

Using Living Atlas Elevation Layers in your GIS Workflows

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Agenda

Subhead Here

- Overview of elevation services
- Coverage and data sources
- Visualization and analysis
- Analysis tools
- Information Products
- Community maps for Elevation
- Road ahead

Overview of elevation services

- Global collection of multi-resolution & multi-source
 - 1000 meters to 0.5 meters
 - 47000 rasters (~ 830 GB)
- Best public and community data
 - USGS, NASA, NGA, CGIAR and national mapping organizations
 - 15 authoritative data provides
- Ready to use imagery/maps and tools
 - Visualization and Analysis
 - 2D and 3D visualizations

World Elevation - Data Sources

Global:

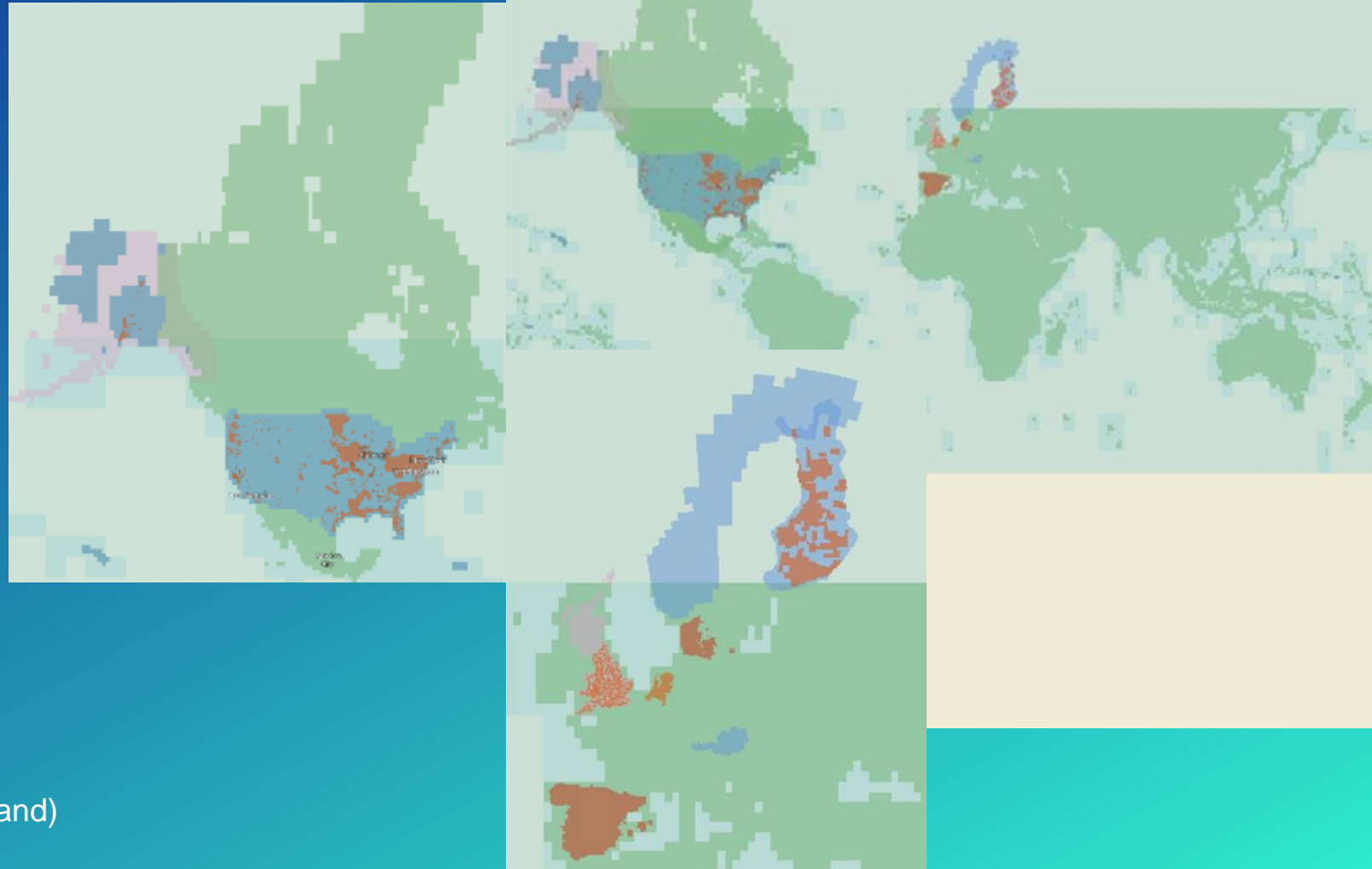
- 1 km GEBCO Bathymetry
- 1 km, 500 m and 250 m GMTED 2010
- 90 m SRTM & EarthEnv-DEM90
- 30 m SRTM

North America:

- 60 m NED (Alaska)
- 30 m NED (North America)
- 10 m NED (USA)
- 3 m NED, FEMA (partial USA)

Europe:

