

# ArcGIS Earth: An Introduction

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2021 ESRI FEDERAL GIS CONFERENCE

# ArcGIS Earth is

A free and easy-to-use tool to quickly fuse, manipulate, and collaborate with 3D data for research, planning, and time sensitive presentations and briefings.



ArcGIS Earth is built on ArcGIS Runtime SDK for .NET

# ArcGIS Earth

Visualize, Edit, and Share in 3D

Native KML Editor with High-End 3D Analytical Capabilities

Desktop



Laptop



Tablet



Mobile



Drag and drop mobile scene packages created in ArcGIS Pro for offline use

Empower Self-Service

Access thousands of data types

WEB MAPS & WEB SCENES

3D MODELS

RASTER

TXT & CSV

OGC

BASEMAPS & TERRAIN

& POINT CLOUDS

GPX

WFS

GeoJSON

Collaborate Securely

Work entirely offline

*A Complete ArcGIS system for globe-based data exploration and communication*

ArcGIS Online

ArcGIS Enterprise

Open Source

Local

# ArcGIS Earth users are

Industry Specialists

All Source Analysts

Engineers

Planners

Educators



ArcGIS Earth is being used in over 137 countries around the world

# ArcGIS Earth users want to

## Core needs are to:

- Consume 'kmls' created from disparate legacy systems
- Create content for offline use
- Use analytical tools
- Create presentations and briefings
- Sketch and edit on the globe
- Aggregate and share content

## But also to:

- Explore underground
- View BIM models & CAD files
- Do Cut/fill measurement

## And to:

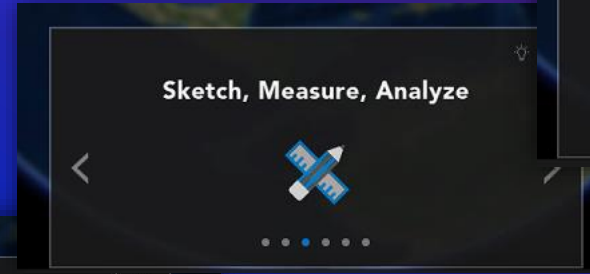
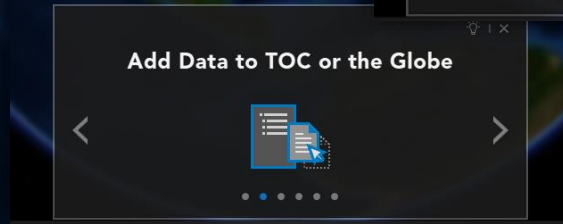
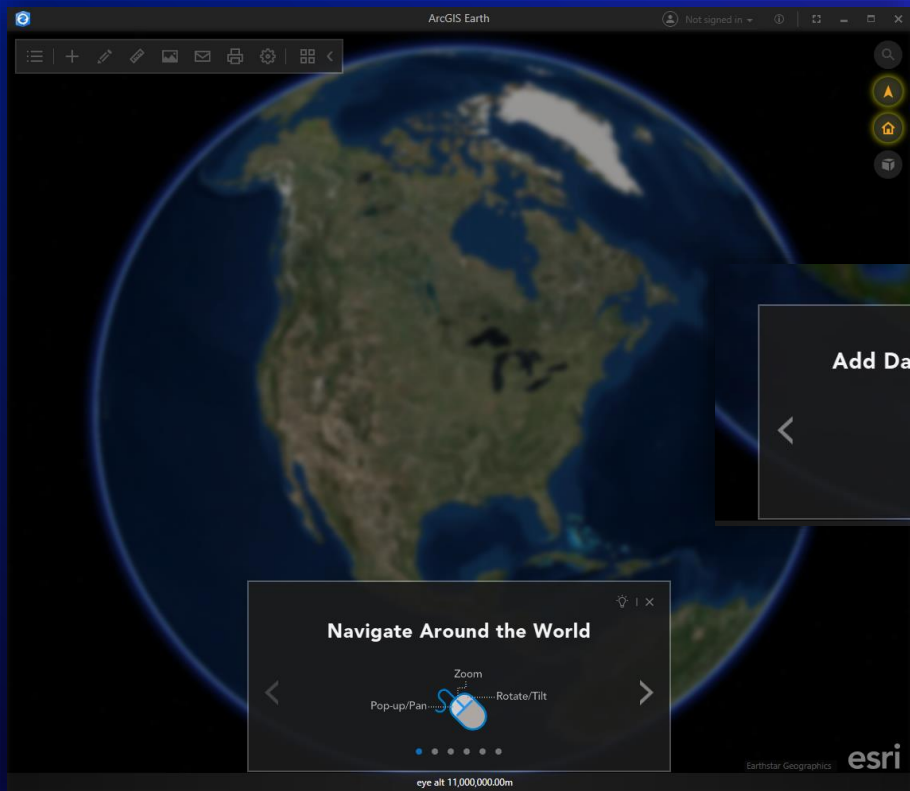
- Customize & configure ArcGIS Earth





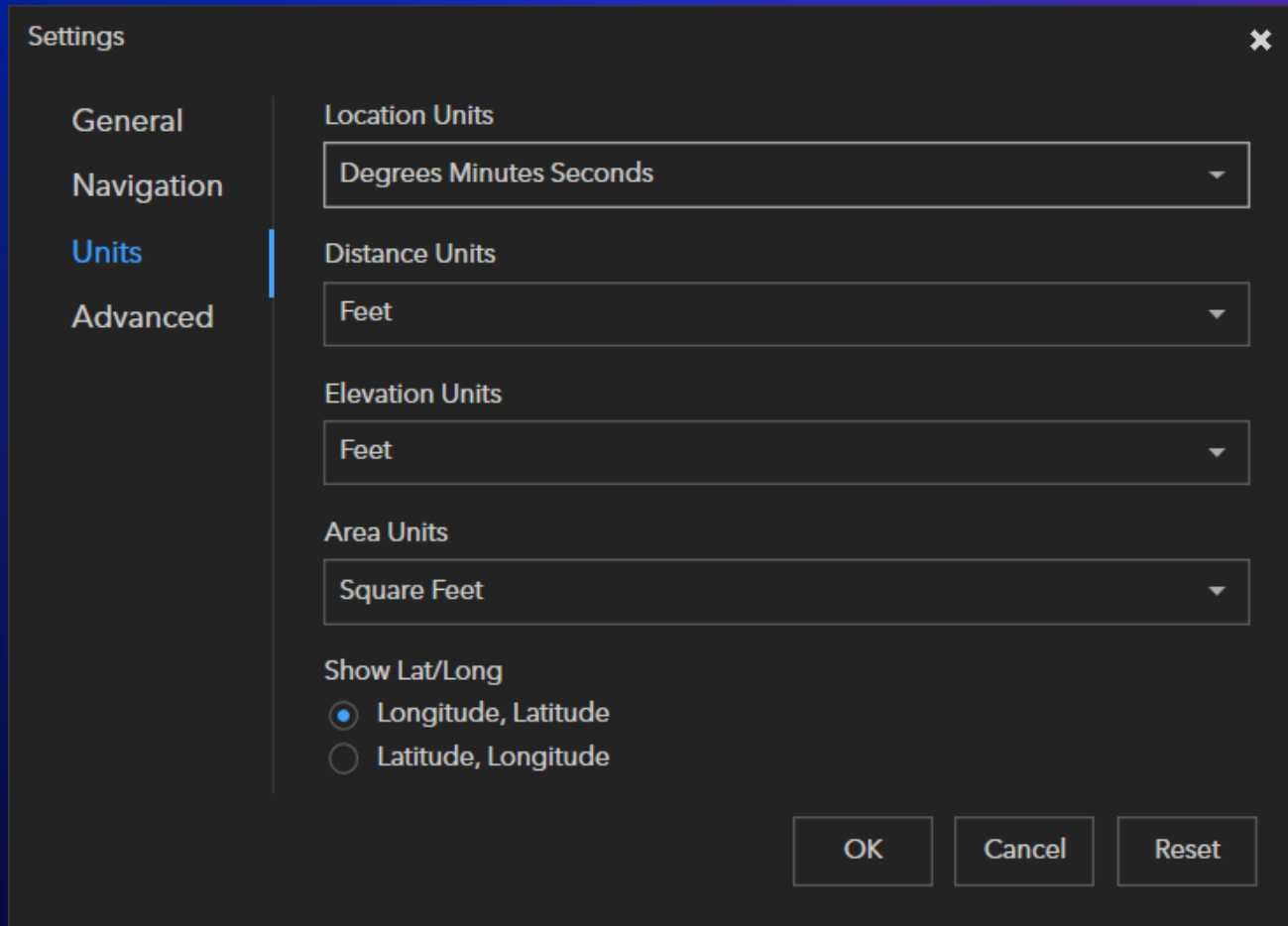
ArcGIS Earth is  
easy to learn

# Customize the start-up experience for new users



```
index.html
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <link rel="stylesheet" type="text/css" href="../css/style.css">
6 </head>
7
8 <body>
9   <div class="main">
10    <div class="title">
11      Navigate Around the World
12    </div>
13    <div>
14      
15    </div>
16  </div>
17 </body>
18 </html>
```

# ArcGIS Earth can also be personalized



## Change settings like...

- Measurement units
- Navigation speed
- Hyperlinks in external browser
- Start up view Snapshot
- Switch between Web Mercator & WGS 84
- Save / Clear / Autosave workspace



The background features a vibrant color gradient from purple to red. On the right side, there is a stylized globe with blue and red highlights. In the bottom left corner, there is a cluster of small, glowing blue and orange dots, resembling a data visualization or a network of nodes.

