

WHAT'S NEW IN ENVI 5.5.3 AND IDL 8.7.3

What's new and a look at what's ahead

February 13, 2020

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Agenda



Introduction

Visualization and Reporting Tools

- Annotation Improvements
- Report/Product Generation
- Quick Mosaic

Additional Features

- New Sensor and Format Support
- Matrix Math Updates
- Spectral Library API
- New ENVI Tasks

ArcGIS Integration Updates

What's Next for ENVI and IDL?

Questions and Discussion

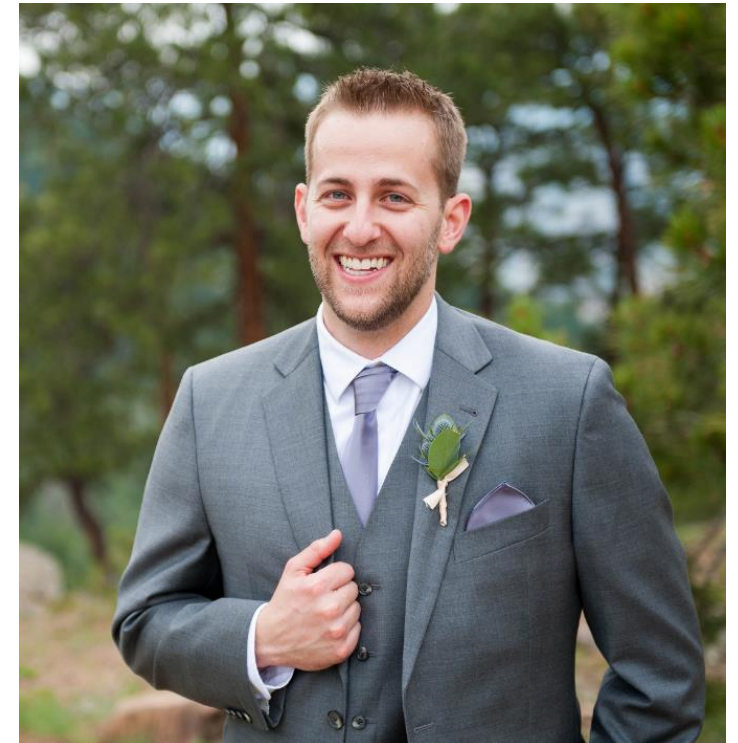
Contact Information and Introductions



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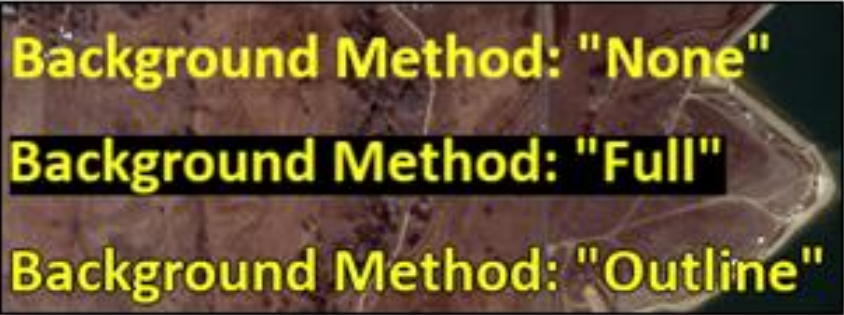


New, exciting visualization and reporting tools in ENVI

Annotations Improvements



Updated visualization of text and symbols in ENVI which allows for:

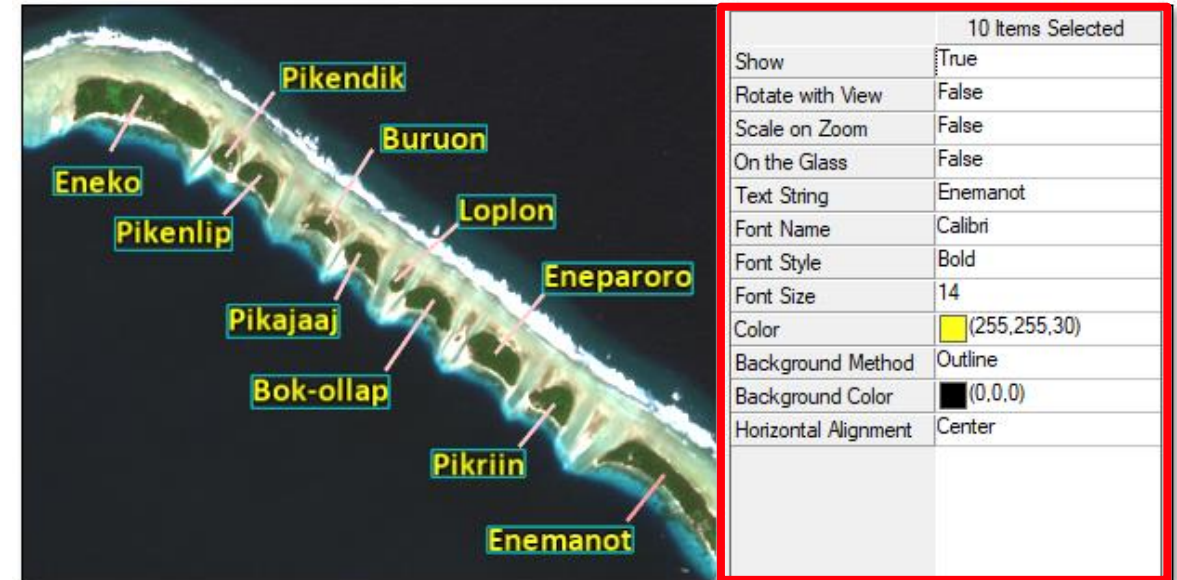


Annotations Improvements (contd.)



New, image magnifier annotation that allows you to zoom into areas of your image at full-resolution.

Access this new and exciting tool from: Annotations -> Image Magnifier

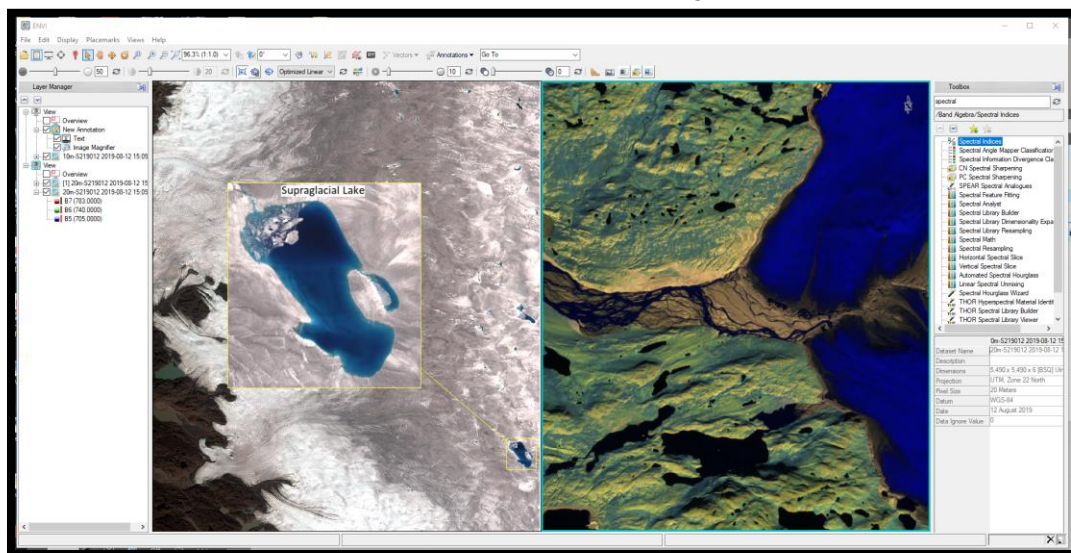


New, metadata panel in the lower-right corner of ENVI. Allows for quick access to any selected item, including changing the properties of annotations!

