

# A Sense of Where We Are: Geographic Information Science and Systems

IDT Roundtable  
K-State Union 212

Mar 25, 2010  
11:00 a.m. to 12:30 p.m.

Presented by:  
Eric Bernard, LARCP, Chair GIScience Commons  
Rick Chubb, GIScience Commons  
Shiva Mohandass, GIScience Commons

where are we?

Who is this? How did he know where he was,  
or how to get where he wanted to go?



Source: [http://en.wikipedia.org/wiki/File:Ridolfo\\_Ghirlandaio\\_Columbus.jpg](http://en.wikipedia.org/wiki/File:Ridolfo_Ghirlandaio_Columbus.jpg)



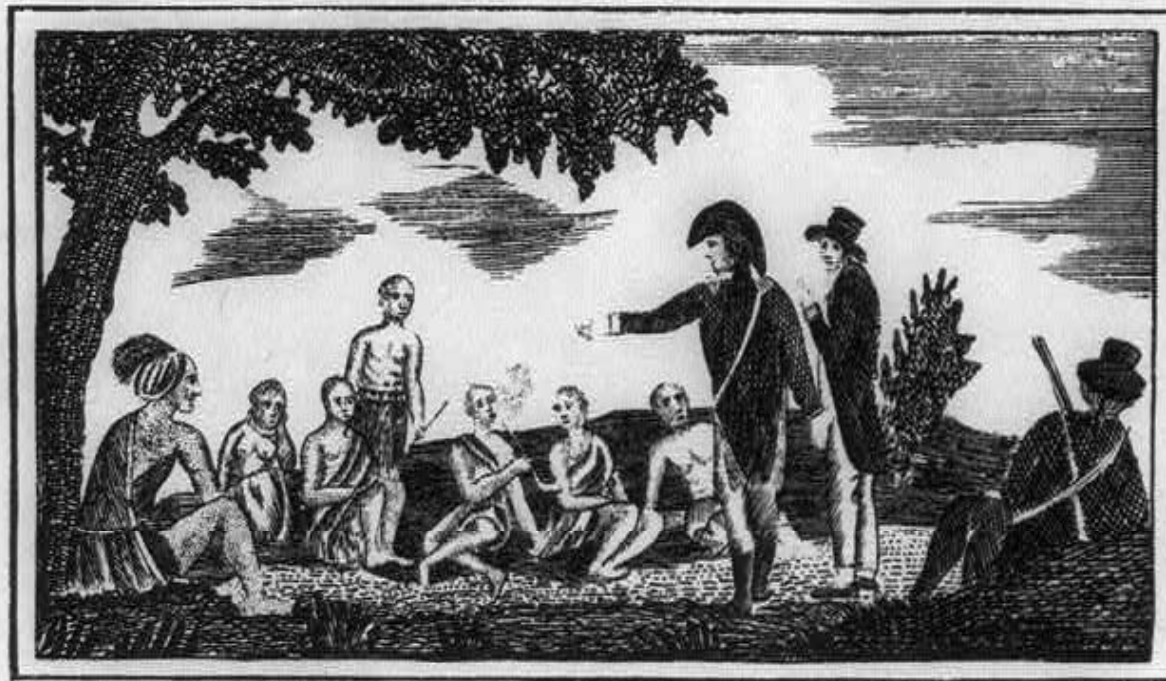
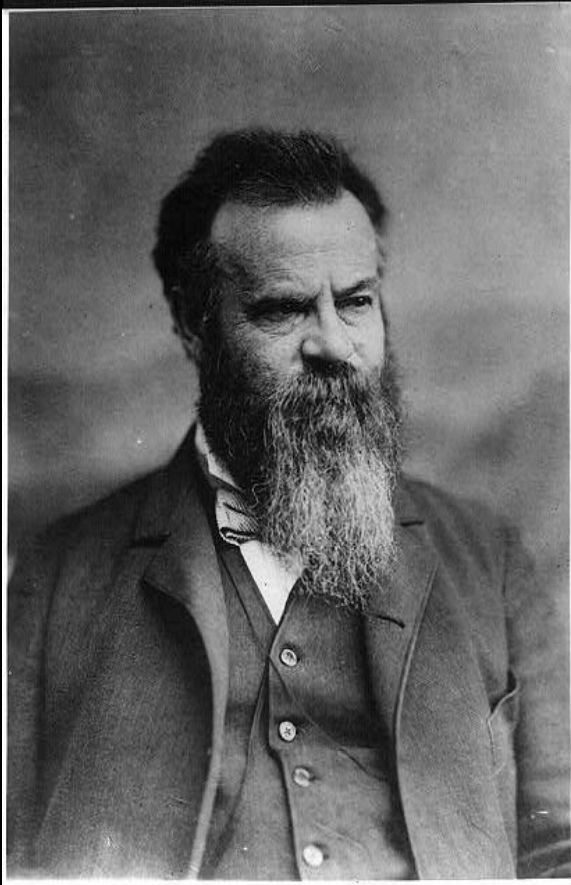
Source: [http://www.loc.gov/today/placesinthenews/archive/2009arch/20090513\\_waldseemuller.html](http://www.loc.gov/today/placesinthenews/archive/2009arch/20090513_waldseemuller.html)

Thanks to Waldseemüller, *Columbus, Vespucci, Ptolemy and many others...*

Note: Martin Waldseemüller generated this map "A drawing of the whole earth following the tradition of Ptolemy and the travels of Amerigo Vespucci and others" and is the first map to call our continent the Americas. See it at the Library of Congress.

...since 1507 we are in America

How did Powell, Lewis and Clark know where they were or where they were going?



*Captains Lewis & Clark holding a Council with the Indians* Page 17

John Wesley Powell Source: <http://lcweb2.loc.gov/service/pnp/cph/3a00000/3a07000/3a07300/3a07308r.jpg>

Lewis and Clark Source: <http://www.loc.gov/pictures/item/2001699652/resource/cph.3a19565/?sid=8824213d30cf00d7384267b37626d723>

How did those who first came to this landscape of the Flint Hills know where they were going?



Source: Conservation Design Forum- Jim Patchett

...we've got an app for that

...next apps

TED 2010 Augmented Reality

[http://www.ted.com/talks/lang/eng/blaise\\_aguera.html](http://www.ted.com/talks/lang/eng/blaise_aguera.html)



<http://www.un-spider.org/>  
<http://www.un-spider.org/haiti>

**WHAT IS UN-SPIDER**

**UN-SPIDER** aims at providing **universal access** to all types of space-based information and services relevant to disaster management by being a **gateway** to space information for disaster management support; serving as a **bridge** to connect the disaster management and space communities; and being a **facilitator** of capacity-building and institutional strengthening.

**UN-SPIDER Promotional Video**



Click again for watching the movie in a new window.

**NEWS**

23/02/2010

**UN-SPIDER Regional Workshop "Building upon Regional Space-based Solutions for Disaster Management and Emergency**

**DISASTER INFORMATION**

Disaster	Region	Date
▶ Floods	Kazakhstan	12/03/2010
▶ Floods	Mozambique	09/03/2010
▶ Earthquake	Eastern Turkey	08/03/2010
▶ Landslide	Uganda	01/03/2010
▶ Earthquake	Chile	27/02/2010
▶ Floods	Ukraine	25/02/2010

1 of 3 >>

**SPACE APPLICATION MATRIX (preview)**

**SPACE APPLICATION MATRIX**

0:00 / 0:00

**SPACEAID: LATEST DISASTERS**



- ▶ **Chile Earthquake**
- ▶ **Haiti Earthquake**

**VISUAL GLOBE (coming soon)**

▶ Enter Visual Globe

**CALENDAR**

March 2010						
S	M	T	W	T	F	S
28	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3

Demo of Google Earth: Haiti

Demo of ESRI GeoViewer Population Estimation

# Weather, Rivers and Streams

<http://www.crh.noaa.gov/top/>

**National Weather Service Weather Forecast Office**  
**Topeka, KS**

Home Site Map News Organization Search for:  MWS All NOAA Go

**Local forecast by**  
"City, St" or Zip Code  
 City, St

**XML** RSS Feeds  
Current Hazards  
Watches/Warnings  
Outlooks  
Submit Report  
Current Conditions  
Observations  
Radar  
Satellite  
Observed Precip  
Forecasts  
Forecast Discussion  
Local Area  
Activity Planner  
Aviation Weather  
Fire Weather  
Severe Weather  
Winter Weather  
Hydrology  
Rivers & Lakes  
Climate  
Local  
National  
Drought  
More...  
Weather Safety  
Preparedness  
Weather Radio  
StormReady  
SkyWarn  
Additional Info  
Items of Interest  
Education Resources  
Coop Observer

**Top News of the Day**

- WFO Topeka RSS Feeds Added
- AHPS URL Change Delayed Until April 6th
- 2010 Spotter Talks Continue!
- OSID Image of the Day

Watches & Warnings Observations Forecast Graphics Rivers & Lakes Climate Fire Weather

Click on the map below for the latest forecast.

Read watches, warnings & advisories  
Zoom Out  
Flood Warning  
Hazardous Weather Outlook

Last map update: Thu, Mar. 25, 2010 at 5:39:49 am CDT

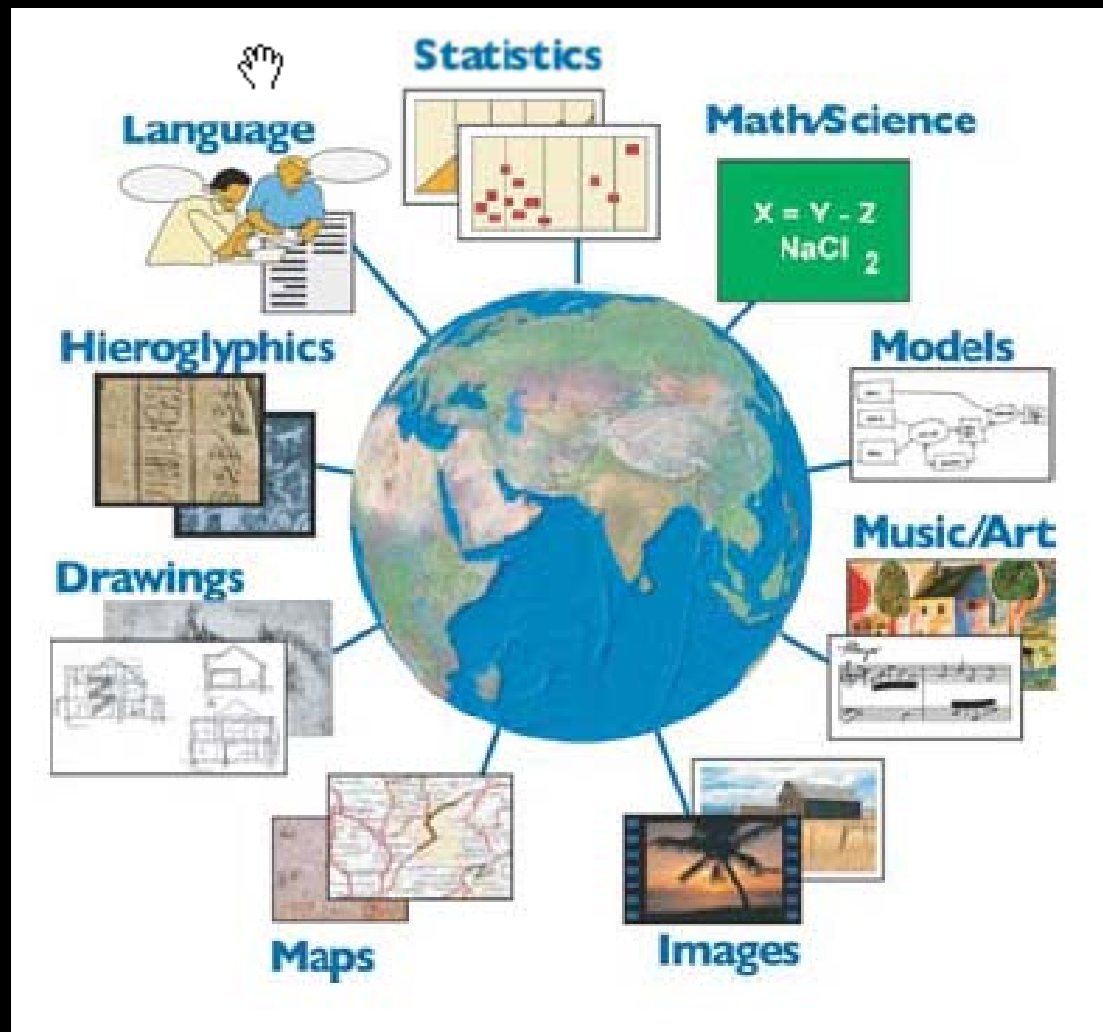
**Latest Conditions in Topeka, KS** Choose Your Front Page City

Mar 25  
4:53 am **44°F**  
Overcast (7°C)

Weather Story Radar Satellite Weather Map

what is required to get the  
where, when, and potential  
damage of a flood?

