

1ST QUARTER

VIRTUAL GIS COMMUNITY MEETING

January 26, 2021





Welcome	2:00 – 2:15
Project Updates	2:15 – 2:35
Roll Call	2:35 – 3:00
Presentation 1 - TeachMeGIS	3:00 – 3:30
Presentation 2 – USGS	3:30 – 3:55
Closing	3:55 – 4:00



Kathleen Jackson
Director

Texas Water Development Board



Since we last met....



- ✓ GIO Page – Listing of Events
- ✓ Follow us on Twitter - @TNRIS
- ✓ New classes posted through March
- ✓ Forum 2021 Update
- ✓ GIO Report Update
- ✓ FDST Release



New imagery content from **AppGeo**® and



HEXAGON

HxGN Content Program

- Statewide 2020 imagery coming early 2021
- Urban areas acquisition in progress, imagery coming summer 2021

6-inch pixel resolution

Automatic Imagery Updates

Annual subscription fee

- Entire state refreshed every 3 years

- Join any time at prorated fee

Statewide coverage

- 2011 - present

Streaming data service

- WMTS/WMS links

<https://tnris.org/texas-imagery-service/>



State Agency

Level	Data Usage*	Costs**
Tier 1	Power	\$375,000
Tier 2	Advanced	\$125,000
Tier 3	High	\$62,500
Tier 4	Moderate	\$31,250
Tier 5	Minimum	\$15,625

Regional Agency

Flat fee \$15,000**

Local Agency

Flat fee \$6,000**

* Data usage is calculated based on an annual metric of service requests.

** Cost does not include DIR Fee

Request a Free Trial Today

<https://www.tnrис.org/tis-request/>



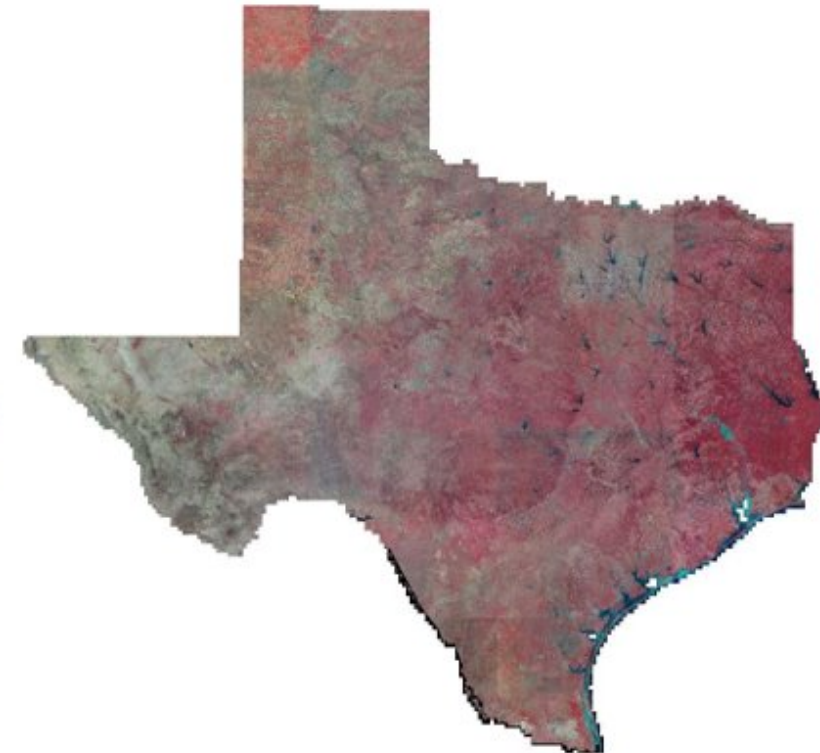
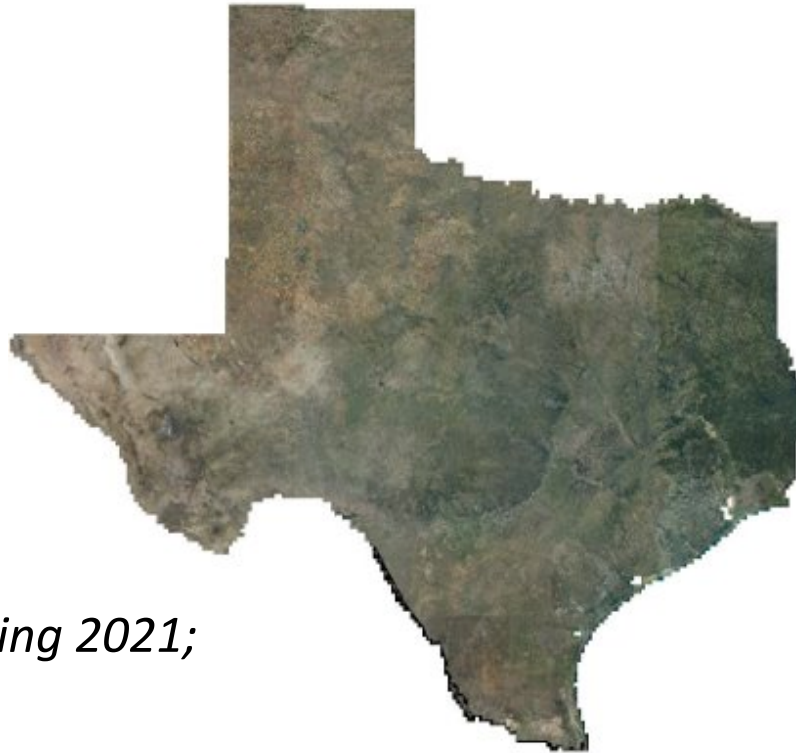


NATIONAL AGRICULTURE IMAGERY PROGRAM

- 2020 NAIP acquisition for TX

Specs

- 60-cm (2-foot)
- 4-band
- CCMs & DOQQs
- Status: *Complete*
- Public domain
- Available from TNRIS: *CCMs Spring 2021; DOQQs Summer 2021*

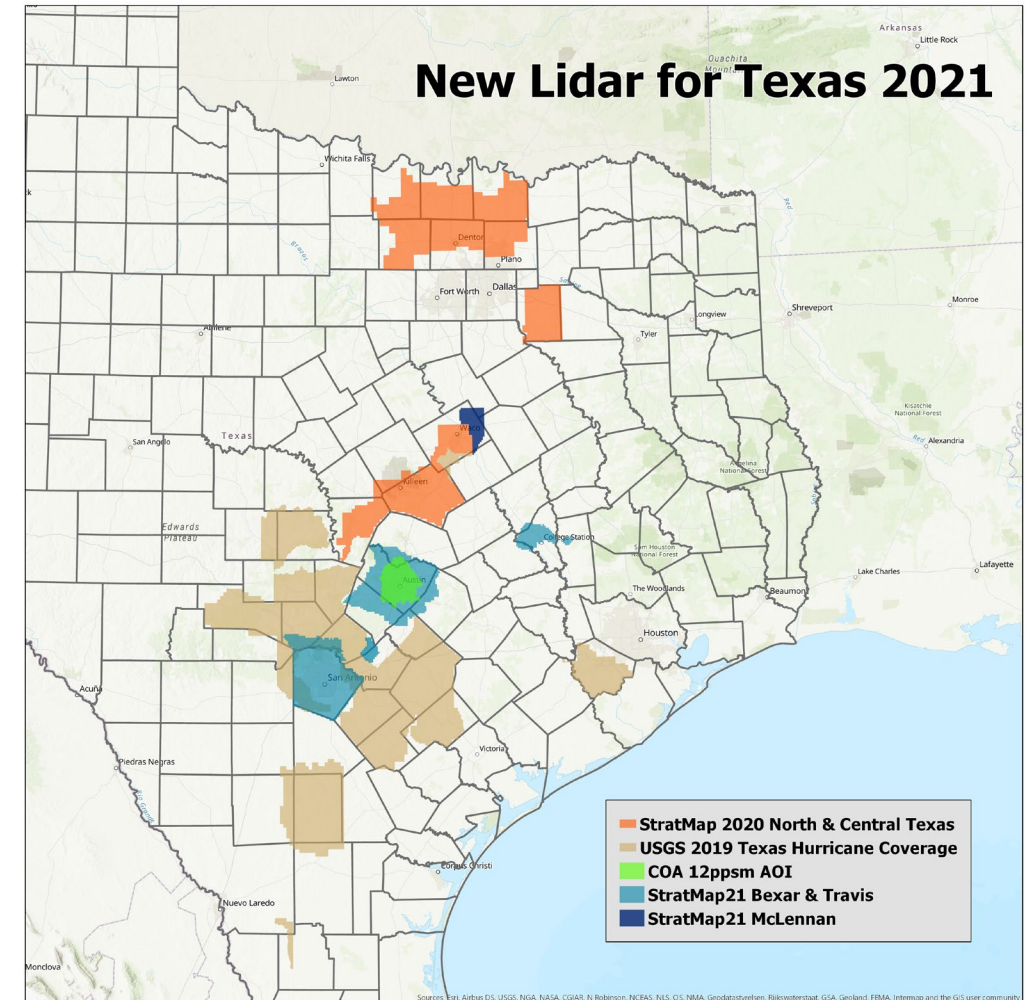




Texas Statewide Lidar Coverage Update

Texas Lidar datasets coming soon:

- 2019 USGS Hurricane Coverage: 2ppsm, USGS QL2 Classifications, Available Early 2021
- 2020 North Central Texas Status: 4ppsm, StratMap, Classifications, Available Early 2021
- 2021 Travis & Bexar County Texas: 4ppsm and 12ppsm(City of Austin only), StratMap Classifications, Available Winter 2021
- 2021 TCEQ - McLennan County Texas: 4ppsm, StratMap Classifications, Available Late Summer 2021





Current StratMap Data Initiatives

- **Full Classification of Federal Lidar Projects.**
 - Project award anticipated in February
- **Leaf-off Lidar and Orthoimagery Projects**
 - Capital Area, Brazos County and Kerr county Orthoimagery Project was successfully captured at the beginning of January.
 - Bexar and Travis County Cooperative Lidar Project and the TCEQ Lidar Project for Portions of McLennan County are set to begin flights in the coming weeks.
- **Bathymetry Data**
 - TWDB & Bureau of Economic Geology(BEG) pilot project to process existing topo-bathy lidar data over the Laguna Madre
 - Acoustic surveys in the Laguna Madre to support areas unable to be captured by topo-bathy lidar.

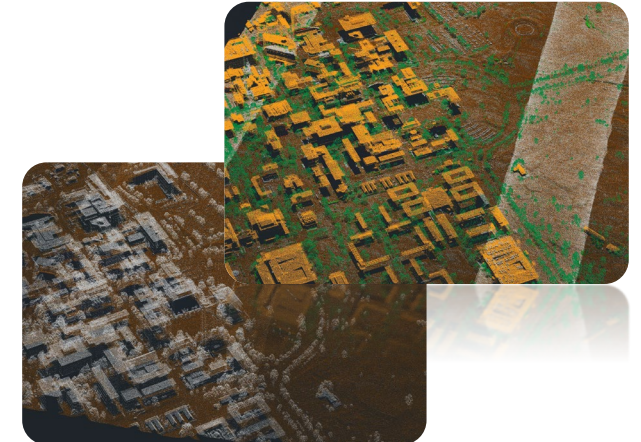
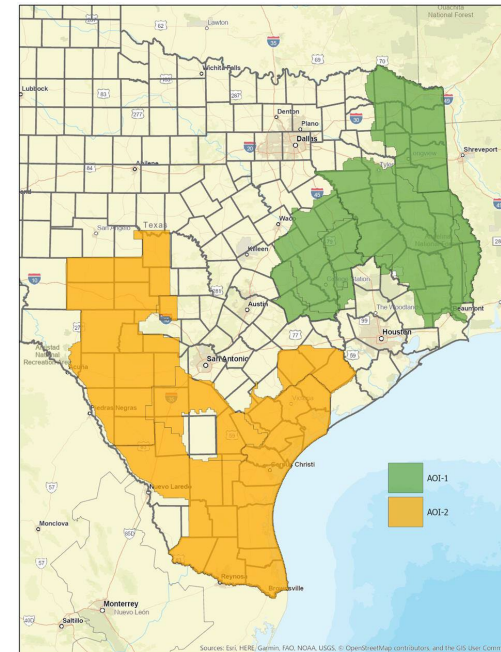


Figure 5: Laguna Madre, TX. Polygon illustrates the extended coverage area of the survey.

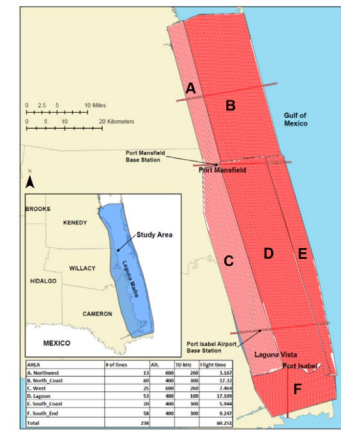
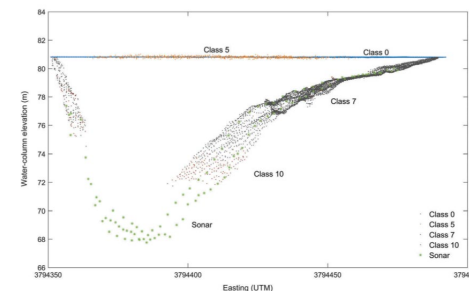


Figure 6: Airborne mission planning sections. Approximately 60 hours of airborne time spent for acquiring data sets.

