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Digital Mining Claim Density Map for Federal Lands in California: 1996

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INTRODUCTION

This report describes a digital map generated by the U.S. Geological Survey (USGS) to provide digital spatial mining claim density information for federal lands in California as of March 1997. Mining claim data is earth science information deemed to be relevant to the assessment of historic, current, and future ecological, economic, and social systems. There is no paper map included in this Open-File report.

In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA), all unpatented mining claims, mill, and tunnel sites must be recorded at the appropriate BLM State office. BLM maintains a cumulative computer listing of mining claims in the MCRS database with locations given by meridian, township, range, and section. A mining claim is considered closed when the claim is relinquished or a formal BLM decision declaring the mining claim null and void has been issued and the appeal period has expired. All other mining claims filed with BLM are considered to be open and actively held. The digital map (figure 1.) with the mining claim density database available in this report are suitable for geographic information system (GIS)-based regional assessments at a scale of 1:100,000 or smaller.

DATA SOURCES, PROCESSING, AND ACCURACY

Data Sources

The mining claim density database of federal lands in California is one of 13 statewide databases published in the U.S. Geological Survey Open-File Report 99-325. The database contains information identifying 1) the meridian, township, range, and section (MTRS) designation, a unique record identifier, 2) the number and type of claims (lode, placer, mill site, tunnel site) within each section, and 3) the status of the claims (open is held by a claimant, closed is no longer held). The original mine claim data used to create the databases in OF99-325 were acquired from the BLM in March 1997. An official quarterly release of the MCRS mine claim data for California is available by specific request from the:

United States Department of the Interior
Bureau of Land Management
Mining Claim Recordation System Coordinator
NI-112, Denver Federal Center
P.O. Box 25047
Denver, CO 80225-0047

The statewide Public Land Survey (PLS) digital map of California, ca_pls.e00, was used to create the digital mining claim density map. The digital map was in Arc/Info export format and came from the U.S. Geological Survey Digital Data Series cdrom (DDS-41).

Processing

The digital file, ca_pls.e00, was imported using Arc/Info, version 7.1.1 (Environmental Systems Research Institute, Inc., Redlands, California), a commercially available GIS software, as an Arc/Info coverage into a workspace on a Sun Ultra 1 with Solaris 2.5.1 operating software. Each section of the new digital PLS was given a unique section identifier corresponding in form to the MTRS in the mining claim density database. The mining claim density database from OF99-325 was linked, using a relate file, with the digital PLS of California. The linking process connected the data in the database to their corresponding sections in the digital map. The result was a digital mining claim density map (figure 1) with the attributes of the current database. The relate file was named ca_clms.rel and the database of California from OF99-325 was renamed ca_clms.clms. The renaming allows the database and the relate file to be included in the single export file, ca_clms.e00, created when packaging the digital map for others.

Figure 1 displays the sections of the PLS containing claims and their status for this digital map. The map can be queried regarding its other attributes and can be used in investigating relationships with other digital data. Figure 2 displays the sections of the PLS that were available for the data to link to.
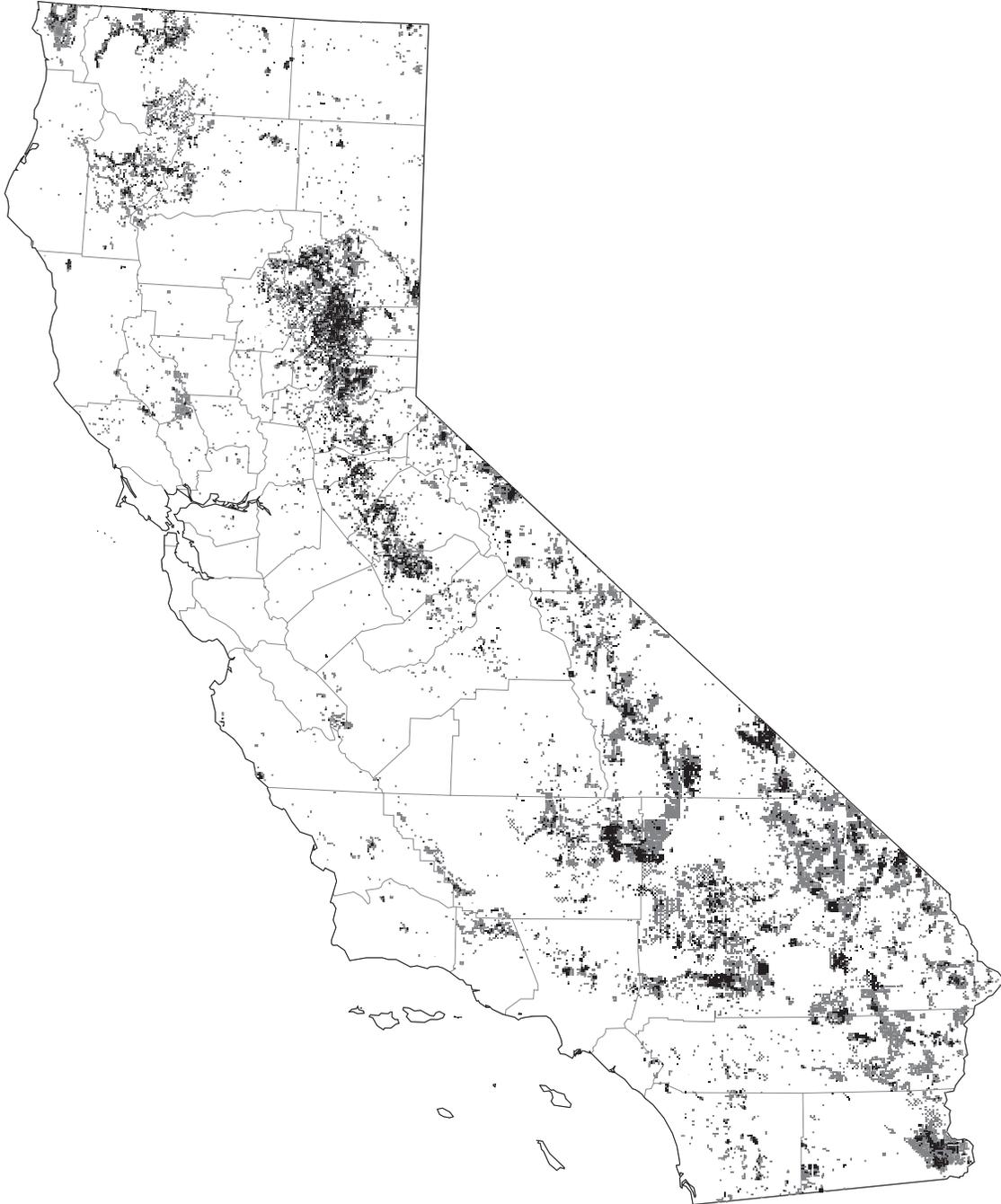