# Configuration & Deployment

Quickly get users up and running

# ArcGIS Earth is secure and easily deployable

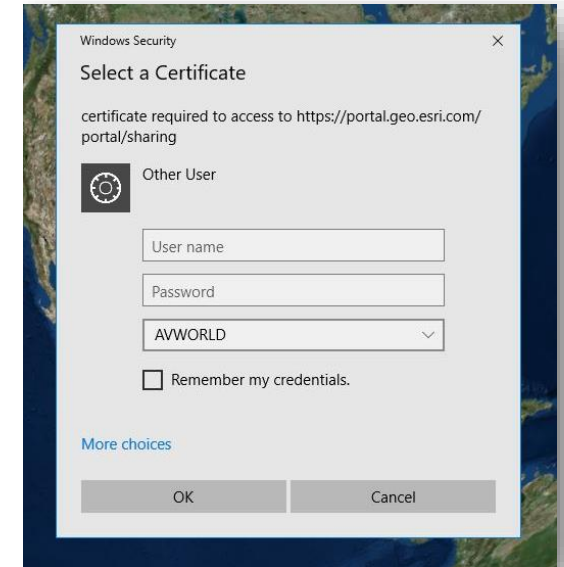


On Premises  
“Disconnected, behind a firewall”



# ArcGIS Earth supports secure authentication

ArcGIS Earth Version	ArcGIS Enterprise Portal Authentication				
	Built-in security	IWA security	PKI security	SAML authentication	Kerberos security
1.0	✓	✓	✓		✓
1.1	✓	✓	✓		✓
1.2-1.10	✓	✓	✓	✓	✓




Users with ArcGIS Earth configured to point at a PKI-enabled Portal will be automatically signed in

# ArcGIS Earth can be preconfigured at install

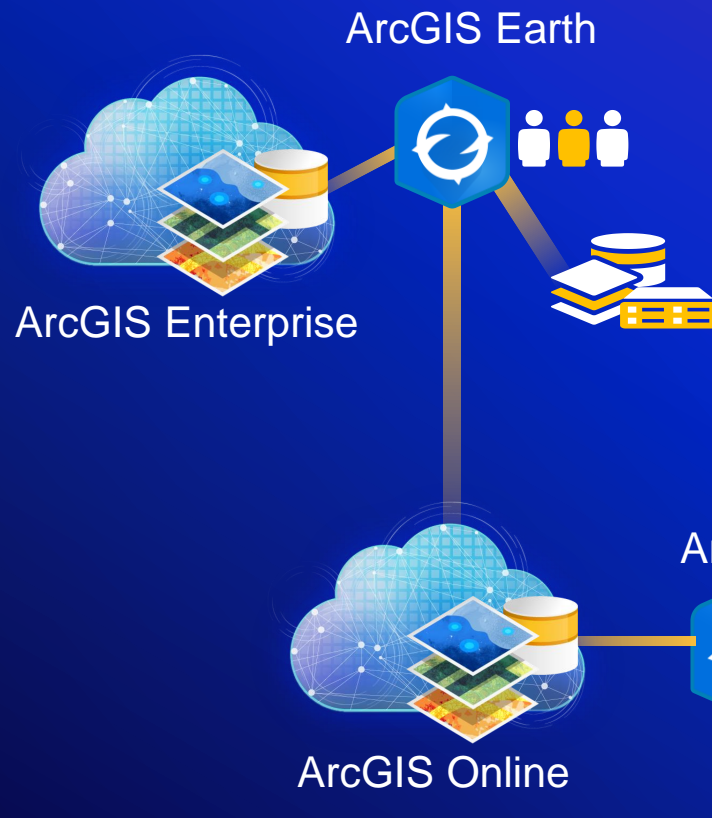
- Additional configuration parameters include specifying:
  - Portals
  - PKI servers
  - Navigation & Units
  - Startup Data (startup layers, basemaps & terrain)
    - also including mobile scene package, web scene, WMS sublayers, point cloud & 3D point scene layers
  - Alternate icon path for legacy KML
  - Error logging
  - Fonts and language settings
  - Optionally block default connection to ArcGIS Online
  - The ability to skip the URL check at startup
  - The Access location for dictionary styles via hyperlink

```
<!--Admin Settings-->
<isDefaultKmlViewer>False</isDefaultKmlViewer>
<blockArcGISOnline>False</blockArcGISOnline>
<portals>
  <portal url="">
  <portal url="">
  <portal url="">
</portals>
<!--Configure the
credentials to
especially for
<pkiServers>
  <!--<server url="">
  <server url="">
</pkiServers>
<fonts>
  <symbolFontName>Avenir Next LT Pro</symbolFontName>
</font>
<log enable="True">
  <!--Debug Info Warning or Error-->
  <category>Info</category>
  <rollSizeKB>10000</rollSizeKB>
  <maxArchivedFiles>1000</maxArchivedFiles>
</log>
<startupLayers name="" visible="True">
  <!--<layer name="" type="KML" url="C:\test.kml" visible="True"/>
  <layer name="" type="Shapefile" url="C:\test.shp" visible="False"/>
  <group name="group_name_1" visible="True">
    <layer name="" type="WMS" url="
    http://myservername.esri.com/someservice/MapServer/WMServer"
    visible="True"/>
  </group>
  <layer name="" type="MapService" url="">
```

