Data Sharing and Management

Jason Stoker
SAIC, contractor to USGS EROS

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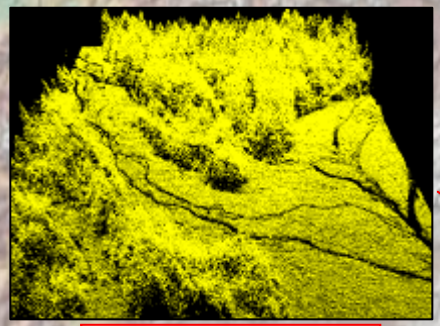
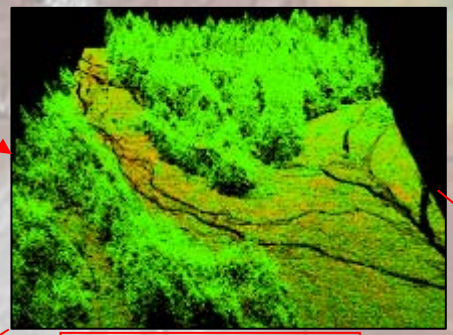
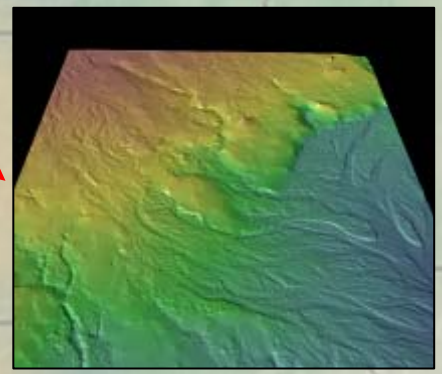
LIDAR Flow



