



# *The National Map resources for the Mojave Desert region*

Drew Decker, USGS Geospatial Liaison – Arizona, Southern California

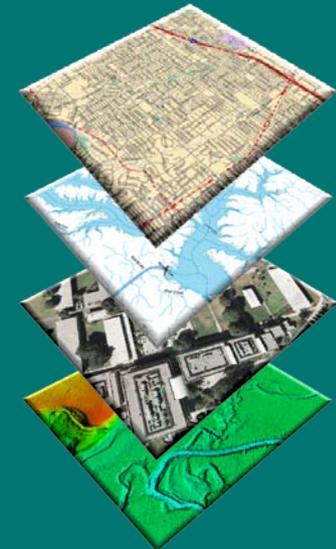
U.S. Department of the Interior  
U.S. Geological Survey

## *This presentation will cover:*

- *The National Map*
- US Topo maps
- Historical Topographic Map Collection
- *The National Map Viewer*
- Earth Explorer
- LandsatLook

# *The National Map*

- *The National Map* is built on partnerships and standards
- *The National Map* consists of eight data layers: hydrography, elevation, orthoimagery, geographic names, boundaries, transportation, land cover, structures
- Public domain data support
  - topographic maps at 1:24,000-scale
  - products and services at multiple scales and resolutions
  - analysis, modeling, and other applications at multiple scales and resolutions



# Components

*The National Map* is a collection of digitally produced maps in several formats built on individually produced and maintained layers. It can be expressed as two parts:

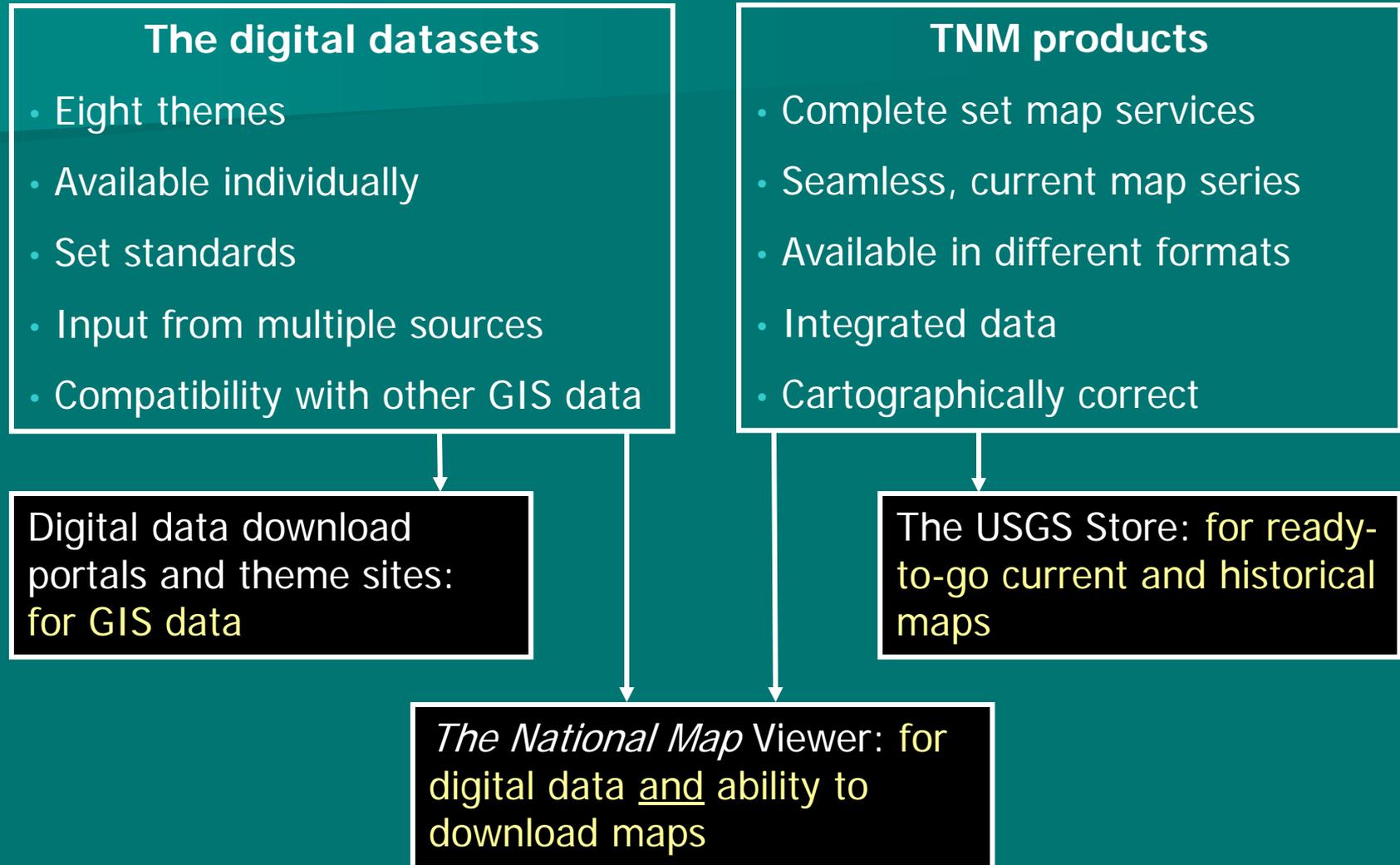
## The digital datasets

- Eight themes
- Available individually
- Set standards
- Input from multiple sources
- Compatibility with other GIS data

## TNM products

- Standard map series
- Completeness and consistency
- Available in different formats
- Integrated data
- Cartographically correct

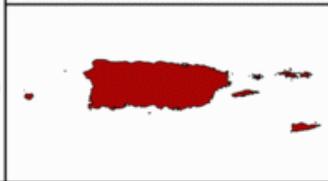
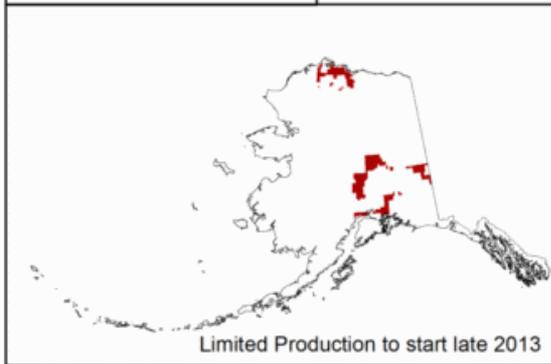
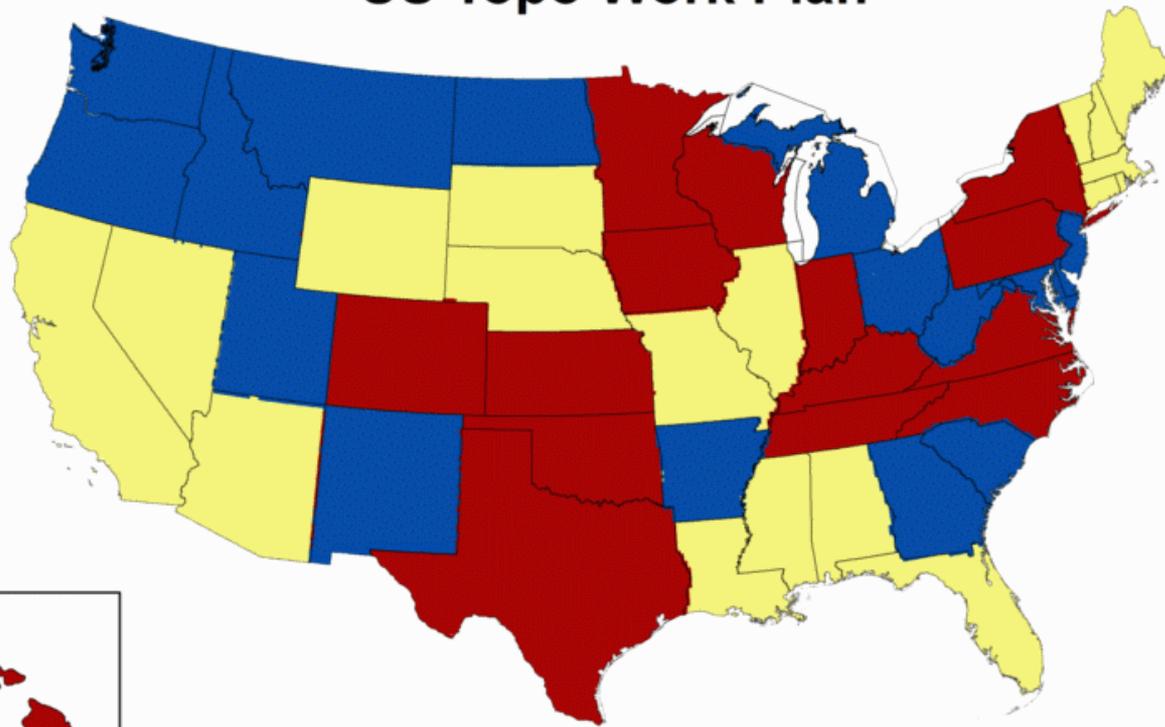
# Access