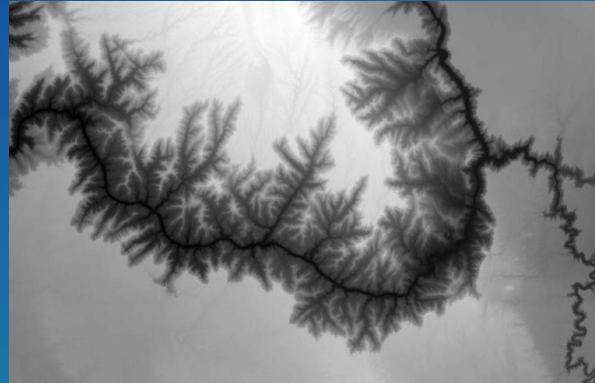
- 50 m OS (UK)
- 10 m (Denmark, Finland, Norway, Austria, Spain)
- 5 m (Spain)
- 3 m (Denmark, Netherlands, partial Finland)
- 2 m (70% of England & Wales)



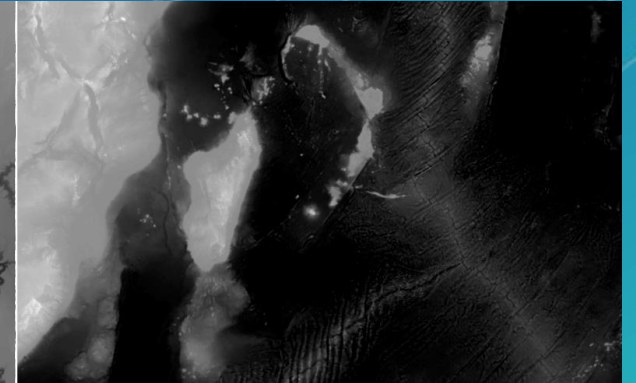
Visualization and Analysis

- Dynamic Image Services
 - Terrain
 - TopoBathy
- Server raster functions
 - Analysis

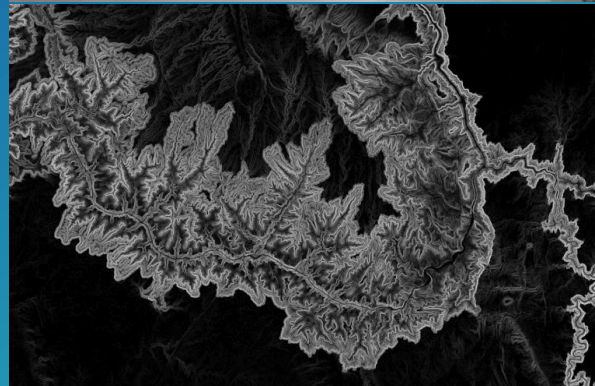
Terrain



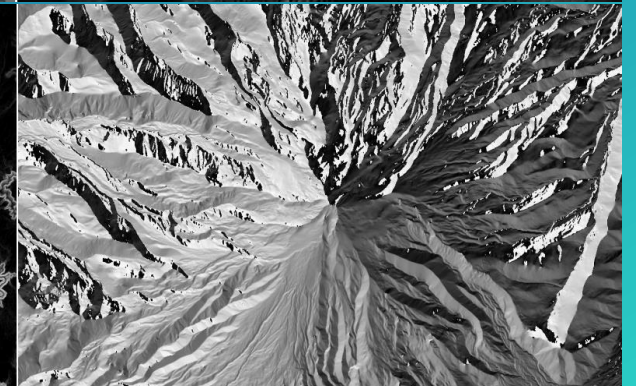
TopoBathy



Slope



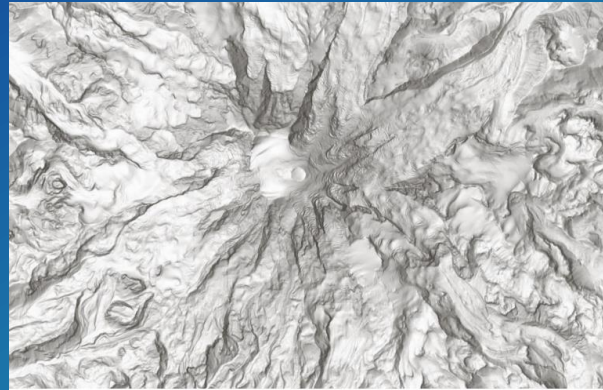
Aspect



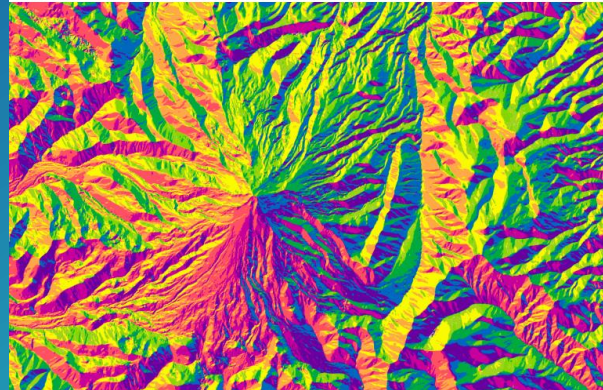
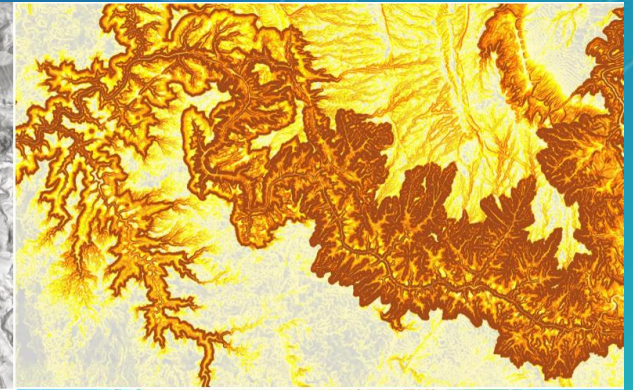
Visualization and Analysis