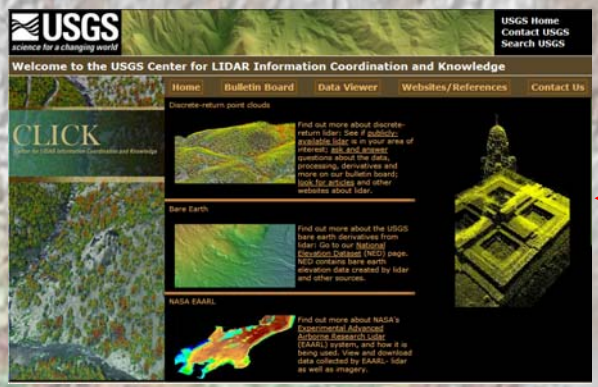
Raw Points



Processing

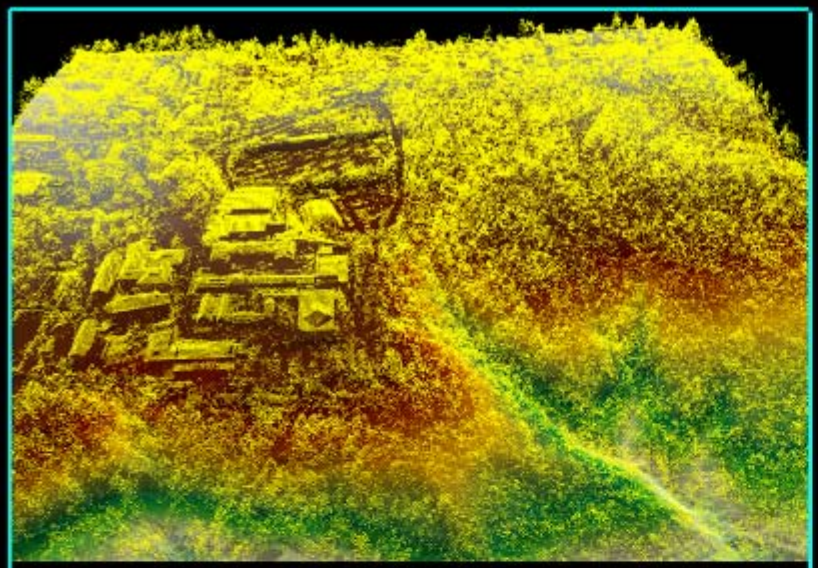


Bare Earth

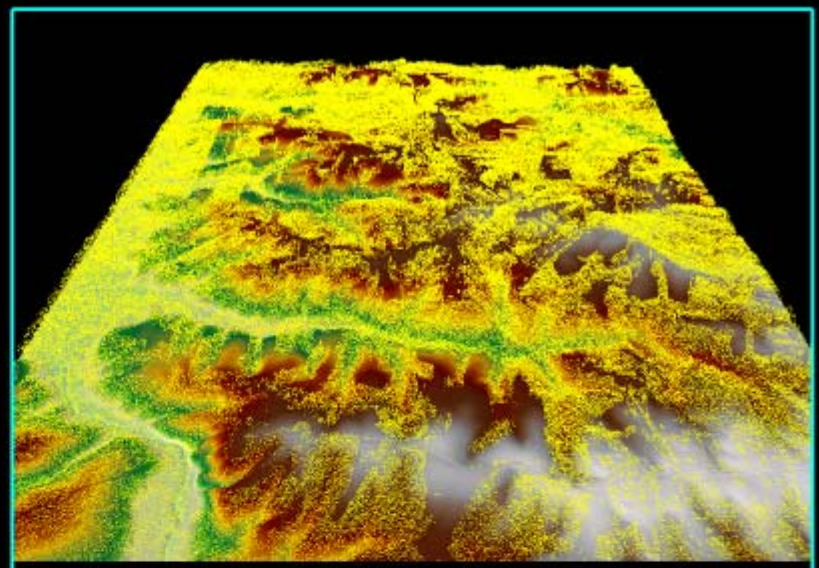


Research and Derivatives

NED

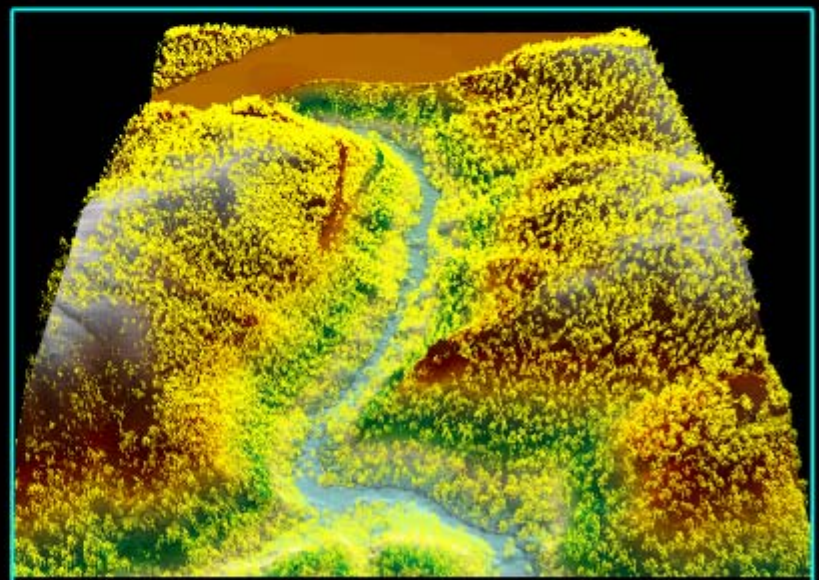


Oregon

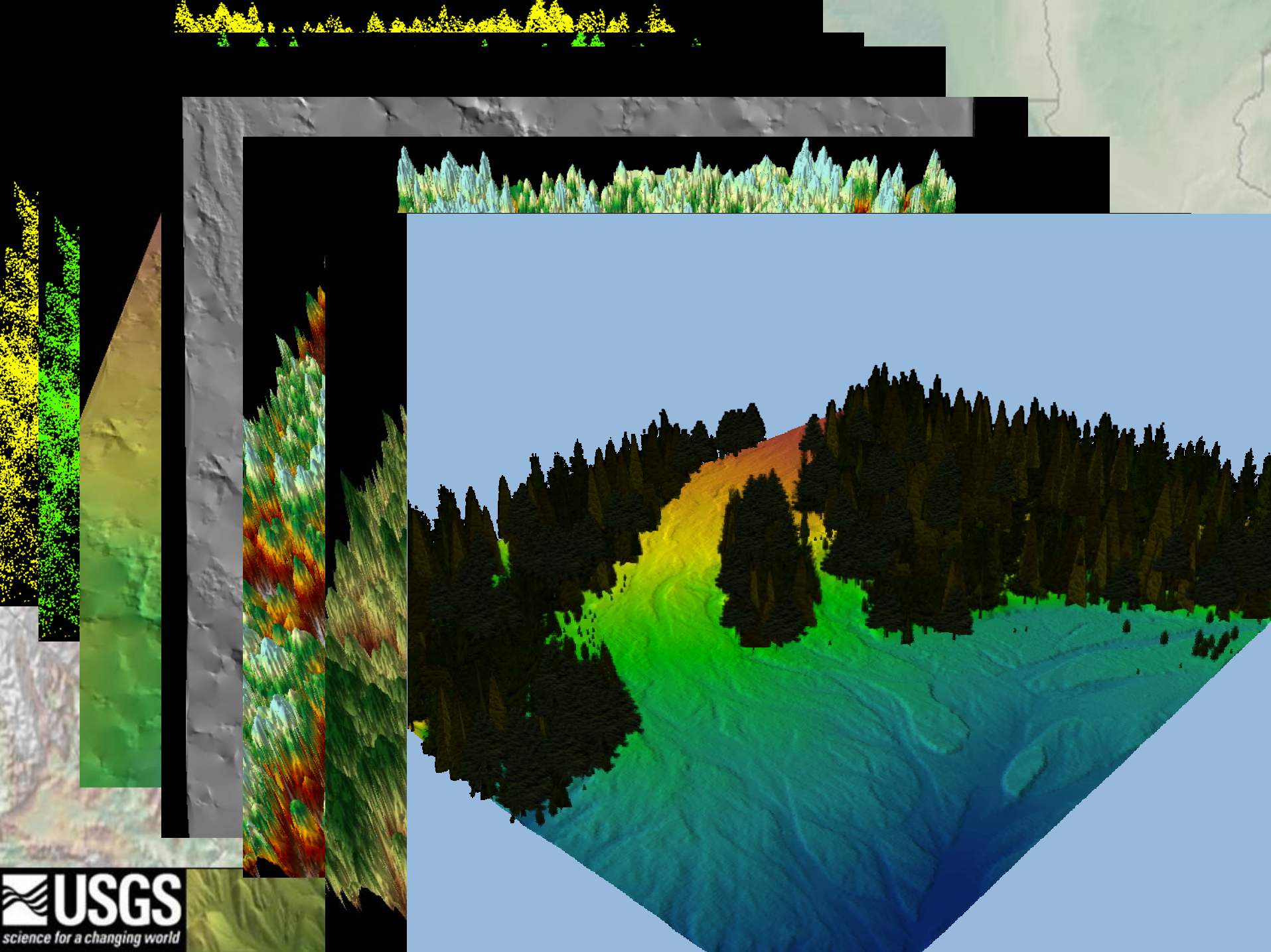


North Carolina

Nebraska



Colorado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CLICK

- Received funding to form USGS Center for Lidar Information Coordination and Knowledge.
- Virtual center utilizing all USGS and external talent.
- To take advantage of existing Lidar data and information for scientific (non-mapping) research needs nationwide.
  - Data will be processed & input into NED if not already done

CLICK: Good for Science

- The limiting factor for using LIDAR for scientific applications is ***Expense.***
  - usually research projects cannot acquire the funds necessary to get LIDAR collected for their specific research applications.
  - Consortium approach
- Limited amount of LIDAR-related help for those who are interested in incorporating data into science.

CLICK: Good for Management

- The hope is that by improving communication about LIDAR data collections, we may help reduce redundant or unnecessary spending in government by leveraging LIDAR data that can be used for more than one single application.

CLICK: Mission

- **CLICK's** mission is to facilitate data access, user coordination, and to educate the science community about the value of LIDAR in their projects.

http://lidar.cr.usgs.gov

- Web portal
- Provide information and points-of-contact for people interested in using lidar in certain areas, or with certain agencies.
- Identify scientists, cartographers, and geographers who could help with someone's lidar needs.
- Provide information on where data exists, including metadata.
  - Geographical location as well as where it can be physically obtained, if not disseminated here

CLICK - Windows Internet Explorer

http://lidar.cr.usgs.gov/

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Welcome to the USGS Center for LIDAR Information Coordination and Knowledge

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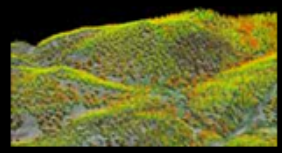
Center for LIDAR Information Coordination and Knowledge

Home | Bulletin Board | Data Viewer | Websites/References | Contact Us

Discrete-return point clouds

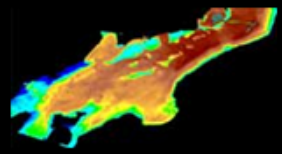


Find out more about discrete-return lidar: See if publicly-available lidar is in your area of interest; ask and answer questions about the data, processing, derivatives and more on our bulletin board; look for articles and other websites about lidar.

Bare Earth

Find out more about the USGS bare earth derivatives from lidar: Go to our National Elevation Dataset (NED) page. NED contains bare earth elevation data created by lidar and other sources.

USGS-NASA-NPS EAARL Data



Find out more about USGS Coastal and Marine Geology Program's collaboration with NASA and NPS to publish data acquired by the Experimental Advanced Airborne Research Lidar (EAARL) system. Optionally, visualize and download lidar data and CIR imagery in Google Earth.

Upcoming Events / Recent Links

View a dynamic calendar of upcoming events on the CLICK Bulletin Board.

View Presentation Material from the National Lidar Initiative

Mission

There has been increasing demand for research utilizing all information generated from lidar remote sensing data and not just bare earth digital elevation models (DEMs). While this technology has been a proven mapping tool, effective for generating bare earth DEMs,research on using the entire point cloud of this remote sensing data for scientific applications have been slowed by:

- The high cost of collecting lidar
- A steep learning curve on research and understanding involving utilizing the entire point cloud.

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CLICK: Structure

The **CLICK** virtual center web portal is broken into three parts:

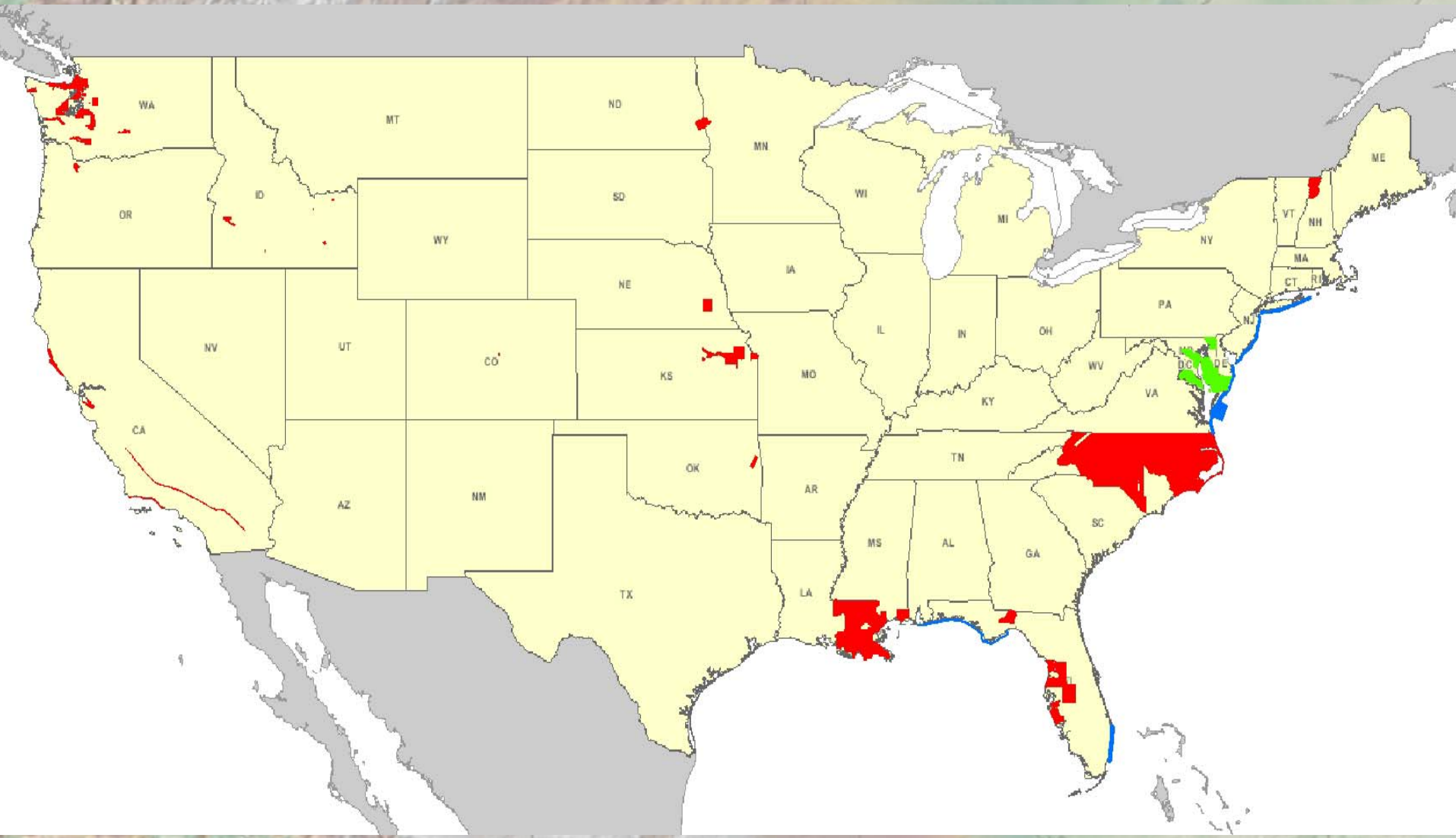
1. **Information**
2. **Coordination**
3. **Knowledge**

CLICK: Structure

***Information* – (Data Viewer)**

- Provides access to download available raw point cloud data.
- Data currently distributed in ASCII X, Y, Z and LAS file formats.
- Information, such as point classifications, multiple return information, and intensity are included if provided by donor.

Available Data



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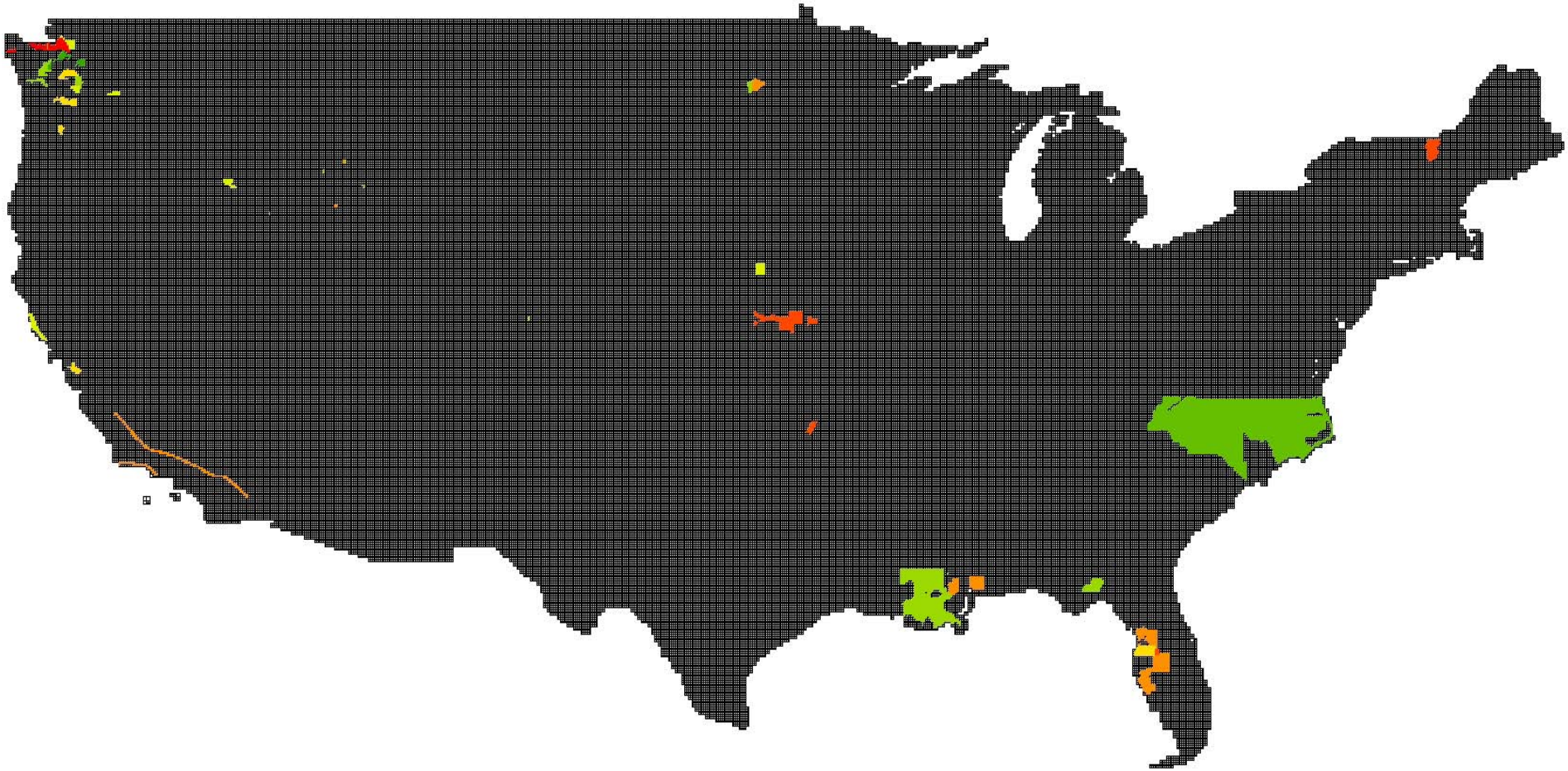
225,593 Quarter Quads



5,562 with lidar (2.5%)

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Light Detection and Ranging (LIDAR) Viewer provides free online data with DOQQ,NED,SRTM,Landsat - Windows Internet Explorer

http://gisdata.usgs.net/website/lidar/

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Light Detection and Ranging (LIDAR) Viewer provides ...

Page Tools

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Light Detection and Ranging (LIDAR) Viewer

Disclaimer:
This lidar point cloud data is provided 'As Is', with varying processing and accuracy. The USGS is not responsible for bare earth processing, populating fields other than xyz, or validating reported vertical and horizontal accuracies. This data is provided for non-mapping applications. Query fields for possible added information. Use point cloud data at your own risk.

Launch LIDAR HTML/Javascript Viewer

View User Instructions

- Or -

NEW! Access LIDAR via KML File

(Requires KML Viewer)

Looking for BARE EARTH?

