

Arizona Geologic Index Map

by

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Digital Information Series DI-9

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INTRODUCTION

This database is a computerized index of geologic maps for Arizona published from 1903 to 1997. The index has been compiled from previously published, printed map indexes [Scarborough and Coney, 1982; Harris and others, 1994]. The extents of AZGS and USGS maps published after 1993 were compiled from the source maps. The index is incomplete for maps published in other sources after 1993. Thesis and dissertation maps are not included in this index. Bibliographic citations for each map were extracted from AZGEOBIB [Trapp and others, 1996]. Maps that have been superseded by a subsequent publication (e.g. an open-file report superseded by a published quadrangle) have not been included in the index.

Polygons defining the extent of the published maps were digitized from the 1:1,000,000-scale mylar originals used in preparation of the Scarborough and Coney [1982] and Harris and others [1994] map indexes. The location accuracy of these boundaries should be considered approximate (within ~1 km). Map extents that correspond to established quadrangle boundaries (7 1/2' quadrangles, 30' X 60' maps, etc.) were copied from existing geographic datasets and are more accurate (± 20 m).

For publications that contain more than one geologic map, a separate map extent has been digitized for each map. The item PLATE in the bibliographic dBASE (.dbf) file notes the specific plate, figure or sheet within the source publication for each map.

DATA STRUCTURE

The index map is contained in two shapefiles [ESRI, 1997]. The geographic data are in a Lambert Conformal Conic Projection (Table 1). One of the shapefiles (STATEIND) contains the state- and county-wide maps. The other shapefile (AZINDEX) includes all other maps. These shapefiles were kept separate to avoid having regional maps selected when queries are run on small areas. There are few enough regional maps that they can be located by inspection.

Table 1: Projection description for geographic data.

Projection	LAMBERT
Zunits	NO
Units	METERS
Spheroid	CLARKE1866

Xshift 0.0000000000
Yshift 0.0000000000
Densify 0.0000000000
Generalize 0.0000000000

Parameters

33 0 0.000 /* 1st standard parallel
45 0 0.000 /* 2nd standard parallel
-111 0 0.000 /* central meridian
23 0 0.000 /* latitude of projection's origin
5000000.00000 /* false easting (meters)
0.00000 /* false northing (meters)

The actual shapes for each index is stored in the .SHP file. The attributes for each index is stored in the .DBF file. A description of each item in the dBASE (.dbf) file is included in Table 2..

Table 2. Description of the items in the dBASE file

Field Name

Field Type

Width

Decimal Places

Description of Content

Shape

FIELD_SHAPEPOLY

8

0

Field containing data describing map extent polygon; can not be edited in Table

Id

FIELD_DECIMAL

11

0

A unique numeric identifier for each citation.

Authors

FIELD_CHAR

254

0

The author(s) of the map.

Datepub

FIELD_CHAR

254

0

The date of publication.

Title

FIELD_CHAR

254

0

The title of the publication containing the map or of the map itself.

Citation

FIELD_CHAR

254

0

A full citation of the publication.

Plate

FIELD_CHAR

254

0

The specific map, plate, figure, sheet and/or page number for the cited map (if applicable).

Scale

FIELD_DECIMAL

8

0

The scale of the cited map. For citations encompassing numerous figures, the smallest scale represented is entered. The scale is unknown for only one citation.

Azgeobib

FIELD_DECIMAL

10

0

The AZGEOBIB ID number for the publication containing the map. Use to cross reference against AZGEOBIB database.

WHAT IS INCLUDED ON THE DISKS

The map index database and associated files are delivered as a self-extracting ZIP archives on 3 DOS-formatted floppy disks. The self-extracting software should run under Windows 3.1 with one command and Windows 95 or Windows NT with a different command. To extract the files under Windows 95 or NT, insert Disk 1 in a floppy drive. Start a DOS window and change to the floppy drive containing the disk (usually a:\). Type 'unsplit'. This will run a DOS utility (named SPLIT) to reassemble AZGS Digital Geologic Map Index files. This utility requires that the directory specified by the system variable TEMP exist and that the drive containing this directory contain at least 4.2 Mb of free space. Change disks as prompted. A dialog box will appear asking for the location to unzip the files to. Specify the directory you wish to have the Arizona Geologic Index Map located. For Windows 3.1, the extraction process is slightly different, but uses the same files. Insert Disk 1 into the floppy drive. Choose "Run..." from under the Windows "File" menu and type 'x:\unspl31' (where x:\ is the floppy drive containing Disk 1 on your computer). This starts the same DOS utility as for Windows 95 and NT. Change disks when prompted. At the end, write the TEMP directory down for the next step. When DOS is exited, use the "Run..." option from the Windows "File" menu again, this time running the self-extracting archive. You will want to run the directory you wrote down from DOS with DI-9.exe after it. For example, if the TEMP directory was c:\temp, the command at "Run..." would be: 'c:\temp\di-9.exe'. At this point, a dialog box will appear asking for the location to unzip the files to. Specify the directory you wish to have the Arizona Geologic