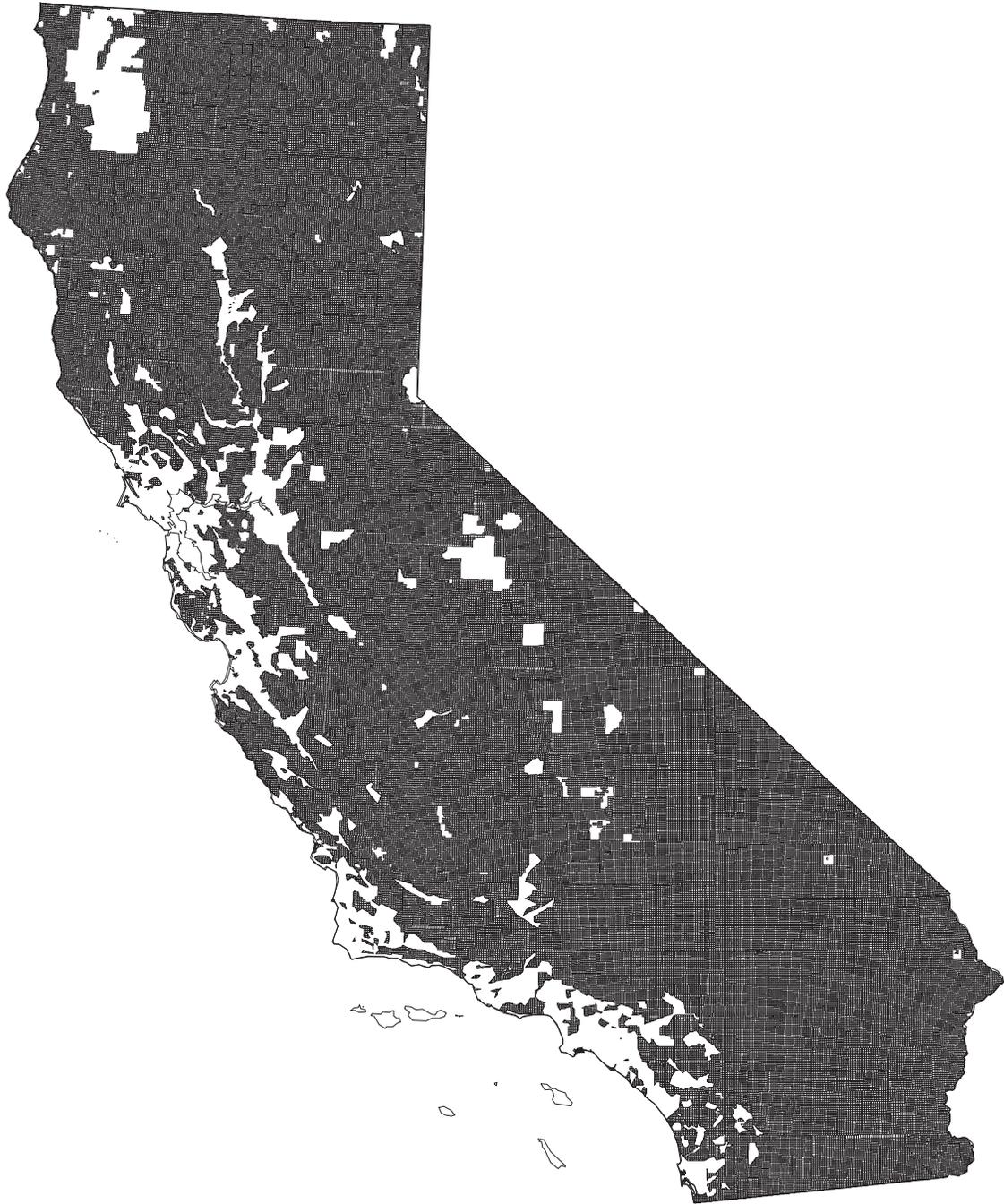Figure 1. --- Open (black) and closed (gray) status of mining claims in California for 1996.

Figure 2. --- Digital public land survey coverage of California in 1996.

Accuracy

Several factors can affect the accuracy of the mining claim density database and digital map. The original data from BLM may contain errors. Two possible sources of error in the database are 1) incorrect position of the mining claim submitted by the claimant, and 2) input errors from the data entry papers to the computer database.

The digital map of the PLS of California may contain errors. Possible errors include 1) misidentified sections, 2) sections with no identifying information, and 3) sections missing from the PLS digital map. These errors would result in incorrect locations of the mining claim density data or failure of the data to be connected with the digital map. Although the California PLS may be complete with regard to published section lines, it does not cover all the state (figure 2).

