GARP 0317: Cookbook 01 October 2012

Data and Maps (Part 3)

Overview

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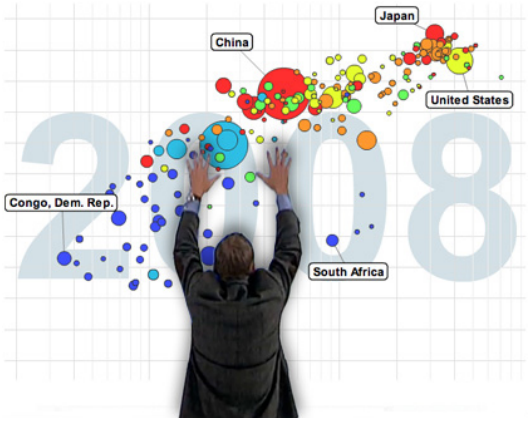
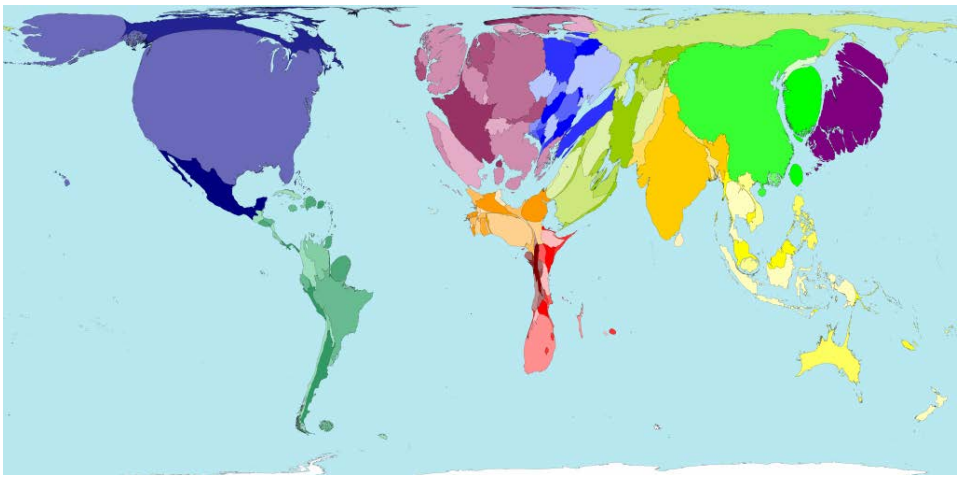


www.gapminder.org



http://www.worldmapper.org/

1) Cool Sites!

GapMinder World
http://www.gapminder.org/

Here data are not mapped in space using traditional coordinates. Still, those data have a spatial component that would be mapped!

Worldmapper
http://www.worldmapper.org/

Worldmapper is a collection of world maps, where territories are re-sized on each map according to the subject of interest (=cartograms). Best of all - Worldmapper provides the underlying attribute as spreadsheets!

More cool sites!
http://www.westfield.ma.edu/gis/gis-news-events/

2) CBs Example

Campus building footprints

1. I created a new map, added the Bing Aerials base map from ArcGIS Online, and zoomed into Scanlon Hall as much as possible.

2. I created a new polygon feature class wsu_buildings using the WGS_1984_Web_Mercator_Auxiliary_Sphere coordinate system to match the ArcGIS Online coordinate system.

3. I digitized the outline of Scanlon Hall.

4. I edited my digitized outline of Scanlon Hall to fix any mistakes and make my outline more detailed and accurate.

5. I repeated Steps 3 and 4 for Mod Hall.

Now I have two polygons digitized and therefore my attribute table contains two rows: one for Scanlon Hall and one more Mod Hall.

Now I need to add intelligence to my spatial data by adding fields to the attribute table and entering the corresponding data!

6. Here are the fields I added to the attribute table

id_code	Unique code for each building based on the campus map Short Integer field
build_name	Building name (in full) based on the campus maps Text field, 30 characters
build_year	Year built Short Integer field
prim_use	Primary building use based on campus map Text field, 30 characters, use consistent names
sec_use	Secondary building use based on campus map Text field, 30 characters, use consistent names
num_beds	Number of beds (if applicable) Short Integer field
num_floors	Number of floors Short Integer field
num_doors	Number of doors Short Integer field
elevator	Yes or no Text field, 3 characters
basement	Yes or no Text field, 3 characters
hazards	Note any special hazards (e.g. gas lines, chemicals, etc.) Text field, 50 characters
comments	Other comments (e.g. often used for events) Text, 50 characters

➔ ***Anything that I missed?***

Note that my field names are all lower-case and without blank spaces. It is also critical to define the *correct* field types (e.g. integer, text, floating point, etc.) for each new attribute table field.