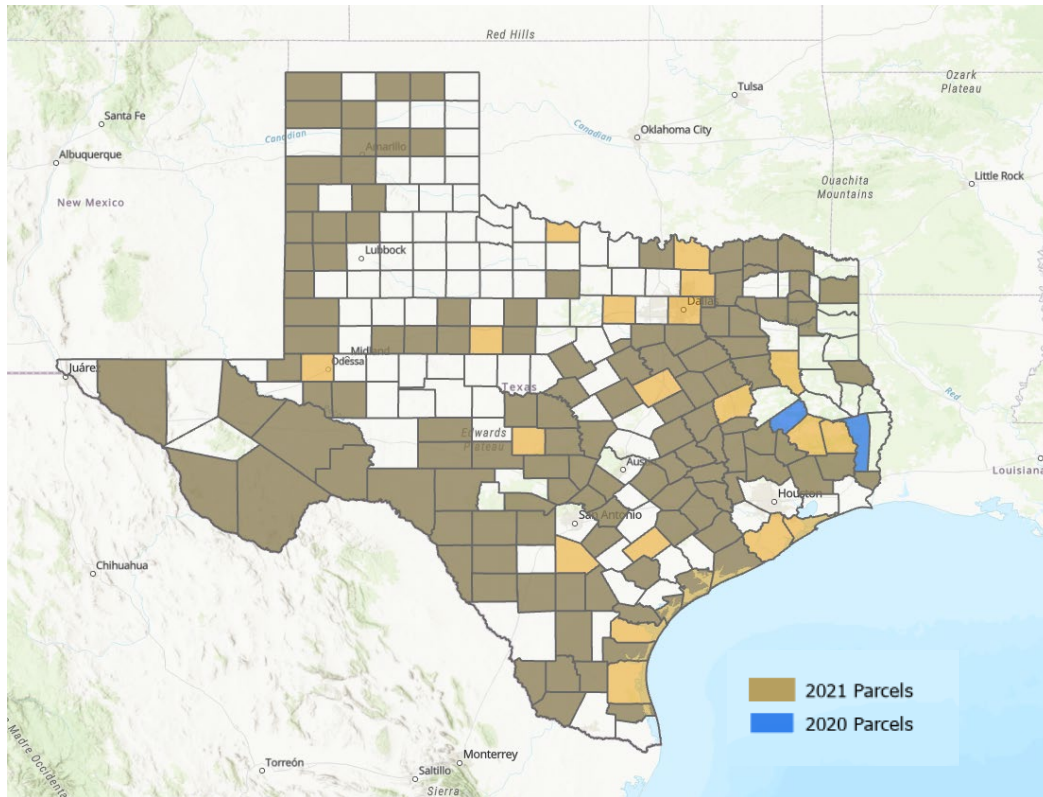


Statewide Land Parcel & Address Point Acquisition

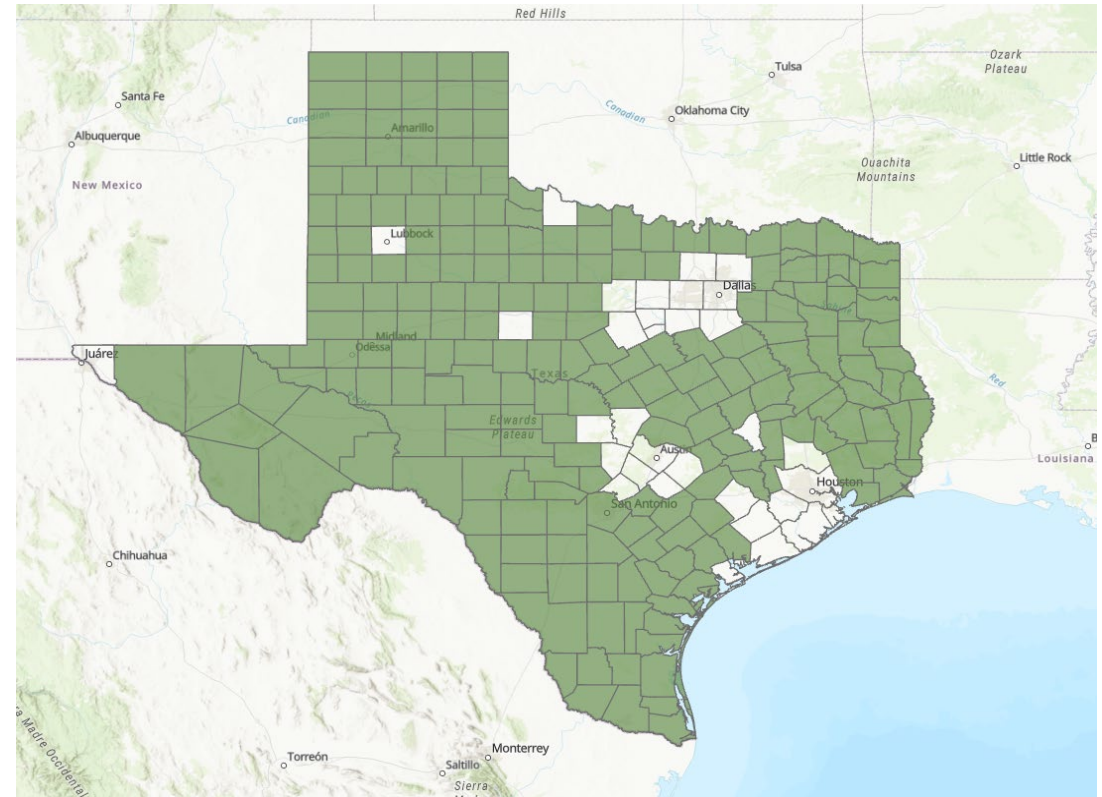
- Solicitation letters were sent to vendors, county appraisal districts, and emergency communication districts on 1/13/2021 for updated 2021 data.
- As of today:
 - Land parcels for 147 counties have been delivered
 - Address points for 220 counties have been delivered
- Standardization of the 2021 data is currently underway. TNRIS will release each dataset once standardization for all available counties is complete.
- Both datasets are scheduled for summer 2021 release.
- Inquiries for 2020 data are welcome via the 2019 project pages on TNRIS' DataHub.



Preliminary January 2021 Acquisition Status



Land Parcel Coverage



Address Point Coverage



Roll Call

The words "Roll Call" are written in a large, bold, black serif font with a white drop shadow. The letter "l" in "Roll" is partially obscured by a grayscale image of the Texas State Capitol building, which is centered behind the text.



Don't Let Your Team's Spatial Brain Go Stagnant



Jennifer Harrison, GISP
President

TeachMeGIS

Don't Let Your Team's Spatial Brain Go Stagnant

CONTINUING GIS SKILLS GROWTH WHILE STILL
MANAGING LIFE POST-2020



- ▶ TeachMeGIS is a TNRS training partner and ESRI Business Partner.
- ▶ We have been helping people grow their GIS skills for 20 years.
- ▶ This year, we've learned a lot about fitting training into our socially distanced world.



Experience is not the same as learning. You can learn through experience, but very importantly: learning enables experience.



▶ Finding time for GIS skills development has always been hard. Even more so now, as our teams navigate working from home, helping kids with their school, and trying to stay safe.

▶ And as organizations are being forced to do more with less

▶ But keeping our skills up has possibly never been more important.

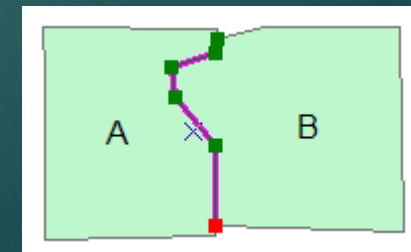
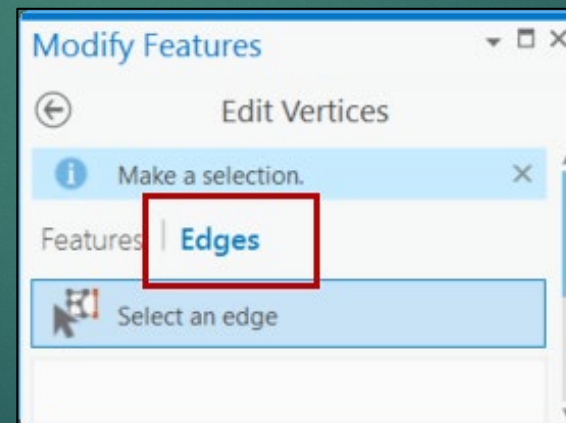
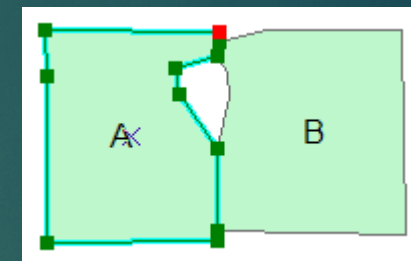
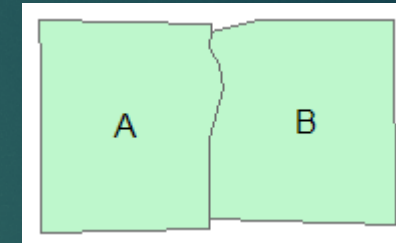
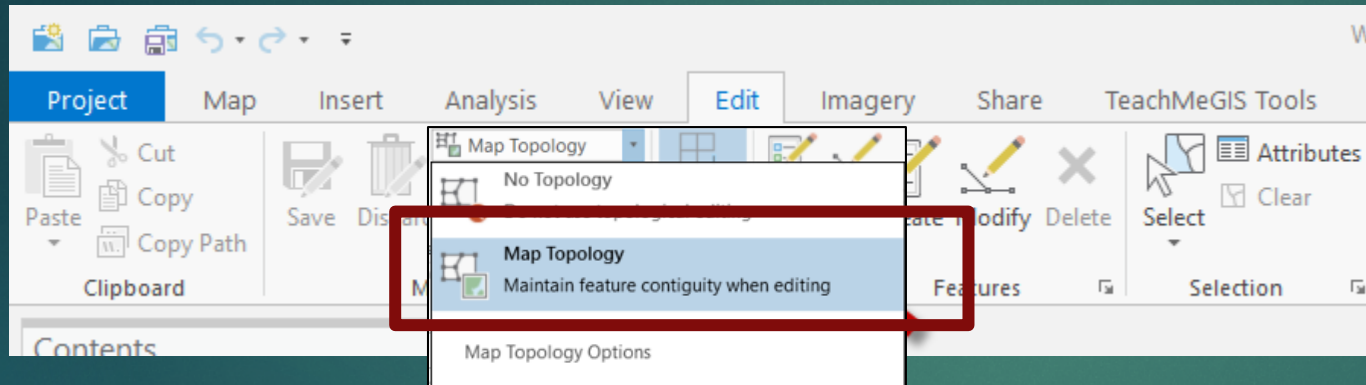
▶ Stay marketable (individual)

▶ Add value to your organization (improve efficiencies)

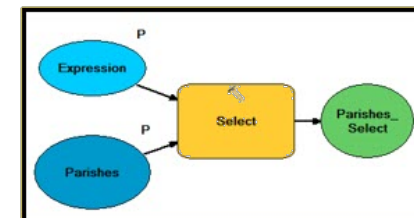
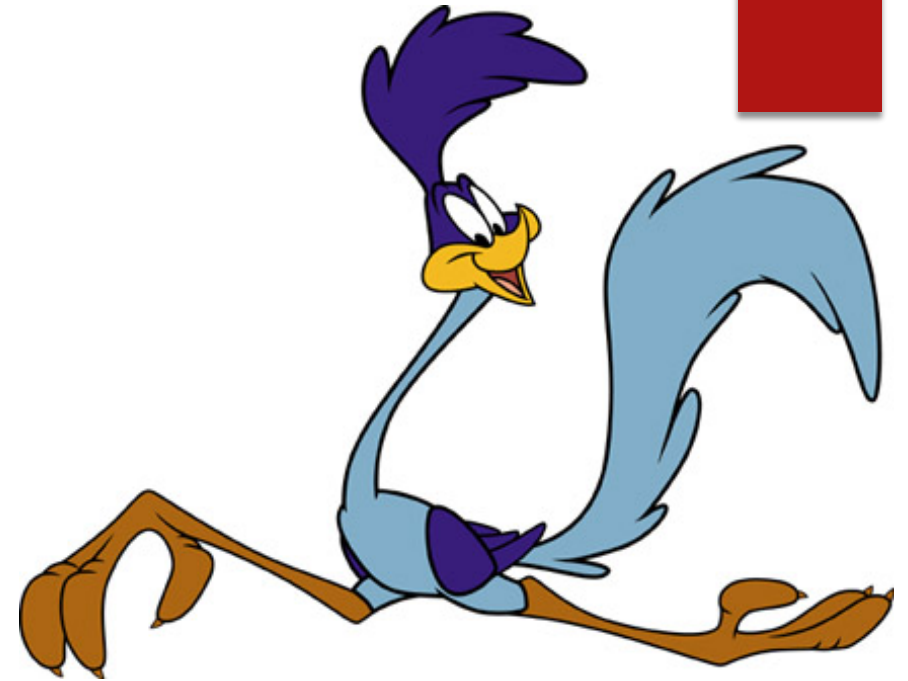
▶ Stay sane! (individually and as a team)



- ▶ Spending a few days learning ArcGISPro the right way can help you from struggling with it for weeks trying to find that one button.



