GEOLOGIC MAP OF THE CORONA NORTH 7.5' QUADRANGLE, RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

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Digital preparation by Kelly R. Bovard[1] *and* Michael Dawson[1]

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U.S. GEOLOGICAL SURVEY

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TABLE OF CONTENTS

INTRODUCTION

General

Open-File Report 02-22 contains a digital geologic map database of the Corona North 7.5' quadrangle, Riverside and San Bernardino Counties, 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 crn_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$_{2sc}$. Marine deposits are in part overlain by local, mostly alluvial fan, deposits and are labeled Qomf. Grain size follows f.

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/02-22 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 crn.tar.gz (2.9 Mb); see section below titled, SOFTWARE UTILITES.

ARC/INFO interchange files	Corona North coverages	Contains
crn_geo.e00	crn_geo	Contacts, faults, geologic unit labels
crn_ano.e00	crn_ano	Annotation subclasses: GEO (for plotting unit labels) FAULT (for plotting fault names) MOUNTAIN (for plotting peak names) Leaders
crn_str.e00	crn_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 crn (Corona North) info/ directory contains:

Feature Attribute Tables

Polygon attribute table	crn_geo.pat
Arc attribute table	crn_geo.aat
	crn_ano.aat
Point attribute table	crn_str.pat

Raster file	Resultant image	Contains
crn.tif	Corona North base map	Topographic base from 500 dpi scan of USGS Corona North 7.5' quadrangle, 1967

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
crn_map.ps.gz	crn_map.ps	PostScript plot file of geologic map and CMU/DMU

The Postscript file is compressed using winzip.

The uncompressed Postscript file crn_map.ps will plot a 1:24,000 scale, full color geologic map of the Corona North quadrangle on the topographic base. A detailed CMU diagram, a 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 47 X 31 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

Other files

README.pdf	This document
crn_map.pdf	Postscript 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/of02-22 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, crn/, that will contain the ARC/INFO interchange files and supporting files. The directory should contain the following files:

    crn/
            crn_geo.e00
            crn_str.e00
            crn_ano.e00

            crn.tif

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

>   crn_map.ps.gz
>   README.pdf
>   crn_map.pdf

Postscript plot files

Make a 14.5 MB uncompressed file, crn_map.ps (plot of complete map), by typing gzip -d crn_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 (crn.tif) was prepared by scanning a scale-stable clear film of the U.S. Geological Survey, 1:24,000 Corona North 7.5' quadrangle (1967) 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 Corona North 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 33 45.000 longitude of central meridian
	33 52 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 crn_map.pdf or the Postscript map plot, crn_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: C. H. Gray, Jr.
      Publication_Date: 2002
      Title: Geologic Map of the Corona North 7.5' Quadrangle, Riverside and San Bernardino Counties, 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 02-22
      Publication_Information:
        Publication_Place: Menlo Park, California
        Publisher: U.S. Geological Survey
      Online_Linkage: URL:http://geopubs.wr.usgs.gov/open-file/of02-22

  Description:

    Abstract:
      This data set maps and describes the geology of the Corona North 7.5' quadrangle, Riverside and San Bernardino Counties, 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 Corona North quadrangle is located near the northern end of the Peninsular Ranges Province. All but the southeastern tip of the quadrangle is within the Perris block, a relatively stable, rectangular in plan

area located between the Elsinore and San Jacinto fault zones. The southeastern tip of the quadrangle is barely within the Elsinore fault zone.

The quadrangle is underlain by Cretaceous plutonic rocks that are part of the composite Peninsular Ranges batholith. These rocks are exposed in a triangular-shaped area bounded on the north by the Santa Ana River and on the south by Temescal Wash, a major tributary of the Santa Ana River. A variety of mostly silicic granitic rocks occur in the quadrangle, and are mainly of monzogranite and granodioritic composition, but range in composition from micropegmatitic granite to gabbro. Most rock units are massive and contain varying amounts of meso- and melanocratic equant-shaped inclusions. The most widespread granitic rock is monzogranite of the Cajalco pluton, a large pluton that extends some distance south of the quadrangle. North of Corona is a body of micropegmatite that appears to be unique in the batholith rocks.