More Information

- http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/Adding_fields/005s0000000v000000/
- http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/Defining_fields_in_tables/005s0000000n000000/
- http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/Geodatabase_field_data_types/005s0000000p000000/

7. Now I entered the information into the attribute table.

8. Then, I exported my feature class as a shapefile into a dedicated folder.

9. The, I zipped the file.

10. I created a map in ArcGIS Online using ArcGIS Explorer Online and zoom into the campus.

11. I imported my zipped shapefile!

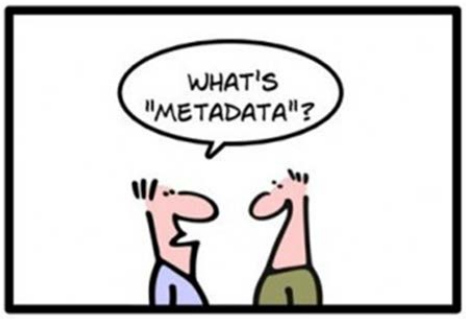
12. Now I made my map cool by renaming the layer, editing the pop-ups and embedding a photograph, using choropleths, creating a dashboard, and creating a good legend.

13. Now I share my map as a link or as a web application – done!

3) Metadata

A common definition for metadata is: *"data about data."*
In the GIS world, metadata are the data that describe the actual geospatial data.

= the information you need when using a data layer!
= is the data layer useful for your needs?



- What sort of real-world features is this data layer intended to represent?
- What were the methods used to discover and observe and measure these entities?
- Who collected the data? Is the source of data a recognized authority?
- For what purpose were the data collected/intended?
- What time period does the data represent?
- What spatial referencing systems were used to record observations for the geometry of each feature?
- What is the spatial precision employed in these measurements.
- What attribute data are included?
- Are the data considered to be complete?

Reading the metadata will tell you whether the data are suitable for your purposes.

➔ ***Therefore, you need to create and include metadata anytime you create a data layer!***

Adding, updating, and editing metadata in ArcGIS
http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#//003t00000001000000

More information
http://www.kcoyle.net/meta_purpose.html
http://www.gsd.harvard.edu/gis/manual/data_basics/

4) Your Turn: Get Data!

Time to get some real data to use!

- Some data layers will requires GPS mapping, some will require mapping from printed maps, while others can be mapped on-screen.
- For some data we will need to contact other offices on-campus.
- Some data layers are already available – all we need to do is to find them!

Spatial Domain: Main campus (including Juniper Park), South Lot area, Woodward and HMC. The world!

1) Trash cans, recycle bins, and dumpsters • Color, material, type, comments • Anything else that seems relevant! • Representative picture of each type	Robert Hummel Alex Herchenreder
2) Lights on campus • Color, material, type, height, comment • Anything else that seems relevant! • Representative picture of each type	LeeAnne MacGillivray Matthew Belmore
3) Benches, signs, and bike racks • Benches: Color, material, type, comment • Signs: Color, material, type, comment • Bike racks: Color, material, type, # of bikes • Anything else that seems relevant! • Representative picture of each type	Nicole Giles Tarin Weiss
4) Fire hydrants, call boxes, mail boxes, shuttle stops, pay phones, and other • Fire hydrants: color, type, ID • Call boxes: color, type, comment • Mail boxes: collection times • Shuttle stops: linked to online schedule • Pay phones • Anything else that seems relevant! • Representative picture of each type	Nicholas Burns Michael Mitcheroney
5) Campus Services • Eateries on-campus: name, type, menu, hours, etc. • Gyms: hours, cost, equipment, comment • Playing fields around campus: type, etc. • Trails in Stanley Park & nice spots • Anything else that seems relevant! • Representative picture of each type	James Johnson Kyle Silk

6) Building Footprints • Name, floors, etc. • Location of doors • Anything else that seems relevant! • Representative picture of each building	Ashley Eaton Ricci Allessio
7) Athletics and Campus Events • Athletic facilities: linked to schedule, representative pictures, comments • Event locations on campus: theaters, music, talks, linked to calendar, comments • Gallery: hours, current schedule, etc. • Anything else that seems relevant!	Malcolm Richardson Julia Amero
8) International Dimension • Home countries of international students: number of students, website of country, etc. • Countries for study-abroad: number of students, websites, etc. • International partner universities: name, enrollment, picture, websites, etc. • Anything else that seems relevant!	Sarah Pierce Casey Douglas

This is not all – we need to compile and collect more data, but this is a good start!