► Learning ModelBuilder, for example, can help you speed up a data processing task so that it can be completed in an hour instead of the normal 4-ish hours it takes, giving you that time you need to get through the responsibilities of life at home.

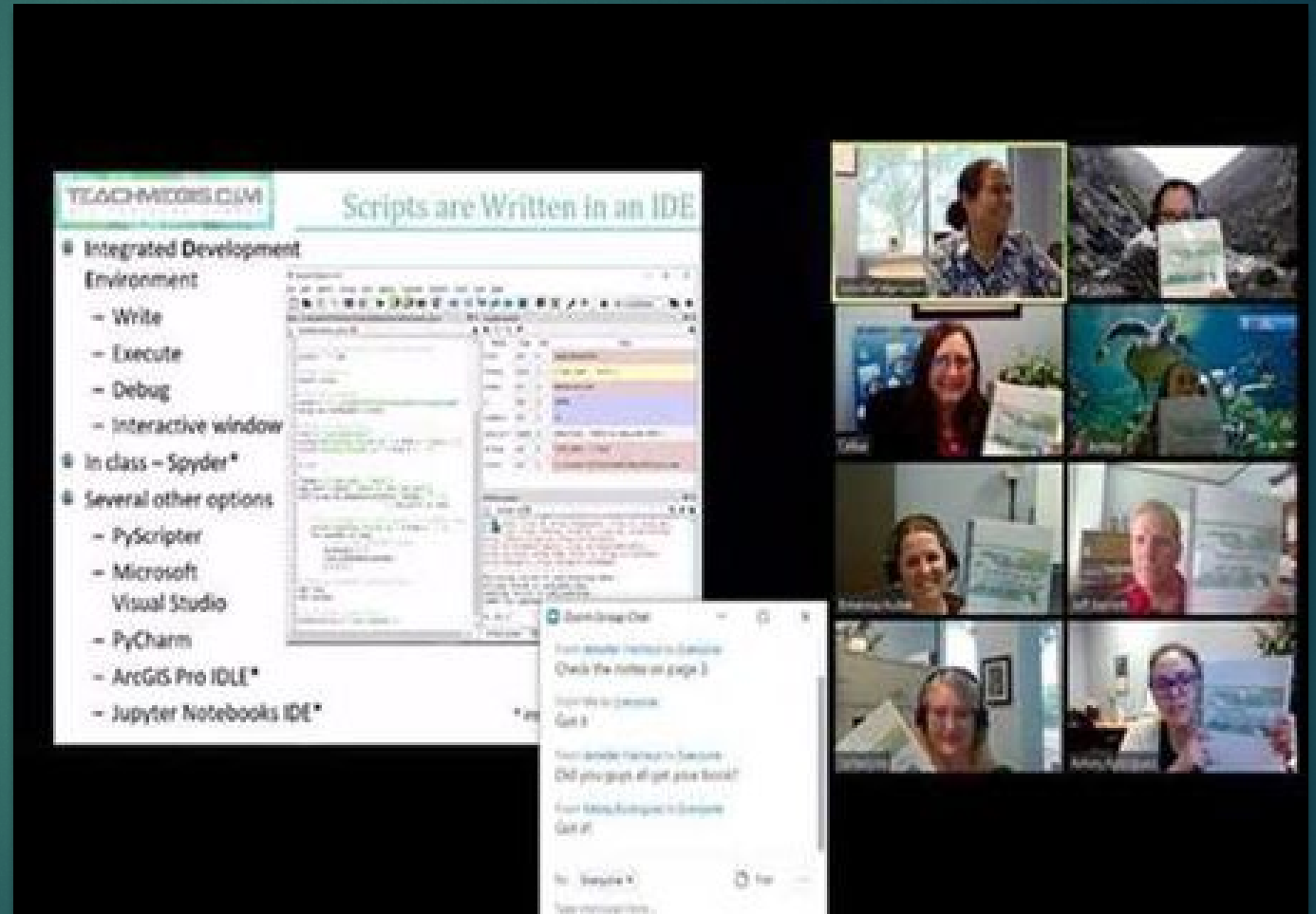


I model for a living.



► And in times of uncertainty, working on self-improvement (like getting better at one GIS thing, or learning a new GIS skill) is an incredibly powerful way to keep us engaged with our careers and excited about new challenges, breaking up the doldrums we may fall into otherwise.

► The simple act of attending a group class, albeit on Zoom or Teams, helps us meet and engage with other spatial people, to build relationships with people we can reach out to in the future if we have GIS questions.





▶ Have training budget?

- ▶ Book one class a quarter (ish). It can be a ½ day class, or a 2-hour workshop, or a full 2-day class. **Ideally, book something where the team can learn together.**
- ▶ **Training classes cull out the most important things you need to know to be productive with your work, and eliminate the chaff**
- ▶ **No need for you to click on a hundred online videos to find that one that will teach you how to, say, import geotagged photos into points.**

▶ No training budget?

- ▶ That's ok. Let each person pick one thing...just one small GIS topic that they want to learn this month and give them one or two hours to just dig into it. (On your own? Do this for yourself!)
- ▶ And then...**SHARE!**
- ▶ Once a week, let one person do a "show and tell" for the team.
- ▶ This gives everyone incentive to make that time to learn one new thing. It also gives them a chance to shine and creates an opportunity for team building. (We GISers love a chance to show off some new trick we've learned!)



► Need some ideas?

1. Learn about the new [stylesets](#) in Pro.
2. Learn how to configure pop-ups using HTML in Pro.
3. Learn what a Relate really is and how to use it in a Pop-up
4. Learn how to create a survey in Survey123 that has conditional questions
5. Learn how to use the new Experience Builder to create a story map
6. Make your first [model](#).
7. Go outside and take some geotagged photos with your camera, and then import them into an ArcGIS Pro map. Hint: [geotaggedPhotosToPoints tool](#)

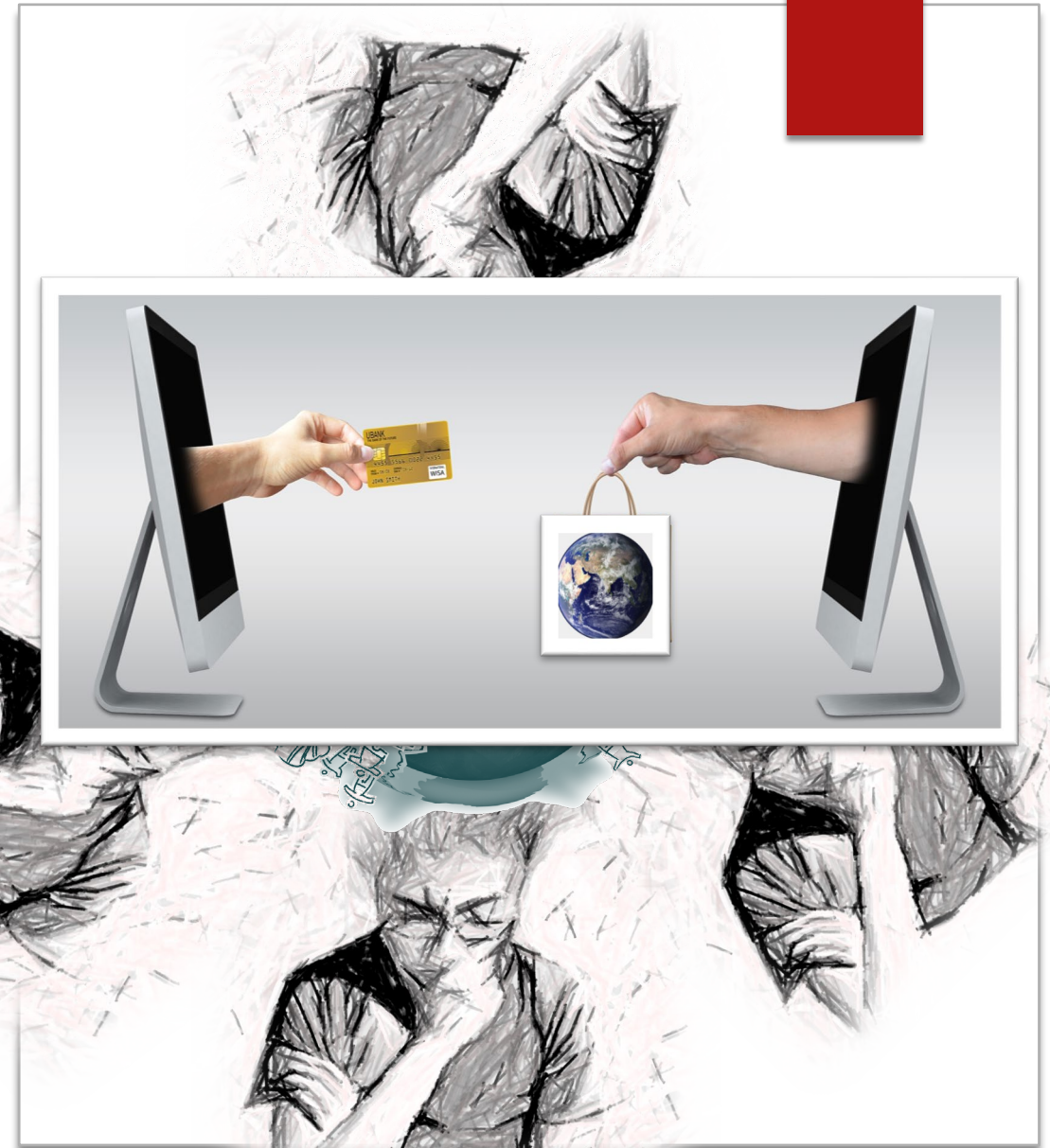
Now...Let's talk about those virtual training classes...

▶ **A training class is not a transactional experience**

▶ You don't walk into the room (or join the Zoom meeting), open a little hole in your head, let me pour information in, you pay, and walk out

▶ **It's an experience, a sharing of knowledge, an exchange of and expounding on ideas**

▶ As an instructor, I don't know everything you are going to learn when you join that class. I know the **MINIMUM** you are going to learn, but you and your classmates determine the **MAXIMUM** based on your questions and your engagement in the class

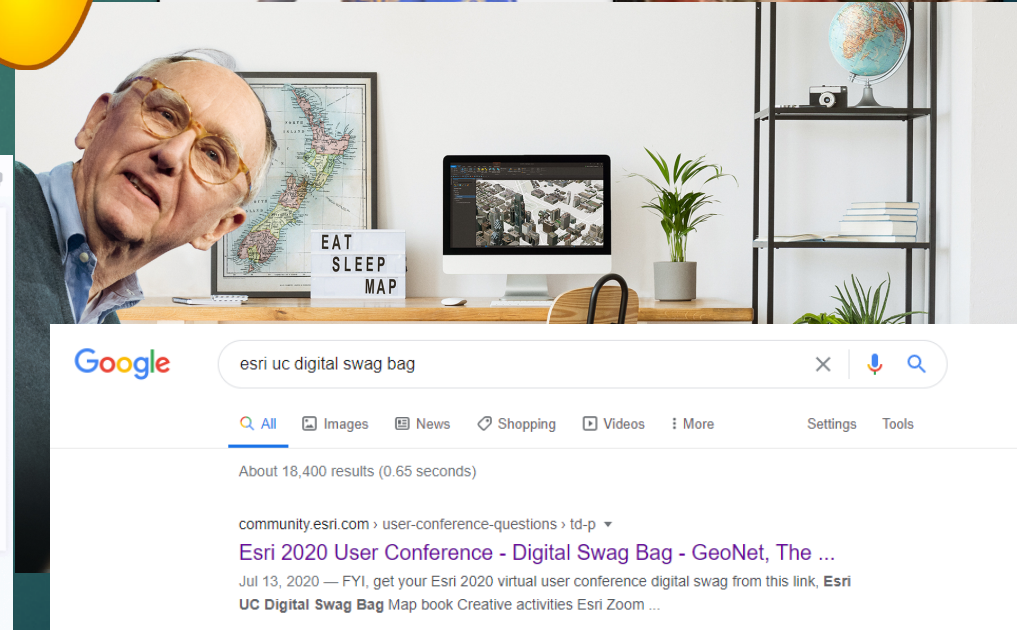
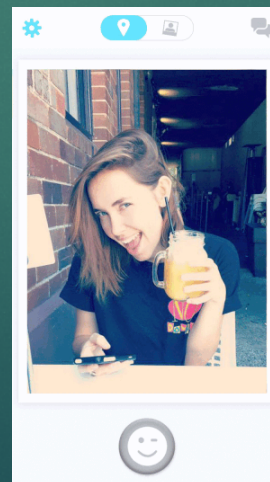
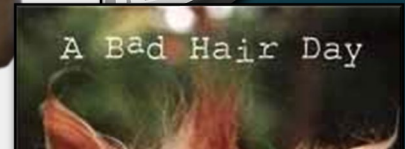


What Can You Do To Get Engaged?

You're muted
Can you hear
Is Your Mic On?

