Geologic map of the Devore 7.5' quadrangle, San Bernardino County , California

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Open-File Report OF 01-173

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U. S. DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY

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INTRODUCTION

General

Open-File Report OF 01-173 contains a digital geologic map database of the Devore 7.5' quadrangle, San Bernardino County, California that includes:

1. ARC/INFO (Environmental Systems Research Institute, http://www.esri.com) version 7.2.1 coverages of the various components of the geologic map

2. A PostScript file to plot the geologic map on a topographic base, and containing a Correlation of Map Units diagram, a Description of Map Units, an index map, and a regional structure map.

3. Portable Document Format (.pdf) files of:
    a. This Readme; includes an Appendix, containing metadata details found in devre_met.txt.
    b. The same graphic as plotted in 2 above. (Test plots from this .pdf do not produce 1:24,000-scale Maps. Adobe Acrobat pagesize settings controls map scale.)

The Correlation of Map Units and Description of Map Units is in the editorial format of USGS Miscellaneous Investigations Series (I-series) maps but has not been edited to comply with I-map standards. Within the geologic map data package, map units are identified by standard geologic map criteria such as formation-name, age, and lithology. Even though this is an author-prepared report, every attempt has been made to closely adhere to the stratigraphic nomenclature of the U. S. Geological Survey. Descriptions of units can be obtained by viewing or plotting the .pdf file (3b above) or plotting the postscript file (2 above). If roads in some areas, especially forest roads that parallel topographic contours, do not show well on plots of the geologic map, we recommend use of the USGS Devore 7.5' topographic quadrangle in conjunction with the geologic map.

This README file describes the digital data, such as types and general contents of files making up the database, and includes information on how to extract and plot the map and accompanying graphic file. Metadata information can be accessed at http://geo-nsdi.er.usgs.gov/cgi-bin/publication?map-of and are included in Appendix I of the Readme.

HOW TO OBTAIN PAPER PLOTS

For those having access to large-format plotters such as HP650C, HP755C, and HP2500C, plots may be made directly from the included plot file. For those needing paper plots of the geologic map and accompanying text, but who do not have access to large-format plotters, please contact the U.S. Geological Survey Plot-on-demand facility.

Phone: 1-800-USA-MAPS (1-800-872-6277)

DATABASE CONTENTS

The files constituting the geologic map database of this Open-File Report are listed below along with the interchange files from which they are extracted.

Data Package

All files listed below are in a compressed tar file named **devre.tar.gz** (2.8 MB); see section below titled, SOFTWARE UTILITIES.

ARC/INFO interchange files	Devore files	Contains
devre_geo.e00	**devre_geo**	Contacts, faults, geologic unit labels
devre_str.e00	**devre_str**	Attitudes and their dip values. Dip values plotted as annotation.
devre_ldr.e00	**devre_ldr**	unit label leaders, fault names
lines.rel.e00	**lines.rel**	Line dictionary
points.rel.e00	**points.rel**	Point dictionary
scamp2.shd.e00	**scamp2.shd**	SCAMP shade set

The directory, info/, is produced in the process of importing interchange files to ARC coverages in ARC/INFO. The **devre** (Devore) info/ directory contains:

Feature Attribute tables

devre_geo.pat	Polygon attribute table
devre_geo.aat **devre_ldr.aat**	Arc attribute tables
devre_str.pat	Point attribute table

INFO data tables

lines.rel	Dictionary, contains all SCAMP line codes (Matti and others, 1998a)
points.rel	Dictionary, contains all SCAMP point codes (Matti and others, 1998b)

Raster file	Resultant image	Contains
devre.tif	Devore base map	Topographic base from 500dpi scan of USGS Devore 7.5' quadrangle, 1966

Plot Package

PostScript plot files of the geologic map and CMU/DMU; please see section below titled, SOFTWARE UTILITIES for additional information.

Compressed file	Resultant image	Contains
devre_map.ps.gz	**devre_map.ps**	PostScript plot file of geologic map and CMU/DMU

PostScript files are compressed UNIX files requiring gzip to uncompress them.

The uncompressed PostScript file **devre_map.ps** will plot a 1:24,000 scale, full color geologic map of the Devore quadrangle on a topographic base. A detailed CMU diagram, a DMU, and a regional structure map are included on the sheet. This sheet is in the editorial format of the U.S. Geological Survey's Miscellaneous Investigations (I) map series, and is approximately 45 X 32 inches in size. The map sheet has been successfully plotted on Hewlett-Packard large-format plotters, models HP650C, HP755CM, and HP2500C.

Other files

Readme.pdf	This document in .pdf format
devre_map.pdf	Geologic map, DMU, CMU, and sketch maps

SOFTWARE UTILITIES

Files which have .gz file extension were compressed using gzip. Gzip utilities are available free of charge via the internet at the gzip home page, http://www.gzip.org

The data package is additionally bundled into a single tar (tape archive) file. Individual files must be extracted using a tar utility, available free of charge via the internet through links on the Common Internet File Formats page, http://www.matisse.net/files/formats.html. One such utility is WinZip, available at http://www.winzip.com (WinZip can also decompress files).

Files in the plot package have been prepared to produce optimum plots using the shade, and marker sets listed below. The marker and line sets may be obtained at the web site http://wrgis.wr.usgs.gov/docs/ncgm/scamp/scamp.html. Geoage font group may be obtained at the web site

Server:	onyx.wr.usgs.gov
UserID:	anonymous
Password:	Your e-mail address
Directory:	pub/wpg/supplies/geoage

geoscamp2.lin	Lines
geoscamp2.mrk	Points
scamp2.shd	Colors
geology2.shd	Patterns
Geoage font group	Geologic Age Symbols

HOW TO OBTAIN THE DIGITAL FILES

The export files, and subsequently the data and plot files, constituting the geologic map database of this Open-File Map may be obtained in two ways, both over the Internet.

1. The files can be obtained via the Web from Western Region Geologic Information Server. Go to the web page at http://geopubsis.wr.usgs.gov/open-file/of01-173 and follow the directions to download the files.

2. The files can also be obtained by anonymous ftp over the Internet from wrgis.wr.usgs.gov. The files are located in the directory /pub/open-file/of01-173. Be sure to use binary transfer mode or ASCII mode for individual .e00 files (ARC interchange file format).

3. Metadata can be obtained at http://geo-nsdi.er.usgs.gov/cgi-bin/publication?open-file

HOW TO EXTRACT THE GEOLOGIC MAP DATABASE FROM THE TAR FILE

After downloading the files, they must be uncompressed using a gzip utility such as gzip itself or WinZip. The data files must then be extracted using a tar utility.