- Now, get together and brain-storm how to best approach this!
- What's missing?
- Mapping is easy!
- More important and difficult: what attribute data do you need to collect?
- It's best to take a walk around campus now to get a better sense of what you are mapping!

5) Homework Assignment #5

Get the data!
Be ready to present your data to us next Tuesday 9 October 2012.

- What have you done?
- What are your attributes?
- What still needs to happen?
- Show us your metadata!

Share your ArcGIS Online map with us on Yammer!
Be ready to demo your data set in ArcGIS Online!

I expect a serious and professional effort!
Expect to spend at least 5 hours on this!


Campus Map
South Lot
Ely Road
Scanlon Road
Visitor Parking
Parenzo Road West
Parenzo Road East
Bates Road
Main Entrance
Western Avenue
Wilson Road
Davis Road
Commuter Parking
Overlook Drive
Alumni Field
Grass Practice Fields
N
S
E
W
1. The Horace Mann Center*
Administration & Finance
Admission Office
Advancement and College Relations
Alumni Office
College for Kids
Community Education
Computer Labs
Criminal Justice Department
Development Office
Enrollment Management
Equal Opportunity
Event Management
Financial Aid
Graduate & Continuing Education
Garden Cafe
Human Resources Office
Marketing Office
Media Relations
Multicultural Affairs
President's Office
Purchasing Office
Student Accounts
2. The Woodward Center*
Alumni Field*
Astroturf, Baseball Diamond, Track and Field House
Athletic Storage Building/ Concessions and Rest Rooms
Athletics Department
Movement Science, Sport and Leisure Studies Department
3. Bates Hall*
Bates Computer Lab
English Department
Geographic Information Systems Technology Lab (GIS)
History Department
Music Department
4. Tim & Jeanne's Dining Commons*
The Fr. John Dean Dining Hall
Pandini's
The Perch
The Tekoa Room
5. Ely Hall*
Arno Maris Art Gallery
Bookstore
Campus Center
Campus Center Lounge
Campus Voice Newspaper Office
Communication Department
Commuter Affairs
Cyber Cafe
Ely Library
Ely Studio Theater
Jazzman's Cafe
Judicial Affairs Office
Macintosh Lab
Student Affairs Office
Student Club Offices
Student Government Association Office
Subway Restaurant
TV Studio
Veterans' Affairs Office
Wellness Center & Indoor Pool
WSKB Radio Station
6. Ferst Interfaith Center**
7. Juniper Park Elementary School**
Center for Teacher Education & Research
8. Maintenance/Trades Department
9. Parenzo Hall*
Academic Achievement Office
Academic Advising Center/Peer Advising
Academic Affairs Office
Art Department
Central Receiving
Copy Center
Dever Stage
Education Department
Environmental Health & Safety
Facilities and Operations Office
Faculty Center for Teaching and Learning
Faculty Grants & Sponsored Programs
Institutional Research
International Programs Office
Macintosh Lab
Mailroom
Media and Technical Services
Parenzo Gymnasium
Political Science Department
Reading and Writing Center
Registrar
Student Support Services
Trio Program
Supply Room
Switchboard
Teacher Education Council
Urban Education Program Office
10. Banacos Academic Center*
Tutoring Center
Disability Services
Learning Disabilities Program
11. Public Safety Complex*
Campus Police and Parking Office
Residence Halls
12. Apartments**
Conlin Hall**
Seymour Hall**
Welch Hall**
(student apts. for upperclasspersons)
13. Dickinson Hall**
14. Courtney Hall*
15. Davis Hall**
16. New Residence Hall*
Dunkin' Donuts
17. Lammers Hall**
Career Services Office
Counseling Center
Residence Hall
18. Scanlon Hall*
Health Services Office*
Residence Hall
Residential Life Office
Scanlon Banquet Hall*
Scanlon Living Room*
19. South Parking Lot
20. Stanley Park
21. Second Congregational Church
22. Wilson Hall*
Biology Department and Green House
Campus Card Program Office
Center for Instructional Technology
Computer & Information Science Department
Economics & Management Department
Environmental Science Department
Geography & Regional Planning Department
Information Technology
Liberal Studies Program
Mathematics Department
Philosophy Department
Physical Science Department
Psychology Department
Quixote's / Wilson Grill Dining
Savignano Auditoriums
Wilson Computer Labs
23. Mod Hall
Ethnic & Gender Studies
Honors Program
Nursing
Sociology
Social Work
World Languages
24. Power Plant
* Handicap Accessible
** Partially Accessible
Bus Stop
Campus Shuttle Bus
PVTA Bus to Springfield
Westfield
STATE UNIVERSITY
Founded 1838