

THE SCIENCE OF WHERE ™

ArcGIS Pro 2.5 Functionality Every GIS Professional Should Know

Sepideh Sepehr, Technical Solutions Specialist Emilie Rabeau, Technical Solutions Specialist May 13, 2020

Today's Speakers





Sepideh Sepehr Technical Solutions Specialist

Emilie Rabeau Technical Solutions Specialist



Surveys and Recordings

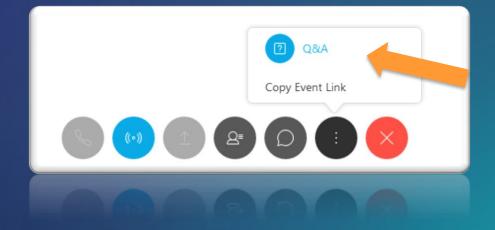
- We are recording today
- Expect an email from us with link
- Please share your thoughts on the exit survey

Open to Questions

- Please use the Q&A panel:
 - Choose Ask: All Panelists, type your question and click Send

Ask:	All Panelists		
	ect a panelist in the Ask menu first and then type ar question here. There is a 256-character limit.	Send	
200			

 If you're unable to see the Q&A panel, click the three dots and then the Q&A button on the control dock at the bottom of your screen:



Today's Agenda

This webinar is designed to help you understand:

- 1. Explore productivity enhancements in ArcGIS Pro 2.5
- 2. Discover advancements in spatial data science workflows
- 3. Learn about advanced 3D functions

<u>We All</u> Have Problems We Are Trying to Solve!



Productivity enhancements

Tools that help you get the work done!

Table Enhancements

- The new Find and Replace functionality allows you to search tabular data
- Ability to freeze one or more columns with the Free/Unfreeze Field tool