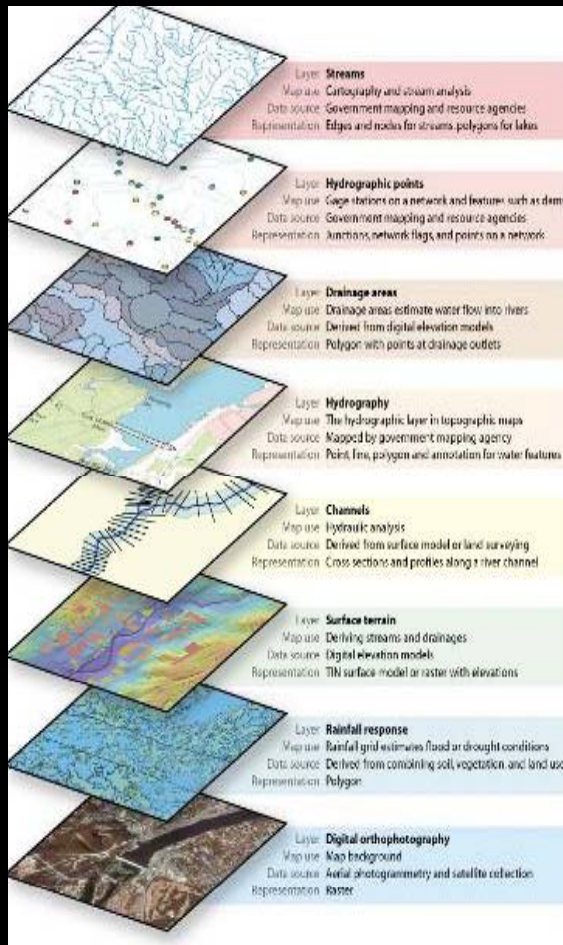
# GIScience *deals with...*



The science and tools used to acquire, store, analyze, and output data in two or three (four) dimensions, referenced to the earth by some type of real- world coordinate system (e.g., a map projection).

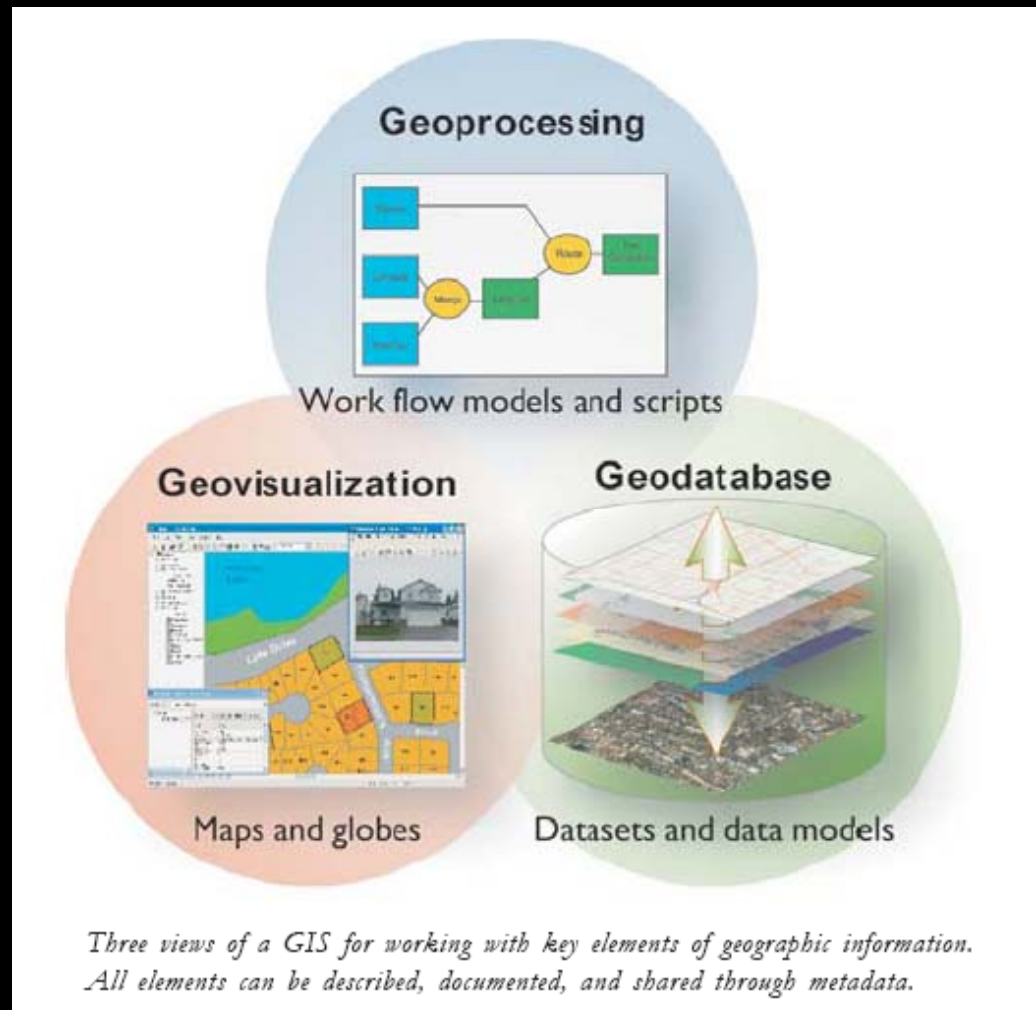
*Source: USGS*

# GIScience *deals with...*

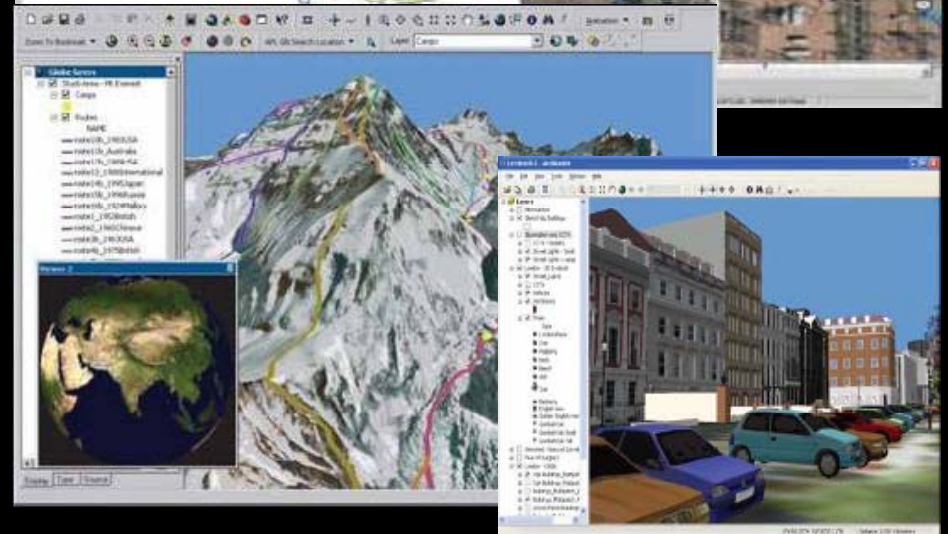
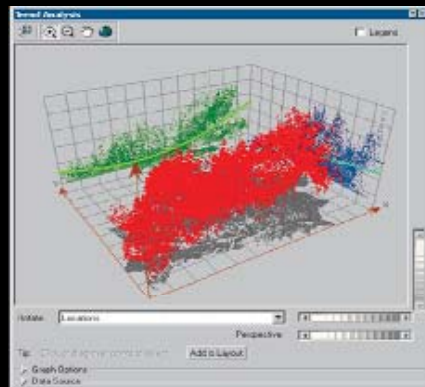
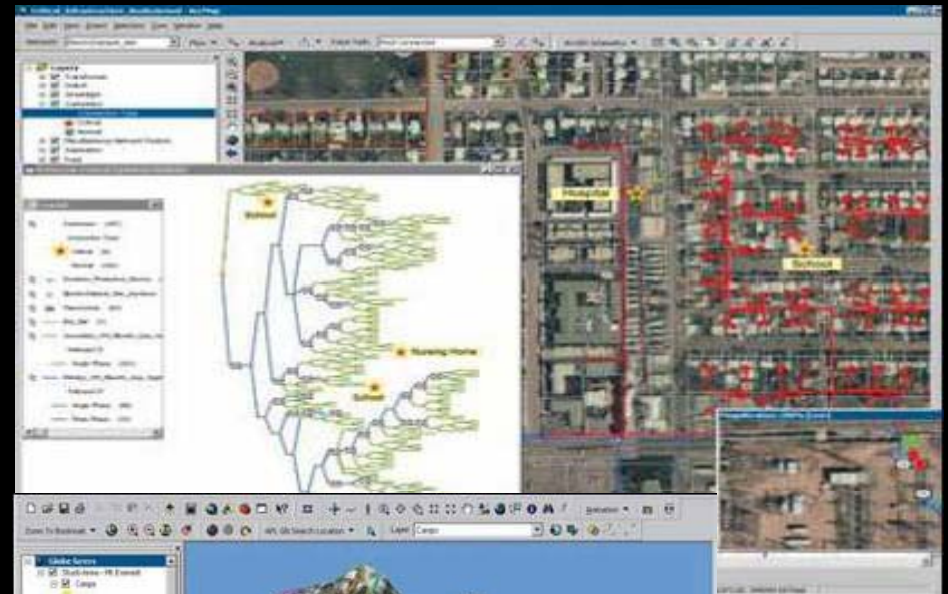
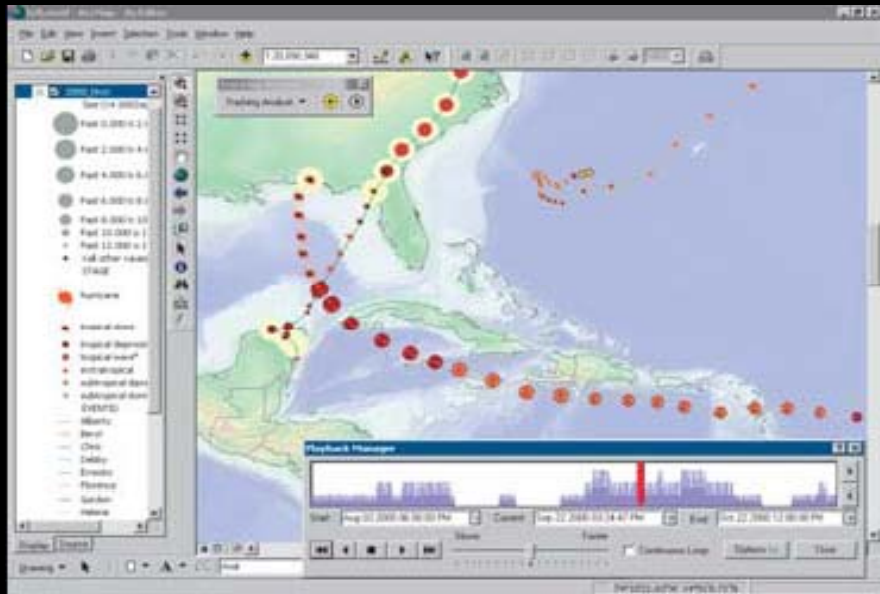


