

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

**Digital mining claim density map for Federal lands in Arizona: 1996**

**by**

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**Open-File Report 99-406**

**This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.**

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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 Arizona 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.

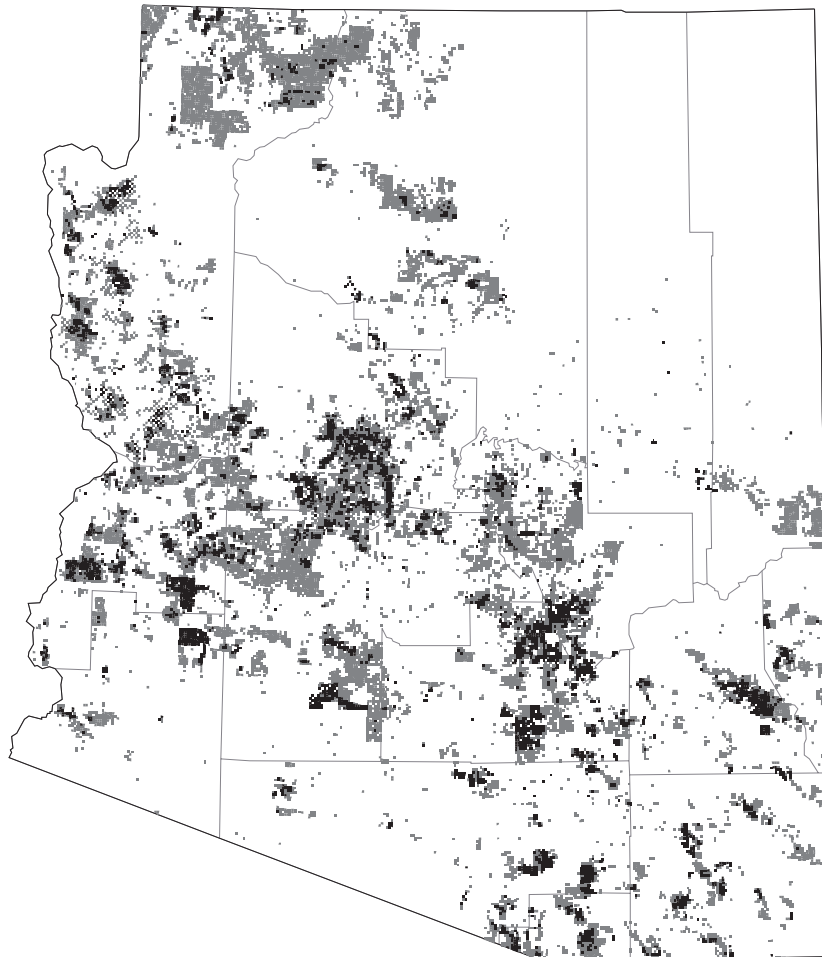


Figure 1. --- Open (black) and closed (gray) status of mining claims in Arizona for 1996.

## **DATA SOURCES, PROCESSING, AND ACCURACY**

### **Data Sources**

The mining claim density database of federal lands in Arizona 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 Arizona 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 Arizona, aztrs.e00, was used to create the digital mining claim density map. The digital map was in Arc/Info export format and was purchased from the Arizona Land Resource Information System (ALRIS), Arizona State Land Department. Metadata from ALRIS for this digital file is in cf101.text. The PLS is from 1:100,000 scale sources. The digital file and metadata are available from:

GIS Data Transfer Specialist  
Arizona State Land Department  
Arizona Land Resources Information System  
1616 W. Adams  
Phoenix, AZ, 85007

### **Processing**

The digital file, aztrs.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. A unique identifier corresponding in form to the MTRS in the mining claim density database was created in the polygon attribute table (.pat) of the Arizona digital map. The .pat was converted to a dBase file, brought into dBase5, and the MTRS field was created and populated. The file was then converted back to a .pat file and replaced the original .pat. The mining claim density database from OF99-325 was then linked, using a relate file, with the digital PLS of Arizona. 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. A subset of the digital map, that part containing mine claim density data, was created and named az\_clms. This step was necessary because the PLS acquired from ALRIS is not public domain data. However, subsets of the PLS, such as the one in this report, can be released provided that the PLS of the state cannot be recreated from the subset. The relate file was renamed az\_clms.rel and the database of Arizona from OF99-325 was renamed az\_clms.clms. The renaming allows the database and the relate file to be included in the single export file, az\_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.