This process will create a directory, **devre**/, that contains the ARC/INFO interchange files and supporting files. The directory should contain the following files:

devre/
- **devre_geo.e00**
- **devre_str.e00**
- **devre_ldr.e00**
- **lines.rel.e00**
- **points.rel.e00**
- **devre.tif**

The following are not included in the database tar file, and are downloaded separately

devre_map.ps	
Readme.pdf	This document in .pdf format
devre_map.pdf	Geologic map, DMU, CMU, and sketch maps

PostScript plot files

Make a 22 MB uncompressed file, **devre_map.ps** by typing gzip -d **devre_map.ps.gz** (or use gzip utility of choice)

Portable Document Format (.pdf) files

PDF files are not stored as gzip files. They are accessed using Adobe Acrobat Reader software, available free from the Adobe website http://www.adobe.com. Follow instructions at the website to download and install the software. Acrobat Reader contains an on-line manual and tutorial.

HOW TO CONVERT THE ARC/INFO INTERCHANGE (EXPORT) FILES

The ARC interchange (.e00) files are converted to ARC coverages using the ARC command IMPORT.

ARC interchange files can also be read by some other Geographic Information Systems, including ArcView (ESRI) and MapInfo (http://www.mapinfo.com) (Environmental Systems Research Institute, Inc, 1991). Please consult your GIS documentation to see if you can use ARC interchange files and the procedure to import them.

DIGITAL GEOLOGIC MAP SPECIFICATIONS

Digital and geologic compilation of geologic map

The geologic map was compiled from 1:24,000 geologic mapping on aerial photographs and topographic quadrangle maps, transferred visually to a base-stable cronoflex copy of the Devore 7.5' quadrangle, and the linework scribed from the cronoflex map. The scribe guide was used to make a 0.007"-thick blackline clear-film, from which lines and points were hand-digitized at the USGS Riverside GIS lab. Lines, points, and polygons were subsequently edited at the USGS Spokane GIS lab using standard ARC/INFO commands. Digitizing and editing artifacts significant enough to display at a scale of 1:24,000 were corrected.

Base map

The base map image (devre.tif, Geotiff format) was prepared by scanning a scale-stable clear film of the U.S Geological Survey, 1:24,000 Devore 7. 5′ quadrangle (1971) topographic map. Scanning was done using an Anatech Eagle 4080 monochrome 800 dpi scanner; at a resolution of 500 dpi. The raster scan was converted to a monochromatic image in ARC/INFO, and registered and rectified to the Devore 7.5′ quadrangle. No elements of the base layer are attributed. The base map is provided for reference only.

Spatial resolution

Use of this digital geologic map database should not violate the spatial resolution of the data. Although the digital form of the data removes the constraint imposed by the scale of a paper map, the detail and accuracy inherent in map scale are also present in the digital data. The fact that this database was edited at a scale of 1:24,000 means that higher resolution information is not generally present in the dataset. Plotting at scales larger than 1:24,000 will not yield greater *real* detail, although it may reveal fine-scale irregularities above the intended resolution of the database. Similarly, although higher resolution data is incorporated at some places, the resolution of the combined output will be limited by the lower resolution data.

Map accuracy standards

Until uniform National geologic map accuracy standards are developed and adopted, lines and points on SCAMP 1:24,000 scale geologic maps that are located to within 15 meters, relative to accurately located features on the base map, are considered to meet map accuracy standards. Dashed lines, indicated in the database coding as not meeting map accuracy standards, are generally located to within 30 meters, relative to accurately located features on the base map.

Database specifics

General—The map database consists of ARC/INFO format coverages which are stored in polyconic projection (Table 1), and a series of data tables. Digital tics define a 7.5-minute grid of latitude and longitude in the geologic coverages corresponding to the 7.5-minute tic grid on the topographic base map.

Table 1—Map Projection

Projection	Polyconic
Datum	NAD27
Zunits	No
Units	Meters
Spheroid	Clark 1866
X shift	0.0000000000
Y shift	0.0000000000
Parameters	-117 26 15.000 longitude of central meridian
	34 07 30.000 latitude of projection's origin
	0.00000 false easting (meters)
	0.00000 false northing (meters)

The content of the geologic database can be described in terms of feature classes that include lines, points, and areas that comprise the map. See the metadata text file (Appendix I) for detailed descriptions. Although Version 1.0 of the Devore 7.5' quadrangle does not contain coded, detailed, geologic attribute data, the items L-TAG (lines) and P-TAG (structural point data) do serve as relate items allowing users to establish a relate environment with and access to complete descriptions of the geologic entities contained in the line and point dictionaries (Matti and others, 1998a, 1998b). The following is an example of how to establish a simple relate environment and the ARC/INFO dialogue the user will encounter:

At the Arc prompt, type: relate add

Dialogue for ADD

Relation name:	alphanumeric name of relate you want to establish
Table identifier:	pathname or database table name of the related file
Database name:	name of the database in which the related file is stored
Info item:	the item name in an INFO data file from which the relate is performed
Relate column:	the field in the related table which is related to the INFO item
Relate type:	the type of relate performed—one of the following four: LINEAR, ORDERED, LINK, TABLE. LINEAR is the slowest, but the simplest to apply. (Please consult ARC/INFO online help topic such as 'working with tables' for help on selection of relate type)
Relation access:	the access rights to the related file: RW, or RO, or AUTO

Example (lines):

Arc: relate add
Relation name: line_dictionary
Table identifier: lines.rel
Database name: info
INFO item: l-tag
Relate column: l-tag
Relate type: linear
Relate access: rw

Lines—Lines are recorded as strings of arcs and are described in an arc attribute (.aat) table in Appendix I. They represent contacts and faults which define the boundaries of map units and map boundaries.

Polygons—Geologic map units (polygons) are described in the polygon attribute table in Appendix I. Using a system developed under the Southern California Areal Mapping Project (SCAMP), geologic maps can be encoded with detailed, polygon-specific geologic information on a polygon-by-polygon basis, so that within a quadrangle, lateral variations in a particular map unit can be recorded in the map database. Detailed encoding of polygons is not available in this version of the Devore quadrangle, but will be in the next version. For traditional descriptions of the map units, see the Portable Document Format file **devre_map.pdf**. A list of all map units in the database is given in Appendix I.

Points—Point information (attitudes of planar and linear features, and line ornamentation) is recorded as coordinate and related information and is given in Appendix I.