# GIScience *deals with...*

*GeoVisualization=*  
*Metaphors of Reality*



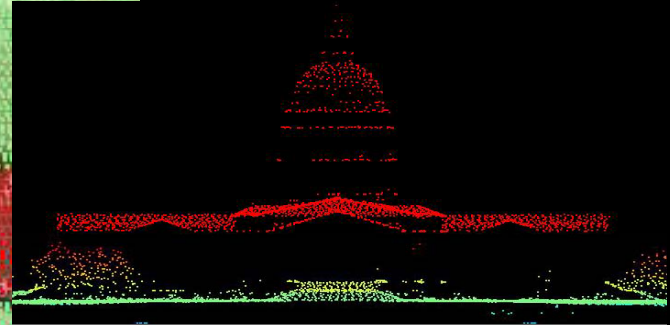
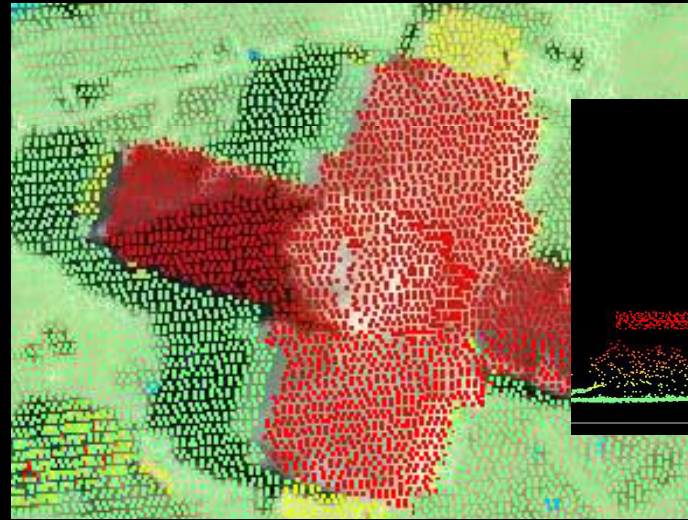
# GIScience *deals with...*



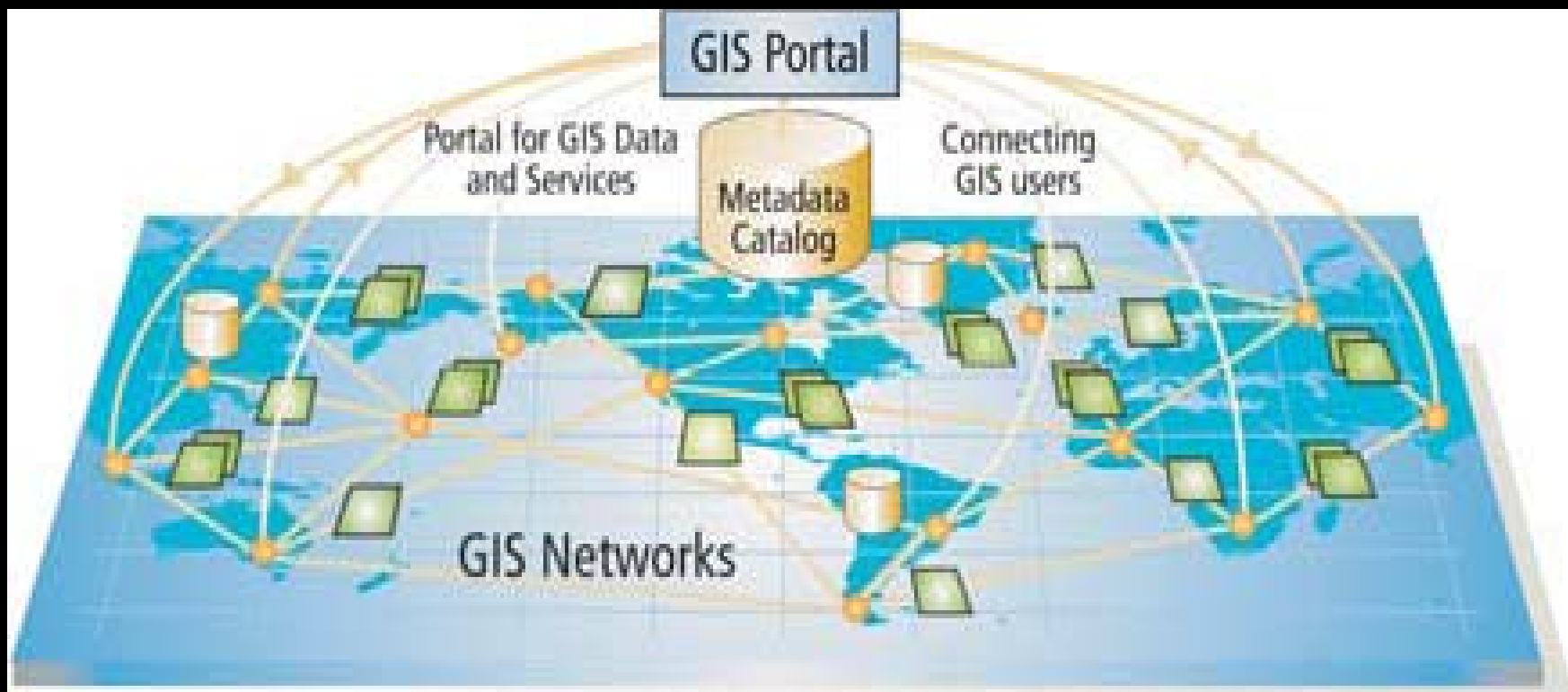
Source: SPOT, Inc. [www.spot.com](http://www.spot.com)



# GIScience *deals with...*



# GIScience *deals with...*

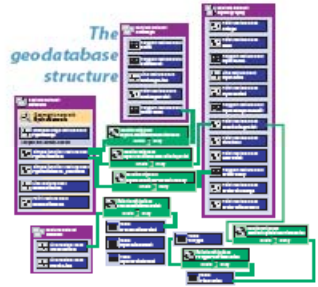


# THE ARCGIS HYDRO DATA MODEL

## The thematic layers



## The geodatabase structure



## Hydrography features

Hydrography features include:

- Stream network**: A set of lines representing the flow paths of water in a watershed.
- Stream order**: A measure of the size of a stream, based on the number of contributing upstream streams.
- Stream power**: A measure of the energy of a stream, based on its discharge and channel slope.
- Stream reach**: A segment of a stream between two junctions.
- Stream junction**: A point where two or more streams meet.
- Stream head**: The source of a stream, often a point source like a spring or a diffuse source like a stream bed.
- Stream outlet**: The point where a stream exits a watershed.

## Drainage features

Drainage features include:

- Flow accumulation**: A measure of the volume of water that flows into a cell from its upstream neighbors.
- Flow direction**: A measure of the direction of water flow from a cell to its downstream neighbors.
- Flow length**: A measure of the distance from a cell to the outlet of its watershed.
- Flow accumulation index**: A measure of the flow accumulation at a cell, based on the flow direction and flow length.
- Flow accumulation index (with stream power)**: A measure of the flow accumulation at a cell, based on the flow direction, flow length, and stream power.
- Flow accumulation index (with stream power and stream order)**: A measure of the flow accumulation at a cell, based on the flow direction, flow length, stream power, and stream order.

## Network features

Network features include:

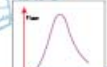
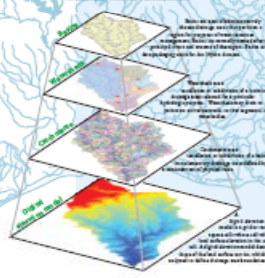
- Stream network**: A set of lines representing the flow paths of water in a watershed.
- Stream order**: A measure of the size of a stream, based on the number of contributing upstream streams.
- Stream power**: A measure of the energy of a stream, based on its discharge and channel slope.
- Stream reach**: A segment of a stream between two junctions.
- Stream junction**: A point where two or more streams meet.
- Stream head**: The source of a stream, often a point source like a spring or a diffuse source like a stream bed.
- Stream outlet**: The point where a stream exits a watershed.

## Channel features

Channel features include:

- Channel network**: A set of lines representing the flow paths of water in a watershed.
- Channel order**: A measure of the size of a channel, based on the number of contributing upstream channels.
- Channel power**: A measure of the energy of a channel, based on its discharge and channel slope.
- Channel reach**: A segment of a channel between two junctions.
- Channel junction**: A point where two or more channels meet.
- Channel head**: The source of a channel, often a point source like a spring or a diffuse source like a channel bed.
- Channel outlet**: The point where a channel exits a watershed.

## Scales of representation of drainage systems

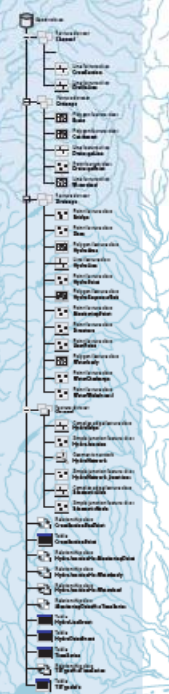


## Time series

Time series features include:

- Time series table**: A table that stores time series data for a specific feature.
- Time series view**: A view that displays time series data for a specific feature.
- Time series query**: A query that filters time series data based on a specific time range.
- Time series analysis**: An analysis that examines time series data to identify trends and patterns.

## The Catalog view



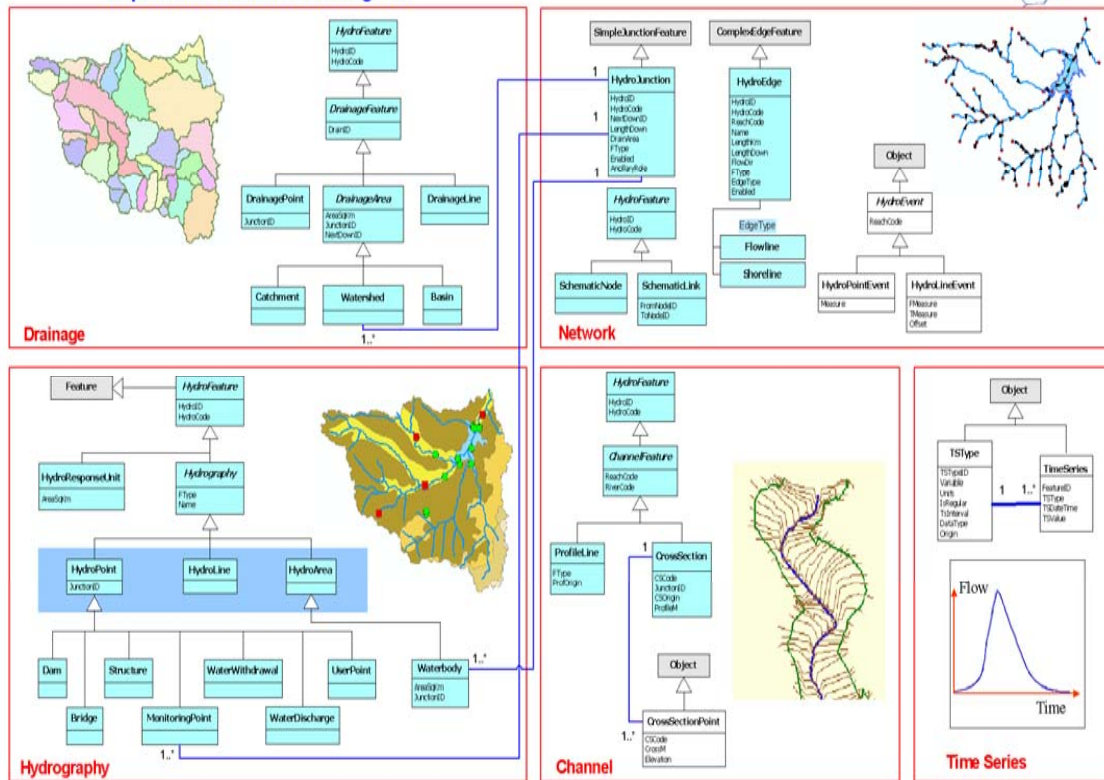
# GIScience *deals with...Models*

## ArcGIS Hydro Data Model

<http://arconline.esri.com/arconline/datamodels/water.cfm>

<http://www.crrw.utexas.edu/giswr>

GIS in Water Resources  
Consortium



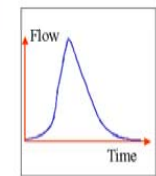
## Map2Map Flood Inundation Model

Inputs:

LiDAR data

Nexrad Doppler Rainfall  
Stream Gauge data

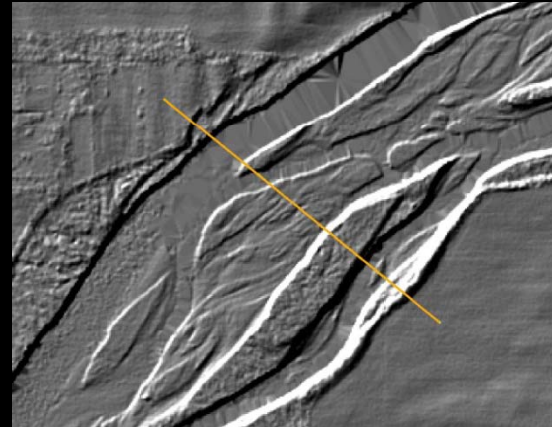
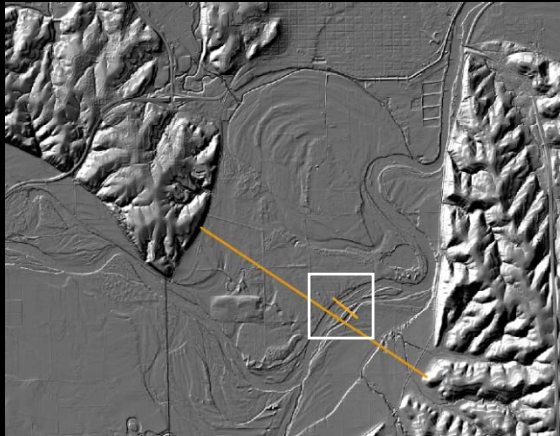
Hydro Data Model



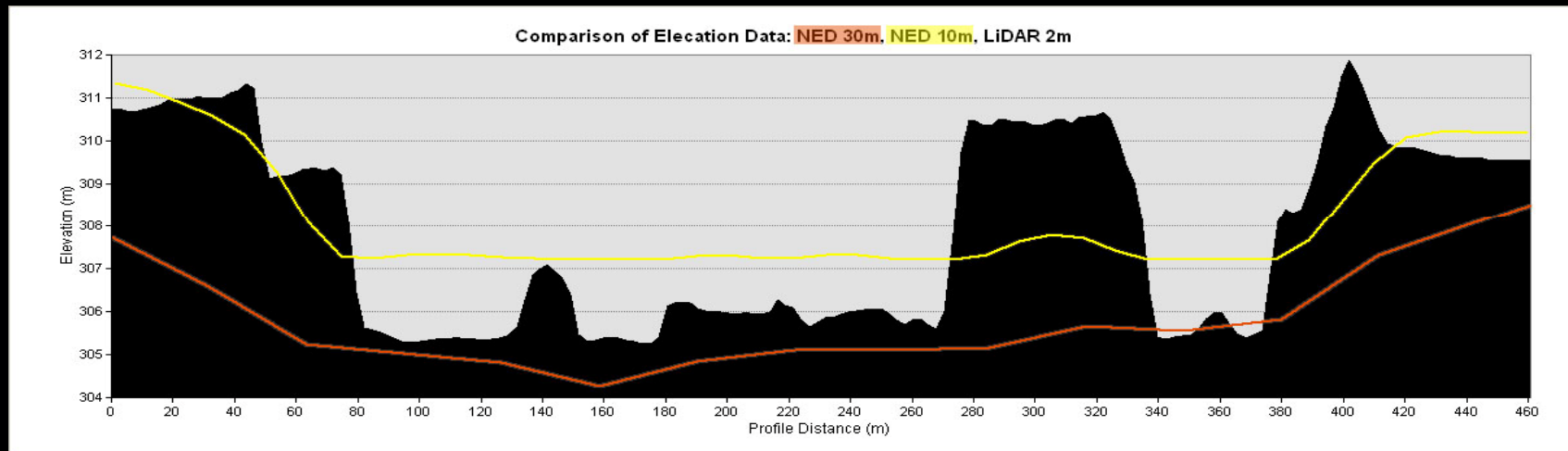
Time Series

# GIScience *deals with...*

## LiDAR: Light Detection and Ranging



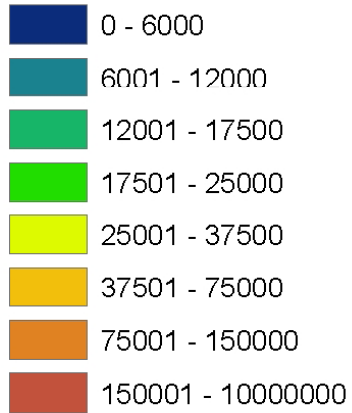
Channel Profiles  
Kansas River  
Manhattan, KS  
NED 30m  
NED 10 m  
LiDAR



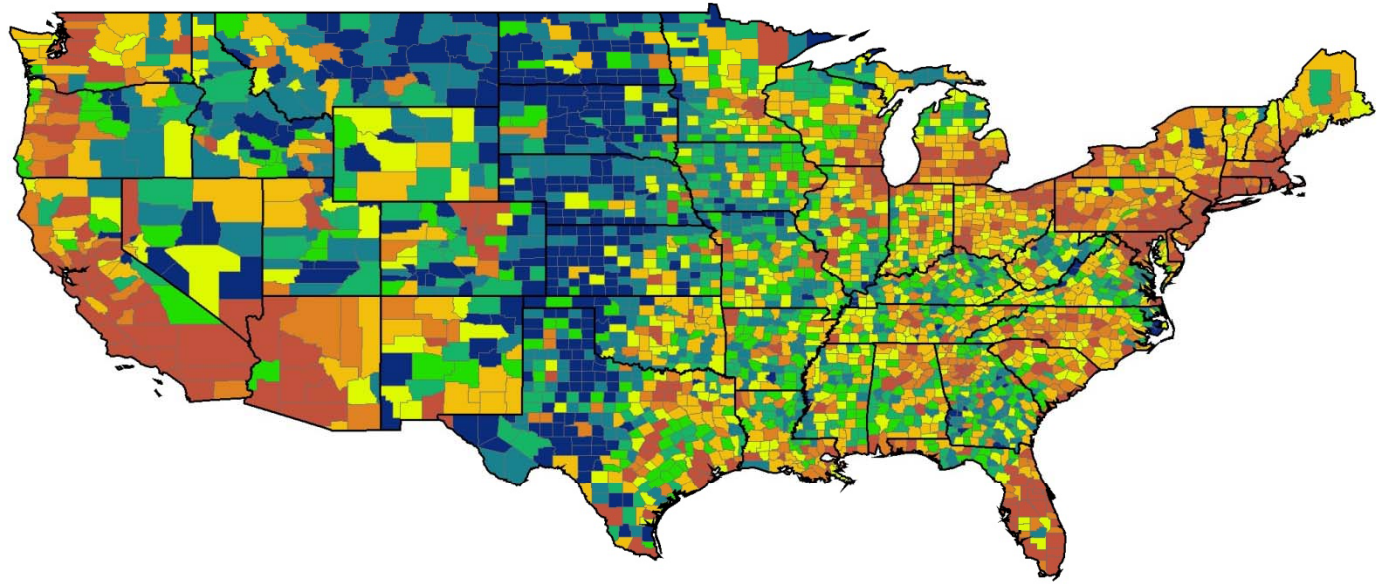
- 3D River-Stream Channel and Floodplain

# GIScience *deals with...* the Census

## County Population



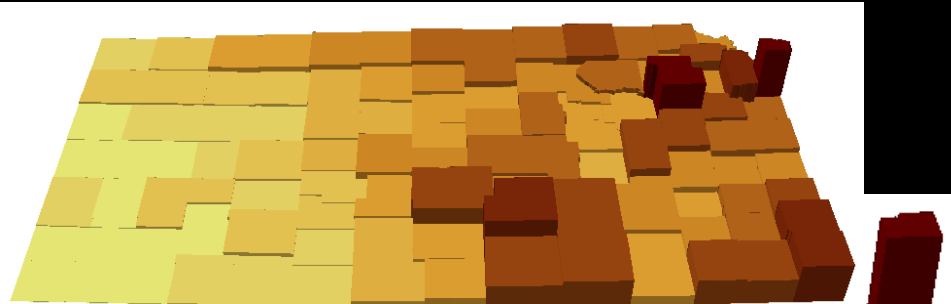
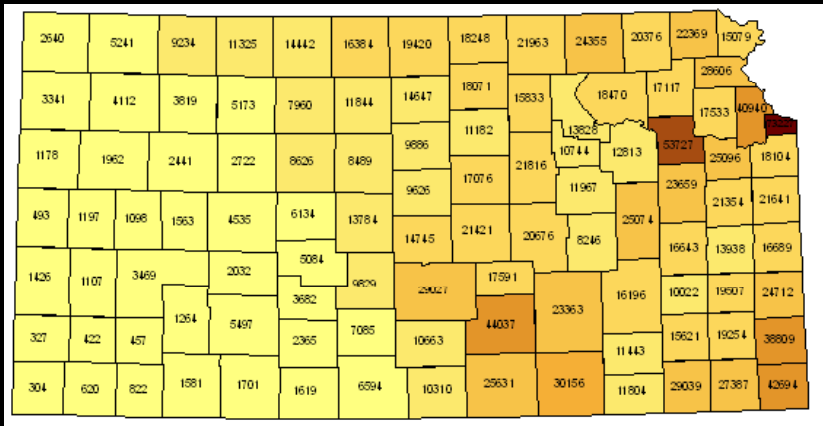
2000 Census



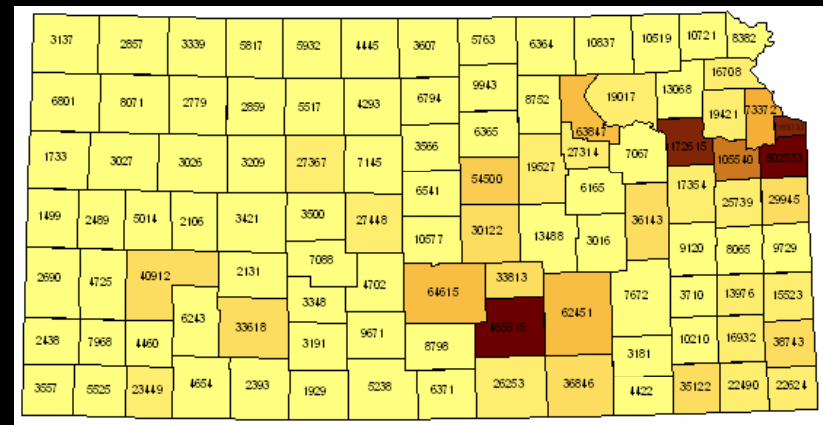
County Population 1900-2000

# GIScience *deals with...*the Census

## GeoVisualization



Population 1900



Population 2000



# GIScience *deals with*...Business



- Web-based spatial analysis tools for
  - Socioeconomic and demographic data
  - Business location data
  - Consumer spending data
- Reporting tools
  - Tables
  - Charts & graphs
- Map production tools