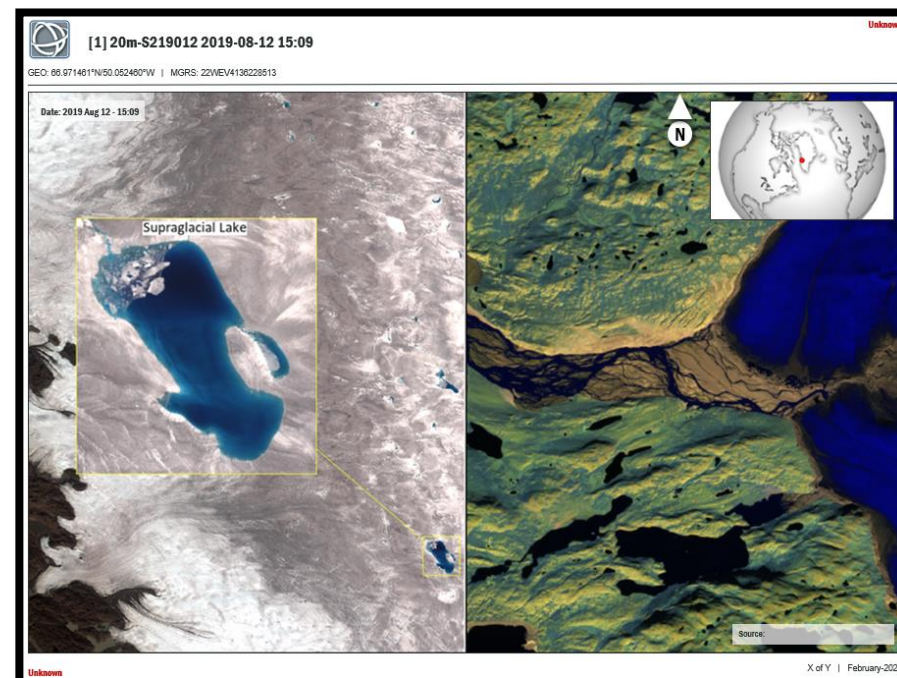
PowerPoint Report Generation



ENVI's Display



PowerPoint Slide



Seamlessly capture ENVI's display and generate high-quality presentation content with a single click

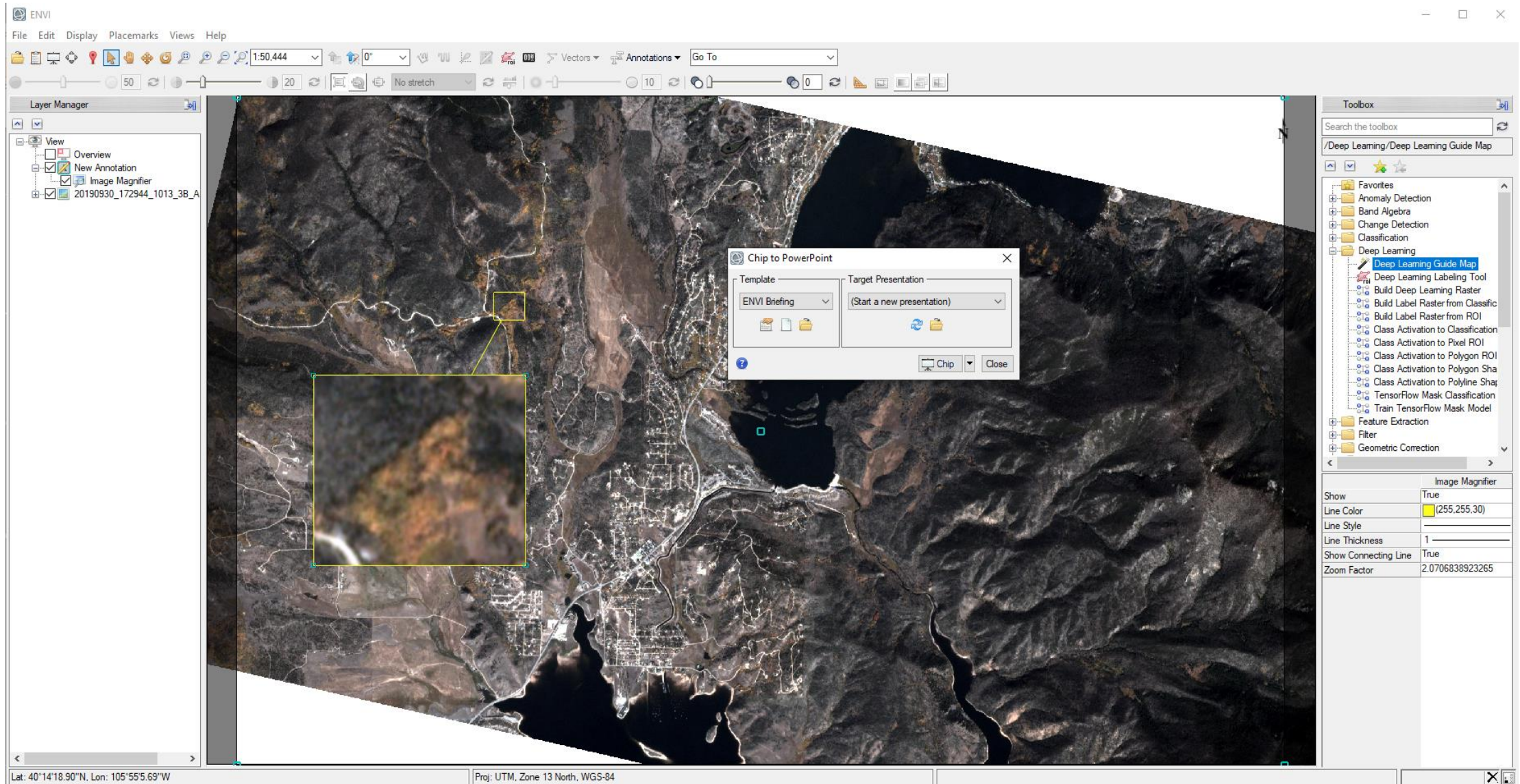
Anything in ENVI's display can go to PowerPoint

Append to existing PowerPoint presentations or create a new one

Once in PowerPoint, can edit text boxes natively
Add custom content and access all of PowerPoint's tools