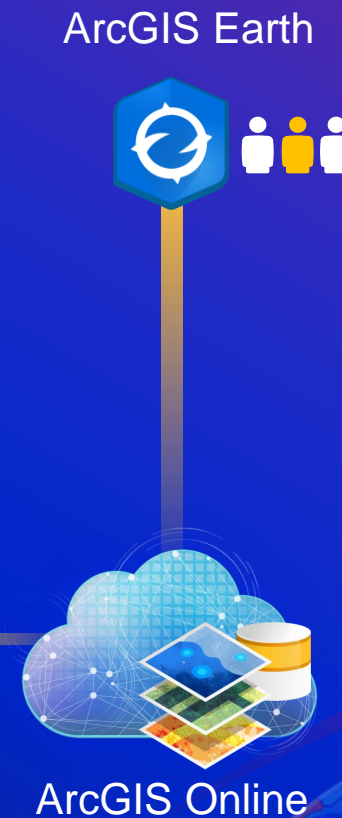


# ArcGIS Earth is secure and easily deployable

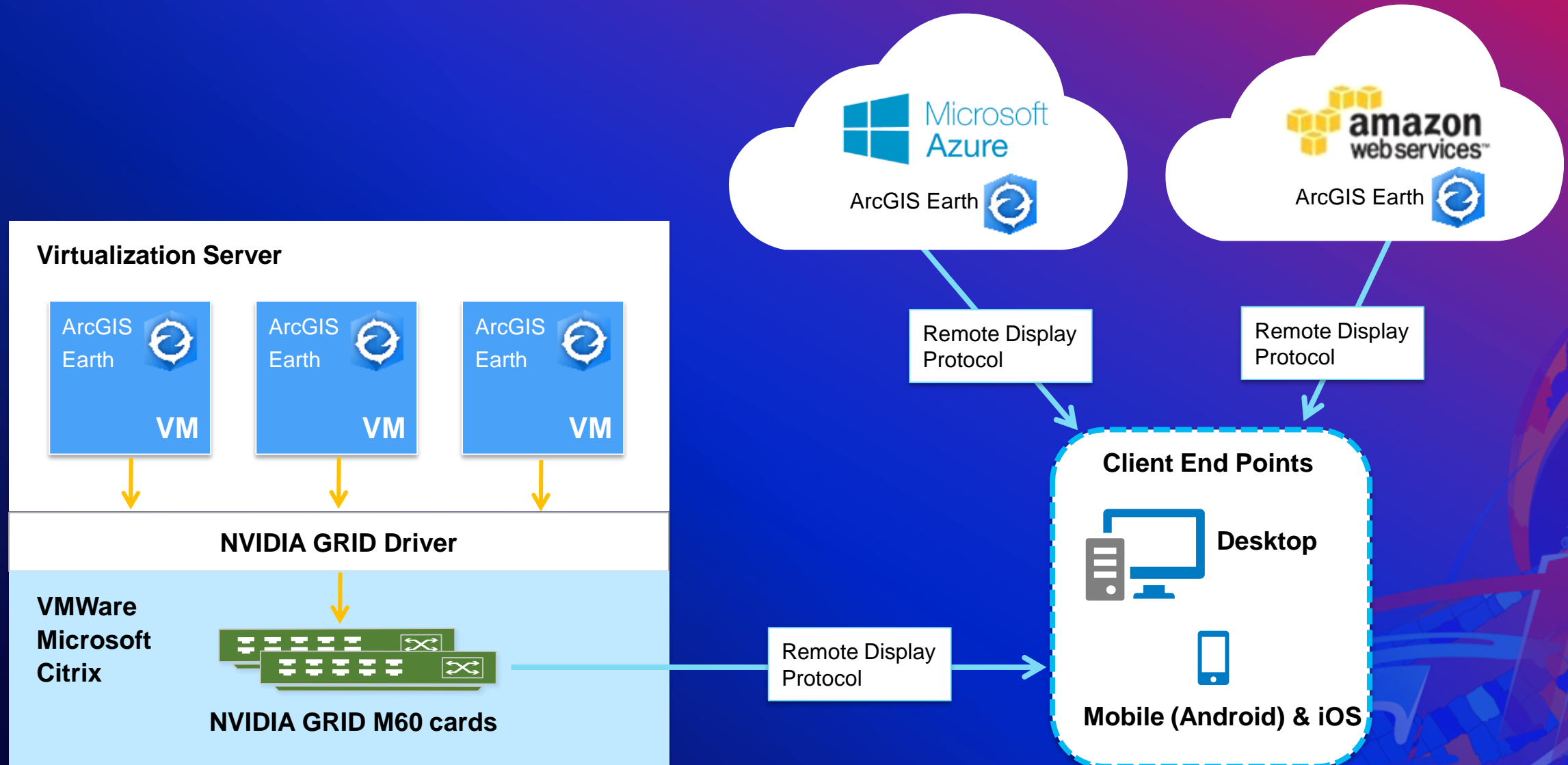
## Hybrid



## Esri Hosted



# ArcGIS Earth can be deployed on virtualized platforms

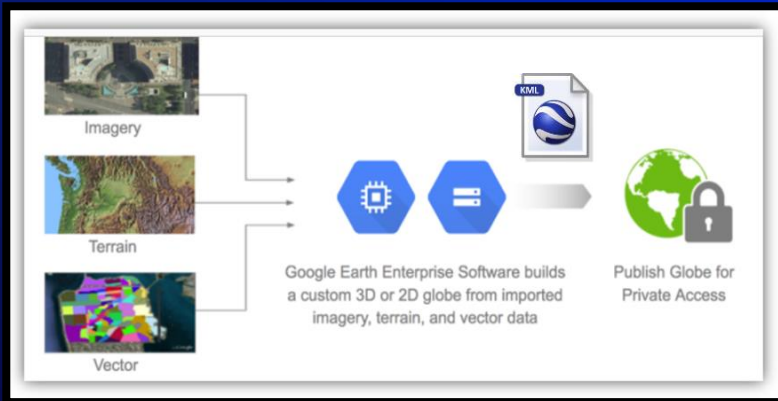


# ArcGIS Earth also works offline



Simple and easy steps in ArcGIS Pro  
...served across the organization

## Portable Globe ...an Intensive Process



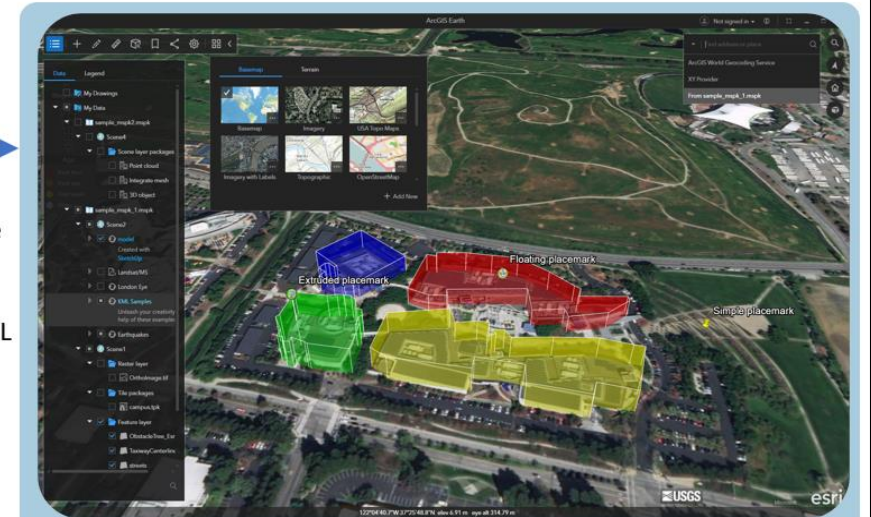
### In ArcGIS Pro -

1. Choose a your scene (global or local)
2. Add Data
3. Choose the Coordinate System
4. Preprocess Data
5. Run the Mobile Scene Package Tool
6. Save and Share
  - a. Publish ArcGIS (Online and Enterprise)
  - b. Save as a '\*.msp'



### In ArcGIS Earth-

1. Add Data - '\*.msp' from
  1. ArcGIS Online
  2. ArcGIS Enterprise
  3. File and take offline





# ArcGIS Earth is an immersive 3D Globe experience

That goes beyond traditional KML workflows...







Basemaps provide background geographic context to the content on the globe



Basemaps can be your own or selected from Online, Enterprise or used offline





# Vertical exaggeration of terrain

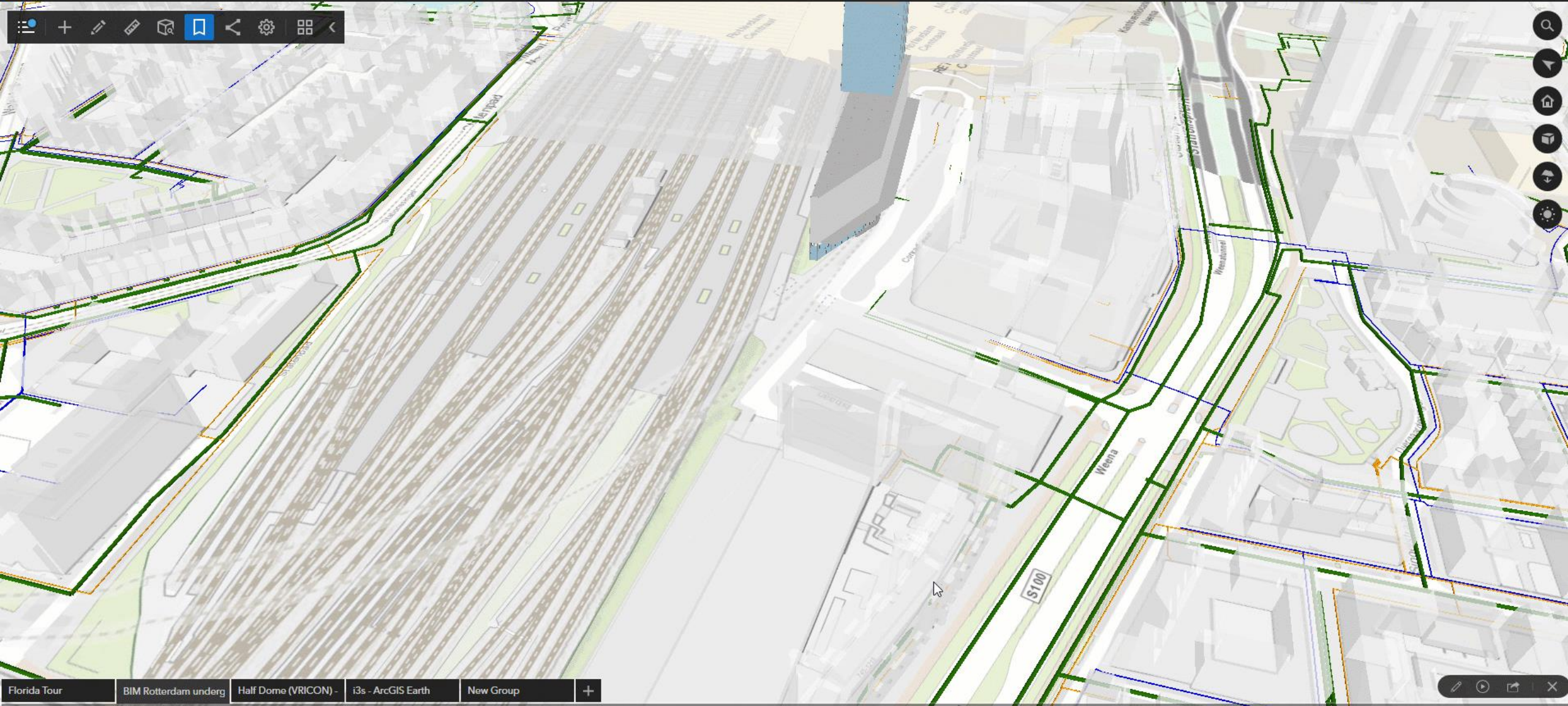
Switch basemaps to keep contour values in perspective





39.95455N 75.14962W elev 33.01 ft eye alt 2,563.20 ft

USDA FSA, GeoEye, CNES/Airbus DS



Florida Tour | BIM Rotterdam onderg | Half Dome (VRICON) - | i3s - ArcGIS Earth | New Group

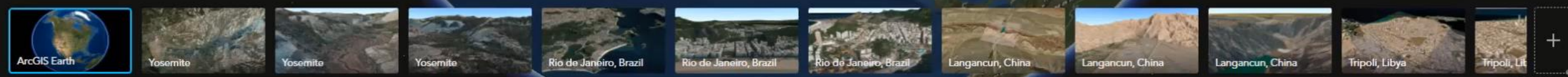


51.92442N 4.4621E elev -8.94 ft eye alt 781.95 ft

Bookmark your favorite spots on the planet



Florida Tour   Kentucky Lidar Coloriz   Half Dome (VRICON) -   i3s - ArcGIS Earth   +