Tables 1 and 2, summarize the number of mining claims by type and status for the digital map and the database. The total number of claims in the digital map (table 1) does not agree with the total number of claims in the mining claim density database from OF99-325 (table 2). Some contributing factors may be 1) failure of the data to find a section to combine with in the digital map, or 2) sections occurring as multiple parts due to irregular state boundaries, shorelines, or to non-PLS land surveys. The first type of error results in a decrease in the expected number of claims in the digital map. The second results in an increase. Both sources of error may be present. A ratio of the grand totals of all claims of Table 1 to Table 2 should show the degree of fit of the digital map totals to the original database totals. A value equal to 1 indicates a 100% fit. A value less than 1 indicates data was lost. A value greater than 1 indicates multi-part sections may be in the digital PLS map. The table shows that the digital map contains 257,633 mining claims but the database contains 269,599 mining claims. A ratio of the two numbers, 0.95562, indicates a fair fit. The current digital PLS of California has significant gaps in it.

Table 1. Mining claim totals by type and status in California (database linked to digital map)

	DIGITAL MAP DATABASE CLAIM TOTALS				
Type of Claim	LODE	PLACER	MILL	TUNNEL	ALL CLAIMS
Number of Open Mining Claims	18,859	11,607	2,641	34	33,141
Number of Closed Mining Claims	141,003	76,851	6,402	236	224,492
Grand Totals	159,862	88,458	9,043	270	257,633

Table 2. Mining claim totals by type and status in California (ca_clms.clms database)

	DENSITY DATABASE CLAIM TOTALS				
Type of Claim	LODE	PLACER	MILL	TUNNEL	ALL CLAIMS
Number of Open Mining Claims	19,613	12,193	2,706	34	34,546
Number of Closed Mining Claims	146,953	81,359	6,503	238	235,053
Grand Totals	166,566	93,552	9,209	272	269,599

Another concern regarding accuracy involves the visual representation of the data to a viewer. The digital map does not accurately represent the aerial extent of the lands covered by a mining claim because the presence of one mining claim, about 20 acres for a lode claim, will 'color in' the entire section (640 acres) it occurs in. A section is typically 1 square mile. The visual representation of one claim is magnified by a factor of 32 times its actual size. The best digital map resolution available at this time is to the section. Any area calculations done with the digital map for mining claims will likely be unreliable. Specific information about a particular area should be acquired from the BLM State office.

Additionally, the positional accuracy of a mining claim is generalized to one section in the PLS even if it crosses into another section. Mining claims generally follow geologic features and usually do not conform to the PLS lines. The procedure used by Campbell (1996) chooses the first section listed for a mining claim in the MCRS as the section of position. This method insures that each claim is counted only once. The digital PLS map is considered accurate enough for geographic representations for the purposes of regional assessments at a scale of 1:100,000 or smaller.

MINING CLAIM DENSITY MAP CONTENTS

Table 3 contains the structure and descriptions of specific fields within the digital map, ca_clms. Table 4 contains the structure and descriptions of specific fields within the mining claim density database, ca_clms.clms. The italicized field in bold type, *mtrs*, is common to both the PLS and the database and is used by the relate file to link the database to the digital map.

Table 3. Field structure and descriptions of specific fields for the digital map

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	DEC	DESCRIPTION
1	Area	4	12	Floating	5	Internal Arc/Info polygon area
5	Perimeter	4	12	Floating	5	Internal Arc/Info polygon perimeter
9	ca_clms#	4	5	Binary	-	Internal Arc/info polygon number
13	ca_clms-id	4	5	Binary	-	User-defined polygon number
17	Location	20	20	Character	-	Concatenation of PLS
37	*mtrs*[1]	18	18	Character	-	**M**eridian+**T**ownship+**R**ange+**S**ection
Redefined items						
17	Section	2	2	Character	-	Section designation
20	meridian	5	5	Character	-	Meridian designation
26	township	5	5	Character	-	Township designation
32	range	5	5	Character	-	Range designation
26	townrange	11	11	Character	-	Township+Range designation

[1] For example, '21 30.0N 29.2E05' is Meridian 21, Township 30 North, Range 29 ½ East, Section 5
Meridians include Humboldt (15), Mount Diablo (21), and San Bernardino (27).

Table 4. Field structure and descriptions for the mine claim density database

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	DEC	DESCRIPTION
1	**mtrs**[1]	18	18	Character	-	**M**eridian+**T**ownship+**R**ange+**S**ection
19	nolc[2]	4	4	Binary	-	**N**umber of **O**pen **L**ode **C**laims[2]
23	nopc	4	4	Binary	-	**N**umber of **O**pen **P**lacer **C**laims
27	nomc	4	4	Binary	-	**N**umber of **O**pen **M**ill site **C**laims
31	notc	4	4	Binary	-	**N**umber of **O**pen **T**unnel **C**laims
35	toc	4	4	Binary	-	**T**otal number of **O**pen **C**laims
39	nclc	4	4	Binary	-	**N**umber of **C**losed **L**ode **C**laims
43	ncpc	4	4	Binary	-	**N**umber of **C**losed **P**lacer **C**laims
47	ncmc	4	4	Binary	-	**N**umber of **C**losed **M**ill site **C**laims
51	nctc	4	4	Binary	-	**N**umber of **C**losed **T**unnel **C**laims
55	tcc	4	4	Binary	-	**T**otal number of **C**losed **C**laims
59	tc	4	4	Binary	-	**T**otal number of **C**laims of all kinds

[1] For example, '21 30.0N 29.2E05' is Meridian 21, Township 30 North, Range 29 ½ East, Section 5
Meridians include Humboldt (15), Mount Diablo (21), and San Bernardino (27).
[2] in a section of the PLS

REFERENCES

Campbell, Harry W., 1996, Procedure for making a mining claim density map from BLM claim recordation digital data: U.S. Geological Survey Open-File Report 96-736, 13 p.

Hyndman, Paul C. and Harry W. Campbell, 1999, Digital databases containing mining claim density information for Arizona, California, Colorado, Idaho, Montana, Nebraska, New Mexico, Nevada, Oregon, South Dakota, Utah, Washington, and Wyoming created from the BLM Mining Claim Recordation System: 1996: U.S. Geological Survey Open-File Report 99-325, 21 p.