Ability to import PowerPoint templates into ENVI

A Look at the Tool

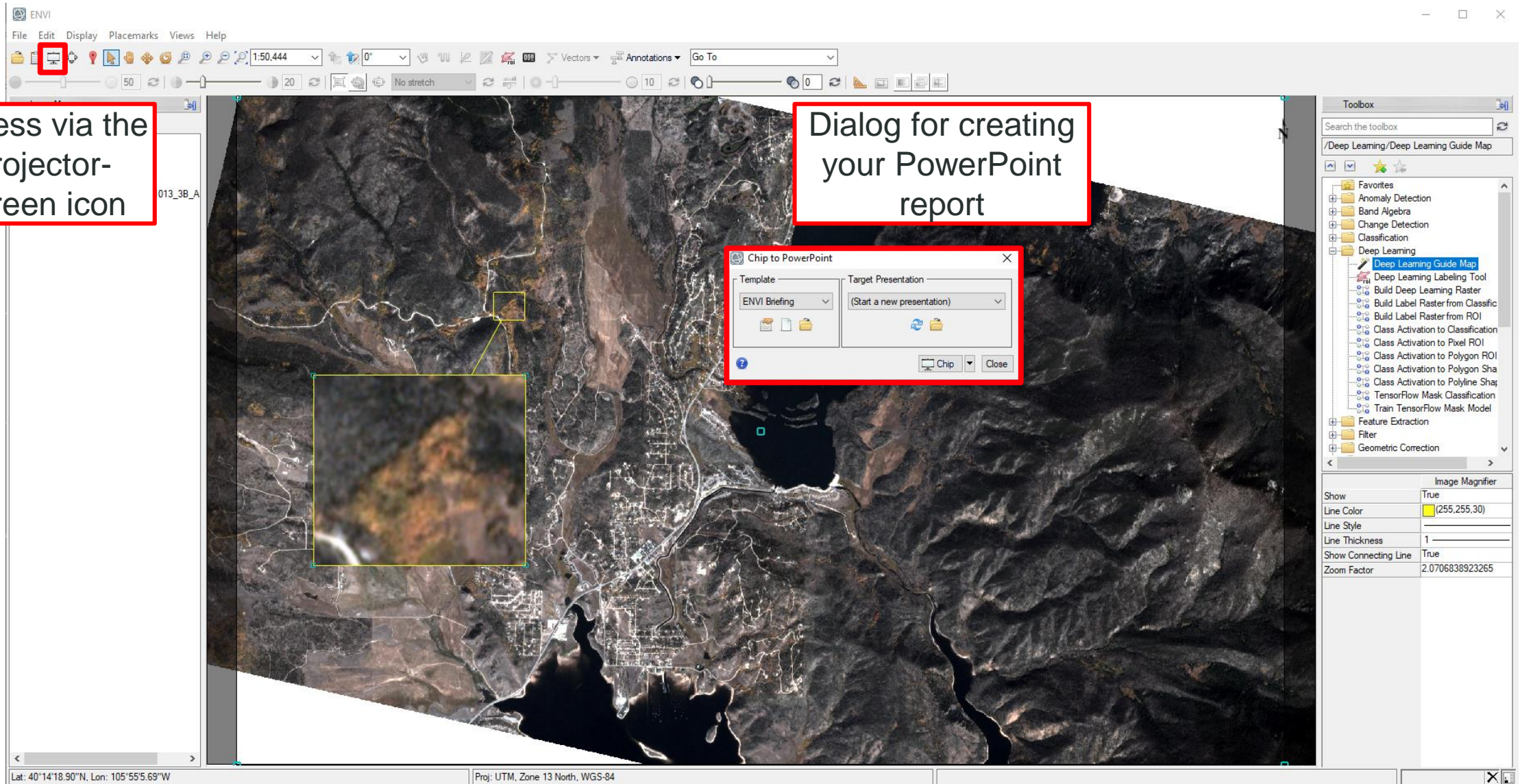


A Look at the Tool



Access via the
projector-
screen icon

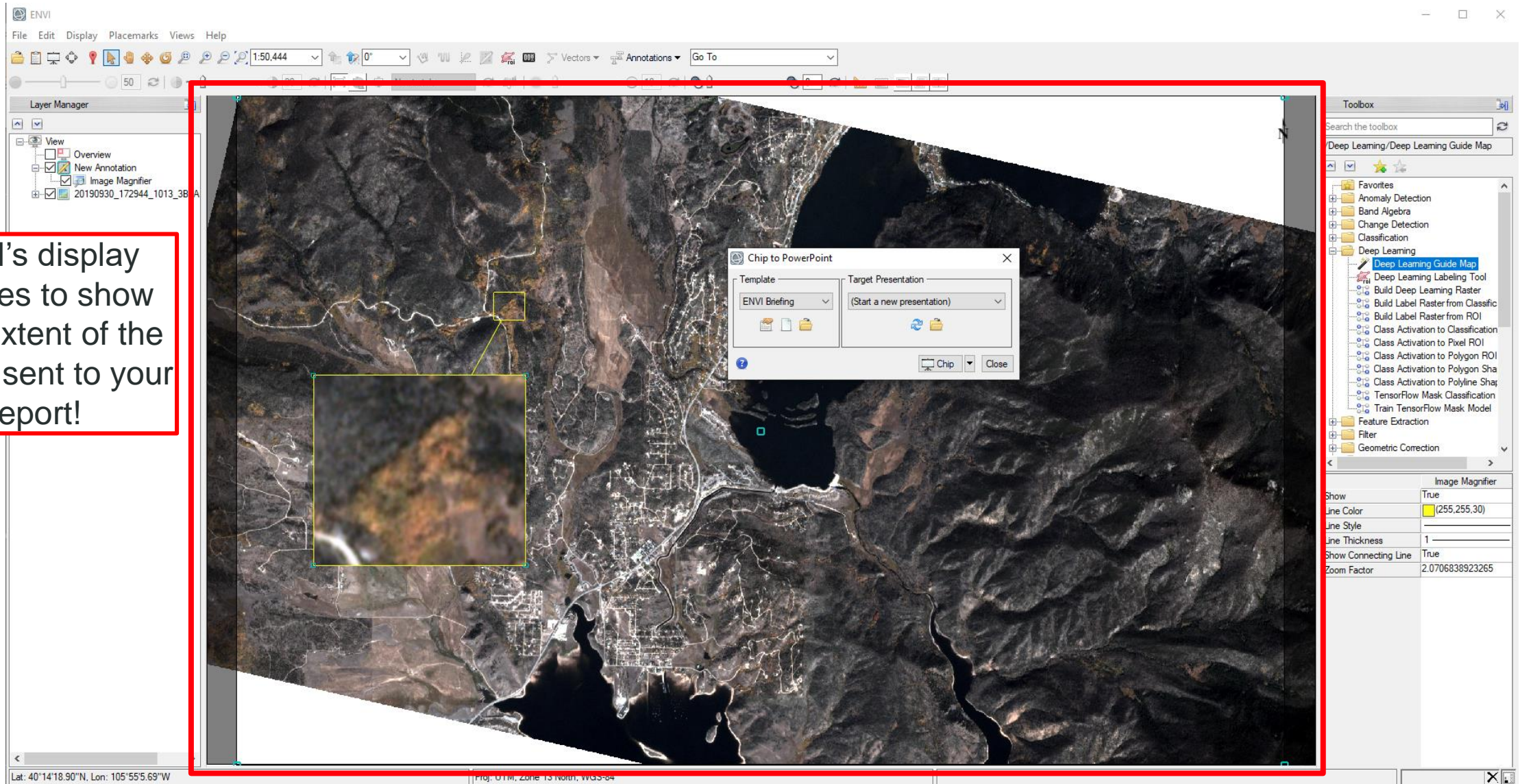
Dialog for creating
your PowerPoint
report



A Look at the Tool



ENVI's display updates to show what extent of the view is sent to your report!



