GEOLOGIC MAP OF THE BACHELOR MOUNTAIN 7.5' QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA

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Digital preparation by Kelly R. Bovard[1] *and* Diane Burns[3]

Prepared in cooperation with
CALIFORNIA GEOLOGICAL SURVEY

Open-File Report OF 03-103

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

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INTRODUCTION

General

Open-File Report 03-103 contains a digital geologic map database of the Bachelor Mountain 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 bch_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/03-103 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 bch.tar.gz (2.3 Mb); see section below titled, SOFTWARE UTILITES.

ARC/INFO interchange files	Bachelor Mountain coverages	Contains
bch_geo.e00	bch_geo	Contacts, faults, geologic unit labels
bch_ano.e00	bch_ano	Annotation subclass: GEO (for plotting unit labels) Leaders
bch_str.e00	bch_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 bch (Bachelor Mountain) info/ directory contains:

Feature Attribute Tables

Polygon attribute table	bch_geo.pat
Arc attribute table	bch_geo.aat
	bch_ano.aat
Point attribute table	bch_str.pat
Annotation attribute table	bch_ano.tatgeo

Raster file	Resultant image	Contains
bch.tif	Bachelor Mountain base map	Topographic base from 500 dpi scan of USGS Bachelor Mountain 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
bch_map.ps.gz	bch_map.ps	PostScript plot file of geologic map and CMU/DMU

The Postscript file is compressed using winzip.

The uncompressed Postscript file bch_map.ps will plot a 1:24,000 scale, full color geologic map of the Bachelor Mountain 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 42 X 32 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
bch_map.pdf	Pdf plot file of geologic map and CMU/DMU

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. 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/of03-103 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, bch/, that will contain the ARC/INFO interchange files and supporting files. The directory should contain the following files:

bch/

- bch_geo.e00
- bch_str.e00
- bch_ano.e00

- bch.tif

The symbols.tar.gz file is imported using the same methods as for the bch.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.

bch_map.ps.gz
README.pdf
bch_map.pdf

Postscript plot files

Make a 12.5 MB uncompressed file, bch_map.ps (plot of complete map), by typing gzip -d bch_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 (bch.tif) was prepared by scanning a scale-stable clear film of the U.S. Geological Survey, 1:24,000 Bachelor Mountain 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 Bachelor Mountain 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 37 30.00 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 bch_map.pdf or the Postscript map plot, bch_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: Douglas M. Morton
Originator: Michael P. Kennedy
Publication_Date: 2003
Title: Geologic Map of the Bachelor Mountain 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 OF 03-103
Publication_Information:
Publication_Place: Menlo Park, California
Publisher: U.S. Geological Survey
Online_Linkage: Online_Linkage URL:http://geopubs.wr.usgs.gov/open-file/of03-103

Description:

Abstract:
This data set maps and describes the geology of the Bachelor Mountain 7.5' quadrangle, Riverside 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) a coverage containing structural data, (3) a coverage containing geologic unit annotation and leaders, and (4) 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), and a key for point and line symbols, and (2) PDF files of the Readme (including the metadata file as an appendix), and the graphic produced by the Postscript plot file.

The Bachelor Mountain quadrangle is located in the southern Perris block area of the Peninsular Ranges Province. Internally, the Perris block is a relatively stable area located between the Elsinore and San Jacinto Fault zones.

In contrast to the rest of the quadrangle, the southern half is underlain almost entirely by young sedimentary units, chiefly the Pauba Formation of Pleistocene age. The Pauba Formation largely consists of well-indurated sandstone containing sparse cobble-to boulder conglomerate beds. It is eroded into a gentle badlands topography in most of its extent. Remnants of scattered, discontinuous alluvial deposits suggest the Pauba Formation was covered by relatively thin younger Pleistocene sediments. The most extensive remnant of these younger deposits forms a surface of low relief at Buck Mesa, just north of Long Valley.

The northern half of the quadrangle is underlain by Mesozoic metasedimentary rocks that are intruded by plutonic rocks of the Cretaceous Peninsular Ranges batholith. The western part of these metamorphic rocks are mainly phyllite, grading eastward into quartzitic and schistose rocks. Metamorphic grade increases eastward also, to biotite, cordierite-biotite, and sillimanite schist.