Data -> Download lidar and non-lidar derived bare earth elevation data at http://seamless.usgs.gov

Information -> Find out about USGS lidar and non lidar bare earth data at http://ned.usgs.gov

Elevation project information-> Find out about all bare earth elevation projects being collect by federal partners at http://ndep.gov

Done

Internet

90%

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Light Detection and Ranging (LIDAR) Viewer provides free online data with NED,SRTM,Landsat,maps - Windows Internet Explorer

http://gisdata.usgs.net/website/lidar/viewer.php

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Light Detection and Ranging (LIDAR)

Go to viewer Intro

Back to CLICK Webpage

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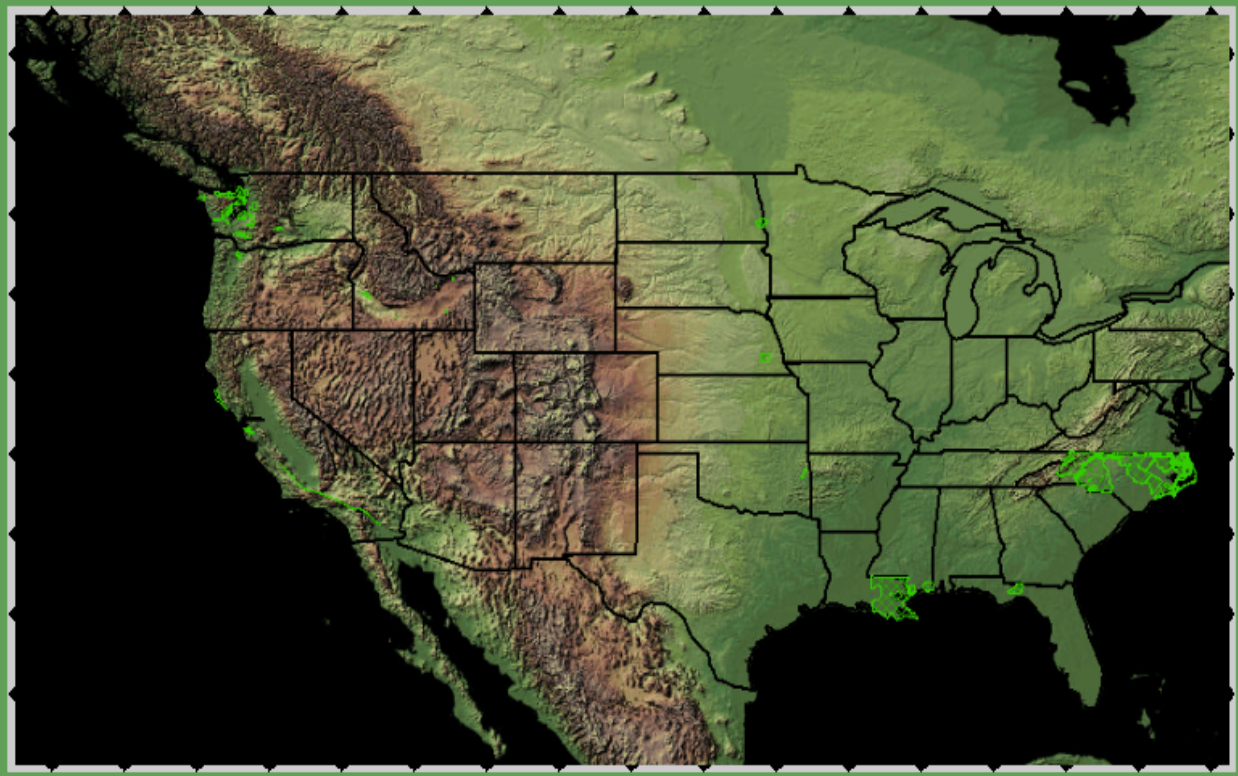
Query

Tools

Downloads

Documents



Scale Information

Out In

Scale ~ 1:30,583,018

Layers

- Transportation
- Boundaries
- Hydrography
- Orthoimagery
- Land Cover
- Elevation

U.S. Department of the Interior | U.S. Geological Survey | USGS for Earth Resources Observation and Science (EROS)

URL: /Website/LIDAR/ | Last Update: May 4, 2004 || Maintainer: Comments and Suggestions | Disclaimer

Done

Internet

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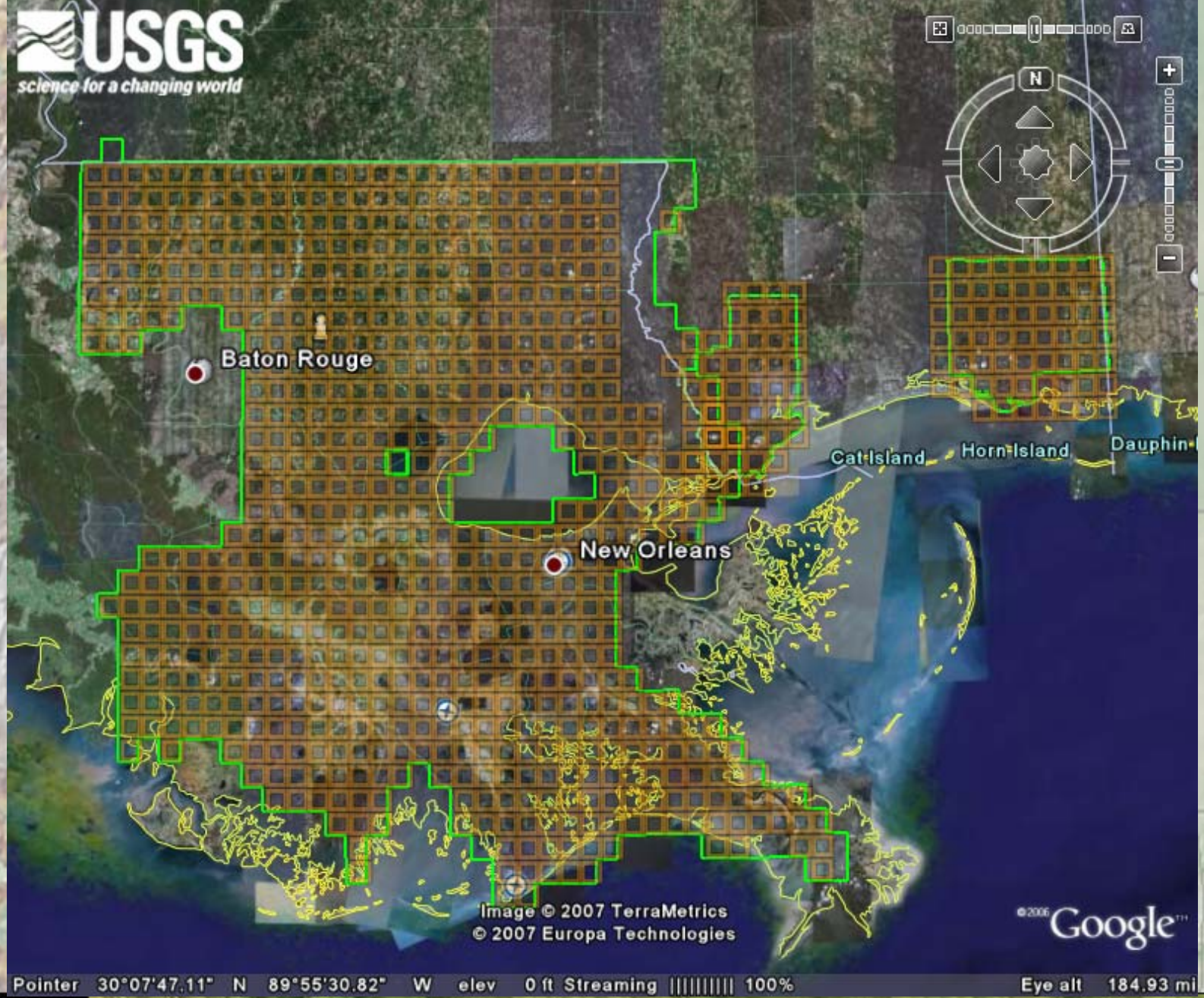