 Set a default docking location for attribute tables

	t's New in ArcGIS I	Pro - Thundersto	rm Warnings 2019 ·	- ArcGIS Pro	Table	Feature Lay	rer				?	-	0
Project Map Insert Analysis V	view Edit	Imagery	Share Space	e-Time Cube Explore	r View	Appearance Labe	ling Data				👸 Ar	nkita (Hiv	e2) • 🎝
Contents + 4 ×	What's New	a 🗙 🞾 Weath	her_Warning_Predo	minance									
Γ Search													
Drawing Order What's New Upht Gray Reference Counties Chart Symbology V State Boundaries	1:23,700,526	· · ·			70.342	6500°W 32.3119254*N 🗢				a Selec	ted Feat	ures: 0	(E)
 ✓ State boundaries ✓ Thunderstorms 	III Thunderste	orm Warnings 20	_										
Thunderstorm Overlapping Polygons	Field: Add	Calculate	Selection:	eom To 🖶 Switch		elete @Copy							
▲ 📝 Thunderstorm Warnings 2019	OBJECT -			EXPIRED	Date	Type of Warning	INIT_ISS	IN 🗸	0	d Aliases			13
	1		201908082105	201908082145	8/8/2019	Severe Thunderstorm	201908082105	20	1 COLLEGE COMPA				
Charts	1	Polygor RLX Polygor MAF						and the second	Show All Reset Fie	Fields			
Charts	1 2 3	Polygor RLX	201908082105	201908082145	8/8/2019	Severe Thunderstorm	201908082105	20 20	Show All Reset Fie	Fields Id Order			
Charts	1 2 3 4	Polygor RLX Polygor MAF	201908082105 201905052200	201908082145 201905052300	8/8/2019 5/5/2019	Severe Thunderstorm SV	201908082105 201905052200	20 20 20	Show All Reset Fie Fields Vie	Fields Id Order ew	ubtype d	escription	ns
Charts Marts Additional Data	1 2 3 4 5	Polygor RLX Polygor MAF Polygor CLE	201908082105 201905052200 201908182009	201908082145 201905052300 201908182130	8/8/2019 5/5/2019 8/18/2019	Severe Thunderstorm SV Severe Thunderstorm	201908082105 201905052200 201908182009	20 20	Show All Reset Fie Fields Vie Show do	Fields Id Order tw main and si	ubtype d	escription	ns
Charts Charts Thunderstorm Calendar Heat Chart Additional Data Ught Gray Base	1 2 3 4 5 6	Polygor RLX Polygor MAF Polygor CLE Polygor GSP	201908082105 201905052200 201908182009 201907192139	201908082145 201905052300 201908182130 201907192230	8/8/2019 5/5/2019 8/18/2019 7/19/2019	Severe Thunderstorm SV Severe Thunderstorm SV	201908082105 201905052200 201908182009 201907192139	20 20 20 5 20 5 20 10 20 10	Show All Reset Fie Fields Vie Show do Continge	Fields Id Order tw main and si ent Values	ubtype d	escription	ns >
Charts Charts Thunderstorm Calendar Heat Chart D Additional Data Upht Gray Base A Standalone Tables	1 2 3 4 5 6 7	Polygor RLX Polygor MAF Polygor CLE Polygor GSP Polygor GGW	201908082105 201905052200 201908182009 201907192139 201907310149	201908082145 201905052300 201908182130 201907192230 201907310245	8/8/2019 5/5/2019 8/18/2019 7/19/2019 7/31/2019	Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm	201908082105 201905052200 201908182009 201907192139 201907310149	20 20 20 20 20 20 20	Show All Reset Fie Fields Vie Show do Continge Joins and	Fields Id Order ew main and si ent Values d Relates	ubtype d	escription	ns F
Charts Charts Thunderstorm Calendar Heat Chart Additional Data J Light Gray Base	1 2 3 4 5 6 7 8	Polygor RLX Polygor MAF Polygor CLE Polygor GSP Polygor GGW Polygor RAH	201908082105 201905052200 201908182009 201907192139 201907310149 201908132303	201908082145 201905052300 201908182130 201907192230 201907310245 201908132345	8/8/2019 5/5/2019 8/18/2019 7/19/2019 7/31/2019 8/13/2019	Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV	201908082105 201905052200 201908182009 201907192139 201907310149 201908132303	20 20 20 20 20 20 20 20	Show All Reset Fie Fields Vir Show do Conting Joins and Related I	Fields Id Order ew main and si ent Values d Relates Data		escription	ns F
Charts Charts Thunderstorm Calendar Heat Chart D Additional Data V Light Gray Base A Standalone Tables	1 2 3 4 5 6 7 8 9	Polygor RLX Polygor MAF Polygor CLE Polygor GSP Polygor GAW Polygor RAH Polygor ABQ	201908082105 201905052200 201908182009 201907192139 201907310149 201908132303 201907112256	201908082145 201905052300 201908182130 201907192230 201907310245 201908132345 201907112310	8/8/2019 5/5/2019 8/18/2019 7/19/2019 7/31/2019 8/13/2019 7/11/2019	Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV SV	201908082105 201905052200 201908182009 201907192139 201907192139 201908132303 201907112256	20 20 20 ₪ 20 20 20 20 20 20	Show All Reset Fie Fields Vie Show do Continge Joins and Related I Select rel	Fields Id Order ew main and si ent Values d Relates Data lated record		escription	ns Þ Þ
Charts Charts Thunderstorm Calendar Heat Chart D Additional Data Ught Gray Base A Standalone Tables	1 2 3 4 5 6 7 8	Polygor RLX Polygor MAF Polygor CLE Polygor GSP Polygor GGW Polygor RAH Polygor ABQ Polygor ICT	201908082105 201905052200 201908182009 201907192139 201907310149 201908132303 201907112256 201906160344	201908082145 201905052300 201908182130 201907192230 2019071310245 201908132345 201908132345 201907112310 201906160415	8/8/2019 5/5/2019 8/18/2019 7/19/2019 7/31/2019 8/13/2019 7/11/2019 6/16/2019	Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV SV SV Svere Thunderstorm	201908082105 201905052200 201908182009 201907192139 201907192139 201907110149 201908132303 201907112256 201906160344	20 20 20 ∰ 20 20 20 20 20 20 20	Show All Reset Fie Fields Vir Show do Conting Joins and Related I Select rel Find and	Fields Id Order ew main and si ent Values d Relates Data lated record Replace		escription	ns > >