Diagonally bisecting the quadrangle is the Santa Ana River. North of the Santa Ana River alluvial deposits are dominated by the distal parts of alluvial fans emanating from the San Gabriel Mountains north of the quadrangle. Widespread areas of the fan deposits are covered by a thin layer of wind blown sand.

Alluvial deposits in the triangular-shaped area between the Santa Ana River and Temescal Wash are quite varied, but consist principally of locally derived older alluvial fan deposits. These deposits rest on remnants of older, early Quaternary or late Tertiary age, nonmarine sedimentary deposits that were derived from both local sources and sources as far away as the San Bernardino Mountains. These deposits in part were deposited by an ancestral Santa Ana River. Older are a few scattered remnants of late Tertiary (Pliocene) marine sandstone that include some conglomerate lenses. Clasts in the conglomerate include siliceous volcanic rocks exotic to this part of southern California. This sandstone was deposited as the southeastern-most part of the Los Angeles sedimentary marine basin and was deposited along a rocky shoreline developed in the granitic rocks, much like the present day shoreline at Monterey, California. Most of the sandstone and granitic paleoshoreline features have been removed by quarrying and grading in the area of Porphyry north to Highway 91. Excellent exposures in highway road cuts still remain on the north side of Highway 91 just east of the 91-15 interchange and on the east side of U.S. 15 just north of the interchange.

South of Temescal Wash is a series of both younger and older alluvial fan deposits emanating from the Santa Ana Mountains to the southeast. In the immediate southwest corner of the quadrangle is a small exposure of sandstone and pebble conglomerate of the Sycamore Canyon member of the Puente Formation of early Pliocene and Miocene age and sandstone and conglomerate of undivided Sespe and Vaqueros Formations of early Miocene, Oligocene, and late Eocene age.

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 Corona North 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: 2002
  Currentness_Reference: New data

 Status:
  Progress: Complete
  Maintenance_and_Update_Frequency: As Needed

Spatial_Domain:
  Bounding_Coordinates:
    West_Bounding_Coordinate: -117.6250914
    East_Bounding_Coordinate: -117.4999086
    North_Bounding_Coordinate: 33.99999995
    South_Bounding_Coordinate: 33.87498415

  Keywords:
    Theme:
      Theme_Keyword_Thesaurus: none
      Theme_Keyword: geologic map
      Theme_Keyword: geology
      Theme_Keyword: bedrock geology
      Theme_Keyword: alluvial geology
    Place:
      Place_Keyword_Thesaurus: None
      Place_Keyword: California
      Place_Keyword: Riverside County
      Place_Keyword: San Bernardino County
      Place_Keyword: Corona North 7.5' quadrangle

    Stratum:
      Stratum_Keyword_Thesaurus: None
      Stratum_Keyword: Cretaceous tonalite and granodiorite
      Stratum_Keyword: Tertiary marine sedimentary rocks
      Stratum_Keyword: Quaternary deposits
    Temporal:
      Temporal_Keyword_Thesaurus: None
      Temporal_Keyword: Cretaceous
      Temporal_Keyword: late Tertiary
      Temporal_Keyword: Quaternary
  Access_Constraints: None

  Use_Constraints:
    The Corona North 7.5' geologic-map database should be used to evaluate and understand the geologic character of the Corona North 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 Division of Mines and Geology, 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 Corona North 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 Corona North 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).
      Process_Date: 1977; 1996

    Process_Step:
      Process_Description: Field mapping and aerial photograph interpretation; iterative process (C.H. Gray).
      Process_Date: 1970; 1995

    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 M.L. Dawson).
      Process_Date: 1999-2001

    Process_Step:
      Process_Description: Description of map units and correlation of map units (K.C. Corriea).
      Process_Date: 2001

    Process_Step:
      Process_Description:
        First draft of metadata created by mwatson using
        FGDCMETA.AML ver. 1.2 05/14/98 on ARC/INFO data set
        /scamp26/mwatson/crn/crn_geo
      Process_Date: 20011126