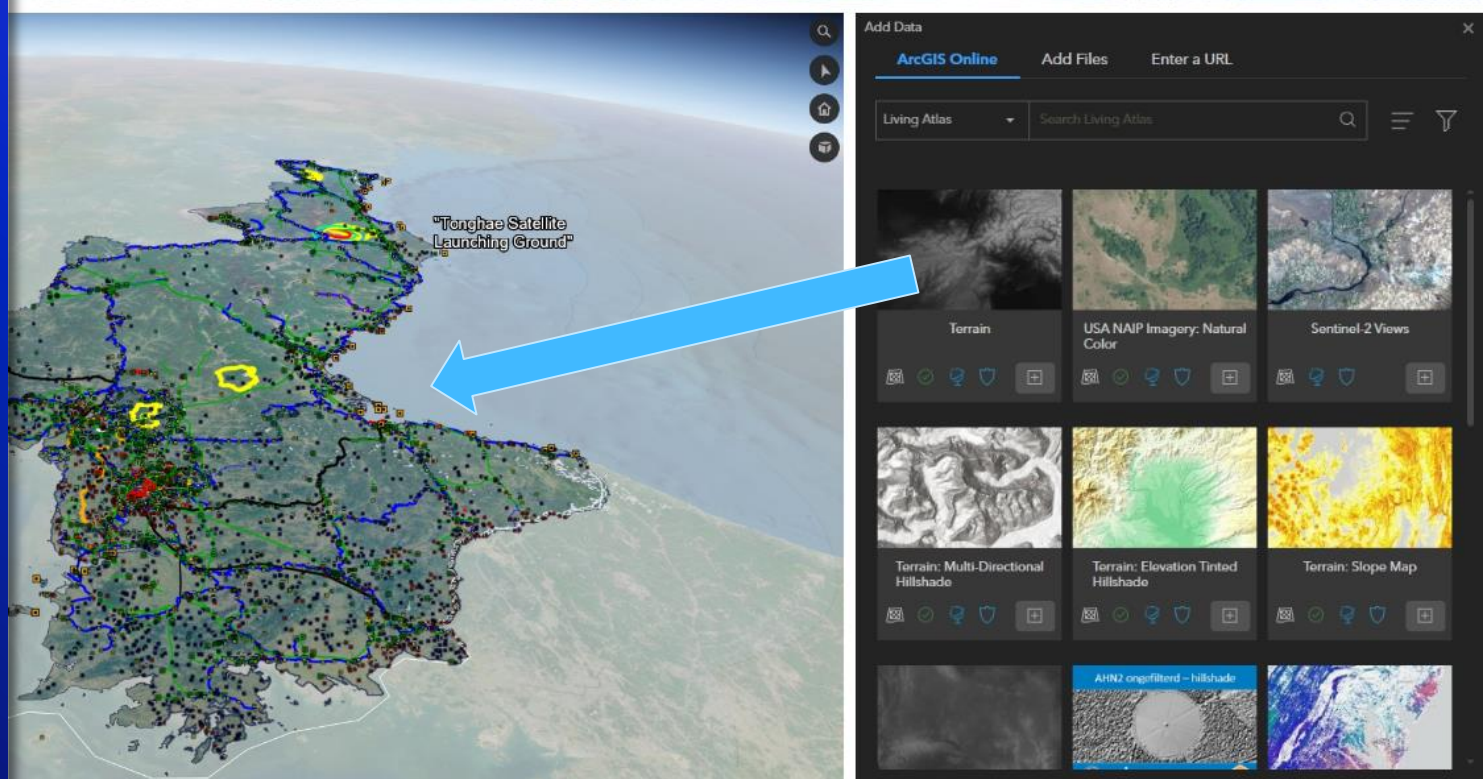
eye alt 31,580,277.34 ft

# Enterprise Data Support

Access content from ArcGIS Online, ArcGIS Enterprise, via URL or Locally

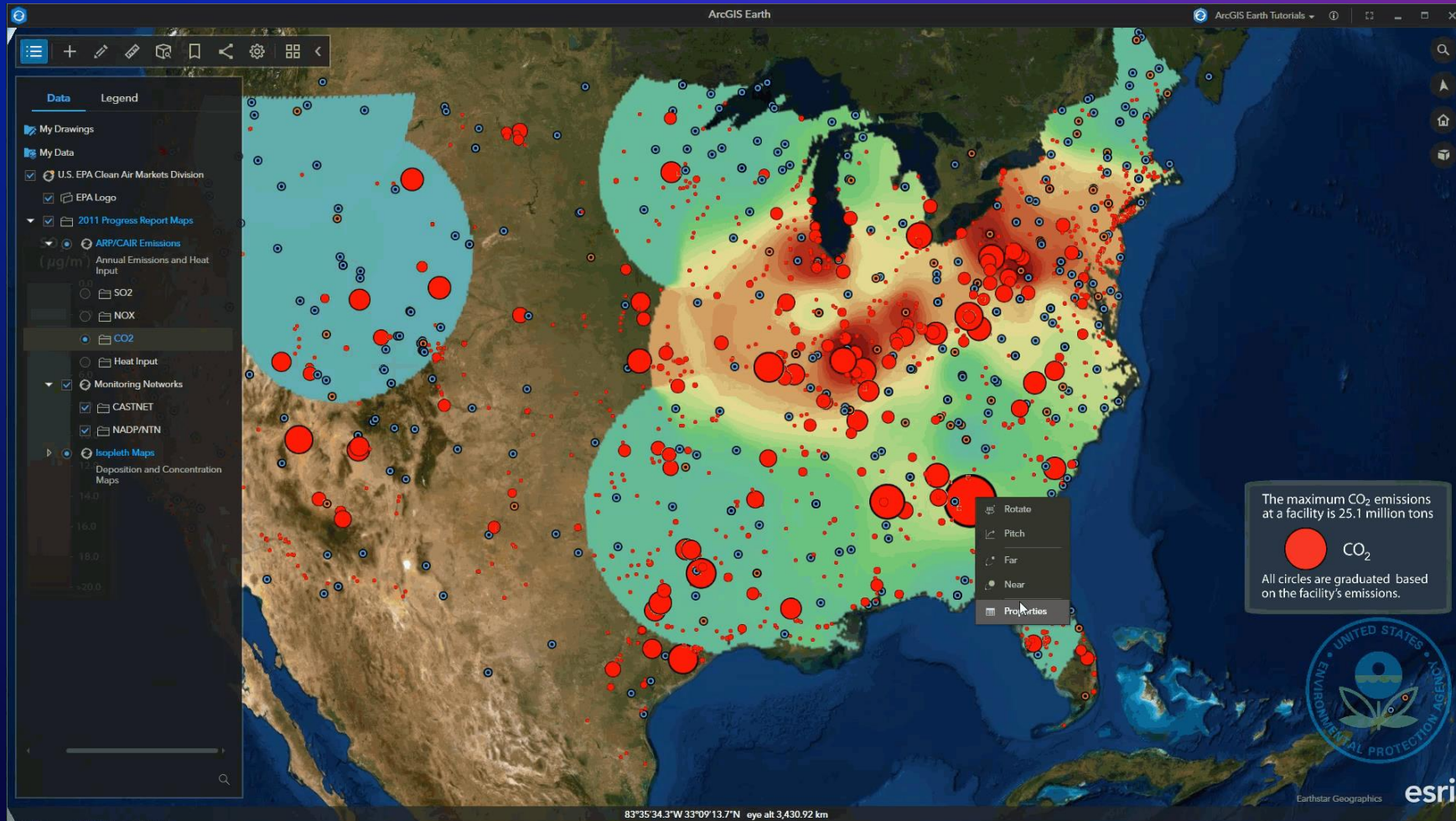
# Enterprise Data

- KML
- Traditional GIS data
- Esri REST Services
- Imagery
- Basemaps & Terrain
- 3D models
- CSV/TXT
- Web Maps & Web Scenes
- Mobile Scene Packages
- Point Cloud scene layers
- 3D point scene layers
- Living Atlas Category
- Open Source (WMS, WMTS)





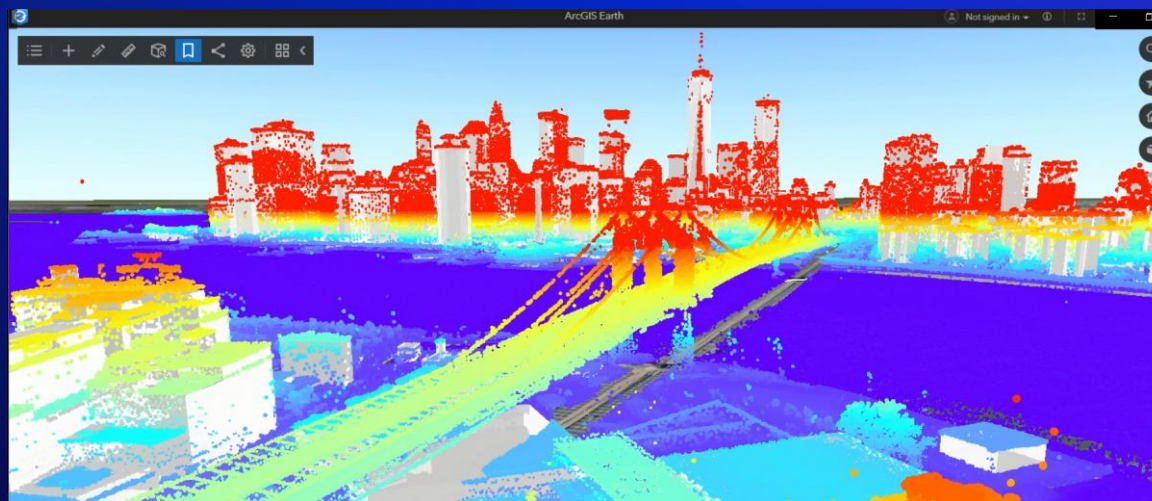
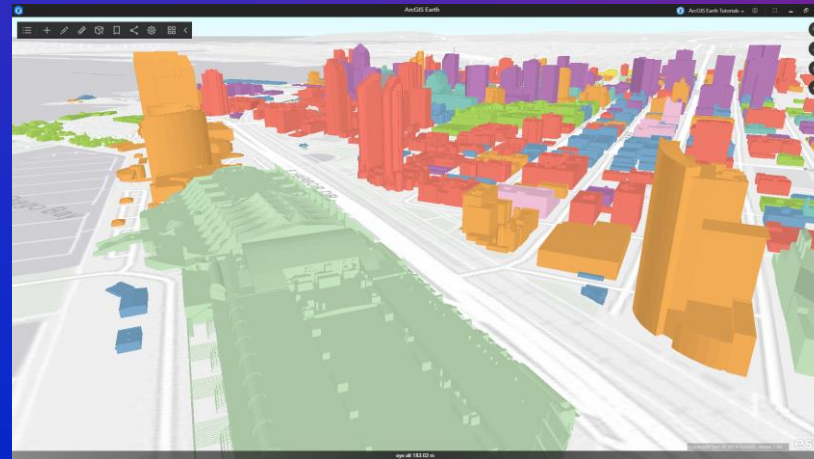
# ArcGIS Earth has native support for KML



Some of the support includes:

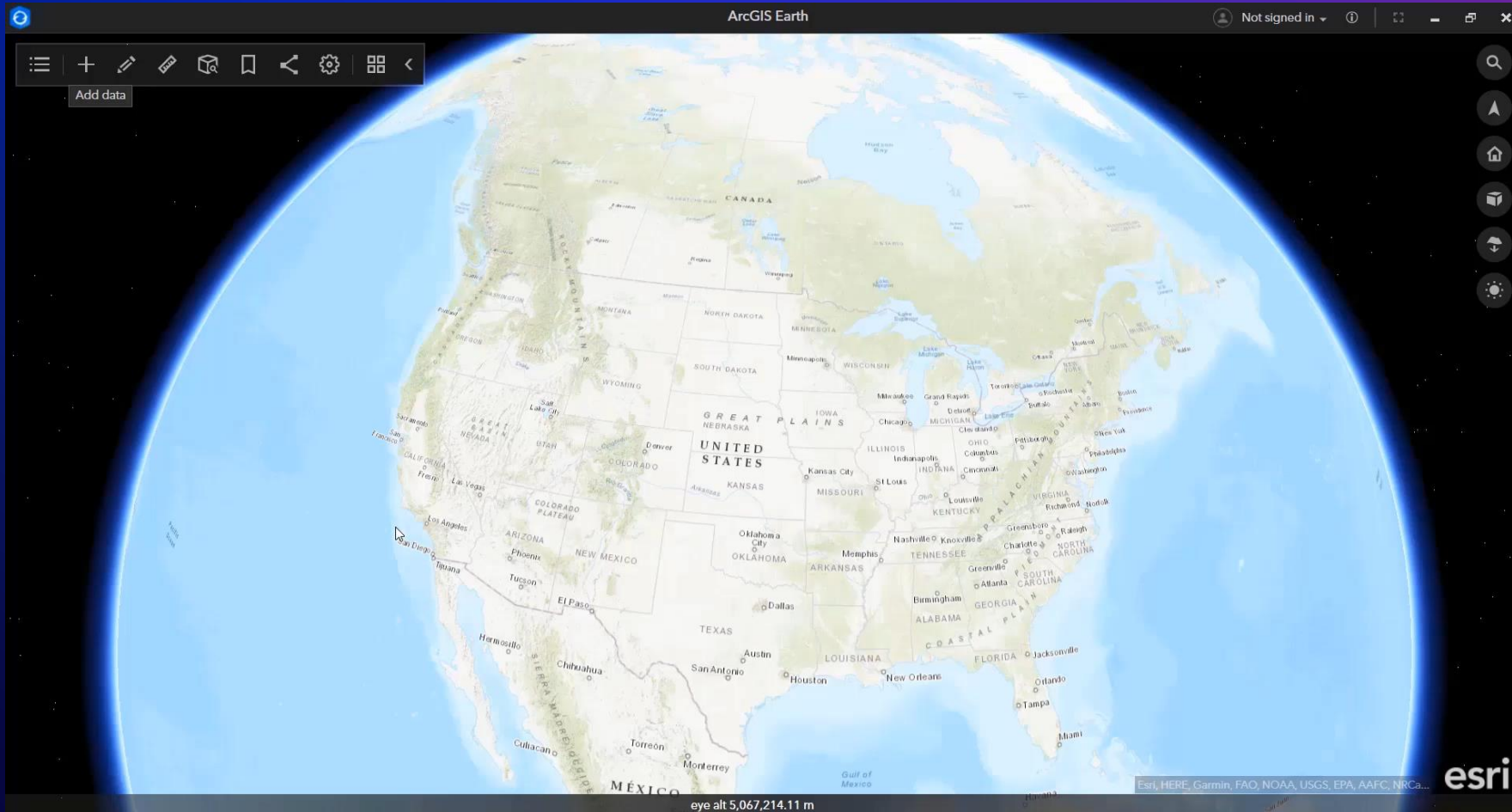
- Network links
- Time sliders
- Adjust refresh rate
- Access sublayers
- Play tours
- Call external services
- Hyperlink and snippets
- Change transparency
- Feature Geometry
- Screen Overlay
- Ground Overlay
- Edit in Table of Contents
- Handling Errors

# Enterprise data support – 3D Scene Layers



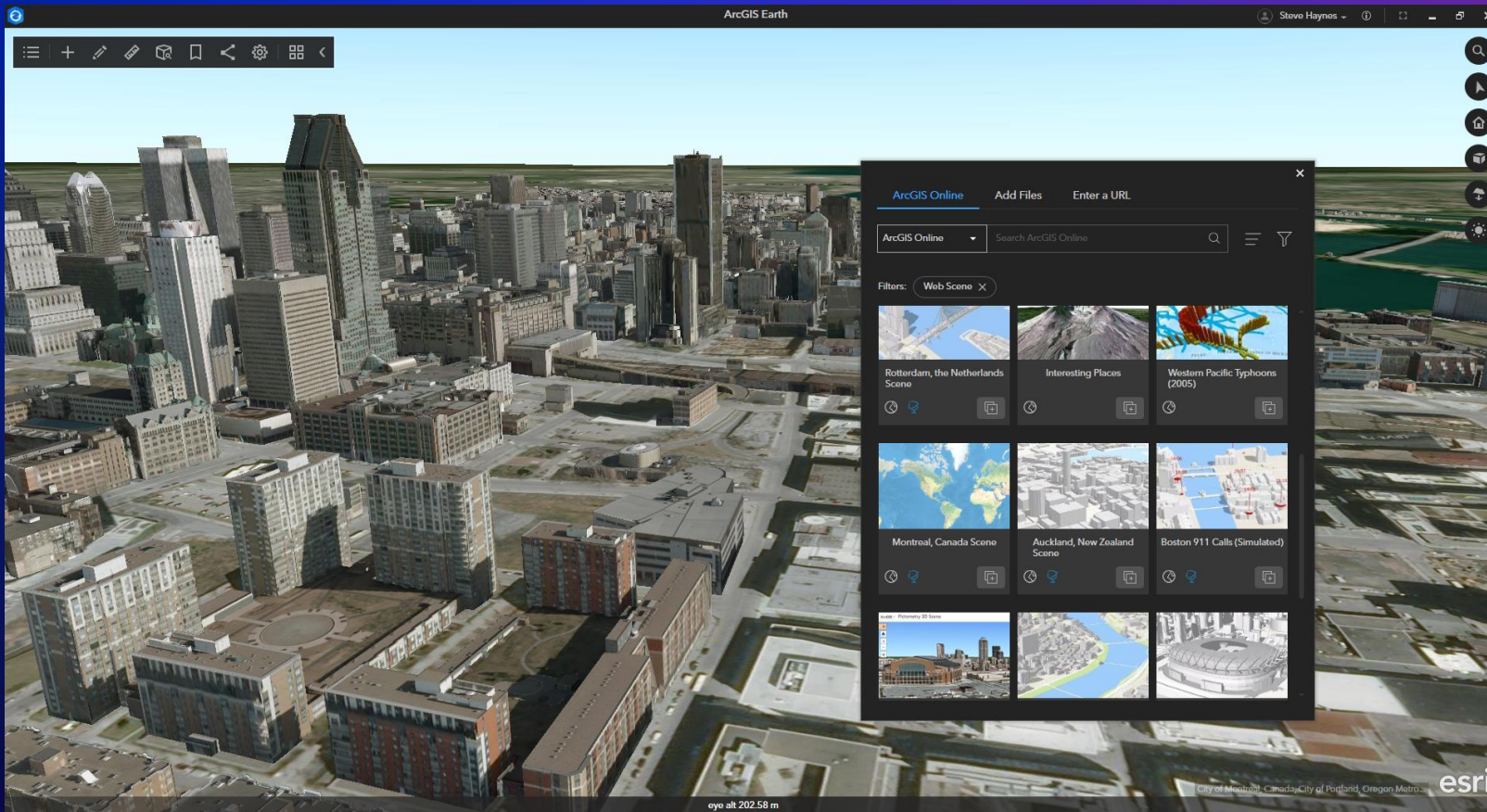
- 3D Object and Integrated Mesh scene layers
- Point clouds
- 3D points
- Earth can consume as services or local SLPK files

# Enterprise data support – Esri REST Services



Identify and display metadata and attribute information for map services, images services, as well as WMS services on the globe

# Enterprise data support – Web Maps & Web Scenes



Access & view Web Maps & Web Scenes directly in ArcGIS Earth!



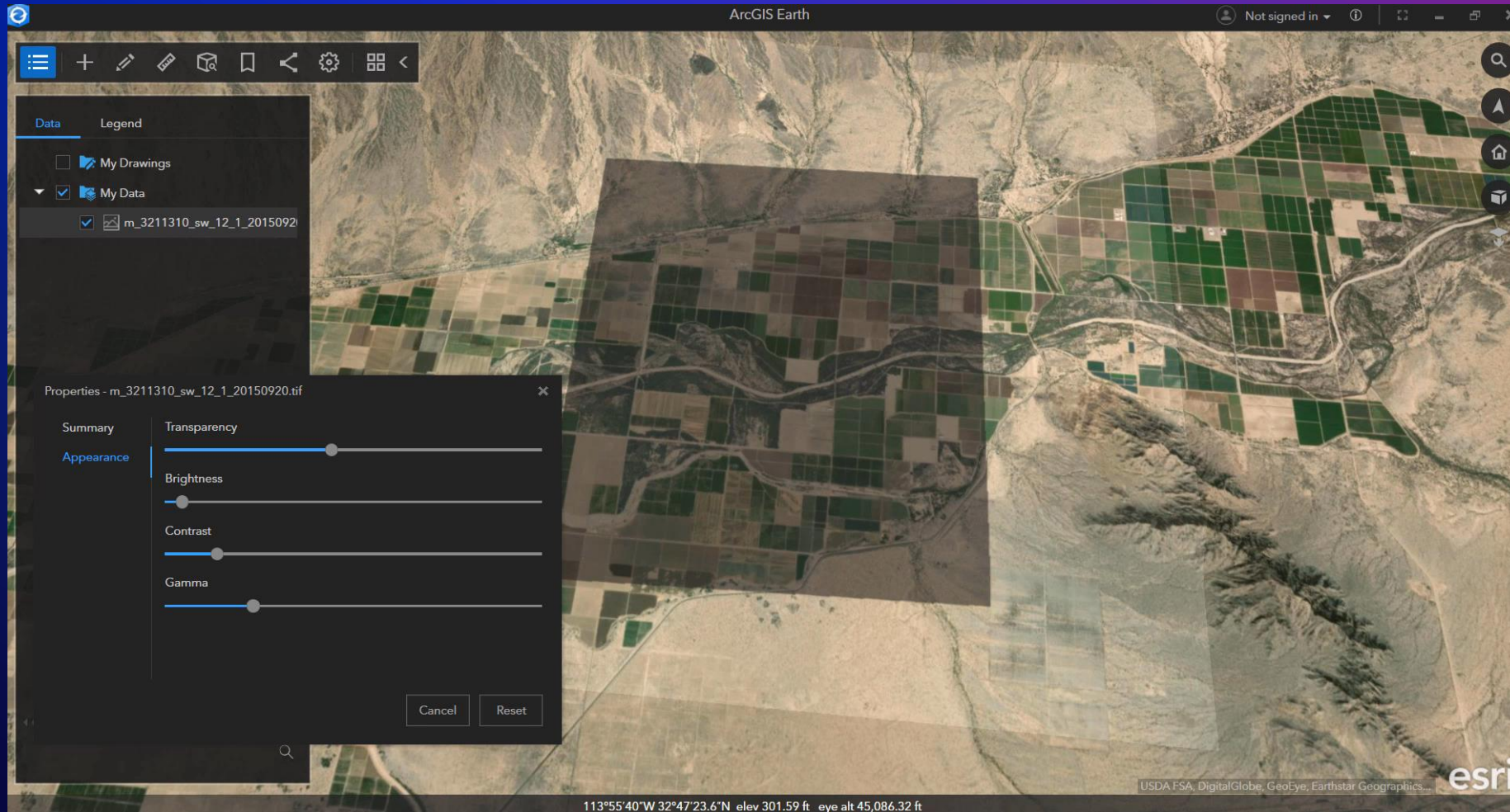
**Data** Legend

- My Drawings
  - Untitled line
- My Data
  - hmmvw.3DS
  - Mile High Stadium point cloud