Index Map located.

Once the extraction is complete, the root directory to which the files were extracted should contain 3 files and one subdirectory:

DI-9.doc This information. Microsoft Word 7.0 version (.doc).

DI-9.txt This information. ASCII version (.txt)

mapindex.apr ArcView 3.0 project file containing a simple project with the included coverages. For those who use ArcView, this project can be opened to quickly view the data. It is assumed that the user is familiar with ArcView. The project assumes that the data files will be found in a subdirectory named 'Data' in the directory that contains the project file.

Data subdirectory. Contains geographic data (coverages) and a legend file for symbolizing the geology polygons. Each coverage includes three files with the same name and different extensions. Files with .shp extension coordinate information describing the geometric features in the data set [see ESRI, 1997]. Files with .dbf extension are dbase files containing attribute information used to describe the geometric features in the .shp files. Attribute information can be edited using any software that can open and save files in .dbf format, but care must be taken not to add or delete records outside of ArcView or the linkage between objects in the .shp file and associated data in the .dbf file may be lost. Files with .shx extensions are index files. All three of these files must be present in the same subdirectory in order to use the shape file as a Theme in ArcView. Coverages include:

Geologic Map Index:

azindex: polygon extents of geologic maps except statewide and county maps; associated .dbf file contains bibliographic data for sources.

stateind: extents of statewide and county geologic maps;

associated .dbf file contains bibliographic data for sources.

Other Data files useful for searching:

az100k: polygon extents of 30 by 60 minute quadrangles (1:100,000 scale).

az24k: polygon extents of 7.5 minute quadrangles (1:24000 scale).

Associated .dbf contains names of quadrangles.

county: polygon extents of counties in Arizona . Associated .dbf contains county names.

geopoly: polygons for geologic units. Digitized from 1:1,000,000-scale geologic map of Arizona [Reynolds, 1988]; data are equivalent to that included in AZGS DI-8 [Richard, 1997]. Associated .dbf contains 'Unit' field that corresponds to unit labels used on Reynolds [1988].

geocont: polylines for contacts of geologic units in geopoly.

faults: polylines for faults. Digitized from 1:1,000,000-scale geologic map of Arizona [Reynolds, 1988]; data are equivalent to that included in AZGS DI-8 [Richard, 1997].

Legend file:

geoleg.avl: Arcview legend file to symbolize geopoly on the 'unit' field with colors similar to those printed on Reynolds [1988].

REFERENCES

ESRI, 1997, Shapefile Technical Description: http://www.esri.com/base/common/whitepapers/pdfs/av_shape.pdf

Harris, R.C., Trapp, R.A., McGarvin, T.G., and Spencer, J.E., 1994, Index of Published Geologic Maps of Arizona: 1982 to mid-1993, Arizona Geological Survey Map M-31, 45p., 3 sheets, scale 1:1,000,000

Reynolds, S. J., 1988, Geologic Map of Arizona, Arizona Geological Survey Map M-26, scale 1:1,000,000

Richard, S. M, Editor, 1997, Geologic map of Arizona, GIS database, Arizona Geological Survey Digital Information Series, DI-8, 2 DOS disks.

Scarborough, R.B. and Coney, M.L., 1982, Index of Published Maps of Arizona 1903 to 1982, Arizona Bureau of Geology and Mineral Technology Map M-17, 1 p., (errata sheet), 6 sheets, scale 1:1,000,000

Trapp, R. A., Schmidt, Nancy, Reynolds, S. J., 1996, AZGEOBIB, Version 2.1: A List of References on the Geology of Arizona: Arizona Geological Survey Open-File Report 96-01, 308 p.

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