

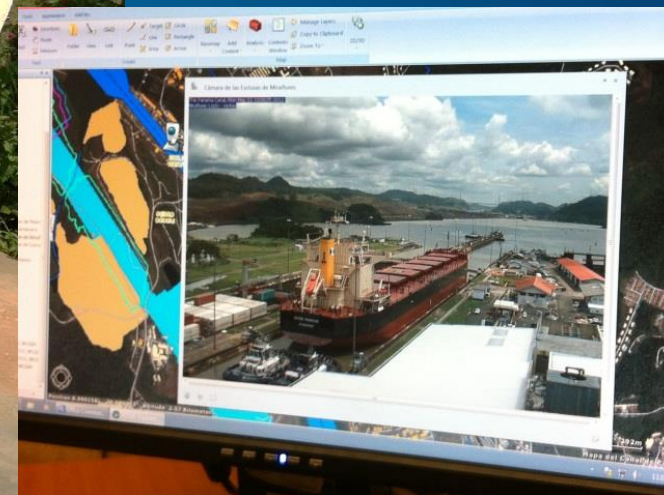
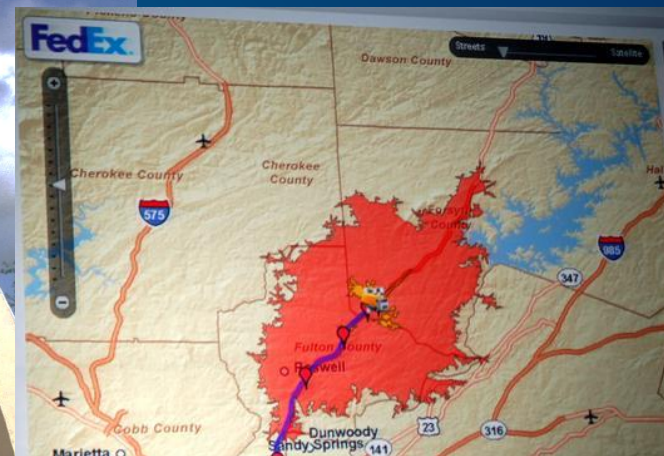


Digital Transformation at Universities around the World: Migrating to Modern GIS

Dr. Michael Gould

Global Education Manager

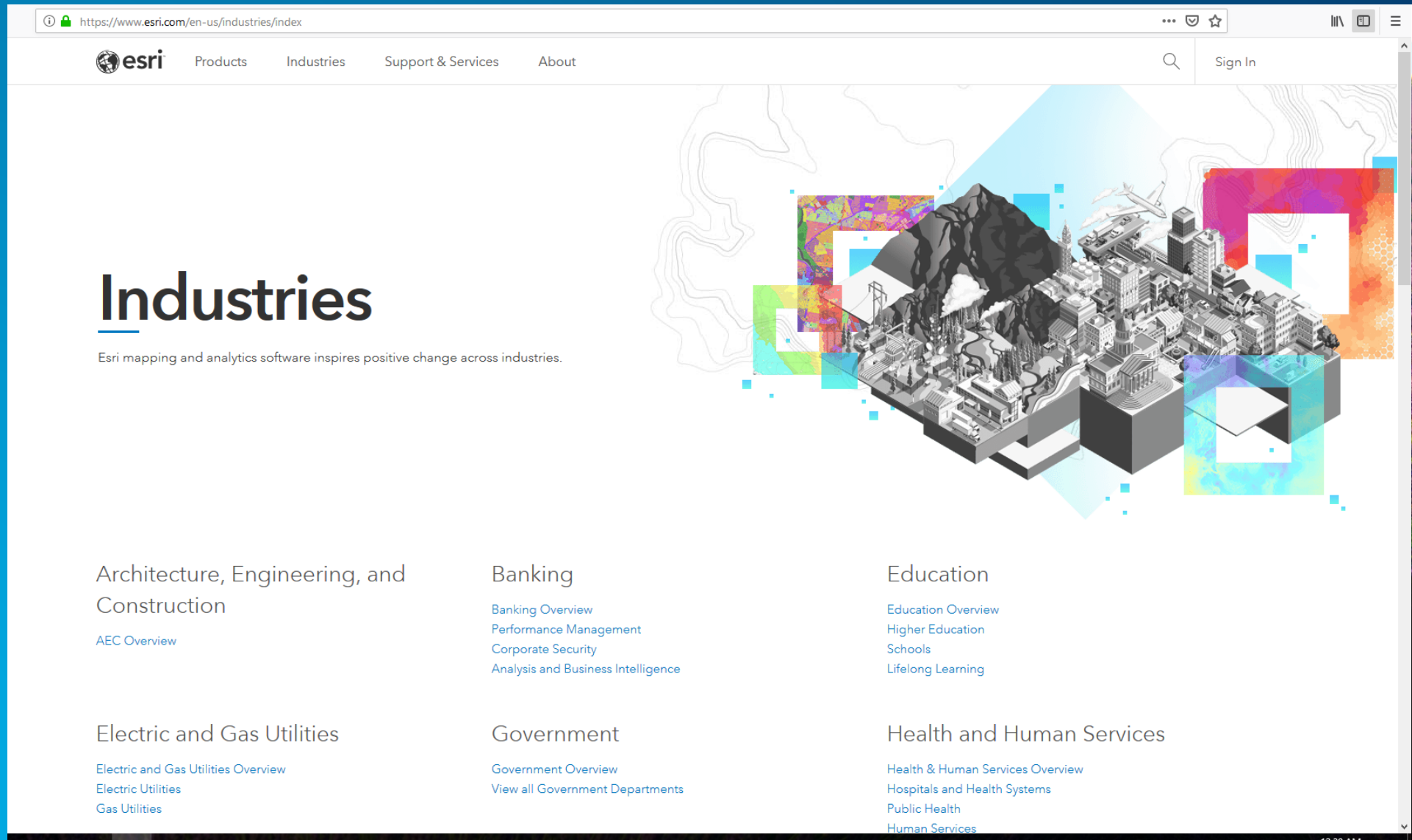
Esri Inc.