Raines, Gary L., Don L. Sawatzky, and Katherine A. Conners, 1996, Great Basin geoscience data base: U.S. Geological Survey Digital Data Series DDS-41, 2 cdroms.

OBTAINING DIGITAL DATA

The digital mining claim density map of California, ca_clms, is provided with this report in Arc/Info EXPORT format as ca_clms.e00. The mining claim density database, ca_clms.clms, and the relate file, ca_clms.rel, are contained in the export file. A metadata file, ca_clms.met, occurs separately. These files and this report are available from the USGS public access FTP site and the World Wide Web site on the Internet. Table 5 lists the files and their sizes.

Table 5. Files available with this Open-File Report

FILE NAME	FILE TYPE	SIZE IN KILOBYTES
of99-409.pdf	PDF document	3,609
ca_clms.e00	Arc/Info export	105,458
ca_clms.met	Metadata	33

By Anonymous FTP

Do the following steps to obtain the files for OF99-409by anonymous ftp. Windows users may need to start FTP in the MSDOS window.

STEP (type the words between the quotes)	REASON
cd to your_local_directory	Go to a directory to receive the WinZip file – you may need to make a directory first
'ftp wrgis.wr.usgs.gov'	Make ftp connection with the USGS computer, WRGIS
Name: 'anonymous'	Use 'anonymous' as your user name
Password: *your email address*	Use your email address as a password (you@email_address)
'cd pub/open-file'	Go down to the pub/open-file directory
'cd of99-409'	Go down to the specific open file directory
'binary'	Type the word 'binary' to change the transfer type to binary mode
'get of99-409.exe'	Copy the self-extracting file across the Internet to the receiving directory on your computer
'bye'	Close the ftp connection

Extracting the files from the of99-409.exe self-extracting file is accomplished by typing the name of the file, 'of99-409', and pressing the 'Enter' key. The files will unload automatically.

By the World Wide Web

The files for this report can be obtained over the Internet at URL http://wrgis.wr.usgs.gov/open-file/. Do the following steps to obtain the files for OF99-409 by the World Wide Web:

STEP	REASON
Attach to the internet with your web browser	This connects you to the internet.
Type 'http://wrgis.wr.usgs.gov/open-file/'	Make sure the internet address looks like this to connect with the USGS computer, WRGIS
Find the report in the listing and click on of99-409	This opens a page with instructions and information for downloading the report
Follow the instructions for downloading the data and this report	You should receive the report to your computer

METADATA

Following are 1) an Arc/Info description of the digital map, ca_clms, 2) a description of the relate file, and 3) the formal metadata for the digital map and associated files.

Description of SINGLE precision coverage ca_clms

FEATURE CLASSES

Feature Class	Subclass	Number of Features	Attribute data (bytes)	Spatial Index?	Topology?
ARCS		298156			
POLYGONS		141183	36		Yes
NODES		171627			

SECONDARY FEATURES

Tics	4
Arc Segments	397697
Polygon Labels	141183

TOLERANCES

Fuzzy = 106.997 V   Dangle = 0.000 N

COVERAGE BOUNDARY

Xmin = -624416.500   Xmax = 263690.250
Ymin = 3908350.750   Ymax = 4978320

STATUS

The coverage has not been Edited since the last BUILD or CLEAN

COORDINATE SYSTEM DESCRIPTION

Projection	LAMBERT
Units	METERS
Spheroid	CLARKE1866
Parameters:	

1ST Standard Parallel	33 00 0.00
2nd Standard Parallel	45 00 0.00
Longitude of central meridian	-117 0 0.00
Latitude of projection's origin	0 0 0.00
False easting (meters)	0.00000
False northing (meters)	0.00000

Description of Arc/Info ca_clms.rel relate structure

Relation	= CA_CLMS
Table-Id	= ca_clms.clms
Database	= info
Item	= MTRS
Column	= mtrs
Type	= ORDERED
Access	= RO