- ▶ Come to the technical test (test your equipment before class)
- ▶ Log in to class 5-10 minutes early. It takes a few minutes for the log on process
- ▶ Turn on your danged camera
- ▶ Say "Good Morning", type your name in the chat, say where you are from or say SOMETHING to acknowledge you are in the room. This will usually get others to follow suit
- ▶ Turn off your %!@&#@* Outlook, text notifications, Teams, Instagram, What's App and Group Me notifications, Reddit, and any of those apps that encourage you to swipe. And bosses, give your staff the directive to do just that. Block them out of the calendar as if they are out of the office.
- ▶ Be 100% there.

Have you checked one of these since today's meeting started?



Managers, here's how you can help

- ▶ If possible, book special, private training classes for your team (serve as team-building exercises).
- ▶ Let the training coordinator know their constraints so that alternative schedules can be worked out
 - ▶ Can we have the class after 2pm when the kids finish their school?
 - ▶ Can we do more days, but shorter days?
 - ▶ How about 2 hours in the morning and 2 in the afternoon?
- ▶ Book them “away” on their calendars and give them the permission to keep their email and Teams closed for the day
- ▶ Consider your staff's current work environment:
 - ▶ Do they have 2 monitors? If not, they probably will need a printed training manual.
 - ▶ Do they have a quiet space in their house where they can attend training?
 - ▶ Do they have a strong internet connection? If not, can they come in to the office for the days of training?
- ▶ Make sure they will get to keep material and datasets to re-work after class for extra practice
- ▶ Ask the trainer about free re-takes

The TeachMeGIS Difference

- ▶ We provide a virtual machine, already set up with the software and the data for class.
- ▶ All you need is:
 - ▶ a computer with a good internet connection,
 - ▶ a headset
 - ▶ a mouse
- ▶ We make sure that you have material to re-work after class
 - ▶ Hardcopy training manual shipped to you
 - ▶ Sample data provided via download
- ▶ We offer free re-takes within 6 months of taking the class
- ▶ We have a special relationship with TNRIS. When you register, put TNRIS2021 in the comments field and you'll get 10% off the class!
- ▶ Our trainers teach and consult, so they have experience DOING as well as TEACHING
- ▶ Want to take a TeachMeGIS Class?
 - ▶ Register and book early. If you are not sure you will get approval, shoot us an email and let us know you are working on it so we can pencil you into the class and hold your spot
(info@TeachMeGIS.com)



National Map Updates

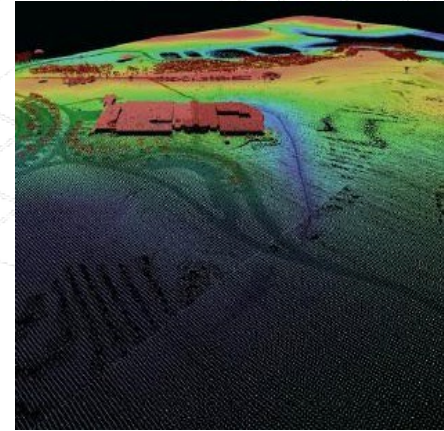
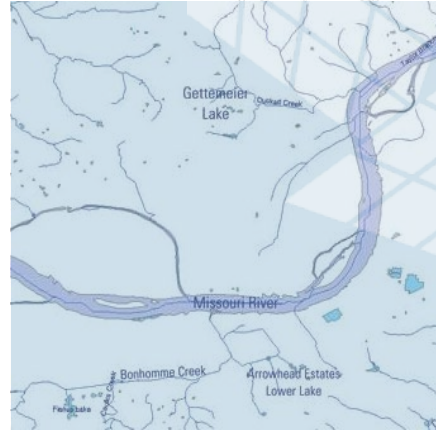
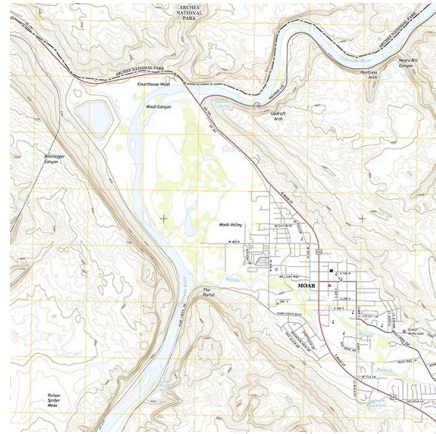


Claire DeVaughan

National Map Liaison for Texas,
Oklahoma, Kansas, Nebraska & Utah

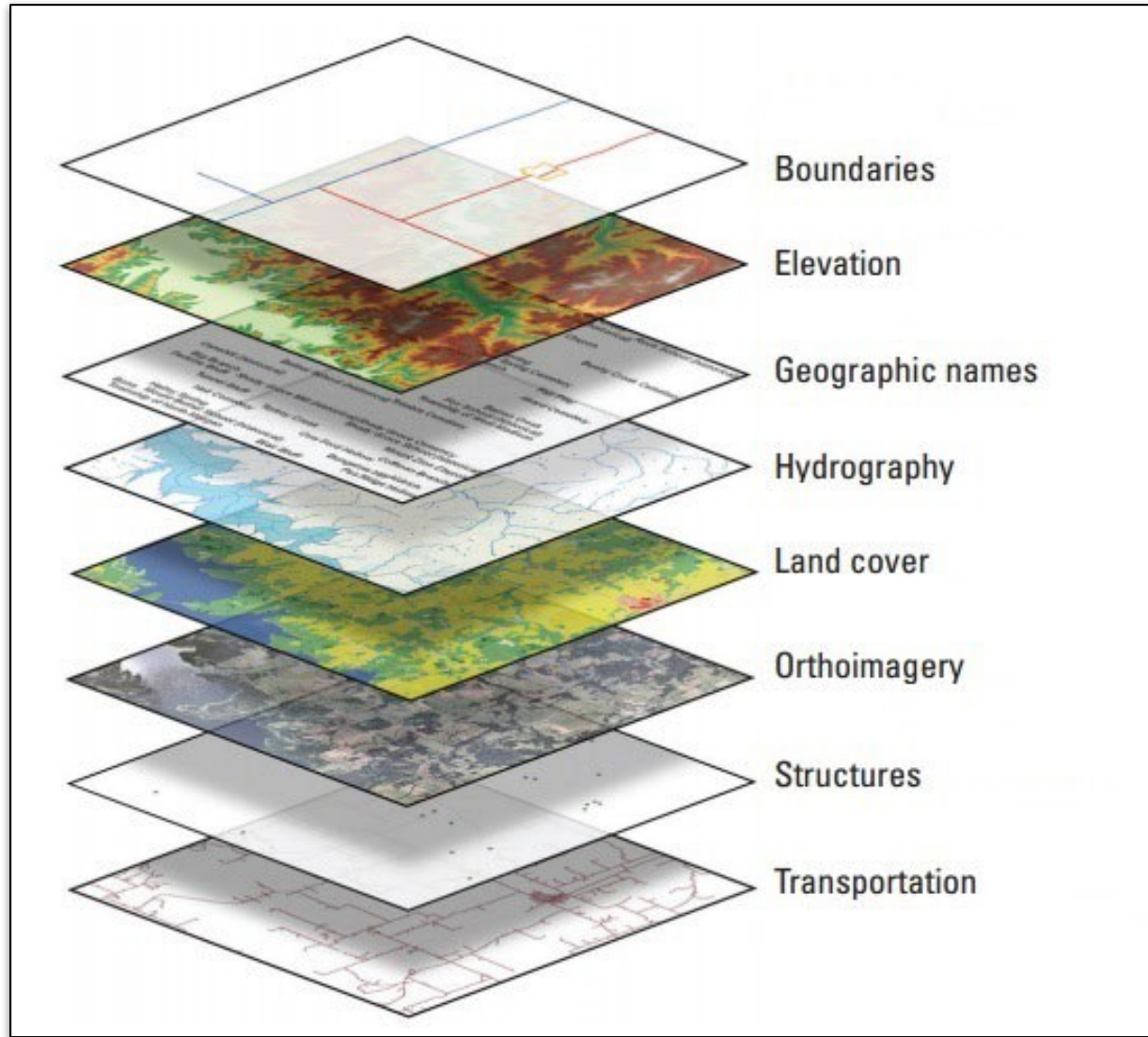
United States Geological Survey

The National Map Products and Services



Claire DeVaughan
National Map Liaison for TX, OK, KS, NE, & UT
Texas GIS Community Meeting
January 26, 2021

+ Eight Layers of The National Map (TNM)



+Geographic Names

- The Geographic Names Information System (GNIS) contains information about the official names for places, features, and areas
- GNIS contains records on more than 2 million geographic names in the United States for features such as populated places, summits, reservoirs, valleys, springs, ridges and streams
- Developed by USGS for the U.S. Board on Geographic Names (BGN)

<https://usgs.gov/geonames/domestic-names>

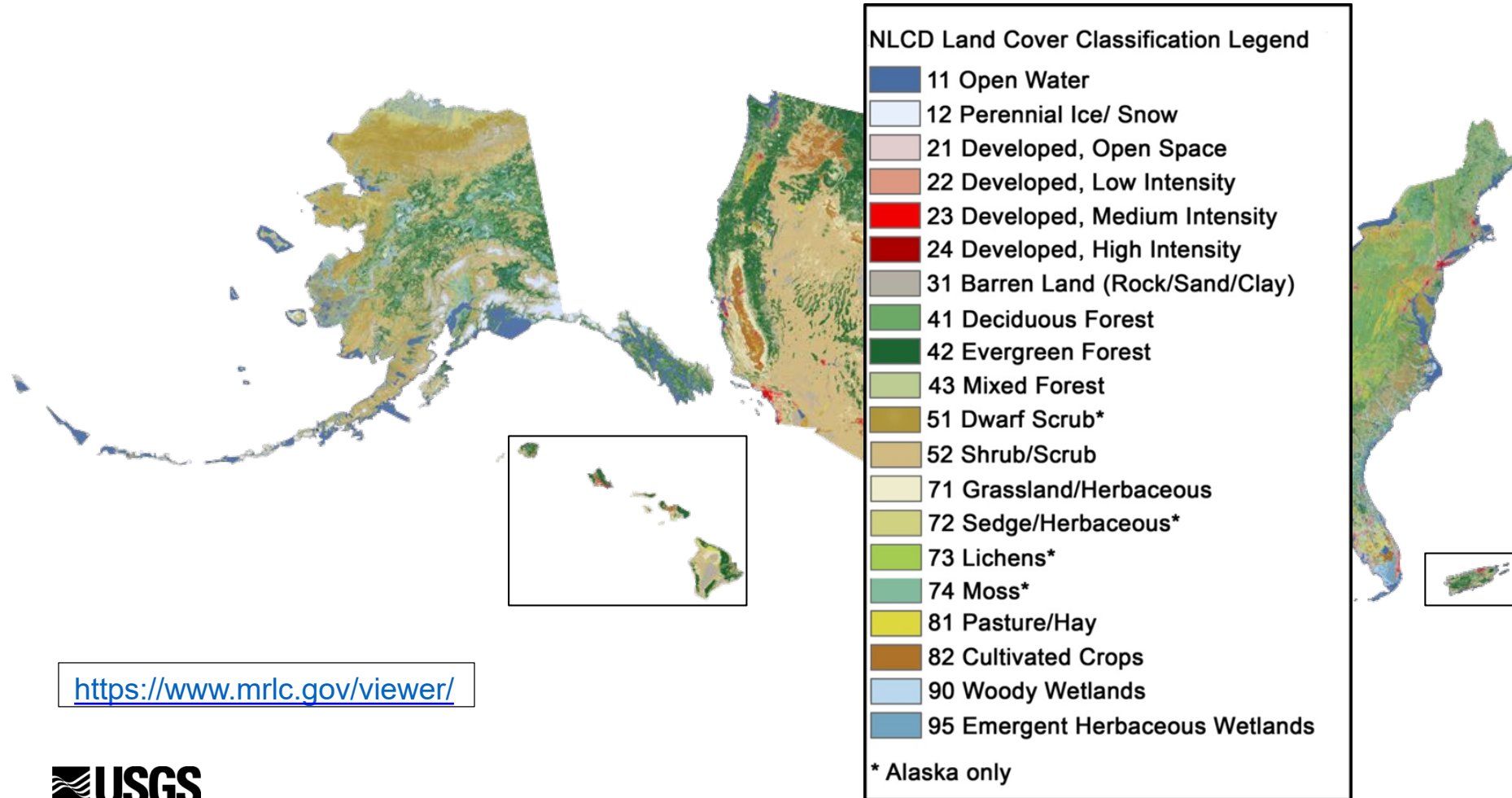


3



+ Land Cover

The National Land Cover Database (NLCD) is the definitive Landsat-based, 30-meter resolution, land cover database for the Nation.