Digital Transformation = Profound Change



Who Uses GIS? www.esri.com/industries

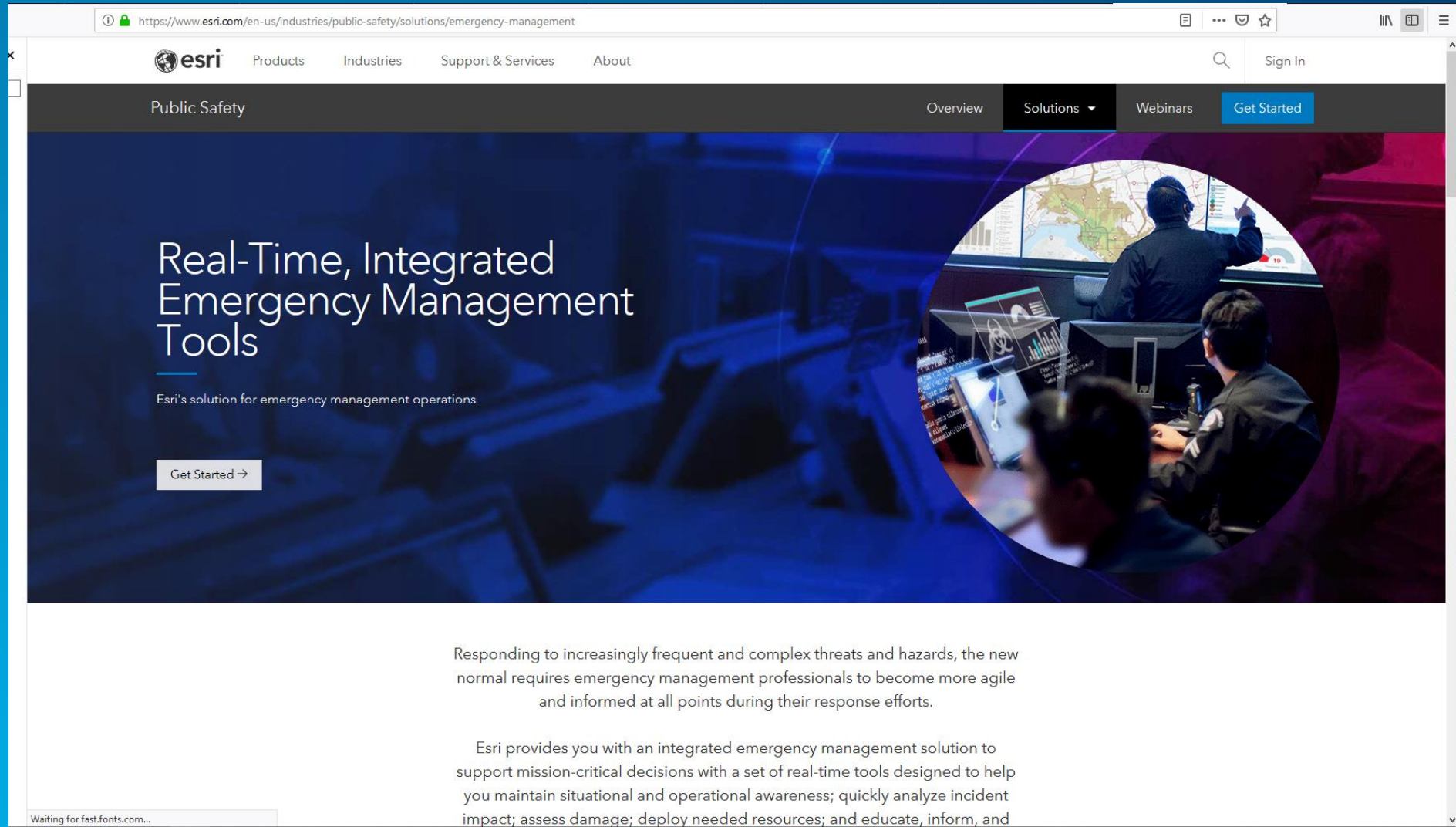


The screenshot shows the Esri Industries website. The header includes the Esri logo, navigation links for Products, Industries, Support & Services, and About, a search icon, and a Sign In button. The main content area features a large 3D isometric illustration of a cityscape with various buildings, a mountain, and a plane, overlaid with colorful, semi-transparent square blocks. To the left of this graphic, the word "Industries" is displayed in a large, bold font, followed by the tagline "Esri mapping and analytics software inspires positive change across industries." Below this, the website is organized into a grid of industry categories, each with a title and a list of sub-topics.

Industries
Esri mapping and analytics software inspires positive change across industries.

- Architecture, Engineering, and Construction**
 - [AEC Overview](#)
- Banking**
 - [Banking Overview](#)
 - [Performance Management](#)
 - [Corporate Security](#)
 - [Analysis and Business Intelligence](#)
- Education**
 - [Education Overview](#)
 - [Higher Education](#)
 - [Schools](#)
 - [Lifelong Learning](#)
- Electric and Gas Utilities**
 - [Electric and Gas Utilities Overview](#)
 - [Electric Utilities](#)
 - [Gas Utilities](#)
- Government**
 - [Government Overview](#)
 - [View all Government Departments](#)
- Health and Human Services**
 - [Health & Human Services Overview](#)
 - [Hospitals and Health Systems](#)
 - [Public Health](#)
 - [Human Services](#)

Example: Emergency Management/ Public Safety



The screenshot shows the Esri website for Emergency Management. The browser address bar displays the URL: <https://www.esri.com/en-us/industries/public-safety/solutions/emergency-management>. The Esri logo is in the top left, followed by navigation links: Products, Industries, Support & Services, and About. A search icon and a 'Sign In' link are in the top right. Below the navigation bar, the page is titled 'Public Safety' on the left and has tabs for 'Overview', 'Solutions', 'Webinars', and 'Get Started' on the right. The main content area features a large blue-tinted image of emergency responders in a control room. Overlaid on the left of this image is the text 'Real-Time, Integrated Emergency Management Tools' in white, with a sub-headline 'Esri's solution for emergency management operations' and a 'Get Started →' button. On the right, a circular inset shows a closer view of the responders. Below the main image, there is a paragraph of text: 'Responding to increasingly frequent and complex threats and hazards, the new normal requires emergency management professionals to become more agile and informed at all points during their response efforts.' This is followed by another paragraph: 'Esri provides you with an integrated emergency management solution to support mission-critical decisions with a set of real-time tools designed to help you maintain situational and operational awareness; quickly analyze incident impact; assess damage; deploy needed resources; and educate, inform, and'. At the bottom left, a small status bar reads 'Waiting for fast.fonts.com...'. The browser's developer tools are visible on the far right edge.

https://www.esri.com/en-us/industries/public-safety/solutions/emergency-management

esri Products Industries Support & Services About

Public Safety Overview Solutions Webinars Get Started

Real-Time, Integrated Emergency Management Tools

Esri's solution for emergency management operations

Get Started →

Responding to increasingly frequent and complex threats and hazards, the new normal requires emergency management professionals to become more agile and informed at all points during their response efforts.

Esri provides you with an integrated emergency management solution to support mission-critical decisions with a set of real-time tools designed to help you maintain situational and operational awareness; quickly analyze incident impact; assess damage; deploy needed resources; and educate, inform, and

Waiting for fast.fonts.com...

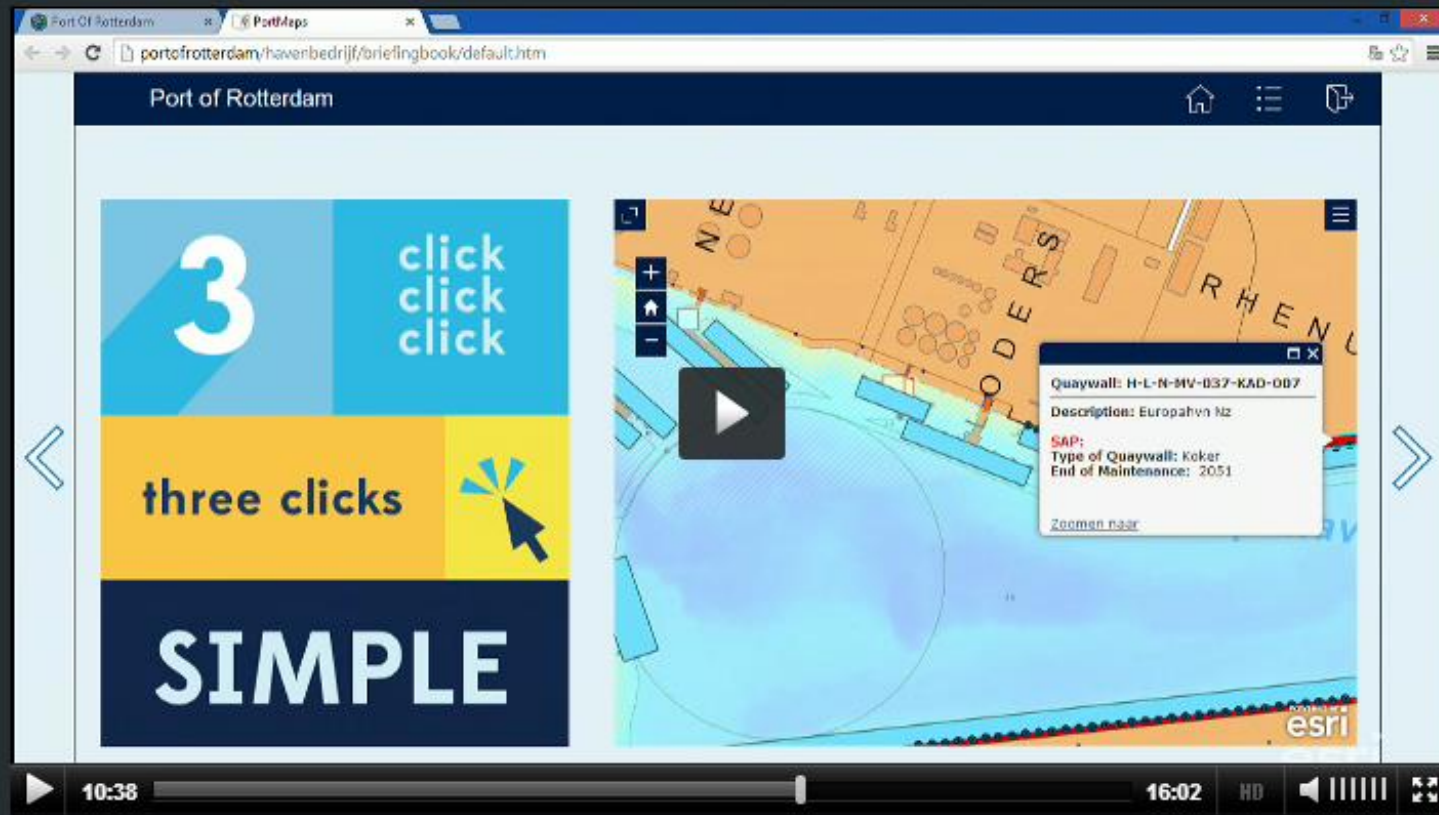


2014-2017 Boston Marathons

FedEx Custom Critical

- Servers, Mobile Apps
- Realtime Monitoring (Dashboard)
- Integration





The Port of Rotterdam

Erwin Rademaker explains what it takes to become a world-class port.