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FY06-08:
• North Carolina
• Pennsylvania
• Ohio
• Iowa
• Louisiana
• Florida
Dallas
Houston
San Antonio
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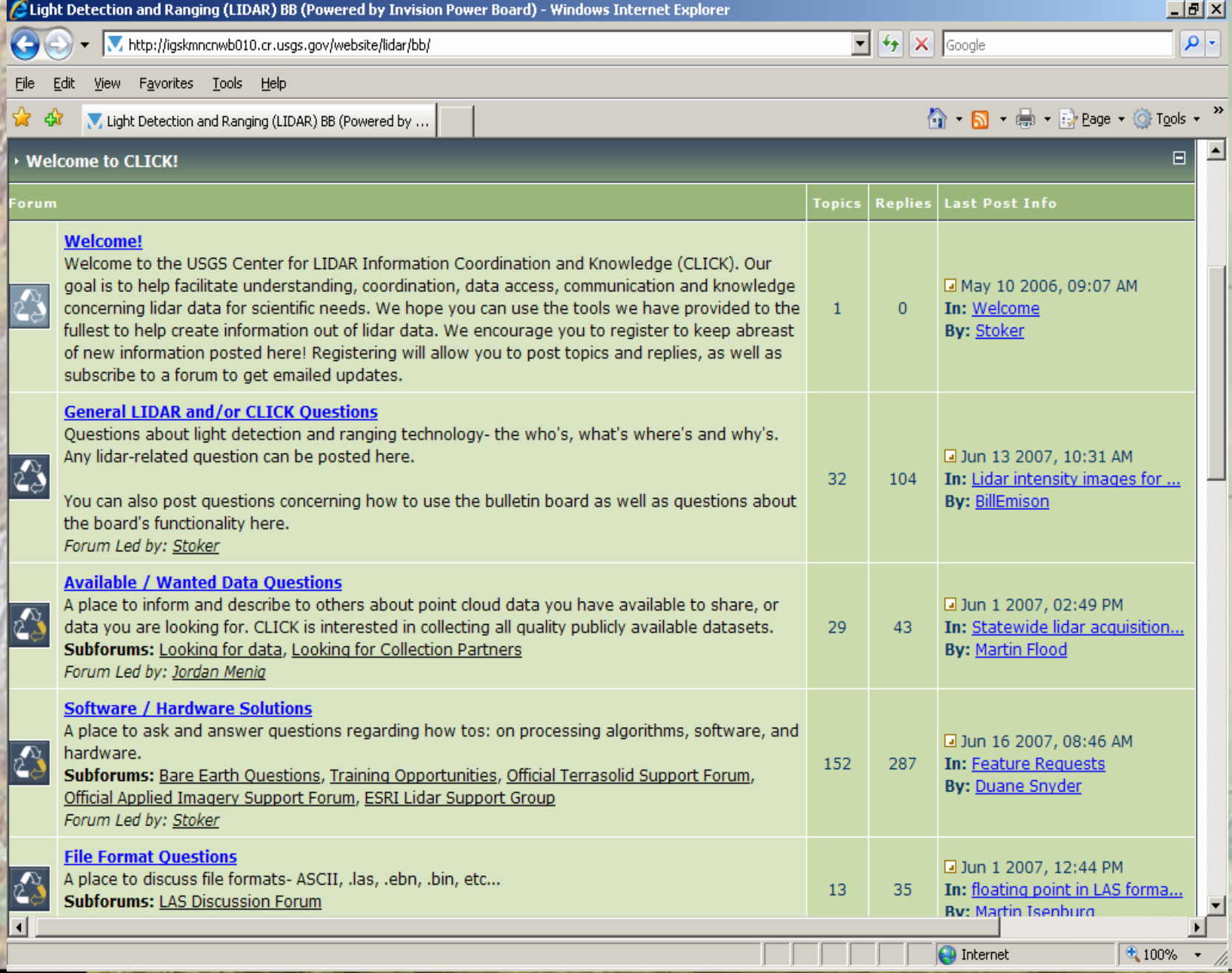
Coordination **– (Bulletin Board)**

- Heart of the virtual center.
- Place for users from ALL disciplines to ask and answer LIDAR related questions.
- We do request that users register in order to ask and answer questions.


Light Detection and Ranging (LIDAR) BB (Powered by Invision Power Board) - Windows Internet Explorer
http://igskmncnwb010.cr.usgs.gov/website/lidar/bb/
Google
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Light Detection and Ranging (LIDAR) BB (Powered by ...
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Welcome to CLICK!
Forum
Topics
Replies
Last Post Info
Welcome!
Welcome to the USGS Center for LIDAR Information Coordination and Knowledge (CLICK). Our goal is to help facilitate understanding, coordination, data access, communication and knowledge concerning lidar data for scientific needs. We hope you can use the tools we have provided to the fullest to help create information out of lidar data. We encourage you to register to keep abreast of new information posted here! Registering will allow you to post topics and replies, as well as subscribe to a forum to get emailed updates.
1
0
May 10 2006, 09:07 AM
In: Welcome
By: Stoker
General LIDAR and/or CLICK Questions
Questions about light detection and ranging technology- the who's, what's where's and why's. Any lidar-related question can be posted here.
You can also post questions concerning how to use the bulletin board as well as questions about the board's functionality here.
Forum Led by: Stoker
32
104
Jun 13 2007, 10:31 AM
In: Lidar intensity images for ...
By: BillEmison
Available / Wanted Data Questions
A place to inform and describe to others about point cloud data you have available to share, or data you are looking for. CLICK is interested in collecting all quality publicly available datasets.
Subforums: Looking for data, Looking for Collection Partners
Forum Led by: Jordan Menig
29
43
Jun 1 2007, 02:49 PM
In: Statewide lidar acquisition...
By: Martin Flood
Software / Hardware Solutions
A place to ask and answer questions regarding how tos: on processing algorithms, software, and hardware.
Subforums: Bare Earth Questions, Training Opportunities, Official Terrasolid Support Forum, Official Applied Imagery Support Forum, ESRI Lidar Support Group
Forum Led by: Stoker
152
287
Jun 16 2007, 08:46 AM
In: Feature Requests
By: Duane Snyder
File Format Questions
A place to discuss file formats- ASCII, .las, .ebn, .bin, etc...
Subforums: LAS Discussion Forum
13
35
Jun 1 2007, 12:44 PM
In: floating point in LAS forma...
By: Martin Isenburg
Internet
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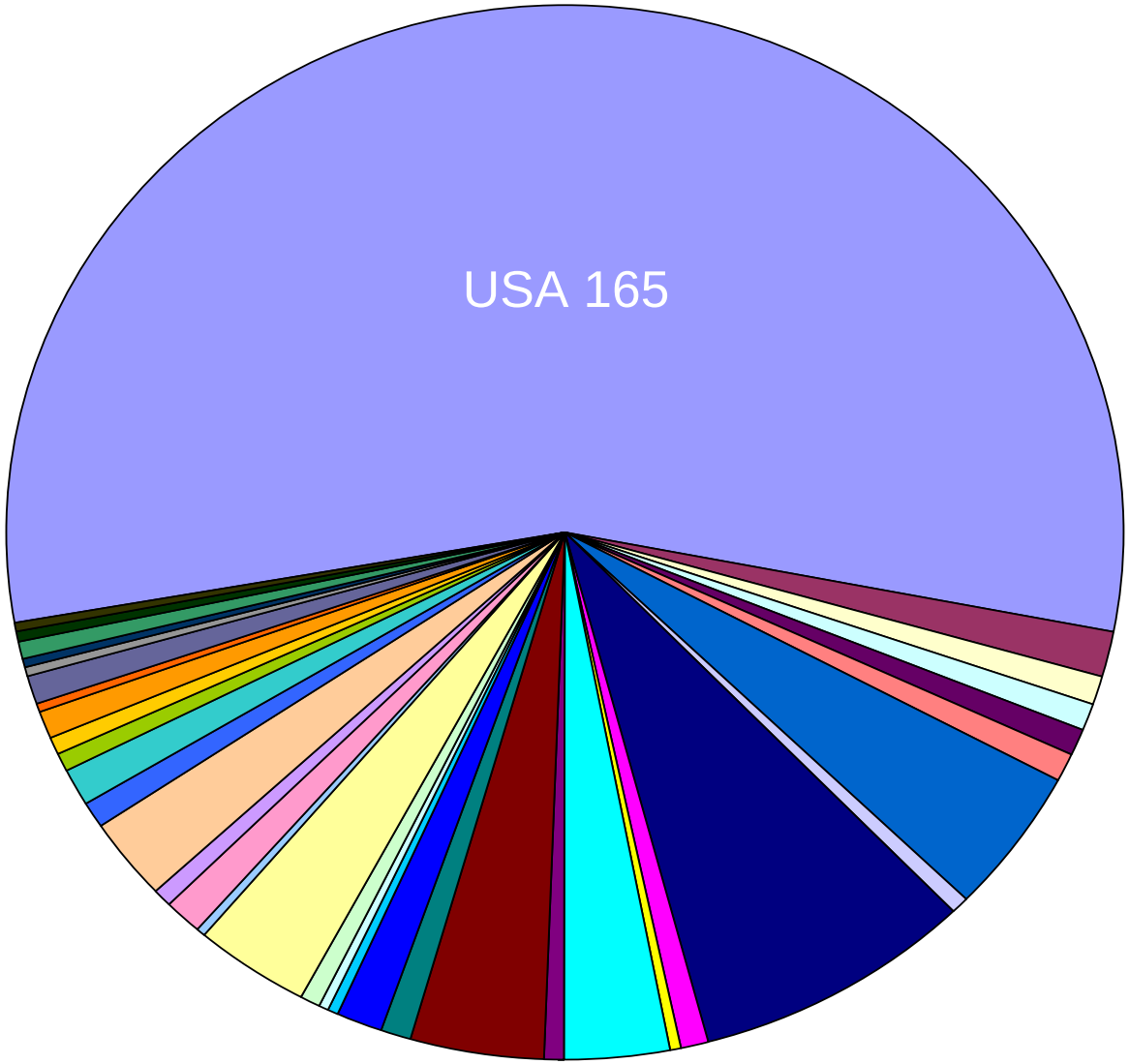
CLICK Member Countries- June 18, 2007