## Learn about US Topo

- US Topo is the 21<sup>st</sup> century follow up to the familiar USGS topographic map series
- See our product page here: [nationalmap.gov/ustopo](http://nationalmap.gov/ustopo)
- Nationwide regeneration of 7.5-minute map series using *The National Map* data on a three year cycle (based on FSA NAIP)
- Look and feel of original map series
- Increased generation rate – several hours per map; 7.5-minute topo program took many years
- Long-term goal of best and most current data from local partners
- Files easily viewed, printed, and exchanged
- Maintain complete national coverage while ensuring regular updates
- Builds on first year production (2009) to add contours, hydrography, and some structures (fire stations, hospitals)

# US Topo Work Plan



- Update in 2012
- Update in 2013
- Update in 2014

January 24, 2013

# Data Sources

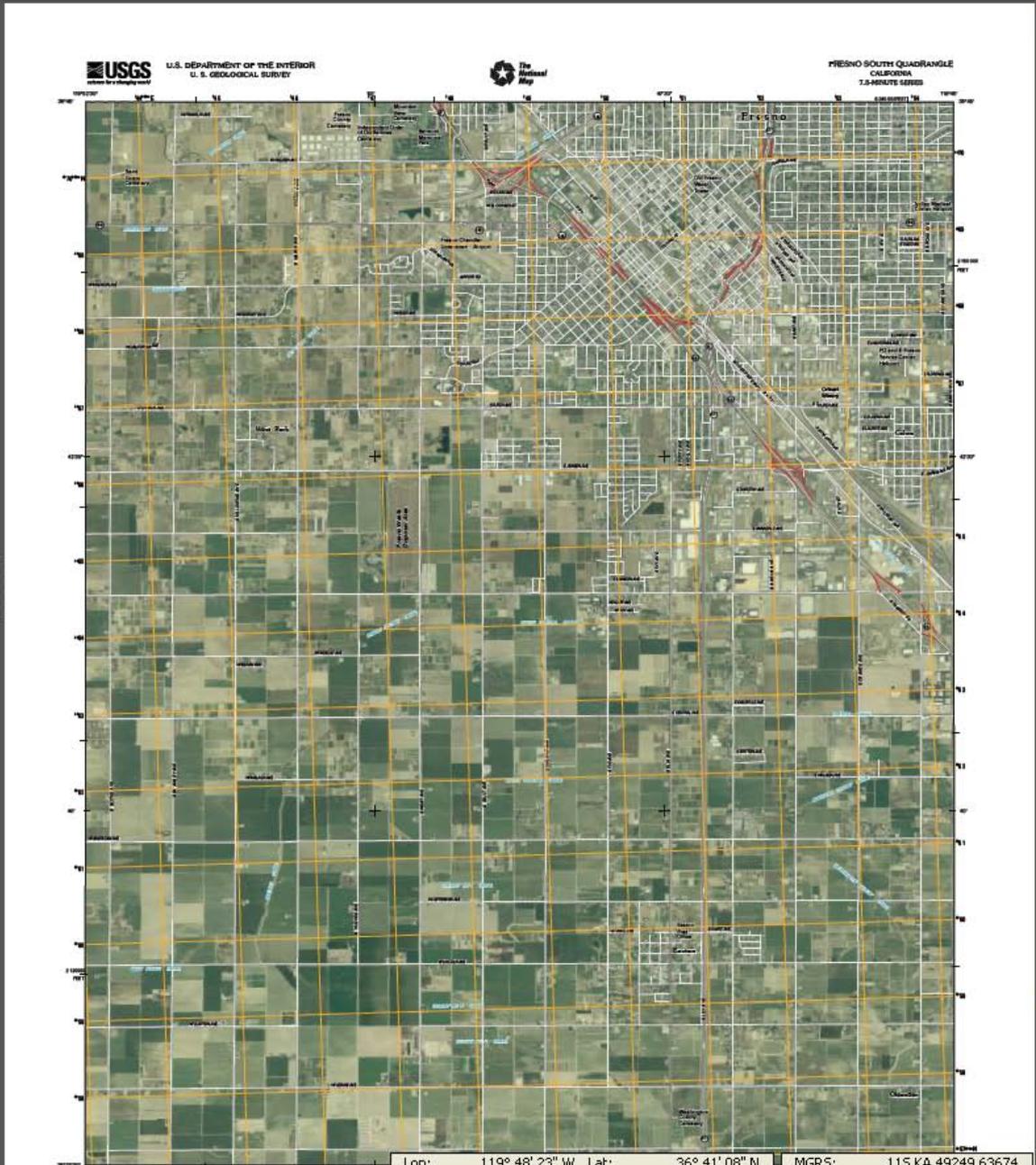
- *The National Map*
  - Transportation – TomTom (2012)
  - Boundaries – National Boundaries Dataset
  - Names - Geographic Names Information System
  - Orthoimage – National Agriculture Image Program (NAIP)
  - Elevation – National Elevation Dataset
  - Hydrography – National Hydrography Dataset
  - Structures – National Structures Dataset
  - Vegetation – National Landcover Dataset
- Other Sources
  - Grids and quadrangle level metadata - generated
  - High-resolution historic maps - scanned

# *Product Characteristics*

- GeoPDF format
  - A TerraGo Technologies published extension to the Adobe PDF file format
- File size varies - about 15 to 25 Mb
- Georeferenced
  - Locations defined in terms of map projection and coordinate systems
- Layered (select layers, turn layers on/off)
- Limited interactive capabilities, free tools

**Layers**

- Map Collar
- Map Frame
- Images

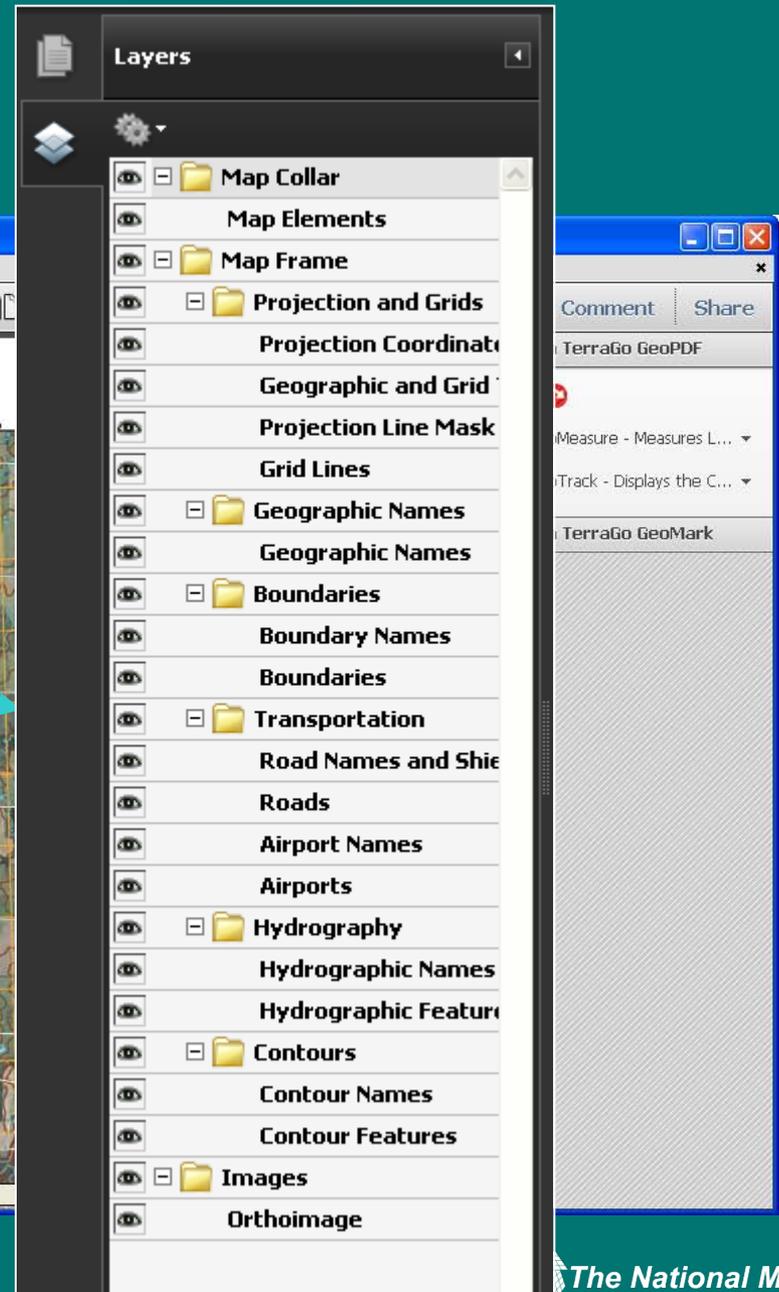
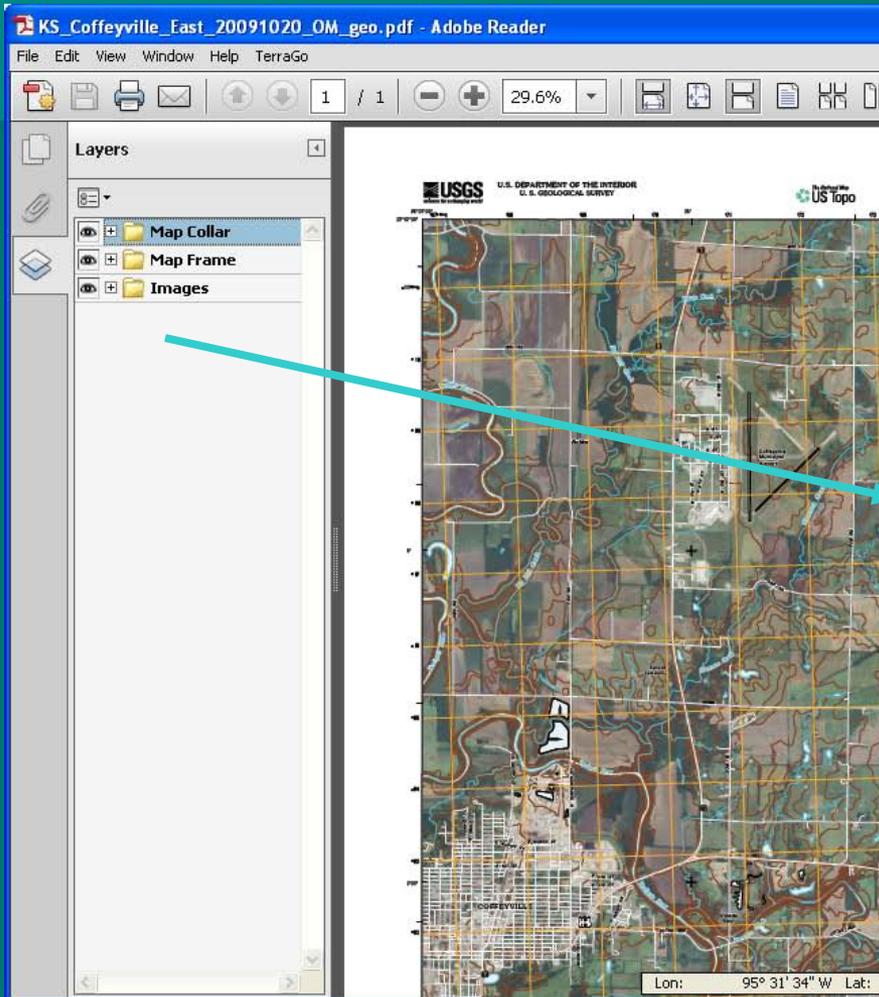