ENVI Briefing Template

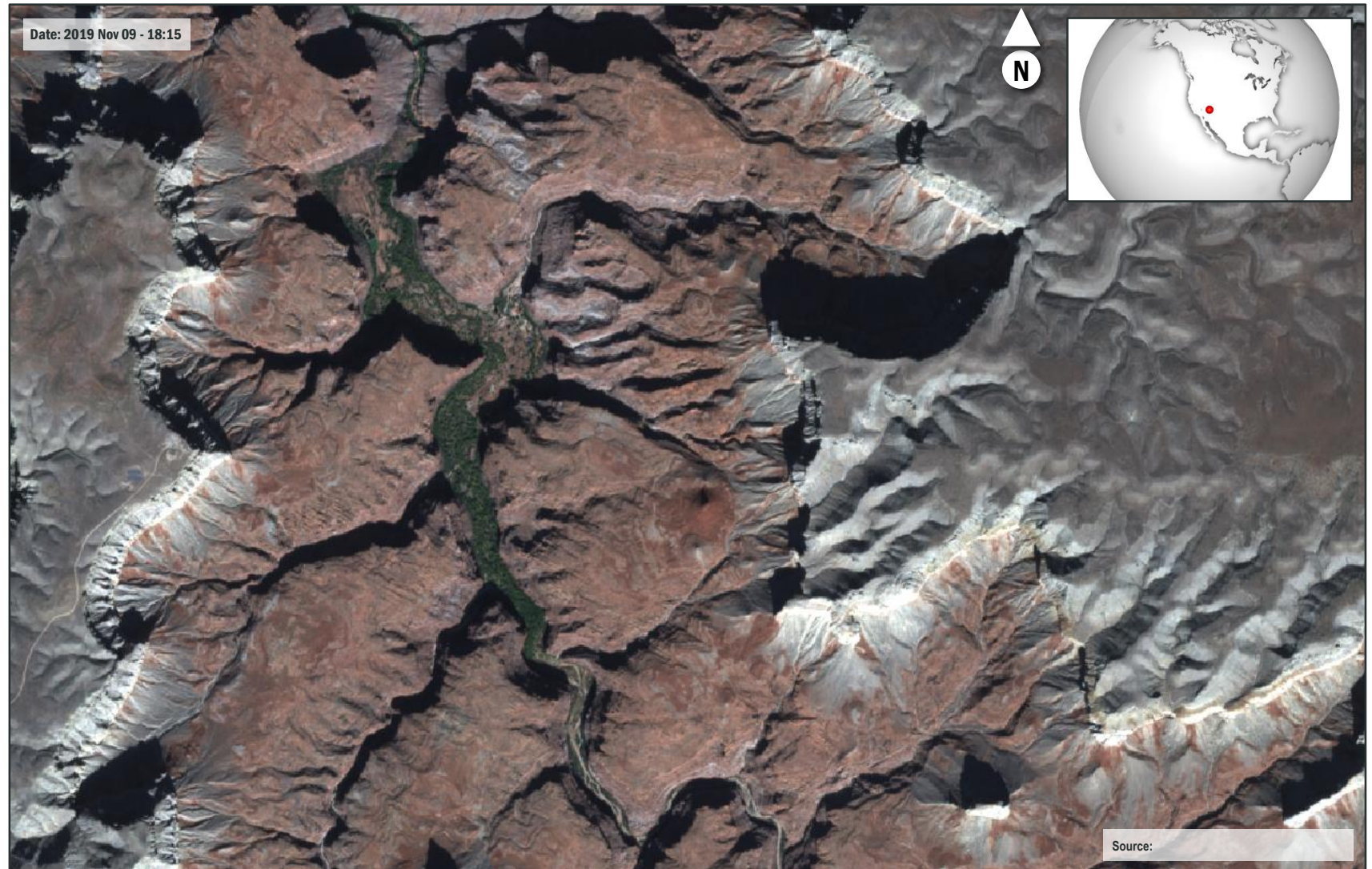
Note the contextual map
and the location for the
center of the display in
geographic and MGRS
coordinate systems



10m-S219109 2019-11-09 18:15

GEO: 36.229372°N/112.675362°W | MGRS: 12SUF4943610691

Unknown



Unknown

X of Y | February-2020

Full-screen Template

Golden Gate Bridge

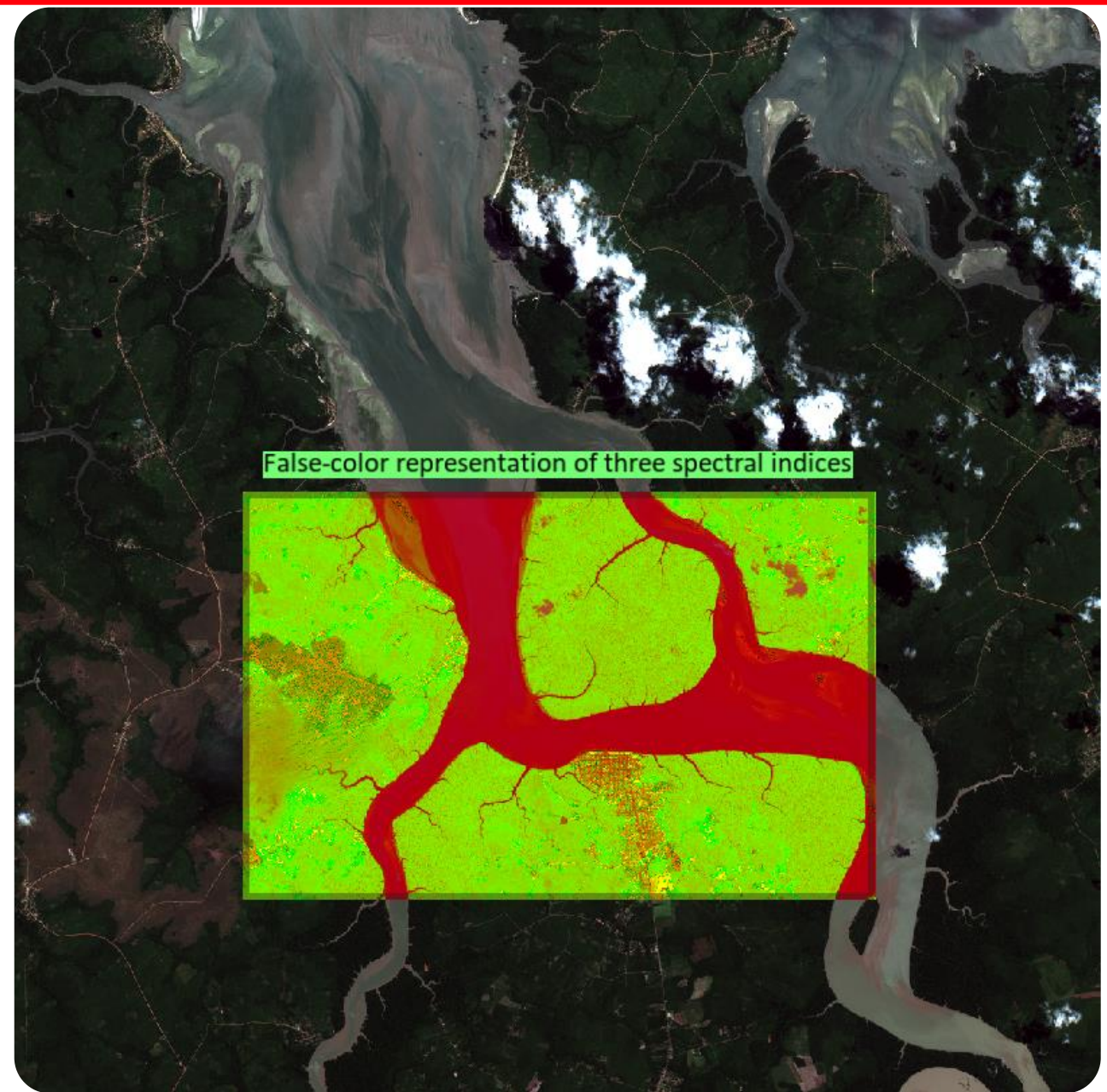
37.671236°N, 122.315508°W



Square Template

All existing annotations and content in ENVI's display carries over into the slide

Here, a portal to a raster of spectral indices is displayed on the screen and tags along with our slide!



0.722550°S, 47.465568°W

10m-S219009 2019-08-09 13:42



Stories from Above



Glacial runoff in Greenland.

Mosaic of two Sentinel-2 scenes captured in the summer months.