Maylasia	1
Italy	3
Poland	2
Russian Federation	7
Sweden	3
Brazil	3
Taiwan	2
Lybia	1
Netherlands	3
Vietnam	1
Peru	2
Ukraine	1
Iran	1
Portugal	1
Turkey	1
Greece	1

Spain	4
South Africa	3
New Zealand	2
Korea	3
Japan	2
India	13
Denmark	2
Canada	24
Austria	2
Argentina	1
Germany	9
Switzerland	2
China	11
Australia	3
Norway	4
Ireland	1
UAE	1
Finland	1
United Kingdom	10


Light Detection and Ranging (LIDAR) BB -> Northern Gulf of Mexico (NGOM) - Windows Internet Explorer
http://igskmncnwb010.cr.usgs.gov/website/lidar/bb/index.php?s=654b0a0bd744865c3de4771d73bee698&showforum=40
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Light Detection and Ranging (LIDAR) BB > Welcome to CLICK! > Regional Groups > Northern Gulf of Mexico (NGOM)
NEWTOPIC
Northern Gulf of Mexico (NGOM)
Forum Options
Topic Title
Replies
Topic Starter
Views
Last Action
Announcements
Announcement: Lidar Scientist Position at EROS
-
Stoker
55
--
Last post by: Stoker
Forum Topics
No topics were found. This is either because there are no topics in this forum, or the topics are older than the current age cut-off.
Enter Keywords
Search forum
Close Topics
With Selected (0)
NEWTOPIC
1 User(s) are browsing this forum (0 Guests and 0 Anonymous Users)
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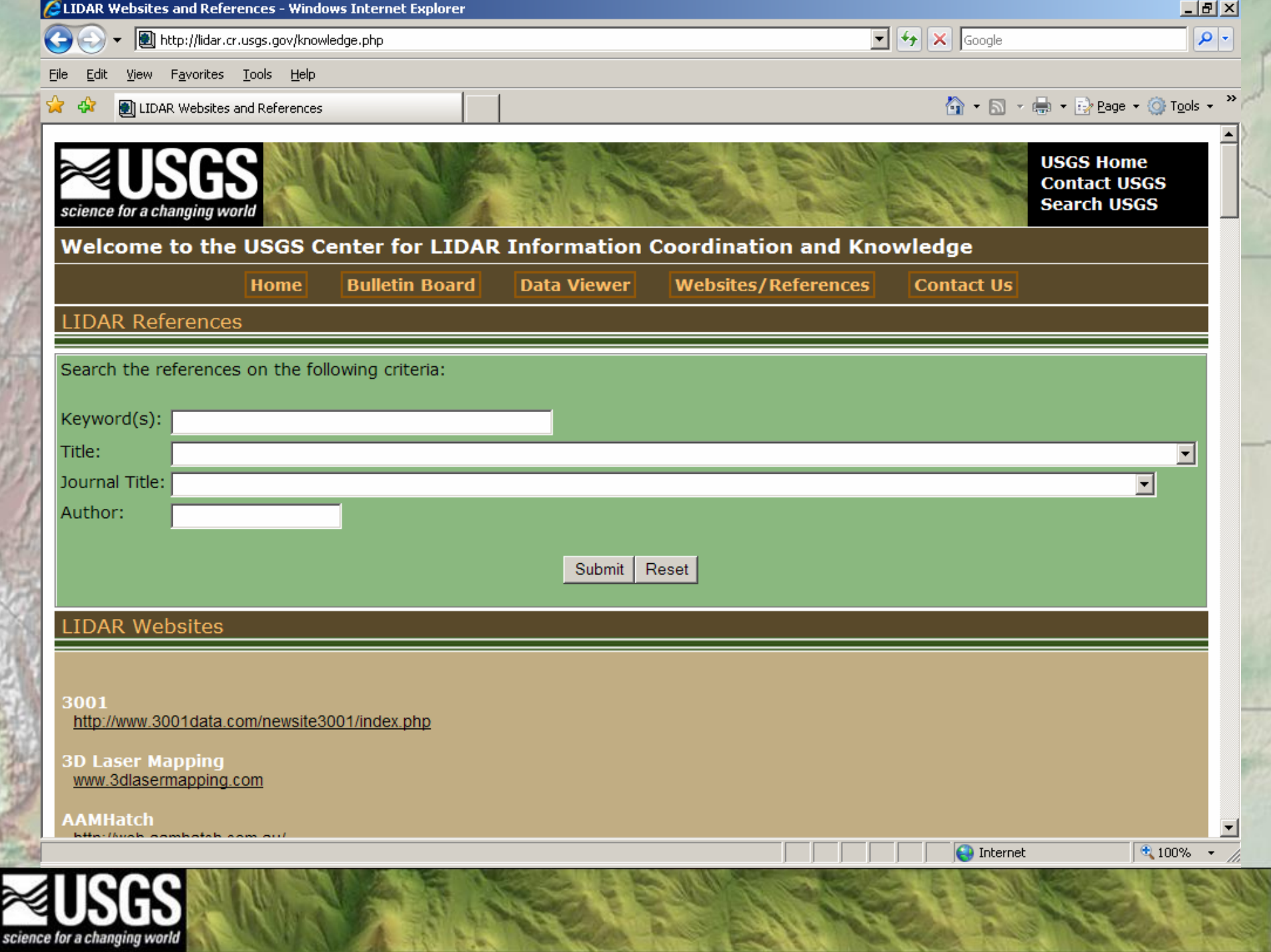
CLICK: Structure