REFERENCES

Environmental Systems Research Institute, Inc, 1991, ARC/INFO command references 6.0: Proprietary software manual

Matti, J.C., Powell, R.E., Miller, F.K., Kennedy, S.A., Ruppert, K.R., Morton, G.L., and Cossette, P.M., 1998a, Geologic-line attributes for digital geologic map databases produced by the Southern California Areal Mapping Project (SCAMP), Version 1.0: U.S.Geological Survey Open-File Report 97-861

Matti, J.C., Miller, F.K., Powell, R.E., Kennedy, S.A., Bunyapanasarn, T.P., Koukladas, Catherine, Hauser, R.M., and Cossette, P.M., 1998b, Geologic-point attributes for digital geologic map databases produced by the Southern California Areal Mapping Project (SCAMP), Version 1.0: U.S.Geological Survey Open-File Report 97-859

APPENDIX I

Identification_Information:

Identification_Information:

Citation:
Citation_Information:
Originator: Douglas M. Morton
Originator: Jonathan C. Matti
Publication_Date: 2001
Title: Geologic Map of the Devore 7.5' quadrangle, San Bernardino County, California
Edition: Version 1.0
Geospatial_Data_Presentation_Form: vector digital data
Series_Information:
Series_Name: U.S. Geological Survey Open-File Report
Issue_Identification: USGS OF 01-173
Publication_Information:
Publication_Place: Menlo Park, California
Publisher: U.S. Geological Survey
Online_Linkage: URL:http://geopubs.wr.usgs.gov/open-file/of01-173

Description:

Abstract:
This data set maps and describes the geology of the Devore 7.5' quadrangle, San Bernardino County, California. Created using Environmental Systems Research Institute's ARC/INFO software, the data base consists of the following items: (1) a map coverage containing geologic contacts and units, (2) attribute tables for geologic units (polygons), contacts (arcs), and site-specific data (points). In addition, the data set includes the following graphic and text products: (1) A PostScript graphic plot-file containing the geologic map, topography, cultural data, a Correlation of Map Units (CMU) diagram, a Description of Map Units (DMU), an index map, a regional geologic and structure map, and a key for point and line symbols; (2) PDF files of this Readme (including the metadata file as an appendix), Description of Map Units (DMU), and the graphic produced by the PostScript plot file.

The Devore quadrangle straddles part of the boundary between two major physiographic provinces of California, the Transverse Ranges Province to the north and the Peninsular Ranges Province to the south. The north half of the quadrangle includes the eastern San Gabriel Mountains and a small part of the western San Bernardino Mountains, both within the east-central part of the Transverse Ranges Province. South of the Cucamonga and San Andreas Fault zones, the extensive alluviated area in the south half of the quadrangle lies within the upper Santa Ana River Valley, and represents the northernmost part of the Peninsular Ranges Province.

There are numerous active faults within the quadrangle, including right-lateral strike-slip faults of the San Andreas Fault system, which dominate the younger structural elements, and separate the San Gabriel from the San Bernardino Mountains. The active San Jacinto Fault zone projects toward the quadrangle from the southeast, but its location is poorly constrained not only within the quadrangle, but for at least several kilometers to the southeast. As a result, the interrelation between it, the Glen Helen Fault, and the probable easternmost part of the San Gabriel Fault is intrepretive. Thrust faults of the Cucamonga Fault zone along the south margin of the San Gabriel Mountains, represent the rejuvinated eastern end of a major old fault zone that bounds the south side of the western and central Transverse Ranges (Morton and Matti, 1993). Rejuvenation of this old fault zone, including the Cucamonga Fault zone, is apparently in response to compression in the eastern San Gabriel Mountains resulting from initiation of right-lateral slip on the San Jacinto Fault zone in the Peninsular Ranges.The structural grain within the San Gabriel Mountains, as defined by basement rocks, is generally east striking. Within the Devore quadrangle, these basement rocks include a Paleozoic (?) schist, quartzite, and marble metasedimentary sequence, which occurs as discontinuous lenses and septa within Cretaceous granitic rocks. Most of the granitic rocks are of tonalitic composition, and much of them are mylonitic. South of the granitic rocks is a complex assemblage of Proterozoic (?) metamorphic rocks, at least part of which is metasedimentary. The assemblage was metamorphosed to upper amphibolite and lower granulite grade, and subsequently remetamorphosed to a lower metamorphic grade. It is also intensely deformed by mylonitization which is characterized by an east striking, north dipping foliation, and by a pronounced lineation that plunges shallowly east and west.

East of Lytle Creek and west of the San Andreas Fault zone, the predominant basement lithology is Mesozoic Pelona Schist, which consists mostly of greenschist grade metabasalt and metagraywacke. Intruding the Pelona Schist, between Lytle Creek and Cajon Canyon, is the granodiorite of Telegraph Peak of Oligocene age (May and Walker, 1989). East of the San Andreas Fault in the San Bernardino Mountains, basement rocks consist of amphibolite grade gneiss and schist intermixed with concordant and discordant tonalitic rock and pegmatite. Tertiary conglomerate and sandstone occur in the Cucamonga Fault zone and in a zone 200 to 700 m wide between strands of the San Andreas Fault zone and localized thrust faults northeast of the San Andreas. Most of the conglomerate and sandstone within the Cucamonga Fault zone is overturned forming the north limb of an overturned syncline. Clasts in the conglomerate are not derived from any of the basement rocks in the eastern San Gabriel Mountains. Clasts in the conglomerate and sandstone northeast of the San Andreas Fault zone do not appear to be locally derived either. The south half of the quadrangle is dominated by the large symmetrical alluvial-fan emanating from the canyon of Lytle Creek, and by the complex braided stream sediments of Lytle Creek and Cajon Wash.

The San Andreas Fault is restricted to a relatively narrow zone marked by a pronounced scarp that is especially well exposed near the east margin of the quadrangle. Two poorly exposed, closely spaced, north-dipping thrust faults northeast of the San Andreas Fault have dips that appear to range from 55° to near horizontal. The shallower dips probably are the result of rotation of initially steeper fault surfaces by downhill surface creep. Between the San Andreas and Glen Helen Fault zones, there are several faults that have north facing scarps, the largest of which are the east striking Peters Fault and the northwest striking Tokay Hill Fault. The Tokay Hill Fault is at least in part a reverse fault. Scarps along both faults are youthful appearing.

The Glen Helen Fault zone along the west side of Cajon Creek, is well defined by a pronounced scarp from the area north of Interstate 15, south through Glen Helen

Regional Park; an elongate sag pond is located within the park.