Jul 14th, 2014

Two Styles of GIS Education Needed

- Teaching about GIS: Creating GIS Experts
- Teaching with GIS: Creating technically capable scientists, engineers, decision-makers.

Universities are Reacting, and Providing ArcGIS in many Fields of Study

Example of University of Minnesota

The screenshot shows a web browser displaying the Esri Video player. The URL in the address bar is https://www.esri.com/videos/watch?playlistid=PLaPDDLTCmy4Z3mKwKJktn3HKnwEMjvplf&videoid=Emj6n28BwL0&channelid=UC_yE3TatdZKAXvt_TzGJ6mw&title=Esri 2018 UC Plenary. The page features the Esri logo and navigation links for Products, Industries, Support & Services, and About. The main content area displays a video titled "University of Minnesota: U-Spatial-Advancing Spatial Science and the Workforce of Tomorrow" with a play button overlay. To the right of the video is a sidebar with a list of 25 videos from the Esri 2018 UC Plenary, including a trailer and several keynote presentations by Jack Dangermond. Below the video player, there is a text block providing more information about the University of Minnesota's U-Spatial program.

Esri Video

University of Minnesota: U-Spatial-Advancing Spatial Science and the Workforce of Tomorrow

Search All Videos

Esri 2018 UC Plenary

from Events | 25 Videos

- 1 Esri UC 2018 Plenary Trailer
- 2 Esri UC 2018: GIS-Inspiring What's Next
- 3 GIS-Inspiring What's Next: Jack Dangermond Keynote, Esri UC 2018 (1-of-4)
- 4 Vision-Jack Dangermond Keynote, Esri UC 2018 (2-of-4)
- 5 ArcGIS-GIS and Mapping & Location Platform, Jack Dangermond Keynote, Esri UC 2018 (3-of-4)
- 6 Esri-Serving Our Users, Jack Dangermond Keynote, Esri UC 2018 (4-of-4)

University of Minnesota: U-Spatial-Advancing Spatial Science and the Workforce of Tomorrow

Within the halls of the University of Minnesota, thousands of researchers and students have joined U-Spatial, a nationally recognized program that serves and drives a fast-growing need for expertise in GIS, remote sensing, and spatial computing. Learn about its innovative approaches to education, research, and community outreach that are creating a spatially aware and connected future workforce. Explore its research—from the creation of a digital elevation model for the Antarctic to mapping prejudice to what's next in visualizing maps in motion—and the development of lifelong skills at the university.

See More 2018 Esri User Conference Plenary - <http://p.ctx.lv/r/7zha>



University of Michigan ArcGIS Usage Dashboard

Includes all three campuses: Ann Arbor, Dearborn, and Flint

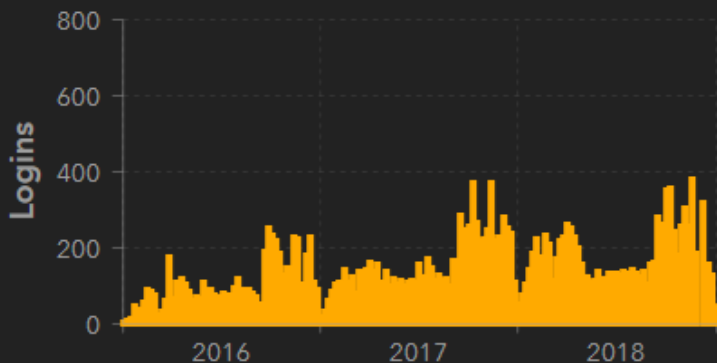
Registered Users

4,080 🧑

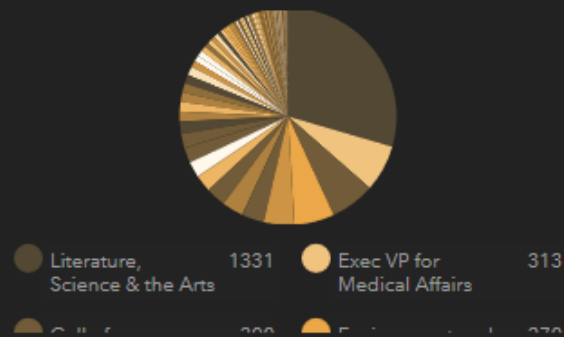
(as of 1/7/2019, 11:10:15 AM UTC)

Last update: 8 minutes ago

Unique Logins per Week



Units

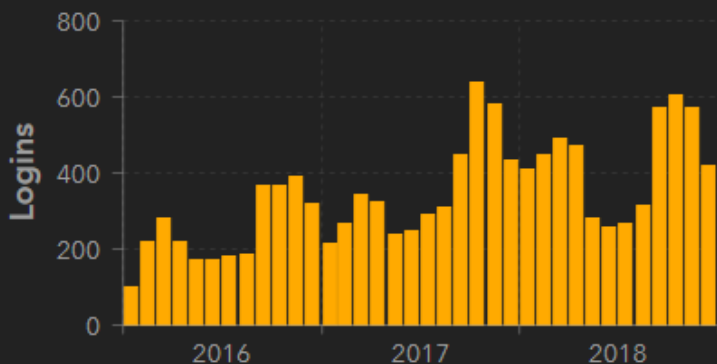


Unit affiliations of active faculty, staff, student, and sponsored affiliate users.

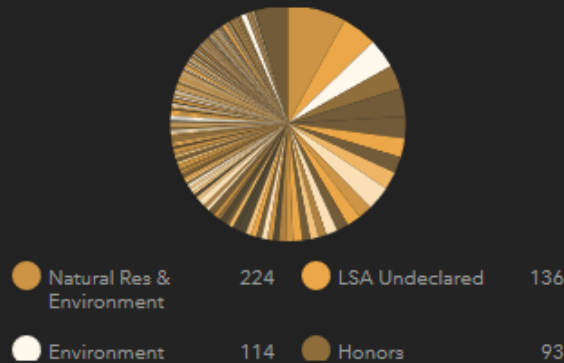
Registered Users by Day



Unique Logins per Month



Student Majors



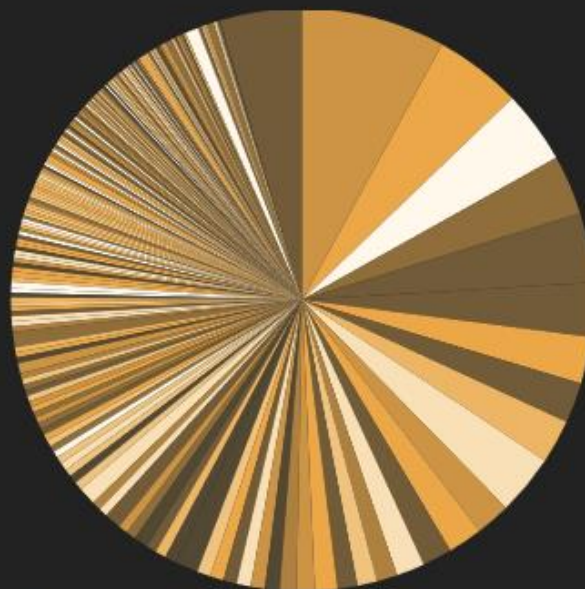
Majors of actively enrolled students.



University of Michigan ArcGIS Usage Dashboard

Includes all three campuses: Ann Arbor, Dearborn, and Flint

Student Majors



Natural Res & Environment	224	LSA Undeclared	136	Environment	114	Honors	93	Business Administration	108	Economics	84	Earth & Environmental Sci	73	Urban & Regional Planning	63
Political Science	68	History	94	Computer Science	54	International Studies	54	Architecture	46	Landscape Architecture	44	Public Policy	32	Residential College	31
Environmental Engineering	31	Anthropology	35	Environmental Science	28	Biological Sciences	26	Hlth Behavior & Hlth Educ	23	Sociology	22	Ecol, Evol, & Biodiversity	22	Sport Management	21
Environmental Studies	21	Civil Engineering	21	Psychology	36	Data Science	18	Judaic Studies	17	Museum Studies	16	Ecology & Evolut Biology	22	Statistics	15

Majors of actively enrolled students.