Geolocate and edit popups of 3D models



# Enterprise data support – Raster



- File types include
  - ASRP/USRP
  - DTED
  - GeoTIFF
  - PNG
  - SRTM
  - IMG
  - JPEG
  - JPEG2000
  - NTIF
  - MrSID



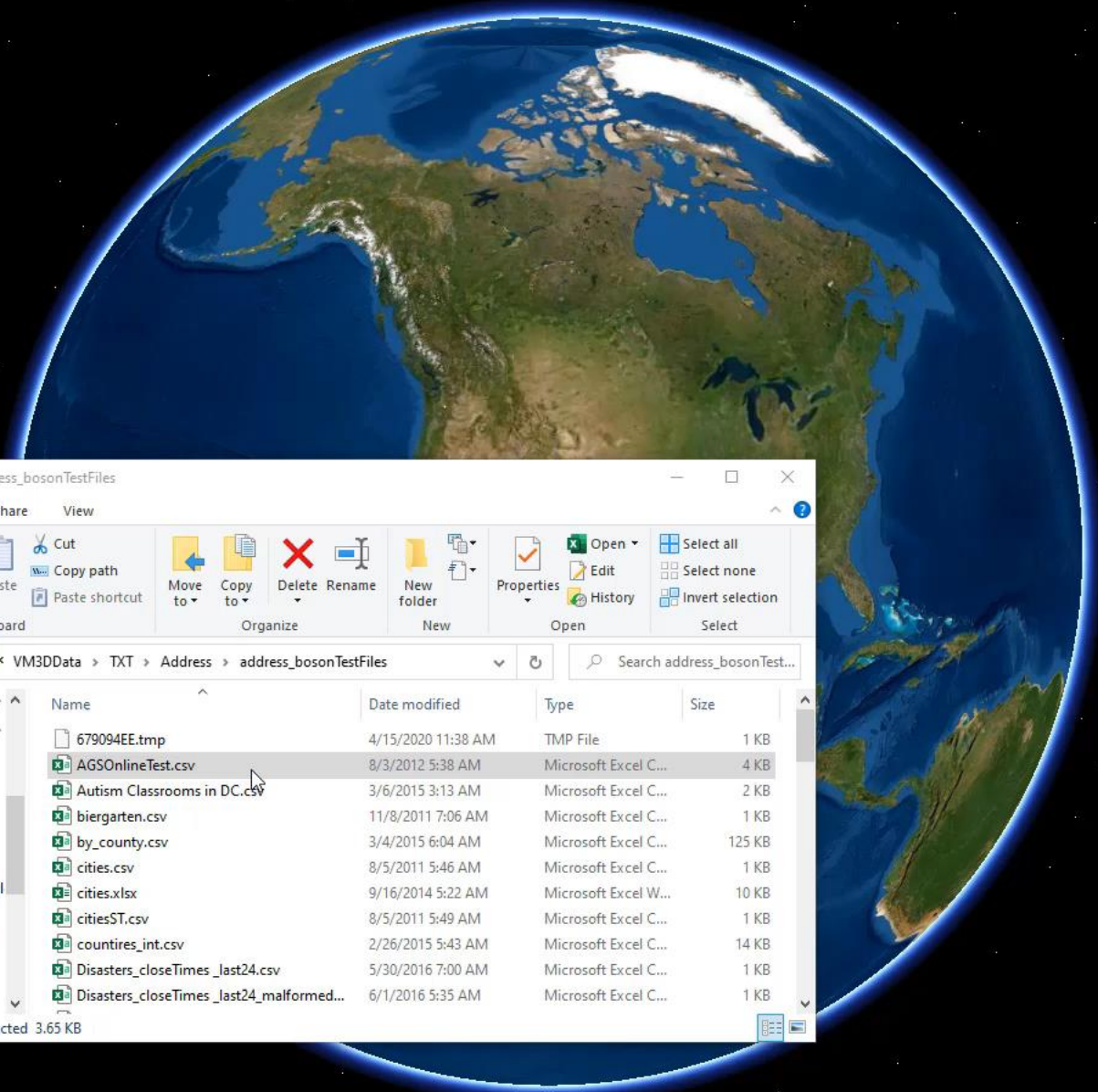
**Data** Legend

- My Drawings
- My Data

**Drag and Drop**

- CSV
- TXT

**Combine with Geocoding**  
(Online & Enterprise)



address\_bosonTestFiles

File Home Share View

Clipboard: Pin to Quick access, Copy, Paste, Copy path, Paste shortcut

Organize: Move to, Copy to, Delete, Rename

New: New folder

Open: Open, Edit, History

Select: Select all, Select none, Invert selection

VM3DData > TXT > Address > address\_bosonTestFiles

Name	Date modified	Type	Size
679094EE.tmp	4/15/2020 11:38 AM	TMP File	1 KB
AGSONlineTest.csv	8/3/2012 5:38 AM	Microsoft Excel C...	4 KB
Autism Classrooms in DC.csv	3/6/2015 3:13 AM	Microsoft Excel C...	2 KB
biergarten.csv	11/8/2011 7:06 AM	Microsoft Excel C...	1 KB
by_county.csv	3/4/2015 6:04 AM	Microsoft Excel C...	125 KB
cities.csv	8/5/2011 5:46 AM	Microsoft Excel C...	1 KB
cities.xlsx	9/16/2014 5:22 AM	Microsoft Excel W...	10 KB
citiesST.csv	8/5/2011 5:49 AM	Microsoft Excel C...	1 KB
countires_int.csv	2/26/2015 5:43 AM	Microsoft Excel C...	14 KB
Disasters_closeTimes_last24.csv	5/30/2016 7:00 AM	Microsoft Excel C...	1 KB
Disasters_closeTimes_last24_malformed...	6/1/2016 5:35 AM	Microsoft Excel C...	1 KB