The large fault zone along Meyers Canyon, between Penstock and Lower Lytle Ridges, is probably the eastward extension of the San Gabriel Fault zone that is deformed into a northwest orientation due to compression in the eastern San Gabriel Mountains (Morton and Matti, 1993). At the south end of Sycamore Flat, this fault zone consists of three discreet faults distributed over a width of 300 m. About 2.5 km northwest of Sycamore Flats, it consists of a 300 m wide shear zone. At the north end of Penstock Ridge, the fault zone has bifurcated into four strands, which at the northwest corner of the quadrangle are distributed over a width of about one kilometer. From the northern part of Sycamore Flat, for a distance of nearly 5 km northwestward, a northeast dipping reverse fault is located along the east side of the probable San Gabriel Fault zone. This youthful reverse fault has locally placed the Oligocene granodiorite of Telegraph Peak over detritus derived from the granodiorite.

The Lytle Creek Fault, which is commonly considered the western splay of the San Jacinto Fault zone, is located on the west side of Lytle Creek. Lateral displacement on the Lytle Creek Fault has offset parts of the old Lytle Creek channel; this offset gravel-filled channel is best seen at Texas Hill, near the mouth of Lytle Creek, where the gravel was hydraulic mined for gold in the 1890s.

The Cucamonga Fault zone consists of a one kilometer wide zone of northward dipping thrust faults. Most splays of this fault zone dip north 25° to 35°.

The geologic map database contains original U.S. Geological Survey data generated by detailed field observation and by interpretation of aerial photographs. This digital Open-File map supercedes an older analog Open-File map of the quadrangle, and includes extensive new data on the Quaternary deposits, and revises some fault and bedrock distribution within the San Gabriel Mountains. The digital map was compiled on a base-stable cronoflex copy of the Devore 7.5' topographic base and then scribed. This scribe guide was used to make a 0.007 mil blackline clear-film, from which lines and point were hand digitized. Lines, points, and polygons were subsequently edited at the USGS using standard ARC/INFO commands. Digitizing and editing artifacts significant enough to display at a scale of 1:24,000 were corrected. Within the database, geologic contacts are represented as lines (arcs), geologic units as polygons, and site-specific data as points. Polygon, arc, and point attribute tables (.pat, .aat, and .pat, respectively) uniquely identify each geologic datum.

Purpose:

The data set for the Devore 7.5' quadrangle was prepared under the U.S. Geological Survey Southern California Areal Mapping Project (SCAMP) as part of an ongoing effort to develop a regional geologic framework of southern California, and to utilize a Geographical Information System (GIS) format to create regional digital geologic databases. These regional databases are being developed as contributions to the National Geologic Map Database of the National Cooperative Geologic Mapping Program of the USGS.

The digital geologic map database for the Devore 7.5' quadrangle has been created as a general-purpose data set that is applicable to other land-related investigations in the earth and biological sciences. For example, it can be used for groundwater studies in the San Bernardino basin, and for mineral resource evaluation studies, animal and plant habitat studies, and soil studies in the San Bernardino National Forest. The database is not suitable for site-specific geologic evaluations.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 19740401

Ending_Date: 19810801

Currentness_Reference: New data and previously published data
Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed

Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -117.50009251
East_Bounding_Coordinate: -117.37490753
North_Bounding_Coordinate: 34.24999997
South_Bounding_Coordinate: 34.12498409

Keywords:
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: geologic map
Theme_Keyword: geology
Theme_Keyword: bedrock geology
Theme_Keyword: surficial geology
Theme_Keyword: San Andreas Fault
Theme_Keyword: San Jacinto Fault
Theme_Keyword: Cucamonga Fault
Theme_Keyword: San Gabriel Mountains
Theme_Keyword: Pelona Schist
Place:
Place_Keyword_Thesaurus: None

Place_Keyword: California
Place_Keyword: San Bernardino County
Place_Keyword: Devore 7.5' quadrangle
Access_Constraints: None

Use_Constraints:
The Devore 7.5' geologic-map database should be used to evaluate and understand the geologic character of the Devore 7.5' quadrangle as a whole. The data should not be used for purposes of site-specific land-use planning or site-specific geologic evaluations. The database is sufficiently detailed to identify and characterize geologic materials and structures. However, it is not sufficiently detailed for site-specific determinations.

Use of this digital geologic map database should not violate the spatial resolution of the data. Although the digital form of the data removes the constraint imposed by the scale of a paper map, the detail and accuracy inherent in map scale are also present in the digital data. The fact that this database was compiled and edited at a scale of 1:24,000 means that higher resolution information may not have been uniformly retained in the dataset. Plotting at scales larger than 1:24,000 will not yield greater real detail, although it may reveal fine-scale irregularities below the intended resolution of the database. Similarly, although higher resolution data is incorporated in parts of the map, the resolution of the combined output will be limited by the lower resolution data.

Point_of_Contact:
Contact_Information:
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Contact_Person: Douglas M. Morton
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Browse_Graphic:
Browse_Graphic_File_Name: http://geopubs.wr.usgs.gov/open-file/of01-173/images/devre_browse.jpg
Browse_Graphic_File_Description:
Non-navigable .jpg image of the geologic map, topographic base, Correlation of Map Units, Description of Map Units and key to point and line symbols.
Browse_Graphic_File_Type: .jpg
Browse_Graphic:
Browse_Graphic_File_Name: http://geopubs.wr.usgs.gov/open-file/of01-173/images/devre_map.pdf
Browse_Graphic_File_Description:
Navigable portable document file (.pdf) image of the geologic map, topographic base, Correlation of Map Units, Description of Map Units and key to point and line symbols.
Browse_Graphic_File_Type: .pdf
Data_Set_Credit:
Technical review by F.K. Miller led to significant improvements that eventually were reflected in aspects of the database, the plot file, and in the description of the geologic units of the Devore 7.5' quadrangle. Digital review by R.W. Graymer has allowed us to prepare a much improved product.

Geologic mapping and digital preparation of this report were sponsored jointly by (1) the National Cooperative Geologic Mapping Program of the U.S. Geological Survey, (2) the California Division of Mines and Geology, and (3) the Southern California Areal Mapping Project (SCAMP). In our digital preparation of the data set, carried out in the SCAMP Geographic Information System laboratory at the University of California, Riverside by Gregory L. Morton and Catherine Koukladas, and in the USGS Geographic Information System laboratory of the Mineral Resources Program of the U.S. Geological Survey in Spokane, Washington by Pamela M. Cossette, we received valuable assistance from Rachel Alvarez in Riverside, California, and from Paul C. Hyndman in Spokane, Washington.