Charts Charts Thunderstorm Calendar Heat Chart D Additional Data V Light Gray Base A Standalone Tables	1 2 3 4 5 6 7 8 9	Polygor RLX Polygor MAF Polygor CLE Polygor GSP Polygor GGW Polygor RAH Polygor ABQ Polygor ICT Polygor EAX	201908082105 201905052200 201908182009 201907192139 201907110149 201908132303 201907112256 201906160344 201906052128	201908082145 201905052300 201908182130 201907192230 201907192230 201907192345 201908132345 201908132345 201906160415 201906052143	8/8/2019 5/5/2019 8/18/2019 7/19/2019 7/31/2019 8/13/2019 7/11/2019 6/16/2019 6/5/2019	Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV SV Svere Thunderstorm Severe Thunderstorm	201908082105 201905052200 201908182009 201907192139 201907310149 201908132303 201907112256 201906160344 201906052128	20 20 20 20 20 20 20 20 20 20 20 20 20 2	Show All Reset Fie Fields Vii Show do Contingu Joins and Related I Select rel Find and Go to roo	Fields Id Order ew main and si ent Values d Relates Data lated record		escription	ns > >
Charts Charts Thunderstorm Calendar Heat Chart D Additional Data V Light Gray Base A Standalone Tables	1 2 3 4 5 6 7 8 9 10	Polygor RLX Polygor MAF Polygor CLE Polygor GSP Polygor GGW Polygor RAH Polygor ABQ Polygor ABQ Polygor GRB Polygor GRB	201908082105 201905052200 201908182009 201907192139 20190710149 201908132303 201907112256 201906160344 201906052128 201907201658	201908082145 201905052300 201908182130 201907192230 201907192230 201907112310 201907112310 201906160415 201906052143 201907201800	8/8/2019 5/5/2019 8/18/2019 7/19/2019 7/31/2019 8/13/2019 8/13/2019 7/11/2019 6/16/2019 6/5/2019 7/20/2019	Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV SV Severe Thunderstorm Severe Thunderstorm SV	201908082105 201905052200 201908182009 201907192139 201907192139 201907310149 201908132303 201907112256 201906160344 201906052128 201907201658	20 20 20 20 20 20 20 20 20 20 20 20 20 2	Show All Reset Fie Fields Vii Show do Contingu Joins and Related I Select re Find and Go to rom Export	Fields Id Order ew main and si ent Values d Relates Data lated record Replace		escription	ns F
Charts Charts Thunderstorm Calendar Heat Chart D Additional Data V Light Gray Base A Standalone Tables	1 2 3 4 5 6 7 8 9 10 11	Polygor RLX Polygor CLE Polygor GSP Polygor GGW Polygor RAH Polygor ABQ Polygor ICT Polygor EAX Polygor GRB Polygor CTP	201908082105 201905052200 201908182009 201907192139 201907192139 201908182009 201908182003 201907112256 201906160344 201906052128 201907201658 201905252005	201908062145 201905052300 201908182130 201907192230 201907192230 201907112310 201906160415 201906160415 201906160415 201906052143 201907201800 201905252045	8/8/2019 5/5/2019 8/18/2019 7/19/2019 7/31/2019 8/13/2019 7/11/2019 6/16/2019 6/5/2019 7/20/2019 5/25/2019	Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV SV Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm	201908082105 201905052200 201908182009 201907192139 201907310149 201908132303 201908132303 201908132303 201908132303 20190816344 201906052128 20190505128 201907201658	20 20 20 20 20 20 20 20 20 20 20 20 20 2	Show All Reset Fie Fields Vii Show do Continge Joins and Related I Select rel Find and Go to roo Export	Fields Id Order ew main and si ent Values d Relates Data lated record Replace		escription	ns • •
Charts Charts Thunderstorm Calendar Heat Chart D Additional Data Ught Gray Base A Standalone Tables	1 2 3 4 5 6 7 8 9 10 11 12	Polygor RLX Polygor CLE Polygor GSP Polygor GGW Polygor RAH Polygor ABQ Polygor ICT Polygor GR8 Polygor GR8 Polygor GR2 Polygor CTP Polygor OUN	201902082105 201905052200 201908182009 201907192139 201907310149 201908132303 201907112256 201906160344 20190052128 20190052128 2019005252005 201908181736 201908301247	201908062145 201905052300 201908182130 201907192230 201907192230 201907112310 201906160415 201906160415 201906052143 201906052143 201905252045 201908181830 201908301330	8/8/2019 5/5/2019 8/18/2019 7/19/2019 7/31/2019 8/13/2019 8/13/2019 6/16/2019 6/5/2019 7/20/2019 5/25/2019 8/18/2019 8/30/2019	Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV SV Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV	201908082105 201905052200 201908182009 201907192139 20190710149 201908132303 201907112256 201906160344 20190615032128 201907201658 201907201658 201905252005 201908181736	20 20 20 20 20 20 20 20 20 20 20 20 20 2	Show All Reset Fie Fields Vii Show do Contingi Joins and Related I Select rel Find and Go to ro Export 301330	Fields Id Order ew ent Values d Relates Data lated record Replace w number	ls		ns; , ,
Charts Charts Charts Charts Additional Data Clight Gray Base Standalone Tables	1 2 3 4 5 6 7 8 9 10 11 12 13	Polygor RLX Polygor CLE Polygor GSP Polygor GGW Polygor RAH Polygor ABQ Polygor ICT Polygor EAX Polygor GRB Polygor CTP	201902082105 201905052200 201908182009 201907192139 201907102139 201908182203 201907112256 201906160344 2019062128 201907201658 201905252005 201908181736	201908062145 201905052300 201908182130 201907192230 201907192230 201907112310 201906160415 201906160415 201906052143 201907201800 201905252045 201908181830	8/8/2019 5/5/2019 8/18/2019 7/19/2019 7/31/2019 8/13/2019 7/11/2019 6/16/2019 6/16/2019 7/20/2019 5/25/2019 8/18/2019	Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm SV Severe Thunderstorm	201908082105 201905052200 201908182009 201907192139 20190710149 201908132303 201907112256 201906160344 201906052128 20190625128 201907201658 201905252005 201908181736 201908301247	20 20 20 20 20 20 20 20 20 20 20 20 20 2	Show All Reset Fie Fields Vii Show do Conting Joins and Related I Select rel Find and Go to ro Export 301330 142345	Fields Id Order ew ent Values d Relates Data lated record Replace w number	ls P	W	nsi F