61 items 1 item selected 3.65 KB



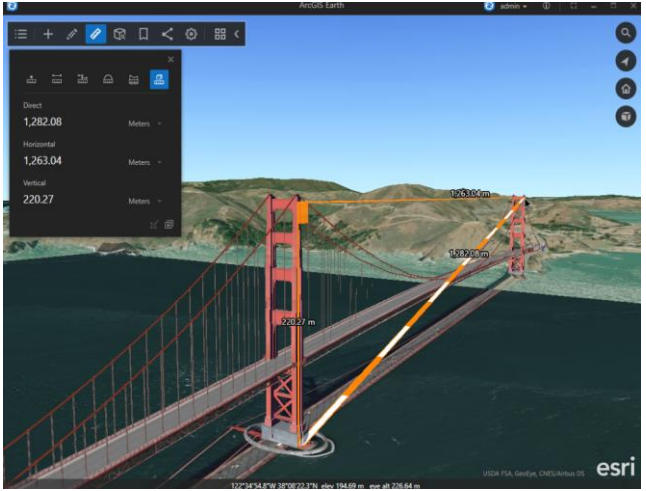
# Interactive Analysis

Perform high-end 3D analysis on the globe





# Interactive Analysis – 3D Measure



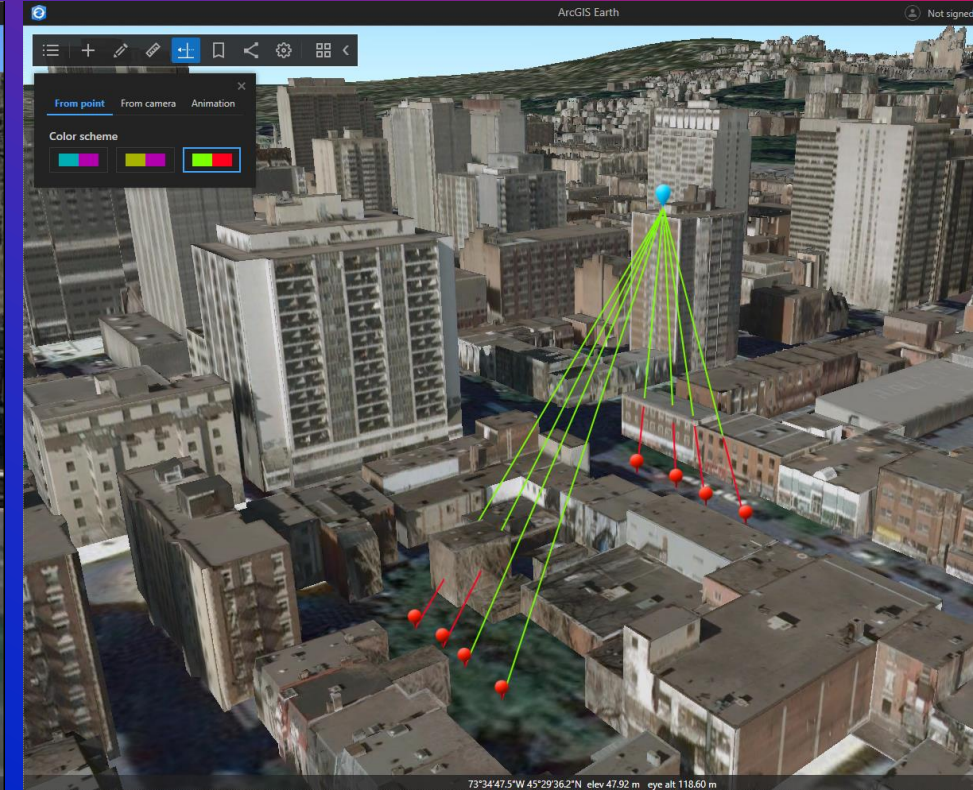
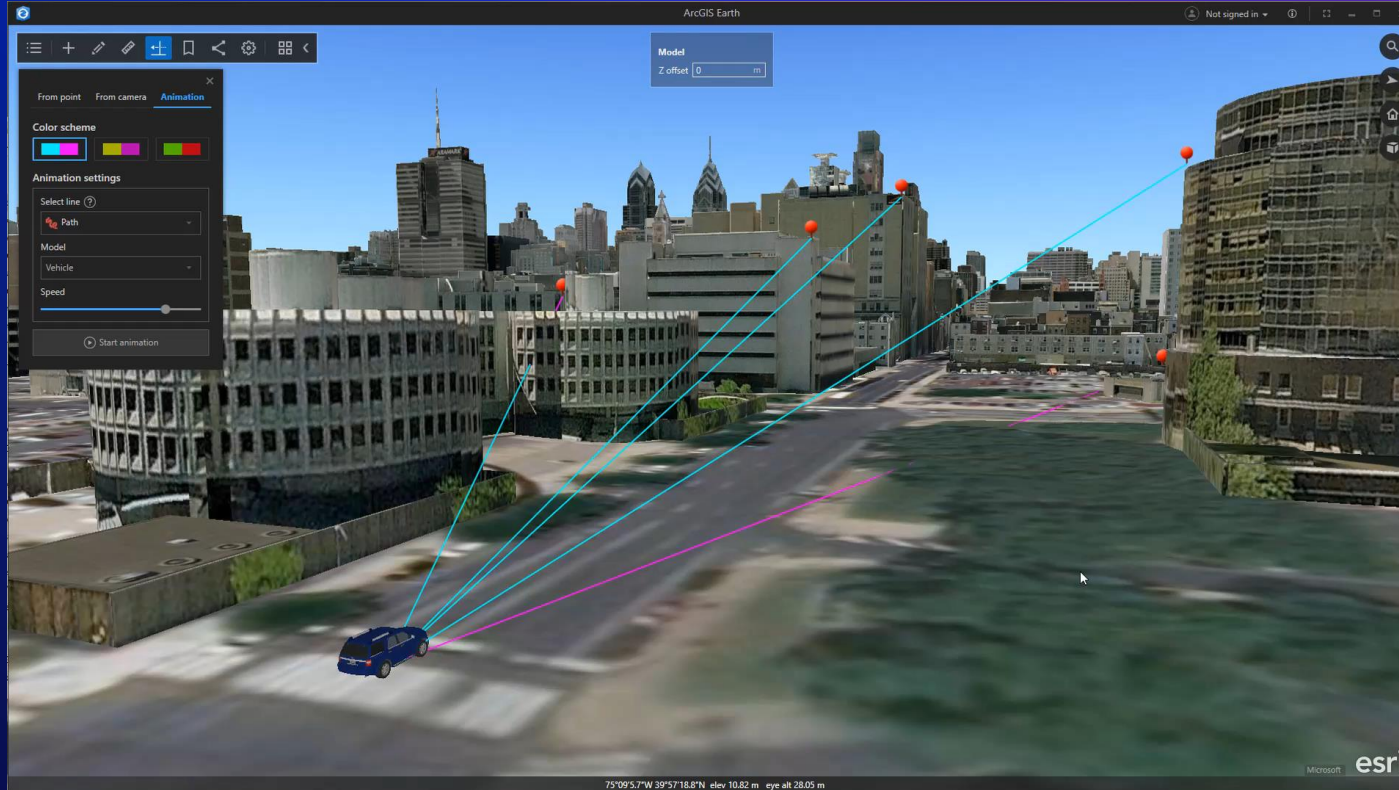
# Interactive Analysis – Elevation Profile



Create an elevation profile for a measured line or path in TOC

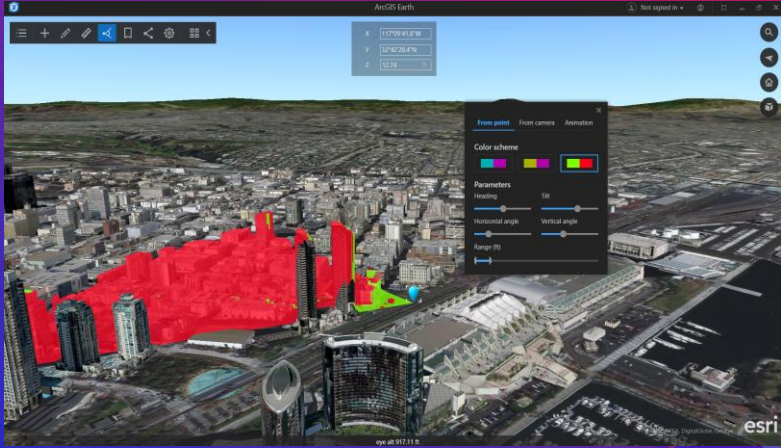


# Interactive Analysis – Line of Sight



Identify visible and non-visible objects in an area of interest

# Interactive Analysis – Viewshed

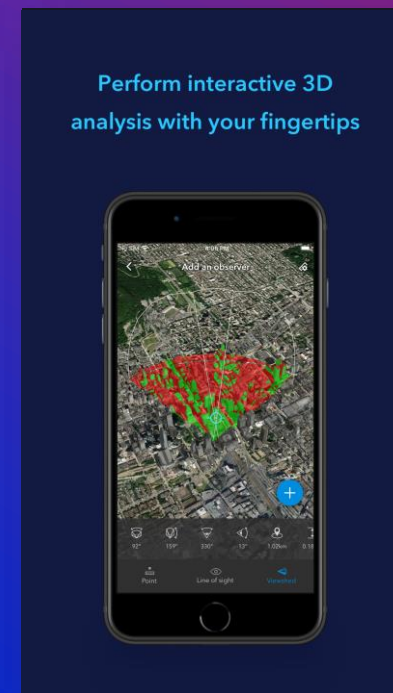
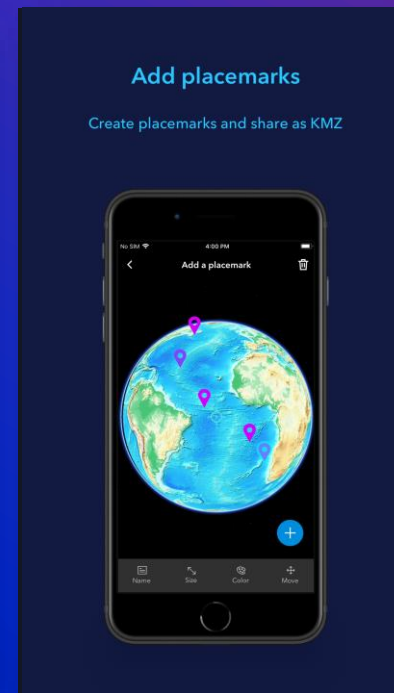
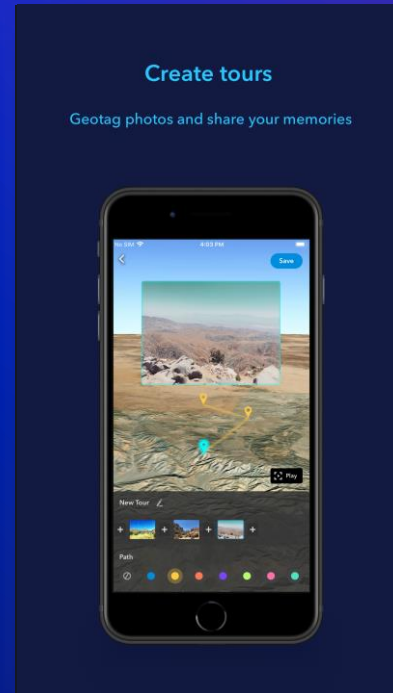
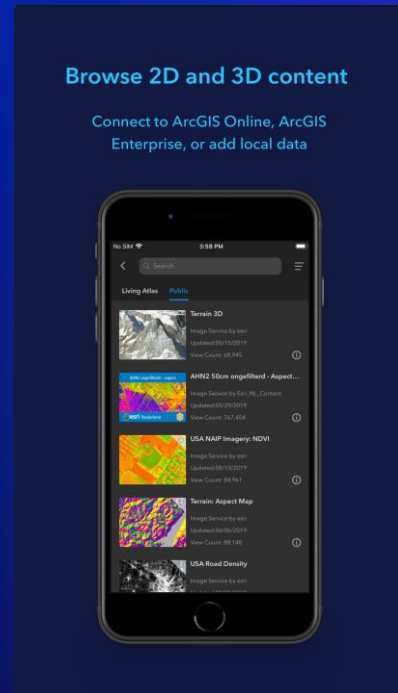


Identify visible and non-visible objects in an area of interest

# ArcGIS Earth on Android & iOS

The background features a stylized globe with a grid of latitude and longitude lines. The globe is rendered in shades of blue, red, and purple. In the bottom-left corner, there is a cluster of small, colorful dots in blue, orange, and red, suggesting data points or a star map. The overall aesthetic is modern and technological.