Formal metadata for the mine claim density map and associated files

The following metadata describes the mining claim density map:

```
Identification_Information:
  Citation:
    Citation_Information:
      Originator: Paul C. Hyndman
      Originator: Harry W. Campbell
      Publication_Date: 1999
      Title:
        Digital mining claim density map and database for Federal lands
        in California: 1996
      Edition: Version 1.0
      Geospatial_Data_Presentation_Form: map and database
  Description:
    Abstract:
      The mining claim density data of federal lands in California are
      combined with the digital California Public Land Survey (PLS) to create
      a digital map of the density of mine claims in Open-File Report 99-409.

      The mining claim density data of federal lands in California was one of
      13 western states released in Open-File Report 99-325.  The database for
      California was converted to an Arc/Info file and connected with the PLS
      by an Arc/Info relate.

      As stated in OF 99-325, "These mining claim density databases were
      created from data obtained in March 1997, from the Mining Claim
      Recordation System (MCRS) of the Bureau of Land Management.  These
      databases provide mining claim density information in a tabular form.
      They quantify the status of mining claim activity for 1996 and include
      information on mining claim activity since 1976.  The databases contain
      information identifying 1) the general location of mining claims within
      the Public Land Survey System (PLS), 2) the number and type of claims
      (lode, placer, mill site, tunnel site), and 3) the status of the claims
      (open is held, closed is no longer held by a claimant)".

      Combining the database with a digital PLS coverage of California enables
      a User to spatially display the mine claim data as a digital map and
      compare it with other spatial themes.
    Purpose:
      The digital map was developed to document mining claim
      activity on federal lands in California and to investigate
      interrelationships of mining claim activity with physical and social
      science concerns.

      This digital map is not to be considered as a legal representation of
      survey lines and corners or of mining claim boundaries.
    Supplemental_Information: This data is in Arc/Info 7.1 format
    Data_Set_Part:
      Part_Type: Arc/Info export file
      Part_Name: ca_clms.e00
      Part_Description: This Arc/Info export file contains the coverage
        ca_clms, the database ca_clms.clms, and the relate ca_clms.rel.
        The original digital PLS export file, ca_pls.e00, came from
        Raines, Gary L., Don L.  Sawatzky, and Katherine A. Conners, 1996,
        Great Basin geoscience data base: U.S. Geological Survey Digital
        Data Series DDS-41, 2 cdroms.
    Data_Set_Part:
      Part_Type: Arc/Info database
      Part_Name: ca_clms.clms
      Part_Description: This database contains mine claim density information
        for federal lands in the state, from 1976 through 1996.  It is one of
        several state databases from OF 99-325.
    Data_Set_Part:
      Part_Type: Arc/Info relate
      Part_Name: ca_clms.rel
      Part_Description: This file contains the parameters needed to relate the
        database, ca_clms.clms to the digital map database, ca_clms.pat.  The
```

```
        structure of the relate is:
             RELATION                = CA_CLMS
             TABLE-ID                = ca_clms.clms
             DATABASE                = info
             ITEM                    = MTRS
             COLUMN                  = mtrs
             TYPE                    = ORDERED
             ACCESS                  = RO
Time_Period_of_Content:
  Time_Period_Information:
    Range_of_Dates/Times:
      Beginning_Date: 1976
      Ending_Date: 1997
  Currentness_Reference: Release date of data by the Bureau of Land
    Management in March, 1997
Status:
  Progress: Complete
  Maintenance_and_Update_Frequency: None planned
Spatial_Domain:
  Bounding_Coordinates:
    West_Bounding_Coordinate: -125 00 00
    East_Bounding_Coordinate: -114 00 00
    North_Bounding_Coordinate: 42 00 00
    South_Bounding_Coordinate: 32 00 00
Keywords:
  Theme:
    Theme_Keyword_Thesaurus: None
    Theme_Keyword: mining claim density
    Theme_Keyword: lode
    Theme_Keyword: placer
    Theme_Keyword: mill site
    Theme_Keyword: tunnel site
    Theme_Keyword: mine claim
  Place:
    Place_Keyword_Thesaurus: None
    Place_Keyword: California
Access_Constraints: None
Use_Constraints:
  Users should contact the BLM for current data.  The U.S. Geological Survey
  makes no warranties related to the accuracy of the data and users are
  required to determine suitability of use for any particular purpose.
  This digital map is not to be construed as a legal
  representation of mining claim boundaries.  The PLS data is from 1:100,000
  scale base maps.  The map should not be used at scales
  larger than 1:100,000.

  The user must obtain current information on mining claims from the
  California State Office of the Bureau of Land Management for the area of
  interest since the mining claim density data is not current.  The
  information in the database does not provide the legal location or
  status of individual mining claims.

  Any hardcopies utilizing this data set shall clearly indicate their
  source.  If the user has modified the data in any way they are
  obligated to describe the types of modifications they have performed
  on the hardcopy map.  User specifically agrees not to misrepresent
  this data set, nor to imply that changes they made were approved by
  the U.S. Geological Survey.
Point_of_Contact:
  Contact_Information:
    Contact_Person_Primary:
      Contact_Person: Paul Hyndman
      Contact_Organization: U.S. Geological Survey
    Contact_Position: Geologist
    Contact_Address:
      Address_Type: mailing and physical address
      Address: 904 W. Riverside Ave., Rm. 202
      City: Spokane
      State_or_Province: Washington
      Postal_Code: 99201
      Country: U.S.A.
```

```
            Contact_Voice_Telephone: 509-368-3100 or 509-368-3118
            Contact_Facsimile_Telephone: 509-368-3199
            Contact_Electronic_Mail_Address: phyndman@usgs.gov
            Contact_Instructions: General office phone is 509-368-3100
      Data_Set_Credit:
        Cheryl Laudenbach, Denver Service Center, BLM, provided the original
        mining claim data from the Mining Claim Recordation Database.  The data
        was used to create the mining claim density databases in OF 99-325.

        The digital PLS map of California came from Raines, Gary L., Don L.
        Sawatzky, and Katherine A. Conners, 1996, Great Basin geoscience
        data base: U.S. Geological Survey Digital Data Series
        DDS-41, 2 cdroms.

      Native_Data_Set_Environment: Solaris 2.5.1, Sun Ultra 1, Arc/Info 7.1.2
  Data_Quality_Information:
    Attribute_Accuracy:
      Attribute_Accuracy_Report:
        OF 99-325 reports that the attributes of the mining claim data from BLM