<https://www.mrlc.gov/viewer/>

+ Orthoimagery Data Layer

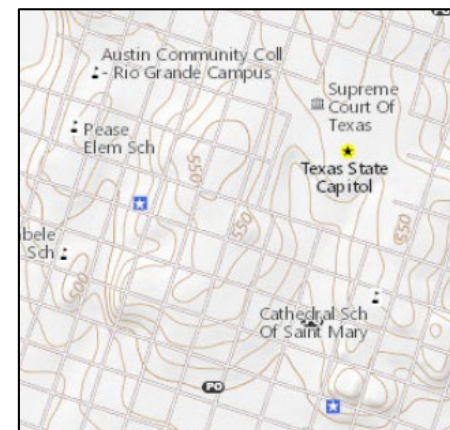
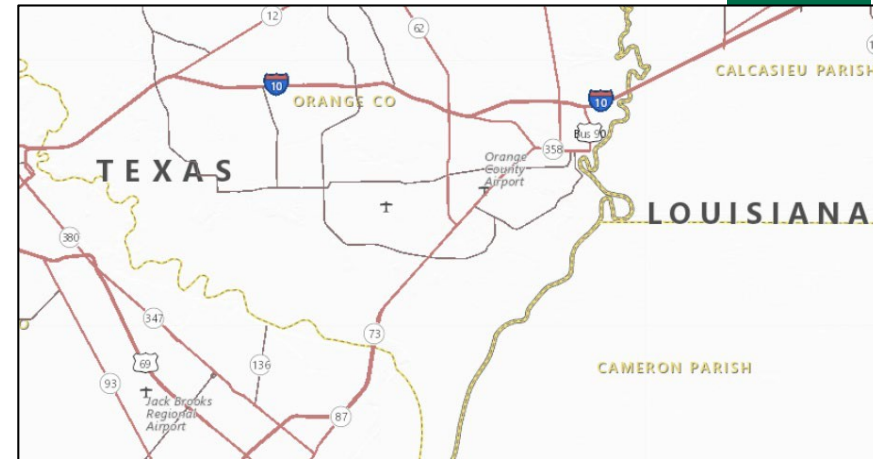
5



Most orthoimagery available through the National Map for the conterminous US is data obtained through partnership with the National Agriculture Imagery Program (NAIP), available as 4 band imagery at resolutions of 1 meter or better.

+ Transportation, Boundaries, and Structures

- The Transportation data theme consists of roads, airports, trails, railroads, and other features associated with the transport of people or commerce.
- Boundaries data or Governmental Units represent major civil areas including states, counties, Federal, and Tribal lands, and incorporated places such as cities and towns.
- USGS data portray selected Structures data including schools, fire stations, police stations, visitor centers, post offices, and hospitals.

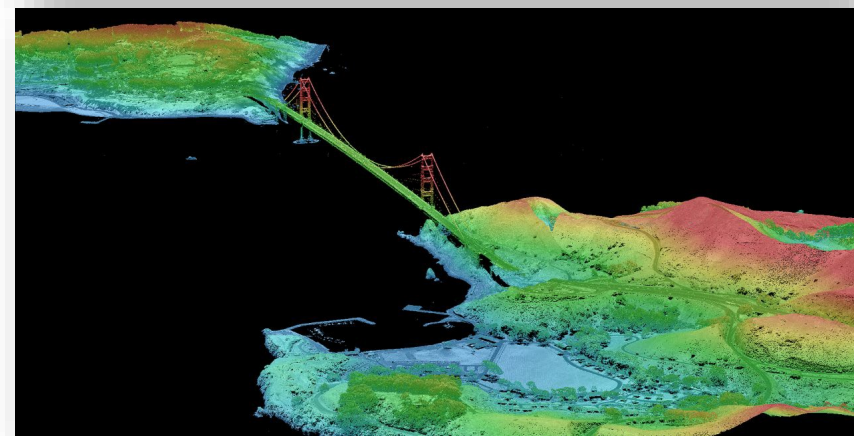


Structure Data Available Nationwide

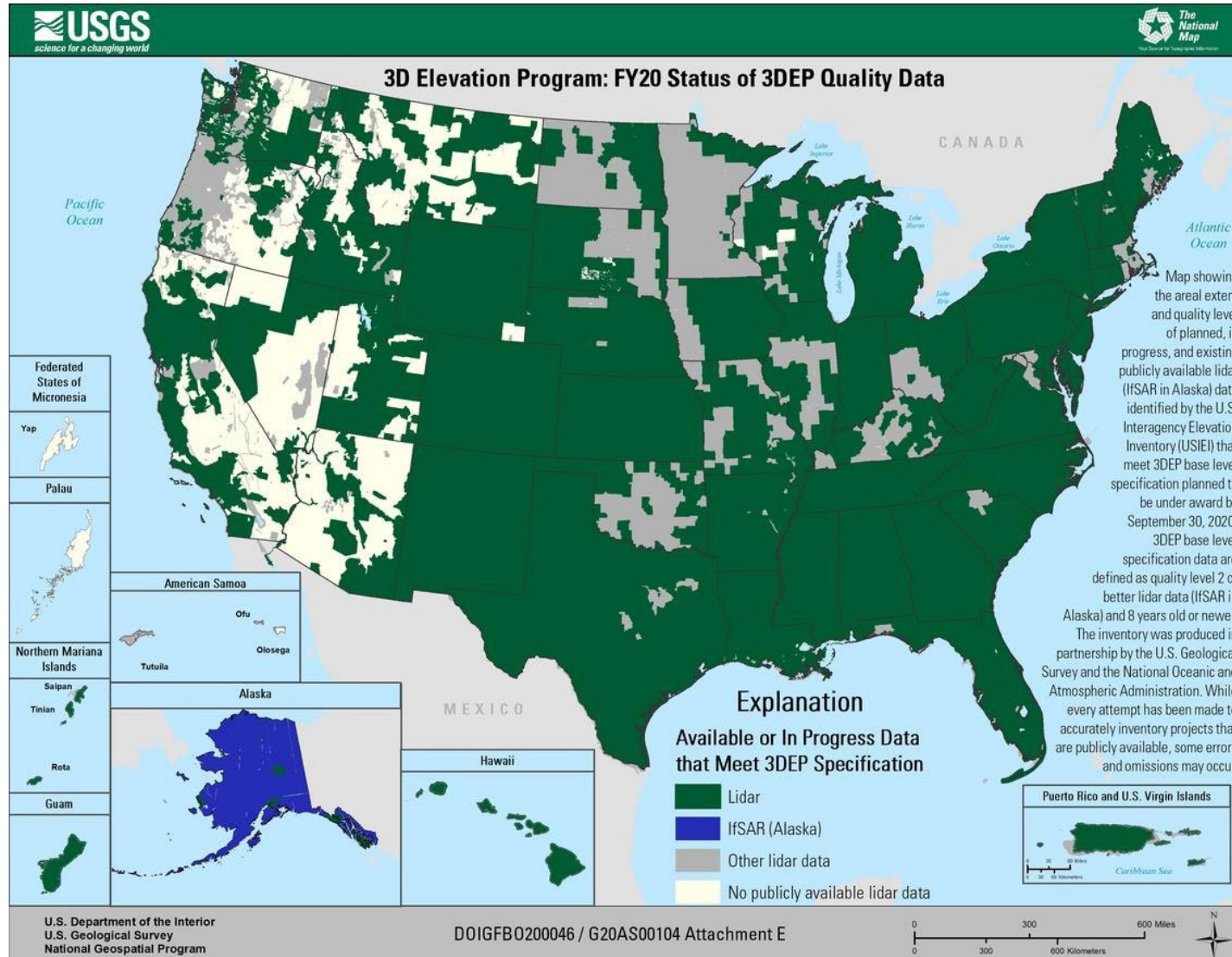
Ambulance Services
 American Red Cross Facilities
 Cemeteries
 Fire and EMS Stations
 Hospitals and Medical Centers
 Post Offices
 Prisons and Correctional Facilities
 Schools
 Colleges and Universities
 State Capitols
 Law Enforcement

+ 3D Elevation Program (3DEP)

- Apply ground-breaking lidar technology to map bare earth surface elevations and 3D data of natural and constructed features
- Increases the data quality level to enable more accurate understanding, modeling, and prediction
- Goal to complete acquisition of national lidar coverage at Quality Level 2 with IfSAR in Alaska in 8 years
- Address the mission-critical requirements of 34 Federal agencies, 50 states, and other organizations documented in the National Enhanced Elevation Assessment
- ROI 5:1, conservative benefits of \$690 million/year with potential to generate \$13 billion/year
- Leverage the capability and capacity of private industry mapping firms
- Achieve a 25% cost efficiency gain by collecting data in larger projects
- Completely refresh national elevation data holdings with new products and services



+ 3DEP Status



+ 3DEP Products

■ Standard DEMs

■ Nationally Seamless

■ 2 Arc Second

■ Project based (seamless within projects)

■ 1/3 Arc Second

■ 1/9 Arc Second

■ 1-meter

■ 5-meter (IfSAR - Alaska)

■ Source Data

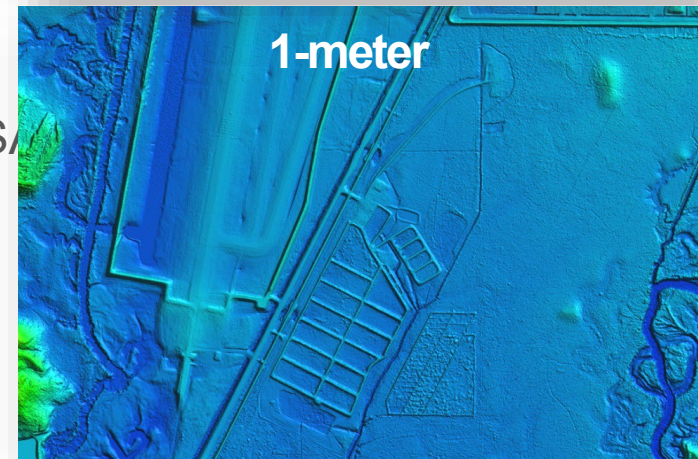
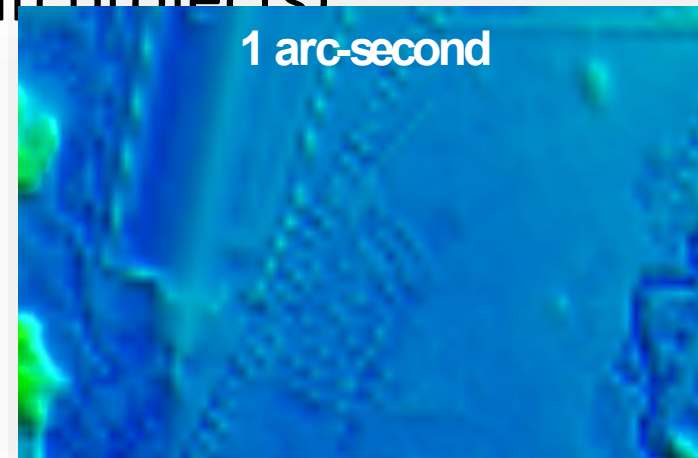
■ Lidar Point Clouds

■ Source DEMs (original product resolution)

■ Digital Surface Model (IfSAR - Alaska)

■ Orthorectified Radar Intensity Imagery (IfSAR)

Previously referred to as
the National Elevation
Dataset (NED)

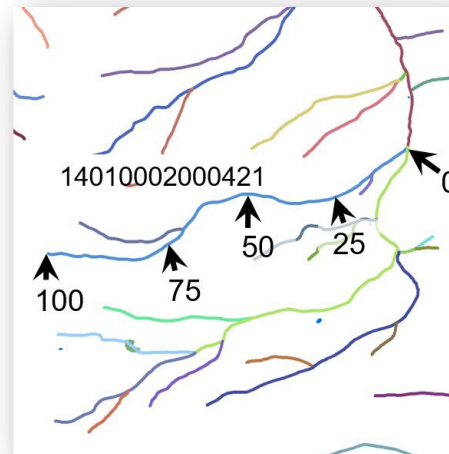


† National Hydrography and Watershed Boundary Datasets

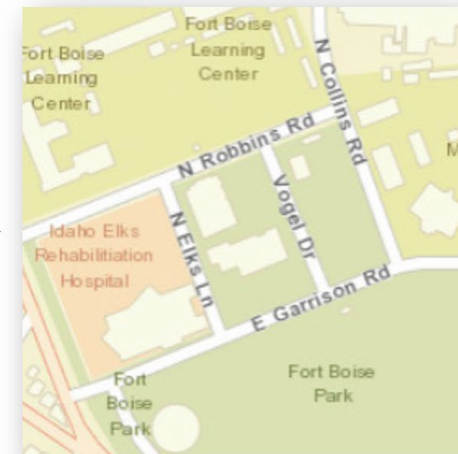
National Hydrography Dataset

- The national **drainage network** with features such as rivers, streams, canals, lakes, ponds, and streamgages

NHD reach code and measure



Street address



Watershed Boundary Dataset

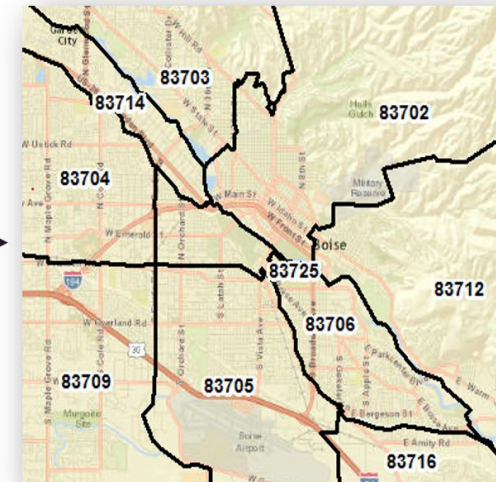
- **Hydrologic units** at 8 scales of a nested hierarchy; defines all or part of the areal extent of surface water drainage to a point

<https://nhd.usgs.gov>

HU Codes



Zip Codes



+ NHDPlus High Resolution

11

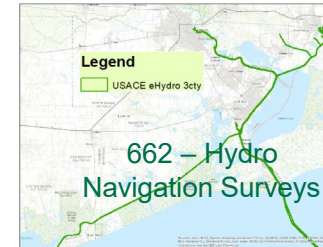
- Integrates hydrography (NHD and WBD) and digital elevation models (DEMs) into a dataset that enables water flow to be modeled across the landscape
- Built using 1:24,000-scale NHD and WBD data, and 3D Elevation Program (3DEP) 10m DEM data
- Used for environmental modeling, including water quality research and bridge and culvert infrastructure planning, because it connects terrestrial characteristics to the stream network
- Supports development of consistent and repeatable modeling results
- Includes vector and raster data layers:
 - A snapshot of the NHD and WBD at the time the NHDPlusHR was built
- Also includes:
 - Value added attributes (VAAs) that enhance stream network navigation, analysis and display
 - Catchment characteristics including mean annual precip., mean annual temperature, and mean annual runoff
 - And much more information!