NEW



Chart Symbology

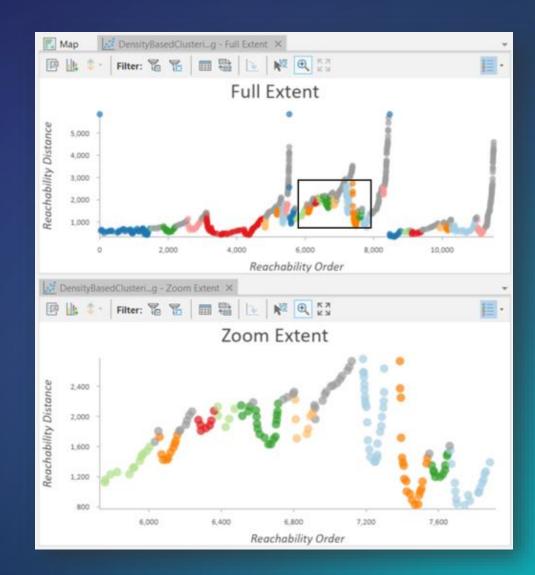
- <u>Chart symbology</u> has been added for point, line and polygon features.
- Pies, bars and stacked bars are available
- Charts can be sized proportionally



NEW

Enhancements with Charts

- Chart data is rendered faster and asynchronously.
- All charts with axes have zooming and panning functionality



Demonstration I

ArcGIS Notebooks

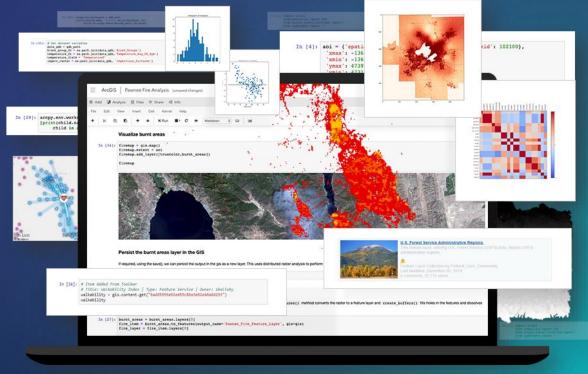
Five Tips To Get You Started With Jupyter Notebook

Introducing ArcGIS Notebooks in ArcGIS Pro

Learn more about ArcGIS Notebooks

ArcGIS Notebooks in ArcGIS Pro

Sample notebooks



NEW

Demonstration II

Review and Questions

Advancements in Spatial Data Science

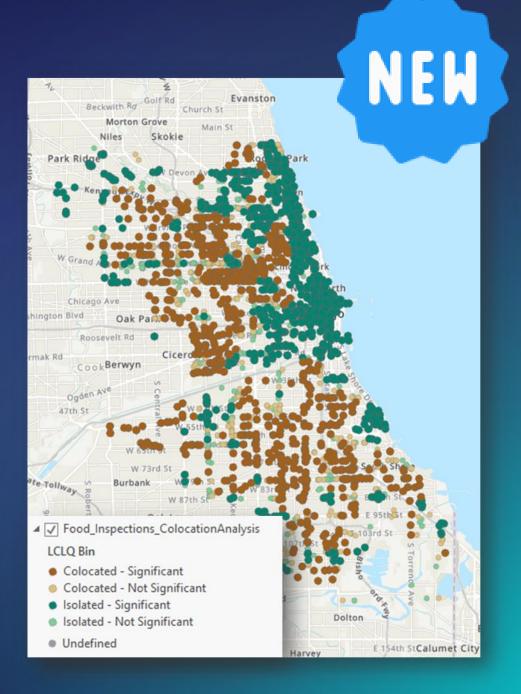
Colocation Analysis

Problem

I want to know if two types of features in my dataset happen near each other in a way that is meaningful