## 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 Arizona 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.

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) do 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 342,346 mining claims but the database contains 342,833 mining claims. A ratio of the two numbers, .99858, indicates a very good fit.

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

Type of Claim	DIGITAL MAP DATABASE CLAIM TOTALS				
	LODE	PLACER	MILL	TUNNEL	ALL CLAIMS
Number of Open Mining Claims	25,094	5,850	2,365	8	33,317
Number of Closed Mining Claims	257,029	47,864	3,846	290	309,029
Grand Totals	282,123	53,714	6,211	298	342,346

Table 2. Mining claim totals by type and status in Arizona (az\_clms.clms database)

Type of Claim	DENSITY DATABASE CLAIM TOTALS				
	LODE	PLACER	MILL	TUNNEL	ALL CLAIMS
Number of Open Mining Claims	25,115	5,856	2,365	8	33,344
Number of Closed Mining Claims	257,471	47,886	3,842	290	309,488
Grand Totals	282,586	53,742	6,207	298	342,833

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 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, az\_clms, including the additional field, mtrs. Table 4 contains the structure and descriptions of specific fields within the mining claim density database, az\_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	3	Internal Arc/Info polygon area
5	perimeter	4	12	Floating	3	Internal Arc/Info polygon perimeter
9	az_clms#	4	5	Binary	-	Internal Arc/info polygon number
13	az_clms-id	4	5	Binary	-	User-defined polygon number
17	township <sup>1</sup>	4	4	Character	-	Township designation
21	range	4	4	Character	-	Range designation
25	section	2	2	character	-	Section number
27	<i><b>mtrs</b></i> <sup>2</sup>	18	18	Character	-	<b>Meridian+Township+Range+Section</b>
Redefined items						
17	tr	8	8	Character	-	Township + range combination
17	trs	10	10	Character	-	Township+range+section combination

<sup>1</sup> For example, the township code, '0501', is Township 5.0 North. Last digit represents direction N=1, E=2, S=3, W=4.

<sup>2</sup> For example, '14 30.0N 29E05' is Meridian 14 (Gila-Salt River), Township 30 North, Range 29 East, Section 5

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

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	DEC	DESCRIPTION
1	<i><b>mtrs</b></i> <sup>1</sup>	18	18	Character	-	<b>Meridian+Township+Range+Section</b>
19	nolc <sup>2</sup>	4	4	Integer	-	<b>Number of Open Lode Claims</b> <sup>2</sup>
23	nopc	4	4	Integer	-	<b>Number of Open Placer Claims</b>
27	nomc	4	4	Integer	-	<b>Number of Open Mill site Claims</b>
31	notc	4	4	Integer	-	<b>Number of Open Tunnel Claims</b>
35	toc	4	4	Integer	-	<b>Total number of Open Claims</b>
39	nclc	4	4	Integer	-	<b>Number of Closed Lode Claims</b>
43	npc	4	4	Integer	-	<b>Number of Closed Placer Claims</b>
47	ncmc	4	4	Integer	-	<b>Number of Closed Mill site Claims</b>
51	nctc	4	4	Integer	-	<b>Number of Closed Tunnel Claims</b>
55	tcc	4	4	Integer	-	<b>Total number of Closed Claims</b>
59	tc	4	4	Integer	-	<b>Total number of Claims of all kinds</b>

<sup>1</sup> For example, '06 30.0N 29.2E05' is Meridian 06, Township 30 North, Range 29 ½ East, Section 5

Meridians include Gila-Salt River (14) and Navaho (22).

<sup>2</sup> in a section of the PLS

## REFERENCES

Arizona State Land Department, Arizona Land Resources Information System, 1988, Public Land Survey System for Arizona: digital map, cf101.

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.

## OBTAINING DIGITAL DATA

The digital mining claim density map of Arizona, az\_clms, is provided with this report in Arc/Info EXPORT format as az\_clms.e00. The mining claim density database, az\_clms.clms, and the relate file, az\_clms.rel, are contained in the export file. A metadata file, az\_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 4 lists the files and their sizes.