Center: 66.851978°N - 50.896758°W

Source: Placeholder

Copyright: Placeholder

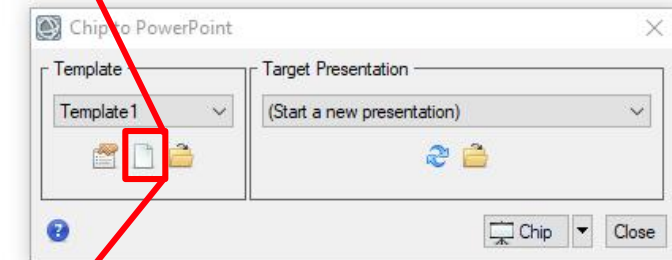
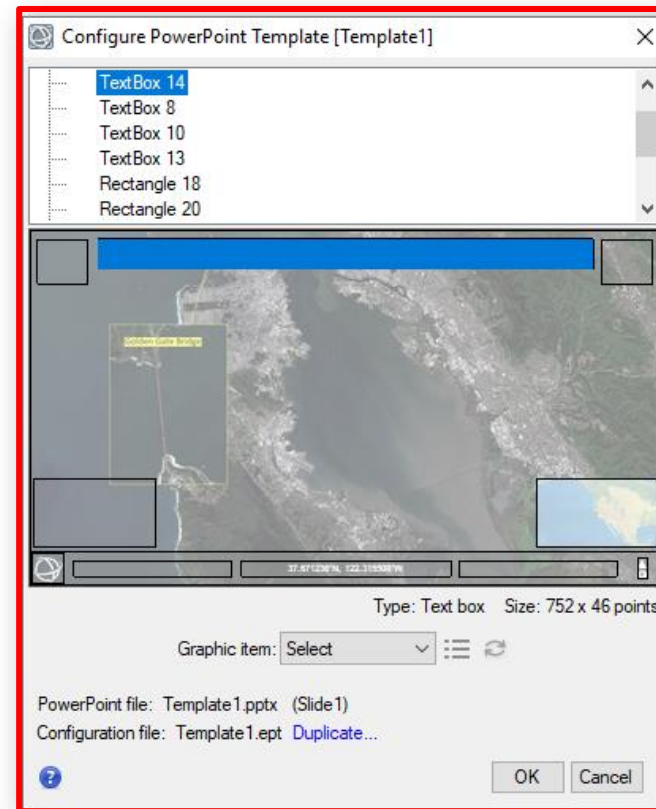
PowerPoint Importer



Use the interactive template creator to select elements from your PowerPoint and designate what they become

Template importer allows you to add image metadata, map previews, custom text, and more

Saving the template creates a JSON file on disk that you can share with coworkers

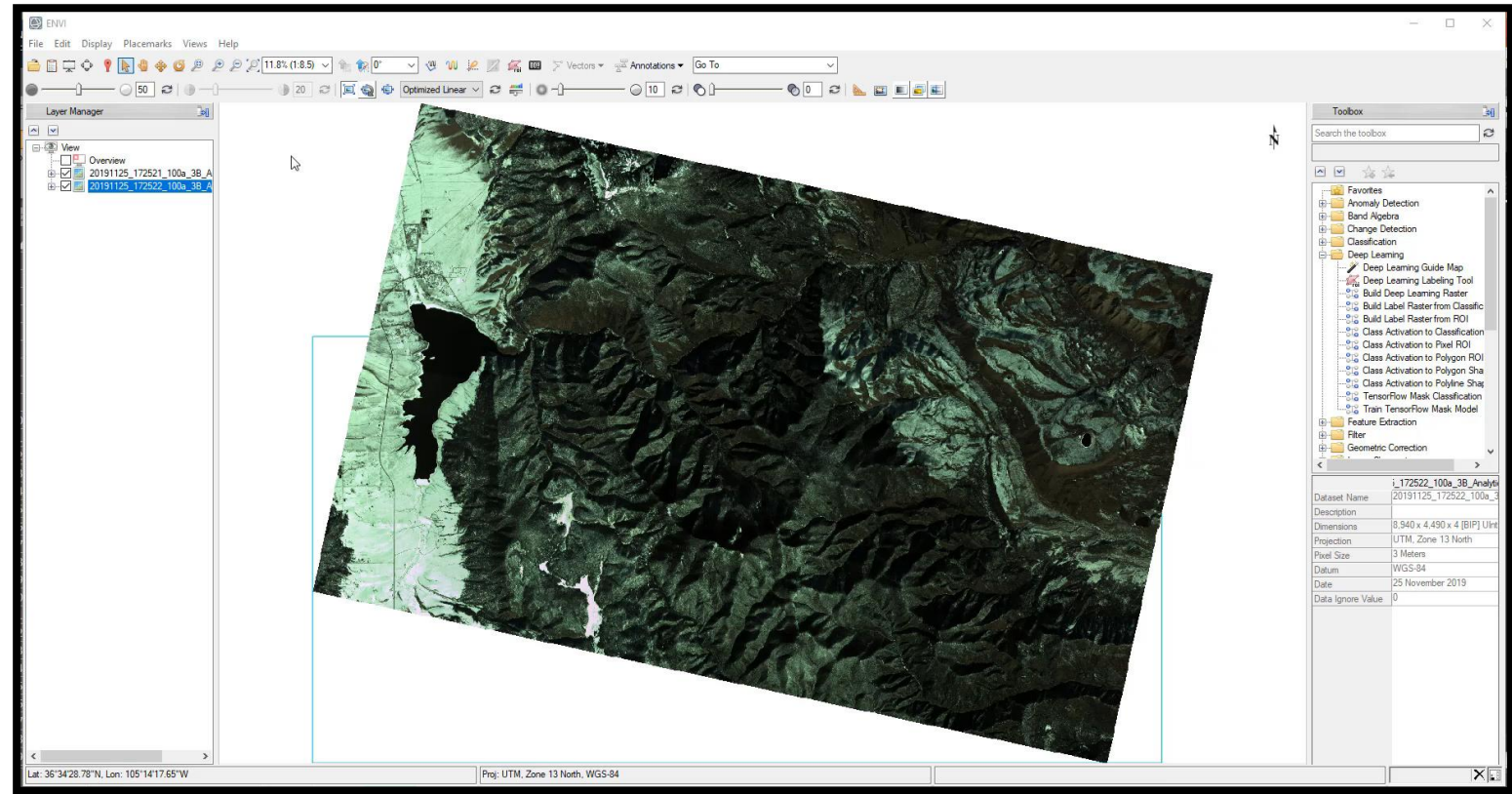


Quick Mosaic



New feature to quickly combine layers into a single layer which lets you set the stretch, contrast, or other visual changes for all of the scenes at once

Creates a consistent look and feel for many, separate files



Sample video that shows the new menu item for creating a quick mosaic of all layers in an ENVI view



