PRELIMINARY GEOLOGIC MAP OF THE MURRIETA 7.5' QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA

By Michael P. Kennedy[1] and Douglas M. Morton[2]

Digital preparation by Rachel M. Alvarez[2] *and* Greg Morton[3]

Prepared in cooperation with
CALIFORNIA GEOLOGICAL SURVEY

Open-File Report OF 03-189

2003

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

[1]California Geological Survey
655 South Hope St.
Los Angeles, CA 90017

[2]U.S. Geological Survey
Department of Earth Sciences
University of California
Riverside CA 92521

[3]Department of Earth Sciences
University of California
Riverside CA 92521

TABLE OF CONTENTS

INTRODUCTION

General

Open-File Report 03-189 contains a digital geologic map database of the Murrieta 7.5' quadrangle, Riverside County, California that includes:

1. ARC/INFO (Environmental Systems Research Institute, http://www.esri.com) version 7.2.1 coverages of the various elements 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 (CMU), a Description of Map Units (DMU), and an index map.
3. Portable Document Format (.pdf) files of:
    a. This Readme; includes in Appendix I, data contained in mur_met.txt
    b. The same graphic as plotted in 2 above. Test plots have not produced precise 1:24,000-scale map sheets. Adobe Acrobat page size setting influences map scale.

The Correlation of Map Units and Description of Map Units is in the editorial format of USGS Geologic 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. Where known, grain size is indicated on the map by a subscripted letter or letters following the unit symbols as follows: lg, large boulders; b, boulder; g, gravel; a, arenaceous; s, silt; c, clay;

e.g. Qyf_a is a predominantly young alluvial fan deposit that is arenaceous. Multiple letters are used for more specific identification or for mixed units, e.g., Qfy_{sa} is a silty sand. In some cases, mixed units are indicated by a compound symbol; e.g., Qyf_{2sc}.

Even though this is an Open-File Report and includes the standard USGS Open-File disclaimer, the report closely adheres 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).

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/metadata/open-file/03-189 and is included in Appendix I of this 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.

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 were extracted.

Data Package

All files listed below are in a compressed tar file named mur.tar.gz (2.5 Mb); see section below titled, SOFTWARE UTILITES.

ARC/INFO interchange files	Murrieta coverages	Contains
mur_geo.e00	mur_geo	Contacts, faults, geologic unit labels
mur_ano.e00	mur_ano	Annotation subclasses: GEO (for plotting unit labels) FAULT (for plotting fault names) Leaders
mur_str.e00	mur_str	Attitudes and their dip values. Dip values plotted as annotation.

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

Feature Attribute Tables

Polygon attribute table	mur_geo.pat
Arc attribute table	mur_geo.aat
	mur_ano.aat
Point attribute table	mur_str.pat
Annotation attribute table	mur_ano.tatgeo
	mur_ano.tatfault

Raster file	Resultant image	Contains
mur.tif	Murrieta base map	Topographic base from 500 dpi scan of USGS Murrieta 7.5' quadrangle, 1953

Plot Package

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

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

The Postscript file is compressed using winzip.

The uncompressed Postscript file mur_map.ps will plot a 1:24,000 scale, full color geologic map of the Murrieta quadrangle on the topographic base. A detailed CMU and DMU are included on the sheet. The sheet is in the editorial format of the U.S. Geological Survey's Geologic Investigations (I) map series, and is approximately 45 X 36 inches in size. The map sheet has been successfully plotted on Hewlett-Packard large-format plotters, models HP650C, HP755C, and HP2500C.

Symbols Package

Files in the plot package have been prepared to produce optimum plots using the shade, line, and marker sets listed below; these symbol sets and supporting fonts are included in a compressed tar file named symbols.tar.gz (0.04 Mb); see section below titled SOFTWARE UTILITIES.

geoSCAMP2.lin	Lineset
geoSCAMP2.mrk	Markerset for points
alc1.shd	Colors
geology2.shd	Pattern fills
fnt026	Font required for geoSCAMP2.lin
fnt037	Font required for geoSCAMP2.mrk
fnt035	Font required for geology2.shd

Special geologic characters used in unit designations are from the Geoage font group and may be obtained at the following web site:

Server:	onyx.wr.usgs.gov
UserID:	anonymous
Password:	Your e-mail address
Directory:	pub/wpg/supplies/geoage_1.1 pub/wpg/supplies/geoage_1.2

Other files

README.pdf	This document
mur_map.pdf	Pdf plot file of geologic map and CMU/DMU

SOFTWARE UTILITIES

Files which have a .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. Files with a .zip file extension were compressed using WinZip, available at http://www.winzip.com.