# Business Analyst Example

- Compare two potential locations for a franchise restaurant
  - 1200 Moro St. (Aggieville)
  - 3001 Anderson Ave. (Village Plaza)
- Criteria for the area within a 5-minute drive:
  - Total population > 25,000
  - Average household income > \$40,000
  - Age class 20-24 yrs > 33% of total

# BAO Startup

Business Analyst Online - Windows Internet Explorer

http://bao.esri.com/BAO93/main.map?ESRISessionID=vEG98sIX8TusJc4-wmkW1dhqsg0IuoZpNggX2D7aXqOBqNMMkzmYh72DgbocuJMFESPOHc9w&CFID=1256272&CFTOKEN=35089706&jsessionid=

File Edit View Favorites Tools Help

Business Analyst Online

ESRI Business Analyst Online

Welcome, Rick! | Log Out  
My Account | Preferences | Help | Support

Home Select Location Get Reports Research Market **NEW**

- 1.** **Select Your Location**  
Apply trade areas and compare sites.
- 2.** **Get Your Reports**  
Get reports for your area of interest.
- 3.** **Research Market**  
Explore new markets by mapping demographics, spending and more.

**Get Started**

Did you know?  
More help and tips are available on the Resource Center, accessible from the Home tab.

[Quick Start Video](#)

[Resource Center](#) [FAQs](#) [Product Feedback](#)

Copyright 2010 ESRI | Tech Support: 888-377-4575 ext.2 | Sales/Data Support: 800-292-2224 | Privacy | License Agreement

Done Internet 100%

# Select a Location

The screenshot displays the ESRI Business Analyst Online web application interface. At the top, the browser window title is "Business Analyst Online - Windows Internet Explorer". The address bar shows a URL starting with "http://bao.esri.com/BAO93/main.map?". The main navigation bar includes "Home", "Select Location", "Get Reports", and "Research Market". Below this, a secondary navigation bar has "Choose One >>", "Find Location", "Draw Polygon", "Select Geographies", and "Import File". A red arrow points to the "Find Location" tab. The search bar contains the address "1200 Moro St, Manhattan, Kansas" and a "Go" button. A "Next" button is visible to the right of the search bar. The main map area shows a map of North America with various cities and states labeled. A scale bar at the bottom left indicates 1000 miles and 2000 kilometers. The ESRI logo is in the bottom right corner.

# Define Analysis Area

The screenshot displays the ESRI Business Analyst Online web application. The browser window title is "Business Analyst Online - Windows Internet Explorer". The address bar shows a URL starting with "http://ba0.esri.com/BA093/main.map?ESRI:SessionID=CxirAUto6LL3zRjS61fks0yGN-Teen4r4t27zwkfnphoqh0Rtqz0zDldjFgibxYdPgs=&CFID=1337423&CFTOKEN=81952559&jses:". The application header includes "ESRI Business Analyst Online" and a user greeting "Welcome, Rick! | Log Out". Below the header is a navigation menu with "Home", "Select Location", "Get Reports", and "Research Market" (marked as "NEW"). A secondary menu includes "Choose One >>", "Find Location", "Draw Polygon", "Select Geographies", "Import File", and "Organize Sites".

The main interface features a toolbar with several options: "Rings", "Drive Times", and "Donuts". The "Drive Times" option is selected, and the "Time" input field is set to "5 (in minutes)". A yellow arrow points to the "Prev" button in the toolbar. To the right of the toolbar, there is a "step 2 of 3" indicator and a "Next" button. The map shows a red-shaded analysis area covering a large portion of Manhattan, Kansas. The map includes street names, landmarks like "Warner Memorial Park", and geographical features like "Wildcat Creek" and "Levee Dr". The map is overlaid with a grid of streets and highways. The bottom of the interface shows a status bar with "Done" and "Internet" indicators, and a zoom level of "100%".

# Select Second Location

The screenshot displays the ESRI Business Analyst Online web application. The browser window title is "Business Analyst Online - Windows Internet Explorer". The address bar shows a URL starting with "http://baos.esri.com/BAO93/main.map?ESRI:SessionID=CxirAUto6LL3zRj561fks0yGN-Teen4r4t272wVfNphoqh0Rtqz0zDldjF1GibxYdPgs=&CFID=1337423&CFTOKEN=81952559&jses:". The application header includes "ESRI Business Analyst Online" and a user greeting "Welcome, Rick! | Log Out". Below the header is a navigation bar with tabs: "Home", "Select Location", "Get Reports", and "Research Market" (marked as "NEW"). Under "Select Location", there are sub-tabs: "Choose One", "Find Location", "Draw Polygon", "Select Geographies", and "Import File". A red arrow points to the "Find Location" tab. The main interface features a search bar with the address "3001 Anderson Ave, Manhattan, KS 66503-2849" and a "Go" button. A "Prev" button is to the left and a "Next" button is to the right. A tooltip is visible over the map, containing the text: "Add site name (Optional)", "3001 Anderson Ave, Manhattan, KS 66503-2849", "Add rings, drive times or donuts...", "Move this point", and "Delete this point". The map shows a topographic view of Manhattan, Kansas, with a red shaded area indicating the selected location. The map includes street names, a scale bar (1 km, 1 mi), and a "POWERED BY ESRI" logo in the bottom right corner. The status bar at the bottom shows "Done" and "Internet" with a 100% zoom level.

# Define Second Analysis Area

The screenshot displays the ESRI Business Analyst Online web application interface. At the top, the browser window shows the URL: <http://bao.esri.com/BAO93/main.map?ESRI:SessionID=CxirAUto6LL3zRj561Fks0yGN-Teen4r4t272wVfNphoqh0Rtqz02sDldjFgibxYdPgs=&CFID=13374238&CFTOKEN=81952559&jses:>

The main navigation bar includes: Home, Select Location, Get Reports, Research Market (NEW), Welcome, Rick! | Log Out, My Account | Preferences | Help | Support.

The secondary navigation bar contains: Choose One >>, Find Location, Draw Polygon, Select Geographies, Import File, and Organize Sites.

The 'Find Location' section is active, showing a 'Prev' button (highlighted with a red arrow), a star icon, a 'Time' input field set to '5', and an 'Apply' button. A 'Next' button is also visible, with the text 'step 2 of 3' and 'Click Next to get reports, save this site or create a new site'.

The map shows a defined analysis area in light blue, with a popup window for 'Village Plaza' (Edit Name) at 3001 Anderson Ave, Manhattan, KS 66503-2649. The popup menu includes options: Edit site, Edit site colors, Organize sites..., Compare sites..., and Clear this site from the map.

The map interface includes a scale bar (1 km, 1 mi), a north arrow, and a 'POWERED BY ESRI' logo in the bottom right corner. The status bar at the bottom shows 'Internet' and '100%' zoom.

# Create Report

Business Analyst Online - Windows Internet Explorer

http://bae.esri.com/BAO93/main.map?ESRI:SessionID=CxirAUto6LL3zRj561fks0yGN-Teen4r4t272wVlfnphoqah0Rtqz02sDldjFgibxYdPgs=&CFID=1337423&CFTOKEN=81952559&jses;

ESRI Business Analyst Online

Welcome, Rick! | Log Out  
My Account | Preferences | Help | Support

Home | Select Location | Get Reports | Research Market **NEW**

Choose One >> | Run Standard Reports | Create Comparison Reports **NEW** | Previous Reports

Selected Sites: 2  
Select All | None

- Village Plaza  
3001 Anderson Ave, ...  
5 minutes
- Aggieville  
1200 Moro St, Manh...  
5 minutes

Add More Sites...

Run **NEW** Favorites | Add New Location

View: All Reports | Sort: Alphabetically | Popularity | Price | Favorites

Add	Report Title	Price	Format	Sample	Favorites
<input type="button" value="Add"/>	Dominant Tapestry Site Map	Included	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	Electronics and Internet Market Potential	\$ 75	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	Executive Summary	Included	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	Financial Expenditures	Included	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	Financial Investments Market Potential	\$ 75	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	Graphic Profile	Included	PDF		<input checked="" type="button" value="☆"/>
<input type="button" value="Add"/>	Health and Beauty Market Potential	\$ 75	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	House and Home Expenditures	Included	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	Household Budget Expenditures	Included	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	Housing Profile	Included	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	Major Shopping Center Locator	\$ 60	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	Major Shopping Center Map	\$ 50	PDF		<input type="button" value="☆"/>
<input type="button" value="Add"/>	Market Profile <b>Most popular</b>	Included	PDF		<input checked="" type="button" value="☆"/>

Remove All | Selected Reports (1 Report for 2 Sites: 2 Total Reports)

Remove	Selected Reports	Format	Quick Report
<input type="button" value="Remove"/>	<input type="checkbox"/> Market Profile		
	Village Plaza	PDF	Run now...
	Aggieville	PDF	Run now...

Send to: rmchubb@k-state.edu CC: colleague@company.com;col Report subtitle: e.g.: Prepared by ESRI

Run Selected Reports

1



2



# Comparison Report Setup

The screenshot shows the ESRI Business Analyst Online interface in a Windows Internet Explorer browser. The page title is "ESRI Business Analyst Online". The navigation bar includes "Home", "Select Location", "Get Reports", and "Research Market". The "Get Reports" section is active, showing "Choose One >>" with options for "Run Standard Reports" and "Create Comparison Reports".

Selected Sites: 2  
Select All | None

- Village Plaza  
3001 Anderson Ave, ...  
5 minutes
- Aggieville  
1200 Moro St, Manh...  
5 minutes

Buttons: Run Favorites, Add New Location

### Comparison Report Setup

1. Choose the sites you want to compare from the site panel above.  
Selected Sites: Village Plaza; Aggieville;
2. Select geographies to compare to your sites (optional).  
ZIP Code: None | County: None | State: None | Country: None
3. Select a site or geography to use as a benchmark (optional).  
Select Benchmark: None
4. View graphs and tables for popular variables:  
Population | Households | Income | Housing | ...or customize your own comparison report from the full list of variables: Customize

Done | Internet | 100%



# Comparison Report Table

Business Analyst Online - Windows Internet Explorer

http://bao.esri.com/BAO93/main.map?ESRI\_SessionID=CxirAUto6LL3zRjS61fks0yGN-Teen4r4t272wVlfnphoqah0Rtqz0ZsDldJfIgbxYdPgS=&CFID=13374238&CFTOKEN=819525598jses;

File Edit View Favorites Tools Help

Business Analyst Online

ESRI Business Analyst Online

Welcome, Rick! | Log Out  
My Account | Preferences | Help | Support

Home Select Location Get Reports Research Market **NEW**

Choose One >> Run Standard Reports Create Comparison Reports **NEW** Previous Reports

Selected Sites: 2  
 Back to Comparison Report Setup  
 Village Plaza 5 minutes  
 Aggieville 5 minutes  
 Add More Sites

Run Favorites Add New Location

Population Households Income Housing Customize

Population Comparisons

	Village Plaza 📍 5 minutes	Aggieville 📍 5 minutes
2009 Total Population	33,521	27,899
2009 Household Population	28,120	22,135
2009 Family Population	16,143	10,118

