.idahogeology.org/Data/idgml.asp> (Last visited 1-21-2009).

ILLINOIS

Illinois State Geological Survey (ISGS)

Abstract: Bedrock geology and structural features can be downloaded through the Illinois Natural Resources Geospatial Data Clearinghouse hosted by the ISGS. Shapefiles representing bedrock geology from 1967 and 2005 can be downloaded. The 2005 bedrock geology files represent revisions to the 1967 Willman and others "Geologic Map of Illinois," as made by Dennis Kolata of the ISGS. The ISGS provides a digital version (.gif) of the "Bedrock Geology of Illinois." Layer symbology is not provided. Metadata is provided and is embedded in the shapefile.

INFORMATION

Date Assessed: 2/19/2008

Reference ID: Not Applicable

Projection: GCS NAD 1983

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Kolata, Dennis, compiler, 2005, Bedrock geology of Illinois: Illinois State Geological Survey, Illinois Map Series 14, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolb.html>

Source map (Last visited 1-21-2009): <http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolb.html>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=IL&search.x=30&search.y=32

INDIANA

Indiana Geological Survey (IGS)

Abstract: Bedrock geology and structural features can be downloaded as shapefiles from the Indiana Geological Survey's website. A digital copy of the source map is not available. Map symbology is not provided by IGS. Metadata is provided and is importable.

INFORMATION

Date Assessed: 2/19/2008

Reference ID: NA

Projection: NAD 1983 UTM Zone 16N

Scale: 1:500,000

Symbology: NA

Metadata: Available in downloadable format.

PAPER SOURCE

Gray, H.H., Ault, C.H., and Keller, S.J., 1987, Bedrock geologic map of Indiana: Indiana Geological Survey, Miscellaneous Map 48, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): http://129.79.145.7/arcims/statewide_mxd/dload_page/geology.html

Source map (Last visited 1-21-2009): See NGMDB link below

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=IN&search.x=31&search.y=23

IOWA

Iowa Geological Survey (IGS)

Abstract: The Iowa Geological Survey provides three representations of Iowa bedrock geology as GIS files. The “Bedrock Geology” is the GIS representation of the 1969 State geologic map. The “Geologic map of 1997” file is an updated version of the “Bedrock Geology.” This version lacks geologic unit information other than an age attribute. Iowa geology is currently being remapped. Completed portions are being released in zones. The North Central (NC) and Northwest (NW) geology have been completed and are available for download. The southern segments are complete but not yet posted to the website. The NE area is being remapped. Listed below are the details for the “Bedrock Geology” (1969) dataset.

Layer symbology is not provided for the GIS file. Metadata is available in an importable format. A digital copy of the “Geologic Map of Iowa” (IGS, 1969) can be downloaded from the NGMDB. Digital copies of the updated geology are available and posted to the IGS website.

INFORMATION

Date Assessed: 2/2008

Reference ID: Not Applicable

Projection: UTM Zone 15 NAD 1983

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Iowa Geological Survey, 1969, Geologic map of Iowa: Iowa Geological Survey, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.igsb.uiowa.edu/nrgislibx/>

Source map (Last visited 1-21-2009): See NGMDB link below

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=IA&search.x=34&search.y=27

COMMENTS

*A digital version of the 1969 map can be downloaded from the NGMDB. Digital versions of the revised and new geologic map segments of Iowa can be downloaded from the Iowa Geological Survey (<http://www.igsb.uiowa.edu/service/pubs.htm>). To find the data, click on “List of Publications,” then from the drop-down menu select “Open File Maps (digital maps).”

KANSAS

Kansas Geological Survey – Data Access and Support Center (DASC)

Abstract: Shapefiles representing surficial geology of Kansas can be downloaded through the Kansas Geological Survey's DASC. These files represent the 1:500,000 scale "Geologic Map of Kansas" (Ross, 1991). As of March, 2008, a new geologic map of Kansas is available for purchase through the Kansas Geological Survey. Currently, GIS files are not available for the 2008 version. Listed below is the information for the "Geologic Map of Kansas" (Ross, 1991).

Layer symbology is not provided. Metadata is available in an importable text format. A digital copy of the paper source map is not available.

INFORMATION

Date Assessed: 3/24/2008

Reference ID: Map M-23

Projection: Geographic NAD 1983

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Ross, J.A., 1991, Geological map of Kansas: Kansas Geological Survey, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009)*: <http://www.kansasgis.org/catalog/catalog.cfm>

Source map: Not Available

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=KS&search.x=47&search.y=37

COMMENTS

*Data can be found under the "Land Surface Geology Soils" tab.

KENTUCKY

Kentucky Geological Survey (KGS)

Abstract: Shapefiles representing Kentucky bedrock geology, faults, karst geology, etc., can be downloaded from the Kentucky Geological Survey's website. A copy of the 1:500,000 source map is not available for download, but copies of the 1:100,000 geologic maps can be downloaded from the KGS website. Layer symbology for bedrock geology is provided in .avl format. Metadata is not provided, but was provided upon request.

INFORMATION

Date Assessed: 2/19/2008

Reference ID: Not Applicable

Projection: Geographic NAD 1983

Scale: 1:500,000

Symbology: Available as .avl

Metadata: Not Available*

PAPER SOURCE

Noger, M.C., 1988, Geologic map of Kentucky: U.S. Geological Survey, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.uky.edu/KGS/gis/geology.htm>

Source map (Last visited 1-21-2009):** <http://www.uky.edu/KGS/mapping/100k.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=KY&search.x=42&search.y=25

COMMENTS

*Metadata was not provided with the original download package, but was provided upon request.

**This is a link to the 1:100,000 geologic map sheets for Kentucky. The 1:500,000 map is not available for download through the State, but it can be found at the NGMDB site.

LOUISIANA

USGS – National Wetlands Research Center

Abstract: Geologic shapefiles for Louisiana can be downloaded through the USGS- National Wetlands Research Center. The GIS representation of bedrock geology file is provided in coverage format. This dataset was digitized from the 1984 “Geologic Map of Louisiana.” Layer symbology is not provided. Metadata is provided and is importable.

INFORMATION

Date Assessed: 3/2008

Reference ID: USGS-NWRC 1984-02-0001

Projection: UTM Zone 15N NAD 1927

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Snead, J.I., and McCulloh, R.P., 1984, Geologic map of Louisiana: Louisiana Geological Survey, Geologic Map 5, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): http://sabdata.cr.usgs.gov/sabnet_pub/pub_sab_app.aspx?prodid=14035

Source map (Last visited 1-21-2009): See NGMDB link below.