Solution

Use spatial statistics to evaluate if the colocation of two categorical variables, or two sets of features, is statistically significant



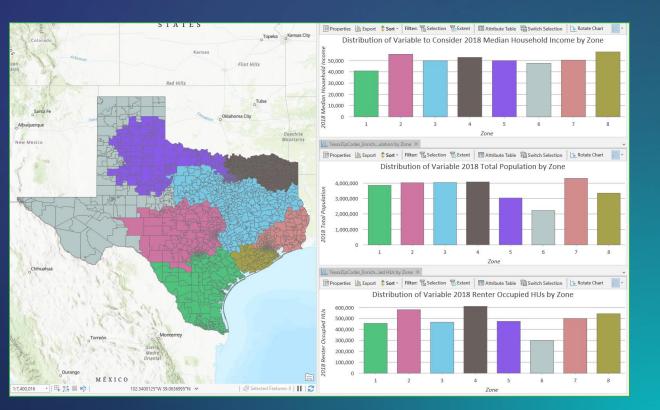
Build Balanced Zones

Problem

I want to create homogenous zones that are similar to each other in terms of a number of different characteristics and thresholds

Solution

Use machine learning techniques to find contiguous, homogenous zones based on criteria set by the user.



Local Bivariate Relationships

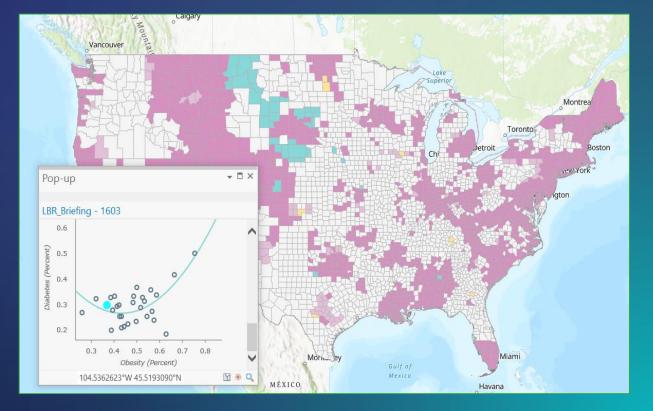
Problem

I want to build on my bivariate visualization and start to really understand if the patterns that I'm seeing are meaningful.

Solution

Use statistical techniques to evaluate the local relationship between two variables





Geoprocessing CHIME Model v1.1.1 Parameters Environments Field-Based Model Parameters Doubling Time in Days (Up to Today) Social Distancing % (Reduction in Social Contact Going Forward) Hospitalization % (Total Infections) ICU % (Total Infections) Ventilated % (Total Infections) Infectious Days Average Hospital Length of Stay (Days) Average Days in ICU

Daily Hospital Census Projections

€

LA JONE ANT

 Hospitalood Ca ICU Census

- 計算 22 目 -

ally Hospital Census Projection

110.005

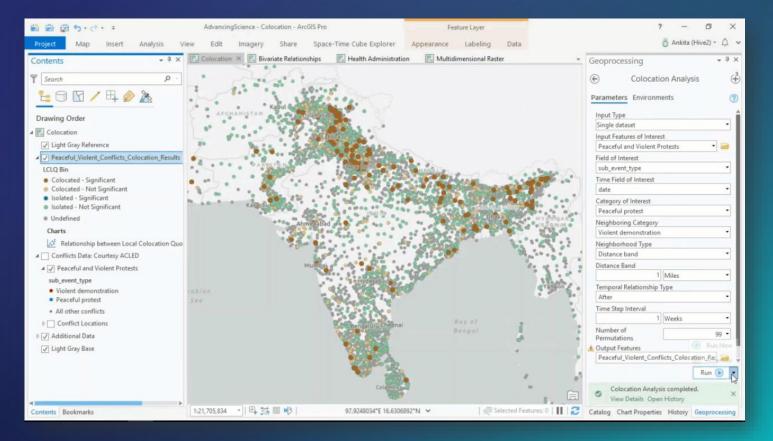
ArcGIS Pro COVID-19 Modeling Toolbox

- The CHIME model provides up-todate estimates of how many people will need to be hospitalized, and of that number how many will need ICU beds and ventilators.
- It also factors social distancing policies and how they might impact disease spread.

Find the <u>CHIME Geoprocessing Tool here</u>.

Tools that help you get the work done!