The data package and symbols package are additionally bundled into a single tar (tape archive) file. The 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/format.html. One such utility is WinZip, available at http://www.winzip.com.

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://geopubs.wr.usgs.gov/open-file/of03-189 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/. Be sure to use binary transfer mode or ASCII mode for individual .e00 (ARC interchange file format) files.

HOW TO EXTRACT THE GEOLOGIC MAP DATABASE FROM THE TAR FILE

Digital database

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 or Winzip.

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

mur/
- mur _geo.e00
- mur_str.e00
- mur_ano.e00
- mur.tif
- mur.tfw

The symbols.tar.gz file is imported using the same methods as for the mur.tar.gz file. It will create a directory, symbols/ that will contain the following files:

- geoSCAMP2.lin
- geoSCAMP2.mrk
- alc1.shd
- geology2.shd
- fnt026
- fnt037
- fnt035

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

mur_map.ps.gz
README.pdf
mur_map.pdf

Postscript plot files

Make a 17 MB uncompressed file, mur_map.ps (plot of complete map), by typing gzip -d mur_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., 1998). 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 compilation

The geologic map information was hand digitized from a base-stable original (ink on a greenline) of the geologic map at 1:24,000 scale. Digital tics were placed by hand at latitude/longitude intersections. The lines, points, and polygons were edited using standard ARC/INFO commands, and in some places, interactively by hand using graphical user interface ALACARTE (Fitzgibbon, 1991, Fitzgibbon and Wentworth, 1991, Wentworth and Fitzgibbon, 1991). Digitization and editing artifacts significant enough to display at a scale of 1:24,000 were corrected.

Base map

The base map image (mur.tif) was prepared by scanning a scale-stable clear film of the U.S. Geological Survey, 1:24,000 Murrieta 7.5' quadrangle (1953) 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 Murrieta 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 a few places, the resolution of the combined output will be limited by the lower resolution data.

Map accuracy standards

Until uniform National geologic map 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 as approximately located or inferred, are generally located within 30 meters, relative to accurately located features on the base map.

Faults and landslides

This database is sufficiently detailed to identify and characterize many actual and potential geologic hazards represented by faults and landslides, but it is not sufficiently detailed for site-specific determinations. Faults shown do not take the place of fault rupture hazard zones designated by the California State Geologist (see Hart, 1998).

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 2.5-minute grid of latitude and longitude in the geologic coverages corresponding to the 2.5-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	0.000000000
Y shift	0.000000000
Parameters	-117 11 15.000 longitude of central meridian
	33 30 0.00 latitude of projections 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 compose the map. See the metadata text file (Appendix I) for detailed descriptions.

Lines – Lines are recorded as strings of arcs and are described in an arc attribute (.aat) table. Complete lists of the line types (LTYPE) used in the quadrangle are available 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 (.pat) table (details in Appendix I). For traditional descriptions of the map units, see the Portable Document Format file mur_map.pdf or the Postscript map plot, mur_map.ps. A list of all map units in the database is given in Appendix I.

Points – Point information (attitudes of planar and linear features) is recorded as coordinate and related information. Complete lists of the point types (PTTYPE) used in the point coverage are available in Appendix I.

REFERENCES

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

Fitzgibbon, T.T., 1991, ALACARTE installation and system manual (version 1.0): U.S. Geological Survey, Open-File Report 91-587B

Fitzgibbon, T.T., and Wentworth, C.M., 1991, ALACARTE user interface – AML code and demonstration Maps (version 1.0): U.S. Geological Survey, Open-File Report 91-587A

Wentworth, C.M., and Fitzgibbon, T.T., 1991, ALACARTE user manual (version 1.0): U.S. Geological Survey Open-File Report 91-587C

APPENDIX I (original metadata text)

Identification_Information:

Citation:
Citation_Information:
Originator: Michael P. Kennedy
Originator: Douglas M. Morton
Publication_Date: 2003
Title: Preliminary Geologic Map of the Murrieta 7.5' Quadrangle, Riverside 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 OFR 03-189
Publication_Information:
Publication_Place: Menlo Park, California
Publisher: U.S. Geological Survey
Online_Linkage: URL:http://geopubs.wr.usgs.gov/open-file/of03-189

Description:

Abstract:
The Murrieta quadrangle is located in the northern part of the Peninsular Ranges Province and includes parts of two structural blocks, or structural subdivisions of the province. The quadrangle is diagonally crossed by the active Elsinore fault zone, a major fault zone of the San Andreas fault system, and separates the Santa Ana Mountains block to the west from the Perris block to the east. Both blocks are relatively stable internally and within the quadrangle are characterized by the presence of widespread erosional surfaces of low relief.