Additional features for ENVI and IDL



New Sensors and Data Format Support

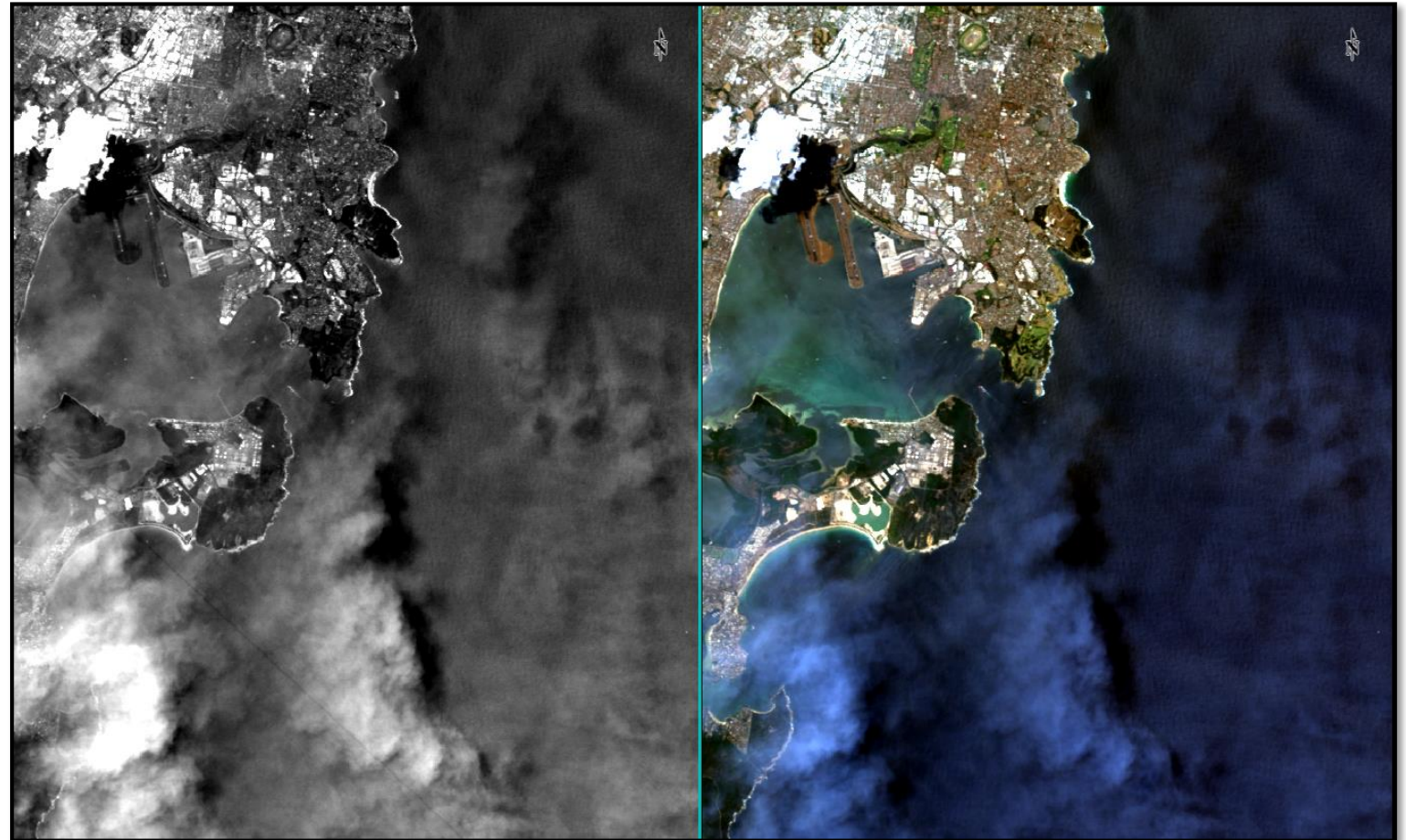


Göktürk-1

PRISMA

**CSSHBPB (shapefile) Data Extension
Segment (DES) in NITF files**

DESI



DESI imagery captured over Australia, during the wildfires. The image on the left is a single-band image at the 421 nm wavelength and the right is an RGB representation

ENVI and IDL Matrix Multiplication



IDL now uses Intel's MKL library to compute matrix multiplications.

Significant performance improvement for IDL matrix multiplication

Some ENVI tasks are 10 to 20% faster. Including:

- Raster statistics
- Forward Principal Component Analysis (PCA)
- Forward MNF Minimum Noise Transform (MNF)
- Mixture Tuned Matched Filter (MTMF)
- Adaptive Coherence Estimator (ACE)
- Subspace statistics for ACE

Time in seconds to multiply two, float arrays of the same size

Array Size	1,024	2,048	5,000	10,000	16,384
IDL 8.7.2	0.2	1.08	18.2	125	858
IDL 8.7.3	0.016	0.047	0.59	3.66	15.8
Python (w/ numpy)	0.014	0.053	0.49	4.87	22.1

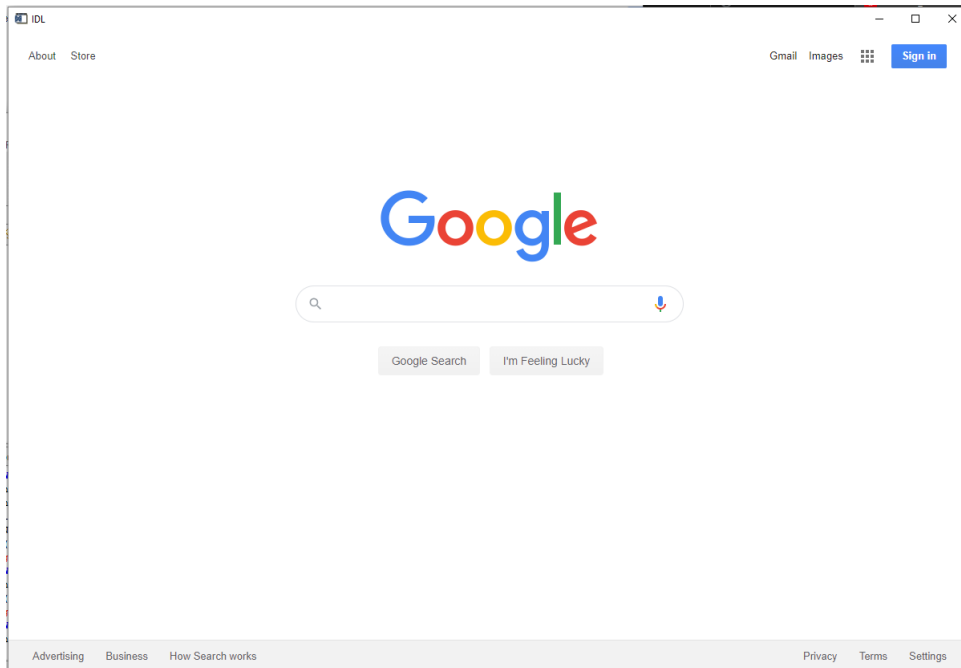
IDL Widget Browser and Download Web Data in ENVI



Create and interact with web pages in IDL

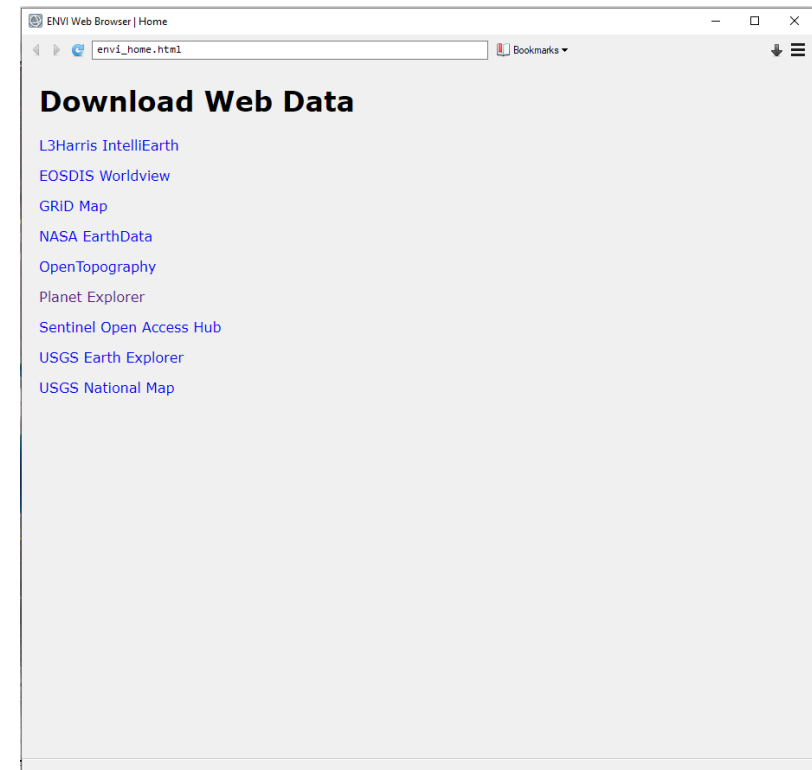
Communicate with the web-page in the browser to send commands or messages back and forth to IDL

```
wParent = WIDGET_BASE()  
url = "http://www.google.com"  
wBrowser = WIDGET_BROWSER(wParent, VALUE=url, XSIZE=900, YSIZE=600)  
WIDGET_CONTROL, wParent, /REALIZE
```