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=LA&search.x=80&search.y=32

MAINE

Maine Office of GIS

Abstract: Shapefiles representing bedrock and surficial geology of Maine can be downloaded from the Maine Office of GIS's website. A full size digital copy of the "Bedrock Geologic Map of Maine" (Osberg and others, 1985) can be downloaded from the Maine Geological Survey's website. GIS layer symbology is not provided. Metadata is available and is importable.

INFORMATION

Date Assessed: 2/2008

Reference ID: Not Applicable

Projection: UTM Zone 19N NAD 1983

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Osberg, P.H., Hussey, A.M., and Boone, G.M., 1985, Bedrock geologic map of Maine: Maine Geological Survey, Geologic Map Series BGMM, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009)*: <http://megis.maine.gov/catalog/>

Source map (Last visited 1-21-2009):** <http://maine.gov/doc/nrimc/mgs/explore/bedrock/index.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=ME&search.x=70&search.y=25

COMMENTS

*On the right side of the GIS data catalog page, look for layers "Bedrock" and "surf." These are the bedrock and surficial datasets.

**To find this map, look under the "Geologic Maps" title and select "Historical Bedrock Maps of Maine – Part IV: The 1985 Bedrock Geologic Map of Maine."

MARYLAND

U.S. Geological Survey (USGS)

Maryland Geological Survey (MGS) and Virginia Division of Mineral Resources (VDMR)

Abstract: GIS files representing bedrock geology for Maryland were digitized from Cleaves and others (1968, Geologic Map of Maryland: Maryland Geological Survey, scale 1:250,000) under U.S. Geological Survey Open-File Report 01-187 (<http://pubs.usgs.gov/of/2001/of01-187/>). This report contains geology for the entire State of Maryland and portions of Virginia. Data for each State can be downloaded and saved separately. A digital version of the 1968 geologic map can be accessed through the Maryland Geological Survey's web page. One can access detailed segments of the geologic map by clicking on the map or on the county names on the right side of the map. GIS layer symbology is not provided in the download package. Metadata is available and importable.

INFORMATION

Date Assessed: 9/2007

Reference ID: Not Applicable

Projection: Geographic NAD 1983

Scale: 1:250,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Cleaves, E.T., Edwards, Jonathan, Jr., and Glaser, J.D., 1968, Geologic map of Maryland: Maryland Geological Survey, scale 1:250,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2001/of01-187/>

Source map (Last visited 1-21-2009)*: <http://www.mgs.md.gov/esic/geo/index.html>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=MD&search.x=58&search.y=26

COMMENTS

*Segments of the 1968 geologic map can be downloaded by first clicking on the county of interest. This will display a county-sized portion of the 1968 map. Clicking on the map a second time will provide the user with a more "zoomed in" map image that can be downloaded. A full copy of the map can be found at the NGMDB link.

MASSACHUSETTS

Massachusetts Geographic Information System (MassGIS)

Abstract: Bedrock geology and surficial geology for Massachusetts can be downloaded from the MassGIS website. Included in the download are four symbology (.lyr) files and importable metadata. A digital image file representing the “Geologic Map of Massachusetts” can be found at the NGMDB.

INFORMATION

Date Assessed: 2/19/2008

Reference ID: NA

Projection: NAD 1983 State Plane Massachusetts Mainland FIPS 2001

Scale: 1:500,000

Symbology: Available as .lyr file

Metadata: Available and importable

PAPER SOURCE

Zen, E-an, Goldsmith, Richard, Ratcliffe, N.M., Robinson, Peter, Stanley, R.S., Hatch, N.L., Shride, A.F., Weed, E.G.A., and Wones, D.R., 1983, Bedrock geologic map of Massachusetts: U.S. Geological Survey, scale 1:250,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.mass.gov/mgis/laylist.htm>

Source map: See the NGMDB link below.

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=MA&search.x=52&search.y=14

MICHIGAN

Michigan Department of Natural Resources - Center for Geographic Information

Abstract: GIS files representing Michigan bedrock and Quaternary geology can be downloaded through Michigan's Center for Geographic Information. Bedrock geology can also be downloaded through the USGS Open-File Report 97-455 (<http://pubs.usgs.gov/of/1997/of97-455/>). Listed below is the information provided by the State of Michigan. A copy of the 1987 "Bedrock Geology of Michigan" can be viewed and downloaded as a .pdf from the Michigan Department of Environmental Quality. GIS layer symbology is not provided. Metadata is viewable online, but cannot be imported into the shapefile.

INFORMATION

Date Assessed: 2/2008

Reference ID: NA

Projection: Albers Conic Equal Area NAD 1983*

Scale: 1:500,000

Symbology: Not Available

Metadata: Available, but not importable

PAPER SOURCE*

Milstein, R.L., Reed, R.C., and Daniels, Jennifer, 1987, Bedrock geology of Michigan: Michigan Department of Natural Resources, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.mcgi.state.mi.us/mgdl/?action=thm>

Source map (Last visited 1-21-2009): <http://www.deq.state.mi.us/documents/deq-ogs-gimdl-MAPS.pdf>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=MI&search.x=55&search.y=16

COMMENTS

*Custom data projection details are described in the metadata.

**Compiled from three source maps. Details are available in the metadata.

MINNESOTA

Minnesota Geological Survey (MGS)

Abstract: GIS files representing the bedrock geology of Minnesota can be downloaded through the Minnesota Geological Survey's ftp site. The MGS provides data at a scale of 1:1,000,000. A digital version (.pdf) of the bedrock geologic map is contained in the zipped data download. GIS layer symbology is provided in .avl format. Metadata is provided, but not in a format that can be imported into a shapefile.

Based on oral communication with MGS, the State's geologic map is being updated. The map and shapefiles are expected to be released sometime in 2009.

INFORMATION

Date Assessed: 3/13/2008

Reference ID: MGS State Map Series S-20

Projection: Lambert projection std parallels 33 & 45, origin at -93 30 Long and 43 Lat

Scale: 1:1,000,000

Symbology: Available as .avl.

Metadata: Available but not importable

SOURCE

Morey, G.B., and Meints, Joyce, compilers, 2000, Geologic map of Minnesota, bedrock geology (3rd edition): Minnesota Geological Survey State Map Series S-20, scale 1:1,000,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): ftp://mgssun6.mngs.umn.edu/pub2/s-20_3ed/

Source map (Last visited 1-21-2009)*: ftp://mgssun6.mngs.umn.edu/pub2/s-20_3ed/

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=MN&search.x=53&search.y=27

COMMENTS

*MGS source map is contained in the zipped data available through the ftp download.