Native_Data_Set_Environment:
SunOS, 5.7, sun4u UNIX
ARC/INFO version 7.2.1

Cross_Reference:
Citation_Information:
Originator: D.M. Morton
Originator: J.C. Matti
Publication_Date: 1991

Title: Geologic map of the Devore 7.5' quadrangle, San Bernardino County, California
Edition: Version 1.0
Geospatial_Data_Presentation_Form: paper map
Series_Information:
Series_Name: U.S. Geological Survey Open-File Report
Issue_Identification: USGS OF 90-695
Publication_Information:
Publication_Place: Menlo Park, California
Publisher: U.S. Geological Survey

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report:
Geologic-map units in the Devore quadrangle database were described using standard field methods. Consistent with these methods, the database author has assigned standard geologic attributes to geologic lines, points, and polygons identified in the database.

Nation-wide geologic-map accuracy standards have not been developed and adopted by the U.S. Geological Survey and other earth-science entities. Until such standards are adopted, the SCAMP project has developed internal map-accuracy standards for 1:24,000-scale geologic maps produced by the project.

Geologic lines and points on 1:24,000 scale geologic maps are judged to meet SCAMP's internal map-accuracy standards if they are located to within +/-15 meters, relative to topographic or cultural features on the base map.

Lines and points that meet (or may not meet) this SCAMP internal map-accuracy standard are identified both in the digital database and on derivative geologic-map plots. Within the database, line and point data that are judged to meet the SCAMP internal map-accuracy standard are denoted by the attribute code .MEE. (meets) in the appropriate data table; line and point data that may not meet the SCAMP internal map-accuracy standard are denoted by the attribute code .MNM. (may not meet).

On any derivative geologic-map plot, line data that are judged to meet the SCAMP internal map-accuracy standard are denoted by solid lines; line data that may not meet the SCAMP internal map-accuracy standard are denoted by dashed or dotted lines. There is no cartographic device for denoting the map-accuracy for geologic-point data (eg. symbols representing bedding, foliation, lineations, etc.).
Logical_Consistency_Report:
Polygon and chain-node topology present.

The areal extent of the map is represented digitally by an appropriately projected (Polyconic projection), mathematically generated box. Consequently, polygons intersecting the lines that comprise the map boundary are closed by that boundary. Polygons internal to the map boundary are completely enclosed by line segments which are themselves a set of sequentially numbered coordinate pairs. Point data are represented by coordinate pairs.

Completeness_Report:
The geologic map and digital database of the Devore 7.5' quadrangle contain new data that have been subjected to rigorous review and are a substantially complete representation of the current state of knowledge concerning the geology of the quadrangle.

Positional_Accuracy:
Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:
The maximum transformation RMS error acceptable for 7.5' quadrangle transformation and data input is 0.003 (7.6 meters). Horizontal positional accuracy was checked by visual comparison of hard-copy plots with base-stable source data.

Lineage:
Process_Step:
Process_Description:
Field mapping and aerial photograph interpretation; iterative process (D.M. Morton, J.C. Matti).
Process_Date: 1977 to 1978 and 1988 to 1989

Process_Step:
Process_Description:
Aerial photograph interpretation and limited field checking; iterative process (J.C. Matti).
Process_Date: 1989
Process_Step:
Process_Description:
Transfer of geologic linework and point data from field maps and aerial photographs to a scale-stable cartographic base of quadrangle (scribeguide) (D.M. Morton and J.C. Matti).
Process_Date: 1978 and 1989
Process_Step:
Process_Description: Description of Map Units and Correlation of Map Units (D.M. Morton, J.C. Matti).
Process_Date: 1997
Process_Step:
Process_Description:
The geologic map information was hand digitized from a clear-film, right-reading, 0.007 mil thickness, base-stable blackline positive (made by contact photograph from a scribeguide) of the authors-prepared geologic map at 1:24,000 scale (G. Morton, C. Koukladas).
Process_Date: 1997
Process_Step:
Process_Description:
ARC/INFO database established; cleanup of digitizing artifacts; polygon, arc, and point attribute tables established using model developed for SCAMP coverages. Digitizing and editing artifacts significant enough to display at a scale of 1:24,000 were corrected (P.M. Cossette).
Process_Date: 1997, 1998 and 2001
Process_Step:
Process_Description:
First draft of metadata created by cossette using FGDCMETA.AML ver. 1.2 05/14/98 on ARC/INFO data set /pool5/b/pcossette/devore/devcovs-of/devre_geo
Process_Date: 20010214

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Point
Point_and_Vector_Object_Count: 1517
SDTS_Point_and_Vector_Object_Type: String
Point_and_Vector_Object_Count: 3724
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
Point_and_Vector_Object_Count: 1518

Spatial_Reference_Information:
 Horizontal_Coordinate_System_Definition:
  Planar:
   Map_Projection:
    Map_Projection_Name: Polyconic
    Polyconic:
     Longitude_of_Central_Meridian: -117.4375
     Latitude_of_Projection_Origin: 34.1250
     False_Easting: 0.00000
     False_Northing: 0.00000
   Planar_Coordinate_Information:
    Planar_Coordinate_Encoding_Method: coordinate pair
    Coordinate_Representation:
     Abscissa_Resolution: 0.0027668476104
     Ordinate_Resolution: 0.0027668476104
    Planar_Distance_Units: Meters
  Geodetic_Model:
   Horizontal_Datum_Name: North American Datum of 1927
   Ellipsoid_Name: Clarke 1866
   Semi-major_Axis: 6378206.4
   Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:
 Overview_Description:
  Entity_and_Attribute_Overview:
   Version 1.0 of the Devore 7.5' quadrangle comprises three ARC/INFO coverages, of which two contain geologic data and one contains cartographic features: devre_geo (geology), devre_str (structural point data), and devre_ldr (annotation leaders). Line and point identities are recorded in the .aat and .pat tables using a system of identity codes. Two INFO tables, lines.rel and points.rel provide a full description of each of the geologic line and point codes in the database. A full source citation is provided in the Entity_and Attribute_Detail_Citation section of this metadata document.

   Geologic data represented by line entities and the polygons they delineate are contained in the coverage DEVRE_GEO. For display purposes, the geology coverage contains two annotation subclasses: anno.geo contains unit labels, and anno.fault contains formal, fault names.