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: 232
      SDTS_Point_and_Vector_Object_Type: String
      Point_and_Vector_Object_Count: 574
      SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
      Point_and_Vector_Object_Count: 233

Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Planar:
      Map_Projection:
        Map_Projection_Name: Polyconic
        Polyconic:
          Latitude_of_True_Scale: 33.875
          Longitude_of_Central_Meridian: -117.5625
          False_Easting: 0.00000

False_Northing: 0.00000
　　Planar_Coordinate_Information:
　　　Planar_Coordinate_Encoding_Method: coordinate pair
　　　Coordinate_Representation:
　　　　Abscissa_Resolution: 1.000366806984
　　　　Ordinate_Resolution: 1.000366806984
　　　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 Corona North 7.5' quadrangle comprises three ARC/INFO coverages, of which two contain geologic data, and one contains cartographic features: crn_geo (geology), crn_str (structural data), and crn_ano (annotation and leaders).
　　　Geologic data represented by line entities and the polygons they delineate are contained in the coverage CRN_GEO. For display purposes, the annotation coverage contains three annotation subclasses: anno.geo contains unit labels, anno.fault contains fault names, and anno.mountain contains peak names.
　　　Geological point data includes site-specific information describing the types and the orientation of bedding, foliation, and lineations. Annotation is respective dip and plunge values associated with individual point data.
　　　>
　　　>CRN_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	CRN_GEO#	4	5	B	-	
> 13	CRN_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	-	
> 93	NAME	200	200	C	-	

　　　>
　　　>
　　　>CRN_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	CRN_GEO#	4	5	B	-	
> 25	CRN_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: crn_geo.pat
  Entity_Type_Definition: Geologic units (LABL) and their corresponding names (NAME) identified in
                  the Corona North 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: Qwa
    Enumerated_Domain_Value_Definition: Very young wash deposits, arenaceous
   Enumerated_Domain:
    Enumerated_Domain_Value: Qywa
    Enumerated_Domain_Value_Definition: Young wash deposits, arenaceous
   Enumerated_Domain:
    Enumerated_Domain_Value: Qyfa
    Enumerated_Domain_Value_Definition: Young alluvial fan deposits, arenaceous
   Enumerated_Domain:
    Enumerated_Domain_Value: Qyfg
    Enumerated_Domain_Value_Definition: Young alluvial fan deposits, gravel
   Enumerated_Domain:
    Enumerated_Domain_Value: Qyf1g
    Enumerated_Domain_Value_Definition: Young alluvial fan deposits, Unit 1, gravel
   Enumerated_Domain:
    Enumerated_Domain_Value: Qyaa
    Enumerated_Domain_Value_Definition: Young alluvial channel deposits, arenaceous
   Enumerated_Domain:
    Enumerated_Domain_Value: Qye
    Enumerated_Domain_Value_Definition: Young eolian deposits
   Enumerated_Domain:
    Enumerated_Domain_Value: Qowa
    Enumerated_Domain_Value_Definition: Old wash deposits, arenaceous
   Enumerated_Domain:
    Enumerated_Domain_Value: Qofa
    Enumerated_Domain_Value_Definition: Old alluvial fan deposits, arenaceous
   Enumerated_Domain:
    Enumerated_Domain_Value: Qofg
    Enumerated_Domain_Value_Definition: Old alluvial fan deposits, gravel
   Enumerated_Domain:
    Enumerated_Domain_Value: Qof1g
    Enumerated_Domain_Value_Definition: Old alluvial fan deposits, Unit 1, gravel
   Enumerated_Domain:
    Enumerated_Domain_Value: Qoa
    Enumerated_Domain_Value_Definition: Old alluvial channel deposits
   Enumerated_Domain:
    Enumerated_Domain_Value: Qoaa
    Enumerated_Domain_Value_Definition: Old alluvial channel deposits, arenaceous
   Enumerated_Domain:
    Enumerated_Domain_Value: Qova
    Enumerated_Domain_Value_Definition: Old alluvial valley deposits, arenaceous
   Enumerated_Domain:
    Enumerated_Domain_Value: Qvofa