The oldest batholithic rocks in the quadrangle are massive hornblende gabbro including the large body underlying Bachelor Mountain. Large masses of gabbro are included in granodiorite and tonalite plutons east of Bachelor Mountain. In the northwestern part of the quadrangle is the southeastern part of the Paloma Valley Ring complex. This complex makes up much of the northern part of the Murrieta quadrangle and the southern part of the Romoland quadrangle. In the Bachelor Mountain quadrangle, rocks of the complex are limited to foliated tonalite which is the most mafic part of the complex. East of Skinner Reservoir (Lake Skinner) underlying the Tucalota Hills, is a series of north-trending massive-textured granodiorite plutons informally termed the granodiorite of Tucalota Hills (Morton, 1999).

The geologic map data base contains original U.S. Geological Survey data generated by detailed field observation recorded on 1:24,000 scale aerial photographs. The map was created by transferring lines from the aerial photographs to a 1:24,000 scale topographic base. The map was digitized and lines, points, and polygons were subsequently edited 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 are 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 Bachelor Mountain 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: -117.1250901
    East_Bounding_Coordinate: -116.99990956
    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
Place:
Place_Keyword_Thesaurus: None
Place_Keyword: California
Place_Keyword: Riverside County
Place_Keyword: Bachelor Mountain 7.5' quadrangle
Stratum:
Stratum_Keyword_Thesaurus: None
Stratum_Keyword: Cretaceous gabbro
Stratum_Keyword: Cretaceous tonalite
Stratum_Keyword: Cretaceous granodiorite
Stratum_Keyword: Mesozoic and Paleozoic(?) metamorphics
Temporal:
Temporal_Keyword_Thesaurus: None
Temporal_Keyword: Mesozoic
Temporal_Keyword: Cretaceous
Access_Constraints: None

Use_Constraints:
The Bachelor Mountain 7.5' geologic-map database should be used to evaluate and understand the geologic character of the Bachelor Mountain 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: United States of America
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, 5.8, sun4m 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: 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 Bachelor Mountain 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 Bachelor Mountain 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 (D.M. Morton and M.P. Kennedy).
Process_Date: 1991; 1995-98

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 (K.R. Bovard and D. Burns).
Process_Date: 1999-2001

Process_Step:
Process_Description: Description of map units and correlation of map units (K.R. Bovard).
Process_Date: 2002
Process_Step:
Process_Description: First draft of metadata created by K.R. Bovard using FGDCMETA.AML ver. 1.2 05/14/98 on ARC/INFO data set /scamp31/kbovard/bachelor/bch_geo
Process_Date: 20020403
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: 234
SDTS_Point_and_Vector_Object_Type: String
Point_and_Vector_Object_Count: 682
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
Point_and_Vector_Object_Count: 235

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Map_Projection:
Map_Projection_Name: Polyconic
Polyconic:
Latitude_of_Projection_Origin: 33.5
Longitude_of_Central_Meridian: -117.0625
False_Easting: 0.00000
False_Northing: 0.00000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 1.000399708747
Ordinate_Resolution: 1.000399708747
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 Bachelor Mountain 7.5' quadrangle comprises three ARC/INFO coverages, of which two contain geologic data, and one contains cartographic features: bch_geo (geology), bch_str (structural data), and bch_ano (annotation and leaders).

Geologic data represented by line entities and the polygons they delineate are contained in the coverage BCH_GEO. For display purposes, the annotation coverage contains one annotation subclass: anno.geo contains unit labels.

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

BCH_GEO.PAT:

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	ALTERNATE NAME
1	AREA	4	12	F	3	
5	PERIMETER	4	12	F	3	
9	BCH_GEO#	4	5	B	-	
13	BCH_GEO-ID	4	5	B	-	
17	LABL	35	35	C	-	
52	SHD	3	3	I	-	
55	PLABL	35	35	C	-	
90	SHDFIL	3	3	I	-	

BCH_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	4	12	F	3	
21	BCH_GEO#	4	5	B	-	
25	BCH_GEO-ID	4	5	B	-	
29	LTYPE	35	35	C	-	
64	L-SYMB	3	3	I	-	