- Dynamic Image Services
 - Terrain
 - TopoBathy
- Server raster functions
 - Analysis
 - Visualization
- AGOL subscription
 - No credits

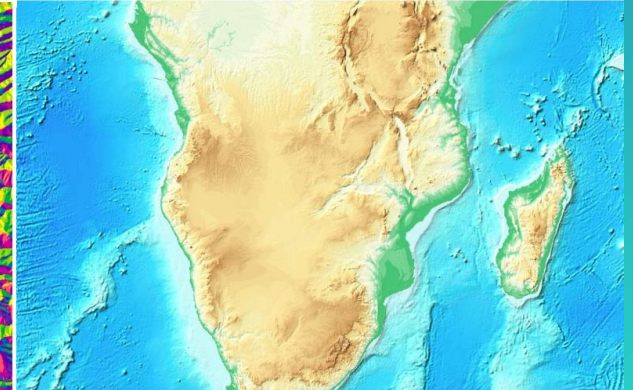
Multi-directional hillshade



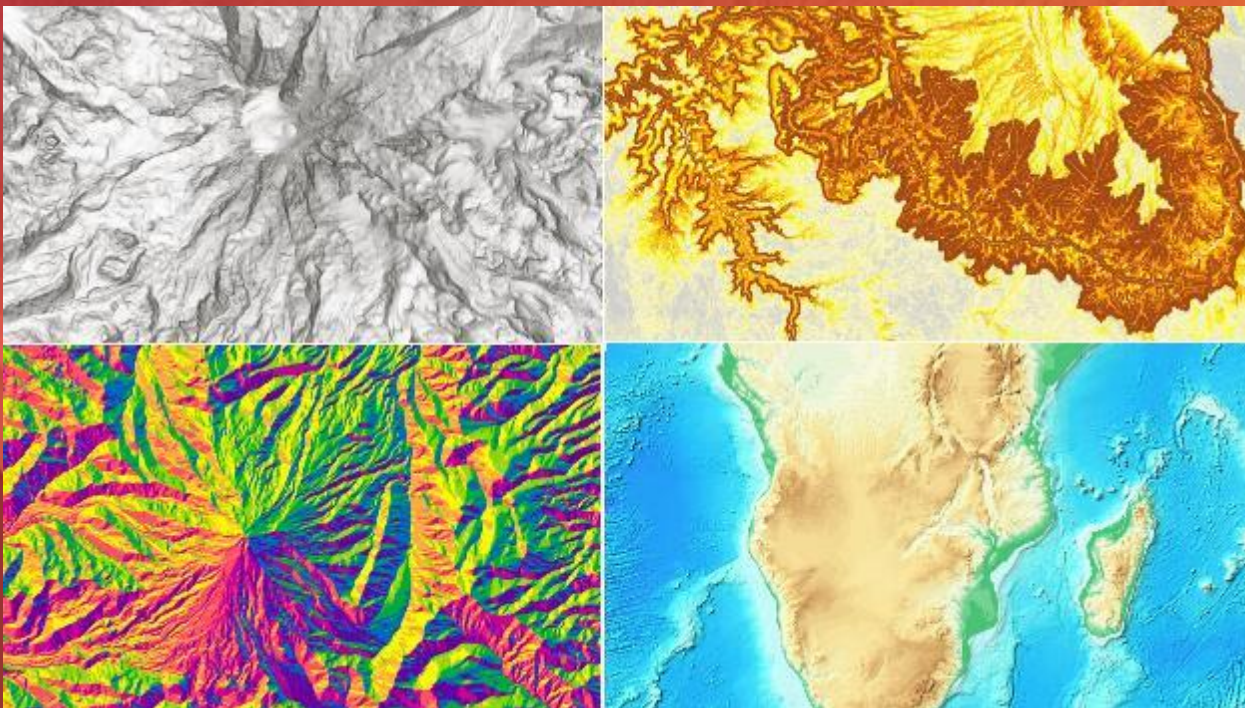
Slope Map



Aspect Map



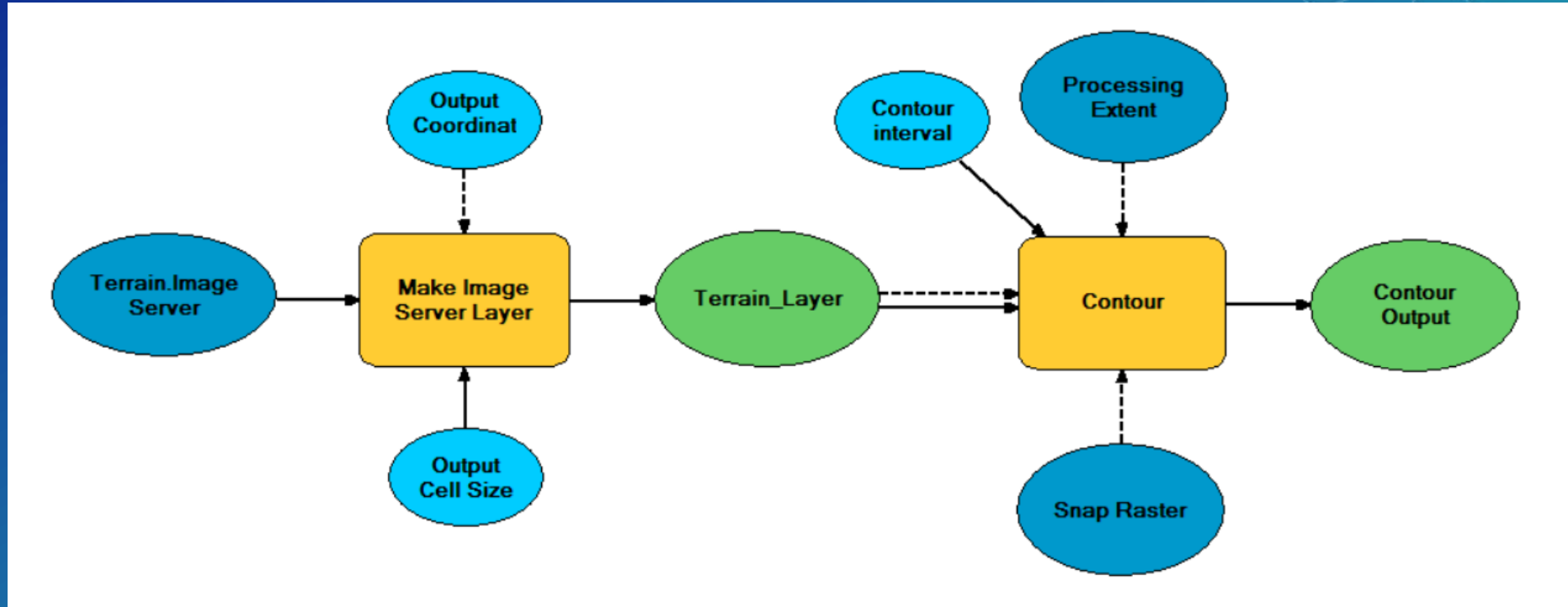
Elevation Tinted Hillshade



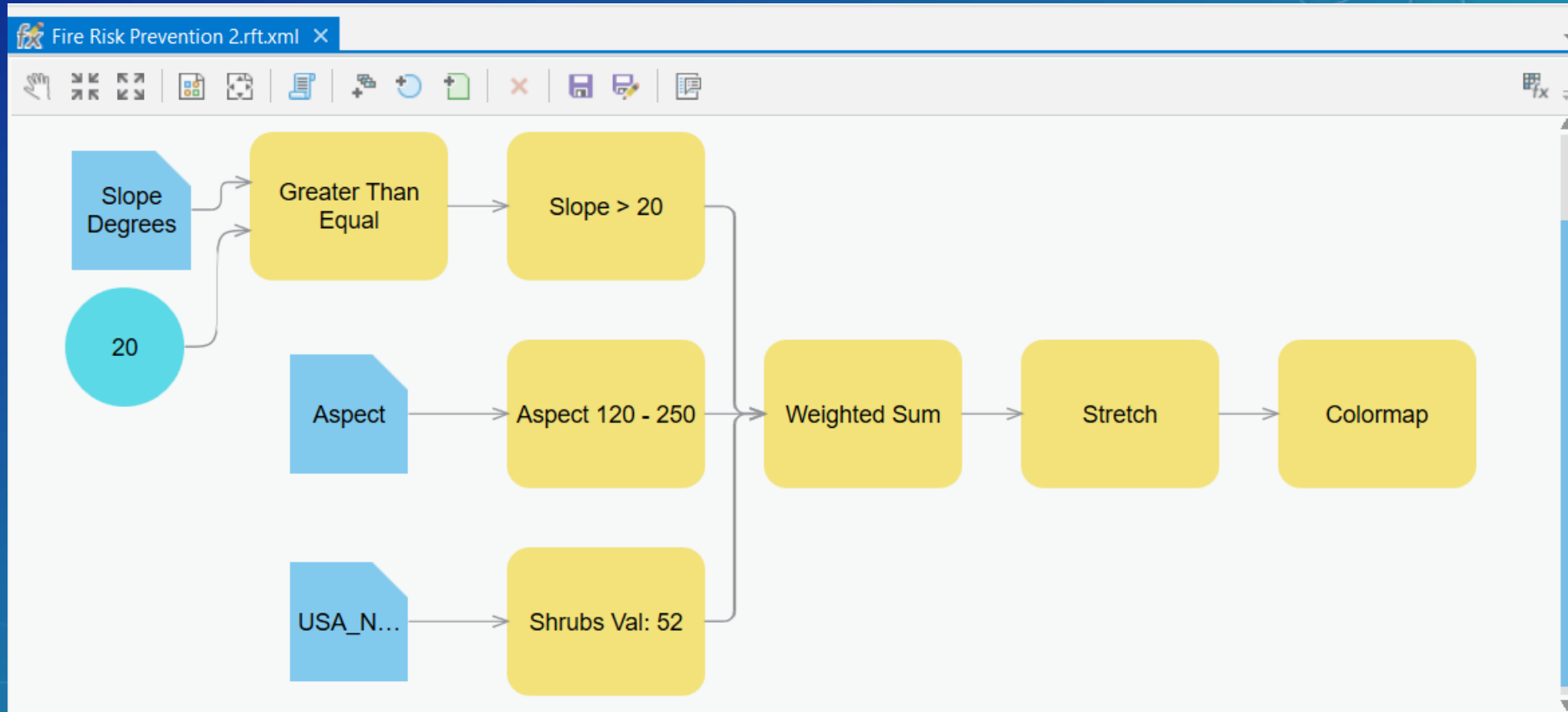
Demo

Visualization and Analysis

ArcMap : Analysis using model builder



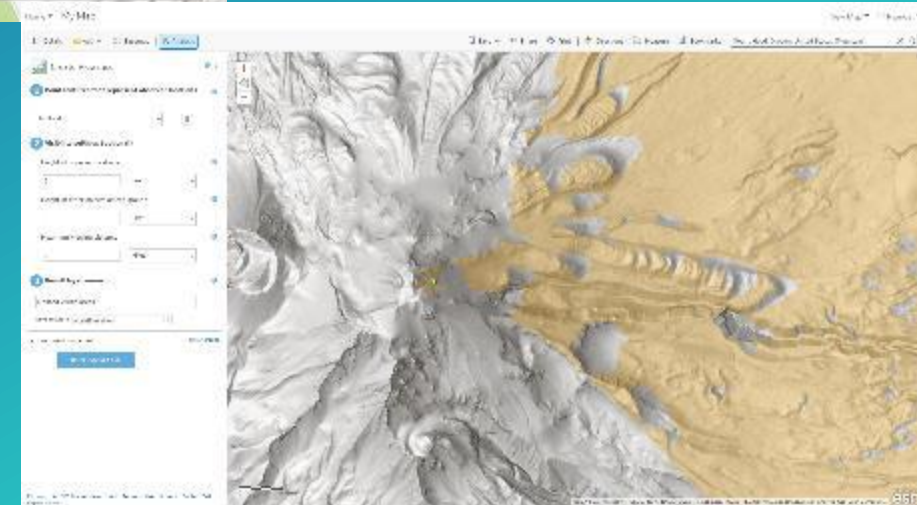
ArcGIS Pro : Analysis with raster functions



Analysis Tools

- Elevation Analysis Tasks
 - Profile
 - Viewshed
 - Summarize elevation
- AGOL subscription
 - 1 credit per 1000 features
- ElevationSync Task
 - Profile (free)

Profile



Viewshed



Demo

Analysis Tools

Accessing the Elevation Content through ArcGIS