Seamlessly access and download data from the web

Automatically open and display the data in ENVI once available





New API for easily creating and interacting with spectral libraries

Can:

- Make new spectral libraries
- Add spectra
- Remove spectra
- Programmatically open them for display

```
; Create a new spectral library
specLibName = e.GetTemporaryFilename('sli')
specLib = EnviSpectralLibrary(specLibName)

; Set the WL (wavelength) property
specLib->SetProperty, WL=.4 + findgen(25) * .1

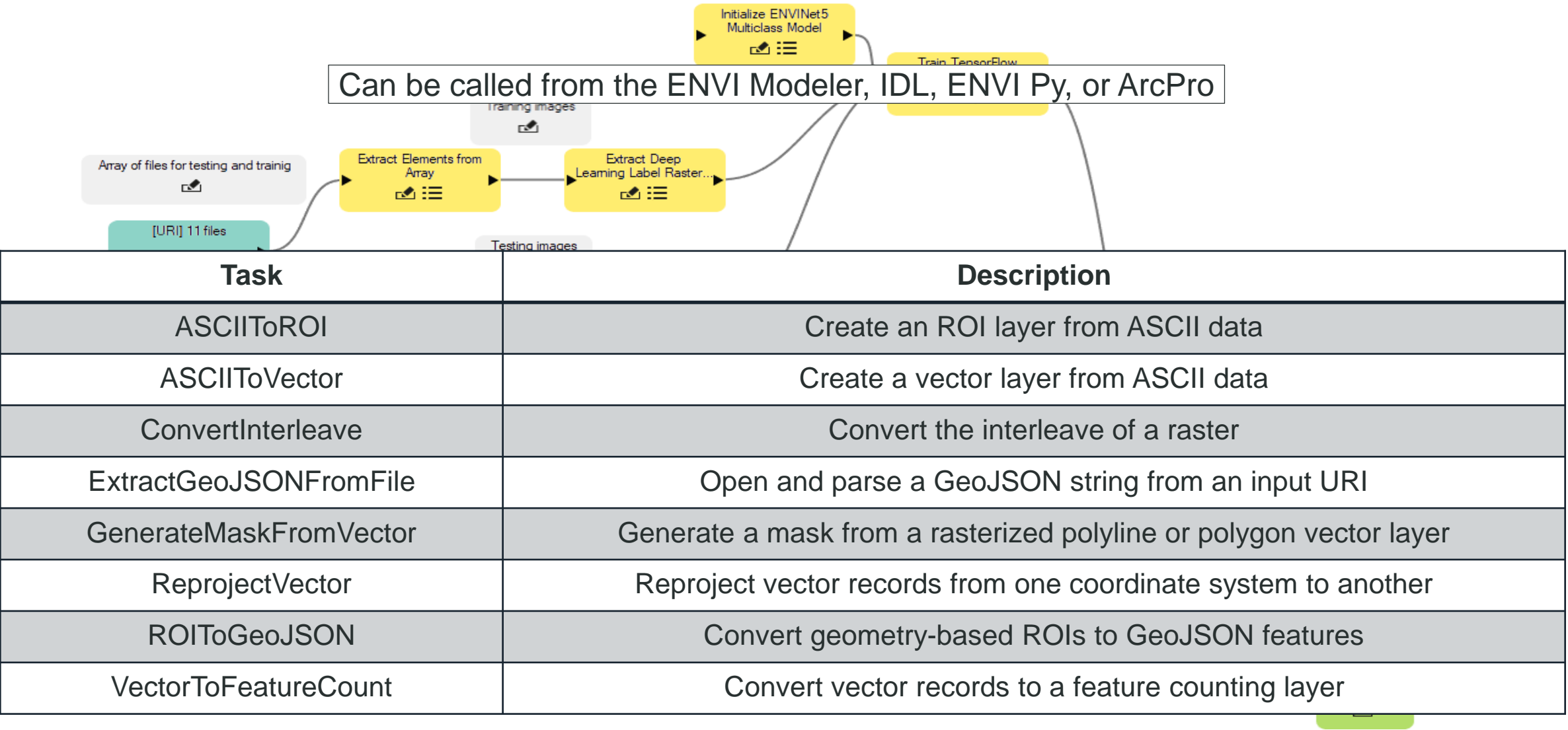
; Add spectra
for i=1,5 do begin
    name = 'Spectra #' + strtrim(i,2)
    specLib.AddSpectra, name, Randomu(seed,25)
endfor

; Smooth the spectra
for i=1,5 do begin
    name = 'Spectra #' + strtrim(i,2)
    spectra = specLib->GetSpectrum(name)
    specLib.AddSpectra, name + ' (Smooth)', smooth(spectra.Spectrum,5)
endfor

; Plot the spectral library
specLib = ENVISpectralLibrary(specLibName, /LOAD)
```

Example code snippet for
the new API

New ENVI Tasks!