Table 5. Files available with this Open-File Report

FILE NAME	FILE TYPE	SIZE IN KILOBYTES
of99-406.pdf	PDF file	470
az_clms.e00	Arc/Info export	17,291
az_clms.met	Metadata	44
cf101.txt	Metadata for aztrs.e00	12

### By Anonymous FTP

Do the following steps to obtain the files for OF99-406 by 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: <i>your email address</i>	Use your email address as a password ( <a href="#">you@email_address</a> )
'cd pub/open-file'	Go down to the pub/open-file directory
'cd of99-406'	Go down to the specific open file directory
'binary'	Type the word 'binary' to change the transfer type to binary mode
'get of99-406.exe'	Copy the self-extracting file across the Internet to

'bye' the receiving directory on your computer  
Close the ftp connection

Extracting the files from the of99-406.exe self-extracting file is accomplished by typing the name of the file, 'of99-406', 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 OF99-406 by the World Wide Web:

STEP	REASON
Attach to the internet with your web browser 'http://wrgis.wr.usgs.gov/open-file/'	This connects you to the internet. Make sure the internet address looks like this to connect with the USGS computer, WRGIS
Find the report in the listing and click on of99-407	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, az\_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 az\_clms

Feature Class	Subclass	FEATURE CLASSES		
		Number of Features	Attribute data (bytes)	Spatial Index? Topology?
ARCS		48304		
POLYGONS		18066	44	Yes
NODES		31283		

#### SECONDARY FEATURES

Tics	2050
Arc Segments	74096
Polygon Labels	17561

#### TOLERANCES

Fuzzy = 63.263 V

Dangle = 0.000 N

#### COVERAGE BOUNDARY

Xmin = 156500.219  
Ymin = 3466392.500

Xmax = 685330.688  
Ymax = 4099018.500



## STATUS

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

### COORDINATE SYSTEM DESCRIPTION

Projection                    UTM  
Zone                         12  
Units                         METERS  
Spheroid                     CLARKE1866  
Parameters:

#### Description of Arc/Info az\_clms.rel relate structure

Relation                    = AZ\_CLMS  
Table-Id                    = az\_clms.clms  
Database                    = info  
Item                         = MTRS  
Column                      = mtrs  
Type                         = ORDERED  
Access                      = RO

#### Formal metadata for the digital pls map, aztrs from ALRIS

The following metadata describes the digital pls map:

Identification\_Information:  
  Citation:  
    Citation\_Information:  
      Originator: Arizona State Land Department, Arizona Land Resources  
Information System  
    Publication\_Date: 1988  
    Title: Public Land Survey System for Arizona  
    Geospatial\_Data\_Presentation\_Form: map  
    Publication\_Information:  
      Publication\_Place: Phoenix, Arizona  
      Publisher: Arizona State Land Department, Arizona Land Resources  
Information System  
  Description:  
    Abstract:  
      This statewide coverage consists of the Township, Range, and  
      Section grid lines.  
    Purpose:  
      The data are created to serve as base information for use in  
      GIS systems for a variety of planning and analysis purposes.  
      Use of data for Engineering work is prohibited.  
  Time\_Period\_of\_Content:  
    Time\_Period\_Information:  
      Single\_Date/Time:  
        Calendar\_Date: Unknown  
    Currentness\_Reference: Not Applicable  
  Status:  
    Progress: Complete  
    Maintenance\_and\_Update\_Frequency: None planned  
  Spatial\_Domain:  
    Bounding\_Coordinates:  
      West\_Bounding\_Coordinate: -114.764702  
      East\_Bounding\_Coordinate: -108.913689  
      North\_Bounding\_Coordinate: 37.0208626  
      South\_Bounding\_Coordinate: 31.2770576  
  Keywords:  
    Theme:

Theme\_Keyword\_Thesaurus: None  
 Theme\_Keyword: Public Land Survey System  
 Theme\_Keyword: Township and Range  
 Theme\_Keyword: Land Net  
 Place:  
 Place\_Keyword\_Thesaurus: None  
 Place\_Keyword: Arizona  
 Access\_Constraints:  
 Access is granted to public agencies. The Department makes no warranties related to the accuracy of the data and users are required to determine suitability of use for any particular purpose.  
 Use\_Constraints: Not for use at scales greater than 1:100000.  
 Point\_of\_Contact:  
 Contact\_Information:  
 Contact\_Organization\_Primary:  
 Contact\_Organization: Arizona State Land Department, Arizona Land Resources Information System  
 Contact\_Position: GIS Data Transfer Specialist  
 Contact\_Address:  
 Address\_Type: mailing and physical address  
 Address: 1616 West Adams  
 City: Phoenix  
 State\_or\_Province: Arizona  
 Postal\_Code: 85007  
 Country: USA  
 Contact\_Voice\_Telephone: (602) 542-4709  
 Contact\_Facsimile\_Telephone: (602) 542-2600  
 Contact\_Electronic\_Mail\_Address: gisdata@lnd.state.az.us  
 Hours\_of\_Service: Monday-Friday, 8-5, Mountain Time  
 Browse\_Graphic:  
 Browse\_Graphic\_File\_Name:  
<http://www.land.state.az.us/alris/datagifs/aztrs.gif>  
 Browse\_Graphic\_File\_Description: Graphic demonstrates extent and features of data set  
 Browse\_Graphic\_File\_Type: GIF  
 Native\_Data\_Set\_Environment:  
 Arc/Info version 7.0.4, SunOS version 4.1.3  
 Pathname = /gis/covers/aztrs/aztrs  
 Data\_Quality\_Information:  
 Attribute\_Accuracy:  
 Attribute\_Accuracy\_Report:  
 Accuracy of area and length attributes is unknown. A report has not been completed.  
 Logical\_Consistency\_Report: Polygon and arc-node topology exists.  
 Completeness\_Report: Data set is complete  
 Positional\_Accuracy:  
 Horizontal\_Positional\_Accuracy:  
 Horizontal\_Positional\_Accuracy\_Report:  
 Approximate horizontal accuracy is 51 meters, assuming source data meets National Map Accuracy Standards.  
 Vertical\_Positional\_Accuracy:  
 Vertical\_Positional\_Accuracy\_Report: NONE  
 Lineage:  
 Source\_Information:  
 Source\_Citation:  
 Citation\_Information:  
 Originator: ALRIS  
 Publication\_Date: 1988  
 Title: Integrated data layers of Public Land Survey, land ownership and county data  
 Geospatial\_Data\_Presentation\_Form: map  
 Source\_Scale\_Denominator: 100000  
 Type\_of\_Source\_Media: digital  
 Source\_Time\_Period\_of\_Content:  
 Time\_Period\_Information:  
 Single\_Date/Time:  
 Calendar\_Date: Unknown  
 Source\_Currentness\_Reference: Not Applicable  
 Source\_Citation\_Abbreviation: L1  
 Source\_Contribution: Source provided arcs to derive data set.

Process\_Step:  
   Process\_Description:  
     Dissolved polygons from Land data set with the Township,  
     Range, and Section attribute.  
   Source\_Used\_Citation\_Abbreviation: L1  
   Process\_Date: 1988

Spatial\_Data\_Organization\_Information:  
   Direct\_Spatial\_Reference\_Method: Vector  
   Point\_and\_Vector\_Object\_Information:  
     SDTS\_Terms\_Description:  
       SDTS\_Point\_and\_Vector\_Object\_Type: Complete Chain  
       Point\_and\_Vector\_Object\_Count: 206475  
       SDTS\_Point\_and\_Vector\_Object\_Type: GT-polygon composed of chains  
       Point\_and\_Vector\_Object\_Count: 97726  
       SDTS\_Point\_and\_Vector\_Object\_Type: Area Point  
       Point\_and\_Vector\_Object\_Count: 97725

Spatial\_Reference\_Information:  
   Horizontal\_Coordinate\_System\_Definition:  
     Planar:  
       Grid\_Coordinate\_System:  
         Grid\_Coordinate\_System\_Name: Universal Transverse Mercator  
         Universal\_Transverse\_Mercator:  
           UTM\_Zone\_Number: 12  
           Transverse\_Mercator:  
             Scale\_Factor\_at\_Central\_Meridian: 0.9996  
             Longitude\_of\_Central\_Meridian: -111.0000  
             Latitude\_of\_Projection\_Origin: 00.0000  
             False\_Easting: 500000  
             False\_Northing: 0  
         Planar\_Coordinate\_Information:  
           Planar\_Coordinate\_Encoding\_Method: coordinate pair  
           Coordinate\_Representation:  
             Abscissa\_Resolution: .1  
             Ordinate\_Resolution: .1  
           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:  
   Detailed\_Description:  
     Entity\_Type:  
       Entity\_Type\_Label: AZTRS.PAT  
       Entity\_Type\_Definition: Polygon Attribute Table  
       Entity\_Type\_Definition\_Source: None  
     Attribute:  
       Attribute\_Label: AREA  
       Attribute\_Definition: Area of polygon.  
       Attribute\_Definition\_Source: None  
       Attribute\_Domain\_Values:  
         Codeset\_Domain:  
           Codeset\_Name: trtext.lut  
           Codeset\_Source: None  
       Attribute\_Units\_of\_Measure: Square METERS  
       Beginning\_Date\_of\_Attribute\_Values: 1988  
     Attribute:  
       Attribute\_Label: PERIMETER  
       Attribute\_Definition: Perimeter of polygon.  
       Attribute\_Definition\_Source: None  
       Attribute\_Domain\_Values:  
         Range\_Domain:  
           Range\_Domain\_Minimum: 92  
           Range\_Domain\_Maximum: 1404430.125  
       Attribute\_Units\_of\_Measure: METERS  
       Beginning\_Date\_of\_Attribute\_Values: 1988  
     Attribute:  
       Attribute\_Label: AZTRS#  
       Attribute\_Definition:  
         This is a unique internally assigned identification number