Knowledge **– (Websites / References)**

- Dynamic list of LIDAR-related web pages, along with a growing list of peer-reviewed articles.
- Users may also submit their own LIDAR-related web pages or peer-reviewed journal articles, if they do not see it on the list.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Journal Title:
Author:
Submit
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http://www.3001data.com/newsite3001/index.php
3D Laser Mapping
www.3dlasermapping.com
AAMHatch
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Results

Search again

Title: Coastal engineering applications of high-resolution lidar bathymetry

More Information

Journal Title: Coastal Engineering
Volume: 35
Issue:1-2
Page(s): 47-71
Author(s): Irish, J. L.//White, T. E.
Date Publication: 1998/10
Abstract
In 1994, the US Army Corps of Engineers completed development of the Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS) system, a state-of-the-art hydrographic survey instrument. Using lidar (Light Detection And Ranging) technology and operating from a Bell 212 helicopter, SHOALS remotely collects accurate, high-resolution bathymetry at a rate of 8 km2/h. A nominal depth-and-position measurement spacing of 4 m yields high-density bottom coverage of coastal projects, producing soundings from the above-water beach, or coastal structure, to depths of 40 m. Since becoming fully operational, SHOALS surveyed over 2000 km2 along the Atlantic Ocean, Pacific Ocean, Gulf of Mexico, Great Lakes, and Caribbean Sea. Survey projects varied from tidal inlets and navigation channels to beach nourishment and monitoring. These projects quantify current coastal structure condition, navigation channel alignments, and morphologic changes over time. In addition to monitoring coastal projects, sediment transport can be estimated with accurate, high-resolution bathymetry. Bathymetry can be translated into sediment transport through a combination of the sediment continuity equation, a surf zone energetics-based longshore transport formula, and bathymetric data. This paper presents the SHOALS system describing both lidar technology and the survey system. Several SHOALS data sets are presented to show today's benefits of high-resolution lidar bathymetry to the coastal engineering community. Finally, ongoing research using these unique data sets is presented to show the future benefits of lidar bathymetry to the coastal field.

Title: Historical shoreline changes along the US Gulf of Mexico: A summary of recent shoreline comparisons and analyses

More Information

Title: Accuracy of sand volumes as a function of survey density

More Information

Title: Scale-invariant topography and porosity variations in fluvial sedimentary basins

More Information

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Enter your email:

Enter Your Website/References:

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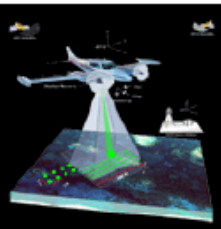
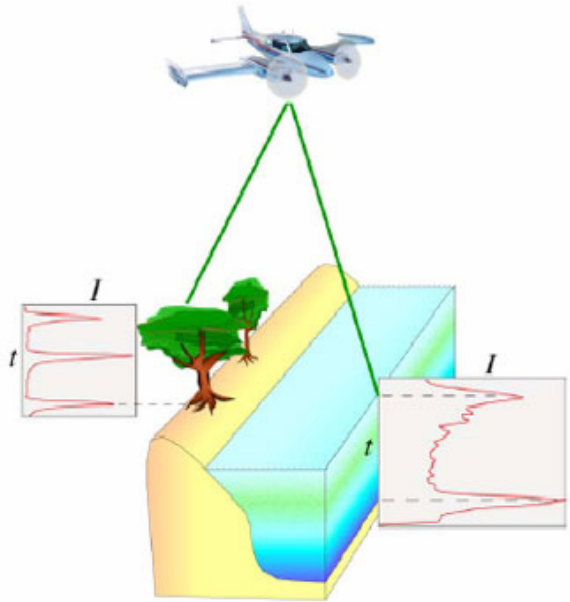
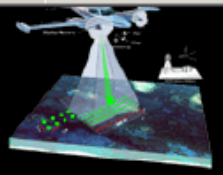


Home
Purpose
Collaborators
Data Sets

USGS- NPS-NASA EAARL Data

In a close collaboration between the USGS Coastal and Marine Geology Program's Integrated Remote Sensing and Modeling Group, NASA Wallops Flight Facility, and NPS Inventory and Monitoring Program, lidar data were acquired by the NASA EAARL system in a variety of coastal environments. The EAARL system is uniquely suited to capturing sub-aerial and submerged topography in the same over flight. The voluminous data sets acquired from the EAARL surveys are processed using a Linux-based custom-built processing system known as USGS-NASA Airborne Lidar Processing System (ALPS). ALPS enables the systematic creation of highly detailed submarine and sub-aerial topographic maps for use in ecological models and environmental stewardship. The Digitial Elevation Model (DEM) products are readily ingested into common surface modeling and GIS software packages. In order to make these data products suitable for map publication, a systematic manual editing and quality control review process was conducted to create DVD-based USGS Open File Reports (OFR). The DVD products include 1-m resolution DEM (geotiff) images, FGDC-compliant metadata, 300-dpi PDF maps, and additional data layers representing contours and hill shades. An HTML-based interface allows easy access to the high-quality PDF maps, metadata, and the GIS data layers. The published data products are also available for visualization and download in Google Earth.





Dry Tortugas National Park

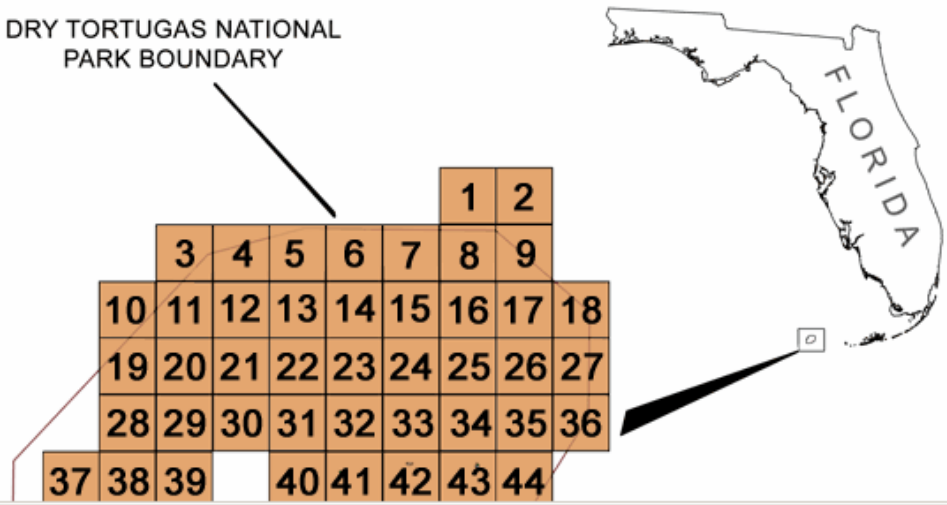
John C. Brock, C. Wayne Wright, Matt Patterson, Amar Nayegandhi, and Judd Patterson

