

Description of Digital Publication

Introduction

This publication consists of two sets of digital files. The first set comprises digital versions of the traditional map sheets and supporting materials. The second set is made up of GIS and related databases that include all the data represented on the "map sheets" and more. Each of these two sets is described in more detail below. Each set is stored as a compressed archive file (see below for more on working with these files). These files are published on the Internet through the U.S. Geological Survey publication website (<http://pubs.usgs.gov/sim/3287>).

Digital map set

The digital map set is a downloadable equivalent of a multi-layer geologic/geophysical map of the Cambria 30'X60' quadrangle, along with a descriptive and interpretive pamphlet. The map file is a multi-layered PDF that has been designed to enable the user to combine different layers to produce a large number of derivative maps showing combinations of data sets. As a result, there is only one file for the complete suite of map data (geological, geophysical, paleontological). Four standard map layouts (geologic map, aeromagnetic map, gravity map, and paleontological locality map) are available as bookmarks within the PDF file, while other combinations can be achieved by turning the various layers on and off.

The files in the digital map set are as follows:

SIM3287_map.pdf

- multi-layer PDF file including the following layers:
 - geologic unit colors (semitransparent colored areas)
 - geologic unit labels (text)
 - faults (lines)
 - other geologic contacts (lines)
 - geologic structure axes (lines)
 - geologic attitudes (point symbols and text)
 - fossil localities (point symbols and text)
 - gravity field (semitransparent continuous color gradient)
 - gravity field shaded relief (semitransparent continuous color gradient)
 - gravity contours (lines)
 - gravity stations [observation localities] (point symbols)
 - maximum horizontal gravity gradient spots (point symbols)
 - aeromagnetic field (semitransparent continuous color gradient)
 - aeromagnetic field shaded relief (semitransparent continuous color gradient)
 - aeromagnetic contours (lines)
 - maximum horizontal magnetic gradient spots (point symbols)
 - topographic shaded relief base map (continuous grayscale gradient)
 - Cambria 30'X60' topographic quadrangle (raster)

SIM3287_pamphlet.pdf

- descriptive and interpretive pamphlet, including figures, description of map units, and references cited

Digital database set

The digital database set, SIM3287_data.tgz, includes all the GIS and other database files that undergird the digital map set, as well as supporting related files, in a compressed archive file. The GIS data are in ESRI Arc Geodatabase Feature Classes and Feature Raster Dataset format, subdivided by theme (geologic map, gravity, aeromagnetism, paleontology) and data type (area, line, point). The GIS files were prepared using ArcGIS Desktop 9.3.1, Service Pack 1.

The files in the digital database set are as follows:

Cambria100sheet.gdb (File Geodatabase)

Camb100_attitudes (point feature class)

Camb100_contacts (line feature class)

Camb100_faults (line feature class)

Camb100_fold_axes (line feature class)

Camb100_geology (polygon feature class)

Camb100_att_Anno (annotation file) - dip numbers, allowing for optimal placement

Camb100_geo_Anno (annotation file) - unit labels, allowing for optimal placement and avoiding overprinting small units

Camb100_grav_cont (line feature class)

Camb100_isograv_dma (point feature class) - gravity observations onshore, Defense Mapping Agency

Camb100_isograv_old (point feature class) - older gravity observations onshore, Burch and others (1971)

Camb100_isograv_paces (point feature class) - gravity observations onshore, Pan-American Center for Earth and Environmental Studies

Camb100_isograv_max_big (point feature class) - maximum horizontal gravity field gradient, greater than mean horizontal gradient

Camb100_isograv_max_small (point feature class) - maximum horizontal gravity field gradient, less than mean horizontal gradient

Camb100_isograv_offshore (point feature class) - gridded values from Decade of North American Geology (1987) gravity map

Camb_grav (feature raster dataset) – gridded gravity anomalies

Camb_grav_sh (feature raster dataset) – gridded gravity anomalies with shaded relief

Camb100_mag_max_res200_small (point feature class) - maximum horizontal gradient derived from filtered aeromagnetic field, less than mean horizontal gradient

Camb100_mag_max_res200_big (point feature class) - maximum horizontal gradient derived from filtered aeromagnetic field, greater than mean horizontal gradient

Camb100_mag_cont (line feature class) - aeromagnetic field contours

Camb_mag (feature raster dataset) – gridded aeromagnetic anomalies

Camb_mag_sh (feature raster dataset) – gridded aeromagnetic anomalies with shaded relief

Camb100_usgs_paleo (point feature class)

Camb100_chevron_paleo (point feature class)

carmel_mag.xyz (point data ASCII) – aeromagnetic measurements from the 2009 Carmel survey

CambriaPaleoLocality.xlsx (Excel spreadsheet file) - micropaleontological locality data

CambriaPaleoChecklist.xlsx (Excel spreadsheet file) - micropaleontological species checklist

Cambria100k.style (ESRI style file) – for displaying appropriate colors and symbols for digital data

Projection Information

The GIS databases and derived PDF maps in this publication use the map projection UTM, zone 10, NAD 1983. Units are meters. The details of this projection, as described for the ArcMap projection NAD_1983_UTM_Zone_10N, are as follows:

Projection: Transverse_Mercator
False_Easting: 500000.000000
False_Northing: 0.000000
Central_Meridian: -123.000000
Scale_Factor: 0.999600
Latitude_Of_Origin: 0.000000
Linear Unit: Meter (1.000000)

Geographic Coordinate System: GCS_North_American_1983
Angular Unit: Degree (0.017453292519943295)
Prime Meridian: Greenwich (0.000000000000000000)
Datum: D_North_American_1983
Spheroid: GRS_1980
Semimajor Axis: 6378137.000000000000000000
Semiminor Axis: 6356752.314140356100000000
Inverse Flattening: 298.257222101000020000

Extracting sets from archive files

The data sets described above are stored in **tar** (UNIX tape archive) files. A tar utility is required to extract the data set from the tar file. This utility is included in most UNIX systems, including Mac OSX, as well as recent versions of Windows. Both tar files have been compressed, and may be uncompressed with **gzip**, which is included in some operating systems and is available for free at <http://www.gzip.org>. In addition, several common proprietary freeware programs such as Stuffit Expander (<http://www.stuffit.com>) and 7-zip (<http://www.7-zip.org>), as well as commercial programs such as WinZip (<http://www.winzip.com>) can handle both tar file extraction and gzip uncompression. When the tar file is uncompressed and the data is extracted from the tar file, a directory is produced that contains the data in the package as described above.

Base maps

Base Map layers were derived from published digital maps obtained from the California Spatial Information Library, now integrated into the Cal-Atlas Geospatial Clearinghouse (<http://atlas.ca.gov>). Please see the website for more detailed information about the original databases. Because the base map digital files are already available at the website mentioned above, they are not included in the digital database package.

Faults and landslides

This map is intended to be of general use to engineers and land-use planners. However, its small scale does not provide sufficient detail for site development purposes. In addition, this map does not take the place of fault-rupture hazard zones designated by the California State Geologist (<http://www.conservation.ca.gov/cgs/rghm/ap/Pages/Index.aspx>). Similarly, because only some of the landslides in the mapped area are shown, the database cannot be used to completely identify or delineate landslides in the region.

Spatial resolution

Uses of this digital geologic map 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 generally edited at a scale of 1:100,000 means that higher resolution information is not everywhere present in the dataset. Plotting at scales larger than 1:100,000 will not yield greater real detail, although it may reveal fine-scale irregularities below the intended resolution of the database. Similarly, where this database is used in combination with other data of higher resolution, the resolution of the combined output will be limited by the lower resolution of these data.