        data, claims per section, do not represent the exact number of claims in
        each section.  Some claims overlap into adjoining sections and/or
        townships.  In order to count each claim only once, it was necessary to
        choose one section for each claim to be identified with.  Therefore, the
        first section listed in the BLM database for a particular claim was
        chosen as the section the claim was counted in.

        The accuracy was tested by summing each category of claim in the mining
        claim database and comparing the sum to those from the original BLM
        database.  The sums for each category matched.

        No attempt was made to determine the accuracy of BLM's database.
    Completeness_Report:
      None of the data from BLM was omitted.  The data is considered complete
      for the purpose of determining mining claim density in this State.
    Logical_Consistency_Report:
      The data set is a derived subset of the original BLM data.  No
      modifications to the BLM data were made.
    Positional_Accuracy:
      Horizontal_Positional_Accuracy:
        Horizontal_Positional_Accuracy_Report:
          A claim may be within a section or it may straddle two, three, or four
          sections.  In order to count each claim only once, it was
          necessary to choose one section for each claim to be identified
          with.  Therefore, the first section listed in the BLM database
          for a particular claim was chosen as the section the claim was
          counted in.
    Lineage:
      Source_Information:
        Source_Citation:
          Citation_Information:
            Originator:
              U.S. Geological Survey
            Publication_Date: 1999
            Title: Digital databases containing mining claim density information
              for Arizona, California, Colorado, Idaho, Montana, Nebraska, New
              Mexico, Nevada, Oregon, South Dakota, Utah, Washington, and
              Wyoming created from the BLM Mining Claim Recordation System: 1996
            Edition: 1
            Geospatial_Data_Presentation_Form: tabular database
            Series_Information:
              Series_Name: Open-File Report
              Issue_Identification: OF 99-325
            Publication_Information:
              Publication_Place: Denver, Colorado
              Publisher: U.S. Geological Survey
            Other_Citation_Details:
              Original data from the Bureau of Land Management Mine Claim
              Recordation Database (MCRD)
            Online_Linkage: URL = http://wrgis.wr.usgs.gov/open-file/of99-325
        Type_of_Source_Media: digital file
        Source_Time_Period_of_Content:
```

```
        Time_Period_Information:
          Range_of_Dates/Times:
            Beginning_Date: 1976
            Ending_Date: 199703
        Source_Currentness_Reference:
          The data were copied from BLM's MCRD database on March, 1997.
          The data are cumulative from 1976, when the database was created.
      Source_Citation_Abbreviation: USGS OF99-325
      Source_Contribution:
        This database contributed the mine claim density information
        needed to create a spatial mine claim density map.
    Process_Step:
      Process_Description:
        The mine claim density database of California was released as part of
        the U.S. Geological Open-File Report, OF 99-325.  It was imported as
        an Arc/Info table, ca_clms.clms, using the command, dbaseinfo.  A
        relate, ca_clms.rel, was made to connect the database to the PLS of
        California.  This report can be found at URL:
        http://wrgis.wr.usgs.gov/open-file/
      Process_Date: 1997-1998
Data_Quality_Information:
  Completeness_Report:
    The digital PLS of California is assumed to be complete.
  Logical_Consistency_Report:
    The PLS in this report is a derived subset of the original PLS.  Only
    those sections containing mine claim density data are included in this
    report.
  Positional_Accuracy:
    Horizontal_Positional_Accuracy:
      Horizontal_Positional_Accuracy_Report:
        No attempt was made to check the positional accuracy of the digital
        PLS.  The PLS came from 1:100,000 scale sources.
  Lineage:
    Source_Information:
      Source_Citation:
        Citation_Information:
          Originator:
            Digital PLS of California was obtained from the publication
            Raines, Gary L., Don L. Sawatzky, and Katherine A. Conners, 1996,
            Great Basin geoscience data base: U.S. Geological Survey Digital
            Data Series DDS-41, 2 cdroms.
          Publication_Date: 1996
          Title: Great Basin geoscience data base
          Geospatial_Data_Presentation_Form: map
      Type_of_Source_Media: digital file
      Source_Time_Period_of_Content:
        Time_Period_Information:
          Single_Date/Time:
            Calendar_Date: 1996
        Source_Currentness_Reference:
          The PLS may not be current with regard to section lines and corners.
      Source_Citation_Abbreviation: DDS-41
      Source_Contribution:
        Raines, Gary L., Don L. Sawatzky, and Katherine A. Conners, 1996, Great
        Basin geoscience data base: U.S. Geological Survey Digital Data Series
        DDS-41, 2 cdroms.
    Process_Step:
      Process_Description:
        The California PLS did not contain a field, mtrs, to which the mine
        claim density database could be attached.  The polygon attribute
        table, ca_pls.pat was converted to a dBase table.  The authors used
        dbase to separate the parts of the field, location, and compile the
        field, mtrs.  The dBase file was converted to an info file and
        replaced ca_pls.pat.  The data from ca_clms.clms was attached through
        the use of a relate, ca_clms.rel.  An example of commands for using
        the relate in ArcEdit for selecting all claims in the Total Claims
        (tc) field is:
        'restore relate ca_clms.rel'
        'editcover ca_clms'
        'sel ca_clms//tc > 0'
      Process_Date: 1997
```

```
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: 1171627
      SDTS_Point_and_Vector_object_Type: String
      Point_and_Vector_Object_Count: 298156
      SDTS_Point_and_Vector_object_Type: GT-polygon composed of chains
      Point_and_Vector_Object_Count: 141183
Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Geodetic_Model:
      Horizontal_Datum_Name: North American Datum of 1927
      Ellipsoid_Name: Clarke 1866
    Planar:
      Map_Projection:
        Lambert Equal Area:
          Standard_Parallel: 33 00 0
          Standard_Parallel: 45 00 0
          Longitude_of_Central_Meridian: -117 0 0
          Latitude_of_Projection_Origin: 0 0 0
          False_Easting: 0.0
          False_Northing: 0.0
Entity_and_Attribute_Information:
  Detailed_Description:
    Entity_Type:
      Entity_Type_Label: ca_clms.clms
      Entity_Type_Definition:
        Summary of values for number and type of mining claims in each section
        from OF99-325.  The data is tied to an MTRS code which represents the
        Meridian + Township + Range + Section.  This code provides a unique