- ArcGIS Online
 - Living Atlas
 - AGOL group: Elevation Layers
 - ArcGIS online web map
 - Custom web apps
- ArcGIS Desktop – ArcMap, ArcGIS Pro
 - <http://elevation.arcgis.com>
- Portal – Living Atlas
- Data Appliance – **On-Premises** offering
 - Terrain, Terrain3D, Profile, World Hillshade



The screenshot shows the 'Elevation Layers' page in ArcGIS Online. The page has a blue header with the title 'Elevation Layers' and a small thumbnail of a hillshade. Below the header, there are three items listed, each with a thumbnail, a title, a description, and metadata.

Elevation Layers

- 

Terrain: Multi-Directional Hillshade
This map provides a hillshaded surface generated dynamically using a multi-directional hillshade custom function on the Terrain layer.
Imagery Layer by esri
Last Modified: April 12, 2017
Subscriber Content
★★★★★ (7 ratings, 6 comments, 267,322 views)
- 

Terrain: Elevation Tinted Hillshade
This layer provides access to a tinted hillshade for use as a base map or in other visualizations.
Imagery Layer by esri
Last Modified: April 12, 2017
Subscriber Content
★★★★★ (6 ratings, 9 comments, 220,561 views)
- 

Terrain
A multi-resolution layer providing access to elevation values for use in analysis with functions, aspect, and hillshade.
Imagery Layer by esri
Last Modified: April 12, 2017
Subscriber Content
★★★★★ (22 ratings, 25 comments, 181,810 views)

Visualization Products

SUBHEAD INFORMATION

Visualization Products

- 3D Visualizations
 - ArcGIS webscene, Pro Scene, ArcGIS Earth
- World Hillshade
- World Topo Base
- Vector basemaps
 - Terrain with Labels
 - Topographic
 - Streets with Relief