3D NTM Pilot – Southeast Texas 8-County Study Area

- University of Texas, Lamar University, TX DOT, TX Dept of Emergency Management, TX Dept of Public Safety, USACE, Local Drainage Districts, Local Floodplain Managers
- Collating all existing topographic lidar, topobathymetric lidar and bathymetric (sonar) data
- Create a seamless terrain model above and below water surface
- Collecting Elevation-Derived Hydrography for a portion of the area
- Use to improve hydrologic and hydraulic networks and inform decision making on flood prediction and response



Topographic Lidar Data	Year	Organization
Upper Coastal Lidar	2018	USGS-3DEP
NRCA Eastern Texas Lidar	2018	USGS-3DEP
Sabine River Lidar	2018	USGS-3DEP
Jefferson_Liberty_Chambers Lidar	2017	TNRIS
Chenier Plain Lidar	2017	USGS-3DEP
East Texas Lidar	2017	USGS-3DEP
Fema_Region7_RedRiver_2017	2017	USGS-3DEP
Fema_Region6_Neches_Basin_2016	2016	USGS-3DEP
Parker_TNRIS_2011	2011	TNRIS
Liberty_TNRIS_2011	2011	TNRIS
Comal_Gudalupe__TNRIS_2010	2010	TNRIS
Topobathymetric Lidar Data	Year	Organization
NOAA NGS Coastal Mapping Program Topobathy Lidar	2019	NOAA NGS
NCMP Topobathy Lidar: Gulf Coast (TX, MS, AL, FL)	2016	USACE / JALBTCX
USACE NCMP Topobathy Lidar: Post Hurricanes Gustav and Ike (AL, LA, MS, TX)	2009	USACE / JALBTCX

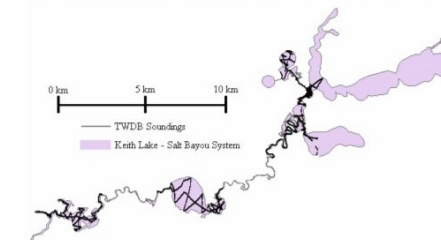
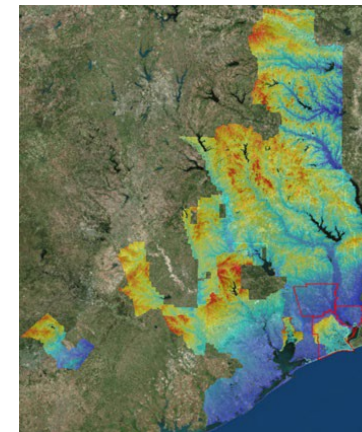


Figure 2 – TWDB data collection within the Keith Lake-Salt Bayou system

Data Discovery

- TNM Viewer – discover and visualize TNM data
 - <https://viewer.nationalmap.gov/advanced-viewer/>
- LidarExplorer – discover elevation data
 - <http://prd-tnm.s3.amazonaws.com/LidarExplorer/index.html#/>
- Earth Explorer – discover imagery
 - <https://earthexplorer.usgs.gov/>
- topoView – discover US Topo and Historic Topographic Maps
 - <https://ngmdb.usgs.gov/topoview/>

Data Download

- Download Client - <https://viewer.nationalmap.gov/basic/>
 - Users may establish an Area of Interest by zooming/panning in the map, drawing a box, dropping a point, or selecting a polygon
 - One or more datasets may be selected with desired product extents and formats. Preview and Availability layers are provided for datasets to help visualize the content and availability of data.

- FTP staged data – folder structure via ftp
 - <ftp://rockyftp.cr.usgs.gov/vdelivery/Datasets/Staged/>

- AWS Cloud staged data – folder structure via Amazon cloud
 - <https://usgs.gov/NationalMap/cloud-browse>

+ USGS LidarExplorer

<http://prd-tnm.s3.amazonaws.com/LidarExplorer/index.html#/>

The screenshot displays the USGS LidarExplorer web application interface. The browser address bar shows the URL: <http://prd-tnm.s3.amazonaws.com/LidarExplorer/index.html#/>. The application header includes the USGS logo and navigation links: Search, Process, About, and a 'Locate a Place' dropdown menu. A 'BASE MAP' button is visible in the top right corner.

The main content area is divided into a left sidebar and a central map. The sidebar contains the following sections:

- Which product are you interested in?** with tabs for LIDAR and DEM.
- Show where Lidar is available
- Click on the map to retrieve information about a lidar project.*
- Show options for filtering the map display?**
- [Hide Legend](#)
- Legend items:
 - Lidar Point Cloud 0.700001 - 5
 - Lidar Point Cloud 0.350001 - 0
 - Lidar Point Cloud 0.000001 - 0
 - Lidar Point Cloud 0.000000
 - Topobathy AOI
 - Topobathymetric Lidar Point Cloud
- Define Area of Interest

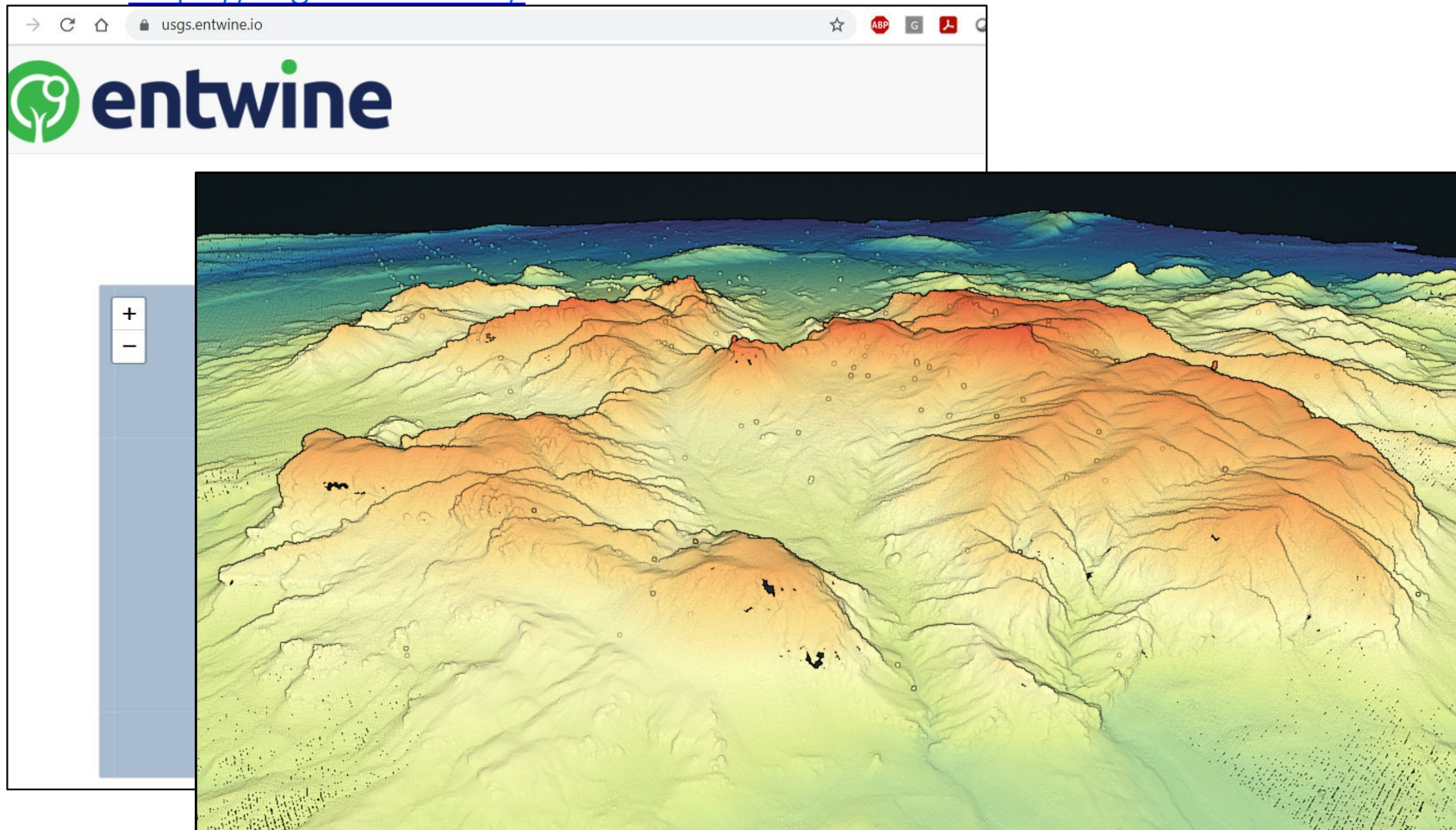
The central map shows the United States with various data layers overlaid. The 'DEM' tab is selected, and the 'Show where DEMs exist?' checkbox is checked. The map displays several red-shaded regions across the country, indicating the presence of DEM data. The legend on the left includes the following options for filtering the map display:

- Show where DEMs exist?
- Click on the map to retrieve information about a DEM project.*
- 1 meter
- 1/9 arc-second
- 1/3 arc-second
- 5 meter (Alaska only)
- 1 arc-second
- 2 arc-second
- Original Product Resolution
- DEM - Source
- Topobathymetric Lidar DEM
- Preview DEMs on map?
- Define Area of Interest

+ 3DEP Point Cloud as Amazon Public Dataset

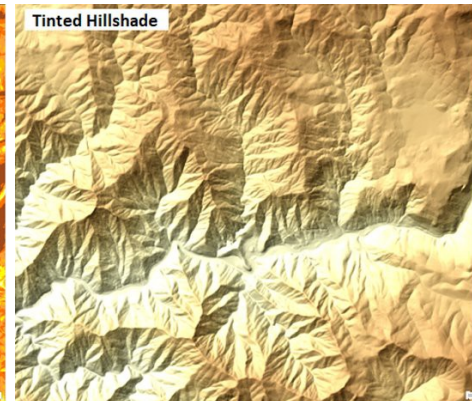
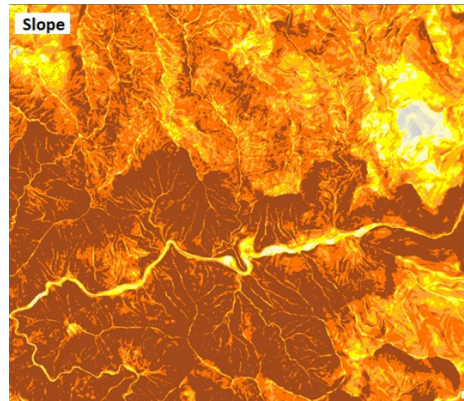
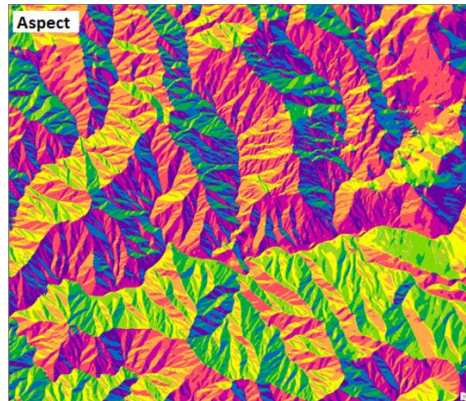
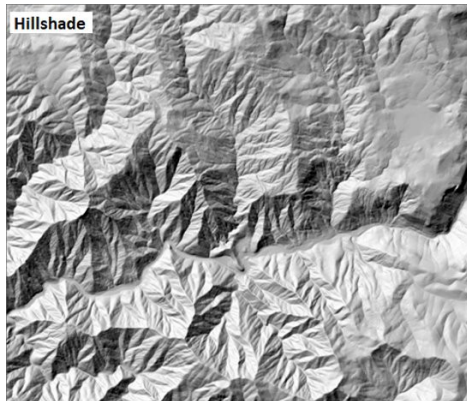
Visualization of USGS 3DEP Lidar Point Clouds as Entwine Point Tiles with Potree and Cesium viewers:

<https://usgs.entwine.io/>

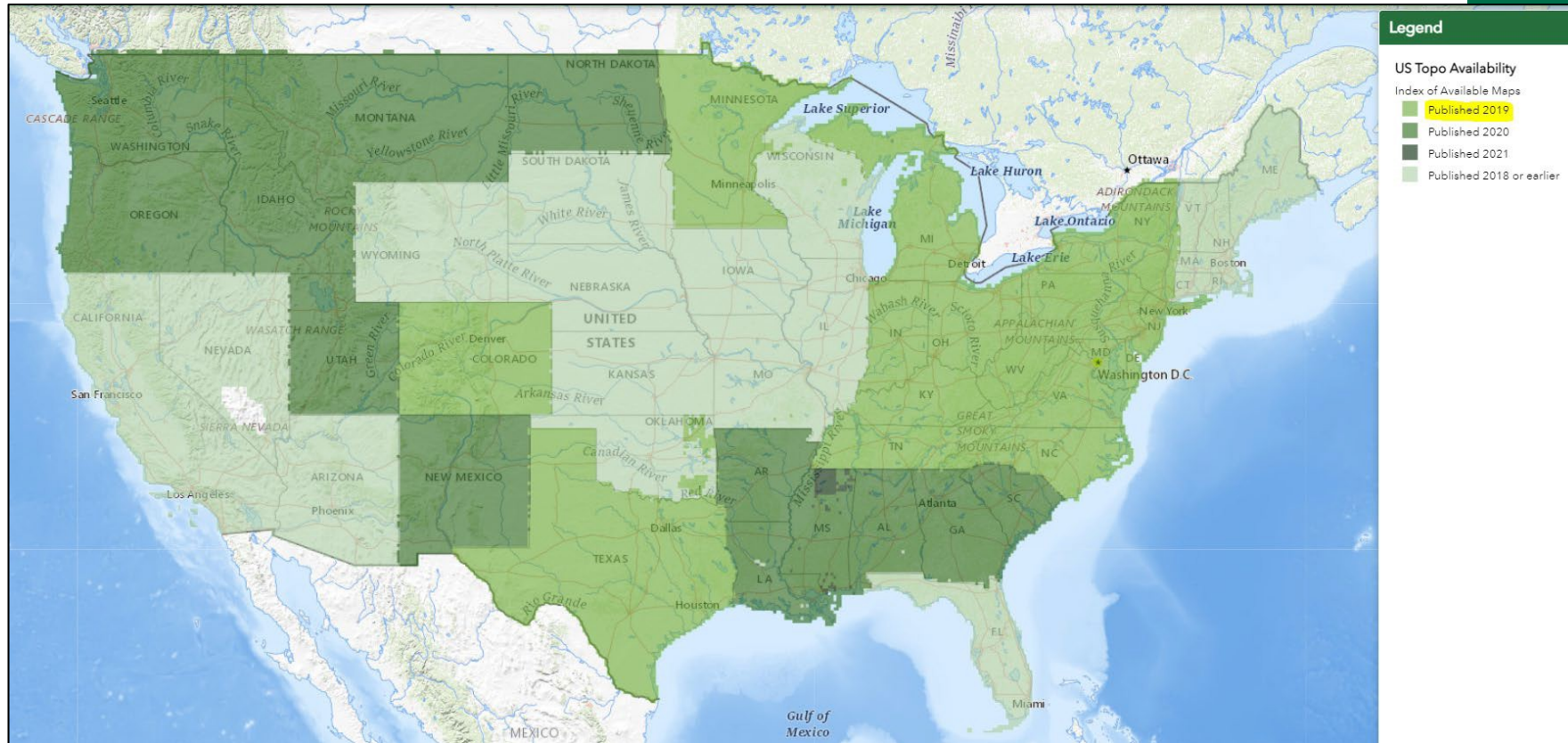


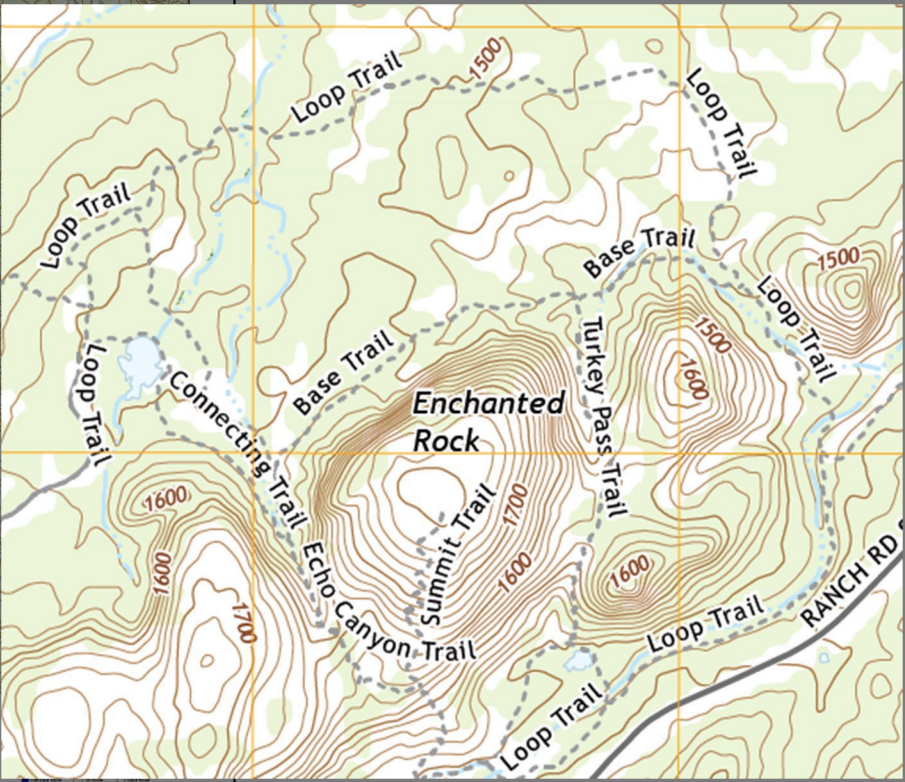
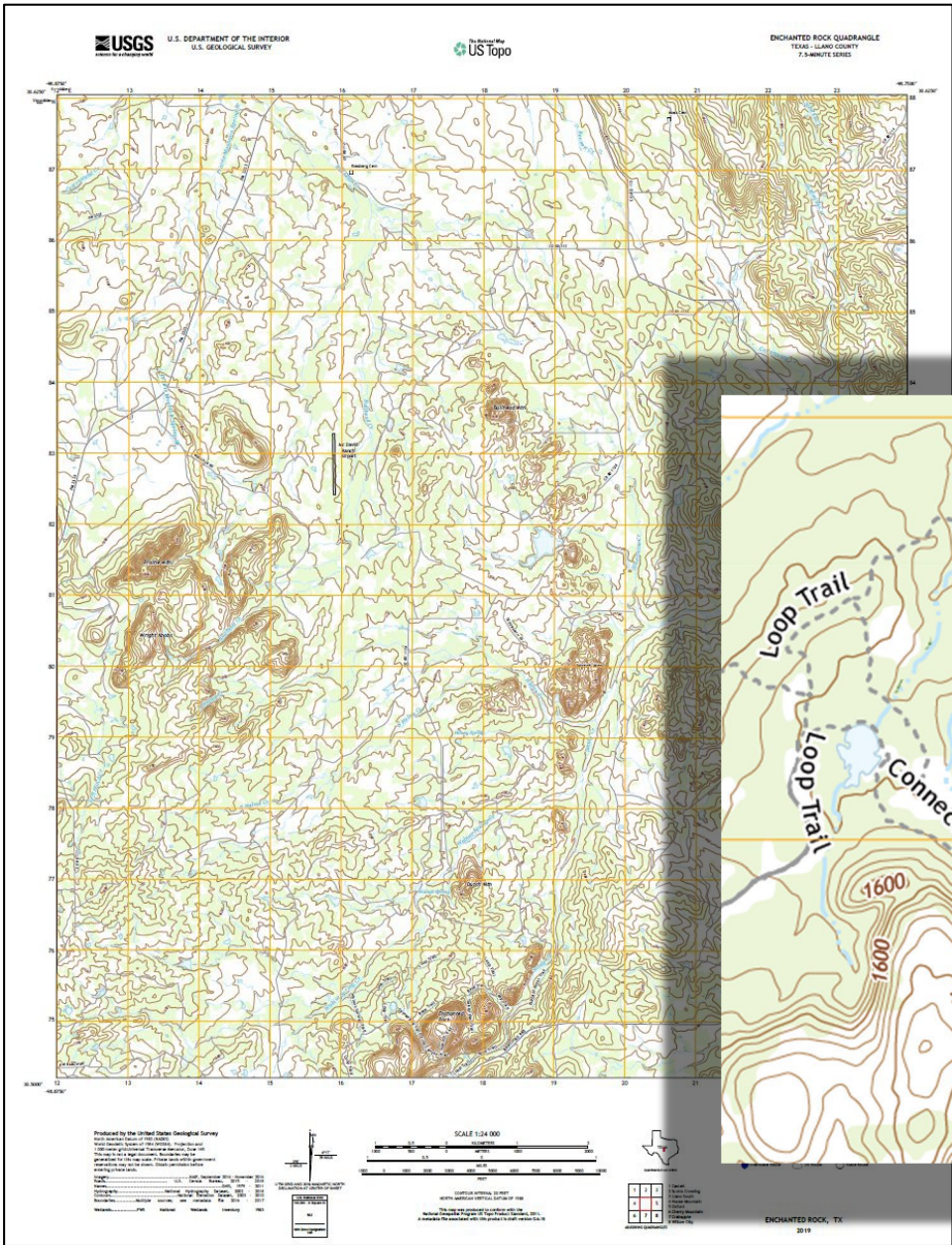
+ Services

- TNM data and basemaps can be used as services in applications such as ArcMap or ArcGIS Pro
- ArcGIS REST Services (add each in ArcMap Catalog as ArcGIS Server)
 - <https://basemap.nationalmap.gov/arcgis/services>
 - <https://carto.nationalmap.gov/arcgis/services>
 - <https://hydro.nationalmap.gov/arcgis/services>
 - <https://elevation.nationalmap.gov/arcgis/services>



+ US Topo Status – 1/22/21





US Topo Access

- Both the US Topo series and HTMC maps are offered as GeoPDFs through The National Map and the USGS Store. However, additional formats are now offered through topoView: <https://ngmdb.usgs.gov/topoview/>



- GeoTIFF – compressed, 300 dpi TIFF image format, with embedded georeferencing information so that the map can be used directly in a GIS. The GeoTIFFs are generated at true scale, allowing users to plot the map at the intended map scale in cases where a hard copy is needed.
- JPEG – The high-resolution JPEGs, or 'Browse JPEG' format are useful for getting a quick view of the map in order to find place names or simply explore the map area without the need for downloading a large file.
- KMZ – The KMZ format is a compressed form of the KML format which is used for displaying the maps in Google Earth.

+ What is Dynamic Mapping?

Application to create your own US Topo style map, where you want, with the content you want.

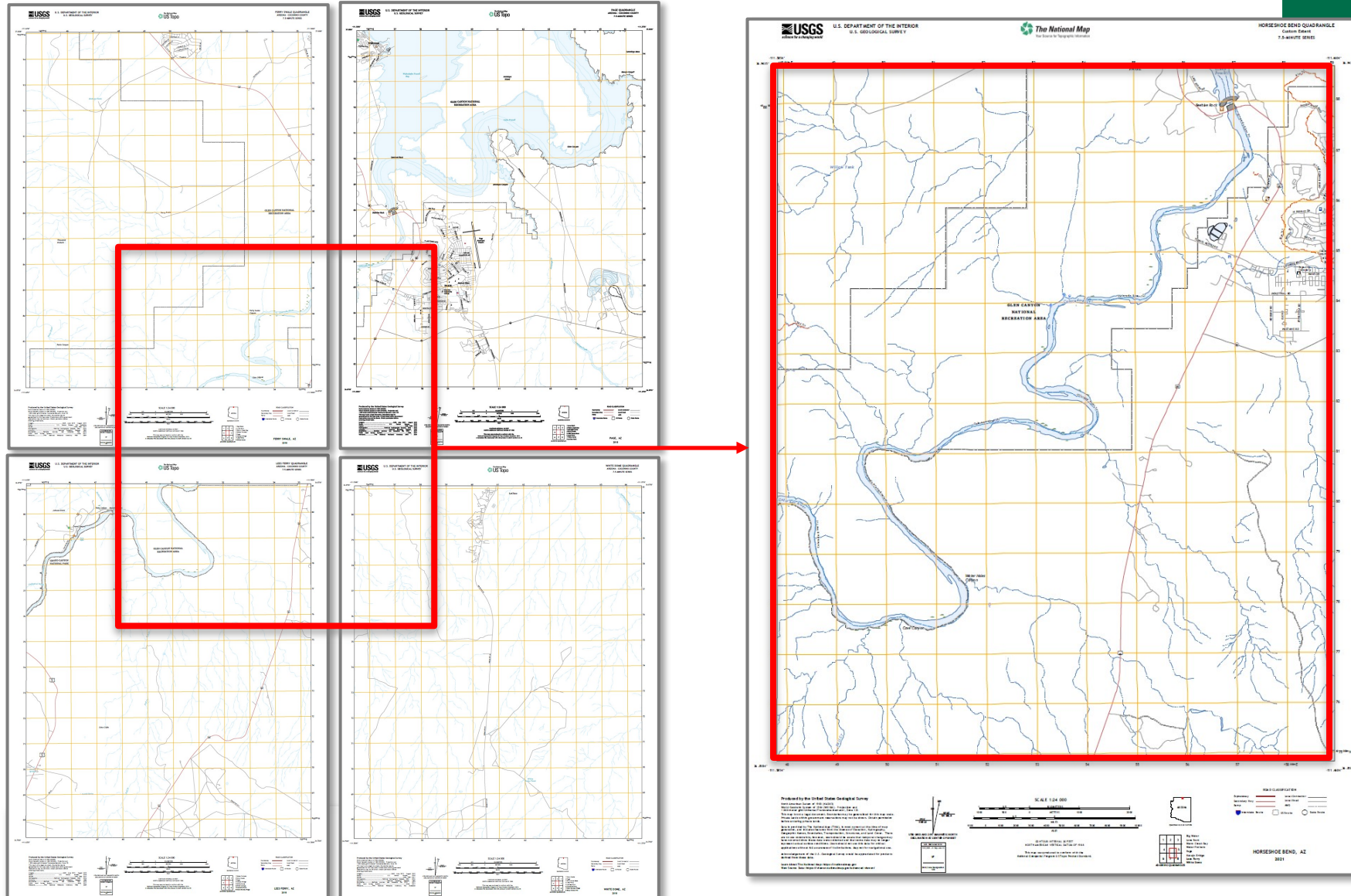
- Created on-the-fly (dynamically) based on user input
- User defined area of interest
- Options for layer visibility
- Options for addition of custom content
- Various export formats, including print