        identifier for each Section of the PLS.
      Entity_Type_Definition_Source:
        The Bureau of Land Management is the official
        source for PLS designations and surveys and for
        the mining claim data.
    Attribute:
      Attribute_Label: MTRS
      Attribute_Definition:
        A concatenation of Meridian, Township, Range, and
        Section of the PLS
      Attribute_Definition_Source: Bureau of Land Management
      Attribute_Domain_Values:
        Enumerated_Domain:
          Enumerated_Domain_Value: MMTTT.TDRRR.RESS__
          Enumerated_Domain_Value_Definition:
            MTRS is an 18-character field which is a concatenation
            of meridian (M), Township (T), township direction (D),
            range (R), range direction (E), and section (S).  The form
            of the field is MMTTT.TDRRR.RESS__.  The last two spaces
            were included in the beginning of the study but were not utilized.

            MM = the FIPS code for meridian.  FIPS stands for the Federal
            Information Processing Standard.  The codes for the meridians are:

            15 - Humboldt
            21 - Mount Diablo
            27 - San Bernardino

            TTT.T = BLM Township designation as 'TTT.T' may include a fraction
            of a Township.  For example, Township 1 would be '__1.0'.
            Township 27.5 would be '_27.2'.  The '.2' is a 1/2 township.

            D = BLM Township direction may be North (N) or South (S).

            RRR.R = BLM Range designation as 'RRR.R' which may include a
            fraction of a Range See Township (T) for example.

            E = BLM Range direction may be East (E) or West (W).
```

```
        SS = BLM Section number.  For example, section 1 is '_1' and
        section 35 is '35'.  Generally the highest section is 36,
        but there are exceptions in several States.
      Enumerated_Domain_Value_Definition_Source:
        Hyndman and Campbell, 1999
Attribute:
  Attribute_Label: NOLC
  Attribute_Definition:
    Number of Open (or recorded) Lode Claims
    within a section
  Attribute_Definition_Source: Hyndman and Campbell, 1999
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 0
      Range_Domain_Maximum: 194
Attribute:
  Attribute_Label: NOPC
  Attribute_Definition:
    Number of Open (or recorded) Placer Claims
    within a section
  Attribute_Definition_Source: Hyndman and Campbell, 1999
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 0
      Range_Domain_Maximum: 64
Attribute:
  Attribute_Label: NOMC
  Attribute_Definition:
    Number of Open (or recorded) Mill site Claims
    within a section
  Attribute_Definition_Source: Hyndman and Campbell, 1999
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 0
      Range_Domain_Maximum: 132
Attribute:
  Attribute_Label: NOTC
  Attribute_Definition:
    Number of Open (or recorded) Tunnel site Claims
    within a section
  Attribute_Definition_Source: Hyndman and Campbell, 1999
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 0
      Range_Domain_Maximum: 4
Attribute:
  Attribute_Label: TOC
  Attribute_Definition:
    Total number of Open (or recorded) Claims of all types
    within a section
  Attribute_Definition_Source: Hyndman and Campbell, 1999
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 0
      Range_Domain_Maximum: 194
Attribute:
  Attribute_Label: NCLC
  Attribute_Definition:
    Number of Closed (or terminated and closed)
    Lode Claims within a section
  Attribute_Definition_Source: Hyndman and Campbell, 1999
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 0
      Range_Domain_Maximum: 241
Attribute:
  Attribute_Label: NCPC
  Attribute_Definition:
    Number of Closed (or terminated and closed)
    Placer Claims within a section
  Attribute_Definition_Source: Hyndman and Campbell, 1999
```

```
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 109
    Attribute:
      Attribute_Label: NCMC
      Attribute_Definition:
        Number of Closed (or terminated and closed)
        Mill site Claims within a section
      Attribute_Definition_Source: Hyndman and Campbell, 1999
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 192
    Attribute:
      Attribute_Label: NCTC
      Attribute_Definition:
        Number of Closed (or terminated and closed)
        Tunnel site Claims within a section
      Attribute_Definition_Source: Hyndman and Campbell, 1999
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 3
    Attribute:
      Attribute_Label: TCC
      Attribute_Definition:
        Total number of Closed (or terminated and closed)
        Claims of all types within a section
      Attribute_Definition_Source: Hyndman and Campbell, 1999
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 241
    Attribute:
      Attribute_Label: TC
      Attribute_Definition:
        Total number of all Claims of all types
        within a section
      Attribute_Definition_Source: Hyndman and Campbell, 1999
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 1
          Range_Domain_Maximum: 313
Detailed_Description:
  Entity_Type:
    Entity_Type_Label: ca_clms.pat
    Entity_Type_Definition:
      Summary of values for number and type of mining claims in each section
      from OF99-325.  The data is tied to an MTRS code which represents the
      Meridian + Township + Range + Section.  This code provides a unique
      identifier for each Section of the PLS.
    Entity_Type_Definition_Source:
      The Bureau of Land Management is the official
      source for PLS designations and surveys and for
      the mining claim data.
    Attribute:
      Attribute_Label: area
      Attribute_Definition:
        The area of each polygon in the coverage
      Attribute_Definition_Source: Arc/Info
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: not determined
          Range_Domain_Maximum: not determined
    Attribute:
      Attribute_Label: perimeter
      Attribute_Definition:
        Length of perimeter of each polygon in the coverage
      Attribute_Definition_Source: Arc/Info
      Attribute_Domain_Values:
```

```
      Range_Domain:
        Range_Domain_Minimum: not determined
        Range_Domain_Maximum: not determined
Attribute:
  Attribute_Label: ca_clms#
  Attribute_Definition:
    Internal polygon tracking number
  Attribute_Definition_Source: Arc/Info
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: not determined
      Range_Domain_Maximum: not determined
Attribute:
  Attribute_Label: ca_clms-id
  Attribute_Definition:
    Polygon tracking number which can be modified by user
  Attribute_Definition_Source: Arc/Info
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: not determined
      Range_Domain_Maximum: not determined
Attribute:
  Attribute_Label: location
  Attribute_Definition:
    A concatenation of the meridian, township, range, and section
  Attribute_Definition_Source: Arc/Info
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: SS\MMM&M\TTTTT\RRRRR
      Enumerated_Domain_Value_Definition:
        The field, LOCATION, is a concatenation of section (S),
        Meridian (M), township with direction (T), and range
        with direction (R).  The last place for township and