 Ability to <u>schedule analytical</u> <u>tools</u> to run later or with recurrence

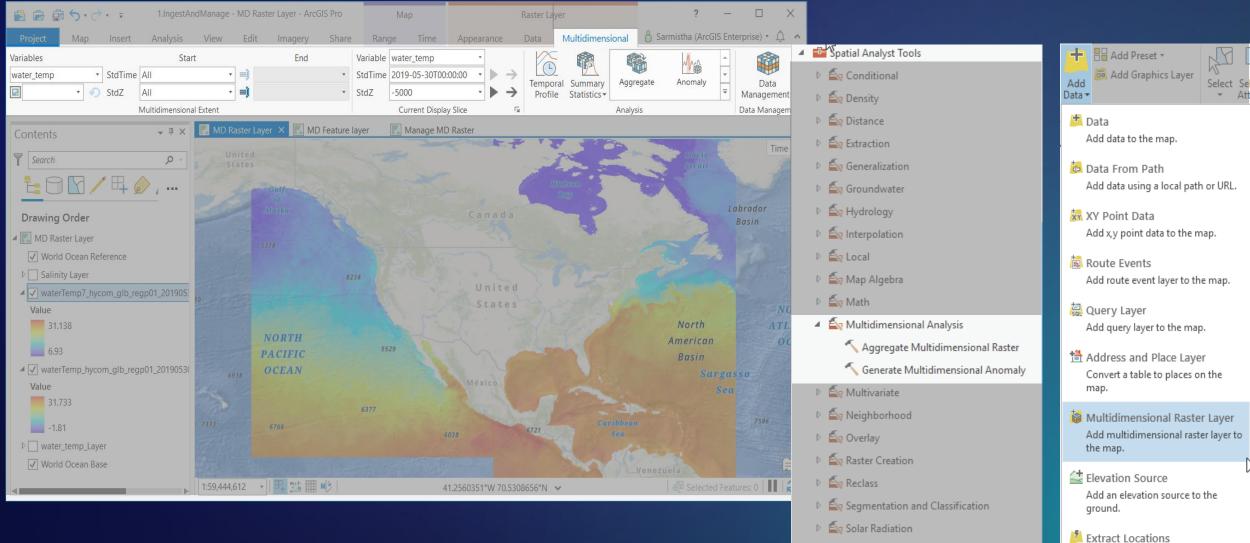


NEW



Demonstration III

Working with Multidimensional Data



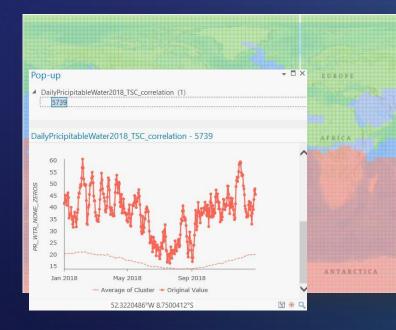
▷ Surface

🕑 🏠 Zonal

Add data extracted from documents to a map



- <u>Time Series Clustering</u> tool
- <u>Create Space Time Cube from Multidimensional</u> <u>Raster Layer</u> tool





NEW

Demonstration IV

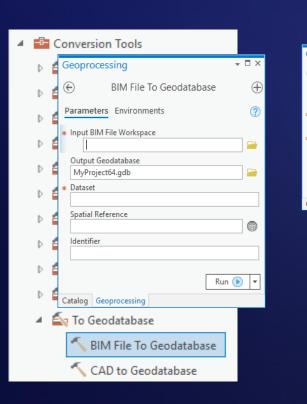
Review and Questions

3D Functionalities

Revit

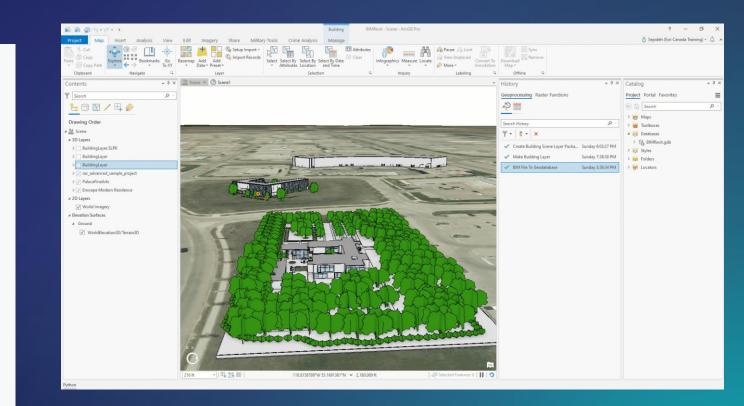
Handling multiple BIM datasets

- BIM File to Geodatabase
- Make Building Layer



Data Management Tools 4 Archiving Attachments Attribute Rules Contingent Values Data Comparison - □ × Geoprocessing € \oplus Make Building Layer Parameters Environments ? Input Feature Dataset F Output Layer Run 🕟 🔻 Catalog Geoprocessing Geodatabase Administration Indexes I Solors and Relates LAS Dataset A Layers and Table Views Apply Symbology From Layer