MISSISSIPPI

Mississippi Automated Resource Information System (MARIS)

Abstract: Shapefiles representing surficial geology of Mississippi can be downloaded through the MARIS website. This file represents the geology as mapped by Bicker in 1969. The data can be downloaded with one of two assigned projections: Mississippi Transverse Mercator or Geographic. GIS layer symbology is not provided. Metadata is provided but is not in an importable format. David Thompson of the Mississippi Department of Environmental Quality (MDEQ) has updated the Bicker map and shapefiles. A .pdf copy of the updated map can be downloaded from MDEQ's website. The shapefiles representing Thompson's map are not yet available to the public. A copy of the Bicker (1969) map can be downloaded from the NGMDB.

INFORMATION

Date Assessed: 2/2008

Reference ID: Not Applicable

Projection: Mississippi Transverse Mercator or Geographic

Scale: 1:500,000

Symbology: Not Available

Metadata: Available, but not importable*

PAPER SOURCE

Bicker, A.R., 1969, Geologic map of Mississippi: U.S. Geological Survey, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.maris.state.ms.us/HTM/DownloadData/Statewide-Theme.htm>

Source map (Thompson after Bicker, 1969) (Last Visited 1-21-2009):** http://www.deq.state.ms.us/mdeq.nsf/page/Geology_surface?OpenDocument

Source map (Bicker, 1969) (Last visited 1-21-2009):
http://ngmdb.usgs.gov/ngm-bin/ILView.pl?sid=q500_16555_us_1.sid&vtype=b

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=MS&search.x=62&search.y=19

COMMENTS

*Metadata is available under the MARIS "Data Dictionary" link. To find the surface geology metadata click on the link for the "Data Dictionary" under the "Download Data" tab, and then choose "Physical Geography" then "Surface Geology."

**The 1969 "Geologic Map of Mississippi" by Bicker has been digitized by David E. Thompson of Mississippi Department of Environmental Quality. A digital copy of the map is available for download through the Mississippi Department of Environmental Quality.

MISSOURI

Missouri Spatial Data Information Service (MSDIS)

Abstract: GIS representations of Missouri geology can be downloaded from the MSDIS website. Bedrock geology, surficial geology, faults, alluvium, and other data are available in shapefile format. These GIS files were created by compiling various State geologic maps. A digital version of the map used as a source for the GIS files is not available to be downloaded. A version of the State bedrock geologic map is available through the Missouri Department of Natural Resources. GIS layer symbology is not provided. Metadata is provided and can be imported into the shapefiles.

INFORMATION

Date Assessed: 2/2008

Reference ID: Not Applicable

Projection: UTM Zone 15N NAD 1983

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Source Map: Compiled from various State geologic maps

Author: Various authors

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.msdis.missouri.edu/datasearch/ThemeList.jsp>

Source map (Last visited 1-21-2009)*: <http://www.dnr.mo.gov/geology/adm/publications/map-GenGeoMap.pdf>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=MO&search.x=42&search.y=27

COMMENTS

*This is not the source map for the Missouri bedrock GIS data. The GIS file was created by compiling various geologic maps rather than one map. This is a generalized version of the State geology.

MONTANA

Montana Natural Resource Information System Clearinghouse (NRIS)

Abstract: A digital representation of Montana geology was created for USGS Open-File Report 95-0691 (<http://pubs.usgs.gov/of/1995/ofr-95-0691/>). These data are also available through the NRIS. Bedrock geology, faults, dikes, and ice sheets are available for download from their website or through the USGS. A symbology (.avl) file is available through the Montana NRIS. Metadata is available and accompanies the shapefile. An image file for the "Geologic Map of Montana" (1955) is not available for download. A simplified version of the 1955 map can be found at About.com. A new geologic map of Montana was published in 2007. The "Geologic Map of Montana" (2007) is available for purchase through the Montana Bureau of Mines and Geology. A digital copy of this map is not available.

INFORMATION

Date Assessed: 2/19/2008

Reference ID: Not Applicable

Projection: Montana State Plane Single Zone NAD 1983

Scale: 1:500,000

Symbology: Available as .avl*

Metadata: Available and importable.

PAPER SOURCE

Ross, C.P., Andrews, D.A., and Witkind, I.J., 1955, Geologic map of Montana: U.S. Geological Survey, scale 1:500,000.

WEB LINKS

GIS Data (NRIS) (Last visited 1-21-2009): <http://nr.is.state.mt.us/gis/gisdatalib/gisDataList.aspx?datagroup=statewide&searchTerms=geology>

GIS Data (USGS) (Last visited 1-21-2009): <http://pubs.usgs.gov/of/1995/ofr-95-0691/>

Source map (Last visited 1-21-2009):** See NGMDB link below

Source map (2007) (Last visited 1-21-2009)*:** <http://www.mbm.gmtech.edu/gmr/gmr-gm62.asp>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=MT&search.x=72&search.y=17

COMMENTS

*This .avl file is partially complete, and is only available if downloaded from the NRIS. The user will need to fill in some unsymbolized geologic units.

**A digital copy of Ross et al. (1955) can be downloaded from the NGMDB.

***The new "Geologic Map of Montana" (2007) can be purchased from the State geological survey.

NEBRASKA

University of Nebraska-Lincoln - School of Natural Resources

Abstract: GIS representations of Nebraska bedrock geology can be downloaded as Arc shapefiles from the University of Nebraska – Lincoln. This data was compiled from various geologic map sources with scales ranging from 1:250,000 to 1:1,000,000. GIS map symbology is not provided. Metadata is available, but it cannot be imported into the shapefile.

INFORMATION

Date Assessed: 3/2008

Reference ID: Not Applicable

Projection: Lambert NAD 1927

Scale: 1:1,000,000

Symbology: Not Available

Metadata: Available, but not importable

PAPER SOURCE*

Burchett, R.R., 1986, Geologic bedrock map of Nebraska: University of Nebraska Conservation and Survey Division, Geologic Maps and Charts 1, scale 1:1,000,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://snr.unl.edu/Data/NebrGIS.asp>

Source map (Last visited 1-21-2009): <http://snr.unl.edu/Data/NebrGIS.asp#BedrockGeology>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=NE&search.x=51&search.y=24

COMMENTS

*In addition to the Burchett (1986) geologic map, various 1:250,000 geologic maps were used to create the GIS representation of the State geology. According to the metadata, the 1:250,000 maps were used for eastern and southern portions of the State, and the 1:1,000,000 geology was used for the remainder of the State.