▼ Plug-In TerraGo GeoPDF

- GeoMeasure - Measures L...
- GeoTrack - Displays the C...

► Plug-In TerraGo GeoMark

# Downloaded Map Layer List (expanded)



**Layers**

- Map Collar
- Map Frame
- Images



Plug-In TerraGo GeoPDF

- GeoMeasure - Measures L...
- GeoTrack - Displays the C...

Plug-In TerraGo GeoMark

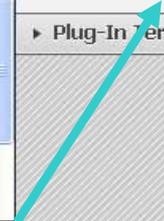
**Show/Hide Toolbars**

- ✓ GeoTool - Locks/Unlocks Coordinates, Google™ Map It and Launches Other GeoPDF Tools.
- ✓ GeoLocator - Shows and Finds Coordinates and Provides Ability to Modify Coordinate System Displays.
- ✓ GeoMeasure - Measures Length or Area.
- ✓ GeoTrack - Displays the Current Position of an Attached GPS Device.

Show All Tools

Reset Toolbar

More Tools...



21.75 x 29.00 in

Lon: 95° 35' 37" W Lat: 37° 06' 15" N MGRS: 15S TB 69525 09569

# Web Site - Users Guide



## US Topo Users Guide

This guide explains how to access and use US Topo maps and their predecessors, the "Digital Map – Beta." Additional information about these products is available on the Web at <http://nationalmap.gov/ustopo/index.html>.

US Topo maps include geographically referenced base information from *The National Map* and other sources, including roads, hydrography, contours, and geographic names on an image base. The preliminary version, "Digital Map – Beta," does not contain hydrographic features or contours. These earlier maps will be replaced by US Topo maps at the time of updating.

The maps are available on the Web at no cost, in the GeoPDF® format. Free tools allow users to determine coordinates, measure distances and angles between points, measure area, and determine positions using a GPS device, display coordinates in various map projections and datum, turn layers on and off, zoom in and out, and print the map image.

### Quickstart

**Prerequisites.** A computer with a recent Windows operating system, Internet access, and Adobe® Reader® software. For full functionality, the TerraGo Technologies Toolbar is recommended.

**Access to US Topo Maps and "Digital Maps – Beta."** Go to <http://store.usgs.gov> and click on "Map Locator."

**Locating US Topo Maps and "Digital Maps – Beta."** Click on the button labeled "Show US Topo and Digital Maps – Beta" button on the Map Locator page, zoom in, and use the "MARK POINTS" option to select a quadrangle. Click on the red marker to display a list of available maps for that quadrangle.

**Downloading US Topo Maps and "Digital Maps – Beta."** Click "download" and save the file to your computer. Then unzip the compressed file to open the GeoPDF file.

**Opening the Extracted Map File.** Find the extracted file and click on the file name to open the map. Install TerraGo Technologies Toolbar for full functionality (recommended).

**Using the Map.** Open and close map layers by clicking on the 'eye' icon in the layers panel. Expand and collapse the layers by clicking on the '+' and '-' icons. Use the Adobe and TerraGo Technologies Toolbar menus and tools to zoom, pan, display coordinates, measure, and perform other operations on the map image.

**Printing.** Select "File" and "Print" in the Adobe menu bar.

## Locating US Topo Maps and "Digital Maps – Beta" Through the USGS Store

At the "[Map Locator](#)" page of the USGS Store, select the orange "Show US Topo and Digital Maps – Beta" button below the map graphic. When selected, a layer showing the available US Topo maps will appear in red. The older "Digital Maps – Beta" will appear in yellow. By zooming in a location, the map cells become quadrangle outlines filled with red or yellow hatching. Use the "MARK POINTS" option to select the desired quadrangle. Click on the red marker that marks the selected quadrangle to display a list of available maps for that quadrangle.

You can also search for USGS quadrangles by quadrangle name or by address/place. *Note: National coverage of US Topos will require some time to complete.* A [graphic](#) showing planned coverage is at <http://nationalmap.gov/ustopo/about.html>.

## Downloading US Topo Maps and "Digital Maps – Beta"

Click "download" for the selected map, then click "Save" to save the downloaded file to a directory and file name you specify on your local hard drive. The map is delivered to you in a compressed zip file (.zip). To access the map file contained therein, unzip and extract the file. Please note the possibility of file corruption exists if the file is not extracted properly from the zip file.

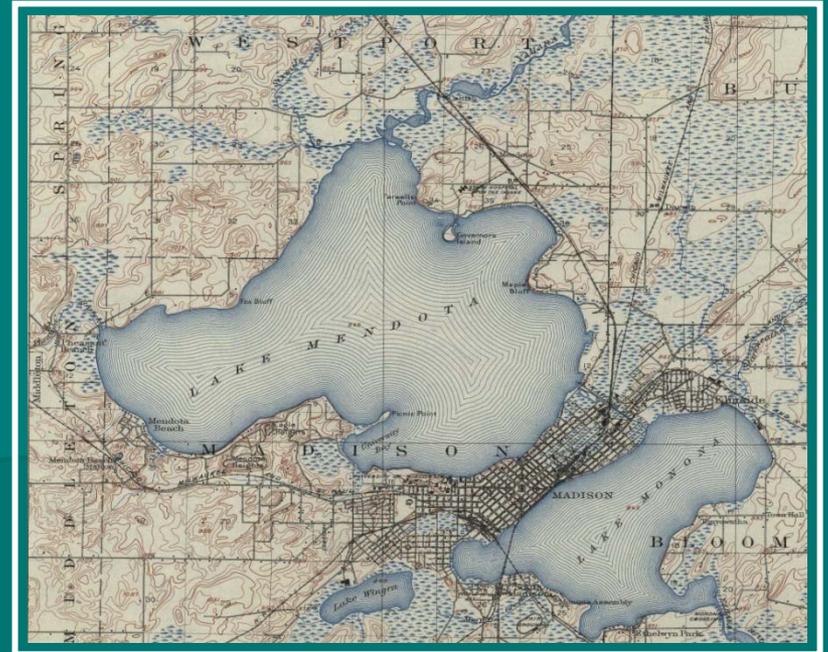
To unzip and extract the map file from a compressed zip file:

1. Locate the compressed zip file from which you want to extract the GeoPDF.
2. Right-click the compressed zip file, click Extract All, and then follow the instructions.