for each polygon  
 Attribute\_Definition\_Source: None  
 Attribute\_Domain\_Values:  
   Range\_Domain:  
     Range\_Domain\_Minimum: 2  
     Range\_Domain\_Maximum: 97726  
 Beginning\_Date\_of\_Attribute\_Values: 1988  
 Attribute:  
   Attribute\_Label: AZTRS-ID  
   Attribute\_Definition: User assigned identification number for each polygon  
   Attribute\_Definition\_Source: None  
   Attribute\_Domain\_Values:  
     Range\_Domain:  
       Range\_Domain\_Minimum: 1  
       Range\_Domain\_Maximum: 97725  
   Beginning\_Date\_of\_Attribute\_Values: 1988  
 Attribute:  
   Attribute\_Label: TOWNSHIP  
   Attribute\_Definition:  
     The first three digits are the Township number and the last digit is the direction. 1=North; 2=East; 3=South; 4=West  
   Attribute\_Definition\_Source: None  
   Attribute\_Domain\_Values:  
     Unrepresentable\_Domain: Character field  
   Beginning\_Date\_of\_Attribute\_Values: 1988  
 Attribute:  
   Attribute\_Label: RANGE  
   Attribute\_Definition:  
     The first three digits are the Range number and the last digit is the direction. 1=North; 2=East; 3=South; 4=West  
   Attribute\_Definition\_Source: None  
   Attribute\_Domain\_Values:  
     Unrepresentable\_Domain: Character field  
   Beginning\_Date\_of\_Attribute\_Values: 1988  
 Attribute:  
   Attribute\_Label: SECTION  
   Attribute\_Definition: Section number  
   Attribute\_Definition\_Source: None  
   Attribute\_Domain\_Values:  
     Unrepresentable\_Domain: Character field  
   Beginning\_Date\_of\_Attribute\_Values: 1988  
 Distribution\_Information:  
 Distributor:  
   Contact\_Information:  
     Contact\_Organization\_Primary:  
       Contact\_Organization: Arizona State Land Department, Arizona Land Resources Information System  
     Contact\_Position: GIS Data Transfer Specialist  
     Contact\_Address:  
       Address\_Type: mailing and physical address  
       Address: 1616 West Adams  
       City: Phoenix  
       State\_or\_Province: Arizona  
       Postal\_Code: 85007  
       Country: USA  
     Contact\_Voice\_Telephone: (602) 542-4709  
     Contact\_Facsimile\_Telephone: (602) 542-2600  
     Contact\_Electronic\_Mail\_Address: gisdata@lnd.state.az.us  
     Hours\_of\_Service: Monday-Friday, 8-5, Mountain Time  
 Distribution\_Liability:  
   Users must assume responsibility to determine the usability of this data for their purposes.  
 Standard\_Order\_Process:  
   Digital\_Form:  
     Digital\_Transfer\_Information:  
       Format\_Name: Arc/Info Export  
       Format\_Version\_Number: 7.0.4  
       Format\_Version\_Date: 19960121  
     Digital\_Transfer\_Option:  
       Online\_Option:

Computer\_Contact\_Information:  
 Network\_Address:  
 Network\_Resource\_Name:  
 http://www.land.state.az.us/alris/alrishome.html  
 Access\_Instructions: Instructions are sent to users after data have  
 been ordered.  
 Online\_Computer\_and\_Operating\_System: SunOS version 4.1.3 (UNIX)  
 Digital\_Transfer\_Option:  
 Offline\_Option:  
 Offline\_Media: 8mm tape cartridge  
 Recording\_Format: tar  
 Digital\_Transfer\_Option:  
 Offline\_Option:  
 Offline\_Media: quarter-inch tape cartridge  
 Recording\_Format: tar  
 Digital\_Transfer\_Option:  
 Offline\_Option:  
 Offline\_Media: 100 MB Zip disk  
 Recording\_Format: DOS  
 Fees:  
 Public agencies can utilize the data for cost of media only  
 and no charge for internet downloads. Commercial entities  
 can obtain a cost waiver for contract work for public  
 agencies. Fees will be assessed for purely commercial use  
 of the data.  
 Ordering\_Instructions: Other formats are available. Please refer to  
 Contact Person.

Metadata\_Reference\_Information:  
 Metadata\_Date: 19980408  
 Metadata\_Review\_Date: 19981021  
 Metadata\_Contact:  
 Contact\_Information:  
 Contact\_Organization\_Primary:  
 Contact\_Organization: Arizona State Cartographer's Office  
 Contact\_Position: Assistant State Cartographer  
 Contact\_Address:  
 Address\_Type: mailing and physical address  
 Address: 1616 West Adams  
 City: Phoenix  
 State\_or\_Province: Arizona  
 Postal\_Code: 85007  
 Country: USA  
 Contact\_Voice\_Telephone: (602) 542-3249  
 Contact\_Facsimile\_Telephone: (602) 542-2600  
 Contact\_Electronic\_Mail\_Address: gismeta@lnd.state.az.us  
 Hours\_of\_Service: Monday-Friday, 8-5, Mountain Time  
 Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial  
 Metadata  
 Metadata\_Standard\_Version: 19940608

### **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 for Federal lands in Arizona: 1996  
 Edition: Version 1.0  
 Geospatial\_Data\_Presentation\_Form: map and database  
 Description:  
 Abstract:

The mining claim density data of federal lands in Arizona are combined with the digital Arizona Public Land Survey (PLS) to create a digital map of the density of mine claims in Open-File Report 99-406.

The mining claim density data of federal lands in Arizona was one of 13 western states released in Open-File Report 99-325. The database for Arizona 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 Arizona 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 Arizona 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: az\_clms.e00

Part\_Description: This Arc/Info export file contains the coverage az\_clms, the database az\_clms.clms, and the relate az\_clms.rel. This digital map contains only those parts of the Arizona PLS which contain mine claim density data. The original PLS of Arizona was acquired from the U.S. Bureau of Mines when it was closed by Congress in 1996. The Bureau of Mines purchased the PLS of Arizona from a private company. The data is proprietary and cannot be released in its complete form.

Data\_Set\_Part:

Part\_Type: Arc/Info database

Part\_Name: az\_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: az\_clms.rel

Part\_Description: This file contains the parameters needed to relate the database, az\_clms.clms to the digital map database, az\_clms.pat. The structure of the relate is:

RELATION	=	AZ_CLMS
TABLE-ID	=	az_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: -115  
    East\_Bounding\_Coordinate: -109  
    North\_Bounding\_Coordinate: 37  
    South\_Bounding\_Coordinate: 31  
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: Arizona  
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 meant to be construed as a legal representation of mining claim boundaries. The PLS digital map is from the Arizona State Land Department, Arizona Land Resources Information System. Users should contact them for a current digital pls map and metadata. The map should not be used at scales larger than 1:100,000.

The user must obtain current information on mining claims from the Arizona 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.

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 Arizona was released as part of the U.S. Geological Open-File Report, OF 99-325. It was imported as an Arc/Info table, az\_clms.clms, using the command, dbaseinfo. A relate, az\_clms.rel, was made to connect the database to the PLS of Arizona. 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 Arizona is assumed to be complete although it does not cover the entire state.

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:  
 Refer to the metadata for the pls, file cf101.text.

Lineage:  
 Source\_Information:  
 Source\_Citation:  
 Citation\_Information:  
 Originator:  
 Arizona State Land Department, Arizona Land Resources Information System. 1616 W. Adams, Phoenix, AZ, 85007. Contact by phone at (602) 542-4709, or by email at [gisdata@lnd.state.az.us](mailto:gisdata@lnd.state.az.us). The digital PLS is considered copyrighted and will not be released in a form that would enable someone to reconstruct the PLS. Portions can be released in paper or digital form.  
 Publication\_Date: 1988  
 Title: Public Land Survey System for Arizona  
 Geospatial\_Data\_Presentation\_Form: map  
 Type\_of\_Source\_Media: digital file  
 Source\_Time\_Period\_of\_Content:  
 Time\_Period\_Information:  
 Single\_Date/Time:  
 Calendar\_Date: 1988  
 Source\_Currentness\_Reference:  
 The PLS may not be current with regard to section lines and corners.  
 Source\_Citation\_Abbreviation: none  
 Source\_Contribution:  
 ALRIS provided the digital PLS of Arizona at a nominal cost.

Process\_Step:  
 Process\_Description:  
 A field, mtrs, was added to the Arizona PLS to which the mine claim density database could be attached. The polygon attribute table, .pat, was converted to a dBase file. The mtrs field was created and populated and the table was converted back to a .pat table. The original .pat was replaced with the new .pat. The data was attached through the use of a relate, az\_clms.rel, and a subset of the Arizona PLS which contained only mine claim density data was created. An example of commands for using the relate in ArcEdit for selecting all claims in the Total Claims (tc) field is:  
 'restore relate az\_clms.rel'  
 'editcover az\_clms'  
 'sel az\_clms//tc'  
 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: 31283  
 SDTS\_Point\_and\_Vector\_object\_Type: String  
 Point\_and\_Vector\_Object\_Count: 48304  
 SDTS\_Point\_and\_Vector\_object\_Type: GT-polygon composed of chains  
 Point\_and\_Vector\_Object\_Count: 18066

Spatial\_Reference\_Information:  
 Horizontal\_Coordinate\_System\_Definition:  
 Planar:  
 Grid\_Coordinate\_System:  
 Grid\_Coordinate\_System\_Name: Universal Transverse Mercator  
 Universal\_Transverse\_Mercator:  
 UTM\_Zone\_Number: 12  
 Transverse\_Mercator:  
 Scale\_Factor\_at\_Central\_Meridian: 0.9996  
 Longitude\_of\_Central\_Meridian: -111.0000  
 Latitude\_of\_Projection\_Origin: 00.0000  
 False\_Easting: 500000

False\_Northing: 0  
 Planar\_Coordinate\_Information:  
   Planar\_Coordinate\_Encoding\_Method: coordinate pair  
   Coordinate\_Representation:  
     Abscissa\_Resolution: .1  
     Ordinate\_Resolution: .1  
   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:  
   Detailed\_Description:  
     Entity\_Type:  
       Entity\_Type\_Label: az\_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:  
           14 - Gila-Salt River  
           22 - Navajo  
           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  
   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: 67  
 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: 38  
 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: 117  
 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: 1  
 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: 129  
 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: 172  
 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: 104  
 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: 144  
 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: 12  
 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: 235  
 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: 254  
 Detailed\_Description:  
   Entity\_Type:  
     Entity\_Type\_Label: az\_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. The coverage, az\_clms,  
   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: az\_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: az\_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: TOWNSHIP  
 Attribute\_Definition:  
     The first three digits are the Township number and the last  
     digit is the direction. 1=North; 2=East; 3=South; 4=West  
 Attribute\_Definition\_Source: None  
 Attribute\_Domain\_Values:  
     Unrepresentable\_Domain: Character field  
 Beginning\_Date\_of\_Attribute\_Values: 1988

Attribute:  
 Attribute\_Label: RANGE  
 Attribute\_Definition:  
     The first three digits are the Range number and the last  
     digit is the direction. 1=North; 2=East; 3=South; 4=West  
 Attribute\_Definition\_Source: None  
 Attribute\_Domain\_Values:  
     Unrepresentable\_Domain: Character field  
 Beginning\_Date\_of\_Attribute\_Values: 1988

Attribute:  
 Attribute\_Label: SECTION  
 Attribute\_Definition: Section number  
 Attribute\_Definition\_Source: None  
 Attribute\_Domain\_Values:  
     Unrepresentable\_Domain: Character field  
 Beginning\_Date\_of\_Attribute\_Values: 1988

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: MMTT.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 MMTT.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:

    14 - Gila-Salt River  
     22 - Navajo

    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 99-406

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 99-406

Distribution\_Liability:

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