Make Building Layer

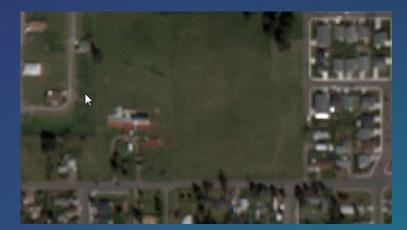


NEW

Pixel Editor

Operations have been added to the Pixel Editor:

- Custom Processing
- Interpolate from Edges
- Replace pixels



×

Close Pixel

Editor

Close

New



Tools that help you get the work done!

The output Python code generated by the **Export To Python File** and **Send To Python Window** commands has been enhanced.





New at Pro 2.5

• Building scene layer

Pro 2.4

- <u>3D Slice</u>, Merge, & Explode
- <u>Water effects</u>
- Cut & Fill tools
- Profile Viewing
- <u>3D Empirical Bayesian</u>
 <u>Kriging</u>

- Mobile Scene Packages
- <u>Multi BIM File to GDB</u>
- New 3D Editing Options
- <u>Building Scene Layer</u>

Performance Updates

<u>3D symbols styles</u>

Midterm +

- Civil 3D DWG import
- BIM 360 Catalog view
- Color & Texture Support
 from Revit
- Voxel desktop UX
- Voxel web experience
- IFC Import (Future)
- Indoor navigation in 3D scenes

New at Pro 2.5

• Building scene layer

Pro 2.4

- <u>3D Slice</u>, Merge, & Explode
- <u>Water effects</u>
- Cut & Fill tools
- Profile Viewing
- <u>3D Empirical Bayesian</u>
 <u>Kriging</u>

- Mobile Scene Packages
- <u>Multi BIM File to GDB</u>
- <u>New 3D Editing Options</u>
- <u>Building Scene Layer</u>

Performance Updates

<u>3D symbols styles</u>

Midterm +

- Civil 3D DWG import
- BIM 360 Catalog view
- Color & Texture Support
 from Revit
- Voxel desktop UX
- Voxel web experience
- IFC Import (Future)
- Indoor navigation in 3D scenes

New at Pro 2.5

• Building scene layer

Pro 2.4

- <u>3D Slice</u>, Merge, & Explode
- <u>Water effects</u>
- Cut & Fill tools
- Profile Viewing
- <u>3D Empirical Bayesian</u>
 <u>Kriging</u>

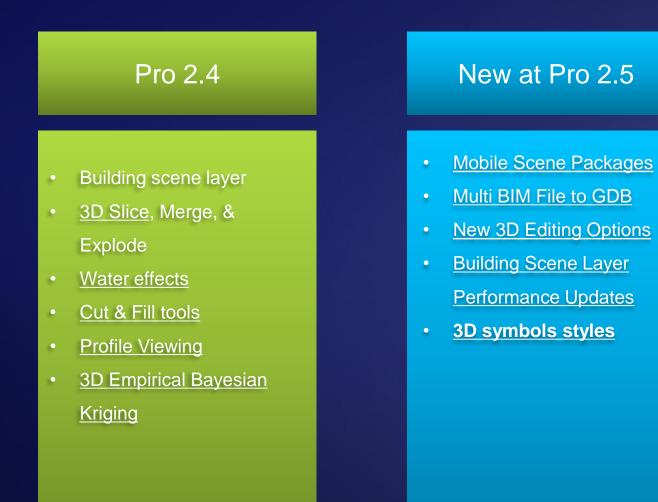
- Mobile Scene Packages
- <u>Multi BIM File to GDB</u>
- New 3D Editing Options
- <u>Building Scene Layer</u>

Performance Updates

<u>3D symbols styles</u>

Midterm +

- Civil 3D DWG import
- BIM 360 Catalog view
- Color & Texture Support
 from Revit
- Voxel desktop UX
- Voxel web experience
- IFC Import (Future)
- Indoor navigation in 3D scenes



Midterm +

- Civil 3D DWG import
- BIM 360 Catalog view
- Color & Texture Support from Revit
- Voxel desktop UX
- Voxel web experience
- IFC Import (Future)
- Indoor navigation in 3D

scenes

Review and Questions

Summary

In this webinar you learned about:

- Productivity enhancements like the Find and Replace tool and scheduling;
- Some great spatial data science tools like Colocation Analysis tool;
- Discovered available enhancements in 3D capabilities.