## ***2012 US Topo maps for CA, NV, and AZ***

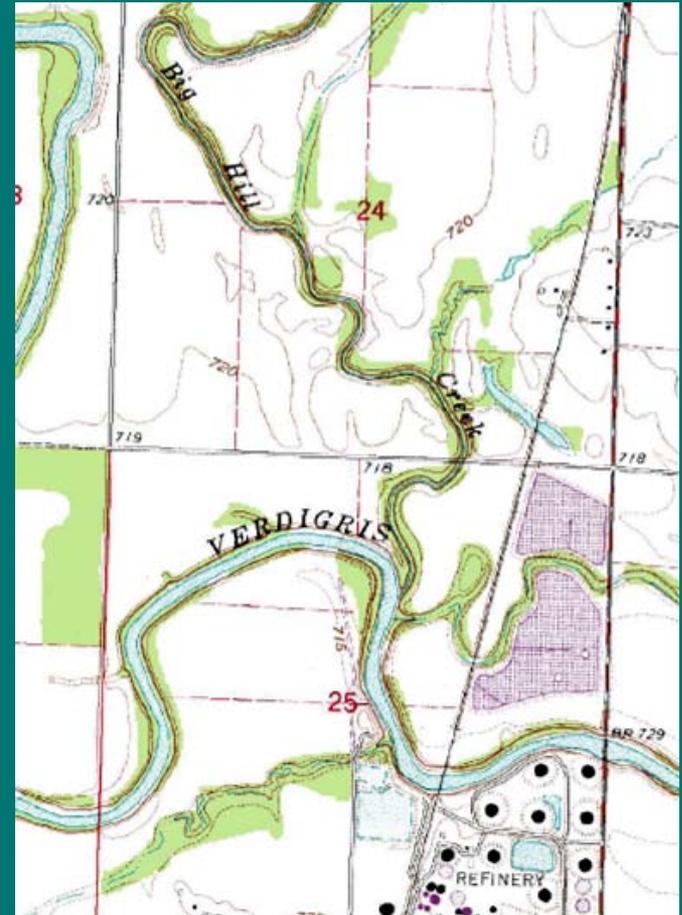
- All maps built to US Topo standard (no beta)
- All quadrangles completed (variability on borders)
- Added National Hydrography Dataset (NHD) surface water features
- Added National Elevation Dataset elevation contours (note contours in feet, not meters)
- Added green vegetation tint
- County and state boundaries added
- Limited structures (public safety)
- Photo background is 2010 NAIP
- States are all complete (as of April, 2012)

# *Historical Topographic Map Collection*



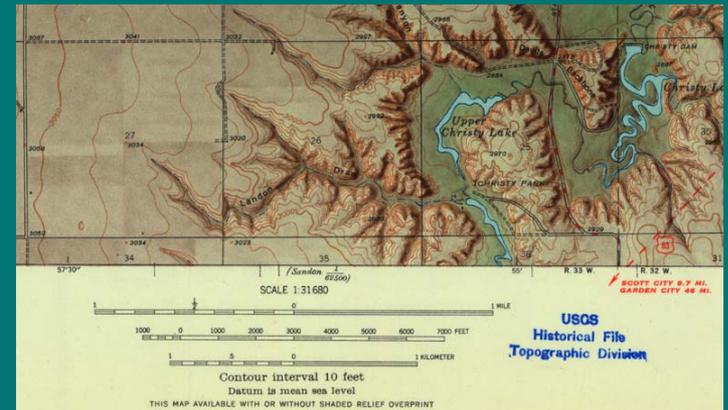
# Goals for historical USGS quadrangle scanning

- ✓ Scan approximately 180,000 printed quadrangles – all maps, all scales. Historical quads are all printed maps prior to US TOPO.
- ✓ Use consistent, high quality specifications
- ✓ Provide all editions, all scales
- ✓ Georeference the maps
- ✓ Release through the USGS Store and *The National Map Viewer*

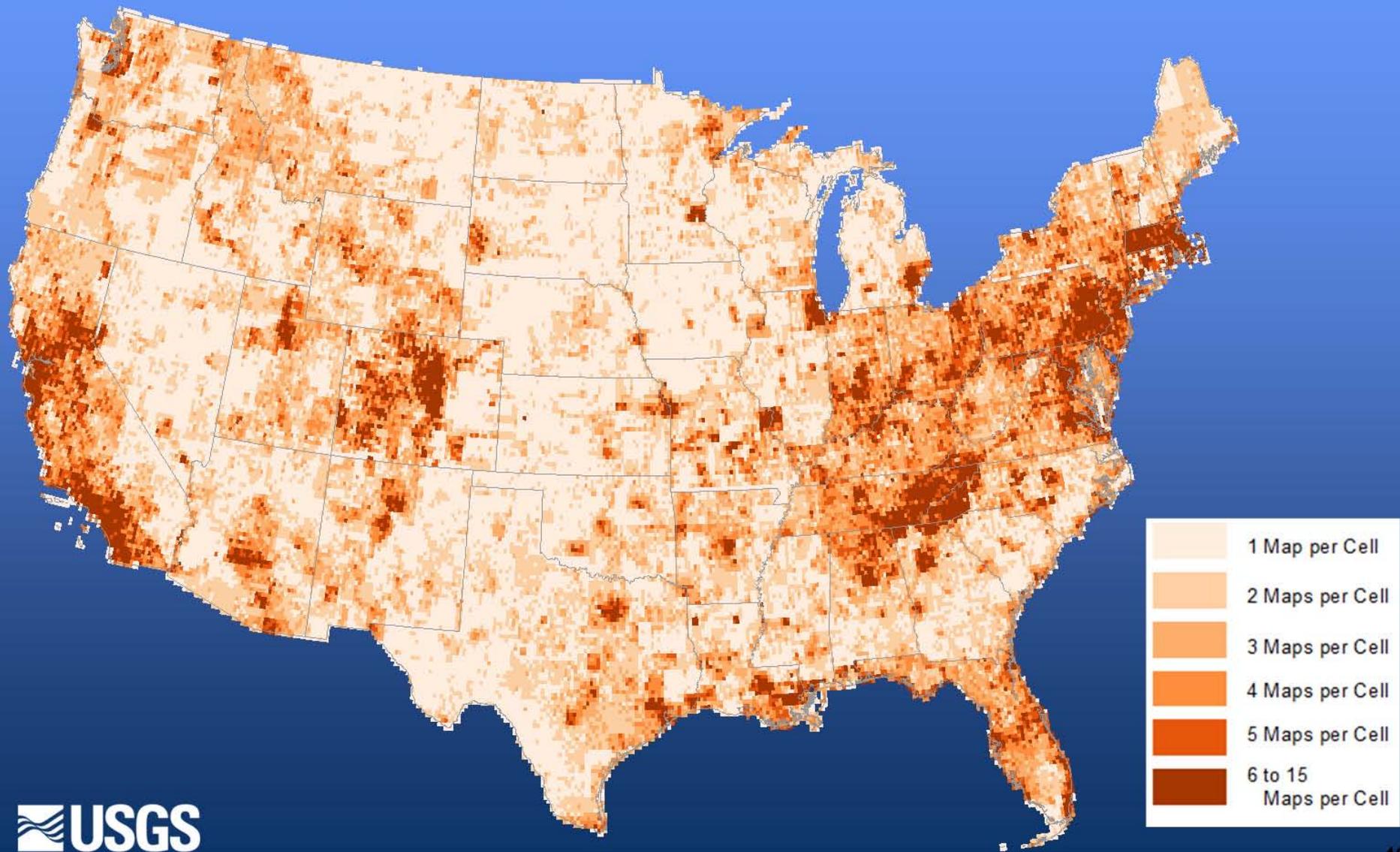


# Goals for historical USGS quadrangle scanning

- ✓ A complete copy of all metadata and digital files will be available from USGS
- ✓ Copies will be housed at the national Archives and Records Administration as well as the Library of Congress, Geography and Maps Division
- ✓ Copies of pertinent segments of the collection may be housed in local map libraries, research institutes and other government offices
- ✓ All files will be in the public domain

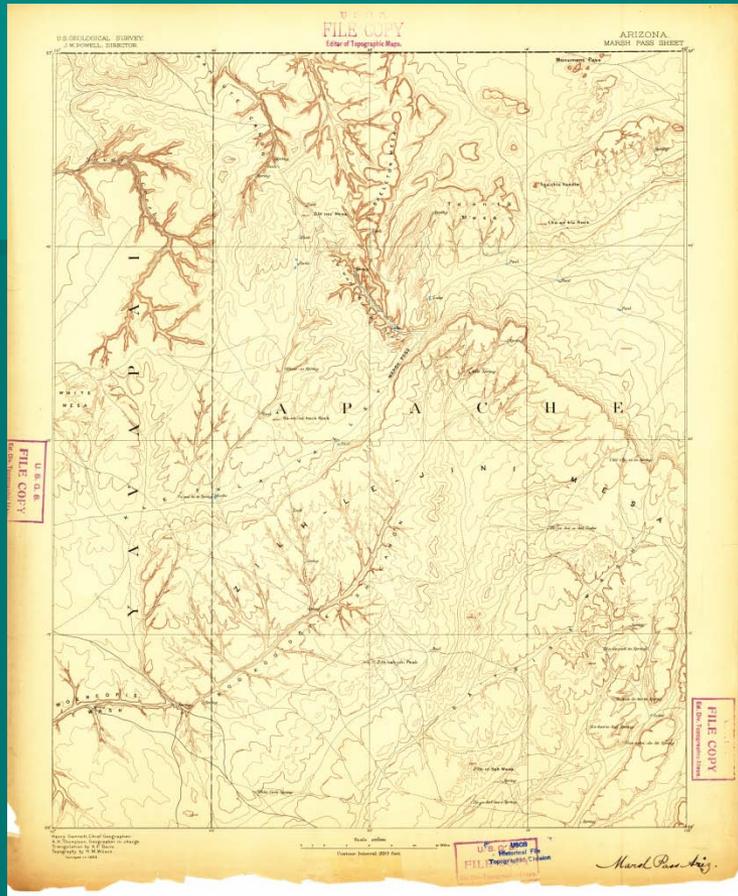


Approximately 125,000 maps at 1:24,000 and 1:25,000 --  
Plus about 55,000 maps at all other scales