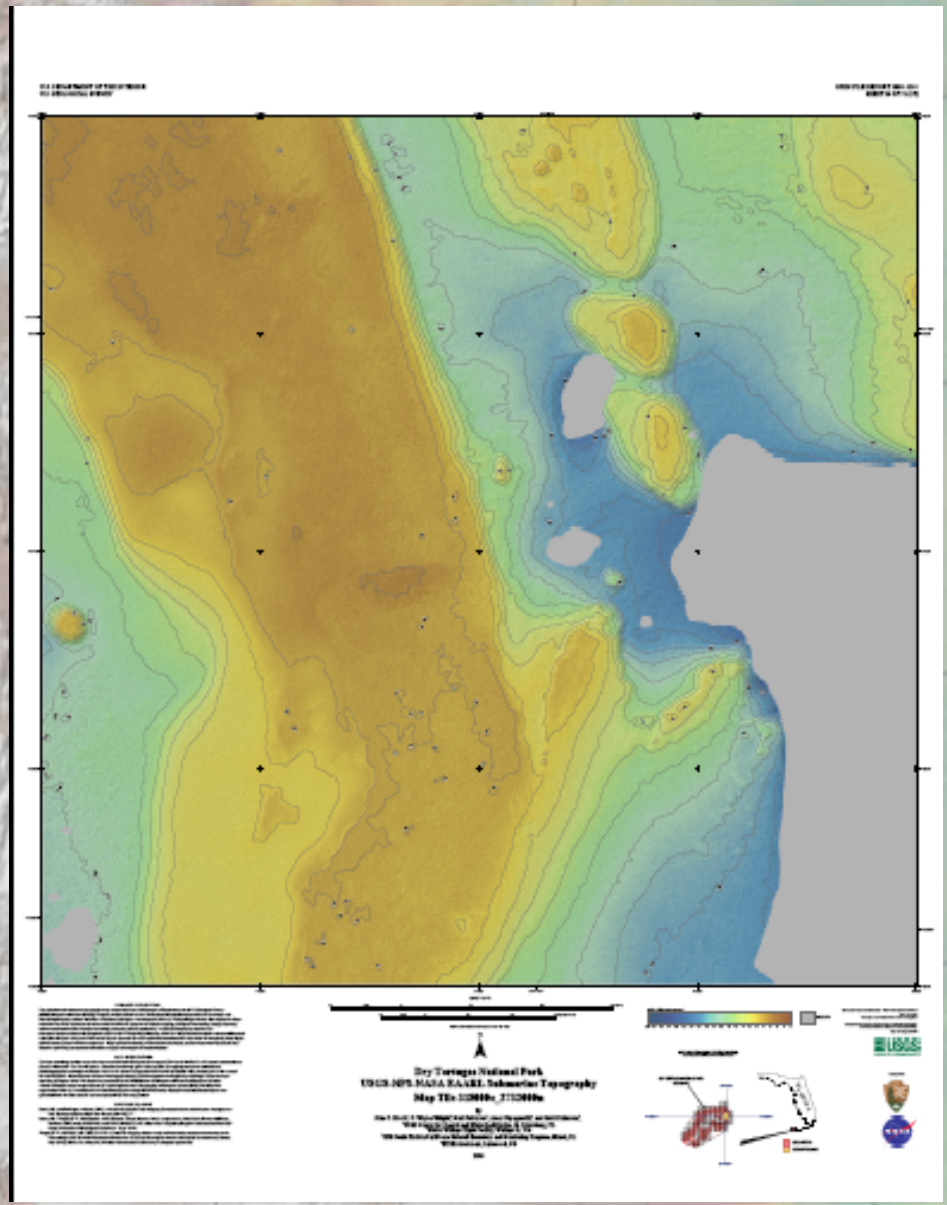
---

View and download this data using Google Earth

View and download PDF maps by index or map.

Click on a tile number (1-71) in the map below to view the corresponding map in PDF format. Red tiles indicate that more than one map type exists for that region. Clicking on a red tile will load a page where you can the select the desired map.





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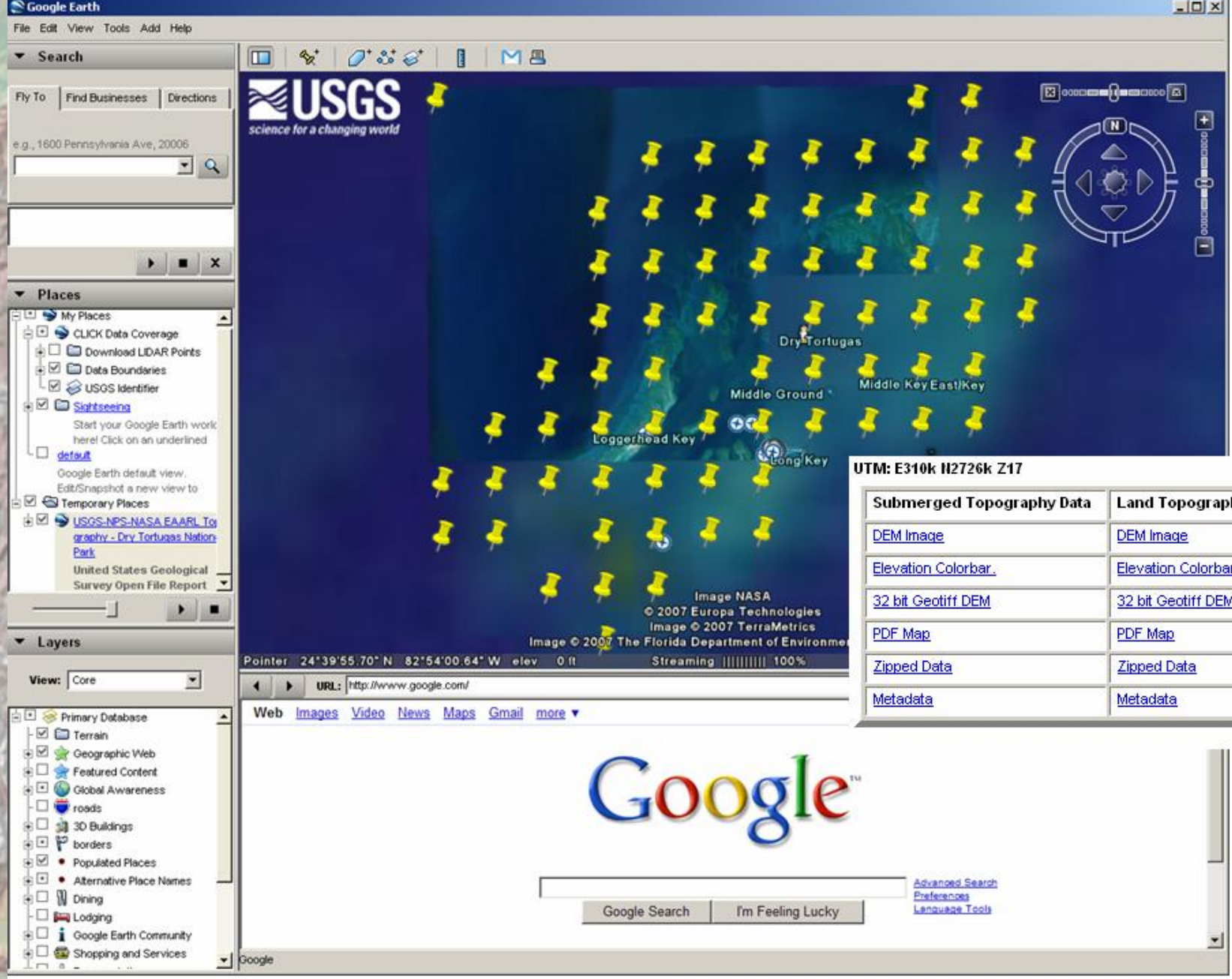

UTM: E310k N2726k Z17

Submerged Topography Data	Land Topography Data
DEM Image	DEM Image
Elevation Colorbar.	Elevation Colorbar.
32 bit Geotiff DEM	32 bit Geotiff DEM
PDF Map	PDF Map
Zipped Data	Zipped Data
Metadata	Metadata

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Walkthrough

http://lidar.cr.usgs.gov

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CLICK together with NDEP

- **Active participant in monthly National Digital Elevation Program (NDEP) meetings.**

- **NDEP has become a major source of LIDAR tracking information nationwide. Either through metadata submissions or leads from NDEP members.**

Final Thoughts

- **Working on a National Lidar Initiative to collect lidar for the entire US**
- **Report of the first meeting available on CLICK**
- **Second meeting this FY-Time / place TBD**
- **Continue to develop better ways to disseminate and visualize lidar point clouds on the web**