NEVADA

Nevada Bureau of Mines and Geology (NBMG)

Abstract: Two versions of geologic data for Nevada are available: USGS Open-File Report 03-66 (<http://pubs.usgs.gov/of/2003/of03-66/>) and USGS DS 249 (<http://pubs.usgs.gov/ds/2007/249/>). USGS DS 249 is the most recent version of the Nevada geologic map in digital format. Listed below are the details of the USGS DS 249 dataset. An image file for the 2007 “Geologic Map of Nevada” is not available for download. A .pdf of the “Generalized Geologic Map of Nevada” can be downloaded from the NBMG website. GIS layer symbology is provided as a .lyr file. Metadata is provided in a format that can be imported into the shapefile.

INFORMATION

Date Assessed: 2/20/2008

Reference ID: USGS DS 249

Projection: NAD 1927 UTM Zone 11 N

Scale: 1:250,000

Symbology: Available as .lyr file

Metadata: Available and importable

PAPER SOURCE

Crafford, A.E.J., and Harris, A.G., 2007, Geologic map of Nevada, *with a section on A digital conodont database of Nevada*: U.S. Geological Survey Data Series DS-249, scale 1:250,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://pubs.usgs.gov/ds/2007/249/>

Source map (Last visited 1-21-2009)*: <http://www.nbm.unr.edu/dox/dox.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=NV&search.x=54&search.y=17

COMMENTS

*A copy of the 2007 geologic map can be obtained by request. See the NGMDB link for details. This link can be used to download a generalized version of the State geology.

NEW HAMPSHIRE

NH GRANIT – State GIS Data Clearinghouse

Abstract: NH GRANIT provides both bedrock and surficial geologic data for the State of New Hampshire. The data can be downloaded via ftp or by requesting a CD/DVD; it is delivered in coverage format. These same files can be purchased, along with other ancillary files, from the New Hampshire Department of Environmental Services, as publication Geo-1CD. GIS layer symbology is provided for the surficial geology as a .lyr file, but is not provided for the bedrock geology. A digital copy of the “Bedrock Geologic Map of New Hampshire” (Lyons and others, 1997) can be downloaded from the NGMDB. Metadata is not available for the bedrock geology files but is provided for the surficial geology files.

INFORMATION

Date Assessed: 03.07.2008

Reference ID: Geo-1CD*

Projection / Datum: NH State Plane (feet) / NAD 1983

Scale: 1:250,000

Symbology: Not available for bedrock geology. Available for surficial geology as .lyr file

Metadata: Available**

PAPER SOURCE***

Lyons, J.B., Bothner, W.A., Moench, R.H., and Thompson, J.B., Jr., 1997, Bedrock geologic map of New Hampshire: U.S. Geological Survey, scale 1:250,000

WEB LINKS

GIS Data (Last visited 1-21-2009):

<http://www.granit.unh.edu/data/downloadfreedata/category/databycategory.html#Geological%20and%20Geophysical>

Source map (Last visited 1-21-2009): See the NGMDB link below.

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=NH&search.x=51&search.y=14

COMMENTS

*Reference ID for the NH Department of Environmental Services Data package.

**Metadata for the bedrock geology is available in the form of a .pdf document and other MS Word documents, but not in an importable format. Metadata is available in an importable format for the surficial geology files.

***It appears that the shapefile representing NH State geology was originally digitized from “A New Bedrock Geologic Map of New Hampshire” (Lyons and others, 1991). This shapefile was updated in 2008 using “Bedrock Geologic Map of New Hampshire” (Lyons and others, 1997).

NEW JERSEY

New Jersey Geological Survey (NJGS)

Abstract: Bedrock and surficial geology shapefiles can be downloaded from the New Jersey Geological Survey's website. Dikes, faults, folds, cross-sections, and topographic base are also available. An image file of the State geology is available in TIFF format and is contained in the zipped data package. GIS layer symbology is provided as an .avl file. Metadata is available, and is already attached to the shapefiles.

INFORMATION

Date Assessed: 3/6/2008

Reference ID: DGS04-6

Projection: New Jersey State Plane Coordinate System 1983 (feet)

Scale: 1:100,000

Symbology: Available as .avl

Metadata: Available and importable

PAPER SOURCE

Drake, A.A., Volkert, R.A., Monteverde, D.H., Herman, G.C., Houghton, H.F., Parker, R.A., and Dalton, R.F., 1996, Bedrock geologic map of northern New Jersey: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-2540-A, scale 1:100,000.

Owens, J.P., Sugarman, P.J., Sohl, N.F., Parker, R.A., Houghton, H.F., Volkert, R.A., Drake, A.A., Jr., and Orndorff, R.C., 1999, Bedrock geologic map of central and southern New Jersey: U.S. Geological Survey Miscellaneous Investigations Series Map I-2540-B, scale 1:100,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.state.nj.us/dep/njgs/geodata/index.htm#geology>

Source map (Last visited 1-21-2009):** <http://www.state.nj.us/dep/njgs/geodata/dgs04-6.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=NJ&search.x=48&search.y=40

COMMENTS

**An image file (.tiff) version of the State geologic map is contained in the zipped data download.

NEW MEXICO

New Mexico Bureau of Geology and Mineral Resources (NMBGMR)

Abstract: Geology data files representing New Mexico geology can be downloaded from the NMBGMR and through the New Mexico Resource Geographic Information System Program (NMRGIS) website. These data were created for USGS Open-File Report 97-0052 (<http://pubs.usgs.gov/of/1997/ofr-97-0052/>). A digital (.pdf) copy of the New Mexico State geologic map is contained in the USGS Open-File Report 97-0052 data download. GIS layer symbology is available through the NMRGIS data package. Metadata is available and importable.

INFORMATION

Date Assessed: 3/6/2008

Reference ID: USGS Open-File Report 97-0052

Projection: Clarke 1866 Lambert Conformal Conic

Scale: 1:500,000

Symbology: Available as .avl*

Metadata: Available as importable format

PAPER SOURCE

Anderson, O.J., and Jones, G.E., 1994, Geologic map of New Mexico: New Mexico Bureau of Mines and Mineral Resources, Open-File Report 408, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009):** <http://geoinfo.nmt.edu/publications/maps/gis/home.html>

GIS Data (RGIS) (Last visited 1-21-2009): http://rgis.unm.edu/loader_div.cfm?theme=Geology

Source map (Last visited 1-21-2009)*:** <http://geoinfo.nmt.edu/publications/maps/gis/home.html>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=NM&search.x=36&search.y=27

COMMENTS

*The .avl is available through the RGIS data download.

**To access the geology GIS data, click on the "OFR-97-0052" link at the bottom of the web page.

***A .pdf version of the "Geologic Map of New Mexico" is contained in the data download.

NEW YORK

New York State Museum

Abstract: Bedrock and surficial geology ArcInfo import files can be downloaded from the New York State Museum. The geologic data files are divided into several "sheets." Metadata is available for each separate sheet as a viewable .html. A digital version of the source map "Geologic Map of New York" 1970 is not available; however, a digital version of "New York State Geologic Map" from Rodgers, Isachsen, Mock, and Nahaya (1990) is available and downloadable through a Stonybrook University web link. This geologic map can also be downloaded from <http://geology.about.com> in various file sizes. GIS layer symbology is not provided.