Enumerated_Domain_Value_Definition: Very old alluvial fan deposits, arenaceous
Enumerated_Domain:
Enumerated_Domain_Value: Qvofg
Enumerated_Domain_Value_Definition: Very old alluvial fan deposits, gravel
Enumerated_Domain:
Enumerated_Domain_Value: Qvoaa
Enumerated_Domain_Value_Definition: Very old alluvial channel deposits, arenaceous
Enumerated_Domain:
Enumerated_Domain_Value: QTn
Enumerated_Domain_Value_Definition: Late Cenozoic sedimentary rocks in Norco area
Enumerated_Domain:
Enumerated_Domain_Value: Tns
Enumerated_Domain_Value_Definition: Sandstone of Norco area
Enumerated_Domain:
Enumerated_Domain_Value: Tpsc
Enumerated_Domain_Value_Definition: Sycamore Canyon Member of Puente Formation
Enumerated_Domain:
Enumerated_Domain_Value: Tvs
Enumerated_Domain_Value_Definition: Vaqueros and Sespe Formations, undifferentiated
Enumerated_Domain:
Enumerated_Domain_Value: Kmp
Enumerated_Domain_Value_Definition: Micropegmatite granite of Gavilan Ring Complex
Enumerated_Domain:
Enumerated_Domain_Value: Kmpc
Enumerated_Domain_Value_Definition: Micropegmatite and granodiorite of Cajalco pluton,
                                   undifferentiated
Enumerated_Domain:
Enumerated_Domain_Value: Krg
Enumerated_Domain_Value_Definition: Granite of the Riverside area
Enumerated_Domain:
Enumerated_Domain_Value: Kmhg
Enumerated_Domain_Value_Definition: Mount Hole Granodiorite
Enumerated_Domain:
Enumerated_Domain_Value: Klst
Enumerated_Domain_Value_Definition: La Sierra Tonalite
Enumerated_Domain:
Enumerated_Domain_Value: Kcg
Enumerated_Domain_Value_Definition: Monzogranite of Cajalco Pluton
Enumerated_Domain:
Enumerated_Domain_Value: Kcgb
Enumerated_Domain_Value_Definition: Granodiorite and gabbro of Cajalco Pluton, undifferentiated
Enumerated_Domain:
Enumerated_Domain_Value: Kqd
Enumerated_Domain_Value_Definition: Quartz diorite of Peninsular Ranges batholith
Enumerated_Domain:
Enumerated_Domain_Value: Kd
Enumerated_Domain_Value_Definition: Diorite of Peninsular Ranges batholith, undifferentiated
Enumerated_Domain:
Enumerated_Domain_Value: Kgb
Enumerated_Domain_Value_Definition: Gabbro of Peninsular Ranges batholith
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: crn_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).
   Attribute_Domain_Values:
    Enumerated_Domain:
     Enumerated_Domain_Value: map boundary
     Enumerated_Domain_Value: contact, certain
     Enumerated_Domain_Value: fault, queried
     Enumerated_Domain_Value: fault, concealed
     Enumerated_Domain_Value: fault, approx. located
     Enumerated_Domain_Value: fault, concealed, queried
  Attribute:
   Attribute_Label: L-SYMB
   Attribute_Definition: stores appropriate line symbol value from the lineset geoscamp2.lin
 Detailed_Description:
  Entity_Type:
   Entity_Type_Label: crn_str.pat
   Entity_Type_Definition: Geological point data includes site-specific information describing the types and the orientation of bedding, foliation, and lineation. One annotation subclass is included in the geologic points coverage, CRN_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, horizontal bedding, foliation)
   Attribute_Domain_Values:
    Enumerated_Domain:
     Enumerated_Domain_Value: bedding
  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: crn_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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  Distributor:
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        Contact_Organization: U.S. Geological Survey Information Services
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        State_or_Province: Colorado
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  Metadata_Date: 20011126
  Metadata_Review_Date: 20020103
  Metadata_Contact:
    Contact_Information:
      Contact_Organization_Primary:
        Contact_Organization: U.S. Geological Survey
        Contact_Person: Rachel M. H. 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: rhauser@usgs.gov
  Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: Version of June 8, 1994
Metadata_Access_Constraints: none
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