The Santa Ana Mountains block, in the Murrieta quadrangle, is underlain by undifferentiated, thick-layered, granular, impure quartzite and well-layered, fissile, phyllitic metamorphic rock of low metamorphic grade. Both quartzite and phyllitic rocks are Mesozoic. Unconformably overlying the metamorphic rocks are remnants of basalt flows having relatively unmodified flow surfaces. The age of the basalt is about 7-8Ma. Large shallow depressions on the surface of the larger basalt remnants form vernal ponds that contain an endemic flora. Beneath the basalt the upper part of the metamorphic rocks is deeply

weathered. The weathering appears to be the same as the regional Paleocene saprolitic weathering in southern California. West of the quadrangle a variable thickness sedimentary rock, physically resembling Paleogene rocks, occurs between the basalt and metamorphic rock. Where not protected by the basalt, the weathered rock has been removed by erosion.

The dominant feature on the Perris block in the Murrieta quadrangle is the south half of the Paloma Valley ring complex, part of the composite Peninsular Ranges batholith. The complex is elliptical in plan view and consists of an older ring-dike with two subsidiary short-arced dikes that were emplaced into gabbro by magmatic stoping. Small to large stoped blocks of gabbro are common within the ring-dikes. A younger ring-set of hundreds of thin pegmatite dikes occur largely within the central part of the complex. These pegmatite dikes were emplaced into a domal fracture system, apparently produced by cauldron subsidence, and include in the center of the complex, a number of flat-floored granophyre bodies. The granophyre is interpreted to be the result of pressure quenching of pegmatite magma. Along the eastern edge of the quadrangle is the western part of a large septum of medium metamorphic grade Mesozoic schist. A dissected basalt flow caps the Hogbacks northeast of Temecula, and represents remnants of a channel filling flow. Beneath the basalt is a thin deposit of stream gravel. Having an age of about 10Ma, this basalt is about 2-3Ma older than the basalt flows in the Santa Ana Mountains.

The Elsinore fault zone forms a complex of pull-apart basins. The west edge of the fault zone, the Willard Fault, is marked by the high, steep eastern face of the Santa Ana Mountains. The east side of the zone, the Wildomar Fault, forms a less pronounced physiographic step. In the center of the quadrangle a major splay of the fault zone, the Murrieta Hot Springs Fault, strikes east. Branching of the fault zone causes the development of a broad alluvial valley between the Willard Fault and the Murrieta Hot Springs Fault. All but the axial part of the zone between the Willard and Wildomar Faults consist of dissected Pleistocene sedimentary units. The axial part of the zone is underlain by Holocene and latest Pleistocene sedimentary units.

Purpose: The data set for the Murrieta 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 Geographic 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.

```
  Supplemental_Information: None
Time_Period_of_Content:
  Time_Period_Information:
    Single_Date/Time:
      Calendar_Date: 2003
  Currentness_Reference: New data

Status:
  Progress: Complete
  Maintenance_and_Update_Frequency: As needed

Spatial_Domain:
  Bounding_Coordinates:
    West_Bounding_Coordinate: -117.2500901
    East_Bounding_Coordinate: -117.1249099
    North_Bounding_Coordinate: 33.62499995
    South_Bounding_Coordinate: 33.49998424

Keywords:
  Theme:
    Theme_Keyword_Thesaurus: None
    Theme_Keyword: geologic map
    Theme_Keyword: geology
```

Theme_Keyword: bedrock geology
Theme_Keyword: fault
Place:
Place_Keyword_Thesaurus: None
Place_Keyword: California
Place_Keyword: Riverside County
Place_Keyword: Murrieta 7.5' quadrangle

Stratum:
Stratum_Keyword_Thesaurus: None
Stratum_Keyword: Cretaceous gabbro
Stratum_Keyword: Cretaceous tonalite
Stratum_Keyword: Cretaceous granodiorite
Stratum_Keyword: Mesozoic metamorphics
Stratum_Keyword: Elsinore Fault
Temporal:
Temporal_Keyword_Thesaurus: None
Temporal_Keyword: Mesozoic
Temporal_Keyword: Cretaceous
Temporal_Keyword: Quaternary
Temporal_Keyword: Elsinore fault
Access_Constraints: None