INFORMATION

Date Assessed: 3/6/2008

Reference ID: Not Applicable

Projection: UTM Zone 18N NAD 1927

Scale: 1:250,000

Symbology: Not Available

Metadata: Available, but not importable*

PAPER SOURCE

Fisher, D.W., Isachsen, Y.W., and Rickard, L.V., 1970 Geologic map of New York State (unpublished compilation consisting of the five published sheets of the New York State Museum Map and Chart Series No. 15 [Niagara, Finger Lakes, Hudson-Mohawk, Adirondack, and Lower Hudson]), scale 1:250,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.nysm.nysed.gov/gis/>

Source map (Last visited 1-21-2009): <http://www.eserc.stonybrook.edu/cen514/fall2002/NYSGeologicMap.html>

Source map (Last visited 1-21-2009): <http://geology.about.com/library/bl/maps/blnewyorkmap.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=NY&search.x=27&search.y=19

COMMENTS

* Available as viewable .html.

NORTH CAROLINA

North Carolina Geological Survey (NCGS)

Abstract: Shapefiles representing geology, faults, and dikes of North Carolina can be downloaded from NC One Map. These files were created by the North Carolina Geological Survey by digitizing the 1:250,000 source maps for the 1:500,000 State geologic map. GIS layer symbology is not available to be downloaded but does exist. Metadata is provided and can be imported into the shapefile.

INFORMATION

Date Assessed: 3/2008

Reference ID: Not Applicable

Projection: NAD 1983 North Carolina State Plane FIPS 3200 (feet)

Scale: 1:250,000

Symbology: Available by request from NCGS

Metadata: Available in importable format

PAPER SOURCE

North Carolina Geological Survey, 1985, Geologic map of North Carolina: North Carolina Department of Natural Resources and Community Development, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.nconemap.com/>

Source map (Last visited 1-21-2009): http://gis.enr.state.nc.us/sid/bin/index.plx?client=zGeologic_Maps&site=9AM

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=NC&search.x=54&search.y=27

NORTH DAKOTA

North Dakota Geographic Information Systems (ND GIS)

Abstract: North Dakota bedrock geology, surface geology, and faults can be downloaded from the ND GIS “Hub Explorer” ArcIMS website. To access and download the data, open the “Hub Explorer.” Click on the “Environment” folder located on the right side of the screen. Select the layer of interest for downloading by clicking on the appropriate radio button, and then click on the “Extract Data” button located on the left side of the screen. A generalized digital version of the “Geologic Bedrock Map of North Dakota” is available from North Dakota State University. GIS layer symbology is not provided. Metadata is available in a format that can be imported into the GIS files.

INFORMATION

Date Assessed: 3/2006

Reference ID: Not Applicable

Projection: Geographic NAD 1983

Scale: 1:670,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

(Bedrock Geology)

Bluemle, J.P., 1983, Geologic and topographic bedrock map of North Dakota: North Dakota Geological Survey, Miscellaneous Map MM-25, scale 1:670,000.

(Surficial Geology)

Clayton, Lee, 1980, Geologic map of North Dakota: U.S. Geological Survey, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.nd.gov/gis/mapsdata/int-maps.html>

Source map (Last visited 1-21-2009)*: http://www.ndsu.edu/ndsu/nd_geology/nd_maps/nd_map1.htm

Source map (Last visited 1-21-2009):** See NGMDB link below

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=ND&search.x=65&search.y=22

COMMENTS

*Bedrock geology.

**Surficial geology.

OHIO

Ohio Geological Survey (OGS)

Abstract: Geologic data for the State of Ohio are available and can be purchased from the Ohio Geological Survey. The data are delivered on CD-ROM, and include bedrock geology and faults. An image file (.pdf) of the “Bedrock Geologic Map of Ohio” is also provided on the CD-ROM. This dataset can be purchased for \$30. GIS layer symbology is not provided. Metadata is provided and is already imported into the geology shapefiles.

INFORMATION

Date Assessed: 3/7/2008

Reference ID: BG-1 Version 6

Projection: Ohio State Plane 1983 (feet)

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Slucher, E.R., (principal compiler), Swinford, E.M., Larsen, G.E., and others, *with GIS production and cartography by* Powers, D.M., 2006, Bedrock geologic map of Ohio: Ohio Division of Geological Survey BG-1, version 6.0, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-22-2009): <http://www.ohiodnr.com/geosurvey/pub/dms/tabid/7156/Default.aspx>

Source map (Last visited 1-22-2009)*: <http://ohiodnr.com/geosurvey/pub/maps/bgmap/tabid/7224/Default.aspx>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=OH&search.x=61&search.y=18

COMMENTS

*A .pdf image of the State geologic map is provided on the CD-ROM.

OKLAHOMA

U.S. Geological Survey (USGS)

Abstract: GIS data representing faults, folds, and bedrock geology of Oklahoma can be downloaded from the USGS (<http://pubs.usgs.gov/of/2003/ofr-03-247/>). The GIS files representing State geology were created by merging twelve 1:250,000 geologic quadrangles. A digital copy (.pdf.) of the Oklahoma geologic map is provided in the download package. GIS layer symbology is not provided, however CMYK values are part of the data attribute table. Metadata is provided and can be imported into the shapefile.

INFORMATION

Date Assessed: 3/2008

Reference ID: USGS Open-File Report 03-247

Projection: Albers Conic Equal Area NAD 1983

Scale: 1:250,000

Symbology: Not Available *

Metadata: Available as importable format

PAPER SOURCE

Heran, W.D., Green, G.N., and Stoeser, D.B., 2003, A digital geologic map database for the State of Oklahoma: U.S. Geological Survey Open-File Report 03-247, scale 1:250,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2003/ofr-03-247/>

Source map (Last visited 1-21-2009):** <http://pubs.usgs.gov/of/2003/ofr-03-247/>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=OK&search.x=68&search.y=22

COMMENTS

*A .txt file with CMYK color values is provided.

**A digital version of the Oklahoma geologic map is packaged with the USGS Open-File Report 03-067 data.

OREGON

U.S. Geological Survey (USGS)

Abstract: USGS Open File Report 03-67 (<http://pubs.usgs.gov/of/2003/of03-067/>) provides the most current digital version of the “Geologic Map of Oregon” published by Walker and MacLeod in 1991. This Open-File Report supersedes an earlier published digital version (Raines and others, 1996; USGS DDS-41). The Open-File Report includes faults, geology, and a legend file all in ArcINFO export format. GIS layer symbology is not provided. Metadata is provided and can be imported into the GIS files.