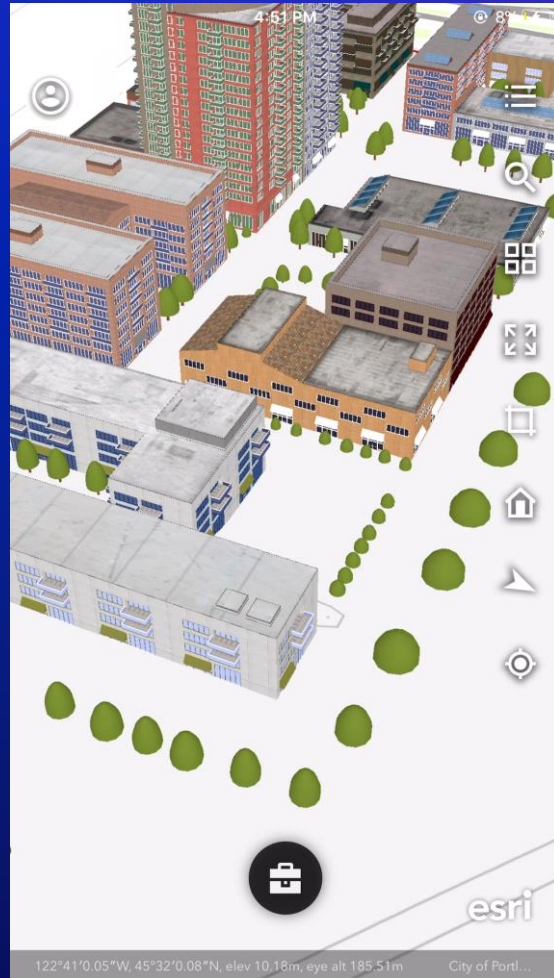
# ArcGIS Earth on your mobile device (Android and iOS)



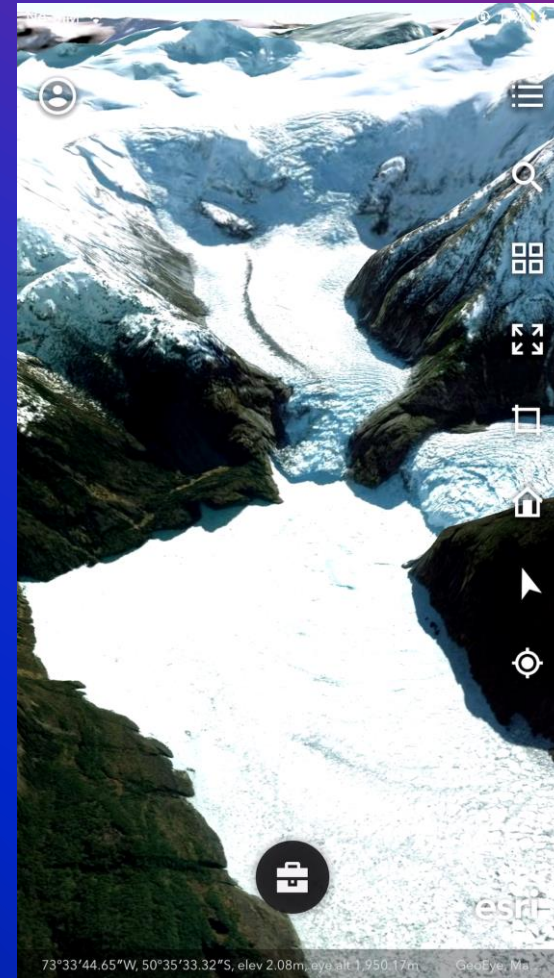
All of these updates are ready for you to try from [Google Play store](#) and [App Store](#) for free

# Mobile Analysis

## Line of Sight

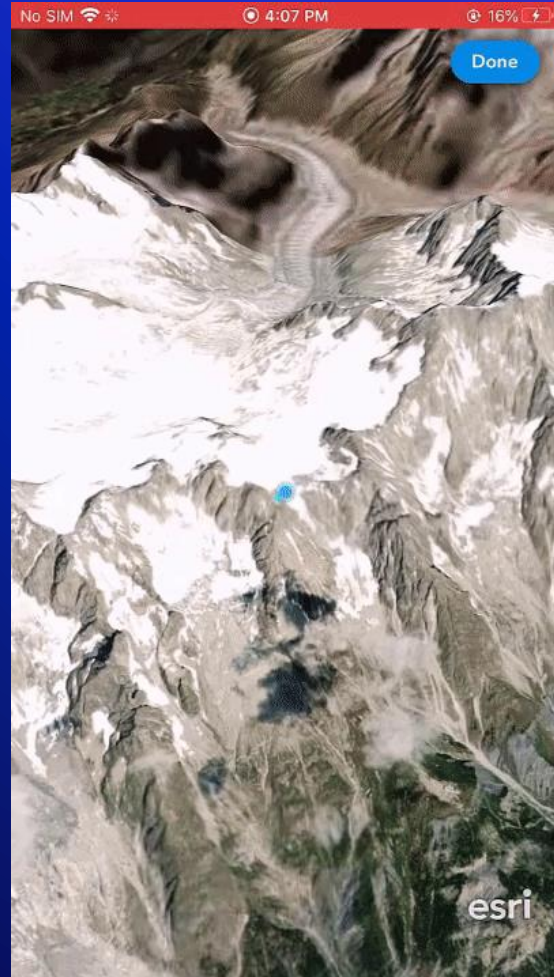


## Viewshed



# GPS Location Tracking

Create Track



Upload to Portal

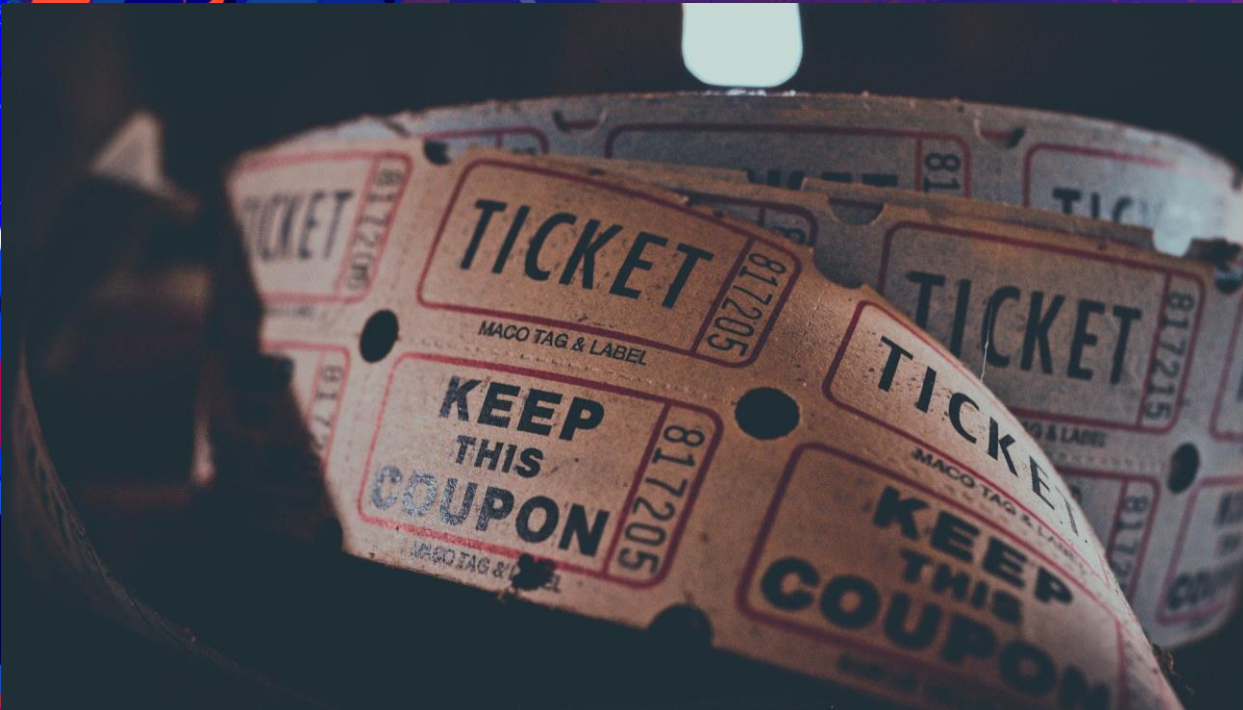




# Mobile routing integration

Get directions to your placemarks and POIs with navigation services on your mobile device





# A trip to the Movies

Stuart Penninger

The background features a stylized globe with blue and red contour lines, set against a gradient of purple and red. In the bottom left corner, there is a cluster of small, glowing blue and orange dots, suggesting data points or a network. The overall aesthetic is modern and technological.

# What's Next for ArcGIS Earth

Roadmap

# What's coming next for ArcGIS Earth

## Today – (New Capabilities)

- New data types (GPX, GeoJSON, WFS)
- Underground navigation
- Sunlight and Shadow rendering
- More Symbology methods
- Re-design Bookmarks and Pop-up
- Accessibility enhancement
- Mobile – Tablet, Location tracking, save kml to portal, integrated routing

## Near Term

- Enhanced Developer experience
- Portal Configuration
- Save kml data to Portal
- Enhanced data sharing between devices
- Imagery selector
- Improved shadow rendering

## Mid - Longer Term

- Additional data types
- New Interactive Tools
- Movie maker
- Imagery selector (offline)
- 3D Vector Tiles
- Realistic water rendering
- 3D Labeling
- Integration with other Esri products
- Chromebook / Web
- Access Extensions (SDK)

# Licensing - ArcGIS Earth is Free for download!

Try it today on

[ArcGIS Earth's Website](#)

[The Microsoft Store](#)

[Google Play](#)

[Apple iTunes](#)



# ArcGIS Earth – Connect with the team

## Resources:

- Product Page and Downloads: <https://www.esri.com/en-us/arcgis/products/arcgis-earth/overview>
- ArcGIS Blog: <https://www.esri.com/arcgis-blog/?s=#ArcGIS%20Earth>
- GeoNet Community: <https://community.esri.com/t5/arcgis-earth/ct-p/arcgis-earth>
- YouTube Playlist: [https://www.youtube.com/watch?v=HBbO7vaSOrM&list=PLGZUzt4E4O2J6vd7D\\_c7ybmcOrEAXe\\_06](https://www.youtube.com/watch?v=HBbO7vaSOrM&list=PLGZUzt4E4O2J6vd7D_c7ybmcOrEAXe_06)

## Social:

- Twitter: @ArcGISApps
- Facebook: @ArcGISApps
- Instagram: @ArcGISApps

Contact us: [ArcGISEarth@esri.com](mailto:ArcGISEarth@esri.com)



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SCIENCE  
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WHERE**<sup>®</sup>

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