        direction contain the direction.  The entities are separated
        by backward slashes (\).

        SS = section number, including a leading zero where applicable

        MMM&M = an abbreviation of the meridian and baseline.  The codes
        for this part are:

          HBB&M = Humboldt Baseline and Meridian
          MDB&M = Mount Diablo Baseline and Meridian
          SBB&M = San Bernardino Baseline and Meridian

        TTTTT = Township number with leading zero where applicable.  The
        last entry contains direction, either North (N) or South (S)

        RRRRR = Range number with leading zero where applicable.  The
        last entry contains direction, either East (E) or West (W)
Attribute:
  Attribute_Label: MTRS
  Attribute_Definition:
    A concatenation of Meridian, Township, Range, and
    Section of the PLS
  Attribute_Definition_Source: Bureau of Land Management
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: MMTTT.TDRRR.RESS__
      Enumerated_Domain_Value_Definition:
        MTRS is an 18-character field which is a concatenation
        of meridian (M), Township (T), township direction (D),
        range (R), range direction (E), and section (S).  The form
        of the field is MMTTT.TDRRR.RESS__.  The last two spaces
        were included in the beginning of the study but were not utilized.

        MM = the FIPS code for meridian.  FIPS stands for the Federal
        Information Processing Standard.  The codes for the meridians are:

        15 - Humboldt
        21 - Mount Diablo
```

```
                    27 – San Bernardino

                    TTT.T = BLM Township designation as 'TTT.T' may include a fraction
                    of a Township.  For example, Township 1 would be '__1.0'.
                    Township 27.5 would be '_27.2'.  The '.2' is a 1/2 township.

                    D = BLM Township direction may be North (N) or South (S).

                    RRR.R = BLM Range designation as 'RRR.R' which may include a
                    fraction of a Range See Township (T) for example.

                    E = BLM Range direction may be East (E) or West (W).

                    SS = BLM Section number.  For example, section 1 is '_1' and
                    section 35 is '35'.  Generally the highest section number is 36,
                    but there are exceptions in several States.
              Enumerated_Domain_Value_Definition_Source:
              Hyndman and Campbell, 1999
Distribution_Information:
  Distributor:
    Contact_Information:
      Contact_Person_Primary:
        Contact_Person: Paul Hyndman
        Contact_Organization: U.S. Geological Survey
      Contact_Position: Geologist
      Contact_Address:
        Address_Type: mailing and physical address
        Address: W. 904 Riverside Avenue, Room 202
        City: Spokane
        State_or_Province: Washington
        Postal_Code: 99201
        Country: USA
      Contact_Voice_Telephone: 509-368-3118
      Contact_Facsimile_Telephone: 509-368-3199
      Contact_Electronic_Mail_Address: phyndman@usgs.gov
      Contact_Instructions: Main phone number is 509-368-3100
    Resource_Description: Open-File Report 99-409
    Distribution_Liability:
      The U.S. Geological Survey (USGS) provides this 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 any particular purpose.  The burden for determining fitness
      for use lies entirely with the user.  Although this data has been
      processed successfully on computers at the USGS, no warranty, expressed or
      implied, is made by the USGS regarding the use of this 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 the USGS.
    Technical_Prerequisites: The user should have GIS software capable of
      reading Arc/Info files
  Distributor:
    Contact_Information:
      Contact_Organization_Primary:
        Contact_Organization: U.S. Geological Survey Information Services
      Contact_Address:
        Address_Type: mailing and physical address
        Address:
          Open-File Reports
          Box 2586
        City: Denver
        State_or_Province: CO
        Postal_Code: 80225
        Country: USA
      Contact_Voice_Telephone: 1-303-202-4200
```

```
          Contact_Facsimile_Telephone: 1-303-202-4693
      Resource_Description: Open-File Report 99-409
      Distribution_Liability:
        The U.S. Geological Survey (USGS) provides this 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 any particular purpose.  The burden for determining fitness
        for use lies entirely with the user.  Although this data has been
        processed successfully on computers at the USGS, no warranty, expressed or
        implied, is made by the USGS regarding the use of this 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 the USGS.
      Technical_Prerequisites: The user should have software GIS software capable
        of reading Arc/Info files.
    Distributor:
      Contact_Information:
        Contact_Organization_Primary:
          Contact_Organization: U.S.G.S. Earth Science Information Office
        Contact_Address:
          Address_Type: mailing and physical address
          Address: 904 West Riverside Avenue, Rm 135
          City: Spokane
          State_or_Province: WA
          Postal_Code: 99201
          Country: USA
        Contact_Voice_Telephone: 509-368-3130
        Contact_Facsimile_Telephone: 509-353-2872
        Contact_Electronic_Mail_Address: esnfic@mailmcan1.wr.usgs.gov
        Hours_of_Service: 8:00 a.m. - 4:30 p.m. Pacific time zone
    Resource_Description: Open-File Report 99-409
    Distribution_Liability:
      The U.S. Geological Survey (USGS) provides this 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 any particular purpose.  The burden for determining fitness
      for use lies entirely with the user.  Although this data has been
      processed successfully on computers at the USGS, no warranty, expressed or
      implied, is made by the USGS regarding the use of this 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 the USGS.
    Technical_Prerequisites: The user should have software GIS software capable
      of reading Arc/Info files.
Metadata_Reference_Information:
  Metadata_Date: 19990225
  Metadata_Review_Date: 19990331
Metadata_Contact:
    Contact_Information:
      Contact_Person_Primary:
        Contact_Person: Paul Hyndman
        Contact_Organization: U.S. Geological Survey
      Contact_Position: Geologist
      Contact_Address:
        Address_Type: mailing and physical address
        Address: W. 904 Riverside Avenue, Room 202
        City: Spokane
```

```
            State_or_Province: Washington
            Postal_Code: 99201
            Country: USA
         Contact_Voice_Telephone: 509-368-3118
         Contact_Facsimile_Telephone: 509-368-3199
         Contact_Electronic_Mail_Address: phyndman@usgs.gov
         Hours_of_Service: 8am to 4:30pm
         Contact_Instructions: Main phone is 509-368-3100
   Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial
Metadata
   Metadata_Standard_Version: FGDC-STD-001-1998
   Metadata_Time_Convention: local time
   Metadata_Access_Constraints: none
   Metadata_Use_Constraints: none
```