Also available is the “Oregon Geologic Data Compilation” from DOGAMI. This dataset, not yet complete, is a compilation of the best geologic data available for the State of Oregon. It can be purchased from the “Nature of the Northwest” store for \$25.

INFORMATION

Date Assessed: 03/2008

Reference ID: USGS Open-File Report 03-067

Projection: Lambert Conformal Conic NAD 1927

Scale: 1:500,000

Symbology: Not Available

Metadata: Available as importable format

PAPER SOURCE

Walker, G.W., and MacLeod, N.S., 1991, Geologic map of Oregon: U.S. Geological Survey, scale 1:500,000.

WEB LINKS

GIS Data (USGS OFR 03-067) (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2003/of03-067/>

GIS Data (DOGAMI) (Last visited 1-21-2009): <http://www.naturenw.org/store-maps.htm>

Source map* (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2003/of03-067/>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=OR&search.x=84&search.y=5

COMMENTS

*A digital version of the “Geologic Map of Oregon” is available as a .jpg, included with the USGS Open-File Report 03-067 data. O

PENNSYLVANIA

Pennsylvania Department of Conservation and Natural Resources (PA DCNR)

Abstract: Geology shapefiles can be downloaded from the PA DCNR's Geological Survey website. Available files include bedrock geology, and dikes. GIS layer symbology is provided as a .style file. Metadata is provided as .html but is not importable into the GIS files.

INFORMATION

Date Assessed: 3/13/2008

Reference ID: Not Applicable

Projection: Geographic NAD 1927

Scale: 1:250,000

Symbology: Available as .style files

Metadata: Available as .htm format – Not importable

PAPER SOURCE

Berg, T.M., Edmunds, W.E., Geyer, A.R., Glover, A.D., Hoskins, D.M., MacLachlan, D.B., Root, S.I., Sevon, W.D., and Socolow, A.A., 1980, Geologic map of Pennsylvania: Pennsylvania Geological Survey, Map 1, scale 1:250,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.dcnr.state.pa.us/topogeo/gismaps/geomaps.aspx>

Source map* (Last visited 1-21-2009): <http://www.dcnr.state.pa.us/topogeo/maps/map7.pdf>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=PA&search.x=43&search.y=32

COMMENTS

*This is a generalized (page sized) version of the "Geologic Map of Pennsylvania." See the NGMDB link for a digital copy of the Berg et al. (1980) map.

RHODE ISLAND

Rhode Island Geographic Information System (RIGIS)

Abstract: RIGIS provides bedrock geology for the State of Rhode Island in both ArcInfo export and shapefile format. This shapefile reflects the updates to the 1971 "Rhode Island Geologic Map." A digital copy of the "Bedrock Geologic Map of Rhode Island" can be downloaded at the link below. GIS layer symbology is not provided. Metadata is available and can be imported into the GIS files.

INFORMATION

Date Assessed: 3/6/2008

Reference ID: Not Applicable

Projection: Rhode Island State Plane 3800 (feet) NAD 1983

Scale: 1:100,000

Symbology: Not Available

Metadata: Available as importable format

PAPER SOURCE

Hermes, O.D., Gromet, L.P., Murray, D.P., Hamidzada, N.A., Skehan, J.W., and Mosher, S., 1994, Bedrock geologic map of Rhode Island: Rhode Island Geological Survey, Rhode Island Map Series Map 1, scale 1:100,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.edc.uri.edu/rigis/data/geoscientificInformation.aspx>

Source map (Last visited 1-21-2009): <http://geology.about.com/library/bl/maps/blrhodeislandmap.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=RI&search.x=72&search.y=26

SOUTH CAROLINA

U.S. Geological Survey (USGS)
South Carolina Department of Natural Resources (SCDNR)

Abstract: USGS Open-File Report 01-298 provides bedrock geology for the Appalachian Piedmont and Blue Ridge region of South Carolina at a scale of 1:500,000. The South Carolina Department of Natural Resources (SCDNR) provides generalized geology for the entire State. This version is not available in GIS format. GIS layer symbology is not provided for any of the GIS files. Metadata is available for all GIS data and can be imported into the GIS files.

INFORMATION

USGS

Date Assessed: 3/11/2008

Reference ID: Open-File Report 01-298 (USGS data)

Projection (USGS): Lambert Conformal Conic

Scale (USGS): 1:500,000

Symbology: Not Available

Metadata (USGS): Available as an importable format

SCDNR

Date Assessed: 3/11/2008

Reference ID: Not Applicable

Projection (SCDNR): NAD 1927 UTM Zone 17N

Scale (SCDNR): 1:1,000,000

Symbology: Not Available

Metadata (SCDNR): Available, already imported into shapefile.

PAPER SOURCE

(USGS – Appalachian region only)

Horton, J.W., Jr., and Dicken, C.L., 2001, Preliminary digital geologic map of the Appalachian Piedmont and Blue Ridge, South Carolina segment: U.S. Geological Survey Open-File Report 01-298.

(SCDNR – Full State coverage)

Maybin, A.H., III, and Nystrom, P.G., Jr., 1995, Geological map of South Carolina: South Carolina Geological Survey, General Geologic Map Series GGMS-1, scale 1:1,000,000.

WEB LINKS

GIS Data (USGS) (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2001/of01-298/>

Source map (USGS) (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2001/of01-298/>

GIS Data (SCDNR) (Last visited 1-21-2009): <http://www.dnr.sc.gov/GIS/gisdnrdata.html>

Source map (SCDNR) (Last visited 1-21-2009): <http://www.dnr.sc.gov/geology/geology.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=SC&search.x=54&search.y=14

SOUTH DAKOTA

South Dakota Geological Survey

Abstract: A GIS representation of the “Geologic Map of South Dakota” (2004) can be downloaded from the South Dakota Geological Survey’s website. The shapefile and corresponding map represent surficial geology for the entire State. Bedrock geology is available for the eastern part of the State, east of the Missouri River. GIS layer symbology is available as a .lyr files for both the surficial and bedrock geology. Metadata is available in a .pdf document and cannot be imported into the GIS data files.

INFORMATION

Date Assessed: 4/2008

Reference ID: General Map No. 10

Projection: Custom – NAD 1927 Lambert Conformal Conic (feet)

Scale: 1:500,000

Symbology: Available as .lyr

Metadata: Available but not importable*

PAPER SOURCE

Martin, J.E., Sawyer, J.F., Fahrenbach, M.D., Tomhave, D.W., and Schulz, L.D., 2004, Geologic map of South Dakota: South Dakota Geological Survey, Map 10, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009):** <http://www.sdgs.usd.edu/>

Source map (Last visited 1-21-2009):** <http://www.sdgs.usd.edu/printedpubmaps/index.html>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=SD&search.x=42&search.y=25

COMMENTS

*A .pdf document is available. The document contains reference data, but it does not contain source, scale, or projection information.