Use_Constraints:
The Murrieta 7.5' geologic-map database should be used to evaluate and understand the geologic character of the Murrieta 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 many actual and potential geologic hazards represented by faults and landslides and posed by ground subsidence and earthquake-generated ground shaking. However, it is not sufficiently detailed for site-specific determinations or evaluations of these features. Faults shown do not take the place of fault-rupture hazard zones designated by the California State Geologist (see Hart, 1988).

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 most of the map, the resolution of the combined output will be limited by the lower resolution data.

Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Douglas M. Morton
Contact_Organization: U.S. Geological Survey, Western Region, Earth Surface Processes Team
Contact_Position: Project Geologist
Contact_Address:
Address_Type: mailing address
Address: U.S. Geological Survey
Address: Department of Earth Sciences
Address: University of California, Riverside
City: Riverside
State_or_Province: California
Postal_Code: 92521

Country: USA
Contact_Voice_Telephone: (909)276-6397
Contact_Facsimile_Telephone: (909)276-6295
Contact_Electronic_Mail_Address: scamp@usgs.gov

Data_Set_Credit:
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 Geological Survey, and (3) the Southern California Areal Mapping Project (SCAMP).

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

Cross_Reference:
Citation_Information:
Originator: Morton, D.M.
Publication_Date: 1999
Title: Preliminary digital geologic map of the Santa Ana 30'x60' quadrangle, southern California, 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 99-172
Publication_Information:
Publication_Place: Menlo Park, California
Publisher: U.S. Geological Survey
Online_Linkage: http://geopubs.wr.usgs.gov/open-file/of99-172

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report:
Geologic-map units in the Murrieta 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.

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 (e.g., 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 database of the Murrieta 7.5' quadrangle contains 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 a 7.5' quadrangle transformation and data input is 0.003 (1.8 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 (M.P. Kennedy).
Process_Date: 1975-76

Process_Step:
Process_Description: Field mapping and aerial photograph interpretation; iterative process (D.M. Morton).
Process_Date: 1967-68; 1993

Process_Step:
Process_Description: Digitization of geologic linework and point data from a scale-stable cartographic base of quadrangle. ARC/INFO database established; cleanup of artifacts; polygon, arc, and point attribute tables established. Digitizing and editing artifacts significant enough to display at a scale of 1:24,000 were corrected (R.M. Alvarez and G. Morton).
Process_Date: 1999-2001
Process_Step:
Process_Description: Description of map units and correlation of map units (R.M. Alvarez).
Process_Date: 2002
Process_Step:
Process_Description: First draft of metadata created by R.M. Alvarez using FGDCMETA.AML ver. 1.2 05/14/98 on ARC/INFO data set /scamp27/murrieta/mur_geo
Process_Date: 20030319
Process_Step:
Process_Description: Metadata and digital review by K.R. Bovard
Process_Date: 20030327
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: 486

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: String
Point_and_Vector_Object_Count: 1513
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
Point_and_Vector_Object_Count: 487
Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Map_Projection:
Map_Projection_Name: Polyconic
Polyconic:
Latitude_of_Projection_Origin: 33.5

Latitude_of_True_Scale: 33.5
Longitude_of_Central_Meridian: -117.1875
False_Easting: 0.00000
False_Northing: 0.00000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 1.000396370887
Ordinate_Resolution: 1.000396370887
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 Murrieta 7.5' quadrangle comprises three ARC/INFO coverages, of which two contain geologic data, and one contains cartographic features: mur_geo (geology), mur_str (structural data), and mur_ano (annotation and leaders).

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

Geological point data includes site-specific information describing the types and the orientation of bedding, foliation, joints and linear features. Annotation is respective dip and plunge values associated with individual point data.