Supports scientific applications relevant to responsible resource management, sustainable energy development, natural hazard risk reduction, and national health and security as well as recreational applications



US Topo

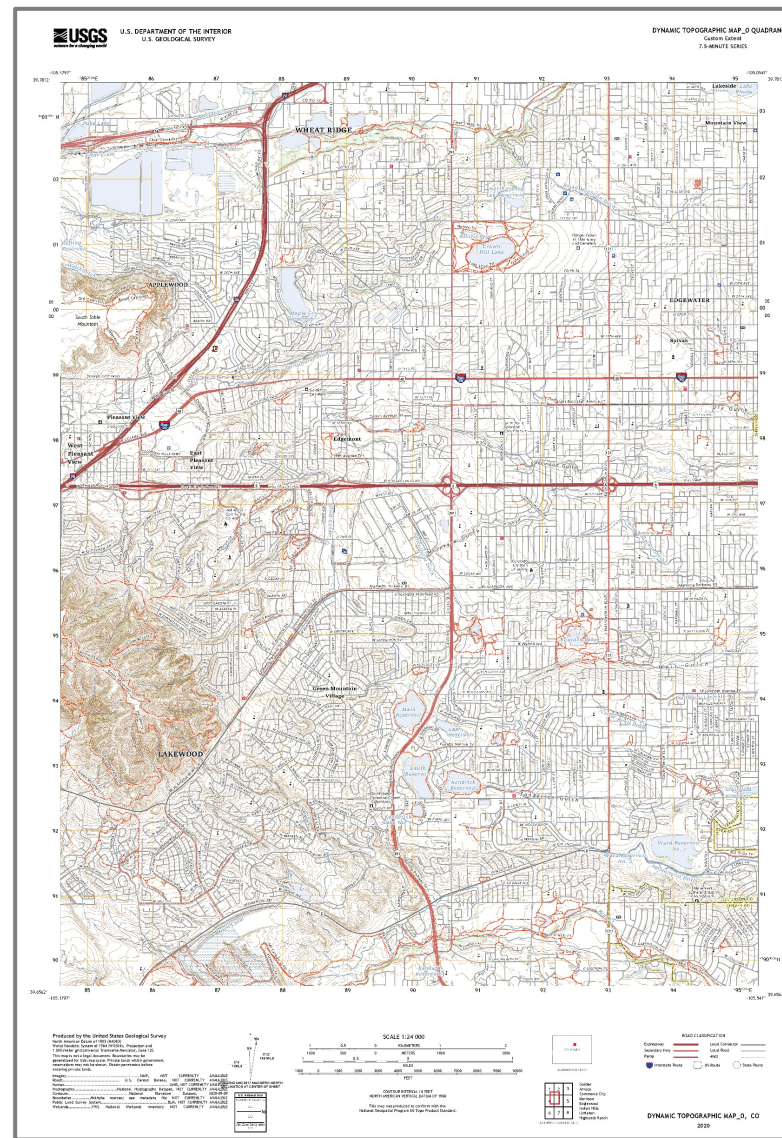
Dynamic Map



+ Project Timeline

- **Winter 2021 - Internal**
 - 1:24,000 scale
 - On or off center 7.5 min quad
 - Contour smoothness
 - Geospatial PDF, GeoTiff

- **Spring 2021 - Public**
 - New User Interface
 - User selected TNM layers
 - User added content
 - Product Preview



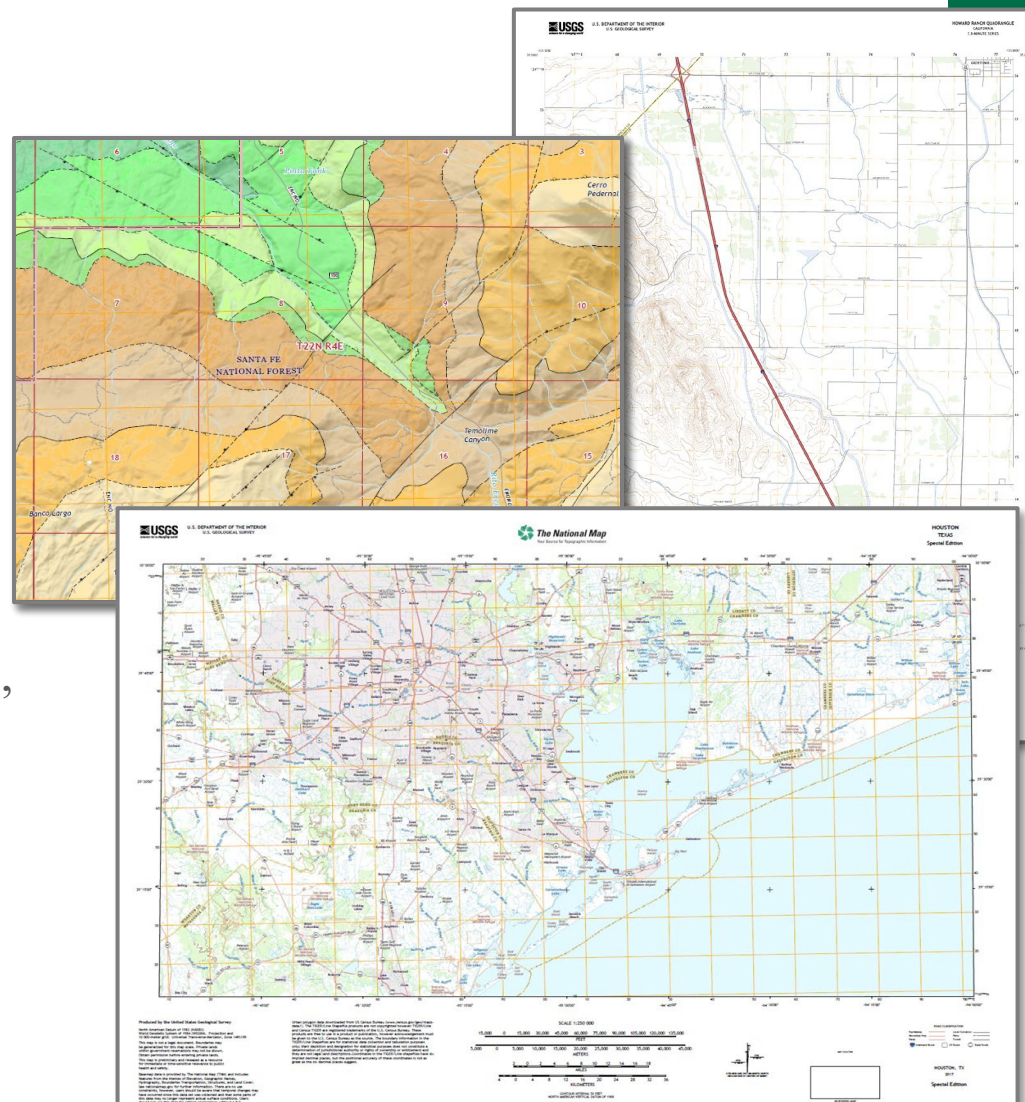
+ Project Timeline

■ Fall 2021

- 1:100,000 scale
- Custom area of interest
- GIS data download
- Print

■ Future Releases

- Additional scales, map types, download options, user customizations



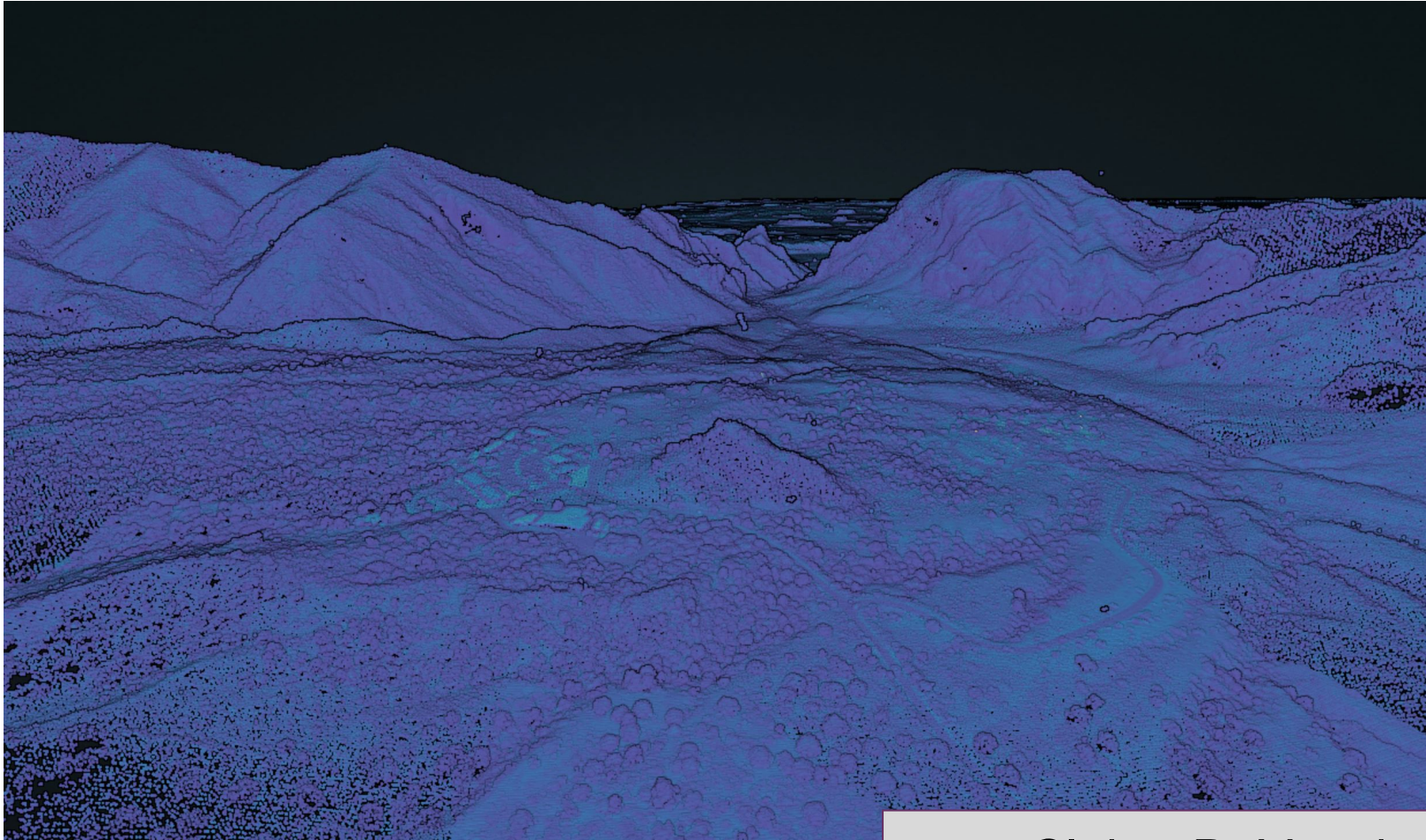
+ National Map Training Videos

<https://www.usgs.gov/NGPvideos>

The image displays three overlapping screenshots of YouTube videos from the USGS National Map training series. The leftmost video is titled "3D Elevation Program: Mission Critical Applications" and features a 3D topographic map with various hazards like ash flow and lahars. The middle video is titled "Hydro-Flattened (S...)" and shows a hydro-flattened topographic map with stream and waterbody features. The rightmost video is titled "Lesson 10b1: Intro to LAS Files in ArcGIS Pro" and shows the ArcGIS Pro interface with a 3D elevation model and a legend.

+ Questions?

26



Claire DeVaughan
National Map Liaison for Texas
(and NE, KS, OK, UT)
512-671-0747 - cell
cdevaugh@usgs.gov



SWIGGIS



FOLLOWING TNRIS QUARTER MEETING

VIRTUAL LEAN COFFEE NIGHT

JANUARY 26 @5PM

ZOOM & Event info at
urisatexas.org/events



**Become a
member or renew
today**

swiggis.org

2/4 @ 12-1 MEMBER MEETING:

**WHO WE ARE, YEAR IN
REVIEW, & THE YEAR AHEAD**

**COMING UP: CAREER CUPID
& GISP WORKSHOP**



Thank You