Terrain 3D



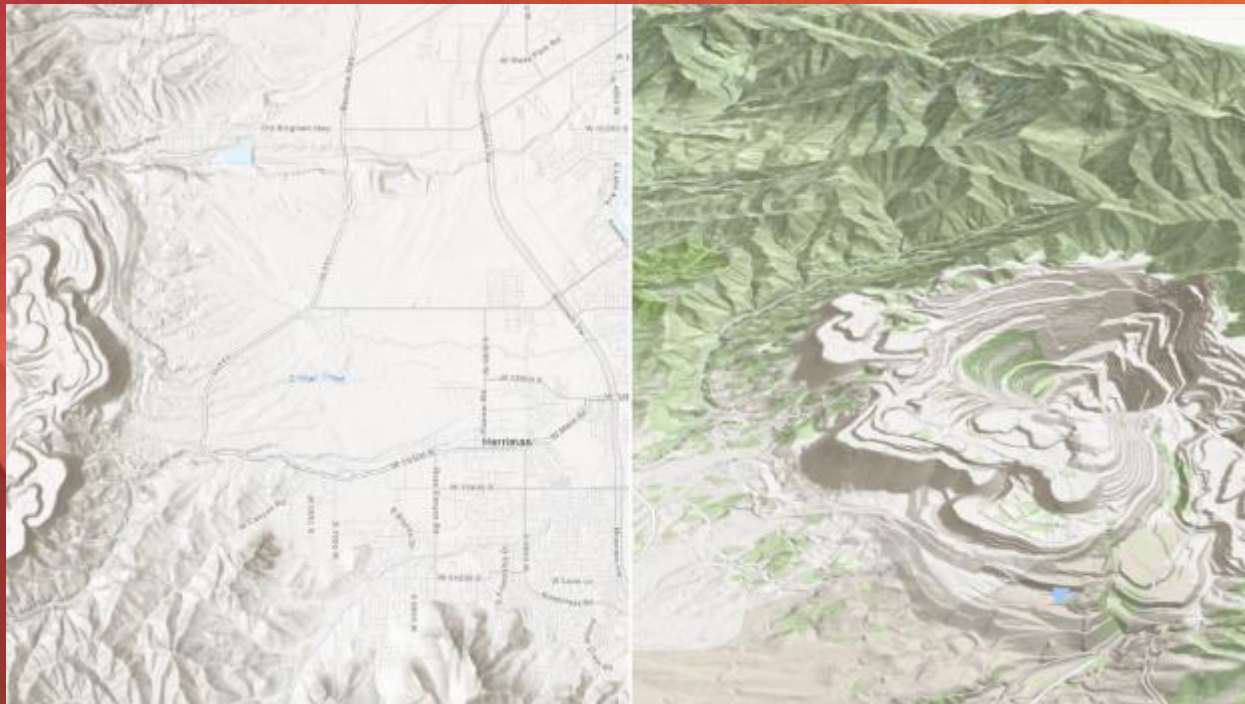
TopoBathy 3D



World Hillshade



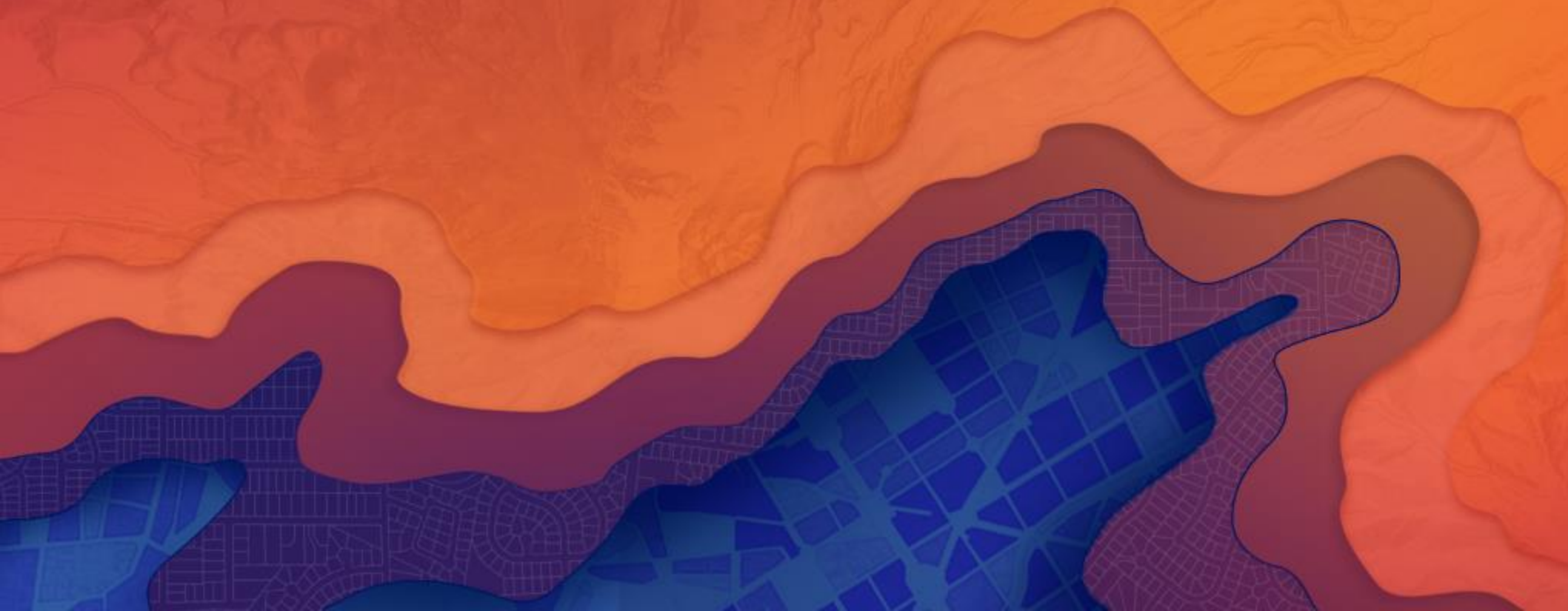
World Topo Base



Demo

Visualization Products

Community Maps for Elevation



Community Maps for Elevation

- Do you have authority on elevation data?
- Do you have better resolution and coverage than Esri's coverage map?
 - High resolution LiDAR derived elevation
 - High resolution bathymetry
 - Apply for the community maps for elevation program
 - <http://esriurl.com/CommunityElevation>
- If accepted, prepare data per Esri specifications along with metadata
 - <http://esriurl.com/ElevSpecs>
- Send data to Esri

Road ahead

- Airbus WorldDEM 24 m global elevation
- 1 m content from USGS 3DEP & USDA-NRCS
- High resolution content from communities
- Dark Hillshade

