INTRODUCTION TO GIS

Sandeep Talasila, GISP



GEOSPATIAL REVOLUTION

<u>https://www.youtube.com/watch?v=ZdQjc3oYPOk</u>
 Penn State Public Broadcasting

GEOSPATIAL TECHNOLOGY

Technology that is used to collect, create, manipulate, and store geographic information.

- Geographic Information Systems (GIS)
- Global Positioning System (GPS)
- Remote Sensing

WHAT IS GIS?

- A GIS is a computer-based system to aid in the collection, maintenance, storage, analysis, output, and distribution of spatial data and information. – Paul Bolstad
- A geographic information system (GIS) is a framework for gathering, managing, and analyzing data. – ESRI

WHO USES GIS?

- Education
- Health
- Public Safety
- Natural Resources
- Transportation
- Utilities Electric, Gas, Water, Telecommunications
- Government
- Real Estate



EARLY GIS – SPATIAL ANALYSIS



Frere de Montizon's Population Map of France in 1830 1 dot = 10,000 people



Original map by John Snow showing the clusters of cholera cases (indicated by stacked rectangles) in the London epidemic of 1854. The contaminated pump is located at the intersection of Broad Street and Cambridge Street (now Lexington Street), running into Little Windmill Street.

BRIEF HISTORY



- Invented in Canada in the late 1960's and developed into the Canada Geographic Information System
- First published use of term Geographic Information System was in August 1968 by Roger Tomlinson
- In 1964-65, Howard Fisher created one of the first computer mapping software programs known as SYMAP at the Northwestern University.
- In 1970's 80's, software development & commercial GIS
- ESRI, MapInfo, ERDAS, GeoMedia, CARIS, MOSS, GRASS, QGIS, and many more

ASKING SPATIAL QUESTIONS

Location	What is at?What exists at a particular location?
Condition	Where is it?Find location where certain conditions are satisfied.
Trends	What has changed since?Differences in an area over time.
Patterns	What spatial patterns exist?Spatial relationships between geographic data.
Modeling	What if?Predict cause and effects of new scenarios.

G = GEOGRAPHIC

- Pertaining to the location
- Geographic features V are represented as geometric objects or pixels
- Data Models: Vector ^R and Raster



I = INFORMATION

- Referred as attribute data
- Contain information about the geographic data arranged in rows and columns
- Example: A map of counties in USA, the attributes include County Name, county FIPS, state FIPS, area,...