**On the home page click on “Publications & Maps.” On the next page in the top right click on “Download Publications & Maps.” On the third page under “Map Series,” click on “General.” Scroll to the bottom of the fourth page to find shapefiles and digital copies of the bedrock (G-09) and surficial (G-10) maps.

TENNESSEE

Tennessee Spatial Data Server

Abstract: Shapefiles representing Tennessee geology are available through the USGS Water Resources NSDI Node. These files are downloadable in coverage format. Please note that the Tennessee Spatial Data Server, the site from which this data was downloaded, states that the Tennessee Division of Geology does not endorse this coverage, as this version is still incomplete and not fit for distribution. GIS layer symbology is not provided. Metadata is included as a text document and cannot be imported into the GIS files.

INFORMATION

Date Assessed: 3/6/2008

Reference ID: NA

Projection: Geographic NAD 1983

Scale: 1:250,000

Symbology: Not Available

Metadata: Available but not importable

PAPER SOURCE*

Miller, R.A., Hardeman, W.D., and Fullerton, D.S., 1966, Geologic map of Tennessee [West Sheet]: Tennessee Division of Geology, State Geologic Map SWS, scale 1:250,000.

Miller, R.A., Hardeman, W.D., Fullerton, D.S., Sykes, C.R., and Garman, R.K., 1966, Geologic map of Tennessee [West Central Sheet]: Tennessee Division of Geology, State Geologic Map SWC, scale 1:250,000.

Swingle, G.D., Hardeman, W.D., Fullerton, D.S., Sykes, C.R., and Miller, R.A., 1966, Geologic map of Tennessee [East Sheet]: Tennessee Division of Geology, State Geologic Map SES, scale 1:250,000.

Swingle, G.D., Miller, R.A., Luther, E.T., Hardeman, W.D., Fullerton, D.S., Sykes, C.R., and Garman, R.K., 1966, Geologic map of Tennessee [East Central Sheet]: Tennessee Division of Geology, State Geologic Map SEC, scale 1:250,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://www.tngis.org/geology.html>

Source map (Last visited 1-21-2009): See the NGMDB link below

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=TN&search.x=68&search.y=21

COMMENTS

*This shapefile was compiled from four separate geologic map sheets.

TEXAS

U.S. Geological Survey (USGS)

Abstract: GIS data representing the bedrock geology and faults of Texas can be downloaded as USGS DS-170. The files are available as ArcINFO coverages and shapefiles. GIS layer symbology is not provided. Metadata is provided in a format that can be imported into the GIS files. A digital copy of the map used to create the GIS files is included in the data package as four separate .pdf documents.

INFORMATION

Date Assessed: 4/1/2008

Reference ID: USGS DS 170

Projection: NAD 1927 Lambert Conformal Conic

Scale: 1:500,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Barnes, V.E. (project supervisor), 1992, Geologic map of Texas: University of Texas at Austin, Bureau of Economic Geology, Map SM-0003, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://pubs.usgs.gov/ds/2005/170/>

Source map (Last visited 1-21-2009)*: <http://pubs.usgs.gov/ds/2005/170/>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=TX&search.x=74&search.y=20

COMMENTS

*A digital (.pdf) representation of the geologic map is included in the USGS data package as four separate map sheets.

UTAH

Utah Geological Survey (UGS)

Abstract: GIS geologic map data (bedrock geology and faults) can be downloaded from the Utah Geological Survey as shapefiles. UGS provides a digital (.pdf) version of the State geologic map. GIS layer symbology is provided as a .lyr file. Metadata is provided in a format that can be imported into the GIS data files.

INFORMATION

Date Assessed: 3/13/2008

Reference ID: Not Applicable

Projection: NAD 1927 UTM Zone 12 N

Scale: 1:500,000

Symbology: Available as .lyr

Metadata: Available and importable*

PAPER SOURCE

Hintze, L.F., Willis, G.C., Laes, D.Y.M., Sprinkel, D.A., and Brown, K.D., 2000, Digital geologic map of Utah: Utah Geological Survey, Map 179DM, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://geology.utah.gov/maps/gis/index.htm>

Source map (Last visited 1-21-2009): <http://geology.utah.gov/maps/geomap/statemap/index.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=UT&search.x=59&search.y=28

COMMENTS

*Importable metadata is provided as a .MET file. To make this file importable, the user must delete "Metadata:" and the next blank line and then save as .txt.

VERMONT

U.S. Geological Survey (USGS)

Abstract: GIS files representing bedrock geology and faults of Vermont can be downloaded through U.S. Geological Survey Open-File Report 2006-1272. GIS layer symbology is not provided. Metadata is provided and can be imported into the GIS files.

INFORMATION

Date Assessed: 3/11/2008

Reference ID: Open-File Report 2006-1272

Projection: Vermont State Plane Meters (NAD83)

Scale: 1:250,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Doll, C.G., Cady, W.M., Thompson, J.B., and Billings, M.P., 1961, Centennial geologic map of Vermont: Vermont Geological Survey, Miscellaneous Map MISCMAP-01, scale 1:250,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <http://pubs.usgs.gov/of/2006/1272/>

Source map (Last visited 1-21-2009)*: <http://www.anr.state.vt.us/dec/geo/centmap.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=VT&search.x=60&search.y=20

COMMENTS

* The "Centennial Geologic Map of Vermont" (Doll, 1961) can be viewed at the Vermont Geological Survey's website. A digital copy can be downloaded from the NGMDB.

VIRGINIA

Virginia Department of Mines, Minerals, and Energy (DMME)

Abstract: Both shapefiles and a paper copy of the 1:500,000 Geologic Map of Virginia can be purchased from the Virginia Department of Mines, Minerals, and Energy. GIS layer symbology is not provided in the data package for sale but does exist. Metadata is provided in a format that can be imported into the GIS files.

INFORMATION

Date Assessed: 3/11/2008

Reference ID: Publication 174

Projection: Geographic NAD 1927

Scale: 1:500,000

Symbology: Available, but not included on disc. Need to contact VA DMME for .lyr file.*

Metadata: Available and importable

PAPER SOURCE

Virginia Division of Mineral Resources, 1993, Geologic map of Virginia: Virginia Division of Mineral Resources, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <https://www.dmme.virginia.gov/Commerce/ProductDetails.aspx?ProductID=1286>

Source map (Last visited 1-21-2009): <https://www.dmme.virginia.gov/Commerce/ProductDetails.aspx?ProductID=1280>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=VA&search.x=49&search.y=23

COMMENTS

A 1:500,000-scale geologic paper map and shapefiles are available from Virginia Department of Mines Minerals and Energy for purchase for \$15.