ArcGIS integration updates

ArcGIS Integration Updates

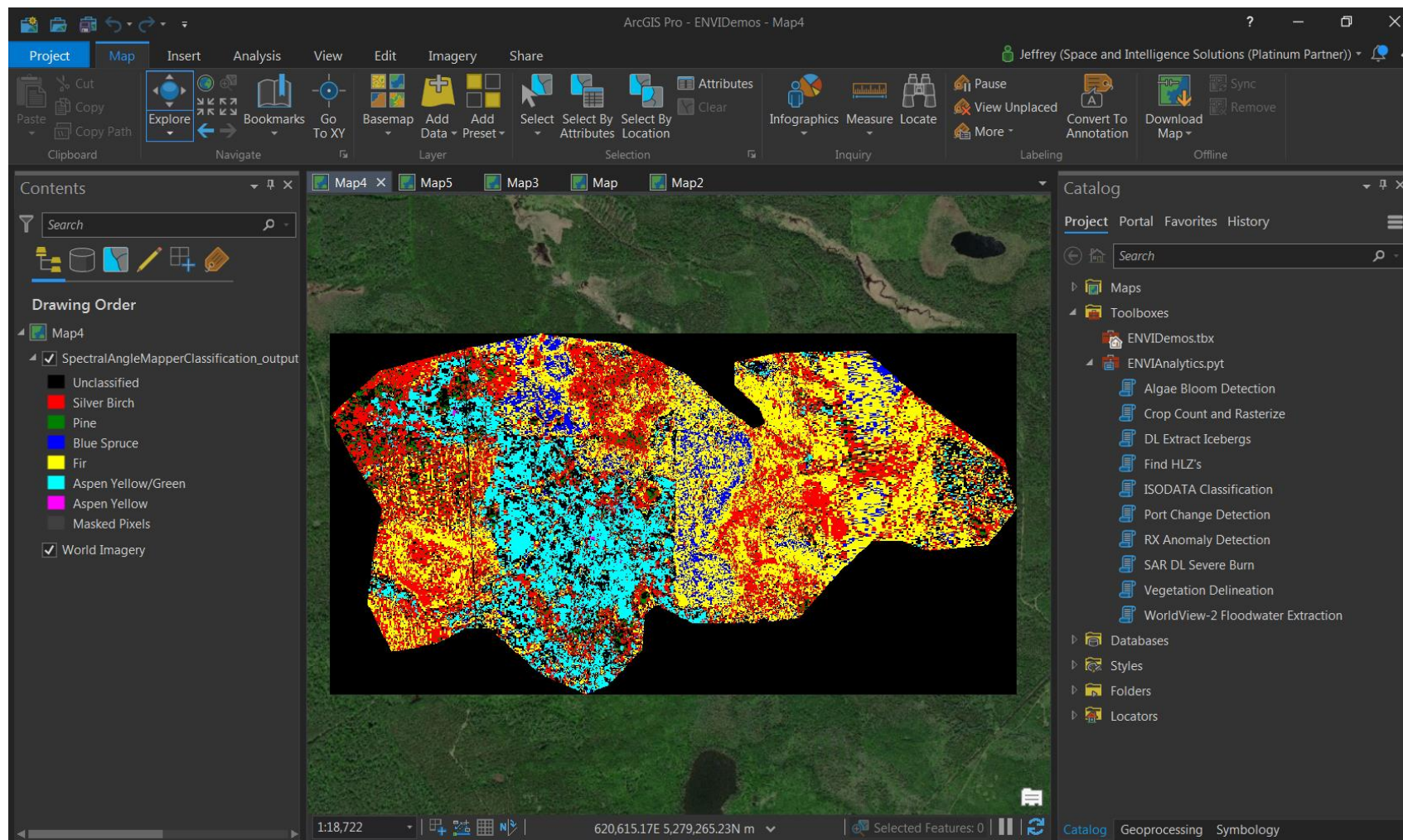


L3Harris and Esri are close partners to bring trusted ENVI analytics into ArcGIS

The ENVITask API enables ENVI analytics to run in ArcPro 2.4 or ArcMap 10.7

ENVI Modeler makes it very easy to create and publish custom ENVI workflows to ArcGIS

ENVI Py leverages the ArcGIS Python support for this integration



Hyperspectral image classification and the ENVI starter toolbox in ArcPro 2.4

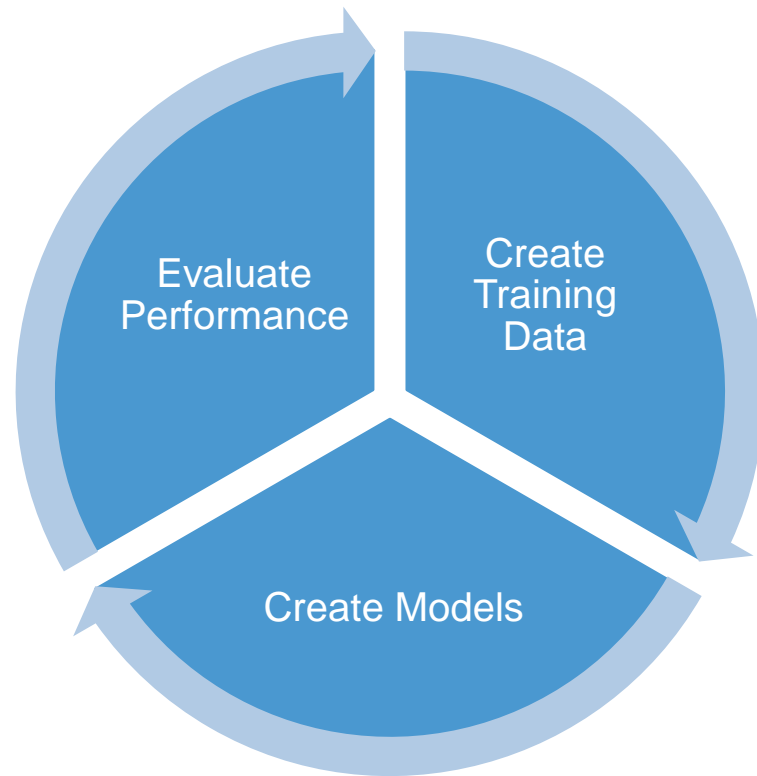


What's next?

ENVI Deep Learning Module – 1.1 Tech Preview Available!



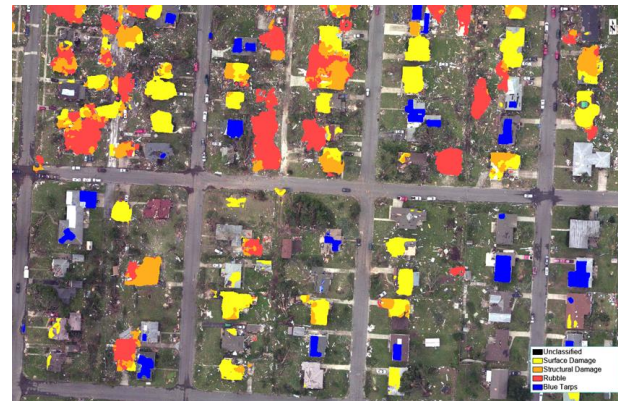
Applied deep learning for geospatial imagery in ENVI



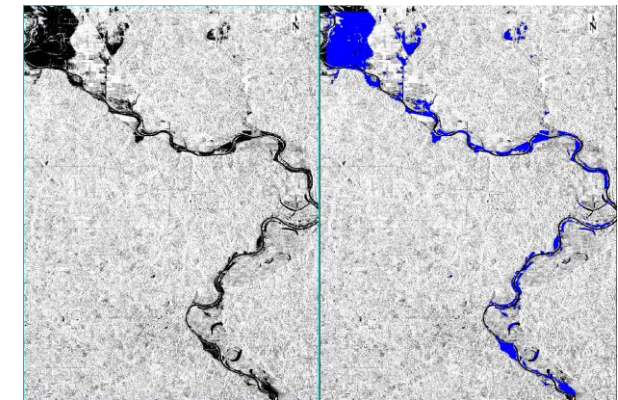
Deep learning workflow in
ENVI, built on TensorFlow and
Keras

Without needing to program, the capabilities include:

- Segmentation (i.e. cloud masking)
- Object detection (i.e. cars or ships)
- Linear feature extraction (i.e. roads)
- Support for nearly any image format and data modality

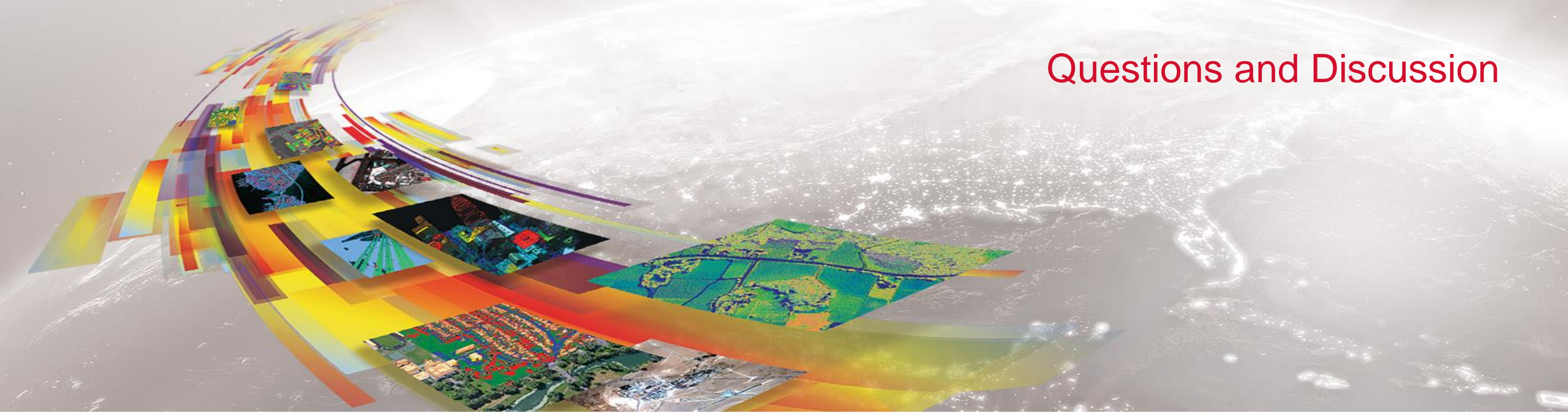


Assess building damage
after hurricanes and
tornadoes



Automated flood
detection using SAR

Questions and Discussion



Release details: <https://www.l3harrisgeospatial.com/Support/Maintenance>

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