o TT	able			<u> </u>	144 PYMYLI	TUNHUL	M3322448(170043	
	≣ - ₹	ð • 🔓	1 I di	×				
tl	_2018_u	s_county						
	FID	Shape	STATEFP	COUNTYED				
				COUNTIFF	COUNTYNS	GEOID	NAME	NAMELSAD
	• 0	Polygon	31	039	COUNTYNS 00835841	GEOID 31039	NAME Cuming	NAMELSAD Cuming County
	0	Polygon Polygon	31 53	039 069	COUNTYNS 00835841 01513275	GEOID 31039 53069	NAME Cuming Wahkiakum	NAMELSAD Cuming County Wahkiakum County
E	0	Polygon Polygon Polygon	31 53 35	039 069 011	COUNTYNS 00835841 01513275 00933054	GEOID 31039 53069 35011	NAME Cuming Wahkiakum De Baca	NAMELSAD Cuming County Wahkiakum County De Baca County
	0	Polygon Polygon Polygon Polygon	31 53 35 31	039 069 011 109	COUNTYNS 00835841 01513275 00933054 00835876	GEOID 31039 53069 35011 31109	NAME Cuming Wahkiakum De Baca Lancaster	NAMELSAD Cuming County Wahkiakum County De Baca County Lancaster County
	0 1 2 3 4	Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72	039 069 011 109 129	COUNTYNS 00835841 01513275 00933054 00835876 00835886 01804523	GEOID 31039 53069 35011 31109 31129 72085	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Lan Biodran	NAMELSAD Curning County Wahkiakum County De Baca County Lancaster County Lancaster County Lancaster Municipio
	0 1 2 3 4 5 6	Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46	039 069 011 109 129 085	COUNTYNS 00835841 01513275 00933054 00835876 00835886 01804523 01265772	GEOID 31039 53069 35011 31109 31129 72085 46099	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras	NAMELSAD Cuming County Wahkakum County De Baca County Lancaster County Las Piedras Municipio Wineshah County Las Piedras Municipio
	0 1 2 3 4 5 6 7	Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46 48	039 069 011 109 129 085 099 327	COUNTYNS 00835841 01513275 00933054 00835876 00835886 01804523 01265772 01383949	GEOID 31039 53069 35011 31109 31129 72085 46099 48327	NAME Cuming Wahikiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Menard	NAMELSAD Cuming County Wahkiakum County De Baca County Lancaster County Lancaster County Las Piedras Municipio Minnehaha County Menard County Minnehaha
	0 1 2 3 4 5 6 7 7 8	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46 48 06	039 069 011 109 129 085 099 327 091	COUNTYNS 00835841 01513275 00933054 00835876 00835886 01804523 01265772 01383949 00277310	GEOID 31039 53069 35011 31109 31129 72085 46099 48327 06091	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Menard Sierra	NAMELSAD Curning County Wahkiakum County De Baca County Lancaster County Lancaster County Las Piedras Municipio Las Piedras Municipio Minnehaha County Menard County Sierra County
	0 1 2 3 4 4 5 6 7 7 8 9	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46 48 06 21	039 069 011 109 129 085 099 327 091 053	COUNTYNS 00835841 01513275 00933054 00835876 00835886 01804523 01265772 01383949 00277310 00271310	GEOID 31039 53069 35011 31109 31129 72085 46099 48327 06091 21053	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Menard Sierra Clinton	NAMELSAD Curning County Wahkiakum County De Baca County Lancaster County Las Piedras Municipio Minnehaha County Menard County Sierra County Clinton County Clinton County
	 0 1 2 3 4 5 6 7 8 9 10 	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46 48 06 21 39	039 069 011 109 129 085 099 327 091 053 063	COUNTYNS 00835841 01513275 00933054 00835876 00835886 01804523 01285772 01383949 00277310 00516873 01074044	GEOID 31039 53069 35011 31109 31129 72085 46099 48327 06091 21053 39063	NAME Cuming Wahkiakum De Baca Lancaster Nuckolis Las Piedras Minnehaha Menard Sierra Clinton Hancock	NAMELSAD Curning County Wahkiakum County De Baca County Lancaster County Las Diedras Municipio Minnehaha County Menard County Sierra County Clinton County Hancock County
	 0 1 2 3 4 5 6 7 7 8 9 10 11 	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46 48 06 21 39 48	039 069 011 109 129 085 099 327 091 053 063 189	COUNTYNS 00835841 01513275 00933054 00835876 00835886 01804523 01265772 01383949 00277310 00516873 01074044 01383880	GEOID 31039 53069 35011 31109 31129 72085 46099 48327 06091 21053 39063 48189	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Minnehaha Menard Sierra Clinton Hancock Hale	NAMELSAD Cuming County Wahkiakum County De Baca County Lancaster County Las Piedras Municipio Minnehaha County Menard County Sierra County Clinton County Hancock County Las Piedras Municipio
	 0 1 2 3 4 5 6 7 8 9 10 11 12 	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46 48 06 21 39 48 01	039 069 011 109 129 085 099 327 091 053 063 189 027	COUNTYNS 00835841 01513275 00835876 00835876 00835876 01804523 01285772 01383949 00277310 00516873 01074044 01383880 00161539	GEOID 31039 53069 35011 31109 31129 72085 46099 48327 06091 21053 39063 48189 01027	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Menard Sierra Clinton Hancock Hale Clay	NAMELSAD Curning County Wahkiakum County De Baca County Lancaster County Lancaster County Nuckolls County Las Piedras Municipio Minnehaha County Sierra County Sierra County Clinton County Hancock County Hale County Clay County
	 0 1 2 3 4 4 5 6 7 7 8 9 9 10 11 112 13 	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46 48 06 21 39 48 01 48	039 069 011 109 129 085 099 327 091 053 063 189 027 011	COUNTYNS 00835841 01513275 00933054 00835876 00835886 01804523 01285772 01383949 00277310 00516873 01074044 01383880 00161539 01383791	GEOID 31039 53069 35011 31109 31129 72085 46099 48327 21053 39063 48189 01027 48011	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Menard Sierra Cclinton Hancock Hale Clay Armstrong	NAMELSAD Cuming County Wahkiakum County De Baca County Lancaster County Las Piedras Municipio Minnehaha County Las Piedras Municipio Minnehaha County Sierra County Clinton County Hancock County Hale County Clay County Armstrong County