Resources

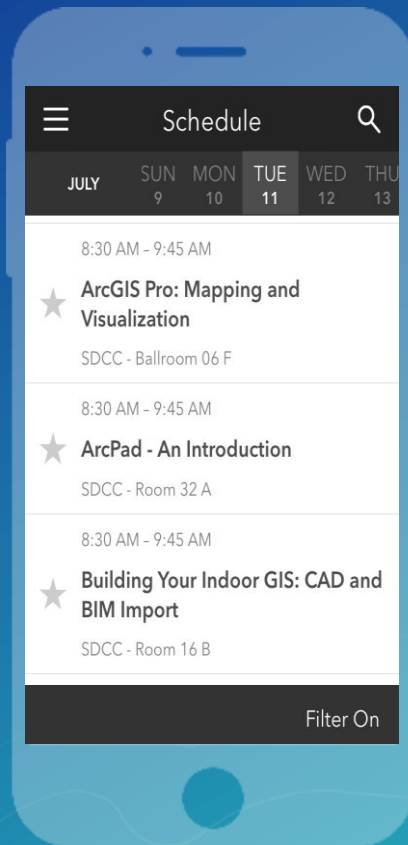
- Blog: Introducing Esri's World Elevation Services (esriurl.com/IntroWorldElev)
- AGOL Elevation Layers Group (esriurl.com/ElevLyrs)
- Elevation Analysis (GP) Services (esriurl.com/ElevAnalysis)
- Story Map: Living Atlas for Elevation (esriurl.com/ElevationStoryMap)
- Elevation Coverage Map (esriurl.com/ElevCoverage)
- Community Maps for Elevation (esriurl.com/CommunityElevation)
- Acceptance criteria and data specifications (esriurl.com/ElevSpecs)
- Generate token for REST based apps (esriurl.com/GenToken)
- Apply to community maps program (communitymaps.arcgis.com)

Please Take Our Survey on the Esri Events App!

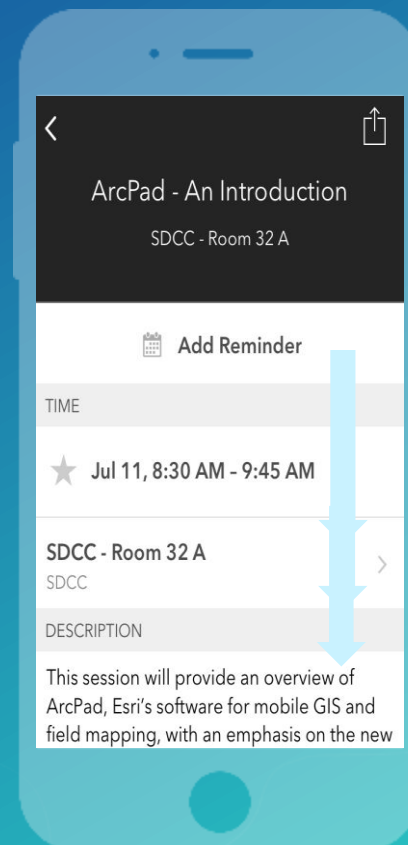
Download the Esri Events app and find your event



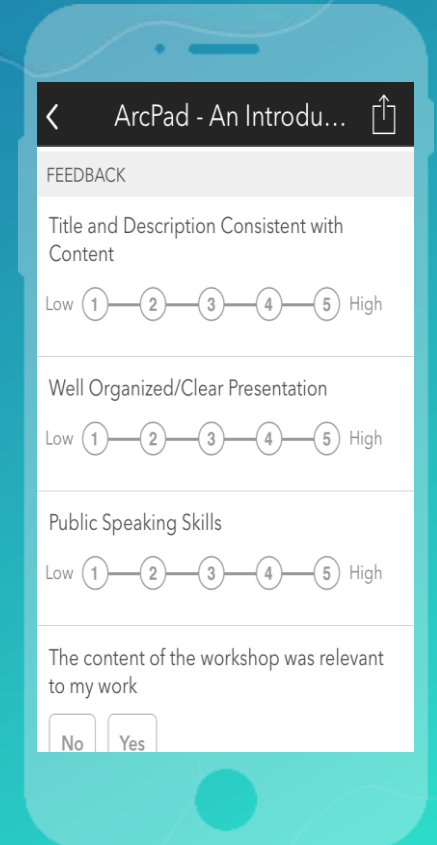
Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"