Web GIS Is Driving Digital Transformation

Interconnected Information, Processes, and Workflows . . .
. . . All Happening at the Same Time



Using the Power of Location to Integrate Everything



Field Operations | Empowering Mobile Workers

Integrated Apps for the Field

Connected and Disconnected

Smart Forms

Survey123

Collector

Tracker

QuickCapture

Workforce

Navigator

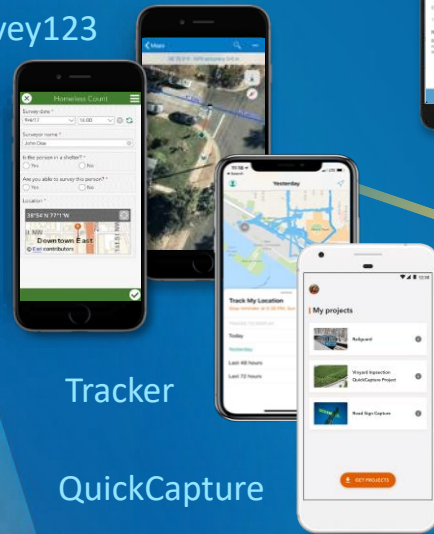
Explorer

Digital Map Book

Dashboard

Plan & Monitor

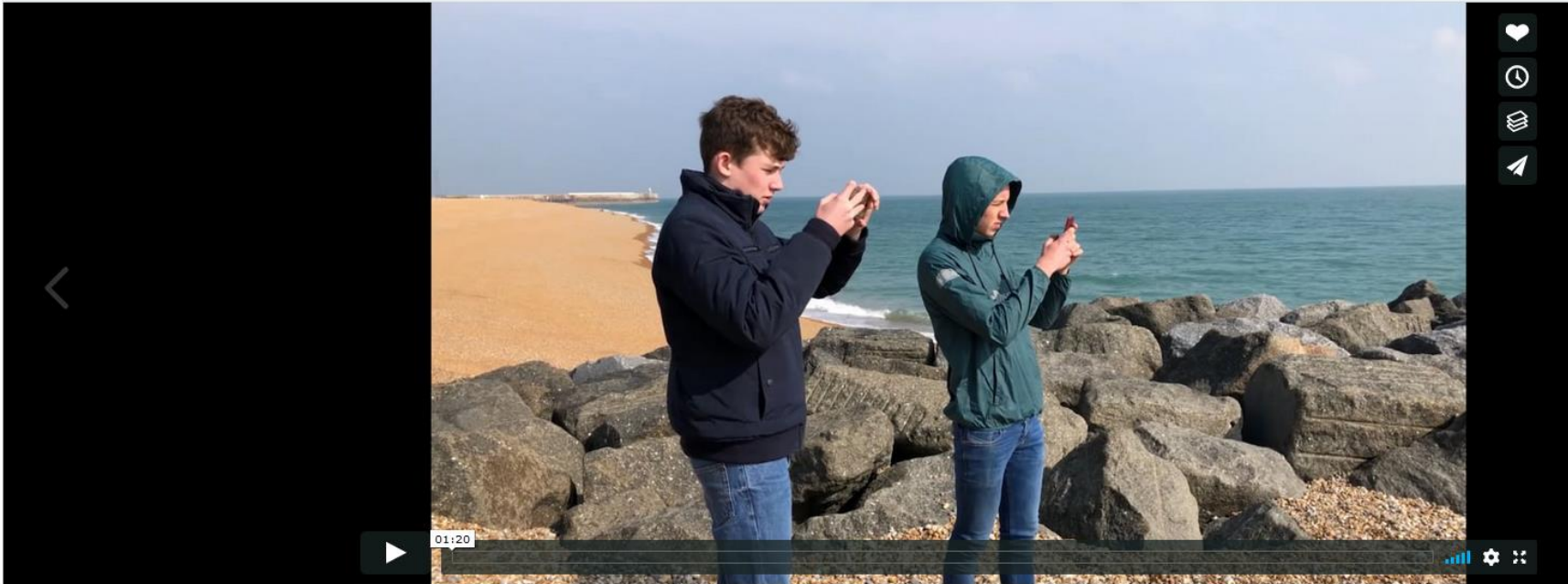
- Data Capture
- Coordinating Work
- Navigation
- Mapping & Markup
- Location Tracking



Field Data Collection App: Survey123

https://vimeo.com/332249333

vimeo Join Log in Pricing Features Watch Stock NEW Search videos, p



01:20

What is Survey123?

4 weeks ago | More

Esri UK Ed Team PLUS + Follow

21 0 0 0

Download Share

Survey123 is an app that lets you collect fieldwork data more quickly and accurately than with pencil and clipboard.

Leave the first comment:

More from Esri UK Ed Team

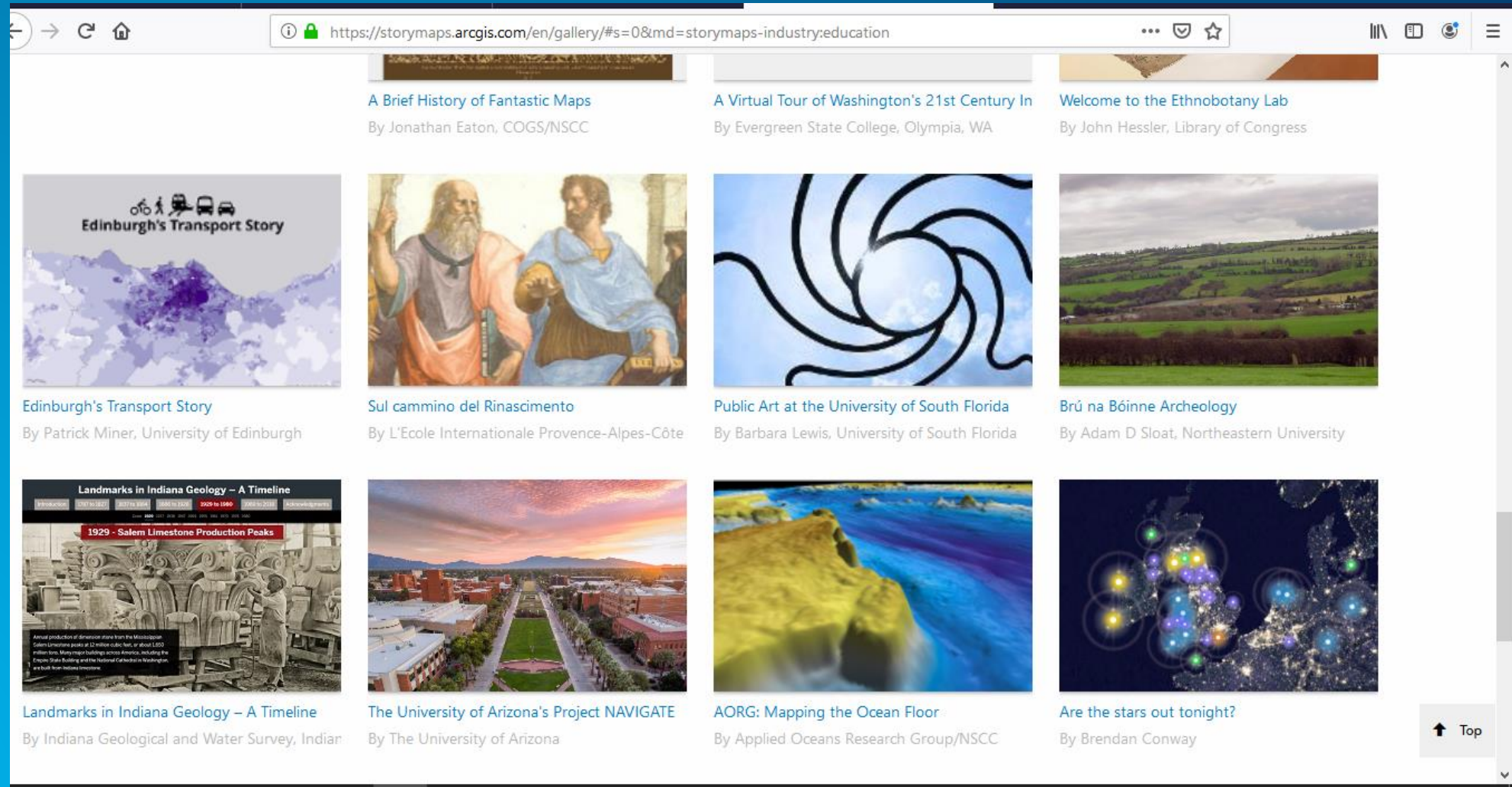
Autoplay next video

What is Survey123?
Esri UK Ed Team

How to create a fo...
Esri UK Ed Team

How to publish a ...
Esri UK Ed Team

StoryMaps: Publish your Results to the Rest of the World



The screenshot displays the StoryMaps gallery website, which is a platform for sharing interactive maps and stories. The website is organized into a grid of story cards, each featuring a thumbnail image, a title, and the author's name. The browser's address bar shows the URL: <https://storymaps.arcgis.com/en/gallery/#s=0&md=storymaps-industry:education>. The story cards include:


- A Brief History of Fantastic Maps** By Jonathan Eaton, COGS/NSCC
- A Virtual Tour of Washington's 21st Century In** By Evergreen State College, Olympia, WA
- Welcome to the Ethnobotany Lab** By John Hessler, Library of Congress
- Edinburgh's Transport Story** By Patrick Miner, University of Edinburgh
- Sul cammino del Rinascimento** By L'Ecole Internationale Provence-Alpes-Côte
- Public Art at the University of South Florida** By Barbara Lewis, University of South Florida
- Brú na Bóinne Archeology** By Adam D Sloat, Northeastern University
- Landmarks in Indiana Geology – A Timeline** By Indiana Geological and Water Survey, Indiana
- The University of Arizona's Project NAVIGATE** By The University of Arizona
- AORG: Mapping the Ocean Floor** By Applied Oceans Research Group/NSCC
- Are the stars out tonight?** By Brendan Conway

A "Top" button is visible in the bottom right corner of the page.