	 0 1 2 3 4 4 5 6 7 7 8 9 9 10 11 11 12 13 14 	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46 48 06 21 39 48 01 48 39	039 069 011 109 129 085 099 327 091 053 063 189 027 011 003	COUNTYNS 00835841 01513275 00933054 00835876 00835876 01804523 01265772 01383949 00277310 00516873 01074044 01383880 00161539 01383791 01074015	GEOID 31039 53069 35011 31109 72085 46099 48327 06091 21053 39063 48189 01027 48011 39003	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Menard Sierra Cünton Hale Clay Armstrong Allen	NAMELSAD Cuming County Wahkiakum County De Baca County Lancaster County Las Piedras Municipio Minnehaha County Menard County Sierra County Clinton County Hancock County Hale County Hale County Hale County Hancock County Hale County Hancock County Hale County Hale County Allen County
	 0 1 2 3 4 5 6 7 7 8 9 9 10 11 112 13 14 15 	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46 48 06 21 39 48 01 48 39 13	039 069 011 109 129 085 099 327 091 053 063 189 027 011 003 189	COUNTYNS 00835841 01513275 00933054 00835876 00835876 01804523 01804523 01804523 01804523 01804523 01804523 01804523 01074044 0183880 00181539 01883791 01074015 00348794	GEOID 31039 53069 35011 31109 72085 46099 48327 06091 21053 39063 48189 01027 48011 39003 13189	NAME Cuming Wahkiakum De Baca Lancaster Nuckolis Las Piedras Minnehaha Menard Sierra Clinton Hancock Hale Clay Armstrong Allen McDuffie	NAMELSAD Cuming County Wahkiakum County De Baca County Lancaster County Las Piedras Municipio Minnehaha County Menard County Sierra County Clinton County Hancock County Hancock County Hancock County Hale County Armstrong County Allen County MeDuffie County
	 0 1 2 3 4 5 6 7 8 9 9 10 11 112 13 14 15 16 	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 31 31 31 31 31 31 31 31 31 31 31	009 009 009 011 109 129 085 099 327 009 053 063 189 027 011 003 189 111	COUNTYNS 00835841 01513275 00933054 00835876 01804523 01265772 01383949 00277310 00516873 01074044 01383860 00161539 01383791 01074015 00348794 01581115	GEOID 31039 53069 35011 31109 31129 72085 46099 48327 06091 21053 39063 48189 01027 48011 399003 13189 55111	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Menard Sierra Clinton Hancock Hale Clay Armstrong Allen McDuffie Sauk	NAMELSAD Curning County Wahkiakum County De Baca County Lancaster County Lancaster County Las Piedras Município Minnehaha County Las Piedras Município Minnehaha County Sierra County Clínton County Hancock County Hale County Clay County Armstrong County Allen County McDuffie County Sauk County
	 0 1 2 3 4 5 6 6 7 7 8 9 9 10 11 12 13 13 14 15 16 16 17 	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 31 72 46 48 06 21 39 48 01 48 01 13 55 05	009 009 011 109 129 085 099 327 091 053 063 189 027 011 003 189 111 137	COUNTYNS 00835841 01513275 00933054 00835876 00835876 00835876 01804523 01265772 01383949 00277310 00516873 01074044 01383880 00161539 01383791 0174045 001848794 01581115 00069902	GEOID 31039 53069 35011 31109 31129 72085 46099 48327 06091 21053 39063 48189 01027 48011 399003 13189 55111 05137	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Menard Sierra Clinton Hancock Hale Clay Armstrong Allen McDuffie Sauk Stone	NAMELSAD Cuming County Wahkiakum County De Baca County Lancaster County Las Piedras Municipio Minnehaha County Las Piedras Municipio Minnehaha County Sierra County Clinton County Hancock County Hale County Clay County Armstrong County Allen County McDuffie County Sauk County Stone County
	0 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 72 46 48 06 21 39 48 01 48 39 13 55 05 1 ▶ ₩	039 069 011 109 129 085 099 327 091 053 063 063 063 083 083 083 027 011 003 189 111 1137	COUNTYNS 00835841 01513275 00933054 00835876 00835876 01804523 01285772 01383949 00277310 00516873 01074044 01383880 00161539 01383791 01074045 00184594 00348794 01581115 00069902 ut of 3233 Sel	GEOID 31039 53069 35011 31109 31129 72085 46099 48327 06091 21053 39063 39063 39063 48189 48189 01027 48011 39003 13189 55111 05137 ected)	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Menard Sierra Cclinton Hancock Hale Clay Armstrong Allen McDuffie Sauk Stone	NAMELSAD Cuming County Wahkiakum County De Baca County Lancaster County Las Piedras Municipio Minnehaha County Sierra County Giarta County Hancock County Hancock County Hancock County Hale County Allen County Allen County Sauk County Stone County
	▶ 0 1 2 3 4 55 6 7 7 8 9 10 111 112 13 14 15 16 17 17 14	Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon Polygon	31 53 35 31 31 31 31 31 31 31 31 31 31	009 069 011 109 129 085 099 327 091 053 063 189 027 011 189 013 189 111 137	COUNTYNS 00835841 01513275 00933054 00835876 01804523 01805772 01383949 00277310 00516873 01074044 01383880 00161539 01383791 01074015 00348794 01383115 00048794 01581115 00069902 ut of 3233 Sel	GEOID 31039 53069 35011 31109 31129 72085 46099 48327 06091 21053 39063 48189 01027 48011 39003 13189 55111 05137 ected)	NAME Cuming Wahkiakum De Baca Lancaster Nuckolls Las Piedras Minnehaha Menard Sierra Clinton Hancock Hale Clay Armstrong Allen McDuffie Sauk Stone	NAMELSAD Cuming County Wahkiakum County De Baca County Lancaster County Las Piedras Municipio Minnehaha County Menard County Clinton County Hancock County Hancock County Hale County Clay County Armstrong County Alien County McDuffie County Sauk County Stone Countv