View: 📄 📊

Layout:  Variables in columns  Variables in rows

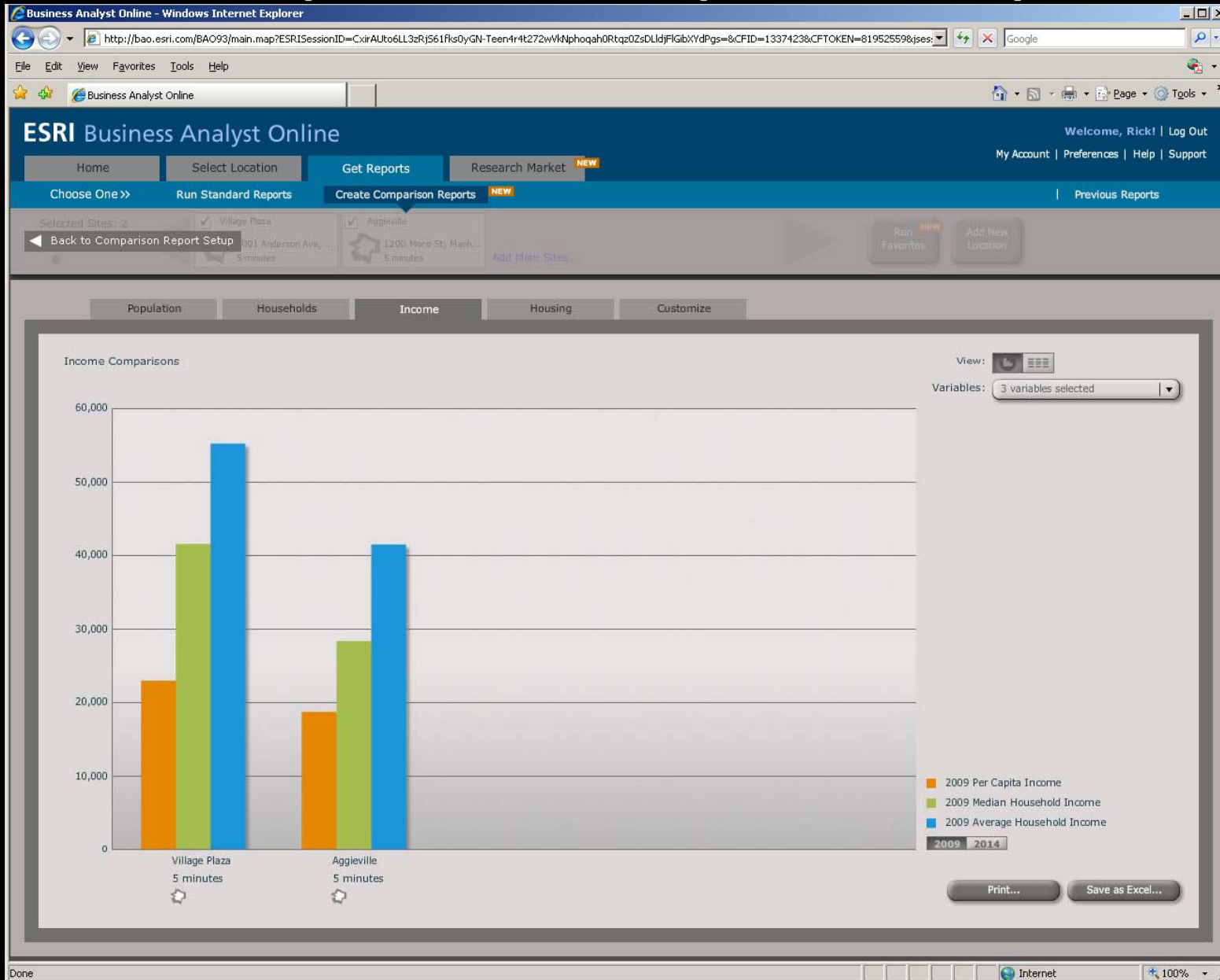
Expand rings, drive times or donuts

2009 2014

Print... Save as Excel...

Done Internet 100%

# Comparison Report Graph



# Our Results

- Village Plaza Location

– Population > 25,000?	33,521
– Income > \$40,000?	\$55,223
– Age 20-24 > 33%?	29.6%



- Aggieville Location

– Population > 25,000?	27,899
– Income > \$40,000?	\$41,436
– Age 20-24 > 33%?	36.5%



# 2009 & 2014 Projected Demographics

- Age 50+ Profile
- Age by Income Profile
- Age by Sex by Race Profile
- Age by Sex Profile
- Demographic and Income Comparison Profile
- Demographic and Income Profile
- Detailed Age Profile
- Detailed Income Profile
- Disposable Income Profile
- Executive Summary
- Graphic Profile
- Housing Profile
- Market Profile
- Net Worth Profile
- Quarterly Demographic Profile

## 2009 Market Potential

- Automotive Aftermarket Expenditures
- Financial Expenditures
- House and Home Expenditures
- Household Budget Expenditures
- Medical Expenditures
- Recreation Expenditures
- Retail Goods and Services Expenditures

## Business Data

2009 Tapestry Market Segmentation

## Traffic Counts

# How to Get BAO

- Visit the K-State GIScience Commons (<http://gis.ksu.edu>)

# K-State GIScience Commons

GIScience Commons | K-State Geographic Information Science Commons - Windows Internet Explorer

http://gis.k-state.edu/

File Edit View Favorites Tools Help

Kansas State University

K-State Home Directories People Search K-State

GISCommons  
KANSAS STATE UNIVERSITY

HOME RESEARCH TEACHING RESOURCES JOBS CONTACTS GISCIENCE SWAT

## K-State Geographic Information Science Commons

Welcome! You have found the portal to the Kansas State University Geographic Information Science Commons, the gateway to resources and information for the teaching of and research in the fields of geographic information science, spatial analysis, scientific and geographic visualization, exploratory spatial data analysis, and digital cartographic techniques.

Here you can access [software](#), data, training materials and other GIScience resources. Information is also provided about recent and ongoing GIS-related research projects and academic classes offered at K-State. We also offer services, including GIS data production and analysis, development of web-based mapping applications, software training, demonstrations, and technical support for ESRI software products.

Faculty, staff, and students who actively use GIS and related geospatial technologies reside throughout the university in every college and most departmental units. Therefore, the GIScience Commons is sponsored by a multidisciplinary [GIScience Commons Steering Committee](#) that reports to the University [Provost](#).

Kansas State University is an active member of the University Consortium of Geographic Information Science ([UCGIS](#)) and the State of Kansas [GIS Policy Board](#).

**Free GIS Software for K-State!**  
**\*\*\* Get ArcGIS Software \*\*\***

GIScience Commons - 313 Hale Library - 785-532-2718

GIS in the News

**Important ArcGIS Software Update!**  
Mar 16, 2010  
Users of ArcGIS Desktop 9.3.1 software click here to download [Service Pack 1](#).

[More News...](#)

Upcoming Events

[More Events...](#)

Trusted sites 100%

# GIS Software from ESRI

GIScience Commons | ArcGIS Software from ESRI Available to K-State - Windows Internet Explorer

http://gis.k-state.edu/index.php?page=Resources/GIS%20Software%20from%20ESRI

File Edit View Favorites Tools Help

GIScience Commons | ArcGIS Software from ESRI Ava...

Kansas State University

K-State Home Directories People Search K-State

**GISCommons**  
KANSAS STATE UNIVERSITY

HOME RESEARCH TEACHING RESOURCES JOBS CONTACTS GISCIENCE SWAT

## ArcGIS Software from ESRI Available to K-State

Environmental Systems Research Institute (ESRI) is widely regarded as the premier GIS software vendor in the world, offering a wide array of GIS software products and services. ESRI is especially committed to serving the Higher Education user community by supplying GIS software products either free or at greatly reduced prices.

**K-State Students - [Request a copy of ArcGIS Student Edition software.](#)**  
This is a one-year license for ArcGIS Desktop software for students taking GIS-related courses or programs. You are required to provide a valid K-State email address to qualify for this software.

**K-State Faculty & Staff - [Request ArcGIS 9.3.1 desktop software for research or teaching.](#)**  
This software is provided under terms of a Campuswide Site License with ESRI and may be used only for academic research and educational purposes. Commercial use of this software is prohibited.

**NEW! [Request a License for Business Analyst Online](#)**  
Students, faculty, or staff of K-State may register here to use ESRI's [Business Analyst Online](#), which combines GIS technology with extensive demographic, consumer spending, and business data for the entire United States to deliver on-demand, boardroom-ready reports and maps.

**Important Software Update from ESRI**  
ESRI has released a service pack for version 9.3.1 of ArcGIS Desktop software. If you are currently using version 9.3.1 of ArcGIS Desktop software, you should download and install the following update as soon as possible:  
[ArcGIS 9.3.1 Service Pack 1](#)

GIScience Commons - 313 Hale Library - 785-532-2718

GIS in the News

**Important ArcGIS Software Update!**  
Mar 16, 2010  
Users of ArcGIS Desktop 9.3.1 software click here to download [Service Pack 1](#).

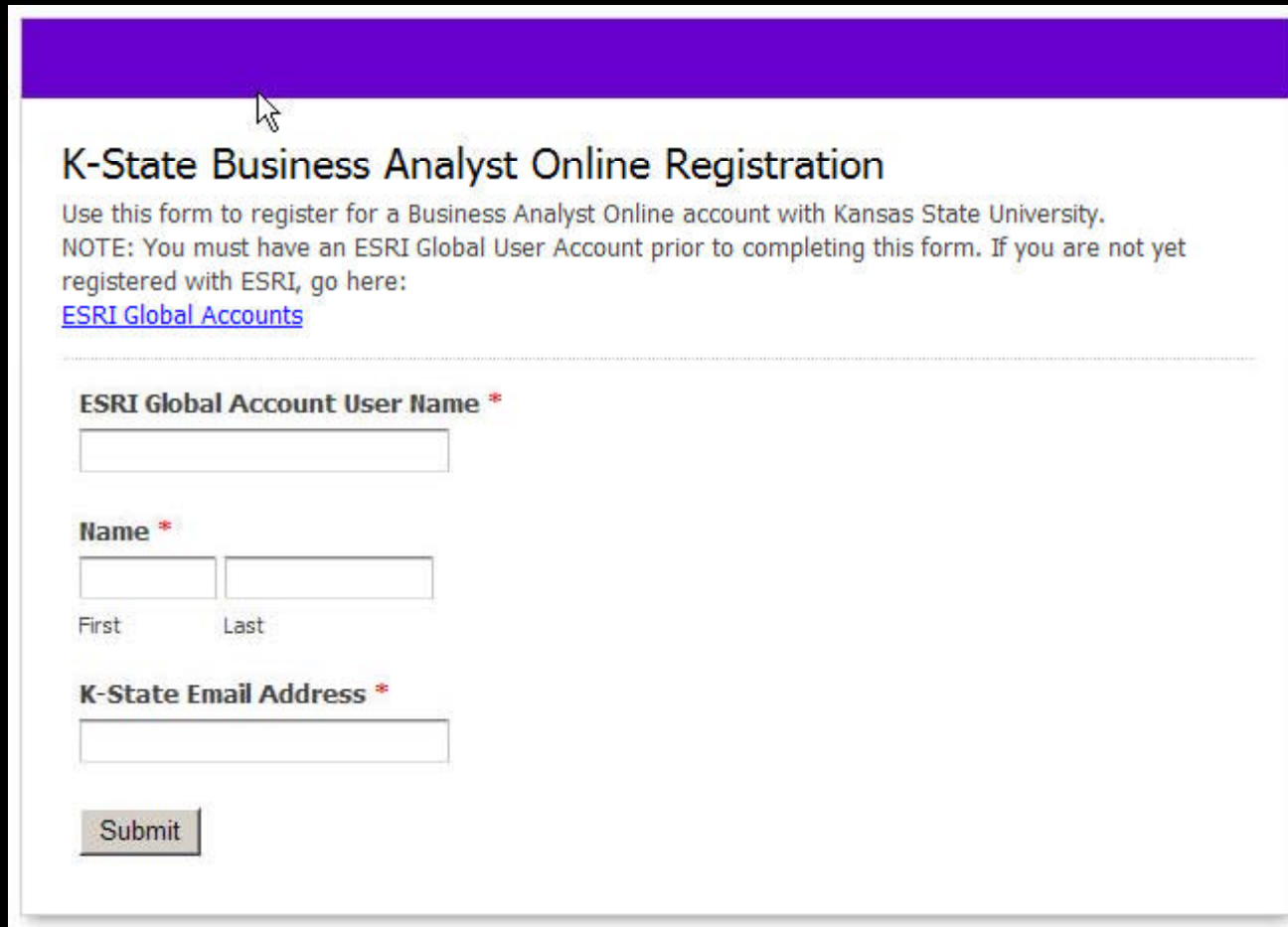
[More News...](#)