Towson University Tree Tour

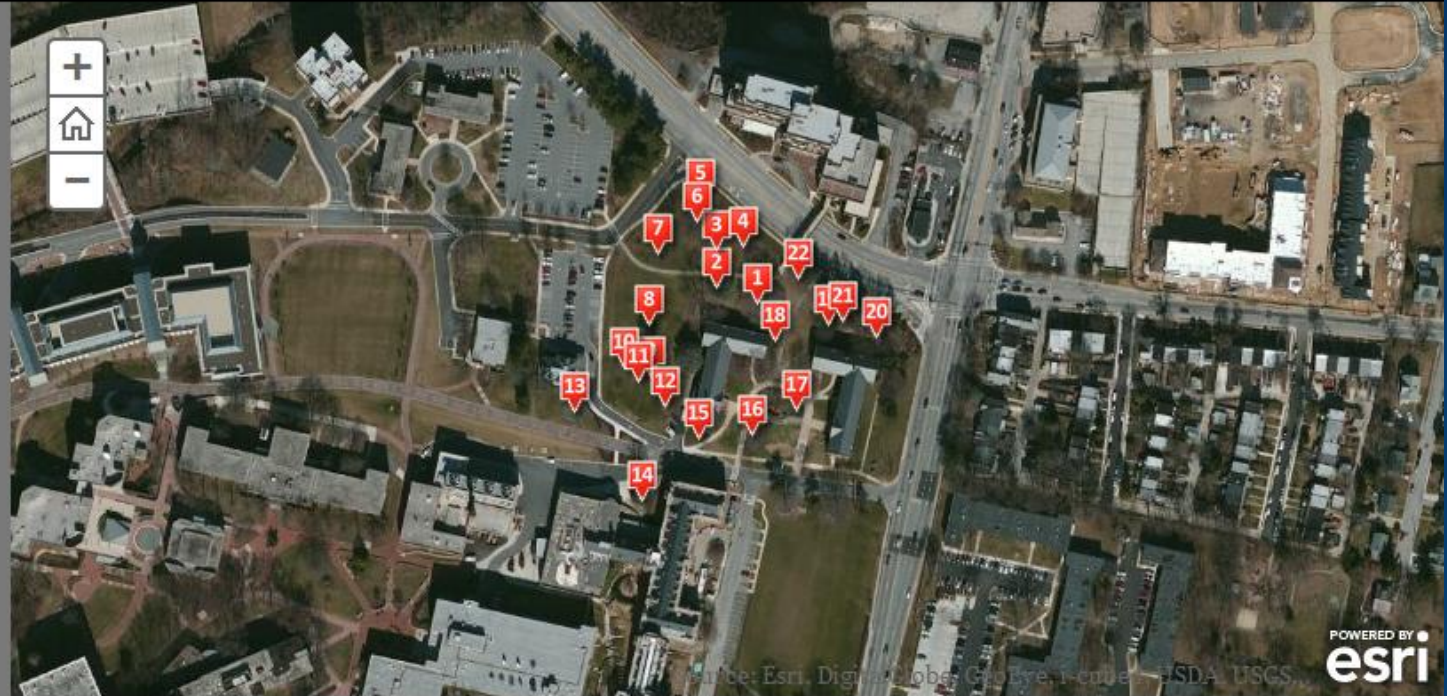
A story map [f](#) [t](#)

A tour of some of our campus trees.



Welcome to the Towson University Tree Tour!

The purpose of this short self-guided walking tour is to call attention to the trees of Towson and provide a brief respite from the demands of the day. This website provides a tree trail map, a brief description of each tree on the walk, a photograph of the tree, and a close-up photograph of the leaves. Once completed, it will also provide a downloadable version of the brochure currently being edited. We hope you find the tour an informative and relaxing experience.