S = SYSTEMS

Hardware and Software







Many more...

COMPONENTS OF GIS



FUNCTIONS OF A GIS

- Capture
- Store
- Query
- Analyze
- Display
- Output

CAPTURING DATA



STORING DATA



individual X, Y coordinates (Vector) or as individual Column, Row cell entries in a grid (Raster) LINES are stored as a set of mathematically connected X, Y coordinates (Vector) or as a set of connected grid cells (Raster) AREAS are stored as a set of mathematically connected X, Y coordinates defining the boundary (Vector) or as a set of contiguous cells defining the interior (Raster)

QUERY DATA

Identifying specific features

- Identifying features based on conditions
 - Massachusetts counties with a population greater than 300,000



ANALYSIS

Proximity



Overlay





Network

DISPLAY



Chelsea

Chicopee

Fall River

Fitchburg

Franklin Tos

Easthampton Town Everett 37187

55392 15612

42871

89199

41174

32995

Maps

OUTPUT

Paper map



Image



MA.jpg

Internet



Project



NewMexico.aprx

RELATED TECHNOLOGIES





- Computer Cartography
- Computer Graphics/Animation
- Computer-aided design (CAD)
- Database Management System (DBMS)
- Global Positioning System
- Remote Sensing
- Statistics

MODERN GIS

Cartography Computer-Aided Design (CAD) Surveying and Photogrammetry Spatial Analysis Remote Sensing Spatial / Network Modeling Database Analysis

GIS

GIS EVOLUTION



Source: Dr. Shawn Penman

CATEGORIES OF GIS USERS



There are specialized software tools for each user group

ARCGIS

Introduction

ARCGIS

- Developed by ESRI
- Arc/INFO in 1981
- ArcView GIS in 1990's > ArcMap > ArcGIS in 2000's
- Products <u>https://www.esri.com/en-us/arcgis/products/index</u>



DATA MANAGEMENT

- DO NOT store projects and data in Documents folder
- Consistent File Structure
- Standardized Naming Conventions
 - No spaces in names

nm_roads.shp
nm_rivers.shp
bern_tracts.shp
abq_hospitals.gdb

GIS			
	GISdata		
		Basemap	
		Boundaries	
		Census	
		Elevation	
		General Background	
		Hydrology	
		Imagery	
		LandCover	
		Parcels	
		Topography	
		Transportation	
	Projects		
		Project A	
			Backups
			Data
			Documents
			MXDs
			Maps_images
			Reports
			Temporarygisfiles

METADATA

 At very least fill out data source, date, and a few comments about the project.

🔣 Map 🗙 📾 Catalog	Counties_southwest ×	
purpose is required tags are required		
Item Description		
Title Counties_southwest		
	Edit Metadata	
Summary (Purpose)		