Upcoming Events

[More Events...](#)

Trusted sites 100%

# BAO Registration Form



**K-State Business Analyst Online Registration**

Use this form to register for a Business Analyst Online account with Kansas State University.  
NOTE: You must have an ESRI Global User Account prior to completing this form. If you are not yet registered with ESRI, go here:  
[ESRI Global Accounts](#)

---

**ESRI Global Account User Name \***

**Name \***

<input type="text"/>	<input type="text"/>
First	Last

**K-State Email Address \***



# BAO Login

The screenshot shows a web browser window titled "ESRI Business Analyst Online - Windows Internet Explorer". The address bar contains the URL "http://bao.esri.com/BAO93/main.map?action=logout". The browser's menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The page content features a blue header with the text "ESRI Business Analyst Online". Below the header, the main content area is light gray and contains the following elements:

- Welcome to Business Analyst Online**  
Your source for 2009/2014 demographic data and reports.
- A list of three steps:
  - Step 1:** Create your Site
  - Step 2:** Get your Reports
  - Step 3:** Research your Market
- A link: [Learn more about different subscription options.](#)
- Login** box:
  - Username:
  - Password:
  - Remember me on this computer
  - Login** button
  - [Forgot your password?](#)
  - [Edit My Account](#)
- New to Business Analyst Online?**
  - Create an account and we will save your research for you.
  - No purchase required. [See what's included.](#)
  - Free Guest Subscription!** button

At the bottom of the page, there is a footer with the text: "Technical support: 888-377-4575 Ext. 2 | Sales/Data Support: 800-292-2224 | [Privacy](#) | [Legal](#)". The browser's status bar at the bottom shows "Done", "Internet", and "100%" zoom level.

# BAO Startup

Business Analyst Online - Windows Internet Explorer

http://bao.esri.com/BAO93/main.map?ESRISessionID=vEG98sIX8TusJc4-wmkW1dhqsg0IuoZpNggX2D7aXqOBqNMMkzmYh72DgbocuJMFESPOHc9w&CFID=1256272&CFTOKEN=35089706&jsessionId=

ESRI Business Analyst Online

Welcome, Rick! | Log Out  
My Account | Preferences | Help | Support

Home | Select Location | Get Reports | Research Market **NEW**

- 1.** **Select Your Location**  
Apply trade areas and compare sites.
- 2.** **Get Your Reports**  
Get reports for your area of interest.
- 3.** **Research Market**  
Explore new markets by mapping demographics, spending and more.

**Get Started**

Did you know?  
More help and tips are available on the Resource Center, accessible from the Home tab.

**Quick Start Video**

Resource Center | FAQs | Product Feedback

**Watch the Video!**

Copyright 2010 ESRI | Tech Support: 888-377-4575 ext.2 | Sales/Data Support: 800-292-2224 | Privacy | License Agreement

Done | Internet | 100%

# National Resources

[www.nationalatlas.gov](http://www.nationalatlas.gov)

[www.nationalmap.gov](http://www.nationalmap.gov)

The screenshot shows the National Atlas Map Maker web application. At the top, it features the 'nationalatlas.gov' logo and navigation links like 'Go Back to Previous Page', 'Print Map', 'Save', and 'Email Maps'. The main map area displays a map of the United States with a grid overlay. To the right of the map is a 'MAP LAYERS' panel with a 'Your First Map' title and a 'Clear Layers' button. Below this, there are several categories of map layers, each with a list of options and checkboxes:

- Basic Maps**
  - Cities and Towns
  - Counties
  - County Names
  - Latitude/Longitude
  - Roads
  - Interstate Highway Labels
  - US Highway Labels
  - States
    - State Capitals
    - State Names
  - Streams and Waterbodies
- Agriculture**
- Biology**
- Boundaries**
- Climate**
- Environment**
- Geology**
- History**
- Map Reference**
- People**
- Transportation**
- Water**

At the bottom left, there is a section titled 'Let us know what you think:' with links for 'Read the FAQs', 'Privacy Statement, Disclaimer, Accessibility, FOIA', 'Map Key', and 'Email us your comments / View Map Maker release history'.


The screenshot shows the USGS National Map Viewer web application. The top navigation bar includes the 'USGS' logo and the title 'The National Map Viewer'. The main map area displays a 3D topographic map of the United States with various data layers overlaid. To the right of the map is a 'Layers' panel with a 'Legend' and a 'Scale' bar. The 'Layers' panel lists several categories of map layers, each with a dropdown arrow:

- Administrative**
- Boundaries**
- Elevation**
- Geographic Names**
- Geology**
- Hydrography**
- Land Use/Land Cover**
- Orthoimagery**
- Other**
- Special Structures**
- Topographic Maps**
- Transportation**

At the bottom of the page, there is a 'Map Information' section with links to 'USGS', 'U.S. Forest Service', 'U.S. Fish & Wildlife Service', and 'BLM'. There is also a 'FIRSTGOV' logo and a 'Back to Top' button.

# National Resources

<http://nationalatlas.gov/dynamic.html>



**nationalatlas.gov™**  
Where We Are

Search nationalatlas.gov  
Google™ Custom Search

About | Fact Sheets | Contact Us | Partners | Products | Site Map | FAQ | Help

Agriculture   Biology   Boundaries   Climate   Environment   Geology   Government   History   Mapping   People   Transportation   Water

**MAP MAKER**   Map Layers   Printable Maps   Wall Maps   Dynamic Maps   Articles   Mapping Professionals

[Home](#) > [Dynamic Maps](#)

## Dynamic Maps



Nationalatlas.gov™ contains a remarkable range of products and services to meet the diverse needs of people who are looking for maps and geographic information about America. Dynamic maps are innovative illustrations of geographic phenomena. We combine the science of mapping with today's multimedia to offer maps that are useful, understandable, and that stimulate interactivity.

### Dynamic Maps

- ▼ [Invasive Species - Zebra Mussel Distribution](#)
- ▼ [Vegetation Growth](#)
- ▼ [Volcanoes](#)
- ▼ [West Nile Virus 2000](#)
- ▼ [Relief and Elevation](#)
- ▼ [Wildlife Mortality - Avian Cholera](#)
- ▼ [Tapestry of Time and Terrain](#)

### Invasive Species - Zebra Mussel Distribution - Dynamic Map



This dynamic map shows:

The spread of zebra mussels in the United States between the years 1988 and 2002. Zebra mussels have spread throughout waterways in the eastern and midwestern states.

[View map and directions](#)

[back to top](#) ↑

BIOLOGY
Map Maker
Invasive Species: Zebra Mussel Distribution
Map Layer
Invasive Species: Zebra Mussel Distribution
Articles

# Kansas Resources

[www.kansasgis.org](http://www.kansasgis.org)

Home | Contact DASC | About DASC | Kansas GIS Initiative | Disclaimer | My Account

Email:  Password:   [Forgot your password?](#)

a service of the  
Data Access & Support Center (DASC)

Data & Map Services >>

View OnLine Maps >>

Explore My Community >>

My Publication Tools >>

The Kansas Geospatial Community Commons (KGCC) is an initiative of the [Kansas GIS Policy Board](#) and the Data Access & Support Center (DASC). KGCC is designed to be a place for state and local governments and the private sector to share & discover geospatial information & connect with the Kansas GIS community.

## Getting Started

- ▶ **Looking for GIS Data?**
  - Browse & Download GIS Data
  - Browse & Connect to a Map Service
  - Create My Own GIS Data
  - Connect to the Kansas Image Server

- ▶ **Just**
  - Administrative Boundaries
  - Cadastral
  - Critical Infrastructure and Structures
  - Cultural and Recreational
- ▶ **Here**
  - Elevation
  - Environmental Resources
  - Imagery and Raster
- ▶ **Next**
  - Land Surface Geology Soils
  - Transportation
  - Utilities and Energy Resources
  - Water Resources

## My Community

- ▶ **Join the Community!**

## News & Events

The Kansas Adjutant General's Department has paid full-time internships available for Summer 2010. Download

The screenshot shows the 'Kansas Land Cover' web application. At the top, there is a navigation bar with the 'KANSAS geospatial community commons' logo and the tagline '...uniting kansas spatially'. Below the navigation bar, there are search and zoom controls. The main map area displays a map of Kansas with county boundaries highlighted in red. To the left of the main map is an 'Overview Map' showing the state of Kansas with a red box indicating the current map's location. Below the overview map is a legend with symbols for Interstate, US Highway, KS Highway, Major Streams, City Boundary, and County Boundary. To the right of the main map is a 'Table of Contents' panel with a 'Visible' section containing checkboxes for 'Highways', 'Major Streams', 'City Boundary', and 'County Boundary'. Below the 'Table of Contents' is an 'Active Layer' section with a dropdown menu set to 'County Boundary' and buttons for 'update map' and 'print map'. The zoom controls include a 'Zoom Level' dropdown set to 1.5, and buttons for 'Zoom In', 'Zoom Out', 'Pan', and 'Identify'. There are also checkboxes for 'Overview Map On', 'Full Extent', and 'Clear Highlight'.

# Local GIS Resources

[www.ci.manhattan.ks.us](http://www.ci.manhattan.ks.us)

The screenshot shows the City of Manhattan website homepage. At the top, there is a navigation bar with links for Documents, Calendar, Questions, and Contact us. Below this is a search bar and a 'Quick Links...' dropdown menu. The main content area is divided into several sections. On the left, there is a 'Home' section with a list of links including City Commission, City Manager, and various departments. Below this is a 'Manhattan Links' section with a logo for 'STANDARD CONSTRUCTION SPECIFICATIONS'. A red box highlights a link for 'Community G.I.S. Website' with the URL 'www.gis.cico.org'. Other links in this section include 'City of Manhattan Code of Ordinances' and 'JOINT LAND USE STUDY'. The main content area features a large image of a tiger and a 'Sign-Up for the in-fourth email notification!' link. Below this is a '2006 - 2011 Capital Improvements Citizen Request Form' link, followed by 'Anonymous Pledge Announced for Depot Rehabilitation', '\$99 Roundtrip Fares Between Manhattan Regional Airport-Kansas City International New Year, New Fares.', 'Downtown Redevelopment Attraction Committee Details', 'CELEBRATE 150!', 'Open Positions on City Boards and Committees', 'Public Hearing Schedule 2005', and 'Employment Opportunities'. At the bottom, there is a 'Contact Us!' button and a footer with navigation links.