American Beech



Atlas Cedar



Black Locust



Sugar Maple



Red Maple



Northern Red Oak



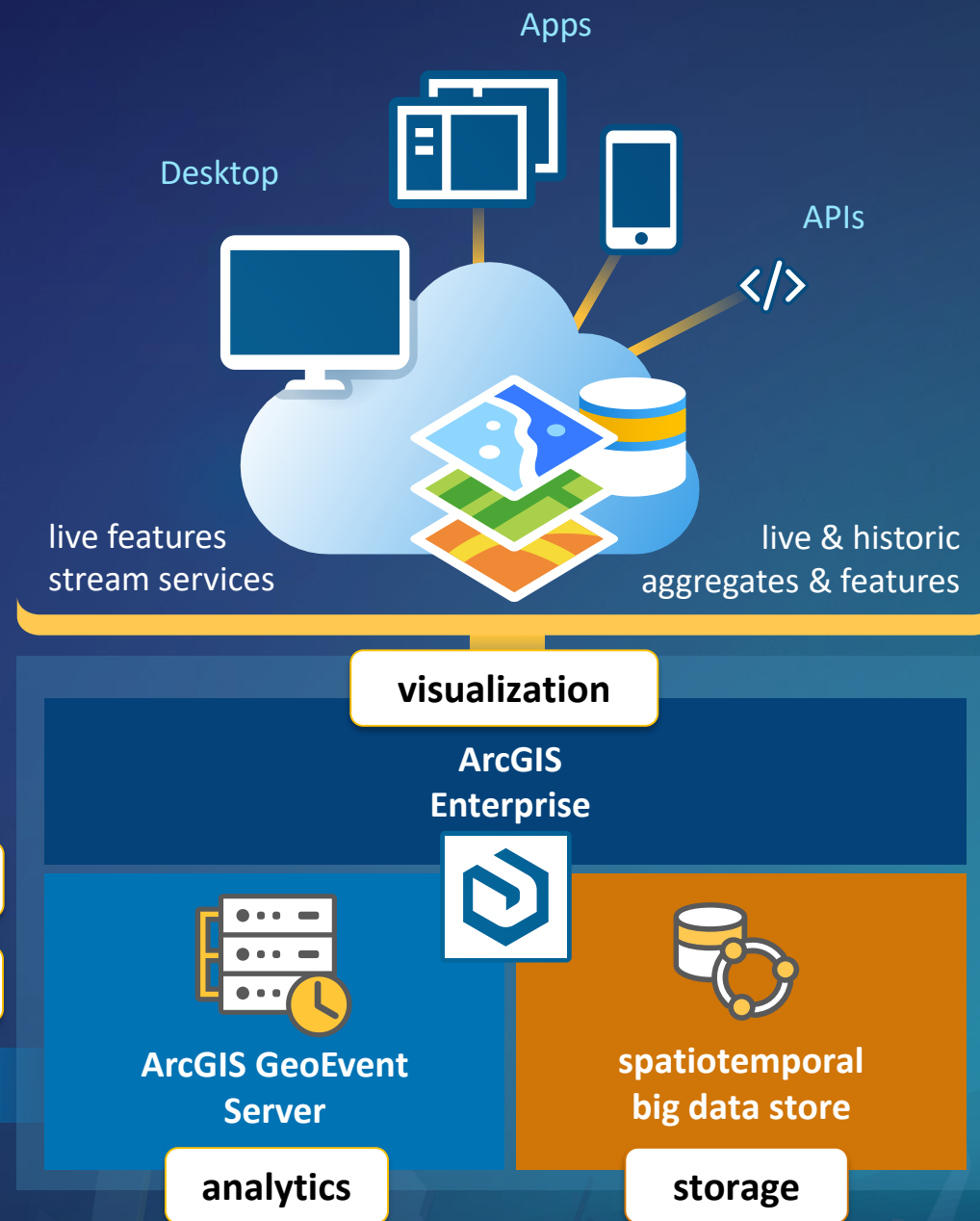
Horse Chestnut



Japanese Flowering
Crabapple

ArcGIS Enterprise

with real-time capabilities



Integration with External Frameworks





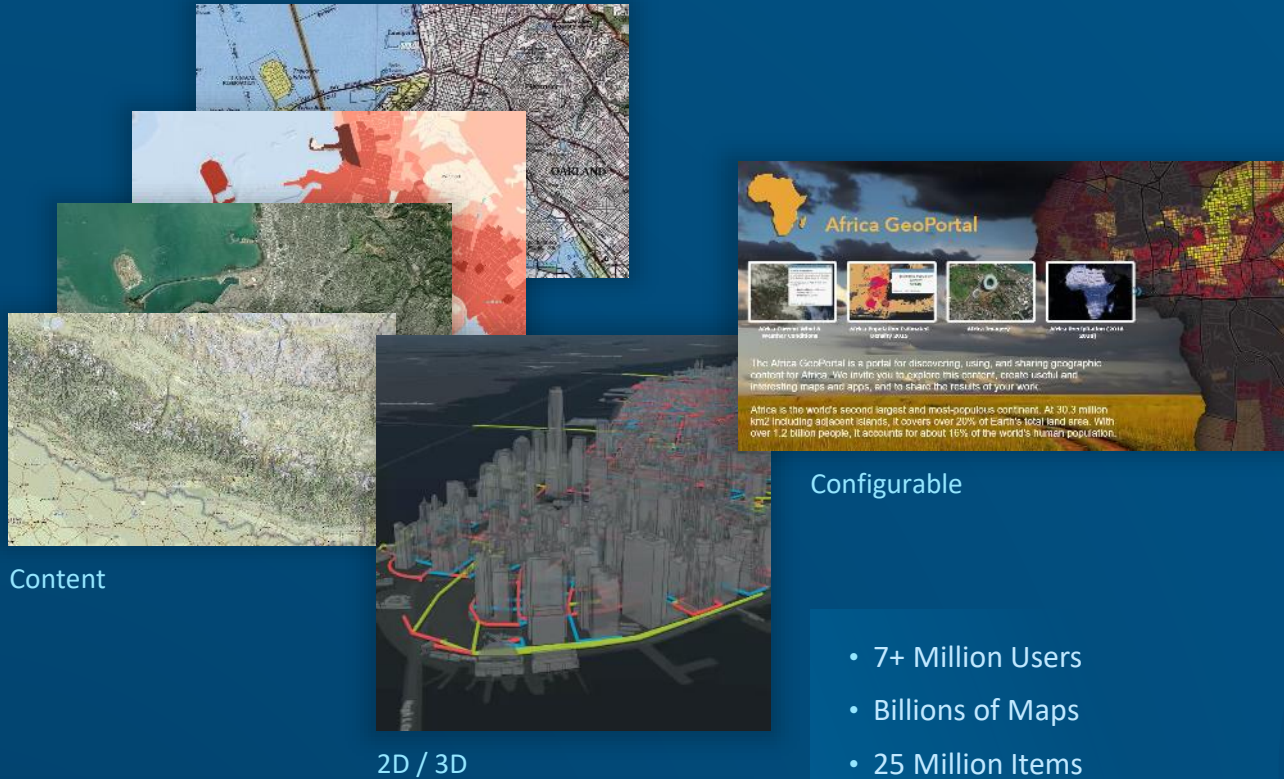
Now GIS lives across an Organisation & Community

Powered by the GIS Professionals. . .

. . . But in the Hands of Everyone



ArcGIS Online Complete Mapping and Location Platform



World's Largest Mapping
and Data-Sharing Ecosystem

Configurable

- 7+ Million Users
- Billions of Maps
- 25 Million Items
- 150k Open Datasets

New and Improved

- User Types
- Search
- Large Organization Administration
- Configurable Basemaps (Vector Feature Tiles)
- Smart Mapping Styles
- 3D
- New StoryMaps

Coming

- New Map Viewer
- Bulk User & Item Management
- Org-to-Org Collaboration
- Tracking
- Notebooks
- Hosted Imagery
- IoT Integration



New Best Practices

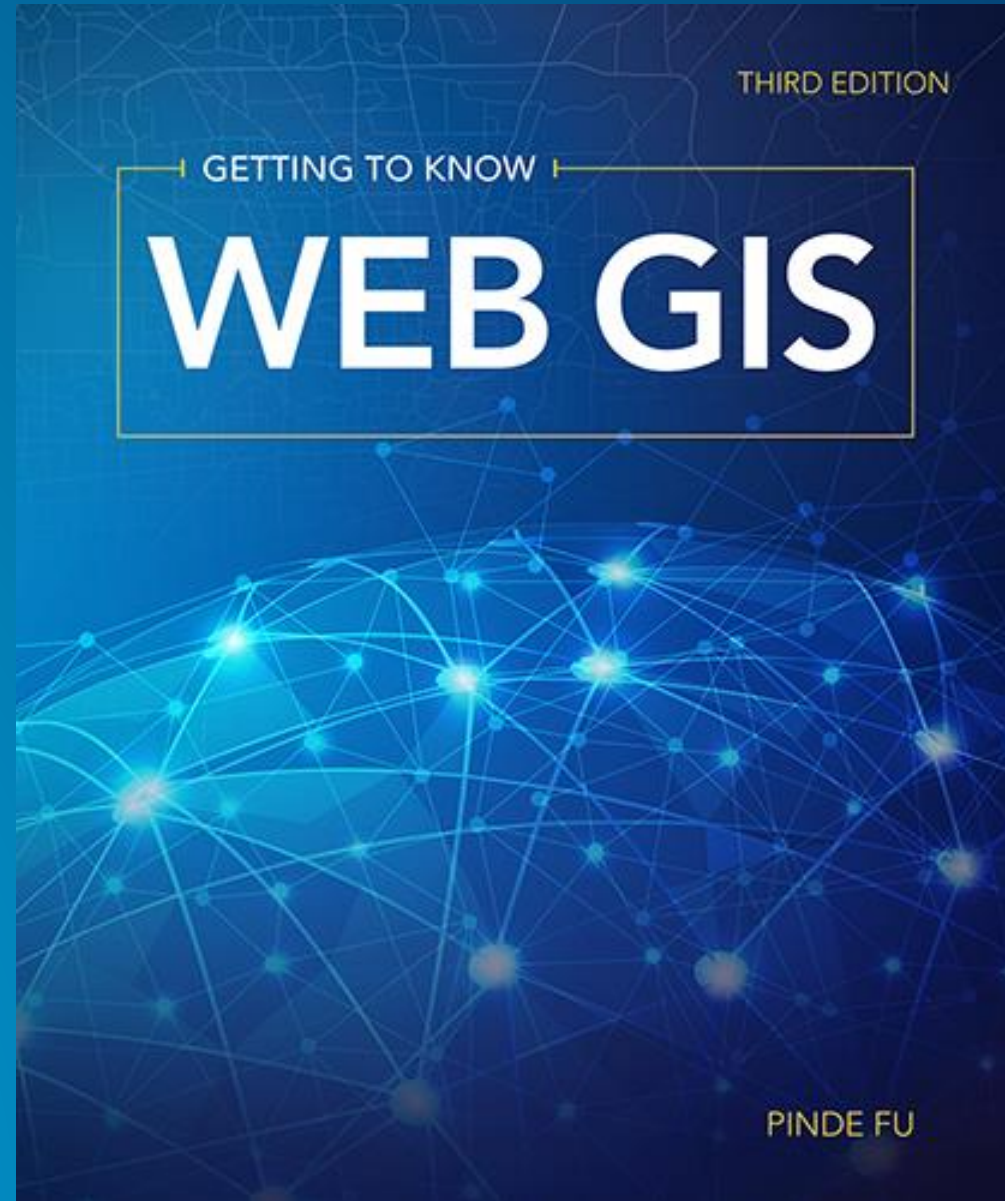
- ArcMap > Pro (modern Desktop)
- Shapefiles > Geodatabases
- Geodatabases > Feature Services
- Build Apps that consume Feature Services
- Minimize Downloading of Data > Process Data where they Live
- Create Unique GeoData (results) and SHARE them > Arc GIS Online

Esri Resources to Help you Transform

Modern GIS, WebGIS.