🔣 Map 🛛 🔂 Catalog 🗙						
€) ↑ 💽 🗸 Processed_FCC_Fixed_Data_F22.gd	db	◆ ⑦ ↓= Search Processed_FCC_Fixed_Data_F22.gdb ・ タ ~				
Name	Туре	Metadata Geography Table				
Cable_FCC_F22	File Geoda					
Copper_FCC_F22	File Geoda	Cable_FCC_F22				
DSL_FCC_F22	File Geoda	Type File Geodatabase Feature Class				
Fiber_FCC_F22	File Geoda	Tags cable, broadband coverage, Federal Communications Commission; FCC				
Fixed_Wireless_FCC_F22	File Geoda	Form 477, New Mexico, 2021				
Satellite_FCC_F22	File Geoda	Summary				
		This layer contains cable broadband coverage data from the Federal Communications Commission (FCC) Form 477 that was processed by the New Mexico Broadband Program (NMBBP).				
		Description				
		This layer contains cable broadband coverage data from the Federal Communications Commission (FCC) Form 477 that was processed by the New Mexico Broadband Program (NMBBP).				
		The FCC data dates from June 30, 2021, with revisions through June 28, 2022.				
		Credits				
		Federal Communications Commission (FCC); Earth Data Analysis Center, The University of New Mexico (EDAC, UNM); New Mexico Broadband Program / Rural Broadband Project Part II (NMBBP / BB4R2)				
		Use limitations				
		There are no access and use limitations for this item.				
		Extent				
		West -109.120626 East -102.964904				
		North 36.961154 South 31.734124				
		Scale Range				
		Maximum (zoomed in) 1:5,000				
		Minimum (zoomed out) 1:150,000,000				
		You are currently using the Item Description metadata style. Change your metadata style in the Options dialog box to see additional metadata content.				
N.C.	>					

DATA MANIPULATION

Only use ArcCatalog to copy, move or delete GIS data and not windows explorer





PROJECT MANAGEMENT

Options		×
Project Current Settings	Change settings for the current project	
Units	Name	
Tasks	MyProject	
Application	Location	
General	C:\Users\ \Documents\ArcGIS\Projects\MyProject\MyProject.aprx	1
Map and Scene	Home folder	
Navigation	C:\Users\ \Documents\ArcGIS\Projects\MyProject	1
Edition	Default geodatabase	
Versioning	C:\Users\ \Documents\ArcGIS\Projects\MyProject\MyProject.gdb	2
Geoprocessing	Default toolbox	
ModelBuilder	C:\Users\ \Documents\ArcGIS\Projects\MyProject\MyProject.atbx	
Device Location		
Catalog Browsing		
Share and Download		
Raster and Imagery		
Full Motion Video		
Display		
Table		
Layout	Learn more about changing a project's settings	

https://pro.arcgis.com/en/pro-app/latest/help/projects/change-a-project-s-settings.htm

ARCGIS COMPONENTS

ArcCatalog vs ArcMap

ARCCATALOG

- Organizes and manages data
- <u>Always</u> use ArcCatalog to copy and move GIS data



Catalog Pane in ArcGIS Pro



Catalog View in ArcGIS for Desktop

FOLDER CONNECTIONS

- Define Folder Connections to locate and save data
 - Right click on Folders in Catalog contents
 - Can be done in either the docked Catalog Pane or Catalog View



ARCGIS HELP

 <u>https://pro.arcgis.com/en/pro-app/latest/help/main/welcome-to-</u> <u>the-arcgis-pro-app-help.htm</u>

Sesti Products - Industries	 Support & Services Stories Abou 	t v				Q		8	
ArcGIS Pro		Overview	Extensions	Features 🔻	Resources	Free Trial	Pricing	2	
Home Get Started Help Tool Referer	nce Python SDK Migrate from ArcMap								
	Search ArcGIS Pro help		Q						
Help									
> Projects	ArcGIS Pro help	ArcGIS Pro help							
> Maps and scenes									
> Data	ArcGIS Pro 3.3 Other versions 🗸 Help archi	Map and	Map and visualize your data						
> Analysis and geoprocessing	ArcGIS Pro is the essential application for creatin	. It geoproc	Perform analysis and geoprocessing						
> Imagery and remote sensing	provides tools to visualize, analyze, compile, and	Manage	Manage and edit your data Use tasks to streamline your work Share your work Access learning resources						
> Metadata	Create projects	Use task							
> Layouts	ArcGIS Pro organizes your GIS work into project	Access le							
> Reports	reports, charts, and other representations of spa								
> Presentations	connections to data resources such as system to your active portal.								
> Production	Create a project from an ArcGIS Pro default te	mplate or from	a custom template	e created by you o					
> Workflows	shared by colleagues.								
> Share your work	Add data to your project from a local or netwo	ork drive, your a	ctive portal, or an	other connection.					
	Add web maps and web scenes or import ma Configure ArcGIS Pro by setting project and a	ps from ArcMap).	a the ribbon					

ESRI COMMUNITY



https://community.esri.com/

ARCGIS PRO DEMO

- Create a Project
- Create Template Map, Catalog
- Components of ArcGIS Project
- Make folder connections in Catalog
- Explore data formats