*Map symbology is not included on the disc, but I was able to obtain these data by calling DMME.

WASHINGTON

Washington State Department of Natural Resources, Division of Geology and Earth Resources

Abstract: Two datasets are available which represent the geology for the State of Washington. USGS Open-File Report 95-684 (<http://pubs.usgs.gov/of/1995/of95-684/>) provides geology and faults in coverage format at a scale of 1:1,000,000. Washington State DNR provides geologic shapefiles at a scale of 1:100,000. Both datasets provide digital (.pdf) versions of the State geology map. GIS layer symbology is not provided with the DNR data. Metadata is provided for the DNR data and can be imported into the GIS files.

Listed below is information for the Washington State DNR data files.

INFORMATION

Date Assessed: 3/13/2008

Reference ID: GM-53

Projection: NAD 1983 HARN State Plane Washington South FIPS 4602 (feet)

Scale: 1:100,000

Symbology: Not Available

Metadata: Available and importable

PAPER SOURCE

Washington Division of Geology and Earth Resources, 2005, Digital 1:100,000-scale geology of Washington State, version 1.0: Washington Division of Geology and Earth Resources, Open File Report 2005-3, scale 1:100,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): http://www.dnr.wa.gov/ResearchScience/Topics/GeologyPublicationsLibrary/Pages/pub_ofr05-3.aspx

Source map (Last visited 1-21-2009)*: http://www.dnr.wa.gov/Publications/ger_publications_list.pdf

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=WA&search.x=53&search.y=26

COMMENTS

*Select publication GM-5.

WEST VIRGINIA

West Virginia GIS Technical Center

Abstract: GIS representations of bedrock geology and faults of West Virginia can be downloaded from the West Virginia GIS Technical Center. GIS layer symbology is not provided. Metadata is available, but it is not in a format that can be imported into the shapefile. A digital copy of the “Geologic Map of West Virginia” (Cardwell and others, 1968) is not available. A generalized geologic map of the State can be downloaded from the link below.

INFORMATION

Date Assessed: 4/1/2008

Reference ID: Not Applicable

Projection: NAD 1983 UTM Zone 17N

Scale: 1:250,000

Symbology: Not Available

Metadata: Available but not importable*

PAPER SOURCE

Cardwell, D.H., Erwin, R.B., and Woodward, H.P., 1968, Geologic map of West Virginia: West Virginia Geological and Economic Survey, Map 1, scale 1:250,000.

WEB LINKS

GIS Data (Last visited 1-21-2009):** <http://wvgis.wvu.edu/data/data.php>

Source map (Last visited 1-21-2009): See the NGMDB link below

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=WV&search.x=47&search.y=25

COMMENTS

*Metadata is viewable on the download page.

**To find the data, select “geology” as the subject to search.

WISCONSIN

Wisconsin Geological and Natural History Survey (WGNHS)
U.S. Geological Survey (USGS)

Abstract: Two versions of the GIS files representing the bedrock geology of Wisconsin are available. These files can be obtained from the Wisconsin Geological and Natural History Survey (WGNHS) or the USGS. The files provided by the WGNHS, at a scale of 1:1,000,000, are from Mudrey and others (1982, Bedrock geologic map of Wisconsin). U.S. Geological Survey Open-File Report 97-455 version 3, November 1999 (<http://pubs.usgs.gov/of/1997/of97-455/>) has reinterpreted bedrock geology for Wisconsin and provides data at a scale of 1:500,000. The WGNHS dataset provides shapefiles as well as a georeferenced image file of the State geology. The USGS dataset (Open-File Report 97-455) includes GIS data for Minnesota, Wisconsin, and Michigan. Bedrock geology and fault data are available in ArcInfo coverage format. GIS layer symbology is not available from either location. Metadata is available and importable.

INFORMATION

Date Assessed: 4/1/2008

Reference ID: State Map 18

Projection: Custom – Transverse Mercator NAD 1983 HARN*

Scale: 1:1,000,000

Symbology: Not Available

Metadata: Available as importable format

PAPER SOURCE**

Mudrey, M.G., Jr., Brown, B.A., and Greenberg, J.K., 1982, Bedrock geologic map of Wisconsin: Wisconsin Geological and Natural History Survey, State Map 18, scale: 1:1,000,000

WEB LINKS

GIS Data (Last visited 1-21-2009)*:** <http://www.uwex.edu/wgnhs/gis.htm>

Source map (Last visited 1-21-2009)**:** <http://www.uwex.edu/wgnhs/gis.htm>

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=MI&State=WI&search.x=55&search.y=21

COMMENTS

*Specific projection details can be found in the metadata.

**This is the paper source for the version of Wisconsin bedrock geology being provided by WGNHS.

***Scroll to the bottom of the “WGNHS publications containing geologic maps” page to find the link to download the files for statewide geology.

****A digital copy of the State geologic map is contained in the WGNHS data package.

WYOMING

Wyoming Geographic Information Science Center (WyGISC)

Abstract: Wyoming geologic data can be downloaded from both WyGISC and the USGS (<http://pubs.usgs.gov/of/1994/ofr-94-0425/>). WyGISC provides bedrock geology, surficial, and fault/dike data through the Wyoming GeoLibrary (<http://www.wygisc.uwyo.edu/geolibrary/>). The data provided by WyGISC are an updated and modified version of the USGS data. These shapefiles are based on the 1985 Love and Christiansen map. GIS layer symbology is not provided. Metadata is available in a format that can be imported into the GIS files. A digital copy of this map can be downloaded from the NGMDB.

INFORMATION

Date Assessed: 3/12/2008

Reference ID: Not Applicable

Projection: Geographic NAD 1983

Scale: 1:500,000

Symbology: Not available

Metadata: Available and importable

PAPER SOURCE

Love, J.D. and Christiansen, A.C., 1985, Geologic map of Wyoming: U.S. Geological Survey, scale 1:500,000.

WEB LINKS

GIS Data (Last visited 1-21-2009): <ftp://piney.wygisc.uwyo.edu/data/geology/bedgeol.zip>

Source map (Last visited 1-21-2009): See the NGMDB link below

NGMDB (Last visited 5-22-2009): http://ngmdb.usgs.gov/ngm-bin/ngm_search_dbi.pl?src_page=ngm_SMsearch.html&geologictheme=stmap&State=WY&search.x=70&search.y=28