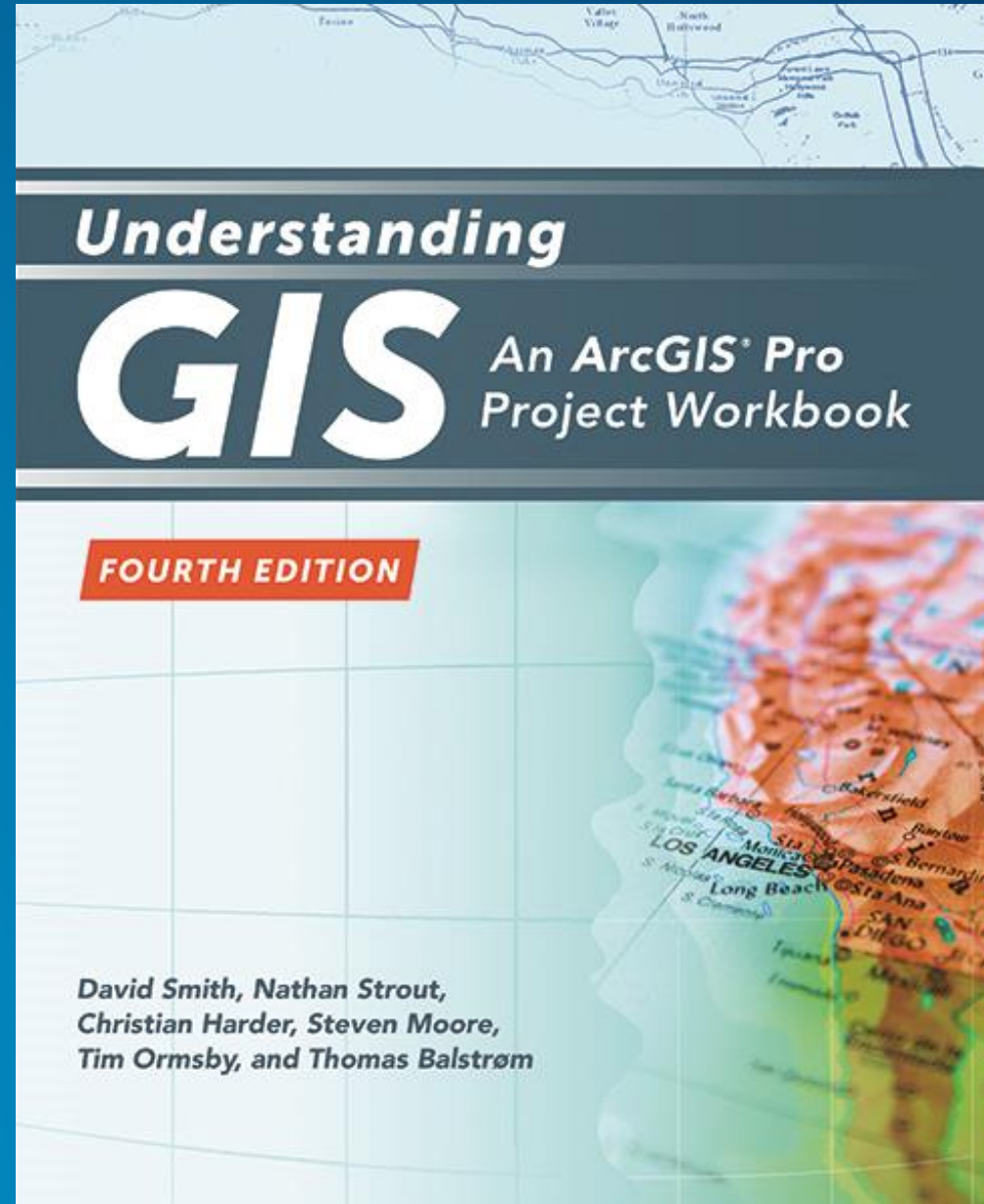
Now Available in e-book format

Concepts and Practical Exercises



Learning Pro

Project-Based (Los Angeles River)



Learning ArcGIS: Esri Training Web Courses

The screenshot shows the Esri Training Web Courses search results page. The browser address bar displays <https://www.esri.com/training/catalog/search/>. The page features a 'Browse by Topic' section with nine categories: Getting Started, Mapping & Visualization, Analytics, Data Management, Sharing & Collaboration, Scripting & Development, Design & Planning, Field Mobility, and Monitoring. Below this, the search results are displayed, showing 'Viewing: 169 Results' with a 'Clear Search' link. The filters section includes 'FORMATS' set to 'Web Courses', 'PRODUCTS' set to 'Viewing All', and checkboxes for 'Maintenance' and 'Free'. The 'SORT' dropdown is set to 'Recently Added', and the 'VIEW' options are set to a grid view. The first three results are highlighted with a 'NEW' badge in the top right corner. Each result card includes the text 'WEB COURSE', the course title, the duration, and a lock icon indicating 'Requires Maintenance'.

Browse by Topic

- Getting Started
- Mapping & Visualization
- Analytics
- Data Management
- Sharing & Collaboration
- Scripting & Development
- Design & Planning
- Field Mobility
- Monitoring

Viewing: 169 Results [Clear Search](#)

FORMATS **Web Courses** PRODUCTS **Viewing All** ☐ Maintenance ☐ Free SORT **Recently Added** VIEW

WEB COURSE **Creating a Map Layout**
1 Hour, 15 Minutes
Requires Maintenance

WEB COURSE **Labeling Map Features**
1 Hour, 35 Minutes
Requires Maintenance

WEB COURSE **Creating a Space-Time Cube**
40 Minutes
Requires Maintenance

Learn.arcgis.com

←

→

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🏠

🔒 <https://learn.arcgis.com/en/gallery/>

⋮

🔒

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📖

📄

🗣️

☰

Learn ArcGIS Lesson Gallery Teach with GIS

👤 Sign In English ▾

Lesson Gallery

🔍 Enter a product name or keyword like 'Get started'

Filter

All capabilities ▾

All capabilities

Administration

Mapping & Visualization

Sharing & Collaboration


Data Collection & Management

Imagery & Remote Sensing

Spatial Analytics

3D GIS

Real-time GIS




LESSON

Expand a Small Business

Analyze your most successful stores to identify unique attributes. Apply these factors to your search for an expansion location as criteria correlated to success.

🕒 2 hr




LESSON

Downscale Climate Data with Machine Learning

Analyze the relationship between simulated global circulation model variables and energy transfer in the atmosphere.

🕒 4 hr

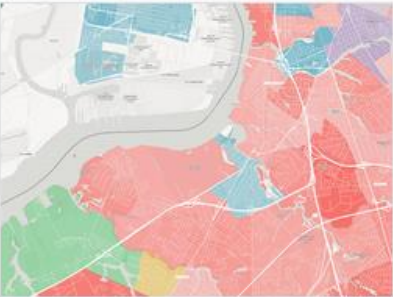


LESSON

The Power of Maps

Explore five maps that inspire and engage.

🕒 50 min



PATH

Try Arcade

Get started with the essentials of Arcade expressions.

🕒 1 hr 7 min

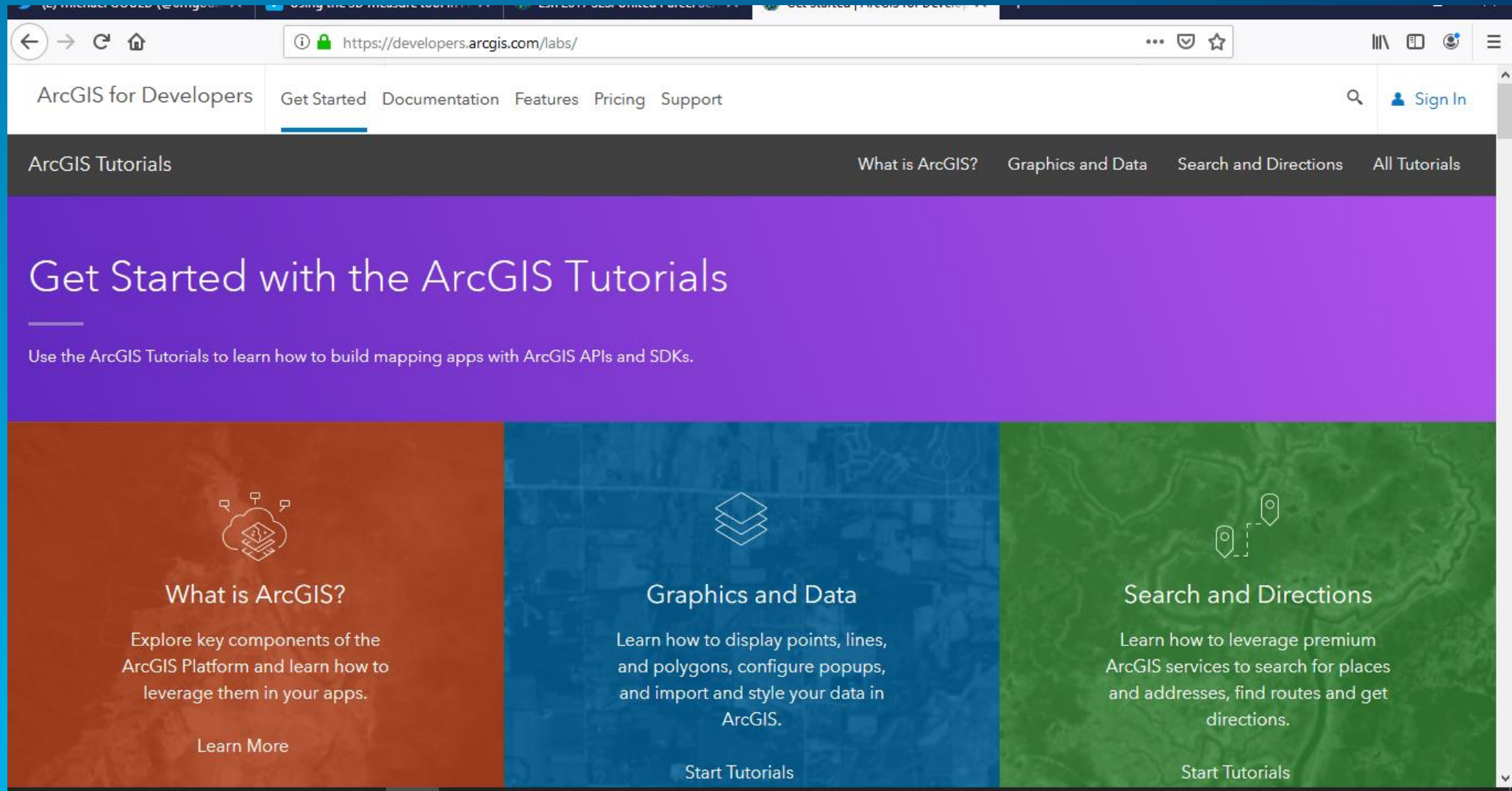
Transferring data from learn.arcgis.com...