The screenshot shows the Riley County Community GIS Website. The page features a map of Riley County, Kansas, with various geographical features and locations labeled, including Manhattan, Fort Riley, and Osceola. The map is overlaid with a grid and a red boundary. To the right of the map is a 'Map Layers' panel with a 'LAYER INFORMATION' section and a 'REFRESH MAP' button. The 'Active Layer' is 'Ownership Parcels'. Below this, there are several categories of map layers with checkboxes: 'Streets', 'Ownership Parcels', 'Land Use/Uses', 'Subdivisions', 'Hydrology', 'Utilities', 'Parks/Recreation', 'Buildings', 'Agriculture', and 'Zoning'. Each category has a 'Map Info' section with a list of items and checkboxes. The 'Hydrology' section includes 'Base Flood Elevation', 'Floodway', '100 Year Floodplain', '400 Year Floodplain', 'Water Features', '100 Foot Dry Run Way', and 'Stream and Lakes'. The 'Utilities' section includes 'Public Park Trails', 'Recreation', and 'Public Parks'. The 'Buildings' section includes 'School Sites', 'Churches', and 'Public Buildings'. The 'Agriculture' section includes 'State' and 'Agricultural Land Use'. The 'Zoning' section includes 'Aerial Photos', '2001 Aerial Images', and '1995 Aerial Images'. The page also has a 'Current Events' section on the left with a list of events from 1/10 to 1/20, including 'Citizen's As...', 'City Comm...', 'Board of Zo...', 'Douglass C...', 'Martin Luth...', 'Riley Count...', 'City Comm...', 'City Comm...', 'Joint City/C...', and 'Manhattan U...'. At the bottom, there is a 'Clicking Guide' link.

# Local GIS Resources

Internet Explorer | http://gis.dco.org/webgis/rileycc/viewer.htm | Search Web | 4 Download | A-Z-F | Options

**Riley County Community GIS WEBSITE**

**Map Layers**

LAYER INFORMATION

REFRESH MAP

Active Layer  
Ownership Parcels

Visible As:

- Streets
- Ownership Parcels
- Land Sections
- Subdivisions

Hydrology

Utilities

Parks/Recreation

Visible As:

- Public Park Trails
- Recreation
- Public Parks

Buildings

Visible As:

- School Sites
- Churches
- Public Buildings

Agriculture

Jurisdictions

Zoning

Aerial Photos

Visible As:

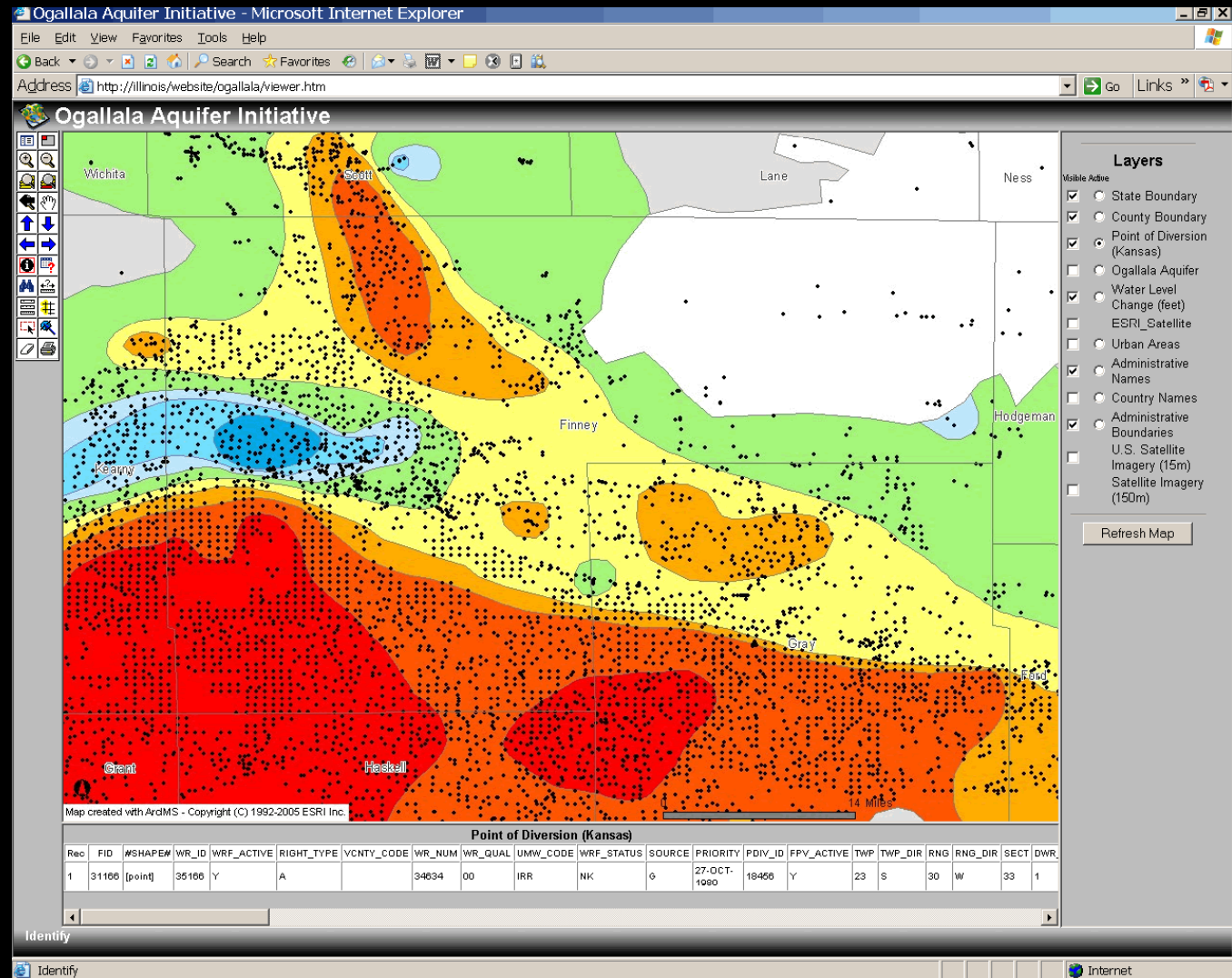
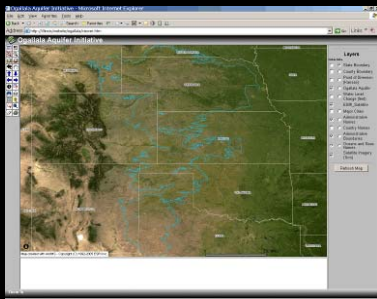
- 2001 Aerial Images
- 1996 Aerial Images

**Ownership Parcels**

PAR	PID	ACRES	OWNER_1	OWNER_2	ADDRESS	CITY	SITUSADDR	PROFZIP	TAXUNIT	LANDUSE	CLASS_1	CLASS_2	04_LND_VAL	04_BLD_VAL	04_I
1	20072800002000	0.18	BERNARD, ERIC A & JILL		0008	BERTRAND ST	MS02	002	141	RI	RI		12000	61000	7320

# K-State GIScience Commons

Community Access





# GIS and GIScience Resources

## Data Sources and Standards

[www.fgdc.gov](http://www.fgdc.gov)

[www.geographynetwork.com](http://www.geographynetwork.com)

[www.nationalatlas.gov](http://www.nationalatlas.gov)

[www.nationalmap.gov](http://www.nationalmap.gov)

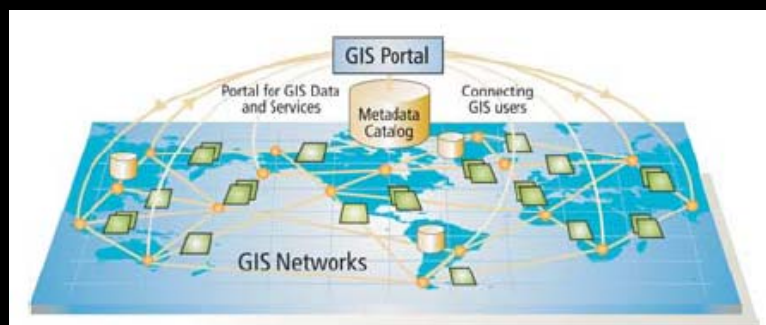
<http://www.epa.gov/surf/>

<http://www.kansasgis.org/>

<http://www.ci.manhattan.ks.us/>

<http://gis.rileycountyks.gov/>

...coming soon K-State GeoPortal



The screenshot shows the Geography Network website interface. The header includes the logo and navigation links for 'web services', 'apps', 'data', 'maps', 'publishing', and 'about us'. The main content area is titled 'explorer' and features a search section with a text input for 'Where would you like to explore?' and a 'GO' button. Below this is a world map for drawing a search area. The 'What would you like to discover?' section includes filters for content type and theme, and an optional keyword field. A 'SEARCH' button is at the bottom of the search section. To the right, there is a 'What's New' section with several featured items, each with a small thumbnail image: 'Indian Ocean Disaster', 'Indian Ocean Topo Maps', 'GlobeExplorer Premium U.S. Image Service', 'ESRI Satellite Imagery', 'NAVTEQ Streets North America', and 'China Map Set'. A 'Getting Started' section with 'Quick Tips For' and 'Helpful Tips For' is also visible.

## Federal Geographic Data Committee

- <http://www.fgdc.gov/index.html>

## National Spatial Data Infrastructure

### Federal Geographic Data Committee

- <http://www.fgdc.gov/nsdi/nsdi.html>

## Meta Data

- <http://www.fgdc.gov/metadata/metadata.html>

## Data Clearinghouse

- <http://www.fgdc.gov/clearinghouse/clearinghouse.html>

## Data

- <http://www.fgdc.gov/data/data.html>

## Standards

- <http://www.fgdc.gov/standards/standards.html>

## Framework

- <http://www.fgdc.gov/framework/framework.html>

## Stakeholders

- <http://www.fgdc.gov/stakeholders/stakeholders.html>

## Publications and Special Reports

- <http://www.fgdc.gov/publications/publications.html>

## GIS/Base Data:

- [www.usgs.gov](http://www.usgs.gov)
- [www.nasa.gov](http://www.nasa.gov)
- <http://www.census.gov>
- [www.gisdatadepot.com](http://www.gisdatadepot.com)
- [www.geocommunity.com](http://www.geocommunity.com)
- [www.geoinformatics.com](http://www.geoinformatics.com)

## Software Vendor Sites

- [www.esri.com](http://www.esri.com)
- [www.autodesk.com](http://www.autodesk.com)

## State by State:

- Kansas
- <http://www.kansasgis.org>
- Missouri
- <http://msdis.missouri.edu/>
- Nebraska
- <http://www.calmit.unl.edu/gislis/nebgis.html>

## Imagery:

- [www.usgs.com](http://www.usgs.com)
- [www.teraserver.com](http://www.teraserver.com)
- [www.spot.com](http://www.spot.com)
- [www.spaceimaging.com](http://www.spaceimaging.com)

# GIScience Resources @ K-State

## Learning:

K-State's GIScience Certificate Program

<http://www.k-state.edu/geography/academics/gis.html>

ESRI Virtual Campus Courses

<http://www.gis.ksu.edu/index.php?page=Resources/GIS%20Training>

GIScience Commons Assistance

[www.gis.k-state.edu](http://www.gis.k-state.edu) or [gisci@ksu.edu](mailto:gisci@ksu.edu)

## Research Assistance

GIS and Spatial Analysis Lab - GISSAL Lab in Geography

<http://www.k-state.edu/geography/research/gissal.html>

Internet Mapping Assistance

[www.gis.k-state.edu](http://www.gis.k-state.edu)

See K-State GIScience Commons Web Mapping Examples at:

<http://www.gis.ksu.edu/index.php?page=Resources/Online%20Mapping>

<http://maps2.ksu.edu/ks-soils>

Additional Info Email [gisci@ksu.edu](mailto:gisci@ksu.edu) or [ebernard@ksu.edu](mailto:ebernard@ksu.edu)