MUR_GEO.PAT:

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	ALTERNATE NAME
1	AREA	8	18	F	5	
9	PERIMETER	8	18	F	5	
17	MUR_GEO#	4	5	B	-	
21	MUR_GEO-ID	4	5	B	-	
25	LABL	35	35	C	-	
60	PLABL	35	35	C	-	
95	SHD	3	3	I	-	
98	SHDFIL	3	3	I	-	
101	NAME	100	100	C	-	

MUR_GEO.AAT:

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	ALTERNATE NAME
1	FNODE#	4	5	B	-	
5	TNODE#	4	5	B	-	
9	LPOLY#	4	5	B	-	
13	RPOLY#	4	5	B	-	
17	LENGTH	8	18	F	5	
25	MUR_GEO#	4	5	B	-	
29	MUR_GEO-ID	4	5	B	-	
33	LTYPE	35	35	C	-	
68	L-SYMB	3	3	I	-	

Entity_and_Attribute_Detail_Citation: None

Detailed_Description:
Entity_Type:
Entity_Type_Label: mur_geo.pat
Entity_Type_Definition: Geologic units (LABL) and their corresponding names (NAME) identified in the Murrieta 7.5' quadrangle
Attribute:
Attribute_Label: LABL
Attribute_Definition: geologic map unit label, in plain text
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Qyf
Enumerated_Domain_Value_Definition: Young alluvial fan deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qya
Enumerated_Domain_Value_Definition: Young alluvial channel deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qyv
Enumerated_Domain_Value_Definition: Young alluvial valley deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qyls
Enumerated_Domain_Value_Definition: Young landslide
Enumerated_Domain:
Enumerated_Domain_Value: Qoa
Enumerated_Domain_Value_Definition: Old alluvial channel deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qvoa
Enumerated_Domain_Value_Definition: Very old alluvial channel deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qpfs
Enumerated_Domain_Value_Definition: Pauba Formation, sandstone member
Enumerated_Domain:
Enumerated_Domain_Value: Qpff
Enumerated_Domain_Value_Definition: Pauba Formation, fanglomerate member
Enumerated_Domain:
Enumerated_Domain_Value: QTsw
Enumerated_Domain_Value_Definition: Sandstone and conglomerate of Wildomar area, sandstone unit
Enumerated_Domain:
Enumerated_Domain_Value: QTcw
Enumerated_Domain_Value_Definition: Sandstone and conglomerate of Wildomar area, conglomerate unit
Enumerated_Domain:
Enumerated_Domain_Value: Tvsr
Enumerated_Domain_Value_Definition: Santa Rosa basalt of Mann
Enumerated_Domain:
Enumerated_Domain_Value: Tvt
Enumerated_Domain_Value_Definition: Basalt of Temecula area
Enumerated_Domain:
Enumerated_Domain_Value: Tvh
Enumerated_Domain_Value_Definition: Basalt of Hogbacks
Enumerated_Domain:
Enumerated_Domain_Value: Kpvgr
Enumerated_Domain_Value_Definition: Paloma valley ring complex, granophyre

Enumerated_Domain:
Enumerated_Domain_Value: Kpvg
Enumerated_Domain_Value_Definition: Paloma valley ring complex, monzogranite to granodiorite
Enumerated_Domain:
Enumerated_Domain_Value: Kpvt
Enumerated_Domain_Value_Definition: Paloma valley ring complex, tonalite
Enumerated_Domain:
Enumerated_Domain_Value: Kgd
Enumerated_Domain_Value_Definition: Granodiorite, undifferentiated
Enumerated_Domain:
Enumerated_Domain_Value: Kt
Enumerated_Domain_Value_Definition: Tonalite, undifferentiated
Enumerated_Domain:
Enumerated_Domain_Value: Kgb
Enumerated_Domain_Value_Definition: Gabbro
Enumerated_Domain:
Enumerated_Domain_Value: Khg
Enumerated_Domain_Value_Definition: Heterogeneous granitic rocks
Enumerated_Domain:
Enumerated_Domain_Value: Mzu
Enumerated_Domain_Value_Definition: Metasedimentary rocks, undifferentiated
Attribute:
Attribute_Label: PLABL
Attribute_Definition: Geological map unit label used to generate plot labels with relevant stratigraphic symbols. The geologic units with LABL designating Mesozoic (Mz) have keystroke substitute characters, }, 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.
Attribute:
Attribute_Label: SHD
Attribute_Definition: polygon color (as integer value) from shadeset alc1.shd
Attribute:
Attribute_Label: SHDFIL
Attribute_Definition: polygon fill pattern (as integer value) from shadeset geology2.shd
Attribute:
Attribute_Label: NAME
Attribute_Definition: Geologic name of map unit (see list under LABL attribute)