   Geological point data includes site-specific information describing the types and the orientation of bedding, foliation, and lineations. One annotation subclass is included in the geologic points coverage, DEVRE_STR: anno.dip displays the respective dip and plunge values associated with individual point data.
  Entity_and_Attribute_Detail_Citation:
   A complete description of the polygon, line, and point data coding schemes is available in U.S. Geological Survey Open-File Reports OFR 97-859, OFR 97-860, and OFR 97-861 (full source citations follow):

   Matti, J.C., Miller, F.K., Powell, R.E., Kennedy, S.A., Bunyapanasarn, T.P., Koukladas, Catherine, Hauser, R.M., and Cossette, P.M., 1997b, Geologic-point attributes for digital geologic-map databases produced by the Southern California Areal Mapping Project (SCAMP), Version 1.0: U.S.Geological Survey Open-File Report 97-859

   Matti, J.C., Miller, F.K., Powell, R.E., Kennedy, S.A., and Cossette, P.M., 1997c, Geologic-polygon attributes for digital geologic-map databases produced by the Southern California Areal Mapping Project (SCAMP), Version 1.0: U.S.Geological Survey Open-File Report 97-860

Matti, J.C., Powell, R.E., Miller, F.K., Kennedy, S.A., Ruppert, K.R., Morton, G.L., and Cossette, P.M., 1997a, Geologic-line attributes for digital geologic-map databases produced by the Southern California Areal Mapping Project (SCAMP), Version 1.0: U.S.Geological Survey Open-File Report 97-861

Detailed_Description:
Entity_Type:
Entity_Type_Label: devre_geo.pat
Entity_Type_Definition:
Geologic units (LABL) and their corresponding names (NAME) identified in the Devore 7.5'quadrangle
Attribute:
Attribute_Label: SHDPS
Attribute_Definition: polygon color (as integer value) from shadeset scamp2.shd (included in the data package)
Attribute:
Attribute_Label: SHDFIL
Attribute_Definition:
polygon fill pattern (as integer value) from shadeset geology2.shd (included in the data package)
Attribute:
Attribute_Label: LABL
Attribute_Definition: geologic map unit label, in plain text
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Kg
Enumerated_Domain_Value_Definition: Monzogranite and granodiorite
Enumerated_Domain:
Enumerated_Domain_Value: Kgc
Enumerated_Domain_Value_Definition: Mylonitic leucogranite
Enumerated_Domain:
Enumerated_Domain_Value: Kgm
Enumerated_Domain_Value_Definition: Leucocratic muscovite monzogranite
Enumerated_Domain:
Enumerated_Domain_Value: Kmg
Enumerated_Domain_Value_Definition: Biotite monzogranite
Enumerated_Domain:
Enumerated_Domain_Value: Kt
Enumerated_Domain_Value_Definition: Tonalite of San Sevaine Lookout
Enumerated_Domain:
Enumerated_Domain_Value: Ktm1
Enumerated_Domain_Value_Definition: Mylonitized tonalite of San Sevaine Lookout
Enumerated_Domain:
Enumerated_Domain_Value: Mzgn
Enumerated_Domain_Value_Definition: Gneiss east of San Andreas Fault zone
Enumerated_Domain:
Enumerated_Domain_Value: Mzpg
Enumerated_Domain_Value_Definition: Greenstone
Enumerated_Domain:
Enumerated_Domain_Value: Mzps
Enumerated_Domain_Value_Definition: Siliceous schist
Enumerated_Domain:
Enumerated_Domain_Value: TMztp
Enumerated_Domain_Value_Definition: Pelona Schist and granodiorite of Telegraph Peak
Enumerated_Domain:
Enumerated_Domain_Value: Mzpw
Enumerated_Domain_Value_Definition: Muscovite schist

Enumerated_Domain:
Enumerated_Domain_Value: Prg
Enumerated_Domain_Value_Definition: Granulitic gneiss, mylonite, and cataclasite, unretrograded
Enumerated_Domain:
Enumerated_Domain_Value: Prm
Enumerated_Domain_Value_Definition: Granulitic gneiss, mylonite, and cataclasite
Enumerated_Domain:
Enumerated_Domain_Value: Pzs
Enumerated_Domain_Value_Definition: Schist and gneiss
Enumerated_Domain:
Enumerated_Domain_Value: KPzgs
Enumerated_Domain_Value_Definition: Schist, gneiss, monzogranite, and granodiorite
Enumerated_Domain:
Enumerated_Domain_Value: KPzts
Enumerated_Domain_Value_Definition: Schist, gneiss, and tonalite
Enumerated_Domain:
Enumerated_Domain_Value: Qaf
Enumerated_Domain_Value_Definition: Artificial fill
Enumerated_Domain:
Enumerated_Domain_Value: Qc
Enumerated_Domain_Value_Definition: Modern colluvial deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qf
Enumerated_Domain_Value_Definition: Modern alluvial-fan deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qf1
Enumerated_Domain_Value_Definition: Modern alluvial-fan deposits, Unit 1
Enumerated_Domain:
Enumerated_Domain_Value: Qfb
Enumerated_Domain_Value_Definition: Modern alluvial-fan deposits, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qfg
Enumerated_Domain_Value_Definition: Modern alluvial-fan deposits, gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qls
Enumerated_Domain_Value_Definition: Modern landslide deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qoa
Enumerated_Domain_Value_Definition: Old alluvial-valley deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qoa1
Enumerated_Domain_Value_Definition: Old alluvial-valley deposits, Unit 1
Enumerated_Domain:
Enumerated_Domain_Value: Qof
Enumerated_Domain_Value_Definition: Old alluvial-fan deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qof1b
Enumerated_Domain_Value_Definition: Old alluvial-fan deposits, Unit 1, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qof2b
Enumerated_Domain_Value_Definition: Old alluvial-fan deposits, Unit 2, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qof3
Enumerated_Domain_Value_Definition: Old alluvial-fan deposits, Unit 3
Enumerated_Domain:
Enumerated_Domain_Value: Qofb

Enumerated_Domain_Value_Definition: Old alluvial-fan deposits, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qols
Enumerated_Domain_Value_Definition: Old landslide deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qsw
Enumerated_Domain_Value_Definition: Modern slopewash deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qt
Enumerated_Domain_Value_Definition: Modern talus deposits
Enumerated_Domain:
Enumerated_Domain_Value: Quarry
Enumerated_Domain_Value_Definition: Disturbed ground
Enumerated_Domain:
Enumerated_Domain_Value: Qvof
Enumerated_Domain_Value_Definition: Very old alluvial-fan deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qvof1b
Enumerated_Domain_Value_Definition: Very old alluvial-fan deposits, Unit 1, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qvof2
Enumerated_Domain_Value_Definition: Very old alluvial-fan deposits, Unit 2
Enumerated_Domain:
Enumerated_Domain_Value: Qvof2b
Enumerated_Domain_Value_Definition: Very old alluvial-fan deposits, Unit 2, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qvof2g
Enumerated_Domain_Value_Definition: Very old alluvial-fan deposits, Unit 2, gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qvofb
Enumerated_Domain_Value_Definition: Very old alluvial-fan deposits, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qvolsa
Enumerated_Domain_Value_Definition: Very old landslide deposits, arenaceous
Enumerated_Domain:
Enumerated_Domain_Value: Qvowb
Enumerated_Domain_Value_Definition: Very old wash deposits, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qw
Enumerated_Domain_Value_Definition: Modern wash deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qw1
Enumerated_Domain_Value_Definition: Modern wash deposits, Unit 1
Enumerated_Domain:
Enumerated_Domain_Value: Qw2
Enumerated_Domain_Value_Definition: Modern wash deposits, Unit 2
Enumerated_Domain:
Enumerated_Domain_Value: Qw2b
Enumerated_Domain_Value_Definition: Modern wash deposits, Unit 2, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qwb
Enumerated_Domain_Value_Definition: Modern wash deposits, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qya4
Enumerated_Domain_Value_Definition: Young alluvial-valley deposits, Unit 4
Enumerated_Domain:

Enumerated_Domain_Value: Qya5
Enumerated_Domain_Value_Definition: Young alluvial-valley deposits, Unit 5
Enumerated_Domain:
Enumerated_Domain_Value: Qyf
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qyf1b
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, Unit 1, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qyf2b
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, Unit 2, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qyf3
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, Unit 3
Enumerated_Domain:
Enumerated_Domain_Value: Qyf3b
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, Unit 3, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qyf4
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, Unit 4
Enumerated_Domain:
Enumerated_Domain_Value: Qyf4b
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, Unit 4, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qyf4g
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, Unit 4, gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qyf5
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, Unit 5
Enumerated_Domain:
Enumerated_Domain_Value: Qyf5b
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, Unit 5, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qyfb
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, boulder gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qyfc
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, clayey
Enumerated_Domain:
Enumerated_Domain_Value: Qyfg
Enumerated_Domain_Value_Definition: Young alluvial-fan deposits, gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qyls
Enumerated_Domain_Value_Definition: Young landslide deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qyt
Enumerated_Domain_Value_Definition: Young talus deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qyw
Enumerated_Domain_Value_Definition: Young wash deposits
Enumerated_Domain:
Enumerated_Domain_Value: Ta
Enumerated_Domain_Value_Definition: Andesitic dikes
Enumerated_Domain:
Enumerated_Domain_Value: Tc
Enumerated_Domain_Value_Definition: Conglomerate

Enumerated_Domain:
Enumerated_Domain_Value: Tc1
Enumerated_Domain_Value_Definition: Volcanic-clast conglomerate
Enumerated_Domain:
Enumerated_Domain_Value: Td3
Enumerated_Domain_Value_Definition: Olivine diabase and gabbro
Enumerated_Domain:
Enumerated_Domain_Value: Ttd
Enumerated_Domain_Value_Definition: Hypabyssal dike
Enumerated_Domain:
Enumerated_Domain_Value: Ttp
Enumerated_Domain_Value_Definition: Granodiorite of Telegraph Peak
Enumerated_Domain:
Enumerated_Domain_Value: Ts
Enumerated_Domain_Value_Definition: Arkosic sandstone
Enumerated_Domain:
Enumerated_Domain_Value: cgm1
Enumerated_Domain_Value_Definition: Chloritized, cataclastic granitic rock
Enumerated_Domain:
Enumerated_Domain_Value: fz
Enumerated_Domain_Value_Definition: Crushed rock in fault zones
Enumerated_Domain:
Enumerated_Domain_Value: gnm
Enumerated_Domain_Value_Definition: Cataclastic gneiss
Enumerated_Domain:
Enumerated_Domain_Value: m
Enumerated_Domain_Value_Definition: Marble
Attribute:
Attribute_Label: PLABL
Attribute_Definition:
Coded geologic map unit label used to generate plot labels with relevant stratigraphic symbols. The geologic units with LABL designating Mesozoic (Mz), Paleozoic (Pz), and Proterozoic (Pr) have keystroke substitute characters, }, |, and < respectively, that call their corresponding symbols from the Geoage Font Group. Geologic map unit labels will plot on derivative map plots with appropriate stratigraphic symbols if PLABL is used as the source for unit labels. The Geoage Font Group is accessed through geofont.txt. The GeoAge Font Group and relevant information are available by anonymous FTP from: Server: onyx.wr.usgs.gov
Attribute:
Attribute_Label: NAME
Attribute_Definition: Geologic name of map unit (see list under LABL attribute)
Detailed_Description:
Entity_Type:
Entity_Type_Label: devre_geo.aat
Entity_Type_Definition:
Geologic features such as contacts and faults that bound rock-unit polygons (a complete description of each line type is available in the data table, lines.rel.)
Attribute:
Attribute_Label: L-TAG
Attribute_Definition:
Coded alpha-numerical symbol that relates arc to definition of line type in dictionary look-up table (lines.rel). For description of attributes in line classification dictionary, refer to USGS Open-File Report 97-861 (see Entity_and_Attribute_Detail_Citation)
Attribute_Domain_Values:
Enumerated_Domain:

Enumerated_Domain_Value: C1
Enumerated_Domain_Value_Definition: Contact, generic, certain, location meets map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C100
Enumerated_Domain_Value_Definition: Contact, scratch boundary, metamorphic
Enumerated_Domain:
Enumerated_Domain_Value: C17
Enumerated_Domain_Value_Definition: Contact, landslide, certain, location meets map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C18
Enumerated_Domain_Value_Definition: Contact, landslide, certain, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C19
Enumerated_Domain_Value_Definition: Contact, landslide, inferred, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C20
Enumerated_Domain_Value_Definition: Contact, landslide, concealed, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C29
Enumerated_Domain_Value_Definition: Contact, sedimentary, certain, location meets map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C30
Enumerated_Domain_Value_Definition: Contact, sedimentary, certain, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C31
Enumerated_Domain_Value_Definition: Contact, sedimentary, inferred, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C32
Enumerated_Domain_Value_Definition: Contact, sedimentary, concealed, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C34
Enumerated_Domain_Value_Definition: Contact, sedimentary, questionable, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C37
Enumerated_Domain_Value_Definition:
Contact, sedimentary, separates terraced alluvial units, certain, location meets map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C38
Enumerated_Domain_Value_Definition:
Contact, sedimentary, certain, separates terraced alluvial units, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C49
Enumerated_Domain_Value_Definition: Contact, igneous, location meets map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C50
Enumerated_Domain_Value_Definition: Contact, igneous, location may not meet map accuracy standard
Enumerated_Domain:

Enumerated_Domain_Value: C51
Enumerated_Domain_Value_Definition: Contact, igneous, inferred, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C66
Enumerated_Domain_Value_Definition: Contact, metamorphic, certain, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C67
Enumerated_Domain_Value_Definition: Contact, metamorphic, inferred, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: C99
Enumerated_Domain_Value_Definition: Contact, igneous, scratch boundary
Enumerated_Domain:
Enumerated_Domain_Value: CL1
Enumerated_Domain_Value_Definition: Cartographic line, map boundary
Enumerated_Domain:
Enumerated_Domain_Value: F1
Enumerated_Domain_Value_Definition: Fault, high angle, slip unspecified, location meets map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: F11
Enumerated_Domain_Value_Definition: Fault, high angle, reverse slip, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: F13
Enumerated_Domain_Value_Definition:
Fault, high angle, slip unspecified, inferred, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: F177
Enumerated_Domain_Value_Definition: Fault, thrust, older over younger, certain, location meets map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: F178
Enumerated_Domain_Value_Definition: Fault, thrust, older over younger, certain, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: F180
Enumerated_Domain_Value_Definition:
Fault, thrust, older over younger, concealed, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: F182R
Enumerated_Domain_Value_Definition:
Fault, thrust, older over younger, questionable, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: F183R
Enumerated_Domain_Value_Definition:
Fault, thrust, older over younger, questionable, concealed, location may not meet map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: F19
Enumerated_Domain_Value_Definition:

Fault, high angle, slip unspecified, concealed, location may not meet map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F193

Enumerated_Domain_Value_Definition: Fault, thrust, older over younger, scarp, certain, location meets map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F2

Enumerated_Domain_Value_Definition:

Fault, high angle, right lateral strike slip, certain, location meets map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F20

Enumerated_Domain_Value_Definition:

Fault, high angle, right lateral strike slip, concealed, location may not meet map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F37

Enumerated_Domain_Value_Definition:

Fault, high angle, slip unspecified, questionable, concealed, location may not meet map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F44

Enumerated_Domain_Value_Definition:

Fault, high angle, right lateral strike slip, questionable, concealed, location may not meet map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F49

Enumerated_Domain_Value_Definition:

Fault, high angle, slip unspecified, scarp, certain, location meets map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F50

Enumerated_Domain_Value_Definition:

Fault, high angle, right lateral strike slip, scarp, certain, location meets map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F55

Enumerated_Domain_Value_Definition:

Fault, high angle, slip unspecified, scarp, certain, location may not meet map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F56

Enumerated_Domain_Value_Definition:

Fault, high angle, right lateral strike slip, scarp, certain, location may not meet map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F61R

Enumerated_Domain_Value_Definition:

Fault, high angle, slip unspecified, scarp, questionable, location may not meet map accuracy standard

Enumerated_Domain:

Enumerated_Domain_Value: F7

Enumerated_Domain_Value_Definition:

Fault, high angle, slip unspecified, certain, location may not meet map accuracy standard

Enumerated_Domain:
Enumerated_Domain_Value: F8
Enumerated_Domain_Value_Definition:
Fault, high angle, right lateral strike slip, certain, location meets map accuracy standard
Enumerated_Domain:
Enumerated_Domain_Value: GF9
Enumerated_Domain_Value_Definition:
Geomorphic feature, ground failure crown scarp, located well but may not meet map accuracy standard
Attribute:
Attribute_Label: L-SYMB
Attribute_Definition: stores appropriate line symbol value from the lineset geoscamp2.lin
Attribute:
Attribute_Label: L-NAME
Attribute_Definition: Formal name of fault
Detailed_Description:
Entity_Type:
Entity_Type_Label: devre_str.pat
Entity_Type_Definition:
Geological point data includes site-specific information describing the types and the orientation of bedding, foliation, and lineations. One annotation subclass is included in the geologic points coverage, DEVRE_STR: anno.dip displays the respective dip and plunge values associated with individual point data.
Attribute:
Attribute_Label: P-TAG
Attribute_Definition:
Coded alpha-numerical value that relates point entity to definition of point type in dictionary INFO table, points.rel. For description of attributes in point classification dictionary, refer to USGS Open-File Report 97-859 (see Entity_and_Attribute_Detail_Citation)
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: B1
Enumerated_Domain_Value_Definition: Bedding, sedimentary, horizontal
Enumerated_Domain:
Enumerated_Domain_Value: B2
Enumerated_Domain_Value_Definition: Bedding, sedimentary, inclined
Enumerated_Domain:
Enumerated_Domain_Value: B4
Enumerated_Domain_Value_Definition: Bedding, sedimentary, vertical
Enumerated_Domain:
Enumerated_Domain_Value: B6
Enumerated_Domain_Value_Definition: Bedding, sedimentary, overturned
Enumerated_Domain:
Enumerated_Domain_Value: FC4
Enumerated_Domain_Value_Definition: Direction and dip of fault
Enumerated_Domain:
Enumerated_Domain_Value: FN42
Enumerated_Domain_Value_Definition: Foliation, metamorphic, inclined
Enumerated_Domain:
Enumerated_Domain_Value: FN43
Enumerated_Domain_Value_Definition: Foliation, metamorphic, vertical
Enumerated_Domain:
Enumerated_Domain_Value: L10
Enumerated_Domain_Value_Definition: Lineation, metamorphic, horizontal

Enumerated_Domain:
Enumerated_Domain_Value: L22
Enumerated_Domain_Value_Definition: Lineation, metamorphic, aligned mineral grains
Enumerated_Domain:
Enumerated_Domain_Value: L66
Enumerated_Domain_Value_Definition: Lineation, unspecified
Attribute:
Attribute_Label: P-SYMB
Attribute_Definition:
Coded integer value that relates point to cartographic point symbol in markerset geoscamp2.mrk
Attribute:
Attribute_Label: P-STRIKE
Attribute_Definition: Azimuthal strike of planar feature
Attribute:
Attribute_Label: P-DIP
Attribute_Definition: Dip of planar feature
Attribute:
Attribute_Label: P-DIPDIR
Attribute_Definition: Azimuthal direction of dip of planar feature
Attribute:
Attribute_Label: P-PLUNGE
Attribute_Definition: Plunge of linear feature
Attribute:
Attribute_Label: P-BEARING
Attribute_Definition: Azimuthal direction of plunge of linear feature
Detailed_Description:
Entity_Type:
Entity_Type_Label: devre_ldr.aat
Entity_Type_Definition: Annotation leaders
Attribute:
Attribute_Label: L-SYMB
Attribute_Definition:
Coded integer value (1) that relates arcs to cartographic line symbol in lineset geoscamp2.lin
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Metadata_Standard_Version: FGDC-STD-001-1998
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