Entity_and_Attribute_Detail_Citation: none

Detailed_Description:
Entity_Type:
Entity_Type_Label: bch_geo.pat
Entity_Type_Definition: Geologic units (LABL) and thier corresponding names (NAME) identified in the Bachelor Mountain 7.5' quadrangle
Attribute:
Attribute_Label: LABL
Attribute_Definition: geologic map unit label, in plain text
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Qaf
Enumerated_Domain_Value_Definition: Artificial fill
Enumerated_Domain:
Enumerated_Domain_Value: Qya
Enumerated_Domain_Value_Definition: Young alluvial channel deposits
Enumerated_Domain:

Enumerated_Domain_Value: Qyls
Enumerated_Domain_Value_Definition: Young landslide deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qof
Enumerated_Domain_Value_Definition: Old alluvial fan deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qoa
Enumerated_Domain_Value_Definition: Old alluvial channel deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qoc
Enumerated_Domain_Value_Definition: Old colluvial deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qvof
Enumerated_Domain_Value_Definition: Very old alluvial fan deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qvoa
Enumerated_Domain_Value_Definition: Very old alluvial channel deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qvov
Enumerated_Domain_Value_Definition: Very old alluvial valley deposits
Enumerated_Domain:
Enumerated_Domain_Value: Qpfs
Enumerated_Domain_Value_Definition: Sandstone member of Pauba Formation
Enumerated_Domain:
Enumerated_Domain_Value: QTsw
Enumerated_Domain_Value_Definition: Sandstone of Wildomar area
Enumerated_Domain:
Enumerated_Domain_Value: Tta
Enumerated_Domain_Value_Definition: Temecula Arkose
Enumerated_Domain:
Enumerated_Domain_Value: Tvt
Enumerated_Domain_Value_Definition: Basalt of Temecula area
Enumerated_Domain:
Enumerated_Domain_Value: Kthgd
Enumerated_Domain_Value_Definition: Granodiorite of Tucalota Hills
Enumerated_Domain:
Enumerated_Domain_Value: Kpvt
Enumerated_Domain_Value_Definition: Tonalite of the Peninsular Ranges batholith
Enumerated_Domain:
Enumerated_Domain_Value: Kgd
Enumerated_Domain_Value_Definition: Granodiorite, undifferentiated of the Peninsular Ranges batholith
Enumerated_Domain:
Enumerated_Domain_Value: Kt
Enumerated_Domain_Value_Definition: Tonalite, undifferentiated of the Peninsular Ranges batholith
Enumerated_Domain:
Enumerated_Domain_Value: Kgb
Enumerated_Domain_Value_Definition: Gabbro of the Peninsular Ranges batholith
Enumerated_Domain:
Enumerated_Domain_Value: Khg
Enumerated_Domain_Value_Definition: Heterogeneous granitic rocks of the Peninsular Ranges batholith
Enumerated_Domain:
Enumerated_Domain_Value: Mzu
Enumerated_Domain_Value_Definition: Mesozoic metasedimentary rocks, undifferentiated

Enumerated_Domain:
Enumerated_Domain_Value: Mzq
Enumerated_Domain_Value_Definition: Quartz-rich rocks
Enumerated_Domain:
Enumerated_Domain_Value: Mzp
Enumerated_Domain_Value_Definition: Phyllite
Enumerated_Domain:
Enumerated_Domain_Value: Mzs
Enumerated_Domain_Value_Definition: Schist
Enumerated_Domain:
Enumerated_Domain_Value: KgMz
Enumerated_Domain_Value_Definition: Intermixed Mesozoic schist and Cretaceous granitic rocks
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: bch_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: map boundary
Enumerated_Domain_Value: contact, certain
Enumerated_Domain_Value: fault, certain
Enumerated_Domain_Value: fault, approx. located
Enumerated_Domain_Value: fault, concealed
Attribute:
Attribute_Label: L-SYMB
Attribute_Definition: stores appropriate line symbol value from the lineset geoscamp2.lin
Detailed_Description:
Entity_Type:
Entity_Type_Label: bch_str.pat
Entity_Type_Definition: Geological point data includes site-specific information describing the types and the orientation of foliation, joints, and lineations. One annotation subclass is included in the geologic points coverage, BCH_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 (foliation, joints, lineations)
Attribute_Domain_Values:

Enumerated_Domain:
Enumerated_Domain_Value: bedding
Enumerated_Domain_Value: metamorphic foliation
Enumerated_Domain_Value: vertical metamorphic foliation
Enumerated_Domain_Value: dip of fault
Attribute:
Attribute_Label: P-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: bch_ano.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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