Detailed_Description:
Entity_Type:
Entity_Type_Label: mur_geo.aat
Entity_Type_Definition: Geologic features such as contacts and faults that bound rock-unit polygons
Attribute:
Attribute_Label: LTYPE
Attribute_Definition: Description of types of lines on the geologic map (contact, fault, dike).
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: contact, certain
Enumerated_Domain:
Enumerated_Domain_Value: fault, certain
Enumerated_Domain:
Enumerated_Domain_Value: fault, approx. located
Enumerated_Domain:
Enumerated_Domain_Value: fault, concealed
Enumerated_Domain:
Enumerated_Domain_Value: Kpvp, pegmatite dike

Enumerated_Domain:
Enumerated_Domain_Value: scratch boundary
Enumerated_Domain:
Enumerated_Domain_Value: map boundary
Detailed_Description:
Entity_Type:
Entity_Type_Label: mur_str.pat
Entity_Type_Definition: Geological point data includes site-specific information describing the types and the orientation of bedding, foliation, joints, and lineations. One annotation subclass is included in the geologic points coverage, MUR_STR which displays the respective dip and plunge values associated with individual point data.
Attribute:
Attribute_Label: PTTYPE
Attribute_Definition: describes type of point data (bedding, foliation, joints, lineations)
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: sedimentary bedding
Enumerated_Domain:
Enumerated_Domain_Value: vertical sedimentary joint
Enumerated_Domain:
Enumerated_Domain_Value: igneous foliation
Enumerated_Domain:
Enumerated_Domain_Value: vertical igneous foliation
Enumerated_Domain:
Enumerated_Domain_Value: metamorphic foliation
Enumerated_Domain:
Enumerated_Domain_Value: dip of fault plane
Enumerated_Domain:
Enumerated_Domain_Value: dip of dike
Attribute:
Attribute_Label: PT-SYMB
Attribute_Definition: Coded integer value that relates point to cartographic point symbol in markerset geoscamp2.mrk
Attribute:
Attribute_Label: STRIKE
Attribute_Definition: Azimuthal strike of planar feature
Attribute:
Attribute_Label: DIP
Attribute_Definition: Dip of planar feature
Detailed_Description:
Entity_Type:
Entity_Type_Label: mur_ano.aat
Entity_Type_Definition: Annotation leaders
Attribute:
Attribute_Label: LTYPE
Attribute_Definition: Describes type of line data(leader)
Attribute:
Attribute_Label: L-SYMB
Attribute_Definition: Coded integer value (1) that relates arcs to cartographic line symbol in lineset, geoscamp2.lin
Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: U.S. Geological Survey Information Services
Contact_Address:

Address_Type: mailing address
Address: Box 25286 Denver Federal Center
City: Denver
State_or_Province: Colorado
Postal_Code: 80225
Country: USA
Contact_Voice_Telephone: (303)202-4700

Contact_Facsimile_Telephone: (303)202-4693
Distribution_Liability:
The U.S. Geological Survey (USGS) provides these geographic data "as is." The USGS makes no guarantee or warranty concerning the accuracy of information contained in the geographic data. The USGS further makes no warranties, either expressed or implied as to any other matter whatsoever, including, without limitation, the condition of the product, or its fitness for use lies entirely with the user. Although these data have been processed successfully on computers at the USGS, no warranty, expressed or implied, is made by the USGS regarding the use of these data on any other system, nor does the fact of distribution constitute or imply any such warranty.

In no event shall the USGS have any liability whatsoever for payment of any consequential, incidental, indirect, special, or tort damages of any kind, including, but not limited to, any loss of profits arising out of use of or reliance on the geographic data or arising out of the delivery, installation, operation, or support by USGS.

This digital geologic map database of the Murrieta 7.5' quadrangle, 1:24,000 map-scale, and any derivative maps thereof, is not meant to be used or displayed at any scale larger than 1:24,000 (e.g., 1:12,000).

Metadata_Reference_Information:
Metadata_Date: 20030319
Metadata_Review_Date: 20030327
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: U.S. Geological Survey
Contact_Person: Rachel M. Alvarez
Contact_Position: Geologist
Contact_Address:
Address_Type: mailing address
Address: U.S. Geological Survey
Address: Department of Earth Sciences
Address: University of California, Riverside
City: Riverside
State_or_Province: California
Postal_Code: 92521
Country: USA
Contact_Voice_Telephone: (909)276-6397
Contact_Facsimile_Telephone: (909)276-6295
Contact_Electronic_Mail_Address: ralvarez@usgs.gov
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Access_Constraints: None
Metadata_Use_Constraints: None