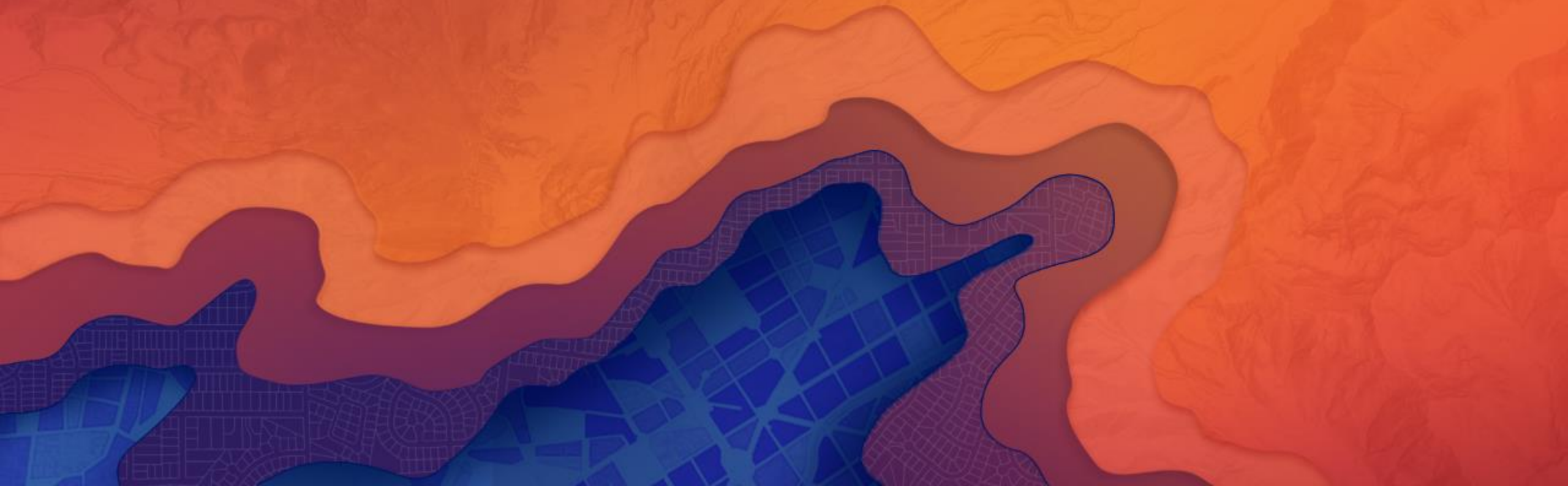
Rajinder Nagi
rnagi@esri.com
 **@rnagi13**

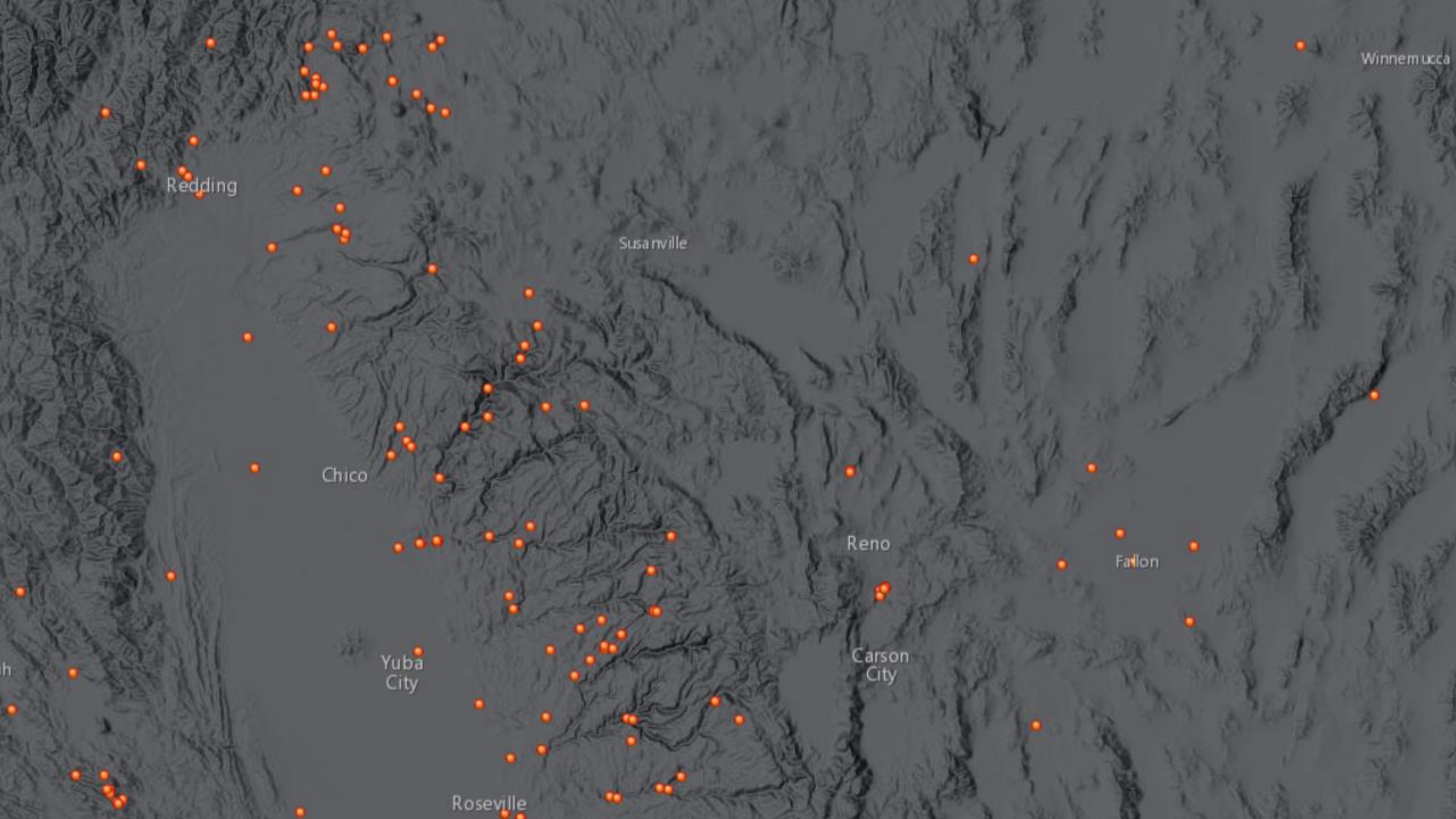


esri

THE
SCIENCE
OF
WHERE

Dark Hillshade Preview





Redding

Susanville

Chico

Yuba
City

Roseville

Reno

Carson
City

Fallon

Winnemucca







Durango