Learning ArcGIS: MOOCs

The screenshot displays the Esri MOOC page at <https://www.esri.com/training/mooc/>. The page features five course cards arranged in a grid. Each card includes a thumbnail image, the course title, duration, cost, and a rating with the number of reviews.

Course Title	Duration	Cost	Rating (Reviews)
Going Places with Spatial Analysis	6 Weeks	Free	4.5 (3100)
Do-It-Yourself Geo Apps	4 Weeks	Free	4.5 (2335)
Cartography.	6 Weeks	Free	4.5 (9928)
Earth Imagery at Work	6 Weeks	Free	-
The Location Advantage	6 Weeks	Free	-

Learning ArcGIS: Developer Labs




The screenshot shows the 'ArcGIS for Developers' website. The browser address bar displays 'https://developers.arcgis.com/labs/'. The navigation bar includes links for 'Get Started', 'Documentation', 'Features', 'Pricing', and 'Support'. A secondary navigation bar lists 'ArcGIS Tutorials', 'What is ArcGIS?', 'Graphics and Data', 'Search and Directions', and 'All Tutorials'. The main content area has a purple header with the text 'Get Started with the ArcGIS Tutorials' and a sub-header 'Use the ArcGIS Tutorials to learn how to build mapping apps with ArcGIS APIs and SDKs.' Below this, there are three colored cards: an orange card for 'What is ArcGIS?', a blue card for 'Graphics and Data', and a green card for 'Search and Directions'. Each card contains an icon, a title, a brief description, and a 'Learn More' or 'Start Tutorials' button.

ArcGIS for Developers | Get Started | Documentation | Features | Pricing | Support | Sign In

ArcGIS Tutorials | What is ArcGIS? | Graphics and Data | Search and Directions | All Tutorials

Get Started with the ArcGIS Tutorials


Use the ArcGIS Tutorials to learn how to build mapping apps with ArcGIS APIs and SDKs.



What is ArcGIS?

Explore key components of the ArcGIS Platform and learn how to leverage them in your apps.


[Learn More](#)



Graphics and Data

Learn how to display points, lines, and polygons, configure popups, and import and style your data in ArcGIS.

[Start Tutorials](#)



Search and Directions

Learn how to leverage premium ArcGIS services to search for places and addresses, find routes and get directions.

[Start Tutorials](#)

Living Atlas

Ready-to-Use Maps and Data

Compiled from the Best Available Sources

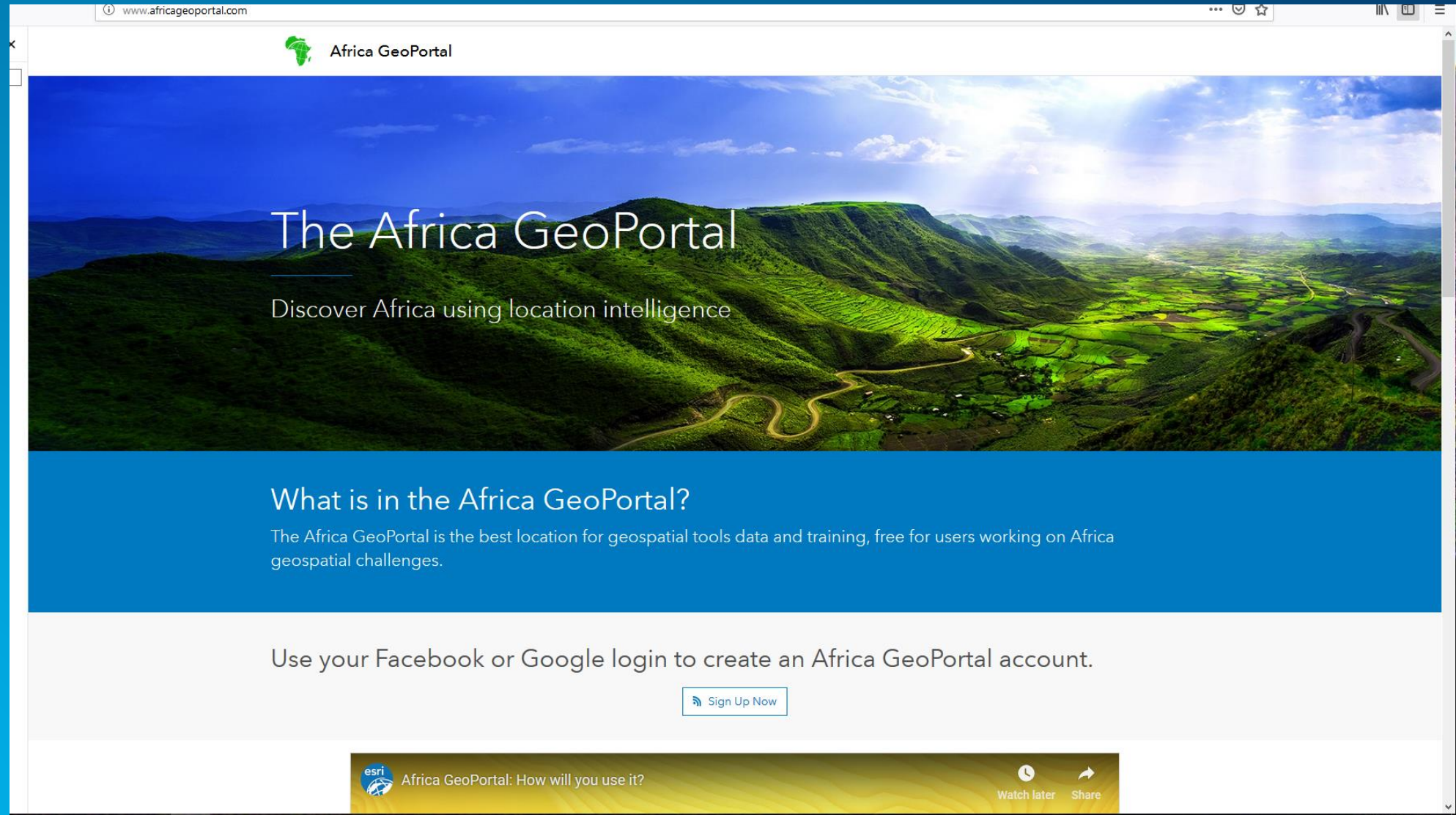
Basemaps | Imagery | Demographics | Landscape

Thousands of Maps & Layers

Tens of Thousands of Open Datasets

Millions of User Contributions . . . Billions of Views per Week

Localized Content: africageoportal.com



Summary

- Digital Transformation is Real
- Industry Transforming, Governments Transforming
 - Therefore... GIS Industries are Transforming: WebGIS, Data Sharing.
- GIS Education is Transforming
- Esri is ready to help you. Seeking more Pioneers.



Thank You

mgould@esri.com
[@0mgould](https://twitter.com/0mgould)