 ArcGIS Pro 2.5 has delivered over 60 user-requested enhancements, many of them being ArcMap equivalency requests.

Visit the <u>ArcGIS Ideas</u> site to view the status of a request or to submit a new idea!

ArcGIS[®] Pro Roadmap



Near-term

- Map Graphics
- Parcel Adjustment
- Trace Networks
- Non-Spatial Objects in Utility Networks
- Voxel Layers
- Mesh Manipulation
- Geoprocessing Leveraging Spatial Databases
- Interactive Suitability Analysis
- Link Analysis
- New Extensions & Solutions
- GPS Support
- Bivariate Symbology
- Data Engineering

Mid-term

- Catalog Layers
- Linear Reference Editing
- Knowledge Graphs
- Big Data Connections
- Projects in the Enterprise
- Material Textures
- Multipatch Editing Enhancements
- Multipatch Editing in Stereo
- Layer Blend Modes
- Presentations
- Dynamic Feature Clustering
- Voxel Layer Sharing
- Animated Symbols

Long-term

- Terrain Editing
- 3D Mesh as ground
- High Fidelity rendering

Are you currently working from home?

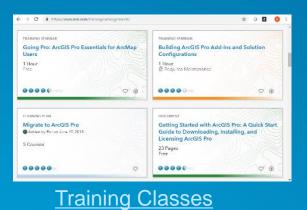
Blogs

- How to access Esri technology while working from home
- <u>Comment accéder à la technologie Esri tout en traivaillant à la maison</u>
- Working Well Remotely

Webinars:

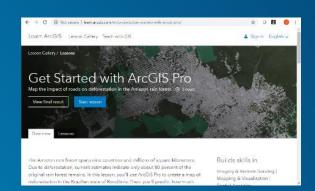
Working from Home: ArcGIS Pro...Cloud hosted virtualization







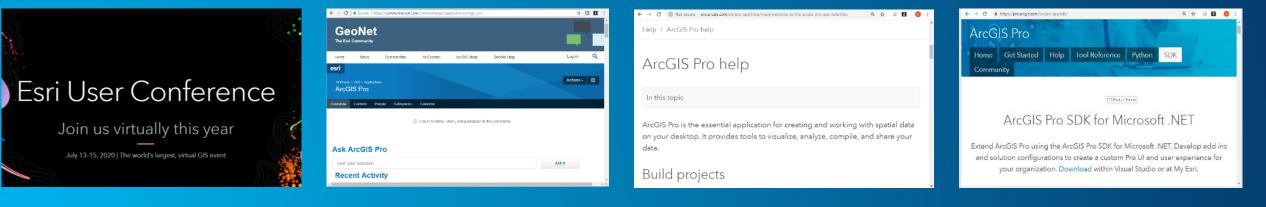
<u>Videos</u>



Learn.ArcGIS.com



Developer Resources



Esri User Conference





Esri Canada Resources

- Upcoming webinars & events
 - Creating Tailored Web Page Experiences with ArcGIS Enterprise Sites, May 21, 2020
 - Tips & Tricks: GIS Solutions for COVID-19 Government Response, May 28, 2020
 - Online Bling: 6ix Headlines from ArcGIS Online, June 18, 2020
- Related training courses
 - Migrating from ArcMap to ArcGIS Pro
 - Spatial Analysis with ArcGIS Pro
 - ArcGIS Pro: Working with ModelBuilder

Thank You

- The recording will be available online at: <u>resources.esri.ca/webinars</u>
- If you have any additional questions about the content presented to you, feel free to contact us:

 $\left(O\right)$

- Sepideh Sepehr, ssepehr@esri.ca
- Emilie Rabeau, erabeau@esri.ca

Connect with us @esricanada

Resources Mentioned During Webinar

- Spatial Data Analysis Resources
 - https://spatialstats.github.io/
- LIDAR Data Resources
 - https://canadiangis.com/free-canada-lidar-data.php
- Early Adopter Program
 - https://www.esri.com/en-us/early-adopter



© 2019 Esri Canada Limited. All rights reserved. Trademarks for Esri products are provided under license from Environmental Systems Research Institute, Inc. Other product & company names mentioned herein may be trademarks or registered trademarks of their respective owners. Errors & omissions excepted. Esri materials are copyrighted. Please request permission to use software, images or text.