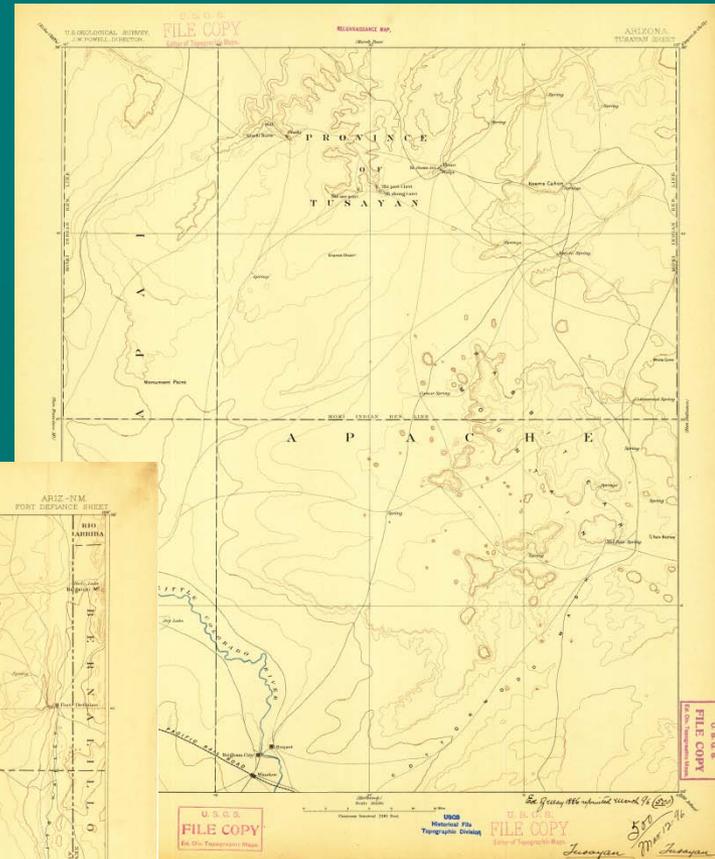
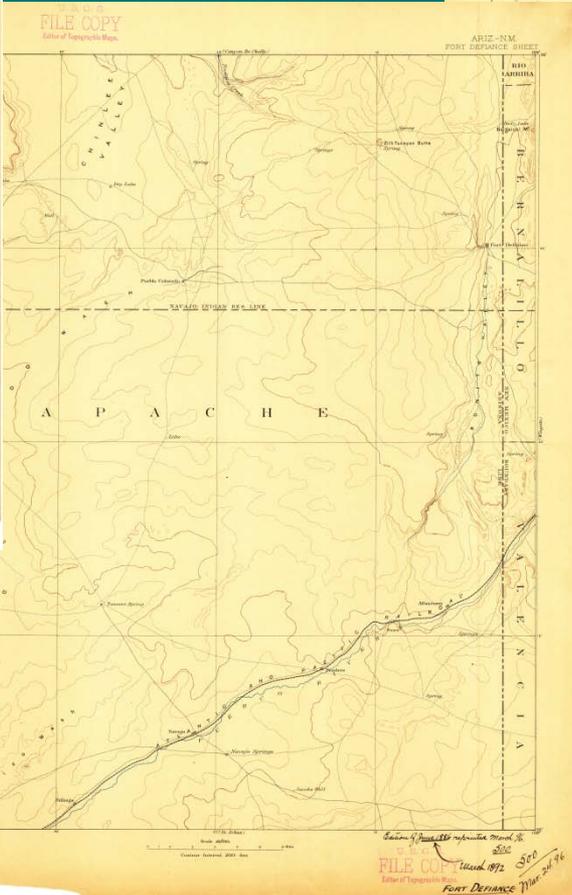
# Arizona's Oldest Maps:

1:250,000  
Published 1883



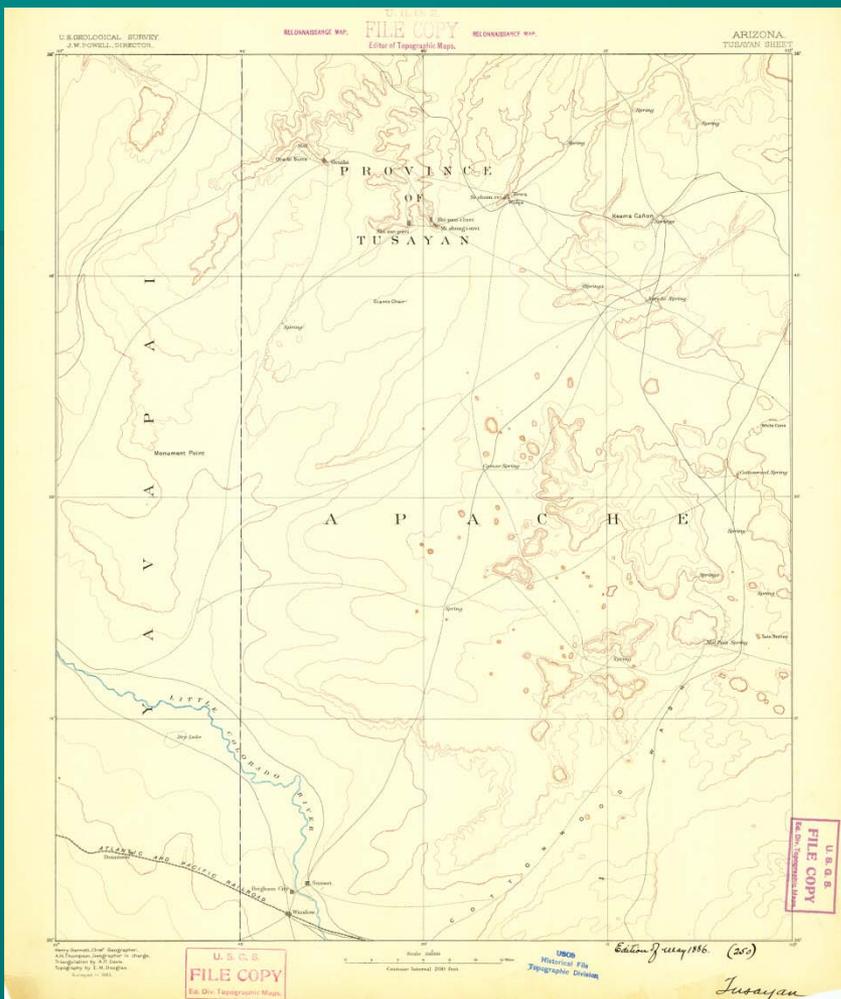
Marsh Pass

Fort Defiance

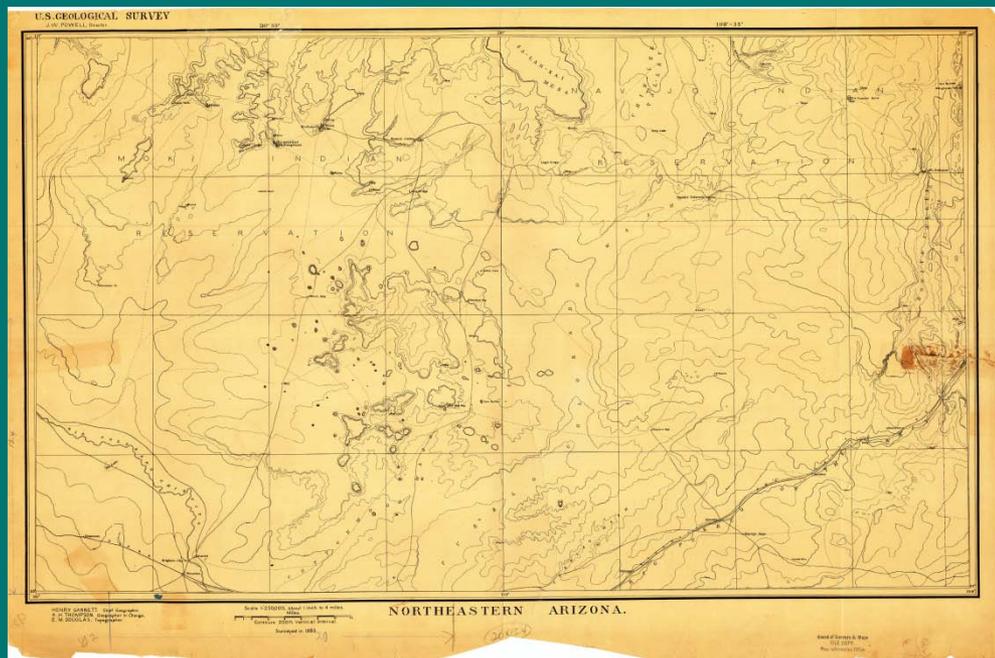


Tusayan

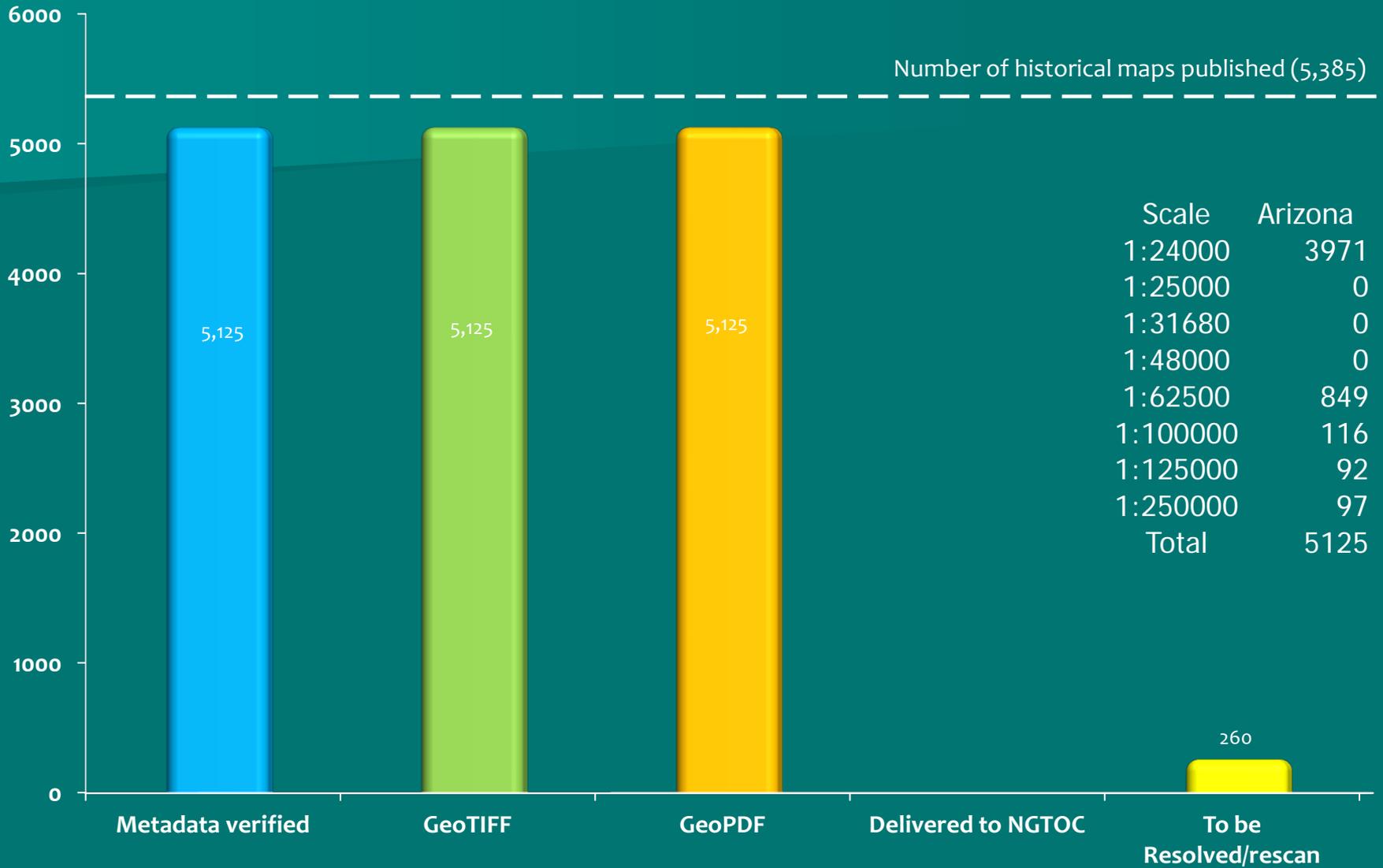
# Tusayan



# Northeastern Arizona



# Historical Topographic Maps for Arizona



# How can you get US Topo and Historical Topographic Map Collection?

The USGS Store

[Log on](#) |  No Items in Basket | [Help](#)

**Search**

[Map Locator](#) >>

or Enter Search Term:

[Advanced Search](#)

- Product Catalog**
- [USGS Store Home](#)
  - [Back-2-School Specials!](#)
  - [Recreation Passes](#)
  - [Education Products](#)
  - [Featured & New Products](#)
  - [Maps](#)
  - [Books & Reports](#)
  - [Other Products](#)

**Other Items of Interest**

[Other USGS Links](#)

Find a [USGS Map Dealer](#) in your area.

**Tips For Using This Site**

This website will time out after 30 minutes of inactivity, if you cannot complete your order please "SAVE YOUR BASKET" for later, otherwise your shopping basket will be lost.

Some products have a detailed PDF version, download Adobe Reader to view them.

 [Get ADOBE READER](#)

## Welcome To The USGS Store

Here you can find maps, Federal Recreation passes, scientific reports, educational materials, and much more!

**Landsat State Maps** [View All](#) >>



Satellite imagery combined with elevation data creates a superbly realistic depiction of every state.

**Go here!**

Product Number: 208747

6 / 10 

**Maps** >>



Maps, Maps, Maps read more about different kinds of USGS map products.

[Map Locator](#) >>



Find, Order, or Download FREE Topographic Maps!

**US Topo:** The next generation of topographic maps. Illustrates available US Topos and Digital Maps-Beta.

**Recreation Passes** >>



Provides entry into US National Parks, National Forests, and other places.

**Education Products** >>



Several hundred of the most useful USGS maps for teaching and learning.

**US Geological Survey USGSstore**

@USGSstore is having a Back-2-School sale!! Educators and students alike can find something they need at store.usgs.gov  
2 hours ago

It's #FreeMapMonday!!! We will be drawing a winner at 10 am Mountain Standard Time. North American residents follow to win!  
2 hours ago

Today in 1898 Hawaii was annexed to the United States! See Hawaii's volcanic activity with this map:  
<http://go.usa.gov/cBW>  
3 days ago

 [Join the conversation](#)

Free Map Monday Rules

**Search**

**Map Locator & Downloader**

or Enter Search Term:

[Advanced Search](#)

**Product Catalog**

[USGS Store Home](#)

[Recreation Passes](#)

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[Maps](#)

[Books & Reports](#)

[Other Products](#)

**Other Items of Interest**

**Other USGS Links**

Find a [USGS Map Dealer](#) in your area.

**Tips For Using This Site**

This website will time out after 30 minutes of inactivity, if you cannot complete your order please "SAVE YOUR BASKET" for later, otherwise your shopping basket will be lost.

Some products have a detailed PDF version, download Adobe Reader to view them.

Get ADOBE® READER®

**We Want To Know**

If you encounter any problems or have questions please call **1-888-ASK-USGS** (1-888-275-8747) **Select Option 1** or email us at: [usgsstore@usgs.gov](mailto:usgsstore@usgs.gov).

Don't see the Map Locator & Downloader? [Help](#) | [DOI Disclaimer on Google Maps API](#)

**Map Locator & Downloader**

Having trouble? Call: 1-888-ASK-USGS (1-888-275-8747) or Write: [usgsstore@usgs.gov](mailto:usgsstore@usgs.gov) for help.

GeoPDF maps from the [USGS Historical Topographic Map Collection](#) now available to download and view. [View Status Map](#)

2

Search:

Address or Place  [\[Search Help\]](#)

Map | Satellite | Hybrid | Topo

BUY	Size	Date	View	DOWNLOAD
<a href="#">Phantom Ranch US Topo</a>	7.5X7.5	2011	<a href="#">view</a>	<a href="#">25.6MB</a>
<a href="#">Phantom Ranch "Digital Map - Beta"</a>	7.5X7.5	2009	<a href="#">view</a>	<a href="#">13.6MB</a>
<a href="#">Phantom Ranch</a>	7.5X7.5	1988	<a href="#">view</a>	<a href="#">6.3MB</a>
<a href="#">Phantom Ranch</a>	7.5X7.5	1988	<a href="#">view</a>	<a href="#">11.6MB</a>

Map interface showing Phantom Ranch location with a search bubble overlay.

Find a place on the map [\[Navigation Help\]](#)

NAVIGATE:  
Double click to re-center, click and drag to pull the map around, zoom in and out.

MARK POINTS:  
Click on a place to add a marker .

NOTES:  
Switch between Navigate and Mark Points at any time.

The following [map footprints](#) appear when you are in the Mark Points mode and zoomed in:

7.5 and 15 Minute

3

SELECT AND GET YOUR MAPS:

Click marker to see an information bubble showing maps available, then click on "order", "download", or add maps your download cart.

[View Download Cart](#)

Hide US Topo and "Digital Maps - Beta"

US Topo  "Digital Maps - Beta"

- [About USGS Maps](#)
- [About GeoPDF Maps](#)
- [About Map Dates](#)
- [About US Topo](#)
- [US Topo Quickstart](#)

1



Do more with GeoPDF:

- **Annotate** with geospatial information
- **Measure** distances and area, in your own coordinate system

# The National Map - Viewer

The National Map - Windows Internet Explorer

http://nationalmap.gov/

USGS science for a changing world

The National Map

USGS Home Contact USGS Search USGS

## The National Map

### The National Map Home

- US Topo
- National Map Viewers
- Products and Services
- Partnerships
- Reading Room
- News & Events
- The National Map Corps
- National Geospatial Program
- History of USGS Topographic Maps
- A Celebration of 125 Years of Topographic Mapping

## The National Map

### Introduction to The National Map

As one of the cornerstones of the U.S. Geological Survey's (USGS) [National Geospatial Program](#), *The National Map* is a collaborative effort among the USGS and other Federal, State, and local partners to improve and deliver topographic information for the Nation. It has many uses ranging from recreation to scientific analysis to emergency response. *The National Map* is easily accessible for display on the Web, as products and services, and as downloadable data. The geographic information available from *The National Map* includes orthomagey (aerial photographs), elevation, geographic names, hydrography, boundaries, transportation, structures, and land cover. Other types of geographic information can be added within the viewer or brought in with *The National Map* data into a Geographic Information System to create specific types of maps or map views. *The National Map* is a significant contribution to the [National Spatial Data Infrastructure](#) (NSDI) and currently is being transformed to better serve the geospatial community by providing high quality, integrated geospatial data and improved products and services including new generation digital topographic maps.

In addition to being an important contribution to the NSDI, *The National Map* is foundational to implementation of the Department of the Interior (DOI) [Geospatial Modernization Blueprint](#) and meeting the DOI mission to protect America's treasures for future generations, provide access to our nation's natural and cultural heritage, offer recreation opportunities, honor our trust responsibilities, conduct scientific research, provide wise stewardship of energy and mineral resources, foster sound use of land and water resources, and conserve and protect fish and wildlife. *The National Map* also underpins the [USGS Science Strategy](#) which is based on a systems approach to help address multi-faceted issues, provide better understanding of earth processes and evaluate broad causes and consequences of the use and management of natural resources.

This is a new version of *The National Map* web site. The site will continue to undergo revisions and we welcome your suggestions and comments to improve this site. Please direct comments to [nationalmap@usgs.gov](mailto:nationalmap@usgs.gov).

### Mark DeMulder Presentation at the ESRI User's Conference

[Mark DeMulder](#), Director of the U.S. Geological Survey's [National Geospatial Program](#) (NGP) gives a briefing at the USGS All-Hands meeting during the ESRI UC on July 14, 2010. The presentation includes:

- personal background and information on the USGS

[Get the latest Flash player](#)

[nationalmap.gov/viewer](http://nationalmap.gov/viewer)

1 Search

6 Download Data Clear Hide Toolbox

Overlays Selection Cart

Content Reorder Layers

Base Data Layers

- US Topo
- Geographic Names (GNIS)
- Structures
- Transportation
- Governmental Unit Boundaries
- Map Indices
- Hydrography (NHD)
- Land Cover
- Elevation Availability
- Elevation Contours - Small Scale
- Imagery
- Scanned Topo Maps
- Reference Polygons

4

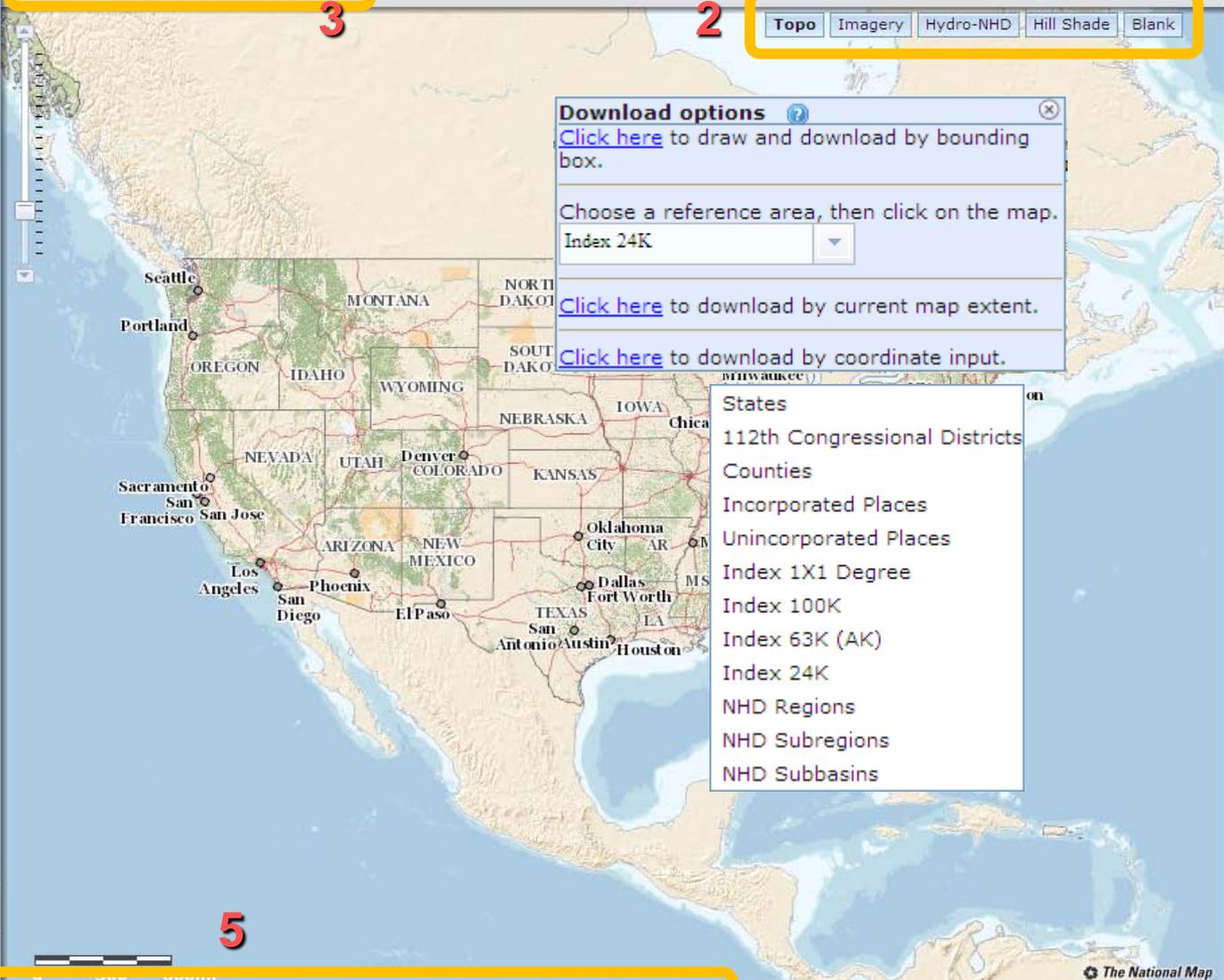
Other Featured Data

User Added Content

Favorites

3 Standard Advanced Annotation Active Tool: None (Map Navigation)

2 Topo Imagery Hydro-NHD Hill Shade Blank



5 Cursor Position 49° 29' 12.475" N 130° 30' 34.222" W Scale 1:36,978,595

## *What's New with TNM Viewer*

- Download US Topo and Historical Topo Map Collection maps
- Improved search capability
- Added contour downloads
- Different base maps to view (topo, imagery, hydro, hill shade)
- Elevation availability
- Download interface adds selection by bounding box and selection by coordinates

# *The National Map Viewer services*

- Tiled map cache  
(<http://basemap.nationalmap.gov/ArcGIS/rest/services>)
  - Looks like basemap on Viewer
  - Can turn on/off – US Topo, imagery, vectors, contours, hydrography
- Raster (<http://raster.nationalmap.gov/ArcGIS/rest/services>)
  - Shaded relief
  - imagery
  - land cover
- Vector (<http://services.nationalmap.gov/ArcGIS/rest/services>)
  - Transportation
  - Vector fills

# EarthExplorer site

The screenshot displays the USGS EarthExplorer website. At the top left is the USGS logo with the tagline "science for a changing world". The top right contains links for "USGS Home", "Contact USGS", and "Search USGS". Below the header is a navigation bar with "Home", "Login", "Register", "Feedback", and "Help".

The main content area is divided into two sections. On the left is the search interface, and on the right is a map of North America.

**Search Interface:**

- Search Criteria Summary (Show)** and **Clear Criteria** buttons are at the top of the search area.
- Navigation tabs include "Search Criteria", "Data Sets", "Additional Criteria", and "Results".
- 1. Enter Search Criteria** is the current step.
- Instructions: "To narrow your search area: type in an address or place name, enter coordinates or click the map to define your search area (for advanced map tools, view the [help documentation](#)), and/or choose a date range."
- Search methods: "Address/Place", "Path/Row", "Feature", "Circle".
- Coordinates: "Predefined Area", "Shapefile", "KML".
- Coordinate format: "Degree/Minute/Second" (selected) and "Decimal".
- Status: "No coordinates selected."
- Buttons: "Use Map", "Add Coordinate", "Clear Coordinates".
- Date Range: "Date Range" and "Result Options" tabs. Search from: "01/01/1920" to: "03/15/2013". Search months: "(all)".
- Buttons: "Data Sets", "Additional Criteria", "Results".

**Map:**

- Map of North America showing the United States, Canada, and Mexico.
- Coordinates:  $(41^{\circ} 30' 30'' \text{ N}, 171^{\circ} 54' 50'' \text{ E})$ .
- Map controls: "Options", "Overlays", "Map", "Satellite".
- Map features: "Northwestern Passages", "Hudson Bay", "Bering Sea", "Gulf of Alaska", "North Pacific Ocean", "Gulf of California", "Gulf of Mexico", "Caribbean Sea", "Cuba", "Puerto Rico", "Guatemala", "Nicaragua", "Venezuela", "Guyana", "Suriname", "Colombia", "Ecuador", "Peru", "Bolivia", "Brazil", "Venezuela", "Guyana", "Suriname", "Colombia", "Ecuador", "Peru", "Bolivia", "Brazil".

# *EarthExplorer – source for raster data*

## **Aerial photography**

- Air photo mosaics
- DOQs
- High Resolution Orthoimagery (urban areas)
- NAPP and NHAP but not NAIP
- Aerial Photo Single Frames (historical)

## **Satellite data**

- Landsat
- AVHRR sensor
- Commercial (limited – Orbview 3, IKONOS)
- NASA EO-1

## **Elevation data**

- SRTM
- Lidar (point cloud data moving from CLICK site)

# Selecting EarthExplorer data

**USGS**  
science for a changing world

**EarthExplorer**

Home

**Search Criteria** | Data Sets | Additional Criteria | Results

### 1. Enter Search Criteria

To narrow your search area: type in an address or place name, enter coordinates or click the map to define your search area (for advanced map tools, view the [help documentation](#)), and/or choose a date range.

**Address/Place** | Path/Row | Feature | Circle

Show Clear

**Coordinates** | Predefined Area | Shapefile | KML

Degree/Minute/Second | Decimal

No coordinates selected.

Use Map Add Coordinate Clear Coordinates

**Date Range** | Result Options

Search from: 01/01/1920 to: 03/15/2013

Search months: (all)

Data Sets » Additional Criteria » Results »

**Search Criteria Summary (Show)**

## 2. Select Your Data Set(s)

Check the boxes for the data set(s) you want to search. When done selecting data set(s), click the *Additional Criteria* or *Results* buttons below. Click the plus sign next to the category name to show a list of data sets.

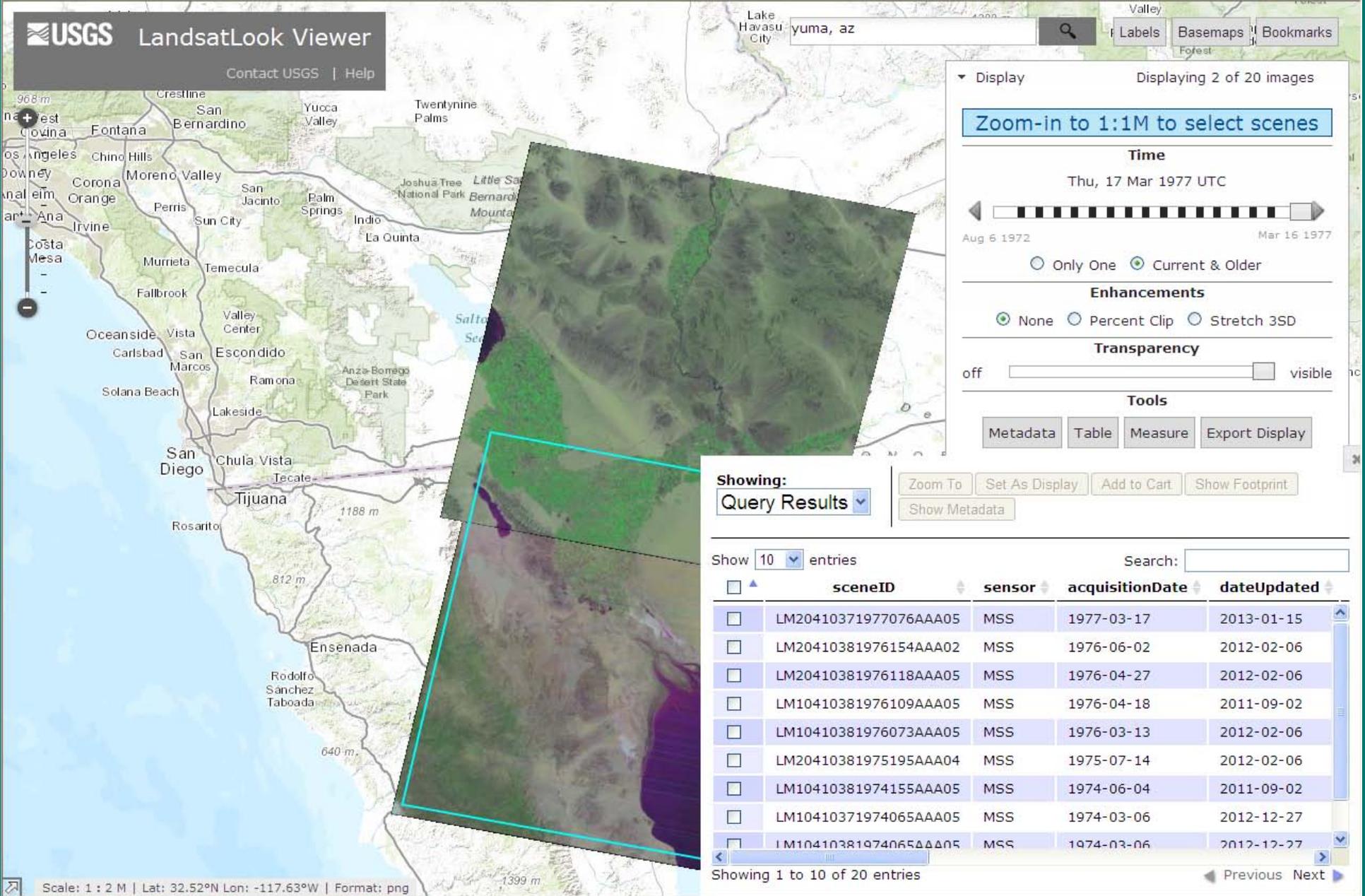
Use Data Set Prefilter ([What's This?](#))

Data Set Search:

- Aerial Photography
- AVHRR
- Cal/Val Reference Sites
- Commercial
- Declassified Data
- Digital Elevation
- Digital Line Graphs
- Digital Maps
- EO-1
- Forest Carbon Sites
- Global Fiducials
- Global Land Survey
- HCMM
- JECAM Sites
- Land Cover
- Landsat Archive
- Landsat CDR
- Landsat Legacy
- Landsat MRLC
- LIDAR
- NASA LPDAAC Collections
- Orbview-3
- Radar
- Vegetation Monitoring

## ***LandsatLook***

- Quick access views of recent and historical Landsat data
- Not full access to data but rather a quick to see if scene is useful
- Images shown as .jpg files
- Images are natural color
- Can select a number of search criteria
  - range of years
  - sensor (MSS, TM, ETM)
  - cloud cover



Showing:  
Query Results

Show 10 entries Search:

<input type="checkbox"/>	sceneID	sensor	acquisitionDate	dateUpdated
<input type="checkbox"/>	LM20410371977076AAA05	MSS	1977-03-17	2013-01-15
<input type="checkbox"/>	LM20410381976154AAA02	MSS	1976-06-02	2012-02-06
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<input type="checkbox"/>	LM10410381976109AAA05	MSS	1976-04-18	2011-09-02
<input type="checkbox"/>	LM10410381976073AAA05	MSS	1976-03-13	2012-02-06
<input type="checkbox"/>	LM20410381975195AAA04	MSS	1975-07-14	2012-02-06
<input type="checkbox"/>	LM10410381974155AAA05	MSS	1974-06-04	2011-09-02
<input type="checkbox"/>	LM10410371974065AAA05	MSS	1974-03-06	2012-12-27
<input type="checkbox"/>	LM10410381974065AAA05	MSS	1974-03-06	2012-12-27

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## *One final resource - the US Interagency Elevation Inventory*

- Initial work collects NOAA, USGS, FEMA, USACE and other datasets
- Look and feel of NOAA's Digital Coast inventory and portal
- USGS will maintain topography
- NOAA will maintain bathymetry and coastal collections
- <http://www.csc.noaa.gov/inventory/>

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