

# GEOLOGIC MAP AND DATABASE OF THE CHOCOLATE MOUNTAINS AERIAL GUNNERY RANGE, RIVERSIDE AND IMPERIAL COUNTIES, CALIFORNIA

U.S. Geological Survey Open-File Report 2018-1191

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The database for this Open-File Report map was completed in cooperation with the U.S. Navy (USN) and the Range Management office of the Yuma Marine Corp Air Station (YMCAS) and it has been shared with USN and YMCAS, as cooperating agencies, in advance of formal publication.

## README

This document serves to identify and describe the digital files that constitute this Open-File Report. These files include Geographic Information System (GIS) software files that are accessible with Environmental Systems Research Institute (Esri) compatible, commercial software. The data presented here were collected and compiled in support of the San Andreas Fault System in Southern California (SAFSOC) Project; the Basins and Landscape Coevolution (BALANCE) Project (closed) and the Southern California Areal Mapping Project (SCAMP) (closed) of the United States Geological Survey (USGS). These data comprise a rich collection of geologic observations and interpretations relevant to both the ongoing scientific interests of the USGS in southern California and the management requirements of USN and YMCAS, specifically of the Chocolate Mountains Aerial Gunnery Range (CMAGR). The Open-File Report benefitted greatly from scientific reviews of the map sheets and accompanying documents carried out by Floyd Gray (USGS, Tucson Office) and Richard Heermance (then USGS, Tucson Office; currently Calif. State University, Northridge), and from a technical GIS review of the geodatabase and accompanying documents carried out by John Wallis (USGS, Spokane Office).

## USGS OPEN-FILE REPORT CONTENTS

These data document studies and findings that are released to Federal agencies in recognition of the proprietary interests those agencies have in the subject area and as such, constitute an Open-File Report.

Earlier versions of the geologic map and database have been released as an administrative report to USN and to YMCAS—cooperating agencies in producing the database—for their internal use only. USN and YMCAS may not serve or otherwise release the data to the public domain until the USGS has reviewed and published the data.

The CMAGR GIS database comprises an Esri 10.6.1 file geodatabase, a style sheet for symbolizing structural data, and supporting files including FGDC-compliant metadata and this Readme. For a more complete description of the data elements, we recommend that the reader examine the FGDC-compliant metadata.

Projection and coordinate information:

Projected Coordinate System: NAD\_1927\_UTM\_Zone\_11N

Projection: Transverse\_Mercator

False\_Easting: 500000.00000000

False\_Northing: 0.00000000

Central\_Meridian: -117.00000000

Scale\_Factor: 0.99960000

Latitude\_Of\_Origin: 0.00000000

Linear Unit: Meter

Geographic Coordinate System: GCS\_North\_American\_1927

Datum: D\_North\_American\_1927

Prime Meridian: Greenwich

Angular Unit: Degree

Spatial geologic data are presented in an Esri file geodatabase v10.6.1, which consists of the following datasets, feature classes, and non-spatial data tables:

CMAGR\_OFR.gdb

Boundaries

GunneryRangeBoundary

GunneryRangeExtent

Quadrangles\_24k

Quadrangles\_100k

Geology

ContactsAndFaults

Dikes

FaultDipPoints

FoldAxialTraces

FoldAxisOrnamentationPoints

GeochronologyPoints\_39Ar40Ar\_KAr

GeologicUnits

MapUnitAnnotation

StructuralPointAnnotation

StructurePoints

*Notes:* The Contacts and Faults feature class share lines only where faults form boundaries between geologic units. Because in the southern California desert, contacts are commonly exposed or locatable within the limits of the width of the lines plotted to represent the contacts, where this is the case, we attribute these lines as "observable" and represent them as solid lines.

## Non-spatial data tables

TblUnitDescriptionSummary

TblAgeDataSummary

TblPetroStrat

## Style file

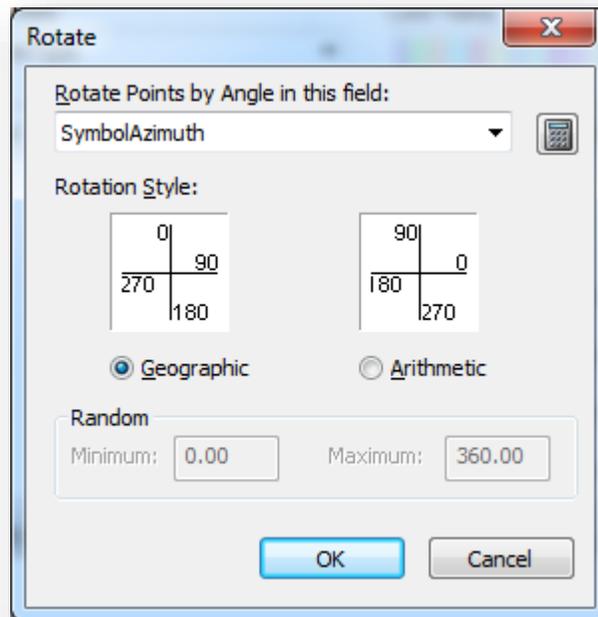
This Open-File Report geodatabase includes a style file for symbolizing lines and points and for color-shading map unit polygons.

In order to apply the style, the user needs to open an ArcMap session and add the geology feature classes provided in the geodatabase. For the GeologicUnit feature class, the style file allows the user to readily apply our unit color scheme by right-clicking on the feature class and opening the "Properties" window, then opening the "Symbology" menu tab and following the appropriate "Categories" pathway to "Match to symbols in a style", to select the "MapUnitLabel" Value Field, and to browse to the style file we provide.

For line feature classes, the style file allows the user to display the FGDC standards for line weight and color for contacts, faults, and dikes by right-clicking on a feature class and navigating the "Properties" window to match symbols in the style by selecting the "StyleReference" Value Field.

For the structural point feature classes, the provided style allows the user to properly orient and view the structural data in the geodatabase by right-clicking on a feature class and navigating the "Properties" window to match symbols in the style by selecting the "StyleReference" Value Field.

In order to properly orient and view the structural point data in the feature class StructurePoints, the user must rotate the symbols using the field, SymbolAzimuth and Geographic rotation in the Advanced tab of the Layer Properties>Symbology window (as shown, below).